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INTERSTELLAR OPERATIONS

ALTERNATE
ERAS

FORCES ACROSS THE CENTURIES!



Primitive Units. QuadVees. Superheavy 'Mechs. Weapons of Mass Destruction. Robotic and Drone Systems. Land-Air BattleMechs.

As you delve into *BattleTech* lore, additional weapons, units and rules become available to you and your forces as you fight in the Dark Age, Jihad, or even the depths of the Star League Eras, and all the way back into the Age of War before the birth of the BattleMech.

Alternate Eras introduces a huge swath of rules for playing across the thousand years of *BattleTech* history, including weapons and equipment mostly unique to a given era.



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BATTLETECHTM

INTERSTELLAR OPERATIONS
ALTERNATE ERAS

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INTRODUCTION

6

Advanced Rules

6

Tactical Operations

6

Strategic Operations

7

Interstellar Operations

7

Campaign Operations

7

Choose What You Like

7

Player Adjudication

7

ALTERNATE ERAS

8

Star League Era (2300-2780)

8

Sub-Era: Age of War (2300-2570)

8

Sub-Era: Age of the Star League (2571-2780)

9

Succession Wars Era (2781-3049)

9

Sub-Era: Early Succession Wars (2781-2900)

9

Sub-Era: Late Succession Wars (2901-3049)

9

Clan Sub-Eras (2800-3049)

9

Clan Invasion Era (3050-3061)

9

Sub-Eras

10

Civil War Era (3062-3067)

10

Sub-Eras

10

Jihad Era (3068-3085)

10

Sub-Eras

10

The Dark Age Era (3086-3150)

10

Sub-Era: The Republic Age (3086-3130)

10

Sub-Era: Late Dark Age (3131-3150)

10

Clan Sub-Era: The Post-Reaving (3086-3150)

11

General Era Rules Expansions

11

Star League Era

11

Succession Wars Era

13

Clan Invasion Era

18

Civil War Era

20

Jihad Era

21

Dark Age Era

22

The Universal Technology Advancement Table

26

Evolving Technology in Campaign Play

27

ALTERNATE ERAS UNITS & EQUIPMENT

58

Advanced Clan Equipment (Wars of Reaving)

58

Electric Discharge ProtoMech (EDP) Armor

58

Extended Jump Jet (XJJ) System

59

Fusillade Launcher

59

Improved Advanced Tactical Missile (iATM) Launchers

59

Magnetic Clamp System

60

Nova Combined Electronic Warfare System (CEWS)

60

ProtoMech Quad Melee Weapon System

61

Specialty Munitions: Improved Magnetic Pulse (IMP) Missiles

61

Specialty Munitions: Improved Inferno (IIW) Missiles

61

Advanced Pilot Interfaces (Multiple Eras)

62

Damage Interrupt Circuit

62

Direct Neural Interface Cockpit Modification

62

SLDF Advanced Neurohelmet

62

Virtual Reality Piloting Pod

63

Advanced Prototype Systems (Age Of War)

64

General Advanced Prototype Systems Rules

64

Arrow IV (Arrow-P)

64

Artemis IV FCS (Artemis-P)

64

Beagle Active Probe (BAP-P)

65

CASE (CASE-P)

65

Double Heat Sinks (DHS-P)

65

Endo Steel (ES-P)

65

Extralight Fusion Engine (XL-P)

65

Ferro-Fibrous Armor (FF-P)

66

Gauss Rifle (GR-P)

66

Guardian ECM (ECM-P)

66

LB 10-X (LB 10-X-P)

66

Narc Missile Beacon (NARC-P)

66

Pulse Lasers (PL-P)

67

Remote Sensors (RS-P)

67

Rocket Launchers (RL-P)

67

TAG (TAG-P)

67

Augmented Warriors (Multiple Eras)

68

General Augmented Warrior Rules

68

Belter Augmentations

68

Clan Enhanced Imaging Neural Implant

69

Cybernetic and Prosthetic Augmentations

70

Centurion Weapon System (Star League)

79

Centurion Weapon System Game Rules

80

Centurion Weapon System Construction Rules

80

Dark Age Equipment (Dark Age)

80

Anti-Penetrative Ablation (ABA) Armor

80

Ballistic-Reinforced Armor

81

Heat-Dissipating Armor

81

Impact-Resistant Armor

81

HarJel Repair Systems

82

Radical Heat Sinks

83

Re-engineered Lasers

83

Remote Drone Command Console

84

Tight-Stream Electro-Magnetic Pulse (TSEMP) Weapons

84

Dark Age RISC Equipment (Dark Age)

85

RISC Advanced Point Defense System

85

RISC Emergency Coolant System

86

RISC Heat Sink Override Kit

86

RISC Hyper Laser

87

RISC Laser Pulse Module

87

RISC Repeating TSEMP

88

RISC Super-Cooled Myomer

88

RISC Viral Jammers

88

Early Clan Improved Equipment (Early Clan)

89

General Early Clan Improved Weapons Rules

89

Improved Lasers

89

Improved and Enhanced PPCs

89

Improved Autocannon

90

Improved Gauss Rifle

90

Improved Standard Missile Launchers

90

Early Clan Prototype Systems (Early Clan)

91

General Early Clan Prototype Systems Rules

91

ER Lasers (ER-CP)

91

LB-X Autocannon (LB-X-CP)

91

Streak SRM (Streak-CP)

91

Ultra Autocannon (UAC-CP)

92

Expanded ProtoMechs (Wars of Reaving)

92

Expanded ProtoMech Game Rules

92

Expanded ProtoMech Construction Rules

94

Inner Sphere ProtoMech Interface (Jihad)

96

Inner Sphere ProtoMech Interface Game Rules

96

Inner Sphere ProtoMech Interface Construction Rules

96

Inner Sphere Recovered Prototypes (Late Succession Wars)

96

General Inner Sphere Recovered Prototypes Rules

96

Double Heat Sinks (Freezers)

96

Endo Steel (ES-P)

97

ER and Pulse Lasers (ER-LL-P and MPL-P)

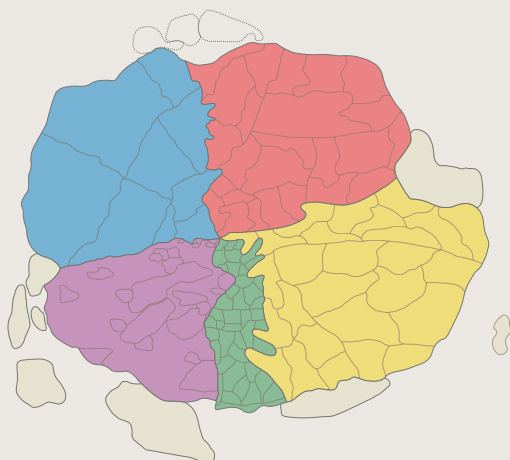
97

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Machina Domini Interface (Jihad)	187
Modular Space Stations (Multiple Eras)	187
Primitive Prototype Equipment (Age of War)	187
Primitive Units and RetroTech (Multiple Eras)	187
Prototype Specialty Missiles (Clan Invasion)	187
QuadVees (Dark Age)	187
Robotic and Drone Systems (Multiple Eras)	187
Superheavy 'Mechs (Multiple Eras)	187
Tripod 'Mechs (Multiple Eras)	188
Thermobaric Weapons (Multiple Eras)	188
Weapons of Mass Destruction (Multiple-Eras)	188
Word of Blake Super-Jump Drive (Jihad)	188
Alternate Era Weapons and Equipment Battle Value Table	188
BattleForce Addendum	192
Advanced Clan Equipment (Wars of Reaving)	192
Advanced Pilot Interfaces (Multiple Eras)	192
Advanced Prototype Systems (Age of War)	192
Augmented Warriors (Multiple Eras)	193
Centurion Weapon System (Star League)	195
Dark Age and RISC Equipment (Dark Age)	195
Early Clan Improved Systems (Early Clan)	197
Early Clan Prototype Systems (Early Clan)	197
Expanded ProtoMechs (Wars of Reaving)	197
Inner Sphere ProtoMech Interface (Jihad)	197
Inner Sphere Recovered Prototypes (Late Succession Wars)	197
Land-Air BattleMechs (Multiple Eras)	198
Machina Domini Interface (Jihad)	199
Modular Space Stations (Multiple Eras)	199
Primitive Prototype Equipment (Age of War)	199
Primitive Units and RetroTech (Multiple Eras)	199
Prototype Specialty Munitions (Clan Invasion)	200
QuadVees (Dark Age)	200
Robotic and Drone Systems (Multiple Eras)	201
Superheavy 'Mechs (Multiple Eras)	203
Thermobaric Weapons (Multiple Eras)	204
Tripod 'Mechs (Multiple Eras)	204
Weapons of Mass Destruction (Multiple Eras)	204
Word of Blake Super-Jump Drive (Jihad)	206
Additional BattleForce Special Unit Abilities	207
Additional Alternate Era Weapons and Equipment Tables	210



INDEX	220
RECORD SHEETS AND TABLES	225





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Dedication

To all the *BattleTech* fans that have kept the faith for so many years...thank you.

To Ibis, for always supporting me while I followed my passions and did my "*BattleTech* thing."

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INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS





The *Total Warfare* (TW) and *TechManual* (TM) rulebooks present the core game and construction rules for *BattleTech* (BT), otherwise referred to as the standard rules. These two volumes encompass eight core unit types—several of which contain numerous subunit types—and a host of weapons and rules, as well as covering many different game situations. However, despite the breadth of play covered, many game situations still fall outside those rules, not to mention a plethora of more advanced equipment, as well as a few advanced units.

ADVANCED RULES

Beyond the standard rules, a legion of advanced rules exists, allowing players to expand their games in any direction they desire.

In an effort to bring these rules to players in the most logical form possible, the advanced rules are contained in three “staging” core rulebooks, each one staging up and building off of the previous rules set. Additionally, each one focuses on a particular “in-universe time frame” that will allow players to easily grasp where a given rulebook will “plug into” their existing game play.

TACTICAL OPERATIONS (2 VOLUMES)

SitRep:

Forces on-world.

Conflict expected to last mere hours to achieve object.

ADVANCED RULES

Tactical Operations: Advanced Rules (TO:AR) is the first in the “staging” Advanced Rulebooks. Its focus is during game play, and

applies directly to a game as it unfolds on a world in the *BattleTech* universe; its rules represent hours in-universe, the time frame it takes for a single, moderate-sized battle to play out on a gaming table.

Building on *Total Warfare*, *TO: AR* conveys numerous advanced rules for movement and combat across various units, while expanding core rules such as those for buildings, and implementing a host of advanced terrain and weather rules.

ADVANCED UNITS & EQUIPMENT

Building on *TechManual*, *Tactical Operations: Advanced Units & Equipment* (TO:AUE) presents rules for the construction and use of advanced Support Vehicles, as well as advanced and prototype construction options and weapons for use by almost every unit. To use the construction rules, designers will need paper and pencils, as well as copies of the Blank Record Sheets found at the back of this book. Due to the complexities involved with the construction of the Advanced Support Vehicles, a calculator will be handy as well.

These books contains a number of rules changes from previous editions. We feel confident that these are the most complete, clear and concise advanced rules for *BattleTech* ever presented.

These rules supersede all previously published rules, including the *BattleTech Manual*, *BattleTech Compendium*, *BattleTech Compendium: The Rules of Warfare*, *BattleTech Master Rules* (standard and revised editions), *Combat Equipment*, *Tactical Handbook*, *Maximum Tech* (standard and revised editions) and *Unbound*.



STRATEGIC OPERATIONS

SitRep:

Forces in solar system.

Beginning burn to planet.

Conflict expected to last weeks to achieve object.

Strategic Operations (SO) is the second “staging” Advanced Rulebook. It contains advanced movement and combat operations emphasizing the importance of aerospace units, while extensive rules cover combat drops of numerous troop types into any situation. Complete game play and construction rules for advanced aerospace units are also included.

INTERSTELLAR OPERATIONS (2 VOLUMES)

SitRep:

Forces marshaled.

Flotillas assigned to target solar systems.

Conflict expected to last months to achieve objects.

ALTERNATE ERAS

Interstellar Operations: Alternate Eras (IO:AE) is the rulebook you are holding in your hand. It contains a huge swath of units and rules that can be plugged into any Era, as well as any level of play, from a simple scenario up to the largest scale battles.

BATTLEFORCE

Interstellar Operations: BattleForce (IO:BF) is the third “staging” Advanced Rulebook. Players are staged up to the final level of play, where they can assume the roles of a House Lord or Clan Khan and dominate the galaxy; IO:BF rules can represent months in the *BattleTech* universe, the time frame for conquering numerous star systems.

IO:BF contains complete rules for generating and running any type or size of force. Additionally, a comprehensive rules set governs the running of an entire faction’s military as a player tries to conquer (or defend) numerous solar systems. More importantly, the system contains rules that allow players to stage any portion of a given conflict back through the various rule sets, as they desire—from the simple, easy-to-use rules of conflict at the largest scale, or all the way back down to a standard *BattleTech* game as presented in *Total Warfare* and *Tactical Operations*. Players have complete flexibility for any type of conflict in which they wish to engage.

CAMPAIGN OPERATIONS

SitRep:

Prepare forces.

Assign objectives, targets, and plans of attack across a world or a swath of interstellar space.

Wage war to achieve your final objective.

Campaign Operations (CO) is the foundational book to prepare players for campaigns that can encompass all of the three “staging” Advanced Rulebooks. Incorporating elements from all of the previous rulebooks, as well as *Alpha Strike Commander’s Edition*, CO represents an entire campaign, scenario, or story arc within the *BattleTech* universe. Players can assume the roles of any unit within the universe or create their own iconic force.

Campaign Operations contains rules for the construction and detailing of solar systems, building an opposing force to put in conflict with the players, crafting specialized scenario and campaign arcs, and constructing a stylized *Chaos Campaign* that fits

a group’s play style. Players and gamemasters can use these rules with *Total Warfare* (and subsequent Advanced Rulebooks), *A Time of War* RPG, and the *Alpha Strike* system.

CHOOSE WHAT YOU LIKE

As previously noted, *Interstellar Operations* encapsulates a myriad of advanced rules. In effect, all the rules and weapons/equipment in this volume are optional. This means you can use as many or as few of the rules in this book as you want. (In fact, this book contains so many new rules that we recommend you try them out a few at a time, rather than attempting to use them all at once.) Furthermore, most of the new rules and equipment here can be added individually to a standard game. You can add rules and pieces of equipment to your game one at a time—most of the rules do not rely on other rules in this book to work in existing *BattleTech* games. This allows you to tailor your *BattleTech* game to your taste by including only those rules that you find make the game more interesting or fun. Use whatever new rules and equipment you want and disregard the rest. Given the scope of the rules and the fact that they are optional, all players in a group should read through and agree to the use of any of these rules and weapons/equipment.

PLAYER ADJUDICATION

An advanced-rules book for any game is, almost by definition, more complex. In a game system with such a long and rich heritage as *BattleTech*—this rulebook alone draws from dozens of different sources across a large number of years—that complexity is even greater. Developers and writers have gone to great effort to make these rules as comprehensive as possible—not only from one section to the next in this book, but in how such advanced weapons and rules interact with the core game and construction rules as presented in *Total Warfare* and *TechManual*. However, the sheer scope of *Interstellar Operations* (as with *Tactical Operation and Strategic Operations*) and the plethora of options provided means that it is not possible to cover all potential situations. Once this product reaches the players’ hands, they’ll envision scenarios and create situations on a game board that never crossed the minds of the developers or the legion of authors and playtesters that thoroughly worked over this product.

With that in mind, when players encounter situations not covered in the rules as they integrate the contents of *Interstellar Operations* into their playing group, they are encouraged to adjudicate each situation appropriately; make up the rules that work for you. If in the process a playing group runs into an argument, feel free to let a die roll resolve any disputes so you can return to playing the game and having fun.

Finally, the forums on bg.battletech.com are an excellent resource. Players can tap into a strong and vibrant online community, tapping a wide selection of players for different ideas on how best to adjudicate a particular situation.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS





DK

Beneath the gaze of a patrolling Bombardier BattleMech, infantry scours battle-ravaged streets.

The *BattleTech* universe is a living, vibrant entity that grows each year as more sourcebooks and fiction are published. In this dynamic universe, the setting and characters evolve over time within a highly detailed continuity framework, bringing both to life in a way that a static game universe cannot match.

But this same dynamic energy that makes *BattleTech* so compelling can also make it confusing for newer players, with so many sourcebooks published over the years. As even these core rulebooks have demonstrated, the *BattleTech* universe, its technology, and the game rules that go along with them constantly evolve. For this reason, players might need to know when a particular sourcebook is set within the *BattleTech* timeline in order to use its material to best effect.

To help quickly and easily convey the *BattleTech* timeline—and to allow players to easily “plug in” to a given sourcebook—the history of *BattleTech* is presently divided into six major eras, described below.

Sub-Eras: In an effort to keep the number of eras to a minimum, only six era names/icons are used in print/PDF books. In reality, however, the Star League, Succession Wars and Dark Age cover hundreds of years, as opposed to the mere dozens or less covered by the Clan Invasion, Civil War and Jihad eras. As such, for these longer Eras, Sub-Eras are included.



STAR LEAGUE ERA (2300-2780)

The Star League era is the earliest playable part of the *BattleTech* history using the rules found here, and includes the Age of War and Age of the Star League sub-eras. Before this point, conflict was much more sporadic and unpredictable, and the majority of the in-universe equipment and the game rules featured in our sourcebooks to date simply do not apply. The pre-Age of War period is often referred to as the time of early spaceflight.

SUB-ERA: AGE OF WAR (2300-2570)

The sub-era of the Age of War is the earliest playable period of *BattleTech* history, and covers the period when, after waves of interstellar colonization and a subsequent rebellion among the far-flung colonies, the Terran Alliance—the government of the then-unified human race—withdrew from these outer worlds, and eventually collapsed.

In the decades that followed, the Alliance would reorganize itself as the Terran Hegemony, and various interstellar alliances rose that would become the great states of the Inner Sphere. As these realms expanded and encountered one another, a period of unbridled conflicts erupted known as the Age of War.



SUB-ERA: AGE OF THE STAR LEAGUE (2571-2780)

The period known as the Star League Era technically began when Ian Cameron, ruler of the Terran Hegemony, concluded decades of tireless effort with the creation of the Star League, a political and military alliance between the Hegemony and all of the other great realms in the Inner Sphere. Immediately thereafter, the Star League's armed forces launched the Reunification War, forcing the Periphery realms to join.

For the next two centuries, most of humanity experienced an economic and technological golden age across the thousand light-years of human-occupied space. This age also saw the creation of the most powerful military in human history: the Star League Defense Force.



SUCCESSION WARS ERA (2781-3049)

In 2766, First Lord Richard Cameron and his entire family were killed during a coup launched by Stefan Amaris of the Rim Worlds Republic. Following the thirteen-year war to unseat him, the rulers of each of the five Great Houses disbanded the Star League. After General Aleksandr Kerensky departed with eighty percent of the Star League Defense Force, vanishing beyond known space, the Inner Sphere collapsed into centuries of warfare known as the Succession Wars. During the centuries-long period of war, the Inner Sphere suffered a massive loss of technology across most of its worlds, while the self-exiled followers of Kerensky went on to become the Clans.

SUB-ERA: EARLY SUCCESSION WARS (2781-2900)

With Kerensky out of the way, the rulers of the five Great Houses each declared themselves the true heirs to the Star League, igniting the Succession Wars. During these early conflicts, the battles were large and bloody, as the Inner Sphere realms had large armies, and were quick to resort to the use of WarShips and weapons of mass destruction to achieve their victories. The widespread use of such scorched-earth and total war strategies fast eroded the greatest advances of the Star League's golden years and destroyed whole worlds before the various factions brought the rampant destruction under control.

Encompasses the First and Second Succession Wars.

SUB-ERA: LATE SUCCESSION WARS (2901-3049)

The Third Succession War in the Inner Sphere saw most armies reduced to defensive forces and most fighting reduced to sporadic raids and limited campaigns. Though devastation was less widespread as various technologies and assets became sacrosanct, the limited warfare of this period perpetuated the stalemate that had persisted since the fall of the Star League, until the formation of the Federated Commonwealth alliance, and the recovery of the Helm Data Core—both of which took place in the late 3020s—threatened to upset this status quo.

The Fourth Succession War and the War of 3039 also took place in this Era.

CLAN SUB-ERAS (2800-3049)

As the Inner Sphere slid inexorably toward war, the leader of the Star League Defense Force, General Aleksandr Kerensky, led the majority of the surviving SLDF into exile on a cluster of worlds far from the Inner Sphere. There, under the initial leadership of Kerensky's son, Nicholas, the self-styled Star League in Exile formed the Clans, a rigid, caste-driven society that shed its Inner Sphere roots and embraced a warrior-dominant culture where "might makes right", and where conflict is ritualized to avoid waste. The practice of ritualized warfare kept the Clans' Star League-era technology from backsliding, and allowed them to hone their battlefield edge for the day they would eventually return to the Inner Sphere.

While they correspond to the same years as the Inner Sphere's Succession Wars, the Clan Sub-Eras only apply to the events in Clan space because of their distance apart. As a result, technologies developed in Clan space cannot be used in the Inner Sphere (and vice versa) during the Succession Wars era of play.

For Clan-based campaigns set in this period, the sub-eras are broken into the Founding Years (from 2800 to 2840), and the Golden Years (from 2841 to 3049).

Clan Sub-Era: The Founding Years (2800-2840)

The Founding Years covers the period when the Star League in Exile collapsed and reformed as the Clans. This period saw the transition from Inner Sphere-style total warfare to the dueling practice of *zellbrigen*, while technology transitioned from the peak of Star League capabilities to the beginnings of the modern Clan standard.

Clan Sub-Era: The Golden Years (2841-3049)

The Golden Years in Clan space saw the continued refinement of technologies, and ever-more ritualized warfare between the surviving elements of Nicholas Kerensky's new society. It also saw a gradual political evolution away from the isolationism of the early years, which would eventually lead to the invasion of the Inner Sphere.



CLAN INVASION ERA (3050-3061)

In 3050, mysterious invading forces struck the coreward regions of the Inner Sphere. The invaders, called the Clans, possessed technology and warriors vastly superior to those of the Great Houses, and swiftly overran a large swath of worlds. The collective realms and major powers of the Inner Sphere united to slow and, eventually, stop the initial Clan invasion, going so far as to create a Second Star League to that end.

The Clan Invasion, though brief, saw some of the biggest upheavals in the Inner Sphere. The efforts to counter superior Clan equipment accelerated the technological renaissance started in the final decades of the Succession Wars. Meanwhile, the major powers of the Inner Sphere underwent numerous political shifts, including the break-up of the

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Federated Commonwealth, the ComStar Schism, the formation of the Second Star League, and the resurgence of the Capellan Confederation and its Trinity Alliance.

SUB-ERAS

For all the transitions and developments that took place throughout, the Clan Invasion was such a brief period that it has no sub-eras to speak of. It also represented an effective reunion of the Clan and Inner Sphere Eras after the time of the Succession Wars, so there is no separate Clan era for this time period as such.



CIVIL WAR ERA (3062-3067)

In a final effort to defeat the Clan threat, the Second Star League singled out and destroyed Clan Smoke Jaguar and waged war in the Clan Homeworlds themselves. While the campaign successfully ended the invasion, internal conflicts throughout the Inner Sphere erupted almost as soon as that external threat was neutralized. House Liao's Capellan Confederation conquered its former Commonality, the St. Ives Compact, and a rebellion of military units within the Draconis Combine sparked a war with House Kurita's powerful border enemy, Clan Ghost Bear. Amid all of this, the divided realms of the once-powerful Federated Commonwealth finally collapsed into five long years of bitter civil war that stretched from one end of the Inner Sphere to the other.

SUB-ERAS

As with the Clan Invasion, the Civil War era covers too brief a period to have any sub-eras to speak of. Among the Clans, it differs so little from the Invasion Era that this period is simply known among the Clans as the Late Invasion Era.



JIHAD ERA (3068-3085)

Mere months after the end of the Federated Commonwealth Civil War, the leaders of the Great Houses met once more under the auspices of the Second Star League to elect a new First Lord and induct new member powers to the alliance. Instead, due to the trials and costs of the Civil War years, several members declared the Second League a failure, and disbanded the organization.

Incensed, the pseudo-religious Word of Blake—a splinter group of ComStar, and controllers of half the Inner Sphere's interstellar communications—launched a wave of reprisals. Though it initially hoped to force the Houses to reconvene the League, the Word's campaign swiftly devolved into a war of punishment that came to be known as the Jihad. This interstellar war ultimately pitted every faction against each other and even against themselves, while weapons of mass destruction saw use for the first time in centuries and frightening new technologies were unleashed.

SUB-ERAS

In the Inner Sphere, the Jihad era is a single, massive event that left no realm or faction untouched, and thus is not divided into sub-eras.

Among the Clans, this period is dominated almost equally by a fratricidal conflict known as the Wars of Reaving, and so these years are known to the Clans equally as the Jihad era and the Wars of Reaving era. Thus, once again, there are no sub-eras for this period. However, the aftermath of the Wars of Reaving leave the Clans forever sundered, and henceforth, the Clans in the Inner Sphere (the Invader Clans) will be tied to the Inner Sphere eras, while the Homeworld Clans return to a state of isolationism.



THE DARK AGE ERA (3086-3150)

Under the guidance of Devlin Stone, a newcomer to the interstellar stage and Sphere-wide hero of the Jihad, the Republic of the Sphere was born at the heart of the Inner Sphere, amid the ruins of the Word of Blake Protectorate. Backed by some—but not all—of the neighboring powers who allied themselves with Stone's coalition, the Republic's birth ushered in one of the most extensive periods of peace since the original Star League. The various realms of the Inner Sphere embraced disarmament (to one degree or another), and the massive BattleMech armies of the Succession Wars declined, even as technology improved across the board.

The peace lasted until 3132, when unknown agents brought eighty percent of the interstellar communications network crashing down, throwing the universe into chaos. Fueled by paranoia and long-restrained opportunism, the various states began rebuilding their armies while fighting erupted almost immediately on every front.

SUB-ERA: THE REPUBLIC AGE (3086-3130)

The early part of the Dark Age is better known to the denizens of the universe as the Age of the Republic (or the Republic Age), because of the powerful influence of the newborn Republic of the Sphere. In this period, few major wars erupted, while most post-Jihad militaries downsized. Even among the Clan powers, this was a time of relative peace, and one in which the technological divide between Clan and Inner Sphere gradually began to fade away.

SUB-ERA: LATE DARK AGE (3131-3150)

The later Dark Age years are the period that actually deserves the name "Dark Age." Though it effectively begins a year before the interstellar communications breakdown, this time followed Devlin Stone's retirement from the leadership of the Republic and his mysterious disappearance amid a resurgence of rising social tensions. With the collapse of faster-than-light communications, people across the Inner Sphere feared the worst and quickly armed themselves after decades of peace, anticipating a wave of wars that steadily escalated until the Republic itself was consumed in the onslaught.



CLAN SUB-ERA: THE POST-REAVING (3086-3150)

As of this writing, little is known about the state of the post-Wars of Reaving Clans still in the Homeworlds. Having once again embraced a policy of isolationism, defended by both their own agencies and those of the coreward invader Clan factions, details or communications between the Homeworlds and the Inner Sphere are so sparse as to be nearly non-existent. The last reported developments widely known included the conquest of a few minor Deep Periphery realms near the Homeworlds, creating an equally reclusive new faction known as the Escorpión Imperio.



THE ILCLAN ERA (3151+)

The once-invulnerable Republic of the Sphere lies in ruins, torn apart by the Great Houses and the Clans as they wage war against each other on a scale not seen in nearly a century. Mercenaries flourish once more, selling their might to the highest bidder. As Fortress Republic collapses, the Clans race toward Terra to claim their long-denied birthright and create a supreme authority that will fulfill the dream of Aleksandr Kerensky and rule the Inner Sphere by any means necessary: The ilClan.

As this is an all-new Era, just being explored via fiction and sourcebooks, this Era is outside the bounds of what is covered in this rulebook.

GENERAL ERA RULES EXPANSIONS

Almost without exception, all of the material found in the core rulebook line assumes that the players are working with units and technologies available from the Late Succession War period through the Jihad. The rules in this chapter broaden this range of historical options to any point in BattleTech history from 2300 to 3150.

Designed to work in concert with the data found in *TechManual*, both *Tactical Operations*, and *Strategic Operations*, these rules provide a comprehensive account of what unit types, items, and/or special rules may be employed and applied by the forces used in any era-based *BattleTech* scenario.

BattleTech Pre-History: Prior to 2300, the various factions, technologies, and unit types upon which the *BattleTech* setting is based had yet to emerge in a fashion coherently recognized by the game rules presented to date. At this point, the first waves of human settlements in interstellar space were still struggling to establish themselves and become self-sufficient enough to sustain their own economies or armies. For this reason, the era expansions presented in this chapter will not dwell on this "pre-historic" period.

Random Assignment Tables: Providing complete Random Assignment Tables for all eras of play would simply

take up far too many pages, and still fail to fully define the technical capabilities of those eras. Thus, such tables are not provided in this book. Players are encouraged to make use of our official Master Unit List on-line database (see www.MasterUnitList.info) to search for and select appropriate units for era-driven scenarios. The MUL is free to use and constantly updated with each new sourcebook release to ensure that it possesses the most up-to-date specs and reference sources for all official *BattleTech* units.

Unit and Equipment Restrictions by Date: Under the following eras, players will be given date restrictions for selecting units for a scenario set in a given period. Players who wish to be even more "canon-accurate" in their games may take this farther, using the Universal Technology Advancement Table (see pp. 29-57) to identify any weapons and equipment that may be unavailable to the specific year or years in which their scenario or campaign is set. The Master Unit List may also be used to identify the years in which a given unit is available for play.

STAR LEAGUE ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Star League Era.

The Age of War Sub-Era (2300-2570)

The Age of War, which predated the Star League and saw the rise of the Great Houses in size and power, was also the dawn of the BattleMech age. At the start of this era, 'Mechs did not exist, and conventional armies waged war using tanks, infantry, and aerospace fighters. The Terran Hegemony's debut of the *Mackie* changed all that, bringing about a revolution in tactics, but it would take decades before these machines became a common sight on the battlefield.

The savagery of the Age of War also saw numerous atrocities committed, up to and including the use of weapons of mass destruction and the massacre of civilians. This eventually led to the creation of the Ares Conventions, which defined the rules for "civilized warfare" that most realms would adopt (and continue to cite for centuries to come, even when the Conventions lost their legal weight).

Factions Available: The Age of War Sub-Era section of the Star League Era Factions List (see p. 12) defines which militarily significant realms are available for play during this era. (Although many smaller powers and independent worlds also existed at this point, most were so minor and/or lacking in military strength that they did not affect the grand setting in any meaningful way.)

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states.

Unit Types: All factions involved in the Age of War sub-era possessed access to conventional infantry, support vehicles, aerospace fighters, small craft, and JumpShips.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

STAR LEAGUE ERA FACTIONS LIST

Age of War Sub-Era (2300-2570)	
Capellan Confederation	2367-2570
<i>Capellan Hegemony/Commonality</i>	2270-2366
<i>Tikonov Union/Tikonov Grand Union*</i>	2177-2366
<i>Sarna Supremacy</i>	2175-2366
<i>St. Ives Mercantile Association</i>	2245-2366
<i>Sian Commonwealth</i>	ca. 2260-2366
<i>Duchy of Liao</i>	2315-2366
Draconis Combine	2319-2570
<i>Alliance of Galedon</i>	2302-2319
<i>Azami Caliphate</i>	ca. 2450-2516
<i>Principality of Rasalhague</i>	2260-2510
Federated Suns	2317-2570
<i>Marlette Association</i>	2278-2324
<i>Muskegon Coalition</i>	2163-2317
<i>United Hindu Collective</i>	ca. 2240-2540
Free Worlds League	2271-2570
<i>Marik Republic</i>	2238-2271
<i>Federation of Oriente</i>	2241-2271
<i>Regulan Principality</i>	2243-2271
<i>Stewart Confederation</i>	2259-2271
Lyrans Commonwealth	2341-2570
<i>Protectorate of Donegal</i>	2313-2341
<i>Federation of Skye</i>	2299-2341
<i>Tamar Pact</i>	2235-2341
Terran Hegemony	2315-2570
<i>Terran Alliance</i>	2086-2315
Rim Worlds Republic	2250-2570
Taurian Concordat	2335-2570
Magistracy of Canopus	2530-2570
Outworlds Alliance	2413-2570
Age of the Star League Sub-Era (2571-2781)	
The Star League	2570-2780
Capellan Confederation	2367-2781
Draconis Combine	2319-2781
Federated Suns	2317-2781
Free Worlds League	2271-2781
Lyrans Commonwealth	2340-2781
Terran Hegemony	2315-2767
Amaris Empire	2767-2779
Rim Worlds Republic	2250-2769
Taurian Concordat	2335-2781
Magistracy of Canopus	2530-2781
Outworlds Alliance	2413-2781

*The Tikonov Grand Union includes the Chisholm Protectorate (2265-2335) and Chesterton Trade Federation (2193-2357)

IndustrialMechs and BattleMechs emerged in this period, as did modern forms of combat vehicles, conventional fighters, DropShips and WarShips.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, nor did the modular technologies that enabled the creation of OmniMechs, OmniFighters, and OmniVehicles.

Technology Base: The Clans did not exist in the Age of War, and so nothing may be produced for this era using a Clan technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 2570 or earlier. When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating forces for this era should note that the Age of War saw the introduction (and use) of the following era-unique items:

- Primitive units (see *Primitive Units and RetroTech*, pp. 114-125)
- Early prototype weapons (see *Primitive Prototype Equipment*, pp. 111-114)
- Pre-Star League prototype equipment (see *Advanced Prototype Systems*, pp. 64-67)
- Weapons of mass destruction (see *Weapons of Mass Destruction*, pp. 160-162)

Age of the Star League Sub-Era (2571-2780)

Finally weary of wars without end, the Great Houses united under the Star League, ushering in a Golden Age of technology, relative peace—and hidden feuds. House Cameron, stewards of the Terran Hegemony and “first among equals,” held a distinct edge in military technology over the other League members, with better weapons, armor, and engineering making everything from their tanks and fighters to their BattleMechs and WarShips easily superior to those of their erstwhile allies. Even this edge, however, could not overcome the ambitions and rivalries that would tear down mankind’s greatest experiment in its prime.

Factions Available: The Age of the Star League Sub-Era section of the Star League Era Factions List (at left) defines which militarily significant realms are available for play during this era. Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.)

Unique to this period is the fact that all of the various realms, worlds, and minor powers of human-occupied space technically operated as members of the Star League, leaving no minor factions in play beyond the League boundaries. Even so, none of the major realms in the Inner Sphere or Periphery ever truly lost their original identities as independent states. Thus, while all of the various factions were united under the Star League, none are considered to have fully merged into it, so all continued to exist as separate, militarily significant powers.

Unit Types: All factions involved in the Age of the Star League sub-era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters,



IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures.

The Star League age also brought the development of the Castles Brian, super-reinforced fortresses that used capital damage scaling, were often built into mountains or underground, and which occasionally featured enough firepower to threaten even an orbiting WarShip. Rules for Castles Brian can be found in the Advanced Buildings chapter of *Tactical Operations: AR* (see pp. 112-141, *TO: AR*).

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, though the Star League itself did experiment with PA(L)-class battlesuits, progenitors to modern battle armor, towards the end of this period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—also do not exist during this period.

Technology Base: The Clans did not exist in the Age of the Star League, and so nothing may be produced for this era using a Clan technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 2780 or earlier. When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 58-177), players creating forces for this era should note that the Age of the Star League saw the introduction (and use) of the following era-unique items:

- The Centurion weapon system (see p. 79)
- Advanced neurohelmets for elite SLDF MechWarriors and fighter pilots (see *Advanced Pilot Interfaces*, pp. 62-64)
- Early Star League prototype weapons (see *Advanced Prototype Systems*, pp. 64-65)
- Land-Air BattleMechs (see pp. 99-109)
- Smart robotic control systems (see pp. 128-153)
- Tripod 'Mechs (see Tripod 'Mechs, pp. 157-159)

SUCCESSION WARS ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Succession Wars Era.

The Early Succession Wars Sub-Era (2781-2900)

The fall of the Star League brought about three centuries of constant conflict known collectively as the Succession Wars. Even before the actual start of the First War in 2786, the rival Houses, each claiming the right to rule the shattered League, began to tear the Camerons' legacy asunder, eventually launching a holocaust that consumed the Terran Hegemony and burned away the technological progress of the previous age with nuclear fire and relentless warfare.

The early half of the Succession Wars Era specifically saw the worst devastation unleashed. As the various realms made rampant use of nuclear and biochemical warfare, infrastructure was demolished on an interstellar scale, devastating high-tech manufacturing and rendering worlds uninhabitable by

the dozens. Only exhaustion—and the recognition that this strategy would lead to mutual destruction—would bring back the notions of “civilized warfare” that characterized the latter centuries of this era.

Factions Available: The Early Succession Wars Sub-Era section of the Succession Wars Era Factions List (see p. 16) defines which militarily significant realms are available for play during this era. Although many smaller powers and independent worlds did also emerge in the aftermath of the Star League's collapse, these scattered worlds and minor powers were so marginal that they lacked any significant impact on the grand scale. Thus, they do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Unit Types: All factions involved in the Early Succession Wars Sub-Era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures.

Given the herculean efforts and expense required in their engineering, the construction of new Castles Brian never expanded much beyond the Terran Hegemony and thus ended with the Star League's demise. With so many of these monuments of the SLDF badly damaged or poisoned by the war against Stefan the Usurper, the surviving realms either assimilated the least-devastated Castles for their own use, or abandoned them entirely in favor of fortresses that were easier to produce. Thus, no new Castles Brians may be constructed in the Succession Wars period.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period. The Star League's demise included the loss of PA(L)-class battlesuits, which had yet to reach widespread production—though ComStar would retain this technology in limited use.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—do not exist in the Inner Sphere during this period.

Technology Base: The self-exiled Star League Defense Force would begin its evolution into the Clans during this period, but would remain entirely separated from the Inner Sphere until the late 3040s. For this reason, the Clan technology base can only be used among Clan factions. The Inner Sphere technology base is available to both the Inner Sphere and Clan powers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 2900 or earlier if the scenario takes place in the Inner Sphere or Periphery. When constructing units for scenarios set in this era, the same date limit of 2900 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios, see *Clan Sub-Eras* (p. 17).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Downgrades: In addition to the date limits on new equipment and units, technological decline from massive interstellar-scale destruction will begin to take hold across the Inner Sphere as the Early Succession Wars rage on, rendering some items extinct. Consult the *Universal Technology Advancement Table* (see pp. 29-57) to find which items have gone out of production by the time of the scenario. (As a rule of thumb, many of the items that vanished during the Succession Wars had a Tech Rating of E, representing Star League-era sophistication.)

Non-conventional infantry units (such as 'Mechs, vehicles, and fighters) that feature such technologies as part of their original design must check for downgrades prior to the start of a *BattleTech* scenario. To do this, the controlling player rolls 2D6, and applies to this roll result all appropriate modifiers from the Succession Wars Era Downgrades Table (see p. 15) based on the scenario's date, the force's affiliation, and its overall skill rating. If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may still decide to do so at their option. On a modified result of 6 or less, a unit using extinct equipment *must* be downgraded with equivalent non-extinct technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items. If the extinct technology is a unit class—such as WarShips after 2850, or power armor suits after 2766—the unit must be deleted from the player's force and replaced with a lesser unit class. (DropShips or JumpShips, for example, would replace WarShips, while conventional infantry would replace power armor infantry.)

Downgrade rules do not apply to ComStar or any Clan factions.

Special Equipment: The Early Succession Wars brought few new innovations, but some of the special items from the Star League era did remain in play, or returned to widespread use. Of the alternate era-based units and equipment featured in the next chapter (see pp. 58-177), players creating forces for this era should note that the early Succession Wars saw the widespread use of the following era-unique items:

- Land-Air BattleMechs (see pp. 99-109)
- Weapons of mass destruction (see *Weapons of Mass Destruction*, pp. 160-162)

The Late Succession Wars Sub-Era (2901-3049)

By the dawn of the thirtieth century, the Third Succession War was already well over thirty years along, and showed no signs of ending. Factories across the Inner Sphere had been blasted to rubble and hundreds of worlds had vanished from the maps. The technological wonders of the Star League were a fading memory, and the fierce fighting that characterized the early conflicts had degenerated into ongoing raids, many for scraps of lost technology or merely enough parts and supplies to keep dwindling armies in a battle-ready state.

In the last century of the Succession Wars, it was not uncommon to find worlds held by a lance of battered 'Mechs, backed up by conventional vehicles armed with the most basic of weaponry. Preservation of meager resources brought a return to Ares Conventions-style rules of war more out of necessity than honor, prolonging the stalemate. The slow backslide into technological

and economic ruin would continue until the recovery of the Helm Memory Core in 3028, and the creation of the Steiner-Davion alliance that heralded the Fourth Succession War.

Factions Available: The Late Succession Wars Sub-Era section of the Succession Wars Era Factions List (see p. 16) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Note that the names appearing on the list were those most commonly used, even if they were not technically accurate. For example, the Federated Commonwealth was legally known as the Federated Commonwealth Alliance, and did not exist as a truly unified realm under the terms of its treaty until 3055. Nevertheless, these realms functioned under their listed name for the bulk of the years listed in the faction tables.

Unit Types: All factions involved in the Late Succession Wars sub-era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, and space stations.

New Castles Brian may not be constructed during the Late Succession Wars period.

Battle armor (beyond exoskeletons) and ProtoMechs did not exist in this period, and the mighty WarShips and mobile structures that had been a fixture of the Star League days vanished along with the facilities needed to build them. PA(L)-class battlesuits still existed among ComStar's largely-hidden military, but the technology remained beyond the abilities of the other Inner Sphere and Periphery powers.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—do not exist in the Inner Sphere during this period.

Technology Base: As with the Early Succession Wars period, the Clans remain entirely separated from the Inner Sphere until the late 3040s, and so the Clan technology base can only be used among Clan factions. The Inner Sphere technology base is available to both the Inner Sphere and Clan powers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3049 or earlier if the scenario takes place in the Inner Sphere or Periphery. When constructing units for scenarios set in this era, the same date limit of 3049 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios, see *Clan Sub-Eras* (p. 17).

Downgrades: In addition to the date limits on new equipment and units, technological decline from massive interstellar-scale destruction will continue to affect the Inner Sphere throughout the late Succession Wars, due to the extinction of several items.



Consult the *Universal Technology Advancement Table* (see pp. 29-57) to find which items have gone out of production by the time of the scenario. (As a rule of thumb, many of the items that vanished during the Succession Wars had a Tech Rating of E, representing Star League-era sophistication.)

Non-infantry units (such as 'Mechs, vehicles, and fighters) and exoskeletons that feature such technologies as part of their original design must check for downgrades prior to the start of a *BattleTech* scenario. To do this, the controlling player rolls 2D6, and applies to this roll result all appropriate modifiers from the Succession Wars Era Downgrades Table (see below) based on the scenario's date, the force's affiliation, and its overall skill rating. If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may still decide to do so at their option. On a modified result of 6 or less, a unit using extinct equipment *must* be downgraded with equivalent non-extinct technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items. If the extinct technology is a unit class—such as WarShips after 2850, or power armor suits after 2766—the unit must be deleted from the player's force and replaced with a lesser unit class. (DropShips or JumpShips, for example, would replace WarShips, while conventional infantry would replace power armor infantry.)

Downgrade rules do not apply to ComStar or any Clan factions.

Upgrades: Effective only in scenarios set from the year 3030 through 3049, any Inner Sphere unit that makes a downgrade roll of 10 or higher not only avoids a downgrade, but actually receives an upgrade instead.

An upgraded unit can replace up to two components—including all armor, all structure, and all heat sinks as one component each—with an equivalent extinct item from the Inner Sphere technology base or an Inner Sphere recovered prototype item (see pp. 96-99). If the replacement item is lighter, the shortfall may be filled with any technology still available in the current era, or with additional armor, heat sinks, and the like. The upgraded unit must conform to all construction rules for the unit's type.

Upgrades do not apply to ComStar or any Clan factions.

Pre-Existing Damage: In addition to downgrades, the late Succession Wars also saw growing decay in the overall level of maintenance and quality within military forces.

Limited supplies and technical expertise, combined with sub-standard manufacturing practices, had created generations' worth of jury-rigged parts and mismatched field refits that began to show more and more prominence, even among elite commands. As a result, many forces went into battle with pre-existing damage. To reflect this, players must make a second 2D6 roll for every non-infantry unit in their force prior to the start of the scenario, applying the Scenario Date and Force Skill Rating modifiers from the Succession Wars Era Downgrades Table used to check for technology downgrades.

If this modified roll is 8 or higher, the unit receives no pre-existing damage and begins play normally.

If the modified roll is 4, 5, 6, or 7, the unit suffers light pre-existing damage, equal to 1 point for every 5 tons of unit weight. This damage is distributed in 5-point clusters. For 'Mechs, use the Front column of the Hit Locations Table when assigning damage; for fighters and small craft, use the Above/Below column; for vehicles, roll a random direction of attack using the Facing after a Fall Table first, then resolve damage as if the unit were "attacked" from that angle. Do not roll for critical hits on any unit type, even if this damage affects internal structure, and ignore any motive damage effects. Reroll any damage that would immobilize or destroy the unit.

If the modified roll result is 0, 1, 2, or 3, the unit suffers moderate pre-existing damage, equal to 3 points for every 5 tons of unit weight. Distribute this damage in 5-point groupings and resolve locations as noted above for light damage. In addition, any internal damage may inflict a critical hit as normal, but reroll any critical hits that would disable or destroy the unit before play begins. In addition, apply 1 extra critical hit to a random location, rerolling only those critical hits that would destroy or immobilize the unit.

If the modified roll result is less than 0, the unit suffers severe pre-existing damage, equal to 1 point for every ton of unit weight. Distribute this damage in 5-point groupings and resolve locations as noted above for light damage. In addition, any internal damage may inflict critical hits as normal, but reroll any critical hits that would disable or destroy the unit before play begins. In addition, apply 3 extra critical hits to 3 random locations, rerolling only those critical hits that would destroy or immobilize the unit.

Special Equipment: Towards the waning years of the late Succession Wars period, the Inner Sphere experienced a technological renaissance, thanks mainly to the recovery of the Helm Data Core in the late 3020s. This, combined with certain experiments conducted in the final days of the Third War and its aftermath, not only reintroduced many lost trea-

SUCCESSION WARS ERA DOWNGRADES TABLE

Base TN to avoid downgrade: 7	
Condition	Modifier
<i>Scenario Date</i>	
2820-2850	-2
2851-2950	-4
2951-3034	-6
3035-3045	-4
After 3045	-2
<i>Force Affiliation</i>	
Major I.S. Power	+0
Minor I.S. Power	-1
Major Periphery Power	-1
Minor Periphery Power	-2
Mercenary/Pirate	-2
<i>Force Skill Rating</i>	
Elite	+2
Veteran	+1
Green	-1

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

SUCCESSION WARS ERA FACTIONS LIST

Early Succession Wars Sub-Era (2781-2900)	
Capellan Confederation	2367-2900
Draconis Combine	2319-2900
Federated Suns	2317-2900
Free Worlds League	2271-2900
Lyran Commonwealth	2340-2900
ComStar	2788-2900
Taurian Concordat	2335-2900
Magistracy of Canopus	2530-2900
Outworlds Alliance	2413-2900
Oberon Confederation	2775-2795
Circinus Federation	2785-2900
Hanseatic League*	2891-2900
Castilian Principalities*	2392-2900
Umayyad Caliphate*	2830-2900
Late Succession Wars Sub-Era (2901-3049)	
Capellan Confederation	2367-3049
Draconis Combine	2319-3049
Federated Commonwealth	3028-3049
Federated Suns	2317-3049
Lyran Commonwealth	2340-3049
Free Worlds League	2271-3049
ComStar	2788-3049
Taurian Concordat	2335-3049
Magistracy of Canopus	2530-3049
Outworlds Alliance	2413-3049
Oberon Confederation (New)	3012-3049
Circinus Federation	2785-3049
Tortuga Dominions	ca. 2785-3049
Hanseatic League*	2891-3049
Castilian Principalities*	2392-3049
Umayyad Caliphate*	2830-3049
Marian Hegemony	2920-3049
Greater Valkyrate	3028-3049
<i>Morgraine's Valkyrate</i>	3021-3028
<i>Butte Hold</i>	3018-3028
Illyrian Palatinate	ca. 2350-3049
Lothian League	2815-3049
Rim Collection	3048-3049
Tikonov Free Republic †	3029-3031
St. Ives Compact †	3029-3049
Duchy of Andurien‡	3030-3040
Free Rasalhague Republic§	3034-3049

*Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Succession Wars era.

†Separated from Capellan Confederation; allied with Federated Commonwealth

‡Separated from Free Worlds League; allied with Magistracy of Canopus

§Separated from Draconis Combine; independent state

Clan Founding Years Sub-Era (2800-2840)	
The Clans	2807-2840
<i>Clan Blood Spirit</i>	2807-2840
<i>Clan Burrock</i>	2807-2840
<i>Clan Cloud Cobra</i>	2807-2840
<i>Clan Coyote</i>	2807-2840
<i>Clan Fire Mandrill</i>	2807-2840
<i>Clan Ghost Bear</i>	2807-2840
<i>Clan Goliath Scorpion</i>	2807-2840
<i>Clan Hell's Horses</i>	2807-2840
<i>Clan Ice Hellion</i>	2807-2840
<i>Clan Jade Falcon</i>	2807-2840
<i>Clan Mongoose</i>	2807-2840
<i>Clan Nova Cat</i>	2807-2840
<i>Clan Sea Fox</i>	2807-2840
<i>Clan Smoke Jaguar</i>	2807-2840
<i>Clan Snow Raven</i>	2807-2840
<i>Clan Star Adder</i>	2807-2840
<i>Clan Steel Viper</i>	2807-2840
<i>Clan Widowmaker</i>	2807-2834
<i>Clan Wolf</i>	2807-2840
<i>Clan Wolverine</i>	2807-2823
The Star League-in-Exile¶	2786-2801
Clan Golden Years Sub-Era (2841-3049)	
The Clans	2807-3049
<i>Clan Blood Spirit</i>	2807-3049
<i>Clan Burrock</i>	2807-3049
<i>Clan Cloud Cobra</i>	2807-3049
<i>Clan Coyote</i>	2807-3049
<i>Clan Fire Mandrill</i>	2807-3049
<i>Clan Ghost Bear</i>	2807-3049
<i>Clan Goliath Scorpion</i>	2807-3049
<i>Clan Hell's Horses</i>	2807-3049
<i>Clan Ice Hellion</i>	2807-3049
<i>Clan Jade Falcon</i>	2807-3049
<i>Clan Mongoose#</i>	2807-2868
<i>Clan Nova Cat</i>	2807-3049
<i>Clan Sea Fox/Diamond Shark**</i>	2807-3049
<i>Clan Smoke Jaguar</i>	2807-3049
<i>Clan Snow Raven</i>	2807-3049
<i>Clan Star Adder</i>	2807-3049
<i>Clan Steel Viper</i>	2807-3049
<i>Clan Wolf</i>	2807-3049

||Clan Wolverine was destroyed in 2823; Clan Widowmaker was absorbed by Clan Wolf in 2834

¶After 2801, the Star League-in-Exile collapsed into various warring factions; conquered by Clans in 2815

#Clan Mongoose was absorbed by Clan Smoke Jaguar in 2868

**Clan Sea Fox became Diamond Shark in 2985

tures of Star League engineering, but also a few new innovations. Meanwhile, however, some other cutting edge technologies—including Land-Air BattleMechs and superheavy IndustrialMechs—clung to life on the fringes, too expensive or too limited in tactical value to sustain themselves for long. Fortunately, the same could also be said of nuclear, chemical, and biological weapons, which had now become too dangerous to wield as the various realms suddenly found themselves with less and less they could afford to lose.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating forces for this era should note that the late Succession Wars saw the development and use of the following era-unique items:

- Recovered Star League technologies (see *Inner Sphere Recovered Prototypes*, pp. 96-99)
- Superheavy IndustrialMechs—but not BattleMechs (see *Superheavy 'Mechs*, pp. 143-157)

Clan Sub-Eras (2800-3049)

Decades after fleeing the Inner Sphere, the survivors of the Star League Defense Force, led by Aleksandr Kerensky, settled a distant cluster of worlds and declared themselves a Star League in Exile. But while they thought themselves spared the chaos of the Succession Wars, ancient enmities soon surfaced anew in the harsh homeworlds, and it would take a second exodus, led by Kerensky's son Nicholas, to reforge the most loyal and capable among them into a new society known as the Clans. Built around a rigid caste structure, with warfare ritualized to minimize waste and maximize glory, the Clans evolved by leaps and bounds.



Before its brutal absorption into Clan Smoke Jaguar, Clan Mongoose often relied on cunning maneuvers and speedy 'Mechs like the Mercury II.

Factions Available: The Clan Founding Years and Clan Golden Years Sub-Era sections of the Succession Wars Era Factions List (see p. 16) define the militarily significant powers that are available for play in the Clan homeworlds during this era. Because of their smaller numbers, each Clan individually existed as a minor power, and no other significant military powers existed in the Clan homeworlds after the collapse of the Star League in Exile.

Unit Types: All factions involved in the Clan Founding years and Golden Years sub-eras possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, WarShips, space stations, and Mobile Structures. The Clans also retained the ability to construct the Castles Brian of their Star League forebears, as found in the Advanced Buildings chapter of *Tactical Operations: AR* (see pp. 112-141, *TO:AR*).

In addition to this, the Clans would introduce and perfect battle armor during this era, as well as the modular technology found in OmniMechs, OmniVehicles, and OmniFighters.

Curiously enough, the Clans would quickly abandon Land-Air BattleMechs and Tripod 'Mechs in this time period, finding these unit classes too limited and difficult to assimilate into their new order. Robotic and drone technologies would also be largely abandoned by the Clans in this era, to maintain their emphasis on breeding superior human warriors, rather than relying on technological crutches.

Technology Base: All Clan factions in these sub-eras can make use of items from either the Clan or Inner Sphere Technology Bases, but the Star League in Exile faction may only make use of the Inner Sphere technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an appropriate introduction date (2840 or earlier for the Clan Founding Years sub-era; 3049 for the Clan Golden Years sub-era). However, when selecting Inner Sphere units, only those built before 2781 may appear among Clan forces.

When constructing units for scenarios set in this era, the same limits apply to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Finally, of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating Clan forces for this era should note that the Clans introduced (and used) the following era-unique items:

- Improved Star League-era weapons (see *Early Clan Improved Equipment*, pp. 89-90)
- Advanced weapons and equipment (see *Early Clan Prototype Systems*, pp. 91-92)

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



CLAN INVASION ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Clan Invasion Era.

The Clan Invasion Era (3050-3061)

The Clans' invasion of the Inner Sphere was a watershed event in human history. Not only did it bring the legacy of the Star League back into violent contact with the Inner Sphere that Kerensky and his descendants abandoned centuries before, but it accelerated the technological and political evolution of both groups of societies. Already recovering from the long decline of the Succession Wars, the Inner Sphere was spurred into a massive surge in production and upgrades that strained economies but gradually narrowed the gap between the archaic weapons of the late Succession Wars and the superior Clan machines. WarShips returned, modular technology evolved, and battle armor appeared in ever-increasing numbers.

Faced with the danger of technological parity, the Clans themselves pushed forward as well, modifying their own equipment and tactics in an effort to maintain their martial edge, lest the Inner Sphere overwhelm them with sheer numbers.

Factions Available: The Clan Invasion Era Factions List (see p. 19) defines which militarily significant realms are available for play during this era. A number of other smaller powers and independent worlds continued to survive at the outskirts of the Inner Sphere, Periphery, and Clan space during in this period, but these scattered micro-powers lacked any significant impact on the grand scale, and thus will not appear in the list.

As ever, faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as an indented list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which—if they appear indented—broke off from larger states.

Remember that, once again, the names appearing on the list were those most commonly used, even if they were not technically accurate. For example, while the Federated Commonwealth was not legally identified as anything but the Federated Commonwealth Alliance until 3055—only to be torn asunder by the Lyran Alliance's secession in 3057—the realm went by the name Federated Commonwealth all the way up to that point. Likewise, even though the Lyran secession did not legally end the Federated Commonwealth as such (several maps continued to use it to refer to the non-Lyran half of the realm), most individuals in this period resumed referring to the Davion half of the broken FedCom as the Federated Suns. Thus, the tables list the popular names under which these realms functioned for the bulk of the years listed.

Also of note is the birth of the Second Star League during this era. Even more than the original, the Second Star League was little more than a military alliance in which the member states pooled resources to defeat the Clans. As such, member states of the Second League did not lose their independent identities to the new organization, and continued to act as fully separate military affiliations throughout this time.

Unit Types: All factions involved in the Clan Invasion era possessed access to conventional infantry, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, and space stations.

Although authentic Castles Brian were lost to the Inner Sphere, equivalent construction materials and techniques emerged, enabling their construction once more. The Clans, naturally, had never lost this same ability.

Jump-started by captured Clan samples, battle armor emerged in the Inner Sphere, along with the modular technologies that made OmniMechs, OmniVehicles, and OmniFighters possible. WarShips also came back into the realm of Inner Sphere capabilities, in an effort to match the naval assets the Clans returned with.

Land-Air BattleMechs, however, all but vanished in this time when the Clans destroyed the last of the LAM factories—while the Clans introduced the first generation of ProtoMechs to the mix near the end of this period, hoping to supplement their forces with an all-new unit type.

Technology Base: The clash between the Clans and the Inner Sphere finally brought both technology bases together, but nevertheless, the Inner Sphere realms could only reliably produce equipment made from the Inner Sphere technology base; the Clans relied on their own technology base. Captured equipment enabled both groups to intermix certain items as time progressed, but during this period, such Mixed Tech units were the jury-rigged exception to the rule.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to units with an introduction date of 3061 or earlier, with Clan forces permitted to field any unit constructed with a Clan technology base, and Inner Sphere units limited to those of an Inner Sphere tech base. (After the mid 3050s, enough captured equipment on both sides will be available to enable factions to field small numbers of their enemies' units, if desired, but these units will be difficult to maintain as neither technology base has access to compatible parts.)

When constructing units for scenarios set in this era, the same date limit of 3061 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Downgrades: The technological decline of the Succession Wars was over by the time the Clans appeared in the Inner Sphere, but many forces—especially among the Periphery states, minor powers, and even amid the lower-priority commands of the Great Houses—still struggled to make do with substandard gear throughout the 3050s.

To reflect this, any Periphery or minor state forces, mercenary or pirate forces, or forces with an experience rating of Green (or a Loyalty rating of Questionable), may be subject to downgrades on any unit that features a technology rating of E or higher as part of its original design.

As with Succession Wars-era downgrades, any unit with E+ rated technologies must be downgraded with equivalent D or lower components, so long as all other construction rules for the unit type are followed.





To determine the level of such downgrades for a *BattleTech* scenario, players should roll 2D6 for every non-conventional infantry unit in the affected force. This roll uses the same target number as found in the Succession Wars Era Downgrades Table (see p. 15), but only applies the modifiers for the force's affiliation, and its overall skill rating (date is not a factor; this downgrade check is only made for scenarios played during the 3050s). If the modified roll result is 7 or higher, the unit may *avoid* being downgraded—although players may still decide to do so at their option. On a modified result of 6 or less, a unit using E+ equipment *must* be downgraded with equivalent D-or-lower technologies.

If no equivalent downgraded technologies exist for the item or items the unit must sacrifice, alternate replacement items of any kind may be substituted, as long as the combined weight and critical space requirements of these replacements are equal to or less than those of the original items.

Clan Invasion-era downgrade rules do not apply after 3059, nor do they apply to ComStar or Clan forces, or for major state forces with experience ratings of Regular or better (as long as those units also possess Reliable or Fanatical loyalty to their parent faction).

Upgrades: As a special option, players running any Elite-rated or Fanatically loyal Inner Sphere force from a major state may receive an upgrade by making the same downgrade check described above, and rolling a modified result of 10 or higher. For the purposes of this rule, a roll result of 6 or less will *not* prompt a unit downgrade.

The upgraded unit may replace up to 2 components—counting all of the unit's armor, all of its internal structure, and all of its heat sinks, as a single component each—with an equivalent piece of Star League technology. If the upgrade roll was 12 or more, the upgrade can use an equivalent piece of Clan technology instead. If the replacement item is lighter, the shortfall may be filled with any technology still available to the Inner Sphere in the current era, or with additional armor, heat sinks, and the like. The final upgraded unit must conform to all construction rules for the unit's type, modified as appropriate by the rules for Mixed Technologies (see p. 189, *TO:AUE*).

Clan units may not use this optional rule.

Special Equipment: The Clan Invasion era was largely characterized by an arms race that pushed the Inner Sphere beyond many benchmarks set by the original Star League. Most of these technologies are already covered by the rules in *Total Warfare* and both volumes of *Tactical Operations*, however, and are largely considered a baseline for play in generic *BattleTech* games.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating forces for this era should note that the Clan Invasion saw the development and use of the following era-unique items:

- The Clan EI neural implant system (see *Augmented Warriors*, pp. 68-79)
- The Inner Sphere's experimental damage interrupt circuit for MechWarriors (see *Advanced Pilot Interfaces*, pp. 62-64)

CLAN INVASION ERA FACTIONS LIST

Clan Invasion Era	
Capellan Confederation	2367-3061
Draconis Combine	2319-3061
Federated Commonwealth	3028-3057
Federated Suns	3057-3061
Lyran Alliance*	3057-3061
Free Worlds League	2271-3061
ComStar	2788-3061
Word of Blake†	3052-3061
Taurian Concordat	2335-3061
Magistracy of Canopus	2530-3061
Outworlds Alliance	2413-3061
Circinus Federation	2785-3061
Hanseatic League‡	2891-3061
Castilian Principalities‡	2392-3061
Umayyad Caliphate‡	2830-3061
Marian Hegemony	2920-3061
Lothian League	2815-3055
Illyrian Palatinate	ca. 2350-3061
Rim Collection	3048-3061
St. Ives Compact	3029-3061
Free Rasalhague Republic	3034-3061
Second Star League§	3058-3061
The Clans	2807-3061
<i>Clan Blood Spirit</i>	2807-3061
<i>Clan Burrock </i>	2807-3059
<i>Clan Cloud Cobra</i>	2807-3061
<i>Clan Coyote</i>	2807-3061
<i>Clan Diamond Shark</i>	2807-3061
<i>Clan Fire Mandrill</i>	2807-3061
<i>Clan Goliath Scorpion</i>	2807-3061
<i>Clan Hell's Horses</i>	2807-3061
<i>Clan Ice Hellion</i>	2807-3061
<i>Clan Jade Falcon</i>	2807-3061
<i>Clan Smoke Jaguar </i>	2807-3060
<i>Clan Snow Raven</i>	2807-3061
<i>Clan Star Adder</i>	2807-3061
<i>Clan Steel Viper</i>	2807-3061
<i>Clan Wolf</i>	2807-3061
Clan Nova Cat¶	2807-3061
Clan Wolf (in-Exile)¶	3057-3061
Ghost Bear Dominion	3060-3061
<i>Clan Ghost Bear</i>	2807-3061

*Separated from Federated Commonwealth; Lyran Alliance is the renamed Lyran Commonwealth

†Separated from ComStar in 3052; allied with Free Worlds League, Capellan Confederation, and Taurian Concordat

‡Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

§The founding members of the Second Star League were the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, and the St. Ives Compact. Clan Wolf (in-Exile) joined the Second Star League in 3058; Clan Nova Cat joined in 3060.

||Clan Burrock was absorbed into Clan Star Adder in 3059; Clan Smoke Jaguar was destroyed in 3060

¶Clan Wolf (in-Exile) broke off in 3057; Clan Nova Cat was abjured in 3060; both joined the Second Star League

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

CIVIL WAR ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Civil War Era.

CIVIL WAR ERA FACTIONS LIST

Civil War Era	
Capellan Confederation	2367-3067
St. Ives Compact	3029-3063
Draconis Combine	2319-3067
Federated Suns	2317-3067
Free Worlds League	2271-3067
Lyran Alliance	3057-3067
ComStar	2788-3067
Word of Blake Protectorate	3066-3067
Word of Blake	3052-3067
Taurian Concordat	2335-3067
Calderon Protectorate	3066-3067
Magistracy of Canopus	2530-3067
Fronc Reaches	3066-3067
Outworlds Alliance	2413-3067
Circinus Federation	2785-3067
Hanseatic League*	2891-3067
Castilian Principalities*	2392-3067
Umayyad Caliphate*	2830-3067
Marian Hegemony	2920-3067
Illyrian Palatinate	ca. 2350-3063
Rim Collection	3048-3067
Free Rasalhague Republic †	3034-3067
Second Star League‡	3058-3067
The Clans	2807-3067
<i>Clan Blood Spirit</i>	2807-3067
<i>Clan Cloud Cobra</i>	2807-3067
<i>Clan Coyote</i>	2807-3067
<i>Clan Diamond Shark</i>	2807-3067
<i>Clan Fire Mandrill</i>	2807-3067
<i>Clan Goliath Scorpion</i>	2807-3067
<i>Clan Hell's Horses</i>	2807-3067
<i>Clan Ice Hellion</i>	2807-3067
<i>Clan Jade Falcon</i>	2807-3067
<i>Clan Snow Raven</i>	2807-3067
<i>Clan Star Adder</i>	2807-3067
<i>Clan Steel Viper</i>	2807-3067
<i>Clan Wolf</i>	2807-3067
Ghost Bear Dominion	3060-3067
Clan Nova Cat	2807-3067
Clan Wolf (in-Exile)	3057-3067

*Deep Periphery States; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

†Allied with ComStar

‡The Second Star League included the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, Clan Nova Cat, Clan Wolf (in-Exile), and the St. Ives Compact. The Taurian Concordat and Word of Blake Protectorate joined as secondary members in 3064.

The Civil War Era (3062-3067)

The manufacturing surge of the Clan Invasion continued as the FedCom Civil War raged, while the technology gap between the Inner Sphere and the Clans narrowed further. Although the Second Star League existed throughout this period, it accomplished little to stem the tide of conflict that forever sundered the Davion-Steiner alliance, and set the stage for the Jihad that soon followed.

Factions Available: The Civil War Era Factions List (at left) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

In the Civil War era, the Second Star League continued to exist as an entity to which the allied member states were expected to provide support. However, as its original mandate remained a check against the Clans, and did not fully unify the Inner Sphere in the manner the original Star League did, the various realms remained wholly independent of this Second League, and its influence waned throughout this period.

Once more, we must also note that the names appearing on the list reflect those most commonly used by the universe at large, even if they were not technically accurate. For example, the Federated Commonwealth continued to exist until the end of the FedCom Civil War, with the Davion half of the realm legally known by that name. However, most people simply referred to this state as the Federated Suns after the Lyran secession of 3057. Thus, the tables reflect the names under which these realms were most commonly known for the bulk of the years listed.

Unit Types: All factions involved in the Civil War era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. Furthermore, all factions except the Periphery states gained access to WarShip technologies. The Clans also employed ProtoMechs.

New Castles Brian may not be constructed during the Civil War period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—were available to both Inner Sphere and Clan technology bases during this period.

Technology Base: The interaction between the Clans and the Inner Sphere continued in the Civil War era, but Inner Sphere realms remained largely unable to mass produce equipment made for the Clan technology base. Captured technologies continued to enable both groups to intermix certain items as time progressed, but Mixed Tech units remained the exception to the rule.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3067 or earlier. When constructing units for scenarios set in this era, the



same date limit of 3067 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: Fueled as much by the return of inter-realm conflicts as by the constant threat of renewed Clan hostilities, the Civil War era continued the arms race that surged during the Invasion years. Once more, most of these technologies have already been covered by the rules in *Total Warfare* and both *Tactical Operations*, and so are largely considered a baseline for play in generic *BattleTech* games.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating forces for this era should note that the Civil War saw the use of the following era-unique items:

- The EI neural implant system remained in use among the Clans (see *Augmented Warriors*, pp. 68-79)
- The Word of Blake began advance deployment of cybernetically enhanced troops in limited operations (see *Augmented Warriors*, pp. 68-79)

- Limited use of nuclear and chemical weapons were seen in this era, including the Black May nerve gas attacks during the St. Ives War, and renegade actions in the FedCom Civil War (see *Weapons of Mass Destruction*, pp. 160-162)

JIHAD ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Jihad Era.

The Jihad Era (3068-3085)

When the member states of the Second Star League voted to disband the organization, the event triggered a surge of violence from the Word of Blake, which had pinned many of its grand designs on that union. The Jihad, as it came to be known, quickly swept across the entire Inner Sphere, and even had repercussions as far as the Clan homeworlds (where a similar upheaval, known as the Wars of Reaving, soon

JIHAD ERA FACTIONS LIST

Jihad Era	
Capellan Confederation	2367-3085
Draconis Combine	2319-3085
Federated Suns	2317-3085
<i>Malagrotta Cooperative*</i>	3073-3079
<i>Filtvelt Coalition*</i>	3072-3085
Free Worlds League	2271-3079
<i>Duchy of Andurient†</i>	3079-3085
<i>Duchy of Orientet†</i>	3079-3085
<i>Duchy of Tamarind-Abbey†</i>	3071-3085
<i>Marik-Stewart Commonwealth†</i>	3082-3085
<i>Rim Commonality†</i>	3075-3085
<i>Other League worlds†</i>	3079-3085
Lyran Commonwealth/Alliance‡	3057-3085
ComStar	2788-3085
Republic of the Sphere	3081-3085
Word of Blake Protectorate	3066-3078
Word of Blake	3052-3081
Taurian Concordat	2335-3085
Calderon Protectorate	3066-3085
Magistracy of Canopus	2530-3085
Fronc Reaches	3066-3085
Circinus Federation	2785-3081
Hanseatic League§	2891-3085
Marian Hegemony	2920-3085
Rim Collection	3048-3085
Free Rasalhague Republic	3034-3085
Niops Association	ca. 2760-3085
Fiefdom of Randis	2988-3085
The Homeworld Clans ¶	2807-3085
<i>Clan Blood Spirit ¶</i>	2807-3085
<i>Clan Cloud Cobra ¶</i>	2807-3085
<i>Clan Coyote ¶</i>	2807-3085
<i>Clan Fire Mandrill ¶</i>	2807-3073
<i>Clan Ice Hellion ¶</i>	2807-3074
<i>Clan Star Adder ¶</i>	2807-3085
<i>Clan Steel Viper ¶</i>	2807-3075
<i>Clan Stone Lion ¶</i>	3075-3085
Escorpión Imperio ¶	3080-3085
<i>Clan Goliath Scorpion ¶</i>	2807-3085
<i>Castilian Principalities ¶</i>	2392-3080
<i>Umayyad Caliphate ¶</i>	2830-3080
The Council of Six Clans	3075-3085
<i>Clan Diamond Shark</i>	2807-3085
<i>Clan Hell's Horses</i>	2807-3085
<i>Clan Jade Falcon</i>	2807-3085
<i>Clan Wolf</i>	2807-3085
Ghost Bear Dominion	3060-3067
Raven Alliance	3083-3085
<i>Clan Snow Raven</i>	2807-3083
<i>Outworlds Alliance</i>	2413-3083
Abjured Clans	
<i>Clan Nova Cat</i>	2807-3085
<i>Clan Wolf (in-Exile)</i>	3057-3085

*Separated from Federated Suns (Malagrotta reclaimed in 3079); Filtvelt allied with Federated Suns

†Separated from Free Worlds League; Duchy of Tamarind-Abbey renamed from Duchy of Tamarind in 3078

‡The Lyran Alliance renamed itself to Lyran Commonwealth in 3084.

§Deep Periphery states; these realms remained largely isolated from the Inner Sphere throughout the Jihad era

||Allied with ComStar until 3071; from 3070 and onward, allied with Ghost Bear Dominion.

¶Homeworld/Deep Periphery states; these realms are isolated from the Inner Sphere after the Jihad era; Of the Homeworld Clans, Blood Spirit and Steel Viper were annihilated, while the remnants of Ice Hellion were absorbed into Clan Goliath Scorpion; Clan Stone Lion formed from remnants of the Hell's Horses Clan left in the Homeworlds.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



erupted). In many ways, the Jihad era punctuated the decades-long military-industrial resurgence that began just prior to the Clan Invasion.

Factions Available: The Jihad Era Factions List (see p. 22) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

In addition to the collapse of the Second Star League and the birth of the Republic of the Sphere amid the ashes of the Word of Blake Protectorate, the Jihad era also saw a sundering of the Clans, in which the homeworlds and Deep Periphery regions between the homeworlds and Inner Sphere broke all contact with the Inner Sphere realms and Clans.

Unit Types: All factions involved in the Jihad era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. All major factions except for those of the Periphery also maintained access to WarShips in this period, while the Clans continued to employ ProtoMechs as well.

New Castles Brian may be constructed during the Jihad period, but only by the Word of Blake or the Clan factions operating in their homeworlds.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—remained available to Inner Sphere and Clan technology bases throughout this period.

Technology Base: The Inner Sphere and Clan technology bases remained fundamentally separate throughout the Jihad era, but by this point some Inner Sphere producers had managed to achieve enough Clan-level sophistication to produce functional copies of Clan tech at massive expense. The Inner Sphere realms remained unable to mass produce this equipment, but this progress enabled them to field Mixed Tech units with more regularity than ever before.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere units with an introduction date of 3085 or earlier. When constructing units for scenarios set in this era, the same date limit of 3085 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

Special Equipment: The Jihad saw the apex of Inner Sphere and Clan development to date, with numerous dangerous and experimental technologies rushed to the battlefield by the various combatants. The Word of Blake, finding itself woefully outnumbered, resorted to wide-scale use of weapons of mass destruction, robotic technologies, and cybernetically-enhanced terror agents, while several Inner Sphere powers reluctantly responded with super-weapons of their own.

The Clan homeworlds suffered a similar shake-up as a result of the Wars of Reaving, and the brief rebellion of the scientist caste's Society, though many of these technological developments remained unknown to the Inner Sphere for years to come.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 59-177), players creating forces for this era should note that the Jihad saw the development and use of the following era-unique items:

- Word of Blake Manei Domini and Thuggee Phansigars brought first large-scale use of cybernetically hyper-augmented troops to the field (see *Augmented Warriors*, pp. 68-79)
- Word of Blake tested cybernetics-based interface for BattleMechs and captured Clan ProtoMechs (see *Inner Sphere ProtoMech Interface* and *Machina Domini Interface* pp. 96 and 110)
- Land-Air BattleMechs made a brief resurgence thanks to Word of Blake developments (see *Land-Air BattleMechs*, pp. 99-109)
- Various Inner Sphere factions desperately turned to older engineering standards to supplement their battered infrastructure, leading to a surge in “RetroTech” (see *Primitive Units and RetroTech*, pp. 114-125)
- Word of Blake relied heavily on robotics and drones to back up their limited defenses (see *Robotic and Drone Control Systems*, pp. 128-153)
- Word of Blake debuted a costly super-jump system (see *Word of Blake Super-Jump Drive*, p. 177)
- Word of Blake perfected superheavy BattleMechs (see *Superheavy Mech*, pp. 153-157)
- Chemical, biological, and nuclear weapons of various types were used by numerous factions (see *Weapons of Mass Destruction*, pp. 160-162)
- The Clans developed a number of new technologies in the Wars of Reaving (see *Advanced Clan Equipment*, pp. 58-31)
- The Clans added greater diversity in design options to their ProtoMech units (see *Expanded ProtoMechs*, pp. 92-96)

DARK AGE ERA

The following describes the factions, unit types, and other game-affecting data that should be used when playing scenarios and campaigns set in the Dark Age Era.

The Republic Age Sub-Era (3086-3130)

After the devastation of the Jihad and the birth of the Republic of the Sphere, the Inner Sphere realms and Clans focused much of their energies on rebuilding infrastructure first. With expensive JumpShip manufacturing and maintenance high on their priorities, WarShips became a luxury few could afford. Meanwhile, the need to produce basic goods and industrial repair equipment put the expansion of armies on the back burner. Much of this was played off as a “peace dividend” in the wake of the horrors of the Word of Blake war, but in fact it simply signified a lull in military production.

The Inner Sphere powers and Clans remained largely ignorant of events in the Clan homeworlds and the Deep Periphery between them after the Jihad. Although what has occurred in this region is largely undefined as of this writing, basic details will be covered in the Clan Post-Reaving Sub-Era section (see p. 24).





Factions Available: The Republic Age Sub-Era section of the Dark Age Era Factions List (see p. 25) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery (and throughout the former Free Worlds League borders) in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Unit Types: All factions involved in the Republic Age sub-era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. WarShips were available in limited deployment, but these represented survivors of the Jihad, rather than any form of new construction.

New Castles Brian may only be constructed by the Republic of the Sphere or the Inner Sphere Clans during the Republic Age period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—remained available to all Inner Sphere and Clan powers during this period.

Technology Base: Due to closer Clan and Inner Sphere interactions and trade throughout the Republic Age period, coupled with advancing Inner Sphere manufacturing standards, Mixed Tech became more commonplace during this time. The Inner Sphere realms still favored the Inner Sphere technology base for core construction, but the major states (as noted with boldface in the Factions List) could produce controlled numbers of Clan-spec components and equipment.

The Clans residing in the Inner Sphere maintained their own high construction standards in this period, but likewise gained access to unique Inner Sphere tech through trade and other interactions. This enabled them to produce their own Mixed Tech units, albeit in far fewer numbers.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all options to Inner Sphere and Inner Sphere-based Clan units with an introduction date of 3130 or earlier. When constructing units for scenarios set in this era, the same date limit of 3130 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios set outside of the Inner Sphere, see *Clan Post-Reaving Sub-Era* (p. 24).

Special Equipment: Unlike the aftermath of the first Star League and the devastating early Succession Wars, the Jihad and Wars of Reaving did not prompt a backslide of technology, even with so many factories and worlds in ruins. Indeed, even though many of the Word of Blake's experimental technologies were lost (including the super-jump drive, LAMs, special interfaces, and such) a number of less-radical technological improvements emerged during the Dark Age, with a few appearing even in this earlier period of reduced conflict.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 58-177), players creating forces for this era should note that the Republic Age saw the development and use of the following era-unique items:

- Numerous new armor technologies, TSEMP weapons, and radical heat sinks appeared in this period (see *Dark Age Equipment*, pp. 80-85)

The Late Dark Age Sub-Era (3131-3150)

Rising tensions across the Inner Sphere, and the 3130 retirement of Devlin Stone, founder and leader of the Republic of the Sphere, heralded the chaos that would soon erupt when roughly eighty percent of the interstellar communications network failed in 3132. The resulting economic and political upheavals soon led to widespread fighting as ancient enmities resurfaced and local leaders seized the opportunity to claim power for themselves.

Factions Available: The Late Dark Age Sub-Era section of the Dark Age Era Factions List (see p. 25) defines which militarily significant realms are available for play during this era. Other smaller powers and independent worlds continued to survive at the outskirts of the Periphery in this period, but these scattered worlds and minor powers lacked any significant impact on the grand scale, and thus do not appear in the list.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Unit Types: All factions involved in the Late Dark Age sub-era possessed access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, and mobile structures. New WarShips remain out of production, but all of the major states and Clans still retain survivors of the Jihad era.

New Castles Brian may only be constructed by the Republic of the Sphere or the Inner Sphere Clans during the Late Dark Age period.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—are available to both the Inner Sphere and Clan technology bases throughout this period, though post-Jihad cost cuts led to a brief period in which fewer units were developed as Omnis than previously.

Technology Base: As with the Republic Age sub-era, closer interactions and trade throughout the Inner Sphere and its resident Clans have rendered Mixed Tech more common than ever. The Inner Sphere realms still favored the Inner Sphere technology base for core construction, but at this point, the major states have begun to reach Clan levels of sophistication, leading to the first home-grown “Tech Rating F” items of purely Inner Sphere manufacture.

The Clans residing in the Inner Sphere maintained their own high construction standards in this period, but likewise gained access to unique Inner Sphere tech through trade and other interactions. This enabled them to produce their own Mixed Tech units, albeit in far fewer numbers.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all Inner Sphere and Inner Sphere-resident Clan forces to units with an introduction date of 3150 or earlier. When constructing units for scenarios set in this era, the same date limit of 3150 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For Clan forces and scenarios set outside of the Inner Sphere and local Periphery, see *Clan Post-Reaving Sub-Era* (see below).

Special Equipment: Drawing on technological experiments first pioneered by the Word of Blake, the Republic of the Sphere put forth a surge of new equipment in the latter Dark Age period, debuting the superheavy tripod “Colossals” and special-purpose RISC equipment. The Clans, meanwhile, introduced their new QuadVee concept, a ground-based unit vaguely derived from Land-Air BattleMechs.

Of the alternate era-based units and equipment featured in the next chapter (see pp. 58-177), players creating forces for this era should note that the late Succession Wars saw the development and use of the following era-unique items:

- Additional new armors and weaponry (see *Dark Age Equipment*, pp. 80-85)
- The Republic’s superheavy “Colossals” (see *Superheavy ‘Mechs and Tripod ‘Mechs*, pp. 153-177 and 157-159)
- A special ‘Mech-mountable drone control system debuted on Solaris (see *Remote Drone Command Console*, p. 84)
- Clan Hell’s Horses introduced the QuadVee (see *QuadVeEs*, pp. 127-128)
- The Republic demonstrated several experimental technologies (see *RISC Equipment*, pp. 85-87)

Clan Post-Reaving Sub-Era (3086-3150)

Very little is known about the Clan homeworlds, and the Deep Periphery separating them and the Inner Sphere, between the end of the Jihad and the end of the Dark Age era. A full exploration of these venues is beyond the focus of this book, and will be left to later publications.

What is known is that, in the wake of the Wars of Reaving, only four Clans remained in the Homeworlds, with all others expelled and barred from returning. The veil of secrecy surrounding this event extended into the Inner Sphere, keeping many unaware of the full extent of this expulsion, beyond the fact that the Periphery and Deep Periphery regions between the Inner Sphere and Homeworlds are patrolled regularly enough to discourage interaction. Trade is non-existent, and no news has emerged from the Homeworlds in roughly sixty years.

Factions Available: The Clan Post-Reaving Sub-Era section of the Dark Age Era Factions List (see p. 25) defines which militarily significant realms are available for play in the Clan Homeworlds and Deep Periphery during this era. The factions holding these territories will not allow smaller powers to exist that may be a threat to them, so there are no independent worlds or minor powers of any significant military presence in this region.

Faction names given in bold text indicate major powers, while names in italics indicate factions that ultimately merged into larger states. (Factions that united with a larger power appear as a list below the realm they merged into.) Factions which are neither

bold nor italicized are minor powers that were never absorbed into larger states, or which broke off from larger states.

Because of the aggressive efforts to discourage interaction between the two regions, the Homeworld Clans and Deep Periphery states between them and the Inner Sphere are considered wholly separate from the events in the Inner Sphere and among the Inner Sphere-resident Clans.

Unit Types: All factions involved in the Clan Post-Reaving sub-era have access to conventional infantry, battle armor, combat vehicles, support vehicles, conventional and aerospace fighters, IndustrialMechs, BattleMechs, small craft, DropShips, JumpShips, space stations, WarShips, and mobile structures.

New Castles Brian may be constructed throughout the Clan Homeworlds in this period.

ProtoMechs, tainted by their widespread use during the Wars of Reaving, all but vanished among the Homeworld Clans by the end of the thirty-first century.

Modular technologies—as found in OmniMechs, OmniFighters, and OmniVehicles—exist among all Clan factions (including the Escorpión Imperio) during this period, but are not available to non-Clan powers.

Technology Base: The Homeworld Clans use the Clan technology base. The Escorpión Imperio uses Mixed Tech with an Inner Sphere technology base, but retains the ability to produce Clan weapons and equipment. All other non-Clan powers in this region may only use the Inner Sphere technology base.

Alternate Era Units and Equipment: When selecting previously published units for scenarios set in this era, restrict all Clan faction unit options to those that have an introduction date of 3085 or earlier. When constructing units for scenarios set in this era, the same date limit of 3085 and earlier applies to all equipment selections, including core components such as chassis types, armor, and the like.

For non-Clan factions in this region and sub-era, restrict the unit selections to those with an introduction date of 3049 or earlier, and restrict construction options to the same date limits as well. This reflects the degradation of technological ability caused by their imposed isolation from the Inner Sphere.

Special Equipment: The Clan factions in this region and sub-era have access to all technologies that appeared in the Wars of Reaving, though some components may be limited due to their extinction. The non-Clan factions, meanwhile, have been struggling to get by with much more obsolete technology and manufacturing abilities, thus sparking a surge of “RetroTech” to make up for the shortfall.

Of the alternate era-based units and equipment featured in the next chapter, players creating forces for this era should note that the Clan Post-Reaving Sub-Era saw the development and use of the following era-unique items:

- Wars of Reaving-era equipment (see *Advanced Clan Equipment*, pp. 58-61)
 - Deep Periphery RetroTech appears in the Hanseatic League (see *Primitive Units and RetroTech*, pp. 114-125)
 - The Escorpión Imperio, in an effort to upgrade its native manufacturing to Clan standards, has been flooded with lower-quality samples of Clan equipment (see *Early Clan Improved Equipment* and *Early Clan Prototype Systems*, pp. 89-90 and 91-92)
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DARK AGE ERA FACTIONS LIST

The Republic Age (3086-3130)	
Capellan Confederation	2367-3130
Draconis Combine	2319-3130
Federated Suns	2317-3130
Lyran Commonwealth	2341-3130
Republic of the Sphere	3081-3130
ComStar	2788-3130
Regulan Fiefs	3086-3130
Duchy of Andurien	3079-3130
Duchy of Tamarind-Abbey	3071-3130
Marik-Stewart Commonwealth	3082-3130
Oriente Protectorate	3086-3130
Rim Commonality	3075-3130
Taurian Concordat	2335-3130
Magistracy of Canopus	2530-3130
Niops Association	ca. 2760-3130
Marian Hegemony	2920-3130
Lothian League*	3087-3130
Fiefdom of Randis	2988-3130
Rim Collection	3048-3130
Calderon Protectorate	3066-3130
Fronc Reaches	3066-3130
Filtvelt Coalition†	3072-3130
The Council of Six Clans	3075-3130
Clan Sea Fox/Diamond Shark‡	2807-3130
Clan Hell's Horses	2807-3130
Clan Jade Falcon	2807-3130
Clan Wolf	2807-3130
Rasalhague Dominion	3103-3130
Ghost Bear Dominion	3060-3103
Free Rasalhague Republic	3034-3103
Raven Alliance	3083-3130
Abjured Clans	
Clan Nova Cat	2807-3130
Clan Wolf (in-Exile)	3057-3130

*Broke from Marian Hegemony in 3087

†Allied with Federated Suns

‡Clan Diamond Shark renamed itself to Clan Sea Fox in 3100

§Homeworld/Deep Periphery states: these realms remained isolated from the Inner Sphere after the Jihad era, and their form—if any—at this point remains unknown

Late Dark Age Sub-Era (3131-3150)	
Capellan Confederation	2367-3150
Draconis Combine	2319-3150
Federated Suns	2317-3150
Free Worlds League (New)	2271-3150
Clan Protectorate	3138-3139
Duchy of Tamarind-Abbey	3071-3139
Marik-Stewart Commonwealth	3082-3138
Oriente Protectorate	3086-3139
Rim Commonality	3075-3139
Lyran Commonwealth	2341-3150
Republic of the Sphere	3081-3150
ComStar	2788-3150
Regulan Fiefs	3086-3150
Duchy of Andurien	3079-3150
Taurian Concordat	2335-3150
Magistracy of Canopus	2530-3150
Niops Association	ca. 2760-3150
Marian Hegemony	2920-3150
Fiefdom of Randis	2988-3150
Rim Collection	3048-3150
Calderon Protectorate	3066-3150
Fronc Reaches	3066-3150
Filtvelt Coalition†	3072-3150
Lothian League	3087-3150
The Council of Six Clans	3075-3150
Clan Hell's Horses	2807-3150
Clan Jade Falcon	2807-3150
Clan Sea Fox	2807-3150
Wolf Empire	3143-3150
Clan Wolf	2807-3150
Rasalhague Dominion	3103-3150
Raven Alliance	3083-3150
Abjured Clans	
Clan Nova Cat	2807-3143
Clan Wolf (in-Exile)	3057-3150
Clan Post-Reaving Era (3086-3150)	
The Homeworld Clans§	2807-3150
Clan Cloud Cobra§	2807-3150
Clan Coyote§	2807-3150
Clan Star Adder§	2807-3150
Clan Stone Lion§	3075-3150
Escorpión Imperio§	3080-3150
Hanseatic League§	2891-3150

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

THE UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Over the years that the *BattleTech* universe has existed, the various other rulebooks than core books have introduced equipment and unit types driven as much by story lines as they have been by game balance. In an effort to reflect a setting where constant warfare inspires ever more sophisticated weapons and defenses, each subsequent rulebook and supplemental introduced new items and equipment, to the point that the core rulebooks today carry hundreds of special rules to reflect in-universe technologies that simply did not exist when *BattleTech* was new.

In an effort to define these items for newer players, the core books introduced three broad levels of rules governing the units and equipment of the *BattleTech* setting: Tournament Legal, Advanced, and Experimental. Still, over the course of this series and the game line's many supplements, even these labels fall short of defining the nature of *BattleTech's* technological evolution.

This is especially true in era-based game play. The rules levels were suitable to define the complexity of a new item or unit and help players determine the appropriate sources to govern their core rules. But in era-based play, the commonality of such elements is defined in the setting. Thus, just as the technologies have evolved in-universe, so too will their availability in any games in which the era of play is a factor.

Era-based play is reflected in the Universal Technology Advancement Table (see pp. 29-57). This table breaks down virtually every distinct unit type and piece of equipment presented in the core rules series and identifies its core Tech Base and Tech Rating. The table also details the in-universe years when it was prototyped, placed into general production, and became widespread enough to be considered commonplace.

Tech Base: The Tech Base, as ever, defines whether the item requires an Inner Sphere or Clan technology base for production. A Tech Base of "IS" indicates that the item can only be produced in the Inner Sphere. A Tech Base of "Clan" means that the item can only be produced by the Clans. A Tech Base of "All" means that the item is available to both technology bases.

Tech Rating: The Tech Rating defines the minimum technology level of the item, and is often used as a limiting factor in Support Vehicle construction or tech-restrictive campaigns. This rating uses the same A through F scale introduced in *TechManual*, under which a Tech Rating of A reflects an item that can be made even with extremely primitive techniques, while a Tech Rating of F reflects the cutting-edge manufacturing once found only among the Clans.

It is worth stressing that Tech Rating values are an abstraction of the minimum industrial base and material resources needed to manufacture a given item, and should not be used as the sole factor for identifying an item's era of play. Some items might receive a much lower rating than their introduction dates would suggest (such as Inferno munitions for modern artillery pieces, and flak shells for modern autocannons, which have a Tech Rating of B even though most of the weapons that use them didn't appear until the Age of War or later). This represents the



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The arms race, far more pronounced in the unstable Clan Occupation Zones, is responsible for unusual assault battle armor like the Warg



simplicity of their overall manufacture and material needs for their construction, rather than an actual introduction date. Conversely, other items might have a high Tech Rating despite emerging in an era when the majority of contemporary tech was much lower (such as enhanced prosthetic limbs, which have the Tech Rating of E normally associated with the Star League era or post-Clan Invasion, despite the fact that they came about centuries earlier). This represents a level of extra-fine development and manufacturing techniques that were literally “ahead of their time.”

Availability Ratings: The availability codes listed in the Universal Technology Advancement Table represent the general level of access the factions within the corresponding Tech Base have to the item in question. Previously listed as three-letter codes, broadly corresponding to the Star League, Succession Wars, and Clan Invasion eras, these codes are expanded here to include a fourth letter that corresponds to the Dark Age era. For the purpose of calculating availability ratings (see p. 286, *TM*) this starts with the Dark Age sub-era (3131). Like the Tech Rating, Availability Ratings use an A-through-F code system, where A represents an item so common it is almost ubiquitous, while F represents an item that is extremely hard to come by. An Availability code of X for a given era means the item doesn’t exist, has gone extinct, or is so incredibly rare as to be effectively unique in the universe.

The primary caveat with item availability codes is that they correspond to the Tech Base listing for that same item. The Availability Ratings for an item that appears in the Clan Tech Base apply to the Clans only; Inner Sphere forces may only attempt to acquire a Clan Tech item from the year 3050 onward, at which point they must consider the Availability Rating for that item one level higher for the relevant era of play. If this rating would be raised from an original rating of F, the force’s controlling player must roll 1D6, and consider the item to have an Availability of X on a roll of 1, 2, or 3.

For items with an Inner Sphere Tech Base made after the start of the Succession Wars, Clan forces can only acquire the item during the Clan Invasion and Dark Age eras, at which point the Availability Rating is considered the same as that of the Inner Sphere forces.

For items with a Tech Base of “All”, Inner Sphere forces must raise the Availability by one letter code for the item if it has a code of E or F for the Succession Wars era *and* the game scenario is set after any listed Extinction Date for the item (which will appear under the Notes column). For scenarios set during the Star League era, or those set from the Clan Invasion through the Dark Age, the availability code for an item with a Tech Base of “All” is considered to be unchanged. As above, if a letter code is increased from a code of F, the player must roll 1D6, and consider the item to have an Availability of X on a roll of 1, 2, or 3.

Prototype (Faction): Prototype items are those which have only just gotten off the drawing board and made it into limited production on a restricted scale. At this level, the item may still be proprietary to their listed faction (though other factions in the same Tech Base may be developing or testing their own equivalents), or simply be so rarely employed that most forces can reasonably expect to never encounter it in the field. In terms

of game rules, Prototype items that have no corresponding Production year, or which are fielded in scenarios set between their Prototype date and the date they enter Production, must be considered Experimental-level items.

Production (Faction): Production items have entered a phase where they have been approved for general manufacture, but are still considered proprietary to the producing faction(s) and their allies. At this point, the items are no longer in a “prototype” format, but instead use their “final” in-game rules. These items might be rare for a time, but will almost certainly reach Common status as they spread to other realms and manufacturers. In some cases, however, an item might not leave this phase because it is either too niche, too expensive, or too outclassed by other technologies on the market. In terms of game rules, Production items that have no corresponding Common year, or which are fielded in scenarios set between the date of Production and the date they become Common, must be considered Advanced-level items.

Common: Common items are those which have reached such a broad level of production or access across various factions that they have effectively ceased to be proprietary and now can reasonably appear among all factions of a given technology base. (In the case of Periphery powers, however, even Common items can be quite limited in nature, with most failing to become truly common in the Periphery realms for decades after the rest of the Inner Sphere has gained access.)

Page Reference: Page numbers in *TechManual (TM)*, *Tactical Operations: Advanced Units & Equipment (TO:AUE)*, *Strategic Operations (SO)* or *Interstellar Operations: Alternate Eras (IO:AE)* are the corresponding item rules.

Notes: If something noteworthy about the item or unit type is needed (such as different introduction dates for an item that has both a Clan and an Inner Sphere debut), or if the item ever went extinct and/or was recovered in its lifetime, it will be defined in the item’s notes.

Estimated Introductions: Any year preceded with a tilde (~) reflects an estimated year of introduction, usually due to the fact that some factions gained access to the technology or technique approximately a year or two before others. Because of the vagaries of the period and a confluence of trade and parallel developments, whenever an exact date of introduction is estimated in this fashion, there is an opportunity for campaign gamemasters and players to slip in new items of technology unexpectedly sooner (or later) than anticipated, perhaps by as many as 3 years before or after the listed year. Indeed, if randomness is desired, simply add (1D6 – 3) to an item’s estimated year of introduction to determine if it is available at the given year of play.

EVOLVING TECHNOLOGY IN CAMPAIGN PLAY

Players will find rules for Prototype-level items in later chapters, providing the in-game effects for those weapons and equipment in the earliest versions of their present-day form. These prototype rules also include the Production and Common dates for each piece of equipment. This allows the Universal Technology Advancement Table to present several related items on a single line, and allows for players to roll out updates based on the scenario’s in-universe date.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

For example, the standard autocannon/10 (AC/10) is listed with a Prototype date of “2450 (TH)”, a Production date of “2460 (TH)”, and a Common date of 2465. Thus, in games set from 2450 to 2459, the players would use the Primitive Prototype rules whenever a unit in that time period employs a standard AC/10, ideally restricting such weapons to Terran Hegemony units the closer the date is to 2450. After 2459 but before 2465, Terran Hegemony forces may update *all* of their Primitive Prototype AC/10s to the standard rules AC/10, using the rules for replacing weapons as presented in *Campaign Operations* (see pp. 211-214, CO). Meanwhile, other affiliations would continue to use the Primitive Prototype rules for their AC/10s until 2465, at which point the weapon system becomes available for all factions to purchase or produce replacements and update their own units.

Extinctions and Recovery

If, after its original debut, item went extinct and was subsequently rediscovered, its returned form may have undergone a similar prototype phase. Consult the rules in this chapter, and the Alternate Era Equipment Tables, to see if and when such items returned, paying special attention to whether the item has a Prototype listing that corresponds to a modern system. Between this Prototype date and the final return date for the listed weapon system, any faction with access to such weapons would use the Prototype form.

For example, in the Universal Technology Advancement Table, the ER large laser has a Production date of “2620 (TH)”, indicating that it was available to the Terran Hegemony from 2620 onward, but its Common date is “3045”. The notes for the weapon on the same table say “Ext: 2950; Ret: 3037 (DC)”. This indicates that the ER large laser became extinct in the Inner Sphere in 2950, but was returned to service by the Draconis Combine in 3037.

Consulting the rules for the Late Succession Wars (which cover the dates when the weapon returned), we find that the Inner Sphere Recovered Prototype rules may apply. Checking those rules and the Alternate Era Equipment Tables, we find that the Late Succession Wars prototype ER large laser appeared in the Inner Sphere in 3030. Since the Draconis Combine is credited with the weapon’s recovery, we can presume that the recovered weapon’s prototype begins showing up on DCMS units as early as 3030, and enters full Production 3037.

Between 3030 and 3045, other Inner Sphere factions may also field recovered prototypes of the ER large laser, but they will be unable to upgrade to the final weapon form until at least 3045, since the weapon has not become Common until then (per the Universal Technology Advancement Table).

Missing Data

In some cases, the Universal Technology Advancement Table presents items that have no Common date, no Production date, or even a Prototype date with no corresponding prototype rules. The following guidelines apply in such conditions.

Missing Common Date: An item without a date for Common availability, but which has a Production date, is only available in limited distribution. Even if a specific faction is listed as producing this item, the item may be produced by or available to any Major power (Successor State or Clan) within ten years of its Production date, as long as it has not gone extinct in the meantime. If randomness is desired, roll 2D6 and add the result



Extinct during the Succession Wars, the Koschei saw a resurgence in the late 3060s.

to the Production year to find the year in which the item becomes available to any given factions other than the one listed in the Production date column.

Missing Common and Production Dates: An item that appears with only a Prototype date never reached full-scale production, or is in extremely limited distribution. As long as such items are not listed as extinct, they may appear in factions other than those that first prototyped them. However, they may only do so 3D6+5 years after the first prototypes emerged, and even then in the most limited of deployments—as long as the technology does not lapse into extinction before then. Even though they are listed as Prototypes, many items that fall under this distinction will function in accordance with their normal game rules, as they will lack any form of alternate, Prototype-phase rules.

For example, the nuclear weapons in this chapter are all presented with a Prototype date and no corresponding Production or Common dates. These weapons will function in accordance with their rules as written in this chapter, without any further modifications.

Missing Prototype Rules: As indicated above, an item that lacks any Prototype-level rules, but which has a Prototype date, will use its “normal” rules, with no special modifications. In this case, the lack of Prototype-level rules indicates that it is in minimal distribution.

Other Notes

Throughout the Universal Technology Advancement Table, other notes may appear with more specific information provided. Some will indicate differing dates for the item’s Prototype phase, Production date, extinction, or recovery. Others may indicate that an item is “always available,” regardless of its advancement level. We’re explaining them here.

Key of Terms

The Key of Terms for the Universal Technology Advancement Table appears on page 57.



UNIVERSAL TECHNOLOGY ADVANCEMENT TABLE

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Advanced 'Mech/ProtoMech/Vehicular Motive Systems							
Jump Jets ['Mech]	All/D	CCCC	2464 (TH)	2471 (TH)	2500	225, <i>TM</i>	—
Improved Jump Jets ['Mech]	All/E	XXED	~3060 (CWX)	3069 (CWX/CWF)	3071	225, <i>TM</i>	IS Intro: 3070 (LC)
ProtoMech Jump Jets	Clan/D	XXDC	~3055 (CSJ)	3060 (CSJ)	3060	225, <i>TM</i>	—
Extended Jump Jets (XJJ) System [ProtoMech]	Clan/F	XXFD	~3071 (CSR)	3075 (CSR)	3085	59, <i>IO</i>	—
ProtoMech Myomer Booster	Clan/F	XXFE	~3066 (CBS/CIH)	3068 (CBS/CIH)	3075	232, <i>TM</i>	—
Jump Pack / 'Mech Drop Pack	All/D	CDCC	~2430 (TH)	2457 (TH)	—	104, <i>TO:AUE</i>	—
MASC [IS]	IS/E	DFED	~2730 (TH)	2740 (TH)	3040	233, <i>TM</i>	Ext: 2795; Ret: 3035 (CC)
MASC [Clan]	Clan/F	XFED	~2820 (CIH)	2827 (CIH)	2835	233, <i>TM</i>	—
'Mech Mechanical Jump Boosters	IS/E	XXFE	~3060 (FS)	3083 (FS/LC)	3090	104, <i>TO:AUE</i>	—
Partial Wing [BattleMech]	All/F	XXED	3067 (CJF)	~3085 (CJF)	3090	104, <i>TO:AUE</i>	IS Prototype: 3074 (Merc)
Partial Wing [ProtoMech]	Clan/F	XXED	3070 (CBS)	3085 (CSR)	3090	104, <i>TO:AUE</i>	—
UMUs ['Mech]	All/E	XXED	~3061 (CGS)	3066 (LC)	3084	107, <i>TO:AUE</i>	Clan Intro: 3072 (CWX)
UMUs [ProtoMech]	Clan/E	XXFE	~3065 (CBS)	~3075 (CBS)	3084	95, <i>IO</i>	—
Vehicular Jump Jets	All/E	EXFE	2650 (TH)	~3083 (CHH)	—	160, <i>TO:AUE</i>	Ext: 2840; Ret: 3083 (CHH)
VTOL Jet Booster	All/D	XFED	3009 (FS)	~3078 (FS)	—	162, <i>TO:AUE</i>	Clan Prototype: 2839 (CHH)
Supercharger	All/C	FFFD	ES	~3078 (All)	—	157, <i>TO:AUE</i>	—
Tracks ['Mech]	All/C	DEED	~2430 (DC)	2440 (DC)	2500	249, <i>TM</i>	—
Anti-Missile Systems							
Anti-Missile System [IS]	IS/E	EFDC	~2613 (TH)	2617 (TH)	3048	204, <i>TM</i>	Ext: 2835; Ret: 3045 (CC)
Anti-Missile System [Clan]	Clan/F	XFDC	~2824 (CSA)	2831 (CSA)	2835	204, <i>TM</i>	—
Laser Anti-Missile System [IS]	IS/E	XXED	3059 (FS)	~3079 (FS)	3145	134, <i>TO:AUE</i>	—
Laser Anti-Missile System [Clan]	Clan/F	XXED	3048 (CWF)	~3079 (CWF)	3145	134, <i>TO:AUE</i>	—
Armor ('Mech/Vehicle/Fighter)							
Commercial Armor	IS/B	BBAA	~2290 (TA)	~2300 (TA)	2310	205, <i>TM</i>	—
Primitive Aerospace Fighter Armor	IS/C	BCBB	ES	~2300 (TA)	~2315	119, <i>IO</i>	—
Primitive 'Mech/Industrial Armor	IS/C	BCBB	~2430 (TH)	~2439 (TH)	2439	205, <i>TM</i>	—
Standard (or Heavy Industrial) Armor	IS/D	CCCB	~2460 (TH)	2470 (TH)	2470	205, <i>TM</i>	—
Anti-Penetrative Ablation (ABA) Armor	IS/E	XXXE	3105 (DC)	3114 (DC)	—	80, <i>IO</i>	—
Ballistic-Reinforced Armor	IS/E	XXXE	3120 (DC)	3131 (DC)	—	81, <i>IO</i>	—
Ferro-Fibrous/Ferro-Aluminum Armor [IS]	IS/E	DFDC	2557 (TH)	2571 (TH)	3055	205, <i>TM</i>	Ext: 2810; Ret: 3040 (DC)
Ferro-Fibrous/Ferro-Aluminum Armor [Clan]	Clan/F	XEDC	~2820 (CSR)	~2825 (CSR)	2830	205, <i>TM</i>	—
Ferro-Fibrous/Ferro-Aluminum Armor [Heavy]	IS/E	XXED	~3056 (FS/LC)	3069 (LC)	3070	205, <i>TM</i>	—
Ferro-Fibrous/Ferro-Aluminum Armor [Light]	IS/E	XXED	~3055 (FW)	3067 (FW)	3070	205, <i>TM</i>	—
Ferro-Lamellor Armor	Clan/F	XXFE	3070 (CSR)	3109 (CSF)	—	91, <i>TO:AUE</i>	—
Hardened Armor	All/D	XXFE	3047 (FS/LC)	~3081 (LC)	—	92, <i>TO:AUE</i>	Clan Prototype: 3061 (CGB)
Heat-Dissipating Armor	All/E	XXXE	3111 (CC)	3123 (CC)	—	81, <i>IO</i>	Clan Intro: 3126 (CHH)
Impact-Resistant Armor	IS/E	XXXE	~3092 (LC)	3103 (LC)	—	81, <i>IO</i>	—
Laser Reflective (Reflec/Glazed) Armor [IS]	IS/E	XXFE	3058 (LC)	~3080 (LC)	—	92, <i>TO:AUE</i>	—
Laser Reflective (Reflec/Glazed) Armor [Clan]	Clan/F	XXFE	3061 (CJF)	~3080 (CSF)	—	92, <i>TO:AUE</i>	—
Modular Armor	All/D	XXFE	3072 (CS)	~3096 (RS)	—	93, <i>TO:AUE</i>	Clan Prototype: 3074 (CWX)
Reactive (Blazer) Armor [IS]	IS/E	XXFE	3063 (DC)	~3081 (DC)	—	94, <i>TO:AUE</i>	—
Reactive (Blazer) Armor [Clan]	Clan/F	XXFE	3065 (CGB)	~3081 (CSF)	—	94, <i>TO:AUE</i>	—
Stealth Armor	IS/E	XXED	~3051 (CC)	3063 (CC)	3072	206, <i>TM</i>	—
Vehicle Stealth Armor	IS/E	XXFE	3067 (CC)	3084 (CC)	3145	94, <i>TO:AUE</i>	—

NOTE: Universal Technology Advancement Table Key on p. 57.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Armor ('Mech/Vehicle/Fighter) (continued)							
Support Vehicle Armor (BAR 2-3)	AII/A	AAAA	PS	PS	PS	206, <i>TM</i>	Always Available†
Support Vehicle Armor (BAR 4)	AII/B	BBAA	PS	PS	PS	206, <i>TM</i>	Always Available†
Support Vehicle Armor (BAR 5)	AII/B	BBBA	ES	ES	ES	206, <i>TM</i>	Always Available†
Support Vehicle Armor (BAR 6)	AII/C	CBBA	ES	ES	ES	206, <i>TM</i>	Always Available†
Support Vehicle Armor (BAR 7)	AII/C	CBBB	~2250 (TA)	~2300 (TA)	2305	206, <i>TM</i>	†
Support Vehicle Armor (BAR 8)	AII/D	CCBB	2425 (TH)	2435 (TH)	2445	206, <i>TM</i>	†
Support Vehicle Armor (BAR 9)	AII/D	CCCB	2440 (TH)	2450 (TH)	2470	206, <i>TM</i>	†
Support Vehicle Armor (BAR 10)	AII/D	DDDC	~2460 (TH)	2470 (TH)	2505	206, <i>TM</i>	†
Armor (Small Craft, and Large Aerospace Craft)							
Primitive Armor	IS/C	BCBB	ES	~2300 (TH)	~2315	118, <i>IO</i>	—
Aerospace Armor	AII/D	CCCB	~2460 (TH)	2470 (TH)	2470	205, <i>TM</i>	—
Improved Ferro-Aluminum Armor	AII/E	EXED	~2500 (TH)	2520 (TH)	—	140, <i>SO</i>	Ext: 2950; Ret: 3052 (FS/LC)*
Ferro-Carbide Armor	AII/E	EFED	~2550 (TH)	2570 (TH)	—	140, <i>SO</i>	Ext: 2950; Ret: 3055 (LC/DC)*
Lamellar Ferro-Carbide Armor	AII/E	EFED	~2600 (TH)	2615 (TH)	—	140, <i>SO</i>	Ext: 2950; Ret: 3055 (FS/FW/CC)*
Armor (ProtoMech)							
ProtoMech Armor	Clan/F	XXDD	~3055 (CSJ)	3060 (CSJ)	3060	205, <i>TM</i>	—
ProtoMech Electric Discharge Armor	Clan/F	XXFX	~3071 (CFM)	—	—	58, <i>IO</i>	Ext: 3085
Armor (Battle Armor Infantry)							
Standard (Basic)	AII/E	FFED	~2680 (TH)	2868 (CWF)	3054	252, <i>TM</i>	IS Prototype: 3050 (FS/LC/DC)
Standard (Advanced)	IS/E	XXFE	—	3057 (FW)	3060	252, <i>TM</i>	—
Stealth (Prototype)	IS/E	XXFX	3050 (FS/LC)	3052 (FS/LC)	3054	252, <i>TM</i>	Ext: 3055
Stealth (Basic)	IS/E	FFED	~2700 (TH)	2710 (TH)	3054	252, <i>TM</i>	Ext: 2770; Ret: 3052 (DC)
Stealth (Standard)	AII/E	FXED	~2710 (TH)	2720 (TH)	3055	252, <i>TM</i>	Ext: 2770; Ret: 3053 (DC)
Stealth (Improved)	AII/E	XXFE	~3055 (FW/WB)	3057 (FW/WB)	3059	252, <i>TM</i>	Clan Intro: 3058 (CSR)
Fire Resistant	Clan/F	XXFE	~3052 (CFM)	3058 (CFM)	3065	253, <i>TM</i>	—
Mimetic	IS/E	XXFE	~3058 (CS/WB)	3061 (WB)	3065	253, <i>TM</i>	—
Reactive (Blazer)	AII/F	XXFE	3075 (CSF)	~3093 (RS)	3100	94, <i>TO:AUE</i>	—
Laser Reflective (Reflec/Glazed) Armor	AII/F	XXFE	3074 (CSF)	~3089 (CNC/DC)	3105	92, <i>TO:AUE</i>	—
Armor (Conventional Infantry)							
Ablative, Standard	AII/D	ABAA	ES	2300 (TA)	2305	129, <i>TO:AUE</i>	—
Ablative, Concealed	AII/E	EDBB	~2390 (TH)	2400 (TH)	2410	129, <i>TO:AUE</i>	Clan Ext: ~2820
Ablative/Flak, Standard	AII/D	BCBA	~2300 (TA)	2305 (TA)	2310	129, <i>TO:AUE</i>	—
Ablative/Flak, Concealed	AII/E	FDCB	~2390 (TH)	2395 (TH)	2405	129, <i>TO:AUE</i>	Clan Ext: ~2825
Ballistic Plate, Standard	AII/D	CCCC	~2305 (TA)	2310 (TA)	2315	129, <i>TO:AUE</i>	—
Ballistic Plate, Concealed	IS/E	XFDD	~2810 (LC)	2820 (LC)	2822	129, <i>TO:AUE</i>	—
Clothing, Fatigues/Civilian/Non-Armored	AII/A	AAAA	PS	PS	PS	129, <i>TO:AUE</i>	Always Available
Clothing, Leather/Synthetic Hide	AII/A	AAAA	PS	PS	PS	129, <i>TO:AUE</i>	Always Available
Clothing, Light (e.g. Summer Wear/None)	AII/A	AAAA	PS	PS	PS	129, <i>TO:AUE</i>	Always Available
Engineering Suit	AII/D	DDDC	~2340 (LC)	2350 (LC)	2351	129, <i>TO:AUE</i>	—
Environment Suit, Light	AII/C	BBBB	ES	ES	2200	129, <i>TO:AUE</i>	—
Environment Suit, Hostile	AII/D	CCCC	ES	2300 (TA)	2302	129, <i>TO:AUE</i>	—
Environment Suit, Marine	AII/D	CDDC	~2315 (Per)	2325 (TC)	2330	129, <i>TO:AUE</i>	—
Flak Armor, Standard	AII/C	AAAA	ES	ES	2200	129, <i>TO:AUE</i>	—
Flak, Concealed	AII/D	DCBB	ES	ES	2230	129, <i>TO:AUE</i>	Clan Ext: ~2825
Heatsuit	AII/D	CCCB	~2350 (TH)	2355 (TH)	2358	129, <i>TO:AUE</i>	—
MechWarrior Combat Suit	AII/E	DFED	~2690 (TH)	2790 (DC)	—	129, <i>TO:AUE</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Armor (Conventional Infantry) (Continued)							
MechWarrior Cooling Suit	All/E	DFED	~2480 (TH)	2500 (TH)	3065	129, <i>TO:AUE</i>	Ext: ~2850; Ret: 3050 (CS)*
MechWarrior Cooling Vest (Only)	All/D	CCCC	~2440 (TH)	2460 (TH)	2461	129, <i>TO:AUE</i>	—
Myomer, Suit	IS/E	XXED	~3045 (LC)	3047 (LC)	3052	129, <i>TO:AUE</i>	—
Myomer, Vest	IS/E	XXED	~3044 (LC)	3045 (LC)	3051	130, <i>TO:AUE</i>	—
Neo-Chainmail	IS/D	XXCC	~3062 (FS)	3065 (FS)	3066	130, <i>TO:AUE</i>	—
Parka	All/C	AAAA	PS	PS	PS	130, <i>TO:AUE</i>	Always Available
Snowsuit	All/C	AAAA	PS	PS	PS	130, <i>TO:AUE</i>	Always Available
Spacesuit	All/C	BBBB	ES	ES	ES	130, <i>TO:AUE</i>	Always Available
Spacesuit, Combat	All/C	CDED	ES	ES	2200	130, <i>TO:AUE</i>	—
Armor Kit (Capellan Confederation)	IS/C	XXCB	~3045 (CC)	3050 (CC)	—	130, <i>TO:AUE</i>	—
Armor Kit (Clan)	Clan/E	XEEC	~2850 (CHH)	2900 (Clan)	—	130, <i>TO:AUE</i>	—
Armor Kit (ComStar)	IS/F	XFDE	~2825 (CS)	2830 (CS)	—	130, <i>TO:AUE</i>	—
Armor Kit (Draconis Combine)	IS/C	BBBB	~2620 (DC)	2625 (DC)	—	130, <i>TO:AUE</i>	—
Armor Kit (Federated Suns)	IS/C	BBBF	~2325 (FS)	2330 (FS)	—	130, <i>TO:AUE</i>	Ext: 3035
Armor Kit (Federated Suns/Lyran Commonwealth, 3030-3066)	IS/C	XDBE	~3025 (FS/LC)	3030 (FS/LC)	—	130, <i>TO:AUE</i>	Ext: 3070
Armor Kit (Federated Suns, 3067+)	IS/D	XXDC	~3065 (FS)	3067 (FS)	—	130, <i>TO:AUE</i>	—
Armor Kit (FR)	IS/C	XXBB	~3035 (FR)	3040 (FR)	—	130, <i>TO:AUE</i>	—
Armor Kit (FWL)	IS/C	BBBD	~2280 (FW)	2290 (FW)	—	130, <i>TO:AUE</i>	Ext: 3050
Armor Kit (FWL, 3035+)	IS/C	XEBB	~3030 (FW)	3035 (FW)	—	130, <i>TO:AUE</i>	—
Armor Kit (Lyran Commonwealth)	IS/C	BBBE	~2420 (LC)	2425 (LC)	—	130, <i>TO:AUE</i>	Ext: 3067
Armor Kit (Lyran Commonwealth, 3060+)	IS/C	XDBB	~3058 (LC)	3060 (LC)	—	130, <i>TO:AUE</i>	—
Armor Kit (Magistracy of Canopus)	IS/C	BBBB	~2600 (MC)	2610 (MC)	—	130, <i>TO:AUE</i>	—
Armor Kit (Marian Hegemony)	IS/C	XFBB	~3045 (CC)	3049 (MH)	—	130, <i>TO:AUE</i>	—
Armor Kit (SLDF)	All/E	CEFX	~2570 (TH)	2575 (TH)	2580	130, <i>TO:AUE</i>	Ext: 2800 (IS); Clan Ext: ~2950
Armor Kit (Taurian Concordat/Calderon Protectorate)	IS/C	XXBB	~3045 (TC)	3047 (TC/CP)	—	130, <i>TO:AUE</i>	—
Armor Kit (Word of Blake)	IS/F	XXDF	~3053 (WB)	3055 (WB)	—	130, <i>TO:AUE</i>	Ext: 3081
Armor Kit (Other/Generic)	All/C	BBBB	ES	ES	ES	130, <i>TO:AUE</i>	Always Available
Sneak Suit (DEST Infiltration Suit)	IS/D	XEEE	~2785 (DC)	~2800 (DC)	—	130, <i>TO:AUE</i>	Ext: ~2845; Ret: 3045 (DC)
Sneak Suit (One System)	All/D	CCCC	~2430 (TH)	2450 (TH)	2500	130, <i>TO:AUE</i>	—
Sneak Suit (Two Systems)	All/D	DDDD	~2445 (TH)	2460 (TH)	2505	130, <i>TO:AUE</i>	—
Sneak Suit (Three Systems)	All/D	DEEE	~2465 (TH)	2475 (TH)	2510	130, <i>TO:AUE</i>	—
Space Dock Repair Suit	IS/D	CECC	ES	ES	ES	175, <i>HBHK</i>	—
Vintage Bulletproof Vest	All/C	BCDE	PS	PS	PS	195, <i>ATOWC</i>	Always Available
Vintage Bomb Suit	All/C	BCEF	PS	PS	PS	195, <i>ATOWC</i>	Always Available
Armored Component Systems							
Armored Components	All/E	XXFE	3061 (FW/CSF)	3077 (CJF)	—	95, <i>TO:AUE</i>	IS Intro: 3082 (FW)
Armored Motive System [IS]	IS/E	XXFE	3071 (FW)	3084 (LC)	—	95, <i>TO:AUE</i>	—
Armored Motive System [Clan]	Clan/F	XXFE	3057 (CHH)	3083 (CHH)	—	95, <i>TO:AUE</i>	—
Artillery and Artillery Cannons							
Artillery Weapons							
Arrow IV Artillery Missile [IS]	IS/E	EFED	2593 (TH)	2600 (TH)	3048	96, <i>TO:AUE</i>	Ext: 2830; Ret: 3044 (CC)
Arrow IV Artillery Missile [Clan]	Clan/F	XFED	—	2844 (CHH)	2850	96, <i>TO:AUE</i>	—
Conventional Artillery (Thumper, Sniper)	All/B	CCCC	PS	PS	PS	96, <i>TO:AUE</i>	—
Conventional Artillery (Long Tom)	All/B	CCCC	2445 (TH)	2500 (TH)	2520	96, <i>TO:AUE</i>	—
Cruise Missile Artillery (/50, /70, /90, /120)	IS/E	XXFE	3065 (FS)	3095 (FS)	—	96, <i>TO:AUE</i>	—
Artillery Cannons							
Artillery Cannons (Thumper, Sniper, Long Tom)	All/B	XFED	3012 (LC)	3079 (LC)	—	97, <i>TO:AUE</i>	Clan Prototype: 3032 (CWF)

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Autocannons and Rifles							
Standard Autocannon/2	AII/C	CDDD	2290 (TA)	2300 (TA)	2305	208, <i>TM</i>	Clan Ext: ~2850
Standard Autocannon/5	AII/C	CCDD	2240 (TA)	2250 (TA)	2255	208, <i>TM</i>	Clan Ext: ~2850
Standard Autocannon/10	AII/C	CDDD	2443 (TH)	2460 (TH)	2465	208, <i>TM</i>	Clan Ext: ~2850
Standard Autocannon/20	AII/C	DEDD	2488 (LC)	2500 (LC)	2502	208, <i>TM</i>	Clan Ext: ~2850
Improved Autocannon (/2, /5, /10, /20)	Clan/E	XCXX	—	~2815 (Clan)	2818	90, <i>IO</i>	Ext: 2833; Ret: 3080 (EI)
LB-X Autocannon (2, 5, 20) [IS]	IS/E	XXED	~3055 (FS)	3058 (FS)	3060	207, <i>TM</i>	—
LB 10-X AC [IS]	IS/E	EFDC	2590 (TH)	2595 (TH)	3040	207, <i>TM</i>	Ext: 2840; Ret: 3035 (FS)
LB-X Autocannon (2, 5, 10, 20) [Clan]	Clan/F	XDCB	~2824 (Clan)	~2826 (Clan)	2828	207, <i>TM</i>	—
Rotary Autocannon (/2, /5)	IS/E	XXED	~3060 (FS)	3062 (FS)	3071	207, <i>TM</i>	—
Clan Rotary Autocannon, RAC (/2, /5)	Clan/F	XXFE	3073 (CSF)	3104 (CSF)	3145	98, <i>TO:AUE</i>	—
Ultra Autocannon (/2, /10) [IS]	IS/E	XXED	~3055 (FW)	3057 (FW)	3060	208, <i>TM</i>	—
Ultra AC/5 [IS]	IS/E	DFDD	~2635 (TH)	2640 (TH)	3040	208, <i>TM</i>	Ext: 2915; Ret: 3035 (FS)**
Ultra AC/20 [IS]	IS/E	XXED	~3057 (FW)	3060 (LC/FW)	3061	208, <i>TM</i>	—
Ultra Autocannon (/2, /5, /10, /20) [Clan]	Clan/F	XDDC	~2825 (Clan)	~2827 (Clan)	2829	208, <i>TM</i>	—
Light Autocannon (/2, /5)	IS/D	XXFC	~3062 (FS)	3068 (FS)	3070	207, <i>TM</i>	—
Hyper-Velocity Autocannon, HVAC (/2, /5, /10)	IS/D	XXFE	3059 (CC)	3079 (CC)	—	91, <i>TO:AUE</i>	—
ProtoMech Autocannon, Proto-AC (/2, /4, /8)	Clan/F	XXFE	~3070 (CBS)	3073 (CBS)	3145	98, <i>TO:AUE</i>	—
Rifle (Cannon, All Sizes)	AII/B	CFXD	PS	PS	3085	150, <i>TO:AUE</i>	Ext: ~2825; Ret: ~3084 (Per)**
BattleMech Melee Weapons							
Chain Whip	IS/C	XXFE	3071 (WB)	3084 (LC)	—	100, <i>TO:AUE</i>	—
Claws	AII/B	XFED	~3050 (LC)	3060 (LC)	3145	101, <i>TO:AUE</i>	Clan Prototype: 3090 (CJF)
Flail	IS/B	XXEE	3057 (FS)	3079 (FS)	3085	101, <i>TO:AUE</i>	—
Hatchet	IS/B	XFDC	~3015 (LC/FS)	3022 (LC)	3025	220, <i>TM</i>	—
Lance	IS/C	XXFE	3064 (LC)	3083 (LC)	—	102, <i>TO:AUE</i>	—
Mace	IS/B	XFDD	3061 (LC)	3079 (LC)	3085	102, <i>TO:AUE</i>	—
Retractable Blade	IS/B	FDDD	~2400 (TH)	2420 (TH)	3075	236, <i>TM</i>	—
Shield (Small, Med, Large)	IS/D	XXFE	3067 (LC)	3079 (LC)	—	102, <i>TO:AUE</i>	—
Spikes	IS/C	XEED	3051 (LC)	3082 (LC)	—	102, <i>TO:AUE</i>	—
Sword	IS/B	XFDC	~3050 (DC)	3058 (DC)	3060	237, <i>TM</i>	—
Talons	Clan/E	XXFE	3072 (CJF)	3087 (CJF)	—	102, <i>TO:AUE</i>	—
Vibroblade (Small, Med)	IS/D	XXED	3065 (DC)	3091 (CC)	—	104, <i>TO:AUE</i>	—
Vibroblade (Large)	IS/D	XXED	3066 (DC)	3091 (DC)	—	104, <i>TO:AUE</i>	—
C³ Systems							
C³ Computer [Master]	IS/E	XXED	~3039 (DC)	3050 (DC)	3065	209, <i>TM</i>	—
C³ Computer [Slave]	IS/E	XXED	~3039 (DC)	3050 (DC)	3065	209, <i>TM</i>	—
Improved C³ Computer	IS/E	XXEX	~3052 (CS)	3062 (CS)	—	209, <i>TM</i>	Ext: 3085
C³ Boosted System (C³BS) [Master]	IS/E	XXFE	3071 (FS)	3100 (FS)	—	110, <i>TO:AUE</i>	—
C³ Boosted System (C³BS) [Slave]	IS/E	XXFE	3071 (FS)	3100 (FS)	—	110, <i>TO:AUE</i>	—
C³ Emergency Master (C³EM)	IS/E	XXFE	3071 (DC)	3099 (DC)	—	110, <i>TO:AUE</i>	—
C³ Remote Sensor (C³RS) Launcher	IS/E	XXFE	3072 (DC)	3093 (DC)	—	110, <i>TO:AUE</i>	—
Battle Armor C³ (BC³)	IS/E	XXEE	3073 (DC)	3095 (DC)	—	109, <i>TO:AUE</i>	—
Battle Armor Improved C³ (BC³I)	IS/E	XXEX	3063 (WB)	3095 (RS)	—	109, <i>TO:AUE</i>	Ext: 3085



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Capital Weapons							
Mass Driver (Light, Med, Heavy)	IS/D	FXFF	~2715 (TH)	—	—	135, <i>TO:AUE</i>	Ext: ~2855; Ret: 3066 (WB)*
Naval Gauss (Light, Medium, Heavy N-Gauss)	AII/E	EXEE	~2440 (TH)	~2448 (TH)	—	145, <i>TO:AUE</i>	Ext: ~2950; Ret: 3052 (DC)*
Naval Laser (NL35, NL45, NL55)	AII/D	DXEE	ES	~2305 (TA)	—	145, <i>TO:AUE</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval PPC (Light, Medium, Heavy N-PPC)	AII/D	DXEE	~2350 (TH)	~2356 (TH)	—	145, <i>TO:AUE</i>	Ext: ~2950; Ret: 3052 (DC)*
Naval Autocannons (NAC/10, NAC/20)	AII/D	EXEE	ES	~2195 (TA)	—	143, <i>TO:AUE</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval Autocannons (NAC/25, NAC/30)	AII/D	EXEE	ES	2200 (TA)	—	143, <i>TO:AUE</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Naval Autocannons (NAC/35, NAC/40)	AII/D	EXEE	ES	~2201 (TA)	—	143, <i>TO:AUE</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missile Launchers (Killer Whale, White Shark, Barracuda)	AII/E	DEED	~2200 (TA)	2305 (TA)	3055	210, <i>TM</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missile Launcher (AR-10 Launcher)	AII/E	DFED	~2540 (TH)	2550 (TH)	3055	210, <i>TM</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Tele-operated Missiles (Killer Whale, White Shark, Barracuda)	IS/F	XXED	3053 (CS/DC)	3056 (DC)	3060	210, <i>TM</i>	—
Tele-operated Missiles (Kraken)	IS/F	XXED	3053 (CS/DC)	3057 (DC)	3060	210, <i>TM</i>	—
Screen Launcher	IS/F	XXED	3053 (DC)	3055 (DC)	3057	237, <i>TM</i>	—
Sub-Capital Missile Launchers (AII)	AII/E	XXFD	~3066 (WB)	3072 (WB)	3145	156, <i>TO:AUE</i>	Clan Intro: 3073 (CGB/CNC)
Sub-Capital Cannons (Light, Medium, Heavy SCC)	AII/E	XXFD	~3070 (WB)	3073 (WB)	3145	155, <i>TO:AUE</i>	Clan Intro: 3091 (CSR)
Sub-Capital Lasers (SCL/1, SCL/2, SCL/3)	AII/E	XXFD	~3069 (WB)	3073 (WB)	3145	155, <i>TO:AUE</i>	Clan Intro: 3091 (CSR)
Word of Blake Dragon's Breath Multi-Missile Launch System	IS/E	XXFX	3077 (WB)	—	—	142, <i>IO</i>	Ext: 3078
Cellular Ammunition Storage Equipment (CASE)							
CASE [IS]	IS/E	CFDC	2452 (TH)	2476 (TH)	3045	210, <i>TM</i>	Ext: 2840; Ret: 3036 (DC)
CASE [Clan]	Clan/F	XFDC	~2824 (CCY)	2825 (CCY)	2828	210, <i>TM</i>	—
CASE II [IS]	IS/E	XXFD	3064 (FW)	~3082 (RS)	~3105	111, <i>TO:AUE</i>	—
CASE II [Clan]	Clan/F	XXFD	3062 (CCY)	~3082 (CWF)	~3105	111, <i>TO:AUE</i>	—
Cockpit Systems							
BattleMech Cockpit	AII/D	CCCC	~2468 (TH)	2470 (TH)	2487	211, <i>TM</i>	—
Small Cockpit	AII/E	XXED	3060 (FS)	3067 (FS)	3080	211, <i>TM</i>	Clan Intro: 3080 (CJF)
Primitive BattleMech Cockpit	AII/D	DXXF	~2430 (TH)	2439 (TH)	—	117, <i>IO</i>	Ext: 2520
IndustrialMech Cockpit (w/o Fire Control)	AII/C	BCCB	~2469 (TH)	2470 (TH)	2490	211, <i>TM</i>	—
IndustrialMech Cockpit (w/ Advanced Fire Control)	AII/D	DEED	~2469 (TH)	2470 (TH)	2491	211, <i>TM</i>	—
Primitive IndustrialMech Cockpit	AII/C	CXXF	~2300 (TA)	2350 (TH)	—	117, <i>IO</i>	Ext: 2520
ProtoMech Cockpit	Clan/F	XXED	~3055 (CSJ)	3060 (CSJ)	3060	211, <i>TM</i>	—
Inner Sphere ProtoMech Interface	IS/E	XXFX	~3071 (WB)	—	—	96, <i>IO</i>	Ext: 3085
Standard Aerospace Cockpit	AII/C	CCCC	~2460 (TH)	2470 (TH)	2491	211, <i>TM</i>	—
Small Aerospace Cockpit	AII/E	XXED	~3065 (WB)	3070 (WB)	3080	112, <i>TO:AUE</i>	Clan Intro: 3080 (CSR)
Primitive Aerospace Cockpit	AII/C	DXXF	ES	~2300 (TA)	—	119, <i>IO</i>	Ext: 2520
Torso-Mounted Cockpit	AII/D	XXFF	3053 (FS/LC)	~3080 (LC)	3100	112, <i>TO:AUE</i>	Clan Prototype: 3055 (CSJ)
Virtual Reality Piloting Pod	IS/E	XXFX	3052 (FS/LC)	—	—	63, <i>IO</i>	Ext: 3055
Cockpit Life Support and Sensors	AII/C	CCCC	ES	ES	ES	52, <i>TM</i>	Always Available
BattleMech Interface Cockpit (Machina Domini) [IS]	IS/E	XXFX	~3074 (WB)	—	—	110, <i>IO</i>	—
BattleMech Interface Cockpit (Machina Domini) [Clan]	Clan/F	XXFF	~3083 (CHH)	—	—	110, <i>IO</i>	—
Cockpit Command Console	AII/D	CFED	~2625 (TH)	2631 (TH)	—	112, <i>TO:AUE</i>	Ext: ~2850 (IS); Ret: ~3030 (FS)
QuadVee Cockpit	Clan/F	XXXF	~3130 (CHH)	3135 (CHH)	—	128, <i>IO</i>	—
Tripod 'Mech Cockpit	IS/E	XXXF	~2590 (TH)	2602 (TH)	—	159, <i>IO</i>	—
Superheavy BattleMech Cockpit	IS/E	XXFE	~3060 (WB)	3076 (WB)	—	156, <i>IO</i>	—
Superheavy IndustrialMech Cockpit	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	156, <i>IO</i>	—
Superheavy Tripod 'Mech Cockpit	IS/E	XFXF	~3130 (RS)	3135 (RS)	—	156, <i>IO</i>	—
MechWarrior Aquatic Survival System (MASS)	AII/D	XXDD	3048 (FS)	~3083 (FS)	—	137, <i>TO:AUE</i>	Clan Prototype: 3062 (CGS)
Damage Interrupt Circuit	IS/E	XXFF	3055 (FS/LC)	—	—	62, <i>IO</i>	Ext: 3060

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Cockpit Systems (Continued)							
Direct Neural Interface Cockpit Modification	IS/E	XXEF	3052 (FS)	3055 (WB)	—	62, <i>IO</i>	—
Standard Neurohelmet	AII/D	CCCC	~2430 (TH)	2439 (TH)	2487	43, <i>TM</i>	—
SLDF Advanced Neurohelmet (MechWarrior)	IS/E	FXXX	2755 (TH)	2759 (TH)	—	62, <i>IO</i>	Ext: 2770**
SLDF Advanced Neurohelmet (Fighter Pilot)	IS/E	FXXX	2758 (TH)	2761 (TH)	—	62, <i>IO</i>	Ext: 2770**
Defensive Pods							
Anti-Personnel Pods (A-Pods)	AII/B	XXDC	~2845 (CGB)	~2850 (CGB)	3055	204, <i>TM</i>	IS Intro: 3055 (CS)
Anti-BattleArmor Pods (B-Pods)	AII/E	XXED	~3065 (CWX/LC)	3068 (CWX)	3070	204, <i>TM</i>	IS Intro: 3068 (LC/WB/FW)
M-Pod	IS/C	XXED	~3060 (LC)	3064 (LC)	3099	142, <i>TO:AUE</i>	—
Drone and Robotic Systems							
Drone (Remote) Carrier Control System	AII/C	EFFE	ES	ES	—	117, <i>TO:AUE</i>	—
Drone (Remote) Operating System	AII/C	EFFE	ES	ES	—	118, <i>TO:AUE</i>	—
Remote Drone Command Console	IS/E	XXXF	~3125 (LC)	3140 (RS)	—	84, <i>IO</i>	—
Smart Robotic Control System (SRCS)	AII/C	EEEE	ES	ES	—	134, <i>IO</i>	—
Shielded Aerospace Smart Robotic Control System	AII/D	EXFF	2755 (TH)	—	—	135, <i>IO</i>	Ext: 2780; Ret: 3077 (WB)*
SDS (Caspar) Drone Control System (SDS-DCS)	AII/F	EXXX	2695 (TH)	—	—	136, <i>IO</i>	Ext: 2780
Capsar II Advanced Smart Robotic Control System	IS/E	XXFX	3064 (WB)	—	—	137, <i>IO</i>	Ext: 3078; Ret: 3082 (RS)
Autonomous Tactical Analysis Computer (ATAC)	AII/E	FXFF	2705 (TH)	—	—	139, <i>IO</i>	Ext: 2780
Advanced Robotic Transport System (ARTS)	AII/E	DEEE	~2600 (TH)	2609 (TH)	—	141, <i>IO</i>	Ext: 2804; Ret: 3068 (WB)*
Direct Tactical Analysis Control (DTAC) System	IS/F	XXFF	3072 (WB)	—	—	140, <i>IO</i>	Ext: 3078; Ret: 3082 (RS)
SDS Self-Destruct System	AII/C	DFXX	2695 (TH)	—	—	141, <i>IO</i>	Ext: 2780*
SLDF SDS Jammer System	IS/E	FFXX	2776 (TH)	—	—	142, <i>IO</i>	Ext: 2780
Ejection and Escape Systems							
Combat Vehicle Escape Pod	IS/D	XXEE	3038 (FS/LC)	3079 (LC)	—	121, <i>TO:AUE</i>	—
BattleMech Full-Head Ejection System	AII/D	XXED	3020 (LC)	3023 (LC)	3100	122, <i>TO:AUE</i>	Clan Intro: 3052 (CWF)
Ejection Seat (IndustrialMech)	AII/B	DEFE	~2430 (TH)	2445 (TH)	2490	213, <i>TM</i>	—
Ejection Seat (Support Vehicle)	AII/B	DDDD	PS	PS	PS	213, <i>TM</i>	Always Available
Escape Pod (Aerospace)	AII/D	CDCC	ES	ES	ES	216, <i>TM</i>	Always Available
Escape Pod (Maritime)	AII/C	CDCC	ES	ES	ES	216, <i>TM</i>	Always Available
Lifeboat (Maritime)	AII/A	CCCC	PS	PS	PS	227, <i>TM</i>	Always Available
Lifeboat (Atmospheric)	AII/A	CCCC	ES	ES	ES	227, <i>TM</i>	Always Available
Lifeboat (Aerospace)	AII/C	BCCB	ES	ES	ES	227, <i>TM</i>	Always Available
Electronic Warfare Systems							
Active Probe (Beagle)	IS/E	EFDC	2560 (TH)	2576 (TH)	3048	204, <i>TM</i>	Ext: 2835; Ret: 3045 (CC)
Bloodhound Active Probe	IS/E	XXFE	3058 (CS)	3082 (RS)	3094	90, <i>TO:AUE</i>	—
Active Probe [Clan]	Clan/F	XEDC	~2830 (CGS)	2832 (CGS)	2835	204, <i>TM</i>	—
Light Active Probe [IS]	IS/E	XXFE	~3050 (FS/LC)	3052 (FS/LC)	3058	204, <i>TM</i>	—
Light Active Probe [Clan]	Clan/F	XXED	~2890 (CSJ)	2900 (CSJ)	2905	204, <i>TM</i>	—
ECM Suite (Guardian)	IS/E	EFDC	2595 (TH)	2597 (TH)	3050	213, <i>TM</i>	Ext: 2845; Ret: 3045 (CC)
ECM Suite [Clan]	Clan/F	XEDC	~2830 (CSJ)	2832 (CSJ)	2835	213, <i>TM</i>	—
Angel ECM Suite	AII/F	XXFE	3057 (DC)	~3080 (DC)	3085	91, <i>TO:AUE</i>	Clan Prototype: 3058 (CNC)
Electronic Warfare (EW) Equipment	IS/D	XFEF	~3020 (CC)	3025 (CC)	—	122, <i>TO:AUE</i>	Ext: 3046
Watchdog Composite Electronic Warfare System (CEWS)	Clan/F	XXFE	3059 (CSJ)	3080 (CSF)	3085	90, <i>TO:AUE</i>	—
Nova Combine Electronic Warfare System (CEWS)	Clan/F	XXFX	~3065 (CCY)	—	—	60, <i>IO</i>	Ext: 3085
Recon Camera	AII/B	BBBB	PS	PS	—	149, <i>TO:AUE</i>	Always Available†
Remote Sensors/Dispenser	AII/C	EDDD	2586 (TH)	2590 (TH)	—	187, <i>TO:AUE</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Electronic Warfare Systems (Continued)							
Satellite Imager [Look-Down Radar]	All/B	DEDD	PS	PS	—	150, <i>TO:AUE</i>	Always Available†
Satellite Imager [Infrared Imager]	All/C	DEDD	ES	ES	—	151, <i>TO:AUE</i>	Always Available†
Satellite Imager [Hyperspectral Imager]	IS/D	XXFE	~3045 (FS)	~3055 (FS)	—	151, <i>TO:AUE</i>	—
Satellite Imager [High-Resolution (Hi-Res) Imager]	All/C	DEDD	ES	ES	—	151, <i>TO:AUE</i>	Always Available†
Fire Control and Targeting Systems							
General Fire Control Systems							
Basic Fire Control	All/B	BCCC	PS	PS	PS	217, <i>TM</i>	Always Available
Advanced Fire Control	All/C	CDDC	ES	~2300 (TA)	2300	217, <i>TM</i>	—
Missile-Enhancing Fire Control Systems							
Artemis IV Fire-Control System [IS]	IS/E	EFDC	2592 (TH)	2598 (TH)	3045	206, <i>TM</i>	Ext: 2855; Ret: 3035 (FW)
Artemis IV Fire-Control System [Clan]	Clan/F	EFDC	~2816 (CSA)	2818 (CSA)	2830	206, <i>TM</i>	—
Artemis V Fire-Control System	Clan/F	XXFE	3061 (CGS)	3085 (CSF/RD)	3093	95, <i>TO:AUE</i>	—
Apollo MRM Fire Control System	IS/D	XXED	~3065 (DC)	3071 (DC)	3097	142, <i>TO:AUE</i>	—
Targeting Computers							
Targeting Computer [IS]	IS/E	XXED	~3052 (FS/LC)	3062 (FS)	3067	238, <i>TM</i>	—
Targeting Computer [Clan]	Clan/F	XEDD	~2850 (CMN)	2860 (CMN)	2863	238, <i>TM</i>	—
Target Acquisition Gear (TAG)							
TAG [IS]	IS/E	EFDC	2593 (TH)	2600 (TH)	3045	238, <i>TM</i>	Ext: 2835; Ret: 3044 (FS/LC)*
TAG [Clan]	Clan/F	XEDC	~2828 (CHH)	2830 (CHH)	2834	238, <i>TM</i>	—
Light TAG [IS]	IS/E	XXFD	~3050 (DC)	3053 (DC)	3062	238, <i>TM</i>	—
Light TAG [Clan]	Clan/F	XXFD	~3051 (CWF)	3054 (CWF)	3059	238, <i>TM</i>	—
Flamers							
Flamer	All/C	BBBA	ES	ES	ES	218, <i>TM</i>	Clan Ext: 2830
Flamer [Clan]	Clan/C	XCBA	~2820 (CFM)	2827 (CFM)	2828	218, <i>TM</i>	—
Extended-Range (ER) Flamer	All/D	XXED	~3065 (CJF)	3067 (CJF)	3081	124, <i>TO:AUE</i>	IS Intro: 3070 (FS)
Heavy Flamer	All/C	XXED	~3065 (CJF)	3067 (CJF)	3079	124, <i>TO:AUE</i>	IS Intro: 3068 (LC)
Vehicle Flamer	All/B	AABA	PS	PS	PS	124, <i>TO:AUE</i>	—
Fluid Guns and Sprayers							
Fluid Gun	All/B	BBBB	PS	PS	PS	125, <i>TO:AUE</i>	Always Available
Sprayer [‘Mech]	All/B	BBBB	~2305 (TA)	~2315 (FS)	2320	248, <i>TM</i>	—
Sprayer [Vehicular]	All/B	BBBB	PS	PS	PS	248, <i>TM</i>	Always Available
Gauss Rifles							
Standard Gauss Rifle [IS]	IS/E	DFDC	2587 (TH)	2590 (TH)	3045	219, <i>TM</i>	Ext: 2865; Ret: 3040 (FC/FW/DC)
Improved Gauss Rifle	Clan/E	XEXX	~2818 (CGS)	2821 (CGS)	2822	90, <i>IO</i>	Ext: 2837; Ret: 3080 (EI)
Standard Gauss Rifle [Clan]	Clan/F	XFDD	~2822 (CBR)	2828 (CBR)	2830	219, <i>TM</i>	—
Light Gauss Rifle	IS/E	XXED	~3049 (FW)	3056 (FW)	3065	219, <i>TM</i>	—
Heavy Gauss Rifle	IS/E	XXED	~3051 (FW)	3061 (LC)	3067	218, <i>TM</i>	—
Anti-Personnel Gauss Rifle	Clan/F	XXED	~3065 (CJF)	3069 (CJF)	3072	218, <i>TM</i>	—
Hyper-Assault Gauss Rifle (20, 30, 40)	Clan/F	XXED	~3062 (CHH)	3068 (CHH)	3072	219, <i>TM</i>	—
Improved Heavy Gauss	IS/E	XXFE	3065 (LC)	3081 (LC)	3090	125, <i>TO:AUE</i>	—
Magshot Gauss Rifle	IS/E	XXDC	~3059 (FS)	3072 (FS)	3090	126, <i>TO:AUE</i>	—
Silver Bullet Gauss Rifle	IS/E	XXFE	3051 (FS/LC)	3080 (LC)	3090	126, <i>TO:AUE</i>	—

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heat Sinks and Cooling Systems							
Heat Sinks	AII/C	BBBB	ES	ES	ES	220, <i>TM</i>	Always Available
Compact Heat Sinks	IS/E	XXFE	3058 (FS)	3079 (FS)	—	128, <i>TO:AUE</i>	—
Double Heat Sinks [IS]	IS/E	CEDC	2559 (TH)	2567 (TH)	3045	221, <i>TM</i>	Ext: 2865; Ret: 3040 (FS)
Double Heat Sinks [Clan]	Clan/F	XEDC	~2825 (CCY)	~2827 (CCY)	2829	221, <i>TM</i>	—
Laser Heat Sinks	Clan/F	XXED	~3040 (CJF)	3051 (CJF)	3060	128, <i>TO:AUE</i>	—
ProtoMech Heat Sinks	Clan/F	XXEE	~3055 (CSJ)	3060 (CSJ)	3060	221, <i>TM</i>	—
Coolant Pod	AII/D	XXED	3049 (FS/LC)	~3079 (LC)	3098	115, <i>TO:AUE</i>	Clan Intro: 3079 (CJF)
Radical Heat Sinks	IS/E	XXXE	~3115 (FS)	3122 (FS)	—	84, <i>IO</i>	—
Industrial Equipment							
Backhoe	AII/B	BBBB	PS	PS	PS	241, <i>TM</i>	Always Available
Bridgelayer (Light)	AII/B	DEDD	PS	PS	PS	242, <i>TM</i>	Always Available
Bridgelayer (Medium)	AII/C	DEDD	PS	PS	PS	242, <i>TM</i>	Always Available
Bridgelayer (Heavy)	AII/D	EEEE	PS	PS	PS	242, <i>TM</i>	Always Available
Bulldozer	AII/B	CCCC	PS	PS	PS	242, <i>TM</i>	Always Available
Chainsaw	AII/B	DDDD	PS	PS	PS	242, <i>TM</i>	Always Available
Combine	AII/B	CCCC	PS	PS	PS	243, <i>TM</i>	Always Available
Dual Saw	AII/C	DDDD	PS	PS	PS	243, <i>TM</i>	Always Available
Dumper	AII/A	AAAA	PS	PS	PS	243, <i>TM</i>	Always Available
Extended IndustrialMech Fuel Tanks	AII/C	CDDD	~2300 (TA)	2350 (TH)	2490	244, <i>TM</i>	—
Fluid Suction System [Light, 'Mech/Vehicular]	AII/B	BBBB	PS	PS	PS	248, <i>TM</i>	Always Available
Fluid Suction System [Standard]	AII/C	BBBB	PS	PS	PS	248, <i>TM</i>	Always Available
Heavy-Duty Pile Driver	AII/C	DEDD	PS	PS	PS	244, <i>TM</i>	Always Available
Ladder	AII/A	AAAA	PS	PS	PS	245, <i>TM</i>	Always Available
Lift Hoist/Arresting Hoist	AII/A	AAAA	PS	PS	PS	245, <i>TM</i>	Always Available
Manipulator [Non-'Mech/Non-Battle Armor]	AII/C	CDCC	ES	ES	ES	245, <i>TM</i>	Always Available
Mining Drill	AII/B	CDDD	PS	PS	PS	246, <i>TM</i>	Always Available
Nail/Rivet Gun	AII/C	CCCC	~2309 (FW)	~2310 (FW)	2312	246, <i>TM</i>	—
Refueling Drogue/Fluid Suction System	AII/C	AAAA	PS	PS	PS	247, <i>TM</i>	Always Available
Rock Cutter	AII/C	DDDD	PS	PS	PS	247, <i>TM</i>	Always Available
Salvage Arm	AII/D	EFEE	~2400 (TH)	2415 (TH)	2420	248, <i>TM</i>	—
Spot Welder	AII/C	CDCC	~2312 (LC)	~2320 (LC)	2323	248, <i>TM</i>	—
Wrecking Ball	AII/A	CCCC	PS	PS	PS	249, <i>TM</i>	Always Available
Large Craft Systems							
Docking Hardpoint (Docking Collar) [Pre-KF Boom]	AII/B	CXXX	2304 (TA)	2350 (TH)	2364	113, <i>IO</i>	Ext: 2520
Docking Hardpoint (Docking Collar) [Post-KF Boom]	AII/C	CCCC	2458 (TH)	2470 (TH)	2500	116, <i>TO:AUE</i>	—
DropShip KF Boom	AII/C	DCCC	2458 (TH)	2470 (TH)	2500	238, <i>TM</i>	—
Energy Storage Battery	AII/D	CEDD	ES	2131	2135	118, <i>TO:AUE</i>	—
Grav Deck (All Sizes)	AII/B	CCCC	ES	ES	ES	127, <i>TO:AUE</i>	—
Light Sail	AII/C	CEDD	ES	2165	2170	135, <i>TO:AUE</i>	—
Naval Comm-Scanner Suite (Small, Large NCSS)	AII/D	DEEE	ES	~2200 (TA)	—	144, <i>TO:AUE</i>	—
Naval C ³	IS/F	XXFE	3065 (DC)	—	—	144, <i>TO:AUE</i>	—
Naval Tug Adaptor	AII/C	CCCC	ES	ES	ES	146, <i>TO:AUE</i>	Always Available
Power Collector and Microwave Transmitter	AII/C	CCCC	ES	~2200 (TA)	—	148, <i>TO:AUE</i>	—
Space Station K-F Adapter	AII/C	DFDD	2350 (TH)	2375 (TH)	—	99, <i>IO</i>	Ext: 2850; Ret: 3048 (FS)
Jump Sails	AII/D	EEDD	2200 (TA)	2300 (TA)	2325	136, <i>SO</i>	—
Lithium-Fusion Battery	AII/E	EFEE	~2520 (TH)	2529 (TH)	—	135, <i>TO:AUE</i>	Ext: 2819; Ret: 3043 (FS)*
Word of Blake Super-Jump System	IS/F	XXFX	~3059 (WB)	—	—	177, <i>IO</i>	Ext: 3085



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Large Craft Systems (Continued)							
Control System Components							
Bridge	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Computer	All/B	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Life Support	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Sensors	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Fire Control Computer	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Gunnery Control Systems	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Kearny-Fuchida Drive Components							
Drive Coil	All/D	DEDD	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	—
Initiator	All/D	DEDD	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	—
Controller	All/D	DEDD	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	—
Tankage	All/D	DEDD	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	—
Charging System	All/D	DEDD	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	—
Primitive K-F Core	All/D	DEDD	2107 (TA)	2110 (TA)	—	122, <i>IO</i>	Ext: 2500
Compact K-F Core	All/D	EFEE	2290 (TA)	2300 (TA)	—	146, <i>SO</i>	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Sub-Compact K-F Drive System	All/E	FXFF	~2620 (TH)	—	—	156, <i>TO:AUE</i>	Ext: 2850*
Standard K-F Core	All/D	DEDD	2460 (TH)	~2470 (TH)	2490	142, <i>SO</i>	—
JumpShip Support Systems	All/D	DEDD	2460 (TH)	~2470 (TH)	2490	146, <i>SO</i>	—
WarShip Support Systems	All/D	EFEE	2107 (TA)	2120 (TA)	2300	146, <i>SO</i>	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Maneuvering/Station Keeping Drive Components							
Drive Unit	All/D	CDCC	ES	ES	ES	146, <i>SO</i>	Always Available
Engine	All/D	CDCC	ES	ES	ES	146, <i>SO</i>	Always Available
Engine Control Unit	All/D	CDCC	ES	ES	ES	146, <i>SO</i>	Always Available
Attitude Thrusters	All/C	CCCC	ES	ES	ES	146, <i>SO</i>	Always Available
Fuel Tanks	All/B	AAAA	ES	ES	ES	146, <i>SO</i>	Always Available
Lasers							
Standard Lasers (Small, Medium)	All/C	BBBB	2290 (TA)	~2300 (TA)	2310	227, <i>TM</i>	Clan Ext: ~2850
Standard Large Laser	All/C	CDCB	2306 (TA)	2316 (TH)	2320	227, <i>TM</i>	Clan Ext: ~2850
Improved Large Laser	Clan/E	XDXX	~2812 (CNC)	~2815 (CNC)	2818	89, <i>IO</i>	Ext: 2830; Ret: 3080 (EI)
Binary Laser (Blazer) Cannon	IS/D	XEED	2812 (FW)	3077 (WB)	3085	131, <i>TO:AUE</i>	—
Bombast Laser	IS/E	XXEE	3064 (LC)	3085 (LC)	—	132, <i>TO:AUE</i>	—
Chemical Lasers	Clan/E	XXEE	3059 (CHH)	3083 (CHH)	3145	132, <i>TO:AUE</i>	—
Extended-Range (ER) Lasers (Small, Medium) [IS]	IS/E	XXDC	3052 (FW/WB)	3058 (FW)	3062	226, <i>TM</i>	—
ER Large Laser [IS]	IS/E	EFDC	2610 (TH)	2620 (TH)	3045	226, <i>TM</i>	Ext: 2950; Ret: 3037 (DC)
ER Large Laser [Clan]	Clan/F	XFDC	~2820 (CNC)	2825 (CNC)	2830	226, <i>TM</i>	—
ER Medium Laser [Clan]	Clan/F	XEDC	~2822 (CJF)	2824 (CJF)	2830	226, <i>TM</i>	—
ER Small Laser [Clan]	Clan/F	XEDC	~2822 (CJF)	2825 (CJF)	2830	226, <i>TM</i>	—
ER Pulse Lasers (Micro, Small, Medium, Large)	Clan/F	XXED	3057 (CWF)	3082 (CWF)	3095	132, <i>TO:AUE</i>	—
Heavy Lasers (Small, Medium, Large)	Clan/F	XXDD	~3057 (CBR/CSA)	3059 (CSA)	3064	226, <i>TM</i>	—
Improved Heavy Lasers	Clan/F	XXFD	3069 (CGS)	3079 (RD)	3085	133, <i>TO:AUE</i>	—
Pulse Lasers (Small, Medium, Large)	IS/E	EFDC	2595 (TH)	2609 (TH)	3042	226, <i>TM</i>	Ext: 2950; Ret: 3037 (DC)
Improved Large Pulse Laser	Clan/E	XEXX	2815 (CGS)	2818 (CGS)	2820	89, <i>IO</i>	Ext: 2826; Ret: 3080 (EI)
Large Pulse Laser [Clan]	Clan/F	XDCC	2820 (CCY)	2824 (CCY)	2831	226, <i>TM</i>	—
Medium Pulse Laser [Clan]	Clan/F	XDCC	~2825 (CJF/CGB)	2827 (CJF)	2831	226, <i>TM</i>	—
Small Pulse Laser [Clan]	Clan/F	XDCC	~2825 (CJF/CGB)	2829 (CGB)	2831	226, <i>TM</i>	—
Micro Lasers (ER, Pulse)	Clan/F	XXDC	~3059 (CSJ)	3060 (CSJ)	3061	226, <i>TM</i>	—

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Lasers (Continued)							
Variable Speed Pulse (VSP) Lasers (Small, Medium, Large)	IS/E	XXED	3070 (FW/WB)	3072 (FW/WB)	3080	133, <i>TO:AUE</i>	—
X-Pulse Lasers	IS/E	XXED	3057 (LC/FS)	3078 (LC)	3082	133, <i>TO:AUE</i>	—
Re-Engineered Lasers (Small, Medium, Large)	IS/E	XXXE	~3120 (FS)	3130 (FS)	—	83, <i>IO</i>	—
Laser Insulator	AII/E	XEFF	2575 (TH)	—	—	134, <i>TO:AUE</i>	Ext: 2820*
Machine Guns							
Machine Gun [IS]	IS/B	AABA	PS	PS	PS	228, <i>TM</i>	Clan Ext: 2826
Machine Gun [Clan]	Clan/C	XBBA	~2821 (CSF)	2825 (CSF)	2830	228, <i>TM</i>	—
Light Machine Gun [IS]	IS/B	XXCB	~3064 (CC)	3068 (CC)	3070	228, <i>TM</i>	—
Light Machine Gun [Clan]	Clan/C	XXCB	~3055 (CSJ)	3060 (CSJ)	3070	228, <i>TM</i>	—
Heavy Machine Gun [IS]	IS/B	XXCB	~3063 (TC)	3068 (TC)	3070	228, <i>TM</i>	—
Heavy Machine Gun [Clan]	Clan/C	XXCB	~3054 (CHH)	3059 (CSJ)	3070	228, <i>TM</i>	—
Machine Gun Arrays	AII/E	XXFF	~3066 (FS)	3068 (TC)	3070	228, <i>TM</i>	Clan Intro: 3069 (CSF)
Mech/Vehicle/Fighter Engines							
Standard Fusion	AII/D	CEDD	ES	ES	~2300	214, <i>TM</i>	—
Large-Fusion Engine (LSF)	AII/D	CEDD	2630 (TH)	~3085 (LC)	~3120	119, <i>TO:AUE</i>	—
Standard ICE/Turbine	AII/C	AAAA	ES	ES	~2300	214, <i>TM</i>	—
Large-ICE (LIC)	AII/C	AAAA	2630 (TH)	~3085 (LC)	—	119, <i>TO:AUE</i>	—
Light Fusion	IS/E	XXED	~3055 (Merc)	3062 (LC)	3067	214, <i>TM</i>	—
Large-Light (LLF)	IS/E	XXEE	~3064 (LC)	3065 (LC)	—	119, <i>TO:AUE</i>	—
Compact Fusion	IS/E	XXED	~3065 (LC)	3068 (LC)	3072	214, <i>TM</i>	—
Extralight (XL) Fusion [IS]	IS/E	DFED	2556 (TH)	2579 (TH)	3045	214, <i>TM</i>	Ext: 2865; Ret: 3035 (LC)
Extralight (XL) Fusion [Clan]	Clan/F	DEDD	~2824 (CFM)	2827 (CSR)	2829	214, <i>TM</i>	—
Large-XL (LXL) [IS]	IS/E	DFEE	~2635 (TH)	~3085 (LC)	—	119, <i>TO:AUE</i>	Ext: 2822; Proto: 3054 (FS/LC)
Large-XL (LXL) [Clan]	Clan/F	DFEE	~2850 (CIH)	~3080 (CHH)	—	119, <i>TO:AUE</i>	—
XXL Fusion [IS]	IS/F	XXFE	~3055 (FS/LC)	~3110 (LC)	—	121, <i>TO:AUE</i>	—
XXL Fusion [Clan]	Clan/F	XXFE	~2954 (CSF)	~3084 (CSF)	—	121, <i>TO:AUE</i>	—
Large-XXL (LXXL) [IS]	IS/F	XXFF	3058 (FS)	3130 (LC)	—	120, <i>TO:AUE</i>	—
Large-XXL (LXXL) [Clan]	Clan/F	XXFF	3055 (CSF)	3125 (CSF)	—	120, <i>TO:AUE</i>	—
Combat Vehicle Fission (CV-Fission)	AII/D	EEDD	2470 (TH)	2882 (TC)	3079	119, <i>TO:AUE</i>	—
Combat Vehicle Fuel Cell (CV-Cell)	AII/D	CDDC	~2300 (TA)	2470 (TH)	3078	119, <i>TO:AUE</i>	—
Support Vehicle [Steam]	AII/A	AAAA	PS	PS	PS	127, <i>TM</i>	Always Available†
Support Vehicle [Internal Combustion (ICE)]	AII/B	AAAA	PS	PS	PS	127, <i>TM</i>	Always Available†
Support Vehicle [Electric (Battery)]	AII/C	ABAA	PS	PS	PS	127, <i>TM</i>	Always Available†
Support Vehicle [Electric (External)]	AII/B	CCCC	PS	PS	PS	62, <i>TO:AUE</i>	Always Available†
Support Vehicle [Electric (Fuel Cell)]	AII/C	BCCB	PS	PS	PS	127, <i>TM</i>	Always Available†
Support Vehicle [Electric (Solar)]	AII/C	CDCC	PS	PS	PS	127, <i>TM</i>	Always Available†
Support Vehicle [Fission]	AII/C	EEDE	ES	ES	ES	127, <i>TM</i>	Always Available†
Support Vehicle [Fusion]	AII/C	CEDC	ES	ES	ES	127, <i>TM</i>	Always Available†
Support Vehicle [MagLev]	AII/C	DFED	ES	ES	ES	62, <i>TO:AUE</i>	Always Available†
Mine Dispensing/Clearing Systems							
Vehicular Dispenser (Land, Maritime)	AII/B	EEEE	PS	PS	PS	137, <i>TO:AUE</i>	Always Available
Space Dispenser	AII/D	EEEE	ES	ES	ES	137, <i>TO:AUE</i>	Always Available
Minesweeper	AII/C	DDDD	PS	PS	PS	138, <i>TO:AUE</i>	Always Available



Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Miscellaneous Systems							
Blue Shield Particle Field Damper (PFD)	IS/E	XXFF	3053 (FS/LC)	—	—	108, <i>TO:AUE</i>	—
Booby Trap	IS/B	DFDD	PS	~3080 (WB)	—	109, <i>TO:AUE</i>	—
Centurion Weapon System	IS/E	FFFX	~2762 (TH)	—	—	79, <i>IO</i>	Ext: 2770
Chaff Pod	IS/C	XXEE	3069 (LC)	3079 (LC)	—	111, <i>TO:AUE</i>	—
Chameleon Light Polarization Shield (LPS)	IS/E	FXXF	2630 (TH)	—	—	112, <i>TO:AUE</i>	Ext: 2790; Ret: 3099 (FS)
Communications Equipment	AII/D	CDCB	PS	PS	ES	212, <i>TM</i>	Always Available
Collapsible Command Module	AII/D	EEEE	~2700 (TH)	2710 (TH)	—	113, <i>TO:AUE</i>	—
Docking Hardpoint (Non-Spacecraft)	AII/B	CCCC	PS	PS	PS	—	—
Docking Thrusters	AII/B	CCCC	PS	PS	PS	117, <i>TO:AUE</i>	Always Available
Extended Fuel Tanks	AII/C	CDDC	ES	~2300 (TA)	2300	244, <i>TM</i>	—
Handheld Weapon	AII/D	EEFE	3055 (FS/LC)	~3083 (FS/LC)	—	127, <i>TO:AUE</i>	Clan Intro: 3085
BattleMech HarJel System	AII/E	XXEE	3059 (CSF)	~3115 (CSF)	—	100, <i>TO:AUE</i>	IS Intro: 3115 (LC)
HarJel Repair Systems (HarJel II)	Clan/F	XXXF	~3120 (CSF)	3136 (CSF)	—	82, <i>IO</i>	—
HarJel Repair Systems (HarJel III)	Clan/F	XXXF	~3137 (CSF)	3139 (CSF)	—	82, <i>IO</i>	—
Mobile Field Base	AII/D	FXED	~2540 (TH)	3059 (FS/LC)	—	142, <i>TO:AUE</i>	—
MASH Equipment	AII/B	CEDC	PS	PS	—	228, <i>TM</i>	Always Available
Null-Signature System	IS/E	EXXF	~2615 (TH)	2630 (TH)	—	148, <i>TO:AUE</i>	Ext: 2790; Ret: ~3110 (CS)
Paramedic Equipment	AII/C	CCCC	PS	PS	—	233, <i>TM</i>	Always Available
Power Amplifiers	AII/D	BCBB	ES	~2300 (TA)	2300	235, <i>TM</i>	—
Searchlight (Handheld)	AII/A	AAAA	PS	PS	PS	237, <i>TM</i>	—
Searchlight (Mounted)	AII/A	AABA	PS	PS	PS	237, <i>TM</i>	—
Vehicular Dropchute (Standard)	AII/D	DEBB	~2348 (TH)	2351 (TH)	—	160, <i>TO:AUE</i>	—
Vehicular Dropchute (Camouflage)	AII/D	DECC	~2348 (TH)	2351 (TH)	—	160, <i>TO:AUE</i>	—
Vehicular Dropchute (Stealth)	AII/D	EFDD	~2353 (TH)	2355 (TH)	—	160, <i>TO:AUE</i>	—
Vehicular Dropchute (Reusable)	AII/F	EEFE	~2348 (TH)	2353 (TH)	—	160, <i>TO:AUE</i>	—
Void-Signature System	IS/E	XXEF	3070 (WB)	3085 (RS)	—	161, <i>TO:AUE</i>	—
VTOL Mast Mount	AII/C	FFFF	PS	PS	—	162, <i>TO:AUE</i>	—
Additional ProtoMech Equipment							
Magnetic Clamp System	Clan/F	XXFE	~3070 (CFM)	3075 (CSF)	—	60, <i>IO</i>	—
ProtoMech Melee Weapon	Clan/F	XXED	3067 (Clan)	3077 (Clan)	3085	149, <i>TO:AUE</i>	—
ProtoMech Quad Melee Weapon System	Clan/F	XXFE	~3066 (CCC)	3072 (CHH)	3085	61, <i>IO</i>	—
Mobile Hyperpulse Generators							
Mobile Hyperpulse Generators (Mobile HPG)	AII/E	FFFF	~2645 (TH)	2655 (TH)	—	142, <i>TO:AUE</i>	—
Mobile Hyperpulse Generators (Ground-Mobile HPG)	AII/F	FFFF	~2740 (TH)	2751 (TH)	—	142, <i>TO:AUE</i>	—
RISC Equipment							
RISC Advanced Point Defense System (Standard)	IS/E	XXXE	3134 (RS)	3137 (RS)	—	85, <i>IO</i>	—
RISC Advanced Point Defense System (Battle Armor)	IS/E	XXXE	3132 (RS)	3134 (RS)	—	85, <i>IO</i>	—
RISC Emergency Coolant System	IS/F	XXXF	3136 (RS)	—	—	86, <i>IO</i>	Ext: 3140
RISC Heat Sink Override Kit	IS/D	XXXF	3134 (RS)	—	—	86, <i>IO</i>	Ext: 3139
RISC Hyper Laser	IS/F	XXXF	3134 (RS)	—	—	87, <i>IO</i>	Ext: 3141
RISC Laser Pulse Module	IS/F	XXXF	3137 (RS)	—	—	87, <i>IO</i>	Ext: 3140
RISC Repeating TSEMP	IS/E	XXXF	3133 (RS)	—	—	88, <i>IO</i>	Ext: 3138
RISC Super-Cooled Myomer	IS/F	XXXF	3132 (RS)	—	—	88, <i>IO</i>	Ext: 3140
RISC Viral Jammers (Decoy)	IS/F	XXXF	3136 (RS)	—	—	88, <i>IO</i>	Ext: 3142
RISC Viral Jammers (Homing Beacon)	IS/F	XXXF	3137 (RS)	—	—	88, <i>IO</i>	Ext: 3142

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Missile Launchers							
Long-Range Missiles (LRM 5, 10, 15, 20)	All/C	CCCC	2295 (TA)	2300 (TA)	2400	229, <i>TM</i>	Clan Ext: 2830
Improved LRMs (5, 10, 15, 20)	Clan/F	XDXX	2815 (CCY)	2818 (CCY)	2820	90, <i>IO</i>	Ext: 2831; Ret: 3080 (EI)
Long-Range Missiles (LRM 5, 10, 15, 20) [Clan]	Clan/F	XDCC	~2820 (CCY)	2824 (CCY)	2825	229, <i>TM</i>	—
Short-Range Missiles (SRM 2, 4, 6)	All/C	CCCC	2365 (TH)	2370 (TH)	2400	229, <i>TM</i>	Clan Ext: 2836
Improved SRMs (2, 4, 6)	Clan/F	XDXX	2815 (CCC)	2817 (CCC)	2819	90, <i>IO</i>	Ext: 2828; Ret: 3080 (EI)
Short-Range Missiles (SRM 2, 4, 6) [Clan]	Clan/F	XDCC	~2820 (CCC)	2824 (CCC)	2825	229, <i>TM</i>	—
Medium-Range Missiles (MRM 10, 20, 30, 40)	IS/C	XXED	~3052 (DC)	3058 (DC)	3063	229, <i>TM</i>	—
Multi-Missile Launchers (MML 3, 5, 7, 9)	IS/D	XXED	~3067 (Merc)	3068 (WB)	3072	229, <i>TM</i>	—
Advanced Tactical Missile System (ATM 3, 6, 9, 12)	Clan/F	XXDD	~3052 (CCY)	~3053 (CCY)	~3054	229, <i>TM</i>	—
Improved Advanced Tactical Missile (IATM) Launchers (3, 6, 9, 12)	Clan/F	XXFE	~3054 (CCY)	3070 (CCY)	—	59, <i>IO</i>	—
Rocket Launchers (10, 15, 20)	All/B	BBBB	ES	3064 (MH)	3067	229, <i>TM</i>	Clan Ext: 2823
Enhanced Long-Range Missile (NLRM) Launchers (5, 10, 15, 20)	IS/E	XXFE	3058 (FS)	3082 (FS)	3090	138, <i>TO:AUE</i>	—
Extended Long-Range Missile (ELRM) Launchers (5, 10, 15, 20)	IS/E	XXFE	3054 (FS/LC)	3078 (LC)	3083	139, <i>TO:AUE</i>	—
Streak LRM Launchers (5, 10, 15, 20)	Clan/F	XXFE	3057 (CCY)	~3079 (CJF)	3088	139, <i>TO:AUE</i>	—
Streak Short-Range Missiles (2)	All/E	EFDD	2645 (TH)	2647 (TH)	~2650	230, <i>TM</i>	Ext: 2845; Ret: 3035 (FW)
Streak Short-Range Missiles (4, 6)	All/E	XXED	3055 (DC)	3058 (DC)	~3060	230, <i>TM</i>	Clan Ext: 2836
Streak Short-Range Missiles (2, 4, 6) [Clan]	Clan/F	XDDD	2819 (CSA)	~2822 (CSA)	2830	230, <i>TM</i>	—
Thunderbolt Missile Launcher (5, 10, 15, 20)	IS/E	XXFE	3052 (FS)	3072 (FS/LC)	3081	159, <i>TO:AUE</i>	—
Single-Shot (OS) Missile Launchers	IS/Var	As Weapon	~2665 (TH)	2676 (TH)	3045	230, <i>TM</i>	Ext: 2800; Ret: 3030 (FW)*
Improved One-Shot (I-OS) Missile Launcher	All/B	XXFE	3056 (DC)	~3081 (DC)	3085	139, <i>TO:AUE</i>	Clan Prototype: 3058 (CNC)
Narc Missile Beacon	All/E	EFDC	~2580 (TH)	2587 (TH)	3049	232, <i>TM</i>	Ext: 2795; Ret: 3035 (FW)*
Narc Missile Beacon [Clan]	Clan/F	XEDC	~2820 (CHH/CIH)	2828 (CIH)	2830	232, <i>TM</i>	—
Improved Narc Launcher	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3070	232, <i>TM</i>	—
Torpedo Launchers (All Standard LRTs and SRTs)	All/C	As Weapon	2370 (TH)	2380 (TH)	2400	230, <i>TM</i>	—
Fusillade Launcher	Clan/F	XXFX	~3072 (CCY)	—	—	59, <i>IO</i>	Ext: 3075
Mortars and Grenade Launchers							
'Mech Mortars (1, 2, 4, 8) [IS]	IS/B	DFFE	~2526 (TH)	2531 (TH)	3052	136, <i>TO:AUE</i>	Ext: 2819; Ret: 3043 (FS/LC)
'Mech Mortars (1, 2, 4, 8) [Clan]	Clan/B	DFEE	~2835 (CBR)	2840 (CBR)	—	136, <i>TO:AUE</i>	—
Grenade Launchers, Vehicular (VGL)	All/C	DEFE	PS	ES	3078	127, <i>TO:AUE</i>	—
Plasma Weapons							
Plasma Rifle	IS/E	XXED	~3061 (CC)	3068 (CC)	3072	234, <i>TM</i>	—
Plasma Cannon	Clan/F	XXED	~3068 (CSF)	3069 (CSF)	3070	234, <i>TM</i>	—
PPCs							
Standard PPC	All/D	CCCC	~2440 (TH)	2460 (TH)	2500	234, <i>TM</i>	Clan Ext: 2825
Improved PPC	Clan/F	XDXX	~2819 (CSR)	2820 (CSR)	—	89, <i>IO</i>	Ext: 2832; Ret: 3080 (EI)
Light PPC	IS/E	XXEC	3064 (DC)	3067 (DC/FW)	3068	234, <i>TM</i>	—
Heavy PPC	IS/E	XXEC	3062 (DC)	3067 (DC/FW)	3068	234, <i>TM</i>	—
Snub-Nosed PPC	IS/E	FXFD	~2779 (TH)	2784 (TH)	3068	234, <i>TM</i>	Ext: 2790; Ret: 3067 (DC/FW)
Extended-Range (ER) PPC [IS]	IS/E	EFDC	~2740 (TH)	2751 (TH)	3042	233, <i>TM</i>	Ext: 2860; Ret: 3037 (DC)*
Extended-Range (ER) PPC [Clan]	Clan/F	XFDC	~2823 (CSR)	2826 (CSR)	2828	233, <i>TM</i>	—
Enhanced PPC	Clan/F	XEXX	~2822 (CWV)	2823 (CWV)	—	89, <i>IO</i>	Ext: 2831; Ret: 3080 (EI)
PPC Capacitor	All/E	XXED	3060 (DC)	3081 (DC)	—	149, <i>TO:AUE</i>	Clan Intro: 3101

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



CSO

Stone's Lament makes a highly visible and impressive symbol of the Republic of the Sphere's ability to leverage its authority.

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Structural Components ('Mech)							
Internal Structure							
Standard (BattleMech) Structure	AII/D	CCCC	~2430 (TH)	2439 (TH)	2505	225, <i>TM</i>	—
Endo-Steel (BattleMech) Structure [IS]	IS/E	DFED	~2480 (TH)	2487 (TH)	3040	224, <i>TM</i>	Ext: 2850; Ret: 3035 (DC)
Endo-Steel (BattleMech) Structure [Clan]	Clan/F	XEDD	~2825 (CIH)	~2827 (CIH)	2830	224, <i>TM</i>	—
Composite (BattleMech) Structure	IS/E	XXED	3061 (FS)	3082 (FS)	—	154, <i>TO:AUE</i>	—
Endo-Composite (BattleMech) Structure	AII/E	XXFE	3067 (LC)	~3085 (LC)	—	154, <i>TO:AUE</i>	Clan Prototype: 3073 (CWX)
Reinforced (BattleMech) Structure	AII/E	XXED	3057 (CS)	~3084 (CGB)	—	155, <i>TO:AUE</i>	Clan Prototype: 3065 (CGB)
IndustrialMech Structure	AII/C	CCCC	~2300 (TA)	2350 (TH)	2490	224, <i>TM</i>	—
IndustrialMech Structure w/ Environmental Sealing	AII/C	CCCC	~2300 (TA)	2350 (TH)	2495	224, <i>TM</i>	—
Tripod 'Mech Internal Structure (Standard Sizes)	IS/E	EFXE	~2590 (TH)	2602 (TH)	—	159, <i>IO</i>	—
Tripod 'Mech Internal Structure (Superheavy)	IS/E	XXXF	~3130 (RS)	3135 (RS)	—	159, <i>IO</i>	—
Standard Superheavy (BattleMech) Structure	IS/E	XXFF	~3060 (WB)	3076 (WB)	—	155, <i>IO</i>	—
Superheavy Endo Composite (BattleMech) Structure	IS/E	XXFF	~3130 (RS)	3135 (RS)	—	155, <i>IO</i>	—
Superheavy Endo-Steel (BattleMech) Structure	IS/E	XXFF	~3060 (WB)	3076 (WB)	—	155, <i>IO</i>	—
Industrial Superheavy Structure	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	155, <i>IO</i>	—
Actuators and Actuator Systems							
'Mech Actuators (AII)	AII/C	CCCC	~2300 (TA)	2350 (TH)	2505	—	—
Superheavy 'Mech Actuators (AII)	IS/D	XFFF	~2905 (FW)	2940 (FW)	3076	—	—
Actuator Enhancement System (AES)	AII/E	XXFE	3070 (Merc)	3108 (RD)	—	91, <i>TO:AUE</i>	IS Intro: 3109 (CC)
Musculature							
Standard 'Mech Musculature	AII/D	CCCC	~2300 (TA)	2350 (TH)	2505	—	—
Superheavy 'Mech Musculature	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	—	—
Triple-Strength Myomer (Musculature)	IS/E	XXDD	~3028 (FS/CC)	3050 (CC)	3055	240, <i>TM</i>	—
Industrial TSM (Musculature)	IS/E	XXED	~3035 (FS)	3045 (FS)	3055	240, <i>TM</i>	—
Gyroscopes							
Standard Gyro	AII/D	CCCC	~2300 (TA)	2350 (TH)	2505	219, <i>TM</i>	—
Compact Gyro	IS/E	XXED	~3055 (FS/LC)	3068 (FS/LC)	3072	219, <i>TM</i>	—
Heavy-Duty Gyro	IS/E	XXED	~3055 (DC)	3067 (DC)	3072	219, <i>TM</i>	—
Extralight (XL) Gyro	IS/E	XXED	~3055 (CS)	3067 (CS)	3072	220, <i>TM</i>	—
Superheavy Gyro	IS/D	XFFF	~2905 (FW)	2940 (FW)	—	156, <i>IO</i>	—
Structural Components (Non-'Mech)							
Aerospace Fighter Structure	AII/C	CDDC	~2200 (TA)	2470 (TH)	2490	186, <i>TM</i>	—
Conventional Fighter Structure	AII/C	CCCC	PS	2470 (TH)	2490	187, <i>TM</i>	—
Small Craft/DropShip Structure	AII/C	DDDD	~2200 (TA)	~2470 (TH)	2490	187, <i>TM</i>	—
JumpShips	AII/D	DEDF	~2100 (TA)	~2300 (TA)	—	—	—
WarShips	AII/E	DEEF	~2300 (TA)	2470 (TH)	—	132, <i>SO</i>	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Space Stations	AII/D	CDCC	ES	ES	—	—	—
ProtoMech Structure	Clan/D	XXCD	~3055 (CSJ)	3060 (CSJ)	3060	82, <i>TM</i>	—
ProtoMech Actuators (AII)	Clan/D	XXDD	~3055 (CSJ)	3060 (CSJ)	3060	—	—
ProtoMech Musculature	Clan/D	XXED	~3055 (CSJ)	3060 (CSJ)	3060	—	—
Combat Vehicle Structure	AII/D	AAAA	~2460 (TH)	2470 (TH)	2510	98, <i>TM</i>	—
Combat Vehicle Control Components	AII/C	AAAA	~2460 (TH)	2470 (TH)	2510	103, <i>TM</i>	—
Combat Vehicle Lift/Dive Equipment	AII/D	BBBB	~2460 (TH)	2470 (TH)	2510	102, <i>TM</i>	—
Combat Vehicle Rotors	AII/D	CDCC	~2460 (TH)	2470 (TH)	2510	102, <i>TM</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Structural Components (Non-Mech) (Continued)							
Primitive Combat Vehicle/Support Vehicle (BAR 2-3)	AII/A	AAAA	PS	PS	PS	121, <i>TM</i>	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 4)	AII/B	BBAA	PS	PS	PS	121, <i>TM</i>	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 5)	AII/B	BBBA	ES	ES	ES	121, <i>TM</i>	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 6)	AII/C	CBBB	ES	ES	ES	121, <i>TM</i>	Always Available†
Primitive Combat Vehicle/Support Vehicle (BAR 7)	AII/C	CBBB	~2250 (TA)	2300 (TA)	2305	121, <i>TM</i>	†
Support Vehicle (BAR 8)	AII/D	CCBB	~2420 (TH)	2430 (TH)	2435	121, <i>TM</i>	†
Support Vehicle (BAR 9)	AII/D	CCCB	~2420 (TH)	2430 (TH)	2435	121, <i>TM</i>	†
Support Vehicle (BAR 10)	AII/D	DDDC	~2420 (TH)	2430 (TH)	2435	121, <i>TM</i>	†
Combat Vehicle Chassis Mod [Flotation Hull]	AII/B	BBBB	2470 (TH)	2472 (TH)	—	114, <i>TO:AUE</i>	—
Combat Vehicle Chassis Mod [Limited Amphibious]	AII/B	BBBB	2470 (TH)	2472 (TH)	—	114, <i>TO:AUE</i>	—
Combat Vehicle Chassis Mod [Fully Amphibious]	AII/B	BBBB	2470 (TH)	2474 (TH)	—	115, <i>TO:AUE</i>	—
Combat Vehicle Chassis Mod [Dune Buggy]	AII/B	BBBB	2470 (TH)	2471 (TH)	—	115, <i>TO:AUE</i>	—
Combat Vehicle Chassis Mod [Environmental (Vacuum) Sealing]	AII/B	CDCB	—	2475	—	115, <i>TO:AUE</i>	—
Support Vehicle Chassis Mod [All]	All/Var	As Mod	As Mod	As Mod	As Mod	114, <i>TO:AUE</i>	See p. 280, <i>TM</i>
Taser							
Battle Armor Taser	IS/E	XXEE	~3060 (WB)	3067 (WB)	—	157, <i>TO:AUE</i>	—
BattleMech Taser	IS/E	XXFE	3065 (FS)	3084 (RS)	—	158, <i>TO:AUE</i>	—
Transport Launching/Recovery Systems							
Arresting Hoist	AII/C	CFED	PS	PS	PS	245, <i>TM</i>	Always Available
'Mech Cubicle	AII/C	DCCC	~2445 (TH)	2470 (TH)	2500	239, <i>TM</i>	—
ProtoMech Cubicle	Clan/C	XXDD	~3060 (CSJ)	3066 (CBS)	3070	239, <i>TM</i>	—
Fighter Cubicle	AII/C	CCCC	ES	ES	ES	239, <i>TM</i>	Always Available
Small Craft Bay	AII/C	BBBB	ES	ES	ES	239, <i>TM</i>	Always Available
DropShuttle Bay	IS/C	CXXX	~2110 (TA)	2120 (TA)	—	113, <i>IO</i>	Ext: 2500
Battle Armor Bay	AII/D	XFCB	~2867 (CWF)	2868 (CWF)	2870	239, <i>TM</i>	IS Intro: 3050 (FS/LC)
Flight Deck	AII/B	AAAA	PS	PS	PS	124, <i>TO:AUE</i>	Always Available
Helipad	AII/B	AAAA	PS	PS	PS	124, <i>TO:AUE</i>	Always Available
Landing Deck	AII/B	CCCC	ES	ES	ES	131, <i>TO:AUE</i>	Always Available
Naval Repair Facilities [Standard, Unpressurized]	AII/C	CEDD	ES	ES	ES	146, <i>TO:AUE</i>	Always Available
Naval Repair Facilities [Standard, Pressurized]	AII/C	CEDD	ES	ES	ES	146, <i>TO:AUE</i>	Always Available
Naval Repair Facilities [Reinforced, Unpressurized]	IS/C	FXFF	~2750 (TH)	—	—	146, <i>TO:AUE</i>	Ext: 2766; Ret: 3065 (WB)
Transport Bays, Quarters, and Seating							
Cargo (Container)	AII/A	AAAA	PS	PS	PS	239, <i>TM</i>	Always Available
Cargo (Other)	AII/A	AAAA	PS	PS	PS	239, <i>TM</i>	Always Available
Infantry (Compartment)	AII/A	BBBB	PS	PS	PS	239, <i>TM</i>	Always Available
Infantry (Bay)	AII/A	BBBB	PS	PS	PS	239, <i>TM</i>	Always Available
Battle Armor (Compartment)	AII/D	XFCB	ES	ES	ES	239, <i>TM</i>	Always Available
Vehicle Cubicle (Light)	AII/C	BBBB	PS	PS	PS	239, <i>TM</i>	Always Available
Vehicle Cubicle (Heavy)	AII/C	BBBB	PS	PS	PS	239, <i>TM</i>	Always Available
Vehicle Cubicle (Super-Heavy)	AII/C	CCCC	PS	PS	PS	239, <i>TM</i>	Always Available
Quarters (Crew/Steorage/Second Class Passenger)	AII/A	AAAA	PS	PS	PS	236, <i>TM</i>	Always Available
Quarters (Officer/First Class Passenger)	AII/B	BBBB	PS	PS	PS	236, <i>TM</i>	Always Available
Seating (All)	AII/A	AAAA	PS	PS	PS	236, <i>TM</i>	Always Available
TSEMP Weapons							
TSEMP Cannon	IS/E	XXXE	~3100 (RS)	3109 (RS)	—	85, <i>IO</i>	—
TSEMP One-Shot	IS/E	XXXE	~3090 (RS)	3095 (RS)	—	84, <i>IO</i>	—

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Turrets							
Turret Mount (Vehicle, Building, Structure)	All/B	AAAA	PS	PS	PS	241, <i>TM</i>	Always Available
BattleMech Turret (Shoulder)	All/C	FXFE	2450	~3082	—	159, <i>TO:AUE</i>	—
BattleMech Turret (Head)	IS/C	XXFE	3055 (FS/LC)	~3082	—	159, <i>TO:AUE</i>	—
BattleMech Turret (Quad)	All/C	FFFE	2320	~3079	—	159, <i>TO:AUE</i>	—
Vehicular Dual Turret	All/B	FFFE	PS	~3080	3080	159, <i>TO:AUE</i>	—
Vehicular Sponson Turret	All/B	FFFD	PS	~3079	3080	160, <i>TO:AUE</i>	—
VTOL Chin Turret	All/B	FFFE	PS	~3079	3080	160, <i>TO:AUE</i>	—
Construction Options							
BattleMechs and IndustrialMechs							
Primitive BattleMechs (Biped and Quad)	IS/D	DXFF	2439 (TH)	2443 (TH)	2470	116, <i>IO</i>	Ext: 2520**
Standard BattleMechs (Biped and Quad)	All/D	CEDC	2460 (TH)	2470 (TH)	2500	44, <i>TM</i>	—
Primitive IndustrialMechs (Biped and Quad)	IS/C	CXFF	2300 (TA)	2350 (TH)	2425	116, <i>IO</i>	Ext: 2520**
Standard IndustrialMechs (Biped and Quad)	All/C	CCCB	2460 (TH)	2470 (TH)	2500	64, <i>TM</i>	—
Bimodal Land-Air BattleMechs	All/E	EFXX	2680 (TH)	2684 (TH)	—	99, <i>IO</i>	Ext: 2781; Clan Ext: 2801
Standard Land-Air BattleMechs	All/E	DEFF	2683 (TH)	2688 (TH)	—	99, <i>IO</i>	Ext: 3085; Clan Ext: 2825
Quad-Vee	Clan/F	XXXF	~3130 (CHH)	3135 (CHH)	—	—	—
Tripod 'Mechs	IS/D	FFFE	~2585 (TH)	2602 (TH)	—	157, <i>IO</i>	—
Superheavy 'Mechs (Biped and Quad)	IS/D	XFFF	3077 (WB)	3078 (WB)	—	153, <i>IO</i>	—
Superheavy 'Mechs (Tripod)	IS/D	XFXF	~2930 (FW)	2940 (FW)	—	154, <i>IO</i>	—
Super-Heavy Vehicles (Combat)	All/C	EEFE	~2470 (LC)	—	~3075	190, <i>TO:AUE</i>	—
Ultra-Light BattleMechs	All/D	EEEE	~2500 (TH/FW)	2519 (FW)	~3075	190, <i>TO:AUE</i>	—
ProtoMechs							
ProtoMechs [Biped, Standard]	Clan/F	XXED	~3055 (CSJ)	3059 (CSJ)	3060	80, <i>TM</i>	—
ProtoMechs [Quad (ProtoQuads)]	Clan/F	XXED	3075 (Clan)	~3083 (CCC)	3100	92, <i>IO</i>	—
ProtoMechs [Gliders]	Clan/F	XXEE	3075 (Clan)	~3084 (CSR)	3100	92, <i>IO</i>	—
ProtoMechs [Ultraheavy (Ultras)]	Clan/F	XXDD	3075 (Clan)	~3083 (CCY)	3100	92, <i>IO</i>	—
Battle Armor and Exoskeletons							
Exoskeleton	All/C	BBBB	~2100 (TA)	—	~2200	160, <i>TM</i>	—
Battle Armor [PA(L)]	All/D	FXED	2710 (TH)	—	3058	160, <i>TM</i>	Ext: 2766*; Ret: 2905 (CS)
Battle Armor [Light]	All/E	XFED	~2865 (CWF)	2870 (CIH)	2900	160, <i>TM</i>	IS Intro: 3050 (FS/LC)
Battle Armor [Medium]	All/E	XDDD	~2840 (CGS)	2868 (CWF)	2875	160, <i>TM</i>	IS Intro: 3052 (FS/LC/CS)
Battle Armor [Heavy]	All/E	XFED	~2867 (CWF)	2875 (CHH)	3058	160, <i>TM</i>	IS Intro: 3050 (FS/LC)
Battle Armor [Assault]	All/E	XFED	~2870 (CNC)	2877 (CGB)	3060	160, <i>TM</i>	IS Intro: 3058 (DC)
Combat and Support Vehicles							
Primitive Combat Vehicles (All Motive Types)	IS/Var	As Vehicle	As Vehicle	As Vehicle	As Vehicle	118, <i>IO</i>	Support Vehicles, Tech A-C
Standard Combat Vehicles (All Motive Types)	All/D	CCCB	—	2470 (TH)	2490	94, <i>TM</i>	—
Support Vehicles (All Sizes, Motive Types)	All/Var	As Vehicle	As Vehicle	PS	PS	116, <i>TM</i>	Always Available
Fighters and Small Aerospace Units							
Primitive Aerospace Fighters	IS/D	DXFF	ES	~2200 (TA)	—	119, <i>IO</i>	Ext: 2520**
Standard Aerospace Fighters	All/D	CEDC	—	2470 (TH)	2490	180, <i>TM</i>	—
Primitive Conventional Fighters	IS/C	As Vehicle	As Vehicle	As Vehicle	As Vehicle	118, <i>IO</i>	Support Vehicles, Tech A-C
Standard Conventional Fighters	All/D	CDCB	—	2470 (TH)	2490	180, <i>TM</i>	—
Primitive Small Craft (incl. Small DropShuttles)	IS/D	DXFF	ES	~2200 (TA)	—	119, <i>IO</i>	Ext: 2400**
Standard Small Craft	All/D	DEDD	—	~2350 (TH)	2400	181, <i>TM</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Construction Options (Continued)							
Large Aerospace Units							
Primitive DropShips (incl. Large DropShuttles)	IS/D	DXXX	ES	~2200 (TA)	—	120, <i>IO</i>	Ext: 2500**
Standard DropShips	All/D	DEDD	—	~2470 (TH)	2490	180, <i>TM</i>	—
Primitive JumpShips	IS/D	DXXX	~2100 (—)	~2200 (TA)	—	122, <i>IO</i>	Ext: 2500**
Standard JumpShips	All/D	DEDF	—	~2300 (TA)	—	132, <i>SO</i>	—
WarShips	All/E	DEEF	~2300 (TA)	2305 (TH)	—	132, <i>SO</i>	Ext: 2950; Ret: 3050 (FS/LC/DC)*
Space Stations	All/D	CDCC	ES	ES	—	132, <i>SO</i>	—
Modular Space Stations	All/D	EXXE	2565 (TH)	2585 (TH)	—	111, <i>IO</i>	Ext: 2790; Ret: 3090 (RS)*
Mobile Structures (All)	All/Var	FFFF	ES	—	—	75, <i>TO:AUE</i>	—
Buildings							
Standard Buildings (Light, Medium)	All/A	AAAA	PS	PS	PS	112, <i>TO:AR</i>	Always Available
Standard Buildings (Heavy)	All/B	BBBB	PS	PS	PS	112, <i>TO:AR</i>	Always Available
Standard Buildings (Hardened)	All/C	BBBB	PS	PS	PS	112, <i>TO:AR</i>	Always Available
Castles Brian Complexes	All/E	EEEE	2391 (TH)	—	—	139, <i>TO:AR</i>	Ext: 2780; Ret: 3060 (WB)*
Construction Options							
Omni Technology	All/E	XEED	~2854 (CCY/CSF)	2856 (CCY)	2864	19, <i>TM</i>	IS Intro: 3052 (DC)
Patchwork Armor	All/Var	EDEE	PS	3075 (—)	~3080	189, <i>TO:AUE</i>	—
Mixed Technology	All/Var	XXED	~3050 (DC/FS/LC)	~3082 (—)	~3115	189, <i>TO:AUE</i>	Clan Prototype: ~2820 (Clan)
Battle Armor Tech							
Active Probe (Light)	All/E	XFEE	~2898 (CSJ)	2900 (CSJ)	3050	252, <i>TM</i>	IS Intro: 3050 (FS/LC)
Angel ECM [Battle Armor]	All/F	XXFE	3058 (CNC)	~3080 (DC)	3097	91, <i>TO:AUE</i>	IS Prototype: 3063 (DC)
Bomb Rack	Clan/F	XXFE	~3055 (CCC)	3060 (CCC)	3065	253, <i>TM</i>	—
Camo System	IS/E	XFFE	~2790 (CS)	~2800 (CS)	3058	253, <i>TM</i>	—
Cutting Torch	All/C	BBBB	ES	ES	ES	254, <i>TM</i>	—
ECM Suite (Light)	All/E	EEEE	~2718 (TH)	2720 (TH)	3060	254, <i>TM</i>	Ext: 2766; Ret: 3057 (FW/WB)*
Extended Life Support	All/E	EFED	~2712 (TH)	~2715 (TH)	2720	254, <i>TM</i>	—
Fuel Tank	All/C	XEEE	~2740 (TH)	2744 (TH)	3053	255, <i>TM</i>	Ext: 2781; Ret: 3051 (FS/LC)*
HarJel	Clan/F	XCCC	~2838 (CSF)	~2840 (CSF)	2855	256, <i>TM</i>	—
Heat Sensor	All/D	XFFF	~2879 (CBS)	~2880 (CBS)	3050	256, <i>TM</i>	IS Intro: 3050 (FS/LC)
Improved Sensors	All/E	XFED	~2887 (CBS)	~2890 (CBS)	3051	257, <i>TM</i>	IS Intro: 3051 (Merc)
Laser Microphone	All/C	EEFF	ES	ES	ES	258, <i>TM</i>	—
Parafoil	All/D	BBBC	PS	PS	PS	266, <i>TM</i>	—
Power Pack	All/C	BCBB	PS	PS	PS	268, <i>TM</i>	—
Remote Sensors/Dispenser [Battle Armor]	All/D	EDDD	~2700 (TH)	3050 (FS)	—	268, <i>TM</i>	—
Searchlight	All/A	AAAA	PS	PS	PS	269, <i>TM</i>	—
Shotgun Microphone	All/C	EEFF	PS	PS	PS	269, <i>TM</i>	—
Space Operations Adaptation	All/E	XEED	~2890 (CSR)	2895 (CSR)	3015	269, <i>TM</i>	IS Intro: 3011 (TC)
BA Manipulators [Armored Gloves]	All/C	DDDC	ES	ES	ES	259, <i>TM</i>	—
BA Manipulators [Manipulator (Basic)]	All/C	CDCC	ES	~2110 (TA)	~2120	259, <i>TM</i>	—
BA Manipulators [Battle Claw, Heavy Battle Claw]	All/E	XEDC	~2865 (CWF)	2868 (CWF)	3050	259, <i>TM</i>	IS Intro: 3050 (FS/LC)
BA Manipulators [Cargo Lifter]	All/C	DDDC	ES	~2110 (TA)	~2120	259, <i>TM</i>	—
BA Manipulators [Industrial Drill]	All/C	DDDC	ES	ES	ES	259, <i>TM</i>	—
BA Manipulators [Salvage Arm]	All/D	EEED	~2410 (TH)	2415 (TH)	2420	260, <i>TM</i>	—
BA Manipulator Adaptation [Magnet Claws]	All/E	XXEE	~3053 (FS/LC)	3055 (FS/LC)	3058	260, <i>TM</i>	Clan Intro: 3058 (CFM)
BA Manipulator Adaptation [Mine Clearance Equipment]	All/D	XXEE	~3055 (CC)	3057 (CC)	3060	260, <i>TM</i>	Clan Intro: 3063 (CGB)
BA Manipulator Adaptation [Vibro-Claw]	All/E	XXED	~3053 (DC)	3054 (DC)	3058	260, <i>TM</i>	Clan Intro: 3062 (CIH)

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Battle Armor Tech (Continued)							
BA Manipulator Adaptation [Modular Equipment Adaptor]	All/E	XXED	~3052 (DC)	3058 (DC)	3060	260, <i>TM</i>	Clan Intro: 3061 (CNC/CWX)
Jump Jets/Jump Pack [BA]	All/C	DDDC	ES	ES	ES	257, <i>TM</i>	—
Jump Booster [BA]	All/E	XXED	~3050 (FS/LC)	3051 (Merc)	~3061	257, <i>TM</i>	Clan Intro: 3062 (CIH)
Magnetic Clamps [BA]	IS/C	XXED	~3057 (CC)	3062 (CC)	3067	259, <i>TM</i>	—
Battle Armor Mechanical Jump Booster	All/E	XXFE	3070 (LC)	~3084 (LC)	3096	98, <i>TO:AUE</i>	Clan Intro: 3090
Battle Armor Myomer Booster	Clan/F	XXFE	3072 (CIH)	3085 (CIH)	3104	99, <i>TO:AUE</i>	—
Partial Wing [BA]	IS/D	XXFE	~3051 (DC)	3053 (DC)	3059	266, <i>TM</i>	—
Underwater Maneuvering Units (UMU) [BA]	Clan/F	XEEE	~2840 (CGS)	3059 (CGS)	3065	270, <i>TM</i>	—
VTOL Equipment [BA]	Clan/F	XXFE	~3052 (CCC)	3060 (CCC)	3066	271, <i>TM</i>	—
Battle Armor DropChute [Standard]	All/D	XEBB	~2874 (CHH)	2875 (CHH)	—	160, <i>TO:AUE</i>	IS Intro: 3051 (FS/LC)
Battle Armor DropChute [Camouflage]	All/D	XECC	~2874 (CHH)	2875 (CHH)	—	160, <i>TO:AUE</i>	IS Intro: 3051 (FS/LC)
Battle Armor DropChute [Stealth]	All/D	XFDD	~2878 (CHH)	2880 (CHH)	—	160, <i>TO:AUE</i>	IS Intro: 3054 (DC)
Battle Armor DropChute [Reusable]	All/E	XFEE	~2874 (CHH)	2876 (CHH)	—	160, <i>TO:AUE</i>	IS Intro: 3053 (FS/LC)
Battle Armor Weapons							
Anti-Personnel Weapons	All/Var	As Weapon	—	2868 (CWF)	2870	271, <i>TM</i>	IS Intro: 3050 (FS/LC/DC)
Battle Armor Detachable Missile Pack (DMP), Mod [DMP]	All/E	XEED	~2870 (CSV)	~2885 (CSV)	3051	99, <i>TO:AUE</i>	IS Intro: 3051 (FS/LC/DC)
Battle Armor Detachable Missile Pack (DMP), Mod [DWP]	All/E	XXFD	3070 (CHH)	3072 (CHH)	3080	90, <i>TO:AUE</i>	IS Intro: 3073 (WB)
Squad Support Weapon Mod (SSW)	All/Var	As Weapon	~3052 (DC)	3056 (DC)	3060	270, <i>TM</i>	Clan Intro: 3058 (CWF)
Flamer [BA]	All/C	XDBB	~2865 (CWF)	2868 (CWF)	3050	71, <i>TO:AUE</i>	IS Intro: 3050 (FS/LC)
Heavy Flamer [BA]	All/C	XXED	~3070 (LC)	3073 (LC)	3075	124, <i>TO:AUE</i>	Clan Intro: 3073 (CJF)
Gauss Rifle [Anti-personnel Gauss Rifle]	Clan/F	XXED	~3066 (CJF)	3069 (CJF)	3072	255, <i>TM</i>	—
Gauss Rifle [Grand Mauler]	IS/E	XXDE	~3055 (FS)	3059 (FS)	3060	255, <i>TM</i>	—
Gauss Rifle [Tsunami]	IS/E	XXEE	~3054 (DC)	3056 (DC)	3058	255, <i>TM</i>	—
Gauss Rifle [Magshot]	IS/E	XXED	~3057 (FS)	3059 (FS)	3060	255, <i>TM</i>	—
Gauss Rifle [David/King David]	IS/E	XXEE	~3058 (FW)	3063 (FW)	3065	255, <i>TM</i>	—
Grenade Launcher (Micro)	All/B	XBBB	ES	ES	3050	256, <i>TM</i>	—
Grenade Launcher (Heavy)	All/C	XDDC	~2880 (CSF)	2900 (CSF)	3050	256, <i>TM</i>	IS Intro: 3050 (FS/LC)
Standard Laser (Small, Medium)	IS/E	XXBB	~3050 (FS/LC)	3050 (FS/LC/DC)	3050	258, <i>TM</i>	—
ER Laser (Small, Medium)	IS/E	XXDC	~3055 (FW)	3058 (FW)	3062	258, <i>TM</i>	—
Pulse Laser (Small, Medium)	IS/E	XXDC	~3057 (LC)	3060 (LC)	3062	258, <i>TM</i>	—
Clan Standard Laser (Small)	Clan/E	XCBB	~2865 (CWF)	2868 (CWF)	2870	258, <i>TM</i>	—
Clan Heavy Laser (Small, Medium)	Clan/F	XXDD	~3057 (CSA)	3059 (CSA)	3062	258, <i>TM</i>	—
Clan ER Laser (Small, Medium)	Clan/F	XEDC	~2872 (CJF)	~2875 (CJF)	2880	258, <i>TM</i>	—
Clan ER Micro Laser	Clan/F	XXDC	~3055 (CSJ)	3060 (CSJ)	3064	258, <i>TM</i>	—
Clan Pulse Laser (Small, Medium)	Clan/F	XEDC	~2870 (CHH)	~2872 (CHH)	2880	258, <i>TM</i>	—
Clan Pulse Laser (Micro)	Clan/F	XXDC	~3055 (CSJ)	3060 (CSJ)	3063	258, <i>TM</i>	—
ER Pulse Lasers	Clan/F	XXED	3057 (CWF)	3082 (CWF)	3085	258, <i>TM</i>	—
LB-X Autocannon	Clan/F	XXED	3075 (CNC)	3085 (CNC)	—	207, <i>TM</i>	—
Machine Gun (Light)	All/C	XXCB	~3055 (CSJ)	3060 (CSJ)	3068	258, <i>TM</i>	IS Intro: 3068 (CC)
Machine Gun (Medium)	All/C	XDBB	PS	2868 (CWF)	2870	258, <i>TM</i>	IS Intro: 3050 (FS/LC)
Machine Gun (Heavy)	All/C	XXCB	~3055 (CSJ)	3059 (CSJ)	3068	258, <i>TM</i>	IS Intro: 3068 (TC)
Machine Gun (Bearhunter Autocannon)	Clan/D	XXFD	~3060 (CHH)	3062 (CHH)	3065	258, <i>TM</i>	—
Mine Dispenser	IS/D	XXFE	~3057 (CC)	3062 (CC)	3068	260, <i>TM</i>	—
Long-Range Missile (LRM) Launchers [IS]	IS/E	XXED	~3055 (FS)	3057 (FS)	3060	261, <i>TM</i>	—
Short Range Missile (SRM) Launcher [IS]	IS/E	XXDB	~3050 (FS/LC)	3050 (FS/LC)	3051	261, <i>TM</i>	—
Medium Range Missile (MRM) Launcher	IS/D	XXDD	~3058 (DC)	3060 (DC)	3067	261, <i>TM</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



47

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Battle Armor Weapons (Continued)							
Rocket Launchers	IS/E	XXBB	~3050 (FS/LC)	3050 (FS/LC)	3052	261, <i>TM</i>	—
Long-Range Missile (LRM) Launchers [Clan]	Clan/F	XXFD	~3058 (CGS)	3060 (CGS)	3062	261, <i>TM</i>	—
Short Range Missile (SRM) Launcher [Clan]	Clan/F	XDCB	~2865 (CWF)	2868 (CWF)	2870	261, <i>TM</i>	—
Advanced Short Range Missile Launcher [Clan]	Clan/F	XXFD	~3052 (CHH)	3056 (CHH)	3062	261, <i>TM</i>	—
Mortar	All/B	XXCC	~3054 (FS/LC)	3057 (LC)	3063	263, <i>TM</i>	Clan Intro: ~3065 (CHH)
Narc (Compact)	All/E	XFED	~2870 (CSV)	2875 (CSV)	3065	263, <i>TM</i>	IS Intro: 3060 (LC)
Needler (Firedrake)	IS/D	XXCB	~3058 (LC)	3060 (LC)	3068	266, <i>TM</i>	—
Particle Projector Cannon (Support)	All/D	XFDC	~3051 (DC)	3053 (DC)	3056	267, <i>TM</i>	Clan Intro: ~2950 (CGB)
Plasma Rifle (Man-Portable)	IS/E	XXDC	~3063 (CC)	3065 (CC)	3074	267, <i>TM</i>	—
Pop-Up Mine	IS/E	XXEF	—	3050 (FS/LC)	—	267, <i>TM</i>	—
Recoilless Rifle (Light, Medium, Heavy)	All/C	XXDD	~3052 (FS/LC)	3054 (FS/LC)	3056	268, <i>TM</i>	Clan Intro: ~3062 (CHH)
TAG (Light)	All/E	XXFE	~3051 (DC)	3053 (DC)	3057	270, <i>TM</i>	Clan Intro: 3054 (CWF)
Tube Artillery [BA]	IS/E	XXFE	~3070 (CS)	3075 (CS)	—	96, <i>TO:AUE</i>	—
Conventional Infantry Tech							
Motive Type: Beast-Mounted	All/A	AAAA	PS	PS	—	107, <i>TO:AUE</i>	‡
Motive Type: Foot	All/A	AAAA	PS	PS	PS	145, <i>TM</i>	Always Available†
Motive Type: Foot (SCUBA)	All/B	DDDD	PS	PS	—	152, <i>TO:AUE</i>	Always Available†
Motive Type: Motorized	All/B	AAAA	PS	PS	PS	145, <i>TM</i>	Always Available†
Motive Type: Motorized (SCUBA)	All/B	DDDD	PS	PS	—	152, <i>TO:AUE</i>	Always Available†
Motive Type: Jump	All/D	BBBB	ES	ES	ES	145, <i>TM</i>	Always Available†
Motive Type: Mechanized (Wheeled)	All/A	ABAA	PS	PS	PS	145, <i>TM</i>	Always Available†
Motive Type: Mechanized (Tracked)	All/B	BCBB	PS	PS	PS	145, <i>TM</i>	Always Available†
Motive Type: Mechanized (Hover)	All/C	ABAB	PS	PS	PS	145, <i>TM</i>	Always Available†
Motive Type: Mechanized (Microlite VTOL)	All/C	CDDC	ES	ES	—	136, <i>TO:AUE</i>	Always Available†
Motive Type: Mechanized (Micro-copter VTOL)	All/C	CDDC	ES	ES	—	136, <i>TO:AUE</i>	Always Available†
Motive Type: Mechanized (SCUBA)	All/C	DDDD	PS	PS	—	145, <i>TM</i>	Always Available†
Disposable Weapons	All/Var	AAAA	PS	PS	PS	116, <i>TO:AUE</i>	Always Available†
Field Gun	All/Var	As Weapon	As Weapon	As Weapon	—	123, <i>TO:AUE</i>	—
Field Artillery	All/Var	As Weapon	As Weapon	As Weapon	—	123, <i>TO:AUE</i>	Always Available†
TAG Troops	All/E	FXEE	~2590 (TH)	2600 (TH)	—	123, <i>TO:AUE</i>	Ext: 2835; Ret: 3037 (FS)
Training Type: Anti-Mech Attacks	All/D	DDDD	~2456 (LC)	2460 (LC)	2500	220, <i>TW</i>	—
Training Type: Xeno-Planetary Conditions	All/Var	CCCC	ES	ES	ES	163, <i>TO:AUE</i>	†
Training Type: Specialized (Other)	All/Var	AAAA	PS	PS	PS	163, <i>TO:AUE</i>	Always Available†
Conventional Infantry Weapons							
Archaic Weapons							
Bow (Compound)	All/C	BAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Bow (Compound Yumi)	All/C	CDDD	PS	PS	PS	176, <i>HBHK</i>	Always Available
Bow (Daikyu)	All/A	CDDC	PS	PS	PS	272, <i>TM</i>	Always Available
Bow (Hankyu)	All/A	CCCC	PS	PS	PS	272, <i>TM</i>	Always Available
Bow (Longbow)	All/A	BBBB	PS	PS	PS	272, <i>TM</i>	Always Available
Bow (Shortbow)	All/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Bow (Primitive)	All/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Club (Blackjack/Sap)	All/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Club (Club/Improvised)	All/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Club (Vibro-Mace)	IS/E	XFEE	~3000 (CF)	~3050 (CF)	3100	272, <i>TM</i>	—
Crossbow (Basic/Heavy)	All/A	AAAB	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Archaic Sword)	All/A	AAAB	PS	PS	PS	272, <i>TM</i>	Always Available

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)							
Blade (Axe/Hatchet/Tomahawk)	AII/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Bayonet/Dagger/Knife)	AII/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Bokken)	AII/A	BBBB	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Carbon-Reinforced Nails)	IS/D	XDDE	~2980 (CC)	2990 (CC)	—	272, <i>TM</i>	—
Blade (Dao/Katana/No-Dachi/Sword/Wakizashi)	AII/A	CCCC	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Jousting Lance)	AII/A	AAAB	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Shuriken/Thrown Knives)	AII/A	CCCB	PS	PS	PS	272, <i>TM</i>	Always Available
Blade (Vibro-Axe)	AII/E	CDDC	~2435 (LC)	2445 (LC)	2600	272, <i>TM</i>	—
Blade (Vibro-Blade)	AII/D	BCBB	~2398 (FW)	2400 (FW)	—	272, <i>TM</i>	—
Blade (Vibro-Katana)	AII/E	EEDC	~2440 (DC)	2450 (DC)	—	272, <i>TM</i>	Clan Ext: ~2850
Blade (Vibro-Sword, Inner Sphere)	AII/E	DDCC	~2435 (TH)	2440 (TH)	2500	272, <i>TM</i>	Clan Ext: ~2850
Blade (Vibro-Sword, Clan)	Clan/F	XFED	~2815 (CJF)	2820 (CJF)	—	272, <i>TM</i>	—
Blade (Zweihänder Sword)	AII/A	AAAB	PS	PS	PS	272, <i>TM</i>	Always Available
Staff (Basic/Pole Arm)	AII/A	AAAB	PS	PS	PS	272, <i>TM</i>	Always Available
Staff (Nunchaku/Pole Arm)	AII/A	BBBB	PS	PS	PS	272, <i>TM</i>	Always Available
Staff (Shock Staff)	IS/E	XXFE	~3074 (CC)	~3077 (CC)	3130	272, <i>TM</i>	—
Staff (Stun Staff, Single-End)	AII/C	ACAB	ES	ES	ES	272, <i>TM</i>	—
Staff (Stun Staff, Double-End)	AII/C	ACAC	ES	ES	ES	272, <i>TM</i>	—
Stunstick	AII/C	AAAB	ES	ES	ES	272, <i>TM</i>	Always Available
Stunstick (Mini)	AII/C	BAAB	ES	ES	ES	272, <i>TM</i>	Always Available
Whip	AII/A	AAAA	PS	PS	PS	272, <i>TM</i>	Always Available
Whip (Monowire)	AII/E	EEFF	ES	ES	—	272, <i>TM</i>	—
Whip (Medusa)	Clan/E	XFEE	~2820 (CWM)	~2825 (CWM)	—	272, <i>TM</i>	—
Whip (Neural Lash)	AII/D	EEDE	~2300 (DC)	~2320 (DC)	2500	272, <i>TM</i>	—
Whip (Neural Whip)	AII/D	FFEF	~2315 (DC)	~2325 (DC)	2500	272, <i>TM</i>	Clan Ext: ~2786
Pistols							
Auto-Pistol	AII/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Auto-Pistol (Magnum)	AII/C	AABB	PS	PS	PS	273, <i>TM</i>	Always Available
Auto-Pistol (Nambu)	AII/C	BCCC	~2535 (DC)	2540 (DC)	2600	273, <i>TM</i>	—
Auto-Pistol (Nissan 8G-12)	IS/C	BBBB	???? (DC)	???? (DC)	???	176, <i>HBHK</i>	—
Auto-Pistol (Sternsnacht Python)	IS/C	XXCB	~3048 (LC)	3051 (FS/LC)	3068	273, <i>TM</i>	—
Auto-Pistol (M&G)	AII/C	CBCB	~2490 (LC)	2495 (LC)	2550	273, <i>TM</i>	—
Auto-Pistol (Hawk Eagle)	IS/C	XFCC	~3030 (FW)	3035 (FW)	3050	273, <i>TM</i>	—
Auto-Pistol (Serrek 7875D)	IS/C	XCBB	~2805 (FS)	2810 (FS)	2900	273, <i>TM</i>	—
Auto-Pistol (Vintage)	AII/C	CDDE	PS	PS	PS	273, <i>TM</i>	Always Available
Dart Gun	AII/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Flare Pistol	AII/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Gauss Pistol	Clan/F	XDDC	~2845 (CSA)	2850 (Clans)	—	273, <i>TM</i>	—
Gauss Pistol (Mandrake Hold-Out)	IS/E	XXED	~3050 (CC)	3052 (CC)	3085	273, <i>TM</i>	—
Gyrojet Pistol	AII/D	DDCB	~2620 (TH)	2625 (TH)	2700	273, <i>TM</i>	—
Gyrojet Pistol (Coventry Handrocket)	IS/D	XXDC	~3050 (LC)	3052 (LC/FS)	3090	273, <i>TM</i>	—
Gyrojet Pistol (Hold-Out)	AII/D	DDCB	ES	ES	ES	273, <i>TM</i>	Always Available
Harpoon Gun (Pequod, Mk. I)	AII/B	DCBB	~2760 (TC)	~2762 (TC)	2770	273, <i>TM</i>	—
Laser Pistol	AII/D	BAAB	ES	ES	ES	273, <i>TM</i>	—
Laser Pistol (Blazer)	AII/D	CCDC	ES	~2295 (FW)	2350	273, <i>TM</i>	—
Laser Pistol (ER)	Clan/F	XDCC	~2833 (CFM)	2835 (CFM)	—	273, <i>TM</i>	—
Laser Pistol (Hold-Out)	AII/D	BBBB	~2318 (LC)	2320 (LC)	2350	273, <i>TM</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)						273, TM	
Laser Pistol (Hold-Out [White Dwarf])	IS/D	XXCC	~3056 (FW)	3058 (FW)	3075	273, TM	—
Laser Pistol (Nakjima)	IS/D	XDCC	~2875 (DC)	2880 (DC)	3000	273, TM	—
Laser Pistol (Sunbeam)	IS/D	XFDC	~3015 (FW)	3020 (FW)	3050	273, TM	—
Laser Pistol (Sunbeam Nova)	IS/D	XXDC	~3050 (FW)	3053 (FW)	3057	273, TM	—
Needler Pistol	All/D	AAAA	PS	PS	PS	273, TM	Always Available
Needler Pistol (Hold-Out)	All/D	CBBA	~2510 (TH)	2515 (TH)	2570	273, TM	—
Needler Pistol (M&G Flechette)	All/D	BBCC	~2350 (LC)	2360 (LC)	2400	273, TM	—
Needler Pistol (Sea Eagle)	IS/D	XFDC	~3030 (FW)	3035 (FW)	3052	273, TM	—
Paint Gun (LGB-46R)	All/C	AABB	PS	PS	PS	273, TM	Always Available
Pistol (Flamer)	All/C	BBBB	ES	ES	ES	273, TM	Always Available
Pistol (Hold-Out)	All/D	AABB	PS	PS	PS	273, TM	Always Available
Pistol (Makeshift)	All/B	AAAA	PS	PS	PS	273, TM	Always Available
Pistol (TK Enforcer Semi-Auto)	IS/C	XXBB	~3055 (LC)	3058 (LC)	3085	273, TM	—
Pistol (Spitball Gas Weapon)	IS/C	XXCC	~3056 (LC)	3059 (LC)	3100	273, TM	—
Pistol (Sternsnacht Heavy [Claymore])	IS/C	XEDC	~2882 (LC)	2885 (LC)	2950	273, TM	—
Pulse Laser Pistol (Clan)	Clan/F	XCCC	~2835 (CFM)	2840 (CFM)	—	273, TM	—
Pulse Laser Pistol (IS)	All/D	BFCC	~2615 (TH)	2620 (TH)	2700	273, TM	—
Revolver	All/B	AAAA	PS	PS	PS	273, TM	Always Available
Revolver (Magnum)	All/C	BBBB	PS	PS	PS	273, TM	Always Available
Sonic Stunner	All/D	BCBB	~2365 (TH)	2375 (TH)	2400	273, TM	—
Tranq Gun	All/A	AAAA	PS	PS	PS	273, TM	Always Available
Rifles							
Auto-Rifle (Modern, Generic)	All/C	AAAA	PS	PS	PS	273, TM	Always Available
Elephant Gun	All/B	BCCC	PS	PS	PS	273, TM	Always Available
Gauss Rifle (Thunderstroke)	IS/E	XXEF	~3055 (FS)	3058 (FS)	3081	273, TM	Ext: 3095
Gauss Rifle (Thunderstroke II)	IS/E	XXDD	~3058 (FS)	3062 (FS)	3090	273, TM	—
Gyroslug Carbine	All/D	CDCC	~2570 (CC)	2580 (CC)	2650	273, TM	—
Gyroslug Carbine (Star King)	IS/D	XCDC	~2775 (LC)	2789 (LC)	2825	273, TM	—
Gyroslug Rifle	All/D	BCCC	~2520 (TH)	2530 (TH)	2570	273, TM	—
Gyrojet Gun (Heavy)	All/D	CDCC	~2585 (LC)	2590 (LC)	2600	273, TM	—
Gyrojet Rifle	All/D	CCBB	~2535 (TH)	2540 (TH)	2570	273, TM	—
Harpoon Gun (Pequod, Mk. II)	All/C	FDDB	~2761 (TC)	~2764 (TC)	2775	273, TM	—
Laser Rifle	All/D	CBBB	ES	2230 (TA)	2300	273, TM	—
Laser Rifle (Blazer)	All/D	CCDC	ES	2290 (FW)	2350	273, TM	—
Laser Rifle (Ebony Assault)	IS/F	XXED	~3056 (MC)	3063 (MC)	—	273, TM	—
Laser Rifle (ER)	Clan/F	XDDC	~2840 (CSA)	2845 (CSA)	—	273, TM	—
Laser Rifle (ER [Sunbeam Starfire])	IS/E	XXED	~3050 (FW)	3052 (FW)	3075	273, TM	—
Laser Rifle (Federated-Barrett M61A)	IS/D	XXDC	~3058 (FS)	3062 (FS)	3085	273, TM	—
Laser Rifle (Intek)	IS/D	XDDC	~2875 (FW)	2880 (FW)	2950	273, TM	—
Laser Rifle (Magna)	All/D	CCDD	~2460 (DC)	2465 (DC)	2500	273, TM	—
Laser Rifle (Marx XX)	All/D	DEDD	~2665 (TH)	2670 (TH)	2690	273, TM	—
Laser Rifle (Mauser 960)	All/E	CFDE	~2698 (TH)	2700 (TH)	2710	273, TM	—
Laser Rifle (Mauser 1200 LSS)	IS/E	XXED	~3052 (WB)	3055 (WB)	3075	273, TM	—
Laser Rifle (Mauser IIC IAS)	Clan/F	XFED	~3013 (CHH)	3015 (CHH)	—	273, TM	—
Laser Rifle (Maxell PL-10)	IS/D	XXCC	~3057 (LC)	3059 (LC)	3075	273, TM	—
Needler Rifle	All/D	BBBB	ES	ES	ES	273, TM	Always Available

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)							
Needler Rifle (Shredder Heavy)	IS/D	XXCC	~3051 (LC/FS)	3054 (LC/FS)	3067	273, <i>TM</i>	—
Needler Rifle (M&G Flechette)	All/D	CCCB	~2320 (LC)	2325 (LC)	2350	273, <i>TM</i>	—
Pulse Laser Rifle (Clan)	Clan/F	XEDC	~2833 (CGS)	2835 (CGS)	—	273, <i>TM</i>	—
Pulse Laser Rifle (Inner Sphere)	All/D	DECC	~2678 (TH)	2680 (TH)	2700	273, <i>TM</i>	—
Rifle (Bolt-Action)	All/B	AAAB	PS	PS	PS	273, <i>TM</i>	Always Available
Rifle (Federated-Barrett M42B)	IS/C	XXDC	~3060 (FS)	3064 (FS)	3095	273, <i>TM</i>	—
Rifle (Federated Long)	IS/C	XCAB	~2860 (FS)	2870 (FS)	3000	273, <i>TM</i>	—
Rifle (Imperator AX-22 Assault)	IS/C	XXBB	~3052 (FW)	3060 (FW)	3085	273, <i>TM</i>	—
Rifle (M&G G-150)	IS/C	XXCB	~3058 (LC)	3060 (LC)	3075	273, <i>TM</i>	—
Rifle (Makeshift)	IS/B	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Rifle (Minolta 9000 Advanced Sniper System)	IS/D	XXED	~3052 (CC)	3055 (CC)	3100	273, <i>TM</i>	—
Rifle (Radium Sniper)	IS/E	FXFF	~2582 (TC)	2583 (TC)	—	273, <i>TM</i>	Ext: 2607; Ret: 3062 (TC)
Rifle (Sniper)	All/B	CCCC	PS	PS	PS	273, <i>TM</i>	Always Available
Rifle (TK Assault)	IS/C	XCAB	~2865 (LC)	2870 (LC)	2925	273, <i>TM</i>	—
Rifle (Vintage Assault)	All/C	CDDE	PS	PS	PS	273, <i>TM</i>	Always Available
Rifle (Zeus Heavy)	All/C	CBBB	~2740 (FS)	2745 (FS)	2750	273, <i>TM</i>	—
Variable-Pulse Laser Rifle	IS/E	XXED	3075 (FS)	3077 (FS)	3085	273, <i>TM</i>	—
Shotguns							
Auto-Shotgun	All/C	BBCC	ES	ES	ES	273, <i>TM</i>	Always Available
Ceres Arms Crowdbuster	IS/D	XFDC	~3028 (CC)	3030 (CC)	3058	273, <i>TM</i>	—
Gel Gun (Buccaneer)	IS/C	XXDC	~3030 (FW)	3035 (FW)	3057	273, <i>TM</i>	—
Shotgun (Avenger CCW)	Clan/C	XECD	~3019 (CSV)	3020 (CSV)	—	273, <i>TM</i>	—
Shotgun (Combat)	All/C	BBBB	PS	PS	PS	273, <i>TM</i>	Always Available
Shotgun (Double-Barrel)	All/B	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Shotgun (Double-Barrel, Sawed-Off)	All/B	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Shotgun (Pump-Action)	All/B	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Shotgun (Pump-Action, Sawed-Off)	All/B	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Shotgun (Wakazashi O-12)	IS/D	CCCC	???? (DC)	???? (DC)	???	177, <i>HBHK</i>	—
Submachine Guns							
Auto-Pistol (Mydron)	All/C	CBBB	~2607 (FS)	2612 (FS)	2700	273, <i>TM</i>	—
Auto-Pistol (Stetta)	IS/D	XFCB	~3005 (LC)	3010 (LC)	3050	273, <i>TM</i>	—
Gauss Submachine Gun	Clan/E	XXDD	~3051 (CSF)	3055 (CSF)	3060	273, <i>TM</i>	—
Machine Pistol (H-T Spec-7A)	IS/D	XXDD	???? (DC)	???? (DC)	???	177, <i>HBHK</i>	—
Machine Pistol (Martial Eagle)	IS/D	XFDC	~3040 (FW)	3045 (FW)	3060	273, <i>TM</i>	—
Submachine Gun	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Submachine Gun (Gunther MP-20)	IS/C	XECC	~3005 (LC)	3007 (LC)	3025	273, <i>TM</i>	—
Submachine Gun (Imperator 2894A1)	IS/C	XCBC	~2838 (FW)	2842 (FW)	2900	273, <i>TM</i>	—
Submachine Gun (KA-23 Subgun)	IS/D	XCDD	~2890 (DC)	2895 (DC)	2950	273, <i>TM</i>	—
Submachine Gun (Rorynex RM-3/XXI)	All/D	CBCD	~2655 (TH)	2660 (TH)	2663	273, <i>TM</i>	—
Submachine Gun (Rugan)	All/C	DBCD	~2718 (TH)	2720 (TH)	2750	273, <i>TM</i>	—
Grenades							
Grenade (Standard)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Grenade (Micro)	All/C	BCCB	PS	PS	PS	273, <i>TM</i>	Always Available
Grenade (Mini)	All/C	BBBB	PS	PS	PS	273, <i>TM</i>	Always Available
Grenade (Rocket-Assisted)	IS/C	XXDC	~3062 (FS)	3065 (FS)	3085	273, <i>TM</i>	—



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)							
Support Weapons							
AA Weapon (Mk. 1 Light AA)	All/D	EFDD	~2490 (TH)	2500 (TH)	2590	273, <i>TM</i>	Ext: 2790; Ret: 3056 (FW)*
AA Weapon (Mk. 2 Man-Portable AA)	All/D	EFDD	~2498 (TH)	2510 (TH)	2590	273, <i>TM</i>	Ext: 2790; Ret: 3056 (FW)*
Autocannon (Bearhunter Superheavy)	Clan/D	XXDD	~3059 (CHH)	3062 (CHH)	—	273, <i>TM</i>	—
Autocannon (Semi-Portable)	All/C	CDDC	ES	2255 (TA)	2300	273, <i>TM</i>	—
Flamer (Heavy)	All/C	BBBB	ES	ES	ES	273, <i>TM</i>	Always Available
Flamer (Man-Portable)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Gauss Cannon (Grand Mauler)	IS/E	XXDE	~3055 (FS)	3059 (FS)	3065	273, <i>TM</i>	—
Gauss Rifle (Gungnir Heavy)	IS/E	XXFE	~3074 (LC)	3080 (LC)	—	273, <i>TM</i>	—
Gauss Rifle (MagShot)	IS/E	XXED	~3058 (FS)	3059 (FS)	3065	273, <i>TM</i>	—
Gauss Rifle (Tsunami Heavy)	IS/E	XXDE	~3053 (DC)	3056 (DC)	3068	273, <i>TM</i>	—
Gauss Rifle, Light (David)	IS/E	XXED	~3060 (FW)	3063 (FW)	3075	273, <i>TM</i>	—
Gauss Rifle, Light (King David)	IS/E	XXED	~3060 (FW)	3063 (FW)	3075	273, <i>TM</i>	—
Grenade Launcher	All/C	ABBA	PS	PS	PS	273, <i>TM</i>	Always Available
Grenade Launcher (Automatic)	All/C	BBBB	ES	ES	ES	273, <i>TM</i>	Always Available
Grenade Launcher (Compact)	All/C	BCBB	ES	ES	ES	273, <i>TM</i>	Always Available
Grenade Launcher (Heavy)	IS/C	XXDC	~3049 (FS/LC)	3050 (FS/LC)	3057	273, <i>TM</i>	—
Grenade Launcher (Heavy Auto)	Clan/D	XXDD	~2896 (CSF/CHH)	2900 (CSF)	—	273, <i>TM</i>	—
Laser (Hellbore Assault)	IS/E	XXED	~3054 (CS)	3058 (CS)	3062	273, <i>TM</i>	—
LRM Launcher (Corean Farshot)	IS/D	XXDD	~3055 (FW/CC)	3057 (FW)	3065	273, <i>TM</i>	—
Machine Gun (Light)	All/C	BBBB	PS	PS	PS	273, <i>TM</i>	Always Available
Machine Gun (Portable)	All/C	BBBB	PS	PS	PS	273, <i>TM</i>	Always Available
Machine Gun (Semi-Portable)	All/C	BBBB	PS	PS	PS	273, <i>TM</i>	Always Available
Machine Gun (Support)	All/C	CCCC	PS	PS	PS	273, <i>TM</i>	Always Available
Machine Gun (Vintage)	All/C	DEEF	PS	PS	PS	273, <i>TM</i>	Always Available
Mag-Pulse Harpoon Gun	IS/E	XXFE	~3070 (FW)	3079 (FW)	3100	273, <i>TM</i>	—
Mortar (Heavy)	All/B	CCCC	PS	PS	PS	273, <i>TM</i>	Always Available
Mortar (Light)	All/B	CCCC	PS	PS	PS	273, <i>TM</i>	Always Available
MRM Launcher	IS/D	XXED	~3063 (DC)	3065 (DC)	3075	273, <i>TM</i>	—
Needler, Support (Firedrake)	IS/D	XXCC	~3058 (LC)	3061 (LC)	3075	273, <i>TM</i>	—
Particle Cannon (Semi-Portable)	All/E	DEDC	~2430 (DC)	2436 (DC)	2450	273, <i>TM</i>	—
Particle Cannon (Support)	All/E	CDCD	~2465 (TH)	2470 (TH)	2500	273, <i>TM</i>	—
Plasma Rifle, Man-Portable	IS/E	XXDC	~3063 (CC)	3065 (CC)	3075	273, <i>TM</i>	—
Pulse Laser (Dragonsbane Disposable)	IS/E	XXDF	~3054 (DC)	3058 (DC)	3068	273, <i>TM</i>	—
Recoilless Rifle (Heavy)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Recoilless Rifle (Light)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Recoilless Rifle (Medium)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
Rocket Launcher (LAW)	All/C	ABBB	PS	PS	PS	273, <i>TM</i>	Always Available
Rocket Launcher (V-LAW)	All/C	AAAA	PS	PS	PS	273, <i>TM</i>	Always Available
SRM Launcher (Standard, Two-Shot)	All/C	CCDC	~2365 (TH)	2370 (TH)	2400	273, <i>TM</i>	—
SRM Launcher (Heavy, One-Shot)	All/C	CCDC	~2366 (TH)	2370 (TH)	2400	273, <i>TM</i>	—
SRM Launcher (Light, One-Shot)	All/C	CCDC	~2365 (TH)	2370 (TH)	2400	273, <i>TM</i>	—
Support Laser	All/D	BCDC	~2377 (TH)	2380 (TH)	2410	273, <i>TM</i>	—
Support Laser (ER, Clan)	Clan/F	XEDC	~2824 (CHH)	2825 (CHH)	—	273, <i>TM</i>	—
Support Laser (ER, Inner Sphere)	IS/E	XXED	~3054 (FW)	3059 (FW)	3075	273, <i>TM</i>	—
Support Laser (ER Heavy, Clan)	Clan/F	XEDC	~2825 (CHH)	2827 (CHH)	—	273, <i>TM</i>	—

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Conventional Infantry Weapons (Continued)							
Support Laser (ER Heavy, Inner Sphere)	IS/E	XXED	~3054 (FW)	3060 (FW)	3075	273, <i>TM</i>	—
Support Laser (ER, Semi-Portable)	Clan/F	XXCD	~3056 (CSJ)	3060 (CSJ)	—	273, <i>TM</i>	—
Support Laser (Heavy)	All/D	EEDC	~2400 (TH)	2405 (TH)	2450	273, <i>TM</i>	—
Support Laser (Heavy, Semi-Portable)	Clan/F	XXDD	~3055 (CBR)	3061 (CSA)	—	273, <i>TM</i>	—
Support Laser (Semi-Portable)	All/D	CDCC	~2395 (TH)	2400 (TH)	2450	273, <i>TM</i>	—
Support Laser (Ultra-Heavy)	Clan/F	XXDD	~3055 (CBR)	3062 (CSA)	—	273, <i>TM</i>	—
Support Pulse Laser	All/E	DEDC	~2605 (TH)	2610 (TH)	2650	273, <i>TM</i>	—
Support Pulse Laser (Heavy)	All/E	EFED	~2610 (TH)	2615 (TH)	2675	273, <i>TM</i>	—
Support Pulse Laser (Semi-Portable)	Clan/F	XXDD	~3056 (CSJ)	3059 (CSJ)	—	273, <i>TM</i>	—
Support PPC (Snub-Nose)	IS/E	XXFE	~3075 (DC)	3082 (DC)	3090	273, <i>TM</i>	—
TAG (Light, Man-Portable)	All/E	FXEE	~2598 (TH)	~2610 (TH)	—	273, <i>TM</i>	Ext: 2770; Ret: 3051 (DC)
Vintage Gatling Gun	All/B	EEFF	PS	PS	PS	273, <i>TM</i>	Always Available
Vintage Minigun	All/C	EEEF	PS	PS	PS	273, <i>TM</i>	Always Available
Wire-Guided Missile Launcher	All/C	EFXX	ES	ES	ES	273, <i>TM</i>	Always Available
Warrior Augmentations							
Belter Infantry Package	IS/C	AAAB	~2570 (TH)	—	—	68, <i>IO</i>	—
Belter Fighter Pilot Package	IS/C	AAAB	~2570 (TH)	—	—	68, <i>IO</i>	—
Belter Vacuum-Resistance Package	IS/C	AAAB	~2570 (TH)	—	—	68, <i>IO</i>	—
Clan Enhanced Imaging Implants	Clan/F	XXDD	3040 (CSJ)	—	—	69, <i>IO</i>	—
Artificial Pain Shunt	All/C	XXFF	ES	—	—	71, <i>IO</i>	—
Cybernetic Communications Implants	All/E	EFDE	2600 (TH)	—	—	72, <i>IO</i>	—
Cybernetic Boosted Communications Implants	IS/E	XXCD	3060 (WB)	—	—	72, <i>IO</i>	—
Cybernetic Sensory Implants (IR/EM/Audio)	All/E	DECD	2610 (TH)	—	—	72, <i>IO</i>	—
Cybernetic Sensory Implants (Laser/Telescopic)	All/E	DECD	2610 (TH)	—	—	72, <i>IO</i>	—
Cybernetic Multi-Modal Sensory Implants	IS/E	XXDE	3055 (WB/CC)	—	—	73, <i>IO</i>	—
Cybernetic Enhanced Multi-Modal Sensory Implants	IS/E	XXEF	3060 (WB/CC)	—	—	73, <i>IO</i>	—
Cybernetic Filtration Implants	All/C	AAAB	2580 (TH)	—	—	73, <i>IO</i>	—
Cybernetic Gas Effuser, Pheromone	IS/E	XXFF	3060 (WB/CC/MC)	—	—	73, <i>IO</i>	—
Cybernetic Gas Effuser, Toxin	IS/F	XXEF	3060 (WB/CC/MC)	—	—	74, <i>IO</i>	—
Cybernetic Myomer Implants, Dermal Armor	IS/E	XEEE	~2950 (CC/MC)	—	—	74, <i>IO</i>	—
Cybernetic Myomer Implants, Dermal Camouflage Armor	IS/D	XXFF	3065 (CC)	—	—	74, <i>IO</i>	—
Cybernetic Myomer Implants, Triple-Strength	IS/F	XXEF	3060 (WB/CC/MC)	—	—	75, <i>IO</i>	—
Cybernetic Triple-Core Processor Implant	IS/E	XXFX	3068 (WB)	—	—	75, <i>IO</i>	Ext: 3085
Cybernetic Vehicular Direct Neural Interface	IS/E	XXEF	3055 (WB/FS/CC)	—	—	76, <i>IO</i>	—
Cybernetic Buffered VDNl	IS/F	XXFF	3065 (WB)	—	—	76, <i>IO</i>	—
Prototype Direct Neural Interface	IS/E	XXFX	3052 (FS)	—	—	77, <i>IO</i>	Ext: 3055
Explosive Suicide Implants	All/C	AAAA	PS	—	—	77, <i>IO</i>	—
Prosthetic Leg MASC	IS/E	XXFF	3065 (WB/CC)	—	—	77, <i>IO</i>	—
Prosthetic Limb, Enhanced	All/E	FEDE	ES	—	—	78, <i>IO</i>	—
Prosthetic Limb, Improved Enhanced	All/E	XFEF	~2650 (TH)	—	—	78, <i>IO</i>	—
Prosthetic Limb, Extraneous (Enhanced) Limbs	IS/F	XXFX	3068 (CC)	—	—	78, <i>IO</i>	Ext: 3085
Prosthetic Tail, Enhanced	IS/E	XXFX	3068 (CC)	—	—	79, <i>IO</i>	Ext: 3085
Prosthetic Wings, Glider	IS/E	XXEX	3069 (CC)	—	—	79, <i>IO</i>	Ext: 3085
Prosthetic Wings, Powered Flight	IS/F	XXFX	3070 (CC)	—	—	79, <i>IO</i>	Ext: 3085



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition							
Anti-Missile System Ammo [IS]	IS/E	EFDC	~2613 (TH)	2617 (TH)	3048	204, <i>TM</i>	Ext: 2835; Ret: 3045 (CC)
Anti-Missile System Ammo [Clan]	Clan/F	XFDC	~2824 (CSA)	2831 (CSA)	2835	204, <i>TM</i>	—
Arrow Missile Launchers and Artillery Ammo							
Arrow IV [Standard Missile]	AI/E	EFED	2593 (TH)	2600 (TH)	—	96, <i>TO:AUE</i>	Ext: 2830; Ret: 3044 (CC)
Arrow IV [Air-Defense Arrow (ADA) Missiles]	IS/E	XXFE	3068 (CC)	3080 (CC)	—	165, <i>TO:AUE</i>	—
Arrow IV [Cluster Arrow Missile]	AI/E	EFED	2594 (TH)	2600 (TH)	—	166, <i>TO:AUE</i>	Ext: 2830; Ret: 3047 (CC)
Arrow IV [Homing Missiles]	AI/E	EFED	2593 (TH)	2600 (TH)	—	166, <i>TO:AUE</i>	Ext: 2830; Ret: 3045 (CC)
Arrow IV [Illumination Arrow Missiles]	AI/C	DDDD	2615 (TH)	2621 (TH)	—	167, <i>TO:AUE</i>	Ext: 2800; Ret: 3047 (CC)
Arrow IV [Inferno-IV Missiles]	IS/C	XXDD	3053 (CC)	3055 (CC)	—	168, <i>TO:AUE</i>	—
Arrow IV [Laser-Inhibiting (LI) Arrow Missiles]	IS/E	XXFF	3053 (FS/LC)	3083 (FS/LC)	—	168, <i>TO:AUE</i>	—
Arrow IV [Smoke Arrow Missiles]	AI/B	EFED	2595 (TH)	2600 (TH)	—	168, <i>TO:AUE</i>	Ext: 2840; Ret: 3044 (CC)
Arrow IV [Thunder (FASCAM) Arrow Missiles]	AI/C	EFDD	2621 (TH)	2844 (CHH)	—	169, <i>TO:AUE</i>	Ext: 2770; Ret: 3051 (CC)
Arrow IV [Thunder Active-IV]	IS/D	XXEE	3056 (CC)	3065 (CC)	—	169, <i>TO:AUE</i>	—
Arrow IV [Thunder Vibrabomb-IV]	IS/D	XXEE	3056 (CC)	3065 (CC)	—	169, <i>TO:AUE</i>	—
Standard HE Shells (Long Tom, Sniper, Thumper)	AI/B	CCCC	PS	PS	—	96, <i>TO:AUE</i>	Long Tom Intro: 2500 (TH)
Cluster Shells (Long Tom, Sniper, Thumper)	AI/E	EFED	PS	PS	—	166, <i>TO:AUE</i>	Long Tom Intro: 2500 (TH)
Copperhead Shells (Long Tom, Sniper, Thumper)	AI/E	EFED	2640 (TH)	2645 (TH)	—	167, <i>TO:AUE</i>	Ext: 2800; Ret: 3051 (CC)
Flechette Shells (Long Tom, Sniper, Thumper)	AI/E	EFED	ES	ES	—	167, <i>TO:AUE</i>	Long Tom Intro: 2500 (TH)
Illumination Shells (Long Tom, Sniper, Thumper)	AI/C	DDDD	ES	ES	—	167, <i>TO:AUE</i>	Long Tom Intro: 2505 (TH)
Smoke Shells (Long Tom, Sniper, Thumper)	AI/B	AAAA	PS	PS	—	168, <i>TO:AUE</i>	Long Tom Intro: 2500 (TH)
Cruise Missiles (/50, /70, /90, /120)	IS/E	XXFE	3065 (FS)	3095 (FS)	—	96, <i>TO:AUE</i>	—
Artillery Cannon Shells (Long Tom, Sniper, Thumper)	IS/B	XFED	3012 (LC)	3072 (LC)	—	97, <i>TO:AUE</i>	All Standard Artillery Shell Types
Battle Armor Tube Artillery Shells	IS/E	XXFE	~3070 (CS)	3075 (CS)	—	96, <i>TO:AUE</i>	HE and Smoke Shell Types only
Fuel-Air Missile (Arrow IV)	AI/C	EFEE	PS	PS	—	159, <i>IO</i>	—
Fuel-Air Shells (Long Tom, Sniper, Thumper)	AI/C	EFEE	PS	PS	—	159, <i>IO</i>	—
Fuel-Air Cannon Shells (Long Tom, Sniper, Thumper)	AI/C	EFEE	PS	PS	—	159, <i>IO</i>	—
Autocannon and Rifle Ammo							
Standard (AC, LAC, PAC)	AI/B	CCDD	As Weapon	As Weapon	As Weapon	207, <i>TM</i>	—
Armor-Piercing (AC, LAC, PAC)	AI/E	XXEE	3055 (FS/LC)	3059 (FS)	3063	208, <i>TM</i>	Clan Intro: 3105 (CJF)
Caseless (AC, LAC, PAC)	AI/D	XXED	3056 (FS/LC)	3079 (FS)	3115	164, <i>TO:AUE</i>	Clan Intro: 3109 (CSR)
Flak (AC, LAC, PAC)	AI/B	EFFE	ES	~2310 (TA)	3070	164, <i>TO:AUE</i>	—
Flechette (AC, LAC, PAC)	AI/E	XXEE	3053 (FS/LC)	3055 (FS)	3058	208, <i>TM</i>	Clan Intro: 3105 (CHH)
Precision (AC, LAC, PAC)	IS/E	XXEE	3058 (FS)	3062 (FS)	3066	208, <i>TM</i>	—
Tracer (AC, LAC, PAC)	AI/B	DEFE	ES	~2300 (TA)	3060	165, <i>TO:AUE</i>	—
HV Standard (Hyper-Velocity AC)	IS/D	XXFE	3059 (CC)	3079 (CC)	—	97, <i>TO:AUE</i>	—
LB Cluster (LB-X)	AI/E	As Weapon	As Weapon	As Weapon	As Weapon	208, <i>TM</i>	—
LB Standard (LB-X)	AI/E	As Weapon	As Weapon	As Weapon	As Weapon	207, <i>TM</i>	—
Ultra Standard (Ultra AC)	AI/E	As Weapon	As Weapon	As Weapon	As Weapon	208, <i>TM</i>	—
Rotary Standard (Rotary AC)	AI/E	XXED	As Weapon	As Weapon	As Weapon	207, <i>TM</i>	—
Rifle (Cannon) Shells	AI/B	CFXD	PS	PS	3085	150, <i>TO:AUE</i>	Ext: ~2900; Ret: ~3084 (Per)**
Bombs and other External Hardpoint Ordnance							
Air-to-Air (AAA) Arrow	AI/E	XXFE	~3069 (LC/CWX)	3072 (LC)	—	169, <i>TO:AUE</i>	Clan Intro: 3072 (CWX)
Anti-Ship (AS) Missiles	AI/D	XXFE	3071 (FS)	~3075 (FS)	—	170, <i>TO:AUE</i>	Clan Intro: 3076 (CNC)
Anti-Ship Electronic Warfare (ASEW) Missiles	IS/E	XXEE	3067 (LC)	3073 (LC)	—	170, <i>TO:AUE</i>	—
Arrow IV Homing Missile (Air-Launched Version)	AI/E	EFEE	~2595 (TH)	2600 (TH)	—	170, <i>TO:AUE</i>	Ext: ~2835; Ret: 3047 (CC)*
Arrow IV Non-Homing Missile (Air-Launched Version)	AI/E	EFEE	~2622 (TH)	2623 (TH)	—	171, <i>TO:AUE</i>	Ext: ~2850; Ret: 3046 (CC)*

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Cluster Bomb	AII/B	DDDD	PS	PS	PS	246, <i>TW</i>	—
Fuel-Air Bomb (Small)	AII/C	EFEE	PS	PS	—	159, <i>IO</i>	—
Fuel-Air Bomb (Large)	AII/C	EFEE	PS	PS	—	159, <i>IO</i>	—
High-Explosive (Standard) Bomb	AII/B	CCCC	PS	PS	PS	246, <i>TW</i>	—
Inferno Bomb	AII/B	DDDC	PS	PS	PS	171, <i>TO:AUE</i>	—
Laser-Guided (LG) Bomb	AII/C	EFED	ES	ES	3065	247, <i>TW</i>	Ext: 2800; Ret: 3060 (FW)*
Light Air-to-Air (LAA) Missiles	AII/E	XXFD	~3069 (FW)	3072 (FW)	—	171, <i>TO:AUE</i>	Clan Intro: 3074 (CWX)
Mines	AII/C	EEDD	PS	PS	PS	364, <i>TO</i>	—
Rocket Launcher Pod	IS/B	XXBB	~3060 (MH)	3064 (MH)	3067	229, <i>TM</i>	—
TAG Pod	AII/E	EFDD	~2600 (TH)	2605 (TH)	2645	238, <i>TM</i>	Ext: 2835; Ret: 3035 (FS)*
Thunder (FASCAM) Bombs	AII/C	EEDD	~2600 (TH)	2623 (TH)	—	172, <i>TO:AUE</i>	Ext: ~2850; Ret: 3052 (CC)*
Thunder Active Bombs	IS/E	XXED	~3060 (CC)	3065 (CC)	—	172, <i>TO:AUE</i>	—
Thunder Vibrobombs	IS/E	XXED	~3060 (CC)	3065 (CC)	—	172, <i>TO:AUE</i>	—
Torpedo Bombs	AII/B	CCCC	PS	PS	—	172, <i>TO:AUE</i>	—
Chemical Laser Ammo	Clan/E	XXEE	3059 (CHH)	3085 (CHH)	3145	132, <i>TO:AUE</i>	—
Flamer and Fluid Gun/Sprayer Ammo							
Coolant Ammo [Flamers/Fluid Guns/Sprayer]	AII/C	BBBB	ES	ES	ES	173, <i>TO:AUE</i>	—
Corrosive Ammo [Fluid Guns/Sprayers]	AII/C	CDDD	PS	ES	ES	173, <i>TO:AUE</i>	—
Flame-Retardant Foam Ammo [Fluid Guns/Sprayers]	AII/B	BBBB	PS	PS	PS	173, <i>TO:AUE</i>	—
Flamer Fuel Ammo [Flamers/Fluid Guns]	AII/C	BBBA	PS	PS	PS	218, <i>TM</i>	—
Inferno Fuel Ammo [Flamers/Fluid Guns]	AII/D	DEDC	~2390 (TH)	2400 (TH)	2425	173, <i>TO:AUE</i>	—
Oil Slick Ammo [Fluid Guns/Sprayers]	AII/B	BBBB	PS	PS	PS	174, <i>TO:AUE</i>	—
Paint/Obscurant Ammo [Fluid Guns/Sprayers]	AII/B	BBBB	ES	ES	ES	174, <i>TO:AUE</i>	—
Water Ammo [Flamers/Fluid Guns/Sprayers]	AII/A	AAAA	PS	PS	PS	174, <i>TO:AUE</i>	—
Gauss Rifle Ammo							
Gauss Rifle Ammo [IS]	IS/E	DFDC	2587 (TH)	2590 (TH)	3045	218, <i>TM</i>	Ext: 2865; Ret: 3040 (FC/FW/DC)
Improved Gauss Rifle Ammo	Clan/E	XEXX	~2818 (CGS)	2821 (CGS)	2822	96, <i>IO</i>	Ext: 2837
Gauss Rifle Ammo [Clan]	Clan/F	XFDD	~2822 (CBR)	2828 (CBR)	2830	218, <i>TM</i>	—
Light Gauss Rifle Ammo	IS/E	XXED	~3049 (FW)	3056 (FW)	3065	219, <i>TM</i>	—
Heavy Gauss Rifle Ammo	IS/E	XXED	~3051 (FW)	3061 (LC)	3067	218, <i>TM</i>	—
Anti-Personnel Gauss Rifle Ammo	Clan/F	XXED	~3065 (CJF)	3069 (CJF)	3072	218, <i>TM</i>	—
Hyper-Assault Gauss Rifle Ammo (All Sizes)	Clan/F	XXED	~3062 (CHH)	3068 (CHH)	3072	218, <i>TM</i>	—
Improved Heavy Gauss Rifle Ammo	IS/E	XXFE	3065 (LC)	3081 (LC)	3090	125, <i>TO:AUE</i>	—
Magshot Gauss Rifle Ammo	IS/E	XXDC	~3059 (FS)	3072 (FS)	3090	126, <i>TO:AUE</i>	—
Silver Bullet Gauss Rifle Ammo	IS/D	XXFE	3051 (FS/LC)	3080 (LC)	3090	126, <i>TO:AUE</i>	—
Grenade Launcher Ammo							
Chaff Grenades [VGL]	AII/B	DEEE	~3050 (DC)	3052 (DC)	—	175, <i>TO:AUE</i>	Clan Intro: 3063 (CWX)
Fragmentation Grenades [VGL]	AII/B	BBBB	PS	ES	~3070	175, <i>TO:AUE</i>	—
Incendiary Grenades [BA GL/VGL]	AII/B	BBBB	PS	PS	~3070	176, <i>TO:AUE</i>	—
Smoke Grenades [BA GL/VGL]	AII/A	BBBB	PS	PS	~3070	176, <i>TO:AUE</i>	—
Machine Gun Ammo							
Standard Machine Gun Ammo	IS/B	AABA	PS	PS	PS	228, <i>TM</i>	—
Light Machine Gun Ammo	IS/B	XXCB	~3055 (CSJ)	3060 (CSJ)	3070	228, <i>TM</i>	IS Intro: 3068 (CC)
Heavy Machine Gun Ammo	AII/B	XXCB	~3054 (CHH)	3059 (CSJ)	3070	228, <i>TM</i>	IS Intro: 3068 (TC)



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Minefield Ordnance							
Standard (Conventional) Mines (Land/Sea)	AII/B	CCCC	PS	PS	PS	178, <i>TO:AUE</i>	—
Active Mines (Land)	AII/C	FEED	ES	ES	ES	176, <i>TO:AUE</i>	—
Command-Detonated Mines (Land/Sea)	AII/B	CDCC	PS	PS	PS	177, <i>TO:AUE</i>	—
Electromagnetic Pulse (EMP) Mines, Vibrabomb (Land)	AII/E	FXFD	~2675 (TH)	2680 (TH)	—	177, <i>TO:AUE</i>	Ext: 2825; Ret: 3058 (FW)*
Electromagnetic Pulse (EMP) Mines, Command-Detonated (Land)	AII/E	XXFD	~3063 (WB)	3065 (WB)	—	177, <i>TO:AUE</i>	—
Inferno Mines (Land/Sea)	AII/C	XXDD	~3053 (CC)	3055 (CC)	3060	178, <i>TO:AUE</i>	Clan Intro: 3066 (CHH)
Space Mines (Space)	AII/C	EFEE	ES	ES	—	178, <i>TO:AUE</i>	—
Vibrabombs (Land)	AII/C	EEDC	~2440 (LC)	2445 (LC)	2490	179, <i>TO:AUE</i>	—
Missile Launcher Munitions							
Standard ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3053 (CCY)	3060	138, <i>TW</i>	—
Extended-Range ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3053 (CCY)	3060	138, <i>TW</i>	—
High-Explosive ATMs (ATM, Fusillade)	Clan/F	XXDD	~3052 (CCY)	3054 (CCY)	3060	138, <i>TW</i>	—
Improved Inferno ATMs (ATM, Fusillade)	Clan/F	XXFX	~3070 (CCY)	—	—	61, <i>IO</i>	—
Improved Magnetic Pulse ATMs (ATM, Fusillade)	Clan/F	XXFX	~3070 (CCY)	—	—	61, <i>IO</i>	Ext: 3080
Standard LRMs (LRM, MML)	AII/C	CCCC	2295 (TA)	2300 (TA)	2400	229, <i>TM</i>	—
Flare LRMs (LRM, MML)	AII/C	EFEE	~2376 (FS)	2377 (FS)	3058	230, <i>TM</i>	Ext: 2790; Ret: 3054 (FW)*
Follow-the-Leader LRMs (LRM, MML)	AII/E	FXEX	—	—	—	180, <i>TO:AUE</i>	Ext: ~2770; Ret: 3046 (FS/LC)*
Heat-Seeking LRMs (LRM, MML)	AII/C	EEEF	~2390 (TH)	2430 (TH)	2440	181, <i>TO:AUE</i>	—
Incendiary LRMs (LRM, MML)	AII/D	EEEE	2341 (TH)	2342 (TH)	2352	181, <i>TO:AUE</i>	—
Semi-Guided LRMs (LRM, MML)	IS/E	XXDD	3053 (FW)	3057 (FW)	3065	231, <i>TM</i>	—
Smoke LRMs (LRM, MML)	AII/C	DDDD	2341 (TH)	2342 (TH)	2350	183, <i>TO:AUE</i>	—
Swarm LRMs (LRM, MML)	AII/E	EXDD	~2615 (TH)	2621 (TH)	3058	183, <i>TO:AUE</i>	Ext: 2833; Ret: 3053 (FS/LC)*
Swarm-I LRMs (LRM, MML)	IS/E	XXDD	~3052 (FW)	3057 (FW)	3066	184, <i>TO:AUE</i>	—
Thunder LRMs (LRM, MML)	AII/E	DXDD	~2618 (TH)	2620 (TH)	2650	184, <i>TO:AUE</i>	Ret: 2840; 3052 (FS/LC)*
Thunder Active LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3058 (CC)	3064	184, <i>TO:AUE</i>	—
Thunder Augmented LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3057 (CC)	3064	184, <i>TO:AUE</i>	—
Thunder Vibrabomb LRMs (LRM, MML)	IS/E	XXEE	~3054 (CC)	3056 (CC)	3066	184, <i>TO:AUE</i>	—
Thunder Inferno LRMs (LRM, MML)	IS/E	XXDD	~3054 (CC)	3056 (CC)	3062	184, <i>TO:AUE</i>	—
Standard MRMs (MRM)	IS/C	XXED	~3052 (DC)	3058 (DC)	3063	229, <i>TM</i>	—
Standard SRMs (SRM, MML)	AII/C	CCCC	2365 (TH)	2370 (TH)	2400	229, <i>TM</i>	—
Acid SRMs (SRM, MML)	IS/E	XXFF	3053 (FS/LC)	—	—	179, <i>TO:AUE</i>	—
Harpoon SRMs (SRM)	AII/C	CCCC	~2395 (LC)	2400 (LC)	2415	181, <i>TO:AUE</i>	—
Heat-Seeking SRMs (SRM, MML)	AII/C	EEEF	~2365 (TH)	2370 (TH)	—	181, <i>TO:AUE</i>	—
Inferno SRMs (SRM, MML)	AII/B	DDDD	~2370 (TC)	2380 (TH)	2400	141, <i>TW</i>	—
Smoke SRMs (SRM, MML)	AII/C	DDDD	2333 (TH)	2370 (TH)	—	183, <i>TO:AUE</i>	—
Tandem Charge SRMs (SRM, MML)	IS/E	XXEE	2757 (TH)	3062 (FS)	—	184, <i>TO:AUE</i>	—
Tear Gas SRMs (SRM, MML)	AII/C	BBBB	~2370 (TH)	2375 (TH)	2385	184, <i>TO:AUE</i>	—
Standard Rocket Launcher (RL)	AII/B	BBBB	ES	3064 (MH)	3067	229, <i>TM</i>	—
Standard Streak SRMs (Streak SRM)	AII/E	EEDD	2645 (TH)	2647 (TH)	2650	230, <i>TM</i>	—
Retro-Streak SRMs (Streak SRM)	IS/E	XXFX	3048 (DC)	—	—	187, <i>IO</i>	Ext: 3057
Anti-TSM Missiles (LRM, SRM, MML)	IS/E	XXFF	3026 (FS)	3027 (FS)	—	98, <i>IO</i>	—
Artemis IV Missiles (LRM, SRM)	AII/E	EFDC	2592 (TH)	2598 (TH)	3045	207, <i>TM</i>	Clan Intro: 2818 (CSA)
Artemis V Missiles (LRM, SRM, MML)	Clan/F	XXFE	~3061 (CGS)	3085 (CSF/RD)	3095	95, <i>TO:AUE</i>	—
Dead-Fire Missiles (LRM, SRM, MML)	IS/C	XXEE	3052 (DC)	—	—	125, <i>IO</i>	—

Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Heavy Weapons Ammunition (Continued)							
Fragmentation Missiles (LRM, SRM, MML)	AII/D	EFED	~2375 (FS)	2377 (FS)	3058	230, <i>TM</i>	Ext: 2790; Ret: 3054 (FW)*
Listen-Kill Missiles (LRM, SRM, MML)	IS/D	XXFX	~3037 (FS/LC)	—	—	99, <i>IO</i>	Ext: 3040
Magnetic Pulse Missiles (LRM, SRM, MML)	IS/E	XXFX	3055 (FW)	3057 (FW/WB)	—	182, <i>TO:AUE</i>	Ext: 3065
Mine Clearance Missiles (LRM, SRM, MML)	IS/C	XXED	~3065 (FS)	3069 (FS)	—	182, <i>TO:AUE</i>	—
Multi-Purpose Missiles (LRM, SRM)	Clan/F	XXEE	~3055 (CGS)	3060 (CGS)	3065	229, <i>TW</i>	Battle Armor Launchers only
Narc-Capable Missiles (LRM, SRM)	AII/E	EFDC	~2520 (TH)	2587 (TH)	3049	142, <i>TW</i>	Clan Intro: 2828 (CIH)
Anti-Radiation Missiles (LRM, SRM, MML)	AII/E	XXEF	3066 (FW)	—	—	180, <i>TO:AUE</i>	Clan Prototype: 3057 (CSJ)
Standard Narc Homing Beacon (Narc, iNarc)	AII/E	EFDC	~2580 (TH)	2587 (TH)	3049	141, <i>TW</i>	Clan Intro: 2828 (CIH)
Bola Narc Pods (Narc)	IS/D	XXEF	3056 (CC)	—	—	180, <i>TO:AUE</i>	—
Explosive Narc Pods (Narc)	IS/E	XXDD	~3054 (DC)	3060 (DC)	3064	141, <i>TW</i>	—
Shoot-and-Sit Missiles (Narc)	IS/E	XXFX	3049 (FS/LC)	—	—	126, <i>IO</i>	Ext: 3059
Improved Narc Homing Beacon (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	141, <i>TW</i>	—
Improved Narc ECM Pods (iNarc)	IS/E	XXDD	~3054 (CS)	3062 (CS/WB)	3066	141, <i>TW</i>	—
Improved Narc Explosive Pods (iNarc)	IS/E	XXDD	~3054 (CS)	3062 (CS/WB)	3066	141, <i>TW</i>	—
Improved Narc Haywire Pods (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	141, <i>TW</i>	—
Improved Narc Nemesis Pods (iNarc)	IS/E	XXED	~3054 (CS)	3062 (CS/WB)	3066	142, <i>TW</i>	—
Torpedo (LRT, SRT)	AII/C	CCCC	~2370 (TH)	2380 (TH)	2400	230, <i>TM</i>	—
Fusillade Ammo (Fusillade)	Clan/F	XXFX	~3072 (CCY)	—	—	59, <i>IO</i>	Ext: 3080
Mortar Munitions							
Standard Mortars	AII/B	DFFE	~2526 (TH)	2531 (TH)	3052	136, <i>TO:AUE</i>	Ext: 2819; Ret: 3043 (FS/LC)*
Airburst Mortars	AII/C	BDCD	~2540 (TH)	2544 (TH)	—	185, <i>TO:AUE</i>	—
Anti-Personnel Mortars	AII/B	BBBB	~2526 (TH)	2531 (TH)	3052	185, <i>TO:AUE</i>	—
Armor Piercing Mortars	AII/C	BBBB	~2526 (TH)	2531 (TH)	3052	186, <i>TO:AUE</i>	Ext: 2819; Ret: 3043 (FS/LC)*
Flare Mortars	AII/B	AAAA	~2533 (TH)	2536 (TH)	—	186, <i>TO:AUE</i>	—
Semi-Guided Mortars	IS/C	XXED	~3055 (FW)	3064 (FW)	—	186, <i>TO:AUE</i>	—
Smoke Mortars	AII/B	AAAA	~2526 (TH)	2531 (TH)	—	187, <i>TO:AUE</i>	—
Plasma Rifle Ammo	IS/E	XXED	~3061 (CC)	3068 (CC)	3072	234, <i>TM</i>	—
Plasma Cannon Ammo	Clan/F	XXED	~3068 (CSF)	3069 (CSF)	3070	234, <i>TM</i>	—
RISC Advanced Point Defense System (Standard)	IS/E	XXE	3134 (RS)	3137 (RS)	—	89, <i>IO</i>	—
RISC Advanced Point Defense System (Battlesuit)	IS/E	XXE	3132 (RS)	3134 (RS)	—	89, <i>IO</i>	—
Taser Ammo (BattleMech)	IS/E	XXFE	3065 (FS)	3084 (RS)	—	158, <i>TO:AUE</i>	—
Capital and Sub-Capital Weapon Munitions							
Mass Drivers (Light, Med, Heavy)	IS/D	FXFF	~2715 (TH)	—	—	135, <i>TO:AUE</i>	Ext: ~2855; Ret: 3066 (WB)*
Naval Gauss (Light, Medium, Heavy N-Gauss)	AII/E	EXEE	~2440 (TH)	~2448 (TH)	—	145, <i>TO:AUE</i>	Ext: ~2950; Ret: 3052 (DC)*
Naval Autocannon (All)	AII/D	EXEE	ES	~2200 (TA)	—	143, <i>TO:AUE</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Capital Missiles (Killer Whale, White Shark, Barracuda)	AII/E	DEED	~2200 (TA)	2305 (TA)	3055	210, <i>TM</i>	Ext: ~2950; Ret: 3051 (FS/LC)*
Tele-operated Missiles (KW, WS, Barracuda)	IS/F	XXED	3053 (CS/DC)	3056 (DC)	3060	251, <i>TW</i>	—
Tele-operated Missiles (Kraken)	IS/F	XXED	3053 (CS/DC)	3057 (DC)	3060	251, <i>TW</i>	—
Screen Launcher	IS/F	XXED	3053 (DC)	3055 (DC)	3057	251, <i>TW</i>	—
Sub-Capital Missiles (All)	AII/E	XXFD	~3066 (WB)	3072 (WB)	3145	156, <i>TO:AUE</i>	Clan Intro: 3073 (CGB/CNC)
Sub-Capital Cannons (Light, Med, Heavy)	AII/E	XXFD	~3070 (WB)	3073 (WB)	3145	155, <i>TO:AUE</i>	Clan Intro: 3091 (CSR)
Industrial Munitions							
Nail/Rivet Gun Ammo	AII/A	AAAA	PS	PS	PS	246, <i>TM</i>	Always Available
Remote Sensors	AII/C	FFDD	2586 (TH)	2590 (TH)	—	187, <i>TO:AUE</i>	—



Weapon/Item	Technology Base/Rating	Availability Rating	Prototype (Faction)	Production (Faction)	Common	Page Reference	Notes
Weapons of Mass Destruction							
Nuclear Weapons (General)	IS/C	FFFF	PS	—	—	163, <i>IO</i>	Always Available
Std. Nuclear Weapon (Type Ia/Davy Crockett)	IS/E	FFFF	2412 (TH)	—	—	168, <i>IO</i>	—
Std. Nuclear Weapon (Type Ib/Davy Crockett-M)	IS/E	FFFF	2480 (TH)	—	—	168, <i>IO</i>	—
Std. Nuclear Weapon (Type II/Alamo)	IS/E	FFFF	2200 (TA)	—	—	168, <i>IO</i>	—
Std. Nuclear Weapon (Type III/Santa Ana)/Launcher	IS/E	FFFF	2300 (TA)	—	—	168, <i>IO</i>	—
Std. Nuclear Weapon (Type IV/Peacemaker)/Launcher	IS/E	FFFF	2300 (TA)	—	—	170, <i>IO</i>	—
Std. Nuclear Weapon (Elias)	IS/E	FFFF	2792 (FS)	—	—	168, <i>IO</i>	—
Std. Nuclear Weapon (AMW)	IS/E	FFFF	2790 (FW)	—	—	170, <i>IO</i>	—
Chemical Weapon (Class I)	All/A	CCCC	PS	—	—	174, <i>IO</i>	—
Chemical Weapon (Class II)	All/B	CCCC	PS	—	—	174, <i>IO</i>	—
Chemical Weapon (Class III)	All/B	CDGD	PS	—	—	174, <i>IO</i>	—
Chemical/Biological Weapon (Class IV)	All/C	DDDD	ES	—	—	175, <i>IO</i>	—
Chemical/Biological Weapon (Class V)	All/C	EEEE	ES	—	—	176, <i>IO</i>	—

KEY OF TERMS

Rule Classes

Prototype = Initial Development, uses Experimental Rules (Requires *TO:AUE*, *SO*, or *IO:AE*; not in general production)

Production = Early Releases, uses Advanced Rules (May require *TO:AUE*, *SO*, or *IO:AE*; now in general production)

Common = Widely Deployed/Understood, considered Advanced or Tournament Legal (Compatible with *TW*; may require *TO:AUE* or *SO*; now in wide production)

Notes

Ext = Extinct (production lost)

Ret = Returned to production

*Extinction/Return Dates apply to Inner Sphere factions only (this technology was never lost in Clan space, and remains understood by ComStar/Word of Blake).

**Extinction/Return Dates apply to all factions (technology was abandoned or lost even by the Clans).

†Tech and Availability Ratings listed reflect minimum required for listed item.

‡This motive type is only available if suitable, trained mounts are available.

Prototype Years and Tech Base

PS = Pre-Spaceflight

ES = Early Spaceflight

IS = Inner Sphere technology base (includes non-Clan Periphery realms)

Clan = Clan technology base (includes Homeworld Clans and Clan-controlled Inner Sphere regions)

All = Inner Sphere and Clan tech bases

Var = Variable Tech Base, based on items used; Exact Tech Base of combined items = highest Base from the range of items used.

Inner Sphere Faction Codes

CC = Capellan Confederation	MH = Marian Hegemony
CF = Circinus Federation	OA = Outworlds Alliance
CP = Calderon Protectorate	TA = Terran Alliance
CS = ComStar	TC = Taurian Concordat
DC = Draconis Combine	TH = Terran Hegemony
EI = Escorial Imperio	RD = Rasalhague Dominion/ Ghost Bear Dominion
FR = Free Rasalhague Republic	RS = Republic of the Sphere
FS = Federated Suns	RA = Raven Alliance
FW = Free Worlds League	RW = Rim Worlds Republic
LC = Lyran Alliance/Commonwealth	WB = Word of Blake
MC = Magistracy of Canopus	

Clan Faction Codes

CBR = Clan Burrock	CNC = Clan Nova Cat
CBS = Clan Blood Spirit	CSF = Clan Sea Fox/ Clan Diamond Shark
CCY = Clan Coyote	CSJ = Clan Smoke Jaguar
CCC = Clan Cloud Cobra	CSR = Clan Snow Raven
CFM = Clan Fire Mandrill	CSV = Clan Steel Viper
CGB = Clan Ghost Bear	CSA = Clan Star Adder
CGS = Clan Goliath Scorpion	CWM = Clan Widowmaker
CHH = Clan Hell's Horses	CWF = Clan Wolf
CIH = Clan Ice Hellion	CWX = Clan Wolf (in Exile)
CJF = Clan Jade Falcon	CWV = Clan Wolverine
CMN = Clan MongOOSE	

Note: A faction name of "Clan" indicates that multiple Clans developed a given item at the same time. A faction name of "Merc" indicates that the given item was developed/deployed by a mercenary organization. A faction name of "Per" indicates that the given item was developed or deployed by an unaffiliated or minor Periphery-based organization, such as a pirate faction or an independent Periphery world.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



The massive brawl outside of the Kerensky Bloodchapel on Strana Mechty violated Clan rules of warfare on many, many levels.

This chapter provides game play and construction rules for advanced and/or experimental units, weapons and equipment that are considered era specific. In other words, they are not appropriate for all eras and so appear here (as opposed to one of the other core rulebooks). For example, Land-Air BattleMechs (LAMs) are only truly appropriate for the Star League and Jihad Eras, as they were introduced during the Star League, but all but vanished in the wars that erupted after the fall of the Star League, and only came back during the final days of the Word of Blake Jihad. To be fair, many LAMs managed to survive all the way through the intervening years, and one model even remained in limited production right up to the Clan Invasion era, but their use rapidly declined during the onset of the Succession Wars, rendering them extremely rare.

The weapons and equipment discussed in this chapter, combined with their data in the Universal Technology Advancement Table and the Additional Alternate Era Weapons and Equipment Tables, will

explain for players not only how to use these items in gameplay, but will also define when and—where appropriate—by what groups these items are appropriate for era-specific game play. As indicated in the Universal Technology Advancement Table, the availability data focuses primarily on when an item came into “large-scale use”. Items can still appear in eras long after they reportedly went extinct, but such occurrences should be a rare sight in *BattleTech* games.

Ammunition: Unless otherwise stated, ammunition is not compatible across Prototype, Primitive, Improved and Production versions of equipment.

Costs and Availability: Costs and Availability for all equipment/units are found in the next chapter, starting on page 178.

Battle Value: Battle Values for all equipment/units are found in the next chapter, starting on page 183.

BattleForce: *BattleForce*-scale rules covering this information are found at the end of the next chapter, starting on page 192.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

Introduced: Variable (See Rules)

Extinct: Variable (See Rules)

During the Wars of Reaving that largely took place in the Clan homeworlds during the Jihad, a number of experimental and advanced technologies were debuted. Many of these technologies were devised by the Society, the secretive collective of scientist caste leaders who launched a rebellion against the warrior castes of all Clans during the internecine conflicts. While some of these developments were lost in the fighting and its aftermath, others survived and even proliferated to the Inner Sphere Clans by the time of the Dark Age era.

ELECTRIC DISCHARGE PROTOMECH (EDP) ARMOR

R&D Start Date: 3066 (Clan Fire Mandrill)

Prototype Design and Production: circa 3071 (Society/Clan Fire Mandrill)

ProtoMech pilots are taught to engage their enemies in close proximity, and often resort to physical attacks. In an effort to maximize the potential damage resulting from this tactic, Clan scientists devised a spike-laden armor system that drew power from the ProtoMech’s fusion engine and into compound capacitors distributed throughout. Though relatively successful in delivering overload-capable jolts to enemy units, the long recharge time and close-quarters nature of the system limited its deployment.



Electric Discharge ProtoMech (EDP) Armor Rules

Rules Level: Experimental

Available to: PM

Tech Base (Ratings): Clan (F/XXFX)

Game Rules: Whenever a ProtoMech with charged EDP armor successfully executes a Frenzy attack (see p. 187, *TW*), the armor will deliver a powerful discharge that works as an automatic hit from a BattleMech Taser (see pp. 157-158, *TO:AR*). But, when rolling on the Taser Effects Table, EDP armor applies a -2 modifier to the roll result.

Against conventional infantry, a ProtoMech with charged EDP armor will deliver 1 additional point of damage on a successful Frenzy attack (or 2 points, if the infantry unit is cybernetically enhanced).

The EDP armor's capacitors need 6 turns to recharge after any discharge, during which time none of the ProtoMech's weapons that require heat sinks will function. The ProtoMech warrior can switch this charge cycle on and off, however, so these 6 turns need not be consecutive; the ProtoMech's player can elect in every End Phase to "pause" charging the EDP armor for the following turn, thus re-enabling his energy weapons. Each turn that the EDP armor is being charged must be recorded on the ProtoMech's record sheet.

Finally, whenever the Torso location of a ProtoMech with EDP armor suffers 1 or more critical hits following a check on the Determine Critical Hits table, immediately assign 5 points of damage to that location after the resolution of that critical damage, as a result of the explosive surge caused by the ruptured capacitors in that location.

Construction Rules: EDP armor reduces the maximum number of items a ProtoMech may carry in its Torso Location by 1. Each EDP armor point weighs 75 kilograms.

EXTENDED JUMP JET (XJJ) SYSTEM

Introduced: 3075 (Clan Snow Raven)

Impressed by the sustained VTOL capability of Cloud Cobra's Sylph battle armor, Clan Snow Raven sought to use the technology as a springboard to provide similar capabilities for their ProtoMech and BattleMech programs. Though the Raven scientists never managed to apply the technology as envisioned, they did manage to create ProtoMech-scale jump jets powerful and efficient enough to match the capabilities of BattleMech-mounted improved jump jets. During the Wars of Reaving, the Ravens' Society cell siphoned the project for proliferation among its own ProtoMech efforts.

Extended Jump Jet (XJJ) System Rules

Rules Level: Tournament Legal

Available to: PM

Tech Base (Ratings): Clan (F/XXFD)

Game Rules: ProtoMech extended jump jets are the effective analog to BattleMech improved jump jets, enabling a maximum jump distance equal to the unit's Running MP rather than its Walking MP.

Construction Rules: Extended jump jet systems weigh twice as much as the standard ProtoMech jump jet weights (100 kilograms per Jump MP for ProtoMechs under 6 tons, 200 kilograms per Jump MP for Protos 6 to 9 tons in total mass, and 300 kilograms per Jump MP for ProtoMechs over 9 tons in total mass). Unlike standard jump jets, ProtoMechs may mount as many XJJs as they have Running MP.

Glider ProtoMechs (see p. 93) cannot use extended jump jets.

FUSILLADE LAUNCHER

R&D Start Date: 3068 (Clan Coyote)

Prototype Design and Production: circa 3072 (Society/Clan Coyote)

The Fusillade launcher evolved from an attempt to create a ProtoMech-friendly version of the advanced tactical missile (ATM) weapon system. While mass and physical limitations made it impossible to fully use the ATM's flexibility, Clan scientists ultimately created a three-tube launcher that could accept any ATM-friendly munitions, and carried one additional reload in internal stores that could be of a different ammo type. Maintaining a damage and range profile similar to standard ATM missiles, the system was bulky and undesirable compared to Streak or LRM launchers.

During the Wars of Reaving, the Fusillade was rushed into service before its engineers considered their task complete, but further development ended when the weapon's main design lab was destroyed in 3075.

Fusillade Launcher Rules

Rules Level: Experimental

Available to: PM

Tech Base (Ratings): Clan (F/XXFX)

Game Rules: Fusillade launchers have only one reload (for a total of two shots per launcher), and incorporate an Artemis IV targeting system at no cost in space or mass. Even though they are derived from improved ATM launchers, Fusillade launchers lack the Streak-like features of such weapons. A Fusillade thus will fire even if the attack roll fails, and must roll on the 3 column of the Cluster Hits Table upon any successful attack. A +2 modifier applies to the Cluster Hits Table roll result, to account for the integral Artemis, unless hostile ECM interferes (as per normal ECM rules).

The Fusillade launcher vents heat in the same manner as missile weapons on vehicles, and thus does not generate heat for the ProtoMech. Fusillades may make use of all ATM and iATM munitions (see below). The salvos fired by a Fusillade launcher need not be of the same missile type, but players should record the missile types carried prior to the start of the scenario.

Construction Rules: The Fusillade launcher can only be mounted on a ProtoMech, and requires no heat sinks for its operation. The weapon's contained ammunition magazine supports two ATM-3 rounds of any type (including improved ATM munitions), which need not be identical. The Fusillade launcher's magazine cannot be expanded beyond these two rounds. When not specified, the Fusillade launcher is presumed to be firing standard ATM munitions.

IMPROVED ADVANCED TACTICAL MISSILE (IATM) LAUNCHERS

Introduced: 3070 (Society/Clan Coyote)

When the Coyotes debuted the advanced tactical missile system to the warrior caste in 3054, the design was presented primarily as a stopgap measure to quell political haranguing from the Clan Council. While the basic ATM system was deemed a success, the Society—free to continue developmental improvements in secret—continued their technological research and eliminated some of the ATM's original design flaws. In the process, they improved both the weapon's accuracy and the diversity of its payloads. These weapons came as a complete surprise to the warrior caste when the scientist-led Society rebelled during the Wars of Reaving.

INTRODUCTION

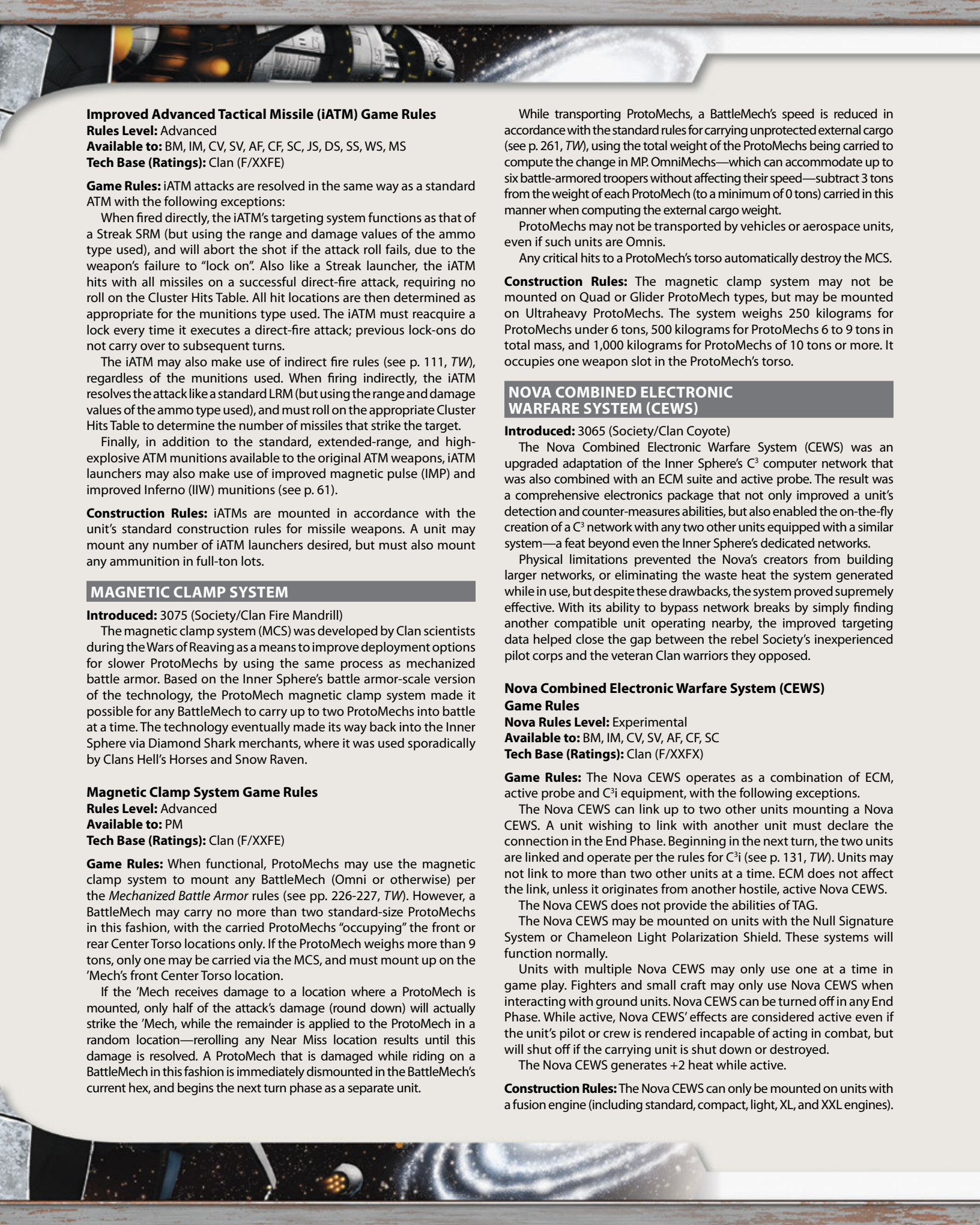
ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Improved Advanced Tactical Missile (iATM) Game Rules

Rules Level: Advanced

Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Clan (F/XXFE)

Game Rules: iATM attacks are resolved in the same way as a standard ATM with the following exceptions:

When fired directly, the iATM's targeting system functions as that of a Streak SRM (but using the range and damage values of the ammo type used), and will abort the shot if the attack roll fails, due to the weapon's failure to "lock on". Also like a Streak launcher, the iATM hits with all missiles on a successful direct-fire attack, requiring no roll on the Cluster Hits Table. All hit locations are then determined as appropriate for the munitions type used. The iATM must reacquire a lock every time it executes a direct-fire attack; previous lock-ons do not carry over to subsequent turns.

The iATM may also make use of indirect fire rules (see p. 111, *TW*), regardless of the munitions used. When firing indirectly, the iATM resolves the attack like a standard LRM (but using the range and damage values of the ammo type used), and must roll on the appropriate Cluster Hits Table to determine the number of missiles that strike the target.

Finally, in addition to the standard, extended-range, and high-explosive ATM munitions available to the original ATM weapons, iATM launchers may also make use of improved magnetic pulse (IMP) and improved Inferno (IIW) munitions (see p. 61).

Construction Rules: iATMs are mounted in accordance with the unit's standard construction rules for missile weapons. A unit may mount any number of iATM launchers desired, but must also mount any ammunition in full-ton lots.

MAGNETIC CLAMP SYSTEM

Introduced: 3075 (Society/Clan Fire Mandrill)

The magnetic clamp system (MCS) was developed by Clan scientists during the Wars of Reaving as a means to improve deployment options for slower ProtoMechs by using the same process as mechanized battle armor. Based on the Inner Sphere's battle armor-scale version of the technology, the ProtoMech magnetic clamp system made it possible for any BattleMech to carry up to two ProtoMechs into battle at a time. The technology eventually made its way back into the Inner Sphere via Diamond Shark merchants, where it was used sporadically by Clans Hell's Horses and Snow Raven.

Magnetic Clamp System Game Rules

Rules Level: Advanced

Available to: PM

Tech Base (Ratings): Clan (F/XXFE)

Game Rules: When functional, ProtoMechs may use the magnetic clamp system to mount any BattleMech (Omni or otherwise) per the *Mechanized Battle Armor* rules (see pp. 226-227, *TW*). However, a BattleMech may carry no more than two standard-size ProtoMechs in this fashion, with the carried ProtoMechs "occupying" the front or rear Center Torso locations only. If the ProtoMech weighs more than 9 tons, only one may be carried via the MCS, and must mount up on the 'Mech's front Center Torso location.

If the 'Mech receives damage to a location where a ProtoMech is mounted, only half of the attack's damage (round down) will actually strike the 'Mech, while the remainder is applied to the ProtoMech in a random location—rerolling any Near Miss location results until this damage is resolved. A ProtoMech that is damaged while riding on a BattleMech in this fashion is immediately dismounted in the BattleMech's current hex, and begins the next turn phase as a separate unit.

While transporting ProtoMechs, a BattleMech's speed is reduced in accordance with the standard rules for carrying unprotected external cargo (see p. 261, *TW*), using the total weight of the ProtoMechs being carried to compute the change in MP. OmniMechs—which can accommodate up to six battle-armored troopers without affecting their speed—subtract 3 tons from the weight of each ProtoMech (to a minimum of 0 tons) carried in this manner when computing the external cargo weight.

ProtoMechs may not be transported by vehicles or aerospace units, even if such units are Omnis.

Any critical hits to a ProtoMech's torso automatically destroy the MCS.

Construction Rules: The magnetic clamp system may not be mounted on Quad or Glider ProtoMech types, but may be mounted on Ultraheavy ProtoMechs. The system weighs 250 kilograms for ProtoMechs under 6 tons, 500 kilograms for ProtoMechs 6 to 9 tons in total mass, and 1,000 kilograms for ProtoMechs of 10 tons or more. It occupies one weapon slot in the ProtoMech's torso.

NOVA COMBINED ELECTRONIC WARFARE SYSTEM (CEWS)

Introduced: 3065 (Society/Clan Coyote)

The Nova Combined Electronic Warfare System (CEWS) was an upgraded adaptation of the Inner Sphere's C³ computer network that was also combined with an ECM suite and active probe. The result was a comprehensive electronics package that not only improved a unit's detection and counter-measures abilities, but also enabled the on-the-fly creation of a C³ network with any two other units equipped with a similar system—a feat beyond even the Inner Sphere's dedicated networks.

Physical limitations prevented the Nova's creators from building larger networks, or eliminating the waste heat the system generated while in use, but despite these drawbacks, the system proved supremely effective. With its ability to bypass network breaks by simply finding another compatible unit operating nearby, the improved targeting data helped close the gap between the rebel Society's inexperienced pilot corps and the veteran Clan warriors they opposed.

Nova Combined Electronic Warfare System (CEWS)

Game Rules

Nova Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC

Tech Base (Ratings): Clan (F/XXFX)

Game Rules: The Nova CEWS operates as a combination of ECM, active probe and C³i equipment, with the following exceptions.

The Nova CEWS can link up to two other units mounting a Nova CEWS. A unit wishing to link with another unit must declare the connection in the End Phase. Beginning in the next turn, the two units are linked and operate per the rules for C³i (see p. 131, *TW*). Units may not link to more than two other units at a time. ECM does not affect the link, unless it originates from another hostile, active Nova CEWS.

The Nova CEWS does not provide the abilities of TAG.

The Nova CEWS may be mounted on units with the Null Signature System or Chameleon Light Polarization Shield. These systems will function normally.

Units with multiple Nova CEWS may only use one at a time in game play. Fighters and small craft may only use Nova CEWS when interacting with ground units. Nova CEWS can be turned off in any End Phase. While active, Nova CEWS' effects are considered active even if the unit's pilot or crew is rendered incapable of acting in combat, but will shut off if the carrying unit is shut down or destroyed.

The Nova CEWS generates +2 heat while active.

Construction Rules: The Nova CEWS can only be mounted on units with a fusion engine (including standard, compact, light, XL, and XXL engines).



PROTOMECH QUAD MELEE WEAPON SYSTEM

Introduced: 3072 (Clan Hell's Horses)

The ProtoMech quad melee weapon system is a combination of physical modifications to quadruped ProtoMechs designed to improve their damage potential in melee attacks. While the system looked like the same type of cosmetics introduced in the first generation of ProtoMechs, added reinforcements and articulation made it possible for quadruped ProtoMechs to use them as effective weapons in their own right. Developed in the Wars of Reaving, the technology eventually made its way to the Inner Sphere via the Hell's Horses Clan, where it has appeared sporadically ever since.

ProtoMech Quad Melee Weapon System Game Rules

Rules Level: Advanced

Available to: PM

Tech Base (Ratings): Clan (F/XXFE)

Game Rules: Quadruped ProtoMechs equipped with the quad melee weapon system add 2 points of damage to the ProtoMech's base damage in a Frenzy attack for every 5 tons of ProtoMech weight (or fraction thereof). A critical hit to the ProtoMech's quad melee weapon system slot destroys enough of these physical modifications to render the system useless.

Construction Rules: The ProtoMech quad melee weapons system weighs 1 ton (1,000 kg) and may only be mounted in the Torso location of a quadruped ProtoMech. ProtoMechs built using a biped configuration may not install this item.

SPECIALTY MUNITIONS: IMPROVED MAGNETIC PULSE (IMP) MISSILES

Introduced: 3070 (Society/Clan Coyote)

Improved magnetic pulse (IMP) missiles were developed in concert with—and specifically for use with—the improved Advanced Tactical Missile launcher system. Capable of delivering a potent, short-range burst of electromagnetic radiation on impact, these weapons delivered only modest physical damage.

Improved Magnetic Pulse Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with improved ATM or Fusillade launchers

Tech Base (Ratings): Clan (F/XXFE)

Game Rules: IMP missiles provide the same number of shots per ton, and have the same range as ATM HE missiles. Each missile inflicts 1 point of damage, as well as the following effects, based on the target it hits:

- **ProtoMechs:** For every 3 missiles that strike a ProtoMech, the unit suffers the effects of a hostile standard-type ECM, as well as a +1 to-hit modifier and a 1-MP reduction in its Walking and Jumping movement through the End Phase of the following turn. These modifiers stack to a maximum of +3 to-hit, and -3 Walking/Jumping MPs. Recalculate Running MPs from modified Walking MPs as normal. Additional IMP missile strikes that hit the ProtoMech after it has suffered its maximum modifier effects will still inflict standard damage, but will not impact its roll or movement modifiers further.
- **Conventional Infantry:** Resolve IMP attacks against infantry as a standard LRM attack. If the unit is using energy weapons of any kind (including field guns or infantry weapons), these are rendered inoperative through the End Phase of the following turn. If the infantry unit is equipped with

cybernetic enhancements of any kind (see pp. 70-79), the unit suffers double damage.

- **Battle Armor:** For battle armor squads, each IMP missile that hits the unit disables one battle suit trooper through the End Phase of the following turn. Additional hits have no additional effect beyond the missiles' normal damage. Reduce the Ground and Jump MP of any battle armor unit hit by IMPs by 1 MP per disabled trooper, and resolve any weapons fire using the Cluster Hits Table column appropriate to the number of active battle armor troopers not disabled by IMP missiles.
- **'Mechs, Vehicles, Fighters, and Small Craft:** For every 3 IMP missiles that strike one of these targets, the unit is treated as if it is within a hostile standard ECM field, and receives a +1 to-hit modifier for all attack rolls (to a maximum of +2 to-hit). The unit also loses 1 MP to its Walking/Cruise and Jumping rates (or Safe Thrust, for aerospace units) for every 3 IMP missiles that hit (to a maximum MP/Jump/Thrust point modifier of -2). Recalculate Running/Flank/Maximum Thrust MPs from modified Walking/Cruise/Safe Thrust MPs as normal. These effects will persist until the End Phase of the following turn, during which time additional IMP missile strikes will still inflict standard damage as normal, but no additional to-hit or movement effects. Heat-tracking units unit struck by IMP missiles will also suffer +1 heat for every 3 IMP missiles that strike it, following the *Outside Heat Sources* rule (see p. 159, TW). Units not powered by fusion engines may ignore the MP reduction and heat effects of IMP missiles, but not the normal missile damage or the ECM and to-hit modifier effects.
- **DropShips, JumpShips, WarShips, Space Stations, and Mobile Structures:** IMP missiles inflict no additional effect against these units.
- **ECM/ECCM Rules:** If the optional ECM/ECCM rules are in play (see pp. 98-100, TO:AR), the effects of an IMP attack may not be used as ECCM, nor do they add a cumulative effect to any actual ECM-capable equipment in play.

Construction Rules: Improved magnetic pulse missiles are compatible only with Improved ATM missile launchers, and may only be carried in full-ton lots. A ton of IMP missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPECIALTY MUNITIONS: IMPROVED INFERNO (IIW) MISSILES

Introduced: 3070 (Society/Clan Coyote)

Improved Inferno warhead (IIW) missiles were also developed for use with the improved advanced tactical missile launcher system. These warheads gave the iATMs the incendiary abilities that the basic-model ATMs lacked.

Improved Inferno Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with improved ATM or Fusillade launchers

Tech Base (Ratings): Clan (F/XXFE)

Game Rules: IIW missiles use the same range as standard ATM missiles. Each successful IIW missile attack is resolved using the standard *Infernos* rules (see p. 141, TW).

Construction Rules: Inferno missiles are compatible only with Improved ATM missile launchers, and may only be carried in full-ton lots. A ton of IIW missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

Introduced: Variable (See Rules)

Extinct: Variable (See Rules)

At the peak of the Star League, and during the early years of the Clan Invasion, a number of minor pilot interface technologies were debuted that offered some additional aid to MechWarriors and fighter pilots in combat. These interface modifications included the SLDF's advanced neurohelmets for MechWarriors and fighter pilots, and damage-interrupt circuits that emerged briefly during the time of the Clan invasion. Never produced in great numbers, few examples of these technologies survived their respective time periods.

DAMAGE INTERRUPT CIRCUIT

R&D Start Date: 3053 (Federated Commonwealth)

Prototype Design and Production: 3055 (Federated Commonwealth)

The damage interrupt circuit was a short-lived device, conceived as part of an effort to further protect MechWarriors from the neurohelmet feedback caused by internal ammunition explosions. In an age where the recovery of CASE made it possible for warriors to remain in action after such an event, the DIC was meant to make it possible to keep those warriors in fighting trim.

Unfortunately, the circuits proved to be somewhat glitchy and prone to shorting vital neurohelmet feeds under some battlefield conditions. The dissolution of the Federated Commonwealth halted further research into this interface upgrade, as the Inner Sphere faced renewed Clan hostilities and internal divisions that prompted greater emphasis on more broadly useful weapons research. Thus, the use of DIC technology was largely abandoned by the end of the Clan Invasion era.

Damage Interrupt Circuit Rules

Rules Level: Experimental

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (E/XXFF)

Game Rules: A MechWarrior whose cockpit features a working damage interrupt circuit (DIC) receives only 1 pilot damage hit in the event of an internal explosion, rather than the usual 2. If the unit has a cockpit that seats more than one pilot, the DIC protects both warriors equally.

However, the circuit is disabled if the 'Mech suffers a critical hit to a Life Support slot, or if the 'Mech suffers any damage that strikes a location roll result of 2 on the standard Hit Locations Table (regardless of whether or not the attack delivers a critical hit). A disabled DIC not only fails to protect its MechWarriors against the full effects of internal explosions, it also imposes an additional +1 target number modifier to all Piloting Skill checks made by the unit until the system can be repaired.

Construction Rules: The DIC may only be installed on a 'Mech's cockpit, and is considered a modification to the existing control systems. The circuit takes up no weight and occupies no critical slots on the 'Mech's record sheet, but increases the cost of the cockpit by 150 C-bills (per pilot), to reflect the changes made to the unit's control interfaces and the warrior's neurohelmet.

The DIC can be installed "in the field" for the same cost in C-bills, which covers the electronics components and tools necessary for the job. The modification takes the same amount of time and requires the same target roll and modifiers as a repair of 2 life support critical hits (see pp. 204-207, CO). If this roll fails, the DIC will fail to operate and must be replaced.

DIRECT NEURAL INTERFACE COCKPIT MODIFICATION

Introduced: 3055 (Word of Blake)

Extinct: N/A

The direct neural interface technology that came to be used most widely by the Word of Blake's elite Manei Domini MechWarriors was actually developed in the late 3040s by NAIS scientists. While the prototype DNI implant technology proved too unstable, the cockpit interface modifications were sound, and remained largely unchanged even when modified for the more reliable vehicular DNI, buffered VDNI, and other experimental direct-to-brain control systems that followed.

Direct Neural Interface Cockpit Modification Rules

Rules Level: Advanced

Available to: BM, IM, BA, CV, SV, AF, CF

Tech Base (Ratings): Inner Sphere (E/XXEF)

Game Rules: The direct neural interface cockpit modification is required to enable a unit to be piloted directly by a warrior augmented by a direct neural interface implant. A cockpit that is not so modified can only be operated manually and/or with standard neurohelmet aid, thus negating all of the benefits of the neural interface technology. The limits and capabilities of these implants are covered further under *Augmented Warriors* (see pp. 68-79).

If the Design Quirks special rules from *Campaign Operations* are in use (see pp. 225-235, CO), the addition of a direct neural interface cockpit modification will add the Hard to Pilot Quirk onto the unit if it does not already possess it (no further effect if the unit is already Hard to Pilot). However, as this only reflects the control system modifications in favor of a direct neural connection, this Quirk's effects only apply if the unit is being piloted by a warrior who lacks compatible implants. Suitably augmented pilots ignore any Hard to Pilot Quirks the unit possesses, if the cockpit uses a direct neural interface.

Construction Rules: Direct neural interface modifications add no significant weight or critical space to the cockpit and control systems of the modified unit, but will add 250,000 to the cockpit's cost in C-bills.

While the Machina Domini and Inner Sphere ProtoMech interface technologies use a variant of this system, they are covered by their own rules, and do not require this particular DNI cockpit modification.

SLDF ADVANCED NEUROHELMET

Introduced: 2759 (Terran Hegemony [MechWarrior's Neurohelmet]), 2761 (Terran Hegemony [Fighter Pilot's Neurohelmet])

Extinct: 2770

Not to be confused with the combat neurohelmet that became standard issue in the SLDF (and which has since survived in the armies of the Clans, ComStar and the Word of Blake), the advanced neurohelmet was developed initially for the SLDF's most elite MechWarriors and eventually adapted by their aerospace fighter counterparts. With improved sensory inputs, these helmets offered superior piloting performance, and—despite their significant expense—were nearing mass production at the time of the New Vandenburg uprising. Unfortunately, Stefan Amaris' coup led directly to the extinction of these superior neurohelmets, as the factories to produce them were destroyed during the war that followed.

Curiously, despite having access to an abundance of these neurohelmets during the Exodus, the Clans did not maintain their use. The mystery as to why was revealed by declassified ComStar documents, released in the early 3060s, which demonstrated that the finely-tuned



advanced SLDF neurohelmets tended to accumulate bio-feedback over years of regular use, which not only led to growing electronic and control problems with their related cockpit systems, but also caused mental disorders in the pilots who used them—especially when inheriting a neurohelmet from a previous user. Unable to conclusively track down the cause of this technical issue (which many techs referred to as “cyber-haunting”), ComStar abandoned the general use of their stockpiled helmets in the late 3030s. Presumably, the Clans did the same during their “Golden Century” period.

SLDF Advanced Neurohelmet Rules

Rules Level: Advanced

Available to: BM, IM, AF

Tech Base (Ratings): Inner Sphere (E/FXXX)

Game Rules: The SLDF advanced neurohelmet provides a –1 target modifier to all Piloting or Control Skill rolls required by a unit so equipped. In addition, a unit controlled with an SLDF advanced neurohelmet interface also receives the Multi-Trac design quirk (see p. 229, CO).

The SLDF advanced neurohelmet is incompatible with implant-based direct-neural interfaces, including the Clans’ enhanced imaging neural implants, vehicular direct-neural interfaces, and the “Machina Domini” neural interface technology. For units with a dedicated pilot and gunner, both warriors require an SLDF advanced neurohelmet to gain the benefits of this system; if only one warrior is so equipped, the unit will receive none of the advanced neurohelmet benefits.

Neurohelmet Degradation: To reflect the odd cases of “cyber-haunting” that plagued these neurohelmet systems over time, the controlling player of a unit whose pilot is using an SLDF advanced neurohelmet must roll 2D6 for that pilot prior to the start of a mission or campaign, applying a –1 modifier to the roll result for every full increment of 50 years the scenario or campaign takes place after the year 2770. If the modified result is 6 or higher, his SLDF advanced neurohelmet will function as described above.

If the modified result is less than 6, the neurohelmet no longer grants the Multi-Trac design quirk. If the modified result is less than 4, the neurohelmet not only loses the Multi-Trac design quirk, but also now applies the Sensor Ghosts Design Quirk (see p. 234, CO). If the modified result is 2 or less, the unit loses Multi-Trac, picks up Sensor Ghosts, and also adds the Hard to Pilot design quirk. If the modified result is 0 or less, in addition to the loss of Multi-Trac and the addition of Sensor Ghosts and Hard to Pilot design quirk effects, the warrior himself will increase his Piloting and Gunnery target numbers by +1 each. This last, worst effect demonstrates the mental deterioration that accompanies prolonged use of an SLDF advanced neurohelmet deep in the throes of a “cyber-haunting”.

For the purposes of extended campaigns, each of these declining neurohelmet features becomes permanent the first time they appear, and cannot be corrected by repair checks; they will only persist—and grow worse—as long as that particular neurohelmet is used to pilot a unit. If a neurohelmet degrades in this way during one such check, subsequent rolls that yield a higher roll result will not improve them (but will, at least, not make them any worse).

In the event that the warrior himself is afflicted by a faulty neurohelmet (on a degradation check result of 0 or less), the warrior may recover only if he spends a minimum of 6 consecutive months out of the cockpit (and away from all neurohelmet-related activities), and never uses that particular neurohelmet again. During this time, the warrior is presumed to be either convalescing or performing other low-stress duties where neurohelmet use is not a requirement.

Construction Rules: SLDF advanced neurohelmets may only be used by MechWarriors and aerospace fighter pilots, and are considered to be a modification to the existing control systems from the perspective of unit construction. Advanced MechWarrior neurohelmets may only be used in conjunction with ‘Mech units, and advanced fighter pilot neurohelmets may only be used with aerospace fighter units.

These helmet interfaces take up no weight and occupy no critical slots on the unit’s record sheet, but they do increase the cost of the unit’s cockpit by 5,000 C-bills (per pilot), to reflect the changes made to the unit’s control interfaces and the warrior’s neurohelmet.

An appropriate unit can be modified to work with an SLDF advanced neurohelmet “in the field” for the same cost in C-bills as indicated above. This covers the helmet itself, as well as its installation kit. The modification takes the same amount of time and requires the same target roll and modifiers as a repair of 2 sensor critical hits (see pp. 204-207, CO). If this roll fails, the system fails to recognize the neurohelmet’s unique features, and will only operate as a “normal” unit, with none of the advanced helmet’s benefits (and, fortunately, no degradation rolls required).

VIRTUAL REALITY PILOTING POD

R&D Start Date: 3047 (Federated Commonwealth)

Prototype Design and Production: 3052 (Federated Commonwealth)

Developed by a Federated Commonwealth scientist who reportedly went rogue soon afterward, the virtual-reality piloting pod (VRPP) was designed to sidestep difficulties that arose amid early efforts to produce a direct-neural interface. The VRPP used advanced sensors and a head-encompassing wrap-around apparatus to replace the more traditional neurohelmet design and give the MechWarrior unprecedented spatial awareness and control over his BattleMech. The result was a far more intuitive and natural-feeling control interface, but one that proved excessively prone to electronic interference.

This last part proved to be the VRPP’s downfall, especially as the system could even be disrupted by the mundane electromagnetic effects emitted by some planetary magnetic fields and even powerful lightning storms. Even though some degree of progress was made in mitigating its susceptibility to milder interference sources, the FedCom’s military leadership, citing the fact that powerful EW systems were only continuing to propagate in the wake of the Clans’ initial invasion, permanently shelved the project.

Virtual Reality Piloting Pod Rules

Rules Level: Experimental

Available to: BM

Tech Base (Ratings): Inner Sphere (E/XXFX)

Game Rules: The Virtual Reality Piloting Pod (VRPP) provides its MechWarrior with a –1 to-hit modifier to all Gunnery Skill rolls, and a –2 target modifier to all Piloting Skill rolls, but is highly susceptible to hostile ECM, which will overwhelm the unit’s sensors and render the virtual reality interface completely useless.

To reflect this drawback, any time a unit equipped with a VRPP is exposed to any form of ECM from a hostile unit, or is struck by electronic effects from other sources, the unit becomes completely blind, as if it has suffered the destruction of its sensors. Conditions that can cause this “blindness” include the secondary effects of a nuclear attack, exposure to electromagnetic interference (EMI) terrain effects (see p. 53, TO:AR), or a successful attack against the unit by an EMP mine, taser weapon, or TSEMP.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

While blinded, the MechWarrior not only loses the ability to use the 'Mech's weaponry, but will also replace the VRPP's normal -2 Piloting Skill target modifier with a +3 modifier instead. These penalties persist as long as the unit remains exposed to the disruptive effects.

If ECCM rules are in play (see pp. 98-101, *TO:AR*), ECCM effects friendly to the VRPP-controlled unit may overcome the unit's complete "sensor-blindness" from hostile ECM and other disruptive effects as described above. The result will be imperfect, however; as long as the VRPP-controlled unit is operating in an area cleared of hostile interference by ECCM, the unit will replace its sensor-blindness effects with a +2 modifier to both Gunnery and Piloting Skills. Once again, these modifiers replace those provided by the VRPP on its own.

Furthermore, as the VRPP is based around a torso-mounted cockpit, it protects the MechWarrior against pilot damage from head hits, but makes the warrior more prone to suffering pilot damage from excess heat in the event of life support damage. (If a unit with a VRPP system overheats by 1 to 14 points with a damaged life support system, the MechWarrior will suffer 1 pilot hit as a result; for overheating levels of 15 points or more, this damage increases to 2 pilot hits; this replaces the normal MechWarrior damage from

overheating effects.) A MechWarrior using a torso-mounted cockpit with a VRPP also cannot eject.

Unlike a standard torso-mounted cockpit system, the sensors for a torso-mounted cockpit built for VRPP control may only sustain 2 critical hits before the unit becomes functionally blind and unable to use its weaponry.

Construction Rules: The VRPP is an alternative form of the torso-mounted cockpit from *Tactical Operations: AR* (pp. 112-113, *TO:AR*), but weighs only 3 tons (rather than the 4 tons of a normal torso-mounted cockpit). Also unlike the standard torso-mounted cockpit, a VRPP-modified cockpit places 2 Sensor critical slots in the 'Mech's head, and places 1 Life Support critical slot each in each of its 3 torso hit locations. The cockpit critical slot is then placed in the center torso.

The VRPP-modified torso-mounted cockpit may be protected with component armor (at a cost of 1 ton of component armor, as with a standard cockpit), but cannot be combined with cockpit command modules or any other cockpit types (including small cockpits). A BattleMech equipped with a VRPP-modified torso-mounted cockpit also may not employ the Cramped Cockpit or Rumble Seat Design Quirks.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

Introduced: Variable

Extinct: Variable

The Age of War saw the maturation of technology from the "primitive" weapons and systems available at the birth of the BattleMech to those that we now consider "standard" or "baseline" technologies. While the general level of technology plateaued briefly during the Age of War, it never truly stopped climbing. As the Age of War gave way to the Star League era, scores of new developments had already been made while many more were on the cusp of occurring. The Star League Defense Forces in particular debuted more than a dozen prototype combat systems during the Reunification War that would ultimately develop into full-fledged deployable systems. Meanwhile, the Periphery nations long maintained a two-pronged approach to closing the ever-widening technology gap between themselves and the Inner Sphere, relying upon a combination of traditional low-tech solutions coupled with technologies stolen or copied from Inner Sphere sources to outfit their combat forces.

These prototype systems lacked many of the refinements of the final production versions (as they appear in the *TechManual* and *Tactical Operations: AUE*) and/or suffered one or more side effects.

For the purposes of *BattleTech* games, all of the following weapons and equipment are classified as Experimental, and are not legal for tournament play.

GENERAL ADVANCED PROTOTYPE SYSTEMS RULES

Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Inner Sphere (E/FXXX [All except Rocket Launchers]; B/DFXX [Rocket Launchers])

The rules for using and mounting the various Age of War- and Early Star League-era prototype items featured here follow those of their production-grade Inner Sphere version as featured in *TechManual*, *Total Warfare*, and *Tactical Operations: AUE*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature "Standard Production" dates.

This date indicates the point where the technology matured into its final form as reflected by the item's normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after a decade.

ARROW IV (ARROW-P)

Introduced: 2593 (Terran Hegemony)

Standard Production: 2600 (Terran Hegemony)

Tube artillery, airborne bombers and orbital strikes were the primary fire support options available to the Star League forces throughout much of the Reunification War, though oftentimes that support was either too inaccurate or too late in coming to satisfy the needs of the frontline combat forces. Turning to a page in history, the SLDF directed the development of a missile artillery weapon that could provide extremely accurate localized fire support missions, utilizing either a battlefield designator (the TAG) or conventional artillery targeting methods. Though the final production models did not debut until after the end of the Reunification War, those prototype systems that did see combat action were well received by their users—on both sides.

Arrow IV (Prototype) Rules

Game Rules: The prototype Arrow IV (Arrow-P for short) uses the same rules as the Inner Sphere Arrow IV launcher (see p. 96, *TO:AUE*).

Construction Rules: A unit may mount one or more prototype Arrow IV launchers in accordance with the unit's rules for carrying artillery weapons. The prototype Arrow IV occupies 1 more critical slot and weighs 1 more ton than the production version. Each ton of prototype Arrow IV ammunition provides only 4 rounds.

ARTEMIS IV FCS (ARTEMIS-P)

Introduced: 2592 (Terran Hegemony)

Standard Production: 2598 (Terran Hegemony)

The Artemis IV Fire Control System, designed as an alternate to the NARC missile beacon, mated several sensors with a laser designator and tight-beam microwave transmitter to accurately guide Artemis-



equipped missiles onto their target. During its years of testing, additional software tweaks and hardware upgrades made for an even more accurate production model (while also allowing for easy upgrades to extant prototype systems).

Artemis IV FCS (Prototype) Rules

Game Rules: The prototype Artemis IV fire control system (Artemis-P) works in the same fashion as the Inner Sphere Artemis IV fire control system, but only applies a +1 modifier to the Cluster Hits Table roll, rather than the +2 that the production-grade Artemis IV features.

Furthermore, after entering standard production, the Artemis-P was one of the few prototype items that could be upgraded in the field (rather than replaced by the production version). To reflect this, players using the *Repairs and Replacement* rules (see pp. 204-209, CO), a prototype Artemis IV can be upgraded to the standard production-version Artemis IV by making a successful repair roll on the Artemis-P with an additional +1 target modifier. For the purposes of this upgrade, this repair attempt can only be made after the standard production date noted above, on an Artemis-P system that has *not* been damaged in combat. (Otherwise, the upgrade is treated as a component replacement.)

Construction Rules: Prototype Artemis IV fire-control systems use the same rules as their modern Inner Sphere versions, occupying the same weight and critical space, and adhering to the same requirement that all Artemis-capable launchers on the unit must be augmented with Artemis.

Note: When determining the aerospace attack values of a unit employing prototype Artemis IV, cross-reference the damage using a Cluster Hits roll of 8 for the appropriate launcher, rather than the usual result of 7.

BEAGLE ACTIVE PROBE (BAP-P)

Introduced: 2560 (Terran Hegemony)

Standard Production: 2576 (Terran Hegemony)

Code-named “BEAGLE” by the original defense contractor that developed it, the Star League’s active probe combines both passive and active sensor systems into one suite capable of detecting just about any modern combat unit. Though later advances partially nullified the abilities of the “Beagle probe”, it was a welcome addition to Reunification War reconnaissance units and continued to be used throughout the Star League era.

Beagle Probe (Prototype) Rules

Game Rules: The prototype Beagle active probe (BAP-P for short) uses the same rules as the Inner Sphere Beagle active probe (see p. 129, TW).

Construction Rules: A unit may mount one or more prototype Beagle active probes in accordance with the unit’s rules for carrying active probes. The prototype Beagle occupies 3 critical slots and weighs 2 tons.

CASE (CASE-P)

Introduced: 2452 (Terran Hegemony)

Standard Production: 2476 (Terran Hegemony)

In the late 25th century, HAF ‘Mechs and other combat vehicles were suddenly becoming less and less susceptible to destruction from catastrophic internal explosions. It took decades before the secret—Cellular Ammunition Storage Equipment—made its way through the Inner Sphere, and many more years before nations outside of the Hegemony had finally produced their own serviceable copies.

CASE (Prototype) Rules

Game Rules: When a unit suffers an internal explosion in location protected by prototype CASE (CASE-P for short), roll 1D6. On a result of 1 or 2, the CASE system fails to vent the explosion in time and the explosion is resolved as if the unit does not have CASE.

Construction Rules: A unit may mount one or more prototype CASE systems in accordance with all rules for mounting Inner Sphere CASE.

DOUBLE HEAT SINKS (DHS-P)

Introduced: 2559 (Terran Hegemony)

Standard Production: 2567 (Terran Hegemony)

Constructed with advanced materials and further supplied with specially engineered cooling fluids, the double heat sink revolutionized the design of both BattleMechs and aerospace fighters in the 26th century and beyond.

Double Heat Sink (Prototype) Rules

Game Rules: These function as Inner Sphere double heat sinks per the standard heat sink rules with the following exceptions. Prototype Double Heat Sinks cannot be mounted “in” an engine, but they may be combined with single heat sinks on the same unit. Players therefore need to carefully record which heat sinks are standard and which are prototype double-strength sinks.

Construction Rules: Prototype double heat sinks (DHS-Ps) occupy the same weight and critical slot space as their production-grade Inner Sphere versions, but cannot be mounted “inside” an engine. (This means that all of the “critical-free” heat sinks provided by the ‘Mech’s engine, per the rules found on p. 53 of *TechManual*, must either be standard heat sinks, or must be fully allocated on the unit’s Critical Hit Table to be replaced with prototype double heat sinks.)

On units that can mount double heat sinks, DHS-Ps can be combined with standard heat sinks, but the different sinks must be clearly marked on the record sheet.

ENDO STEEL (ES-P)

Introduced: 2471 (Terran Hegemony)

Standard Production: 2487 (Terran Hegemony)

The Terran Hegemony developed endo steel internal structure for its BattleMechs in the late twenty-fifth century, and jealously guarded the advancement until it inevitably proliferated throughout the rest of the Inner Sphere. The secrets of endo steel ultimately found their way into the Periphery, though by the beginning of the Reunification War very few combat units outside of the Terran Hegemony had yet been refitted with endo steel frames.

Endo Steel Structure (Prototype) Rules

Game Rules: Prototype endo steel internal structure (ES-P) functions in the same manner as Inner Sphere endo steel. Critical hits to prototype endo steel structure slots are thus rerolled as normal.

Construction Rules: Except for its added bulk (ES-P structure occupies 2 more critical slots than the production-standard Inner Sphere version), units built using prototype endo steel use the same construction rules as those using its production-grade equivalent.

EXTRALIGHT FUSION ENGINE (XL-P)

Introduced: 2556 (Terran Hegemony)

Standard Production: 2579 (Terran Hegemony)

The first prototype Hegemony-made extralight fusion engines were already operating in select royal regiments at the onset of the Reunification War. By the middle of the 2580s, thousands of SLDF BattleMechs, vehicles and fighters had been equipped with these vital, weight-saving power plants.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Extralight Fusion Engine (Prototype) Rules

Game Rules: Prototype XL engines function as their Inner Sphere production-grade versions, except that such engines generate an additional +1 heat per turn for heat-tracking units, as long as the unit is not shutdown. This extra heat applies regardless of what actions the unit takes in combat, so even if a unit remains stationary and fires no weapons, it will still generate 1 heat point due to the prototype XL engine.

In addition, each critical hit to an XL-P engine generates $5 + (1D6 \div 2)$ heat points per turn (rounded down), rather than the normal +5 heat. (Roll his extra heat only once per critical hit; so for a die roll of 3 on such a critical hit will generate 6 points of heat per turn for that critical effect; $5 + [3 \div 2] = 6.5$, round down to 6.)

As always, a unit's engine is destroyed once it has suffered 3 or more critical hits.

Construction Rules: Prototype XL engines are mounted per the standard rules for Inner Sphere XL fusion engines.

FERRO-FIBROUS ARMOR (FF-P)

Introduced: 2557 (Terran Hegemony)

Standard Production: 2571 (Terran Hegemony)

Ferro-fibrous armor was the very first military advancement that First Lord Ian Cameron shared with the newly formed Star League. Despite this, few League nations had developed serviceable versions of their own by the end of the Reunification War.

Ferro-Fibrous Armor (Prototype) Rules

Game Rules: Prototype ferro-fibrous (FF-P) armor uses the same gameplay rules as production-grade Inner Sphere ferro-fibrous armor. All critical hits to ferro-fibrous armor slots are rerolled as normal.

Construction Rules: Except for its additional bulk, prototype ferro-fibrous armor is mounted in the same fashion as its production-grade Inner Sphere version. For 'Mech units, prototype ferro-fibrous armor occupies 2 additional critical slots.

For combat vehicles and fighters, prototype ferro-fibrous armor (prototype ferro-aluminum on fighters) takes up 3 slots. Fighters apply 1 ferro-aluminum slot each to the unit's wings and aft sections.

GAUSS RIFLE (GR-P)

Introduced: 2587 (Terran Hegemony)

Standard Production: 2590 (Terran Hegemony)

Though research into making rail guns lightweight and energy efficient enough to mount on modern battlefield units had long preoccupied Terran scientists, a series of breakthroughs in both materials design and power transfer brought the concept of the Gauss rifle to reality. Its superior range and damage capacity outclassed all previous kinetic-electromagnet weapon designs, and made the *Highlander* the iconic terror that it was.

Gauss Rifle (Prototype) Rules

Game Rules: Prototype Gauss rifles (GR-Ps) function as standard Inner Sphere Gauss rifles in all respects, but on any to-hit roll of 2, the weapon will suffer a critical ammo-feed failure, rendering it unable to fire for the remainder of the scenario (similar to the Ultra autocannon weapon failure).

Construction Rules: Prototype Gauss rifles occupy 1 more critical slot than the eventual production version. Aside from that difference, they may be mounted in accordance with the same rules that govern the standard Inner Sphere Gauss rifle, including the ability to divide the weapon among adjacent hit locations.

GUARDIAN ECM (ECM-P)

Introduced: 2595 (Terran Hegemony)

Standard Production: 2597 (Terran Hegemony)

The "Guardian" ECM suite was an outgrowth of the constantly changing face of electronic warfare in the late twenty-sixth century. While comm systems and targeting modules provided for basic EW needs, a more capable system was needed on the battlefield that could jam enemy sensors while remaining compact enough to deploy on typical 'Mechs and armored vehicles.

Developed in the last few years of the Reunification War, by war's end designers had totally reengineered their complex ECM suites to allow for easy software and modular hardware upgrades.

Guardian ECM (Prototype) Rules

Game Rules: Prototype Guardian ECM (ECM-P) suites function as production-grade Inner Sphere Guardian ECM suites in gameplay.

Construction Rules: A unit may mount one or more prototype Guardian ECM suite in accordance with the unit's rules for carrying ECM systems. The prototype Guardian occupies 3 critical slots and weighs 2 tons.

LB 10-X (LB 10-X-P)

Introduced: 2590 (Terran Hegemony)

Standard Production: 2595 (Terran Hegemony)

Developed to fill the need for a dual-purpose weapon capable of both powerful direct fire as well as anti-air fire, the LB 10-X utilizes two different ammunition types: traditional armor-piercing shells as well as flechette shells that proved as equally capable in anti-air roles as in anti-armor and anti-personnel roles.

The SLDF debuted its LB-X autocannon in time to participate in the final battles in both the Rim Worlds Republic and the Taurian Concordat. Through captures, those two realms managed to field a handful of prototypes by the end of the war.

LB 10-X Autocannon (Prototype) Rules

Game Rules: The prototype LB 10-X autocannon (LB 10-X-P) uses the same rules as its production-grade Inner Sphere version, except that the weapon will jam for the remainder of the scenario on any unmodified to-hit roll of 2 (regardless of the ammunition type used). Furthermore, when firing cluster munitions, the prototype LB 10-X AC must apply a -1 roll modifier on the Cluster Hits Table upon a successful attack. A roll result of less than 2 on this roll is treated as a 2.

Construction Rules: Aside from occupying 1 additional critical slot, the prototype LB 10-X autocannon may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for prototype LB 10-X autocannons may only be installed in full-ton lots.

Note: When determining the aerospace attack values of a unit employing prototype LB 10-X autocannons, remember to cross-reference the damage using a Cluster Hits roll of 6 for the LB-X, rather than the usual result of 7.

NARC MISSILE BEACON (NARC-P)

Introduced: 2580 (Terran Hegemony)

Standard Production: 2587 (Terran Hegemony)

The product of decades of one-upmanship between guided missiles and conventional ECM gear, the Narc Missile Beacon system combines a single-tube missile launcher and a rocket-launched magnetic grapple beacon designed to draw specially equipped seeker missiles to it.





Although the Narc beacon only achieved limited popularity with Star League MechWarriors and tank crews, it did carve out a niche for itself while also leading directly to the development of the Artemis IV FCS.

Narc Missile Beacon (Prototype) Rules

Game Rules: The prototype Narc missile beacon (NARC-P) functions in the same manner as its production-grade Inner Sphere version, except that attached Narc beacons provide only a +1 modifier on the Cluster Hits Table, rather than the normal +2.

Construction Rules: A unit may mount one or more prototype Narc missile beacon launchers in accordance with the unit's rules for carrying standard weapons. However, each ton of prototype Narc ammunition provides only 5 rounds.

PULSE LASERS (PL-P)

Introduced: 2595 (Terran Hegemony)

Standard Production: 2609 (Terran Hegemony)

Pulse lasers progressed from theory to prototype in relatively short order during the final years of the Reunification War, but it would take Terran engineers another decade and a half to develop final designs that were both stable and accurate enough for full-scale production.

Pulse Lasers (Prototype) Rules

Game Rules: Prototype pulse lasers of all sizes function as their production-grade Inner Sphere counterparts, except that they receive only a -1 to-hit modifier to attack, rather than the usual -2. Furthermore, prototype large and medium pulse lasers generate an extra +1D6 heat per attack (rolled every time each weapon is fired), while prototype small pulse lasers generate an additional 1D3 heat ($1D6 \div 2$, rounded up) per shot. This random heat is in addition to that normally generated by these weapons.

Construction Rules: A unit may mount one or more of all prototype pulse laser types in accordance with its normal rules for mounting such weapons.

Vehicles and other units that must mount heat sinks to offset energy weapons must mount enough heat sinks to cover the maximum number of extra heat points these weapons may generate when fired (+6 heat for large and medium pulse lasers; +3 for small pulse lasers). Aerospace units must also assess the heat generated by these weapons as if the maximum result is rolled.

REMOTE SENSORS (RS-P)

Introduced: 2586 (Terran Hegemony)

Standard Production: 2590 (Terran Hegemony)

Though remote sensors have been around since before the days of human space travel, the evolution of modern sensors has been a natural progression of battlefield technology, matching the progress of basic sensor and processing technologies over the centuries.

Remote Sensors (Prototype) Rules

Game Rules: Prototype remote sensors follow the same rules as standard remote sensors (see p. 187, *TO:AUE*), but during the End Phase of each turn the controlling player must roll 1D6 for each prototype sensor that has been deployed. On a result of 1, the sensor becomes inoperative for the following turn. (During subsequent End Phases, a sensor that has become inoperative in this fashion will reactivate if its 1D6 roll yields 2 or higher.)

Construction Rules: Prototype remote sensors use the same construction rules as their production-grade equivalents.

ROCKET LAUNCHERS (RL-P)

Introduced: Early Spaceflight

Extinct: 2823 (Clans only)

Standard Production: 3064 (Marian Hegemony)

Rocket launchers were among the simplest technologies the militaries—and especially the militias and irregular troops—of the Periphery utilized in their battles against the Star League. Long utilized by militaries throughout the ages, the rocket launcher utilizes a simple concept: fire a mass of unguided projectiles at a target and hope as many as possible hit. Simple, cheap and effective, they gave the Periphery insurgents a series of weapons that they could at least produce in quantity.

Interestingly enough, this weapon system would persist in its Age of War form for centuries, and even turned up in numbers again in the Clan homeworlds among the fragmented powers of the Pentagon worlds before their reconquest by the Clans. By the time of the Clan Invasion, however, they had gone completely obsolete—only to return, in an upgraded form, when the Marian Hegemony reintroduced the weapons in 3064.

Rocket Launcher (Prototype) Rules

Game Rules: Prototype rocket launchers function as production-grade rocket launchers of equivalent designation (RL-10, RL-15 and RL-20), but apply a -1 roll modifier when resolving damage on the Cluster Hits Table. (If this modified result is less than 2, treat the effect as a roll result of 2.)

Construction Rules: A unit may mount one or more prototype rocket launchers in accordance with its normal rules for mounting such weapons. This includes the ability for fighters to carry primitive rocket launchers as external ordnance (see p. 246, *TW*).

Note: When determining the aerospace attack values of a unit employing prototype rocket launchers, cross-reference the damage using a Cluster Hits roll of 6 for the appropriate launcher, rather than the usual result of 7.

TAG (TAG-P)

Introduced: 2593 (Terran Hegemony)

Standard Production: 2600 (Terran Hegemony)

Target Acquisition Gear, or TAG, was developed in conjunction with the Arrow IV missile artillery system. While this gyro-stabilized target-designator system was ready years before the Arrow IV reached the field, it languished in prototype status for years before it rolled out alongside the first complete Arrow IV launchers.

TAG (Prototype) Rules

Game Rules: Prototype TAG (TAG-P) functions in the same manner as the production-grade Inner Sphere version in gameplay.

Construction Rules: Aside from the increased mass of this item (prototype TAG weighs 1.5 tons), a unit may mount one or more prototype TAG systems in accordance with its normal rules for mounting such items.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

AUGMENTED WARRIORS (MULTIPLE ERAS)

BattleTech is a humans-only universe; in the centuries since mankind has expanded into space, it has encountered few alien beings that could be said to possess intelligence beyond that of most terrestrial animals. Though a few alien creatures have been discovered that verge on a proto-human level of sapience, and rumors of sentient alien races persists throughout the setting, the only beings who wage war throughout the *BattleTech* universe are human beings.

The game rules presented to date presume that the pilots and troopers employed on the tabletop are of the normal human baselines, with even the eugenically enhanced abilities of Clan warriors translated to little more than a modifier to combat skills. However, for some fringe groups—such as the Belters who dwell in the Terran solar system, and the Word of Blake's elite Manei Domini—"baseline" is just a starting point. The following rules enable players to make use of "augmented" warriors found in these fringe groups.

GENERAL AUGMENTED WARRIOR RULES

Rules Level: Experimental

Available to: Variable (see rules)

Tech Base (Ratings): Variable (See rules)

The following rules cover augmenting unit pilots, vehicle crews, and infantry forces via direct genetic manipulation, surgical modifications, or the use of cybernetics and prostheses. For the sake of simplicity, unless the rules for a given augmentation specifically state otherwise, the following general rules apply to all modifications, regardless of their type.

All-or-None Modifications: Any time an augmentation type is selected for a unit comprised or controlled by multiple individuals (such as an infantry squad or platoon, or a vehicle's crew), *all* members of that unit must receive the same augmentations to gain its benefits.

Cost Modifications: Furthermore, to underscore the extremely limited nature of augmented warriors, extreme cost modifiers for these unit types will be applied. Because virtually all augmentations do not modify the weight or space of the warrior to a degree significant enough for game play purposes, the cost modifiers for all augmentations are instead assessed in terms of the unit's expense in resources. While the method of accounting chosen for the player's campaign might vary, be it in monetary units like C-bills, or an abstract value like Warchest Points, any cost multipliers for a warrior's augmentation will apply in the same ratio. Thus, if a given augmentation's cost doubles the C-bill value of the unit it modifies, it will also double the unit's other resource values as well.

Faction and Era Restrictions: In addition, in the cases where the augmentations are linked to a specific in-universe faction, use of such augmentations by forces not aligned with the augmentation's "native" faction must be limited to only one quarter of the force in play. This applies even if the force attempting to use the augmented warriors is allied with the augmentations' native faction. For example, in a Jihad-era game, a force that includes elements from the Word of Blake faction and the Circinus Federation—a minor Periphery state allied with the Word—could field an entire company of cybernetics-augmented Manei Domini warriors as the Word of Blake portion, but one one in every four of their allied Circinian units may use augmented warriors.

These same rules apply to any modifications that are not listed as being available in the era in which the scenario is set, but which at least existed in a *previous* era. No augmentations may be used in any era prior to the one in which they are introduced.

BELTER AUGMENTATIONS

Era: Any after the Age of War (2570+)

Factions: Terran Hegemony, ComStar, Word of Blake, or Republic of the Sphere

Unit Types: Variable

The term "Belters" refers to the isolationist communities that mainly inhabit the asteroid belt and Oort cloud within the Terran system. Having survived in tiny, low-gravity, artificial-atmosphere communities since the early, pre-hyperspace days of human space travel, these people have developed—via a combination of genetic modifications and implant technologies—a few augmentations specifically designed to enhance their warriors' combat skills against possible intruders.

General Belter Game Rules

Regardless of the augmentation package selected, all Belter warriors are well-versed in low-gravity combat, including spacecraft piloting and gunnery. To reflect this, Belter aerospace units receive a –1 to-hit modifier to all Gunnery Skill checks, and a –2 target number modifier to Piloting Skill checks, as long as combat takes place in space, vacuum environments, or low-gravity conditions (under 0.7 G). A character with Belter augmentations is considered protected for the purposes of the *Gravitational Effects* rules (see p. 34, SO).

These general benefits are all lost if the Belter warriors operate within a planetary atmosphere or gravity conditions of 0.7 G and higher.

General Belter Construction Rules

Belter warrior augmentations reflect a combination of genetic and prosthetic modifications, backed up by training regimens that build on the unique lifestyle of Belter societies. As a result, constructing a Belter simply requires that the Belter unit's controlling player select a maximum of two augmentation packages from those described below.

Belter Infantry Augmentation Package

Belter soldiers, paramilitary police officers and government security personnel are often augmented with speed, strength and durability in mind. Using a combination of genetic therapies and synthetic enhancements, these infantry troopers are exceptionally resilient in combat.

Additional Game Rules: Belter Infantry Augmentations apply a +1 damage divisor to the infantry unit, which stacks with any infantry armor the unit is using (see pp. 129-130, *TO:AUE*). Belter Infantry Augmentations also enable the infantry unit to ignore any encumbrance effects (indicated by any damage divisors ending in an "E") for wearing environment suits or space suits of any kind.

Note that this augmentation package does *not* reduce the damage multiplier applied for operating in hostile environments.

Belter Fighter Pilot Augmentation Package

Belter fighter pilots are good even without enhancements, but this standard augmentation package—which reinforces visual acuity, circulatory systems, bones and joints—makes them truly exceptional.

Additional Game Rules: A fighter pilot with this augmentation receives an additional –1 target number modifier for Piloting skill checks, and adds a +2 modifier to the fighter's initiative (if the *Advanced Initiative* rule is in play per p. 51, SO).

If Advanced Movement rules are in play (see pp. 52-54, SO), augmented Belter fighter pilots also reduce the Thrust Point costs



for all special maneuvers performed while in space combat (including yawing, end-overs, lateral movements and deceleration movements) by 1, to a minimum cost of 1 Thrust Point. Finally, any turn effects caused by random movement are reduced by 1 hexside (to a minimum of 0).

Small craft units may also benefit from this benefit, but only if all members of the unit's crew receive the same augmentation.

Belter Vacuum-Resistance Augmentation Package

With a battery of tissue reinforcements and a host of sophisticated life-supporting implants such as oxygen-storing tissues, nitrogen-scavenging marrow, and transparent inner eyelids, Belters can be better protected against vacuum exposure. Though environmental protection still aids in temperature regulation and comfortable functionality, these augmentations minimize the imminent dangers posed by depressurization.

Additional Game Rules: Belter infantry with this augmentation may ignore the damage doubling effects caused by operating in vacuum and other hostile environments.

CLAN ENHANCED IMAGING NEURAL IMPLANT

Era: Any after the Clan Invasion (3050+)

Factions: Clans only

Unit Types: Battle Armor, ProtoMechs, 'Mechs

The Clans' unique Enhanced Imaging (EI) neural implant technology reached its maturity just before the start of the invasion of the Inner Sphere. Comprised of two key components—a control interface built into the warrior's machine, and the warrior's own neural implants—the system enables greater control and situational awareness for the warrior by making him sense and control his machine more as if it were a natural extension of his own body.

EI implants, which outwardly resemble colorful but abstract techno-tattoos, are only truly effective when used with unit types that feature a walking-style motive system (preferably in bipedal, humanoid configurations), and so is only used with battle armor, ProtoMechs, and BattleMechs. While affording exceptional levels of control, however, these implants are especially sensitive to feedback. Due to their direct connection to the pilot's nervous system, this feedback can cause additional damage to the warrior in combat, and has also been known to rapidly deteriorate mental health over years of sustained use. Few warriors who receive EI neural implants survive for longer than a decade afterward as a result, but among the Clans, this sacrifice in the name of martial glory is considered only natural.

Enhanced Imaging Game Rules

To achieve the full effects of enhanced imaging technology, the unit piloted by the warrior must be equipped with an EI interface (also known as an EI display system). This item adds no appreciable weight to the unit (as a few other control systems are removed in the process). A unit equipped with an EI interface may be piloted by a warrior with or without the EI implants, but EI implants cannot be used effectively without the interface.

ProtoMechs and units with a Clan Machina Domini interface rely on EI technology for operation, and thus always feature an EI-based control system. Such units cannot be operated by warriors without EI implants, and if the EI interface is disabled, the unit is forced to shut down. (See *Inner Sphere ProtoMech Interface*, p. 96, for an exception.)

When a battle armor or 'Mech unit with an EI interface is operated by a warrior without active EI neural implants, the unit functions per its normal rules without modification.

When a unit with an EI interface *is* operated by a warrior with active EI implants, the following rules apply:

- All Piloting Skill rolls required for the EI-equipped unit receives a -1 target number modifier. This includes checks made for physical attacks, as well as anti-'Mech attacks by EI-equipped battle armor.
- All to-hit modifiers imposed on an EI-equipped unit making weapon attacks through woods, jungle, or smoke hexes are reduced by 1 point (to a minimum modifier of +1) per hex.
- All attack modifiers for darkness are ignored by the EI-equipped unit.
- 'Mech units equipped with EI may make aimed shots as if equipped with a targeting computer (see p. 143, *TW*), but must apply an additional +2 to-hit modifier when making an aimed shot attack. If the EI-equipped unit possesses a functioning targeting computer as well, this additional +2 modifier is replaced by a -1 to-hit modifier instead.
- Any time an EI-equipped 'Mech unit suffers damage to its internal structure, its controlling player must roll 2D6 against a target number of 7. If this roll fails, the warrior will suffer 1 point of pilot damage, and must make a consciousness check accordingly.
- A critical hit to an EI-equipped 'Mech's sensors will disable the enhanced imaging system, negating these benefits in addition to applying the normal effects for damaged sensors.
- A 'Mech's EI interface can be shut down during the End Phase of any game turn. A shut down EI interface will deactivate the system's benefits, but will also protect the pilot from the negative effects of EI use in combat. (ProtoMech EI interfaces cannot be shut down, nor can Clan Machina Domini interfaces.)
- As long as the EI-equipped unit has not suffered sensor damage, it will receive the additional benefits of an active probe with a 1-hex detection range, even if the EI interface is shut down, or being operated by a pilot who lacks EI neural implants. This includes the special optional abilities described in *Tactical Operations: AR* (see p. 97, *TO:AR*). This special ability is susceptible to interference from hostile ECM as normal. If the unit already possesses an active probe of any type, this ability grants no additional effects.
- For full rules on the Clan Machina Domini system and its effects, see *Machina Domini Interface* (p. 110).

Enhanced Imaging Construction Rules

The EI interface (also known as an EI display system) may be installed in the cockpit of any BattleMech or battle armor unit built using a Clan technology base at no cost in weight or space, but will slightly increase the monetary cost of those units (see *Costs*, pp. 178-183). EI interfaces are installed automatically in all ProtoMech cockpits, and thus do not change the existing costs, weight, or space of those systems.

Only MechWarriors and battle armor infantry troopers can be augmented with EI neural implants. These implants are only available to Clan affiliations, at an extra monetary cost that represents the resources spent on the augmentation process. Clan ProtoMech warriors, who must receive EI neural implants in order to function, do not incur any additional costs for their implantation, nor do MechWarriors who are outfitted with EI neural implants specifically to operate a Clan Machina Domini interface (see p. 110).

To reflect the rarity of EI neural implant use (outside of ProtoMechs), even among the Clans, no more than one out of every five 'Mechs or battle armor Points in a Clan force should be augmented by EI.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

CYBERNETIC AND PROSTHETIC AUGMENTATIONS

Era: Variable

Factions: Variable

Unit Types: Variable

Cybernetic augmentations significant enough to enhance the performance of pilots and infantry troops in combat are not restricted to a specific faction or era of play per se, but the expense and sophisticated technologies needed to equip such warriors has rendered them an extremely rare sight on the battlefield. In fact, it was not until the Jihad that troops augmented with cybernetics and prosthetics appeared in sufficient numbers to be considered noteworthy, with both instances—the Manei Domini and the Thuggee Phansigars—developed as much as weapons of terror as they were an effort to match the superior skills and tech of the Clans.

General Cybernetics and Prosthetics Game Rules

The cybernetic and prosthetic modifications available to the various factions and eras of *BattleTech* play are extremely varied, to the point where covering the range of combinations is best left to the pages of the role-playing rules found in *A Time of War* and the *A Time of War Companion*. For this reason, the options provided here describe only the basics in abstract format, and will only take effect when used in the augmentation's described unit type. Though any cybernetics- or prosthetics-augmented warriors may be fitted with any of these modifications, only the listed unit types will be able to effectively use them in battlefield scenarios.

All-or-None Modifications: Unless otherwise noted, for any unit making use of cybernetic or prosthetic augmentations, the rules will not apply unless all warriors in the unit are equipped with the same augmentations.)

Morale Effects: The exotic and often shocking nature of troops using cybernetic or prosthetic enhancements can readily unnerve

opposing forces, especially if they are conventional infantry. If the Morale rules are in play (see pp. 179–181, *TO:AR*), an attack by a unit augmented with cybernetics will apply an additional +1 target number modifier (+2 if the augmented unit is comprised of infantry) to their target's Morale check, reflecting the alien or superhuman appearance and performance of these augmented warriors.

Fatigue Effects: Furthermore, to reflect the additional resiliency and endurance often made possible by the use of cybernetic and prosthetic augmentations (to say nothing of the physical resiliency needed to undergo the grueling and painful surgery and recovery/acclimation process such modifications require), any unit modified by cybernetics or prosthetics can function for 3 more turns of play before any fatigue modifiers set in, if the Fatigue rules are in play (see p. 166, *TO:AR*).

Healing and Maintenance: When using any of the maintenance/healing rules found in *Campaign Operations* on warriors augmented by cybernetics and/or prosthetics, triple all base maintenance and healing times, and apply a +4 target number modifier to all roll results for diagnosis and medical actions related to healing and treatment of such augmented personnel. This reflects the added complexities and hazards of treating warriors who have replaced significant parts of their physiology with sophisticated and hyper-expensive technology.

Electromagnetic Pulses (EMP): Although largely shielded by their own bio-matter, warriors using cybernetic implants or prosthetics are susceptible to high-intensity bursts of electromagnetic pulse (EMP) generated by the following weapons: EMP mines (see p. 177, *TO:AUE*), Tasers (see p. 157, *TO:AUE*), TSEMP weapons (see p. 84), HPGs (see pp. 142–143, *TO:AUE*), or nuclear weapons (see pp. 163–171).

If struck by any of those listed EMP sources, the augmented warrior must roll 2D6, applying a +1 to the roll result if he is wearing battle armor or piloting a vehicle, or +3 if he is piloting a 'Mech or aerospace unit. On a result of 6 or less, the warrior's implants and prosthetics will overload and shutdown, losing all functionality for the remainder of the scenario. Furthermore, the unit will be treated as stunned and immobile for the entire following turn.



A Free Worlds League security guard conceals his cybernetic enhancements beneath his uniform.



If the augmentations shut down in the above fashion include prosthetic leg MASC, direct-neural interface (of any type), or any of the full-body myomer implants, roll an additional 2D6 and apply the same modifiers to the roll as before. If this second roll is 6 or less, all warriors in that unit are killed or incapacitated by the pulse for the remainder of the scenario. On a result of 10 or higher, they are simply immobilized for the remainder of the scenario, but may perform any other actions.

General Cybernetics and Prosthetics Construction Rules

Modifying people with cybernetics and prosthetics is an extreme (and extremely expensive) proposition. Implanting cybernetics invariably means major surgery to swap out (or shove aside) natural organs in favor of sophisticated technological components, while advanced prosthetics effectively require the loss of natural limbs in trade. The process of transforming a human being to a techno-human hybrid is thus a painful and dangerous one, never to be taken lightly. It is one thing to use cybernetics and prosthetics to replace lost body parts with substitutes that approximate their original function, but it's quite another to willfully discard healthy appendages just to gain the ability to conceal pistols inside them.

In the *BattleTech* setting, technologically augmented humans are exceedingly rare, with only the most dramatic examples—the Word of Blake's Manei Domini, and their one-time allies in the Thuggee Phansigars—emerging and vanishing in the course of the Jihad. Beyond these examples, most factions in the *BattleTech* setting have kept the use of cybernetic modifications and enhanced prosthetics limited to the most elite teams of commandos and special operatives, as much due to the lack of suitable candidates as due to the obscenely high price tag that comes with creating such assets. To reflect this rarity, the following rules and limits are presented as a guide to the extent at which a given force may employ.

Clan vs. Inner Sphere: Among the Clans, the notion of using machinery to augment the human body is seen as a crutch (to the point where even their own enhanced imaging technology is limited only to the most fanatical or desperate among them). As a result, though the Clans can produce most of the cybernetics and prosthetics presented here, such technologies should almost never appear among any Clan force in numbers larger than a Star's worth of units.

Skill and Loyalty: While theoretically anyone can be augmented with the technologies here, only those forces of elite-rated skill and fanatic-level devotion to their realm or organization may be considered qualified for augmentation. This requirement reflects the fact that few realms or organizations with the resources to provide cybernetics and prosthetics of this level would ever likely invest so much in inferior troops of questionable loyalty.

Concentration: Aside from scouts and infiltrators (an element of gameplay beyond the scope of these rules), any augmented combat units will tend to be grouped together, rather than dispersed throughout an otherwise mundane force. In most forces, this generally might mean a lance of augmented warriors for every battalion in the field, or a company of augmented warriors per regiment—all of which should generally operate separately from the main force.

The only special exceptions to the above to date are the Word of Blake's Manei Domini "Shadow Divisions", and the Capellan Confederation's Thuggee Phansigar "Warrior Houses"—both of which appeared only during the Jihad. In both of those force mixes, all of the warriors fielded were augmented in some way.

Number of Augmentations: The number of cybernetic and prosthetic augmentations that can be placed on any given warrior is not set, but given the tremendous expense of so many

CYBERNETIC/PROSTHETIC AUGMENTATION LIMITS TABLE

Unit	Number of Mods (Min / Max)
<i>Unit Type</i>	
Infantry	1 / 4
Vehicle Crew	1 / 3
MechWarrior	1 / 3
Other	1 / 2
<i>Rank</i>	
Lance Commander	+0 / +1
Force Second-in-Command	+1 / +2
Force Commander	+2 / +2
<i>Affiliation</i>	
Word of Blake Manei Domini	+1 / +2
Thuggee Phansigar	+1 / +3
Clan	-1* / -2*
All Others	+0 / +0

*To a minimum of 1

modifications, it would be wasteful to place augmentations in a warrior have little to do with his specific mission role. An augmented MechWarrior, for example, would have little use for prosthetic leg MASC, or a toxin effuser implant, while an augmented infantryman would have no particular use for a vehicular neural interface.

For the sake of simplicity, players choosing to create warriors augmented with cybernetics or prosthetics should start by determining the warrior's unit type, as well as his (or his unit's) place in the chain of command for that particular force. With this information, the player may then use the Cybernetic/Prosthetic Augmentation Limits Table as a guide to finding the minimum and maximum number of cybernetic or prosthetic modifications that may be "installed" on that warrior.

The augmentations selected for the warrior should then be chosen from those listed for his unit type, with non-applicable modifications selected only if necessary to satisfy any minimum modification limits. If the modification is not available to the faction the augmented warrior comes from, but is available in the era of play, the cost for its use by the player's force is doubled. If the modification is not available in the era of play, but did exist in a previous era, its cost is also doubled. For modifications that are both unavailable to the player's faction and only exist in a previous era of play from the one in which the scenario is set, these costs modifiers stack, making the augmentation's cost quadruple that of its base value.

Artificial Pain Shunt

Era: All

Factions: Any

Unit Types: Any

Less of a cybernetic augmentation and more of a form of serious brain surgery, the pain shunt frees a warrior from most forms of physical pain. The process of bypassing the brain's pain center has technically been available since long before humanity spread out into space, and is mostly favored by elite spies and similar special operatives to minimize the effects of physical torture in the event

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



of their capture. During the Jihad, however, pain shunts were used much more extensively by the Word of Blake's Manei Domini, as a drug-free means of offsetting the chronic headaches and negative biofeedback caused by their extensive modifications.

Pain shunts deaden virtually all tactile senses as well, which can make even the simplest of actions difficult, lest the operative break a valuable piece of hardware while simply trying to operate it. But the greatest danger of this implant is the tendency for its recipients to ignore even mortal wounds until it is too late.

Game Rules: MechWarriors, pilots and vehicle crews with a pain shunt do not suffer pilot damage caused from ammunition explosions, heat effects, or VDNI feedback damage through internal structure or critical damage. Any other pilot damage (such as that caused by direct hits to the head or falling) is recorded normally, but the pilot with a Pain Shunt does not make a Consciousness Roll.

Non-VDNI vehicle commanders, drivers and crew equipped with pain shunts suffer the effects of the following critical hits only after taking two such hits: Driver Hit, Commander Hit and Crew Killed. Pain-shunted vehicle crews completely ignore the Crew Stunned critical hit. (Thus, it takes two Commander Hits on a vehicle commander with a pain shunt before the combat penalties apply; it takes two Crew Killed results to kill a non-VDNI crew equipped with Pain Shunts.)

Conventional infantry and battle armor units comprised of pain-shunted warriors reduce by half any damage caused by flame-based weapons, reflecting their deadened senses and fearlessness of fire.

Finally, if the Morale rules are in play (see pp. 179-181, *TO:AR*), pain-shunted units receive an additional -4 target number modifier to their Morale checks, to reflect their reduced sense of mortality. Paint-shunted units also ignore Forced Withdrawal rules (see p. 28, *TW*) for pilot/crew damage or loss of troops.

Construction Rules: All pilots, crewmen, or operators of a given unit must have a pain shunt for the unit to benefit from these rules. A warrior may only possess one pain shunt.

Cybernetic Communications Implants

Eras: Any after Age of War (2570+)

Factions: Any

Unit Types: BM, IM, BA, CI, CV, SV

Electronics to record, transmit, receive or carry on two-way communication via cybernetic eyes, ears or speech implants have been available to augmented covert operatives for centuries. In the battlefield, they have proven effective in coordinating actions at the infantry squad level, but the increased power and range of larger military communicators and their vehicular-mounted versions makes these implants only marginally more effective by comparison.

Game Rules: Infantry units (including battle armor) that are equipped with cyber-communications implants are able to function in a more cohesive manner in combat, providing a -1 target number modifier for Morale checks (see pp. 179-181, *TO:AR*), indirect LRM attacks where the augmented infantry unit is acting as spotter (see p. 111, *TW*), and avoiding mines when passing through minefields (see p. 175, *TO:AR*).

For non-infantry units using cyber-communications implants, apply a -1 to-hit modifier to any indirect LRM or artillery attack made in which the augmented unit is acting as the spotter.

Construction Rules: For the sake of battlefield unit use, only one-fourth of the members of a unit's pilots/crew/troops (rounded up) need to possess a cyber-communications implant. These warriors only require one such implant each to achieve the necessary functionality; additional implants will not improve the effects.

Cybernetic Boosted Communications Implants

Eras: Civil War and Jihad (3062-3085)

Factions: Word of Blake

Unit Types: BM, IM, BA, CI, CV, SV

Boosted forms of the various cyber-communication implants emerged among the Word of Blake's Manei during the Jihad. When combined with the flexibility of the Word's enhanced multi-modal sensory implants, these augmentations actually made it possible for even a humble infantry unit to serve as part of a C³ network.

Game Rules: Boosted cyber-communications implants function just like the base models indicated above, but also grant the unit the ability to link up with a friendly C³i network as long as the network is not full, even if the unit does not possess a C³i computer of its own.

Construction Rules: As with the basic cyber-communications implants, only one-fourth of the members of a unit's pilots/crew/troops (rounded up) need to possess a boosted cyber-communications implant to gain their battlefield benefits. Only one such implant is required per warrior to achieve the necessary functionality; additional implants will not improve the effects.

Cybernetic Sensory Implants

Era: Any after Age of War (2570+)

Factions: Any

Unit Types: CI

Cybernetic optical replacements enhance the trooper's vision providing infrared, electromagnetic, telescopic, and laser sighting abilities that aid either in surveillance or for targeting small arms fire. Cybernetic audio implants, meanwhile, can provide enhanced auditory perception, either by extending the warrior's range of hearing, or even intercepting enemy communications.

The range of sensory implants that exist, in fact, also includes variable speech processors, chemical samplers, and so forth. Many of these are favored by specialized spies and covert agents, but contribute few real benefits in an active battlefield.

The Word of Blake's Manei Domini, once again, made the most extensive use of these special sensory implants; where a cyber-enhanced commando from any other realm might have possessed one covert sensory implant—usually swapping out a single eye or ear for the implant—the Word's agents and scouts often crammed multiple implants into their heads, to maximize their abilities at the cost of ever again being able to see the world through natural eyes.

Game Rules: Infantry units whose warriors are fitted with IR or EM optical implants, or with enhanced audio implants of any kind, operate as though they possess an Inner Sphere-quality active probe with a 2-hex range. As with standard active probes, this ability can be disrupted by hostile ECMs.

Infantry units whose warriors are enhanced with laser-sight or telescopic optical implants receive a -1 to-hit modifier for all weapon attacks.

Multiple sensory implants that provide the same benefit will not stack, but multiple implants that provide differing benefits (such as fitting the troopers with laser-sight optics and enhanced audio implants) will grant the unit both special abilities

Construction Rules: An infantry trooper can receive up to two different implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement). Each augmentation adds to the unit's per-trooper cost, accordingly.



Cybernetic Multi-Modal Sensory Implants

Era: Civil War and Jihad (3062-3085)

Factions: Word of Blake, Capellan Confederation

Unit Types: BM, IM, BA, CI, CV, SV

The Word of Blake's much more sophisticated form of the cybernetic sensory implants discussed above, multi-modal implants granted their elite Manei Domini operatives the ability to combine two sensory features in the same implants, effectively "doubling up" on their capabilities in the same cranial space. Like most Manei Domini technologies, this was shared with the Confederation via the monstrous Thuggee Phansigars, but in the wake of the Jihad, the technology lapsed once more into obscurity due to its high cost.

A particularly useful extra feature of multi-modal sensory implants, however, was their ability to mate with the Word's vehicular direct-neural interface (VDNI) technology, which made it possible for even non-infantry warriors to make use of these abilities when piloting BattleMechs, vehicles, and the like.

Game Rules: Infantry units whose warriors are fitted with multi-modal sensory implants receive both the 2-hex active probe ability and the -1 to-hit modifier for weapon attacks described under the rules for the standard cybernetic sensory implants above. While a warrior can be fitted with more than one multi-modal sensory implant, additional implants of this type offer no added benefits.

If a warrior fitted with multi-modal sensory implants also possesses a form of VDNI (standard or buffered), they can synchronize these systems with the external sensors of any battle armor, vehicle or 'Mech that uses a VDNI-compatible control system, and thus retain the same abilities as their conventional infantry counterparts, even when mounted. If the unit being operated by these warriors also possesses an integral active probe of any kind (including battle armor active probes, improved sensors, and vehicular systems such as the Beagle, Bloodhound, or Watchdog), the active probe range of these systems is increased by 1 more hex due to the implants.

Construction Rules: A warrior can receive up to two multi-modal sensory implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement), though doing so would be redundant for the purposes of tactical gameplay. Each augmentation adds to the unit's per-trooper cost, accordingly.

Cybernetic Enhanced Multi-Modal Sensory Implants

Era: Civil War and Jihad (3062-3085)

Factions: Word of Blake, Capellan Confederation

Unit Types: BM, IM, BA, CI, CV, SV

The rarest of the cyber-sensory implants used by Word of Blake Manei Domini and Thuggee Phansigars, enhanced multi-modal implants consolidated even more features into each device. Extremely expensive, these enhanced implants were used only by the highest-ranking or most elite operatives.

Game Rules: Enhanced multi-modal sensory implants function in the same manner as multi-modal sensory implants, but provide an additional hex of active probe range in all forms. Thus, conventional infantry units and other units without on-board probes receive active probe ability with a 3-hex range, while armored infantry and vehicular active probe systems benefiting from enhanced multi-modal sensory implants and VDNI links are improved by 2 hexes. All units whose warriors possess enhanced multi-modal sensory implants receive the same -1 to-hit modifier for weapon attacks as well.

Construction Rules: A warrior can receive up to two multi-modal sensory implant augmentations at a time (an abstraction that reflects either two optical replacements, or an optical and audio replacement), though doing so would be redundant for the purposes of tactical gameplay. Each augmentation adds to the unit's per-trooper cost, accordingly.

Cybernetic Filtration Implants

Era: Any after Age of War (2570+)

Factions: Any

Unit Types: BM, IM, BA, CI, CV, SV, AF, CF

Adapted from survival implant technologies perfected during the massive terraforming efforts of the Star League age, artificial filtration liver and lung implants enable those who possess them to withstand all but the most extreme hostile atmospheres and ingested toxins. During the Jihad, the Word of Blake often fielded operatives with such filters as part of the forces responsible for chemical weapon attacks, but many other agencies and groups throughout history—most notably those involved in research or colonial efforts on exotic worlds—use them to survive in environments inhospitable to human life.

Game Rules: Units whose warriors are equipped with filtration implants ignore any damage sustained by non-lethal chemical or gas weapons (such as tear gas), or atmospheric conditions with a Poisonous taint (see pp. 54, *TO:AR*). For atmospheres with a Caustic, Radiological, or Flammable taint, these same units suffer half the damage described, rounded down.

In toxic atmospheres of any type, units equipped with filtration implants treat the effects as that of a tainted atmosphere of the same type, and treat any lethal chemical weapon attacks as an atmosphere with the Poisonous taint.

The filtration implants described here only cover the effects of inhaled/injected taints and toxins; they do not protect against vacuum, fire, or other environmental hazards.

Construction Rules: As with most implants and prosthetics, all members of any multi-person unit must possess filtration implants to receive the benefits of this device. The cost for the filtration implants apply per warrior.

Cybernetic Gas Effuser, Pheromone

Era: Civil War through Dark Age (3062-3150)

Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus

Unit Types: CI

The pheromone effuser is an insidious implant originally developed for Word of Blake Manei Domini operatives whose primary missions involved close-quarters infiltration. Thuggee Phansigars soon mimicked the device, and special operatives in the Capellan and Canopian intelligence agencies carried on its use in the decades afterward. The device dispenses a psychotropic mix of chemically-enhanced pheromones via the operative's mouth or nostrils, which can be directed as easily as the operative can exhale. The scent enhances seduction and lowers the target's mental and emotional defenses. While almost never seen on the battlefield, this device can affect close-quarters actions against unprotected conventional infantry.

Game Rules: A conventional infantry unit comprised of troops using pheromone effusers can affect any conventional infantry unit operating in the same hex as long as the target infantry is not prepared for chemical warfare or hostile-environment combat (such as troops wearing environmental or vacuum-sealed suits).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



This “pheromone attack” is delivered with a special Gunnery Skill check rolled separately from any other attack made by the effuser-equipped unit.

If a pheromone attack succeeds, the target infantry unit is impaired, and suffers a +1 target modifier on all actions for the remainder of the scenario, even if the effuse-equipped unit moves away. This reflects the target troops’ troubled emotional state and general uncertainty. Multiple effuser attacks will not increase this modifier.

Note that even though pheromone effusers are technically point-blank weapons on the tactical scale, they are also area-effect weapons due to their dispersed nature as a gaseous weapon. Thus, no range modifier applies when executing a pheromone effuser attack.

Construction Rules: As with other infantry modifications, all members of the infantry unit must receive a pheromone effuser implant to employ this ability.

Cybernetic Gas Effuser, Toxin

Era: Civil War through Dark Age (3062-3150)

Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus

Unit Types: CI

The toxin effuser takes the basic approach of the pheromone effuser, but makes it far more deadly by enabling the operative to exhale poisonous chemicals instead of emotion-clouding chemicals. Also developed originally for the Manei Domini, this implant was adopted mainly by augmented Capellan and Canopian agents in the aftermath of the Jihad.

Game Rules: The toxin effuser uses the same rules as the pheromone effuser, but instead of applying a persistent skill modifier, toxin effusers deliver 0.25 points of damage per attacking trooper to the targeted infantry unit on a successful attack. Once again, these effects are negated if the target is prepared for hostile environment combat or chemical warfare.

Note that even though toxin effusers are technically point-blank weapons on the tactical scale, they are also area-effect weapons due to their dispersed nature as a gaseous weapon. Thus, no range modifier applies when executing a toxin effuser attack.

Toxin effusers have no effect on non-conventional infantry units.

Construction Rules: Once again, all members of the infantry unit must receive a toxin effuser implant to employ this ability.

Cybernetic Myomer Implants, Dermal Armor

Era: Clan Invasion through Jihad (3050-3085)

Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus

Unit Types: All

While the ability to swap out human musculature for artificial myomers was perfected in the Star League era as a means to repair serious injuries, and was even used in extremely limited capacity to improve the body’s resiliency against trauma from anything from blunt strikes to light weapons fire, it was not until the time of the Clan Invasion that truly modern armor-enhanced myomer implants became practically available to covert operatives. Leading the way in this regard—if only because the Word of Blake’s Manei Domini operatives had yet to reveal themselves—were special ops agents from the Capellan Confederation and Magistracy of Canopus.

Myomer full-body implants tailored specifically for combat eventually made their way to special field operatives in certain Inner Sphere intelligence agencies. Though hard to maintain when damaged, the advantages of dermal myomer armor gave special operatives remarkable resistance to injury combined with a boost

in physical strength. To many, these benefits were more than worth the excruciating pain of the implantation process, the constant headaches that come from their ongoing use, and the heavy scarring and physical deformations that made such implants extremely difficult to conceal.

Game Rules: When applied to conventional infantry units, full-body dermal armor myomer implants add +1 to the unit’s damage divisor. (Thus, infantry units equipped with dermal armor myomer that do not wear any other armor types have an effective damage divisor of 2.)

For battle armored infantry, dermal myomer armor implants provide 1 extra point of armor to represent the trooper inside the battlesuit. This bonus armor does not protect against hostile environments if the suit’s actual armor is breached, however.

When applied to vehicular units, ‘Mechs, and fighters, warriors equipped with full-body dermal armor ignore any pilot damage from falls, Crew Stunned results, or hits to the BattleMech’s head, aerospace unit’s crew, or any crew hits other than Crew Killed. Heat-induced pilot damage, neurohelmet and VDNI feedback (such as from ammunition explosions or internal damage while using a VDNI implant), Crew Killed results, and cockpit destruction still apply to these units as normal.

Construction Rules: A cybernetics-augmented warrior may mount only one dermal armor myomer implant, adding its costs to that of the augmented warrior. Of the full-body myomer implants featured in these rules, dermal armor may be combined with triple-strength myomer, but not with dermal camouflage.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Also, when constructing a conventional infantry unit equipped with dermal armor myomer implants, reduce the crew requirements for all weapons by 1 (2, if the unit is also equipped with the triple-strength myomer implant), and eliminate the encumbering effects (if any) for such weapons. The minimum crew any infantry weapon may be reduced to is 1. In addition, these platoons may carry up to 3 secondary weapons per squad (4 if the unit is also equipped with the triple-strength myomer implant). Platoons created under these conditions suffer no MP reduction, regardless of the number of secondary weapons carried.

Cybernetic Myomer Implants, Dermal Camouflage Armor

Era: Jihad (3068-3085)

Factions: Capellan Confederation

Unit Types: CI (foot or jump infantry only)

An extreme variation on dermal armor that also incorporates electronic “sneak suit” technology, dermal camouflage was developed as a full-body myomer-based implant that overlaid its user’s skin with sheets of photosensitive electronic webbing—akin to a permanent head-to-toe bodysuit that also provides basic protection from the elements (and human modesty). Using sensors arrayed along the operative’s body, dermal camouflage created a mimetic armor effect, blending the operative into the colors of his surroundings.

The limitation, of course, was that this augmentation cannot be used effectively while carrying bulky items (which cannot be so camouflaged), or when wearing any exterior clothing or armor for additional protection. Nevertheless, it saw its most extensive use by Capellan commandos and Thuggee Phansigars during the Jihad.

Game Rules: When applied to conventional infantry units, full-body dermal camouflage implants add nothing to the unit’s damage divisor, but (unlike triple-strength myomer implants) does provide enough armor protection to avoid a 0.5 damage divisor. This is particularly useful, since the stealth modifiers of these implants will not work



when wearing any other armor, or when using any form of motive type other than foot or jump. (Thus, infantry units equipped with dermal camouflage and no other armor types have an effective damage divisor of 1.)

The stealth effects for dermal camouflage implants are similar to those of mimetic battle armor, applying a to-hit modifier for all attacks made against the camouflaged infantry unit based on how far it moved in the current turn. This to-hit modifier is +3 if the unit remained stationary, +2 if the unit moved only 1 hex, and +1 if it moved 2 hexes. If the camouflaged infantry unit moved faster than 3 hexes in the current turn, no to-hit modifier applies for the mimetic effect.

When applied to any other units, including battle armor or conventional infantry using motorized or mechanized movement types, full-body dermal camouflage implants have no stealth effect. The armor does, however, protect vehicular, fighter, and 'Mech pilots and crews against damage from falls, and Crew Stunned results, but do not affect damage from other sources or critical hits.

Construction Rules: A cybernetics-augmented warrior may mount only one dermal camouflage full-body implant, adding the cost to that of the warrior. Dermal camouflage implants are incompatible with dermal armor implants, but can be combined with triple-strength myomer implants or prosthetic leg MASC.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Unlike the other myomer implant types, dermal camouflage does not boost the trooper's strength enough to reduce the crew needs for any carried support weapons.

Cybernetic Myomer Implants, Triple-Strength

Era: Clan Invasion through Jihad (3050-3085)

Factions: Word of Blake, Capellan Confederation, Magistracy of Canopus

Unit Types: All

A "deeper" form of human musculature replacement than the dermal armor implants described above, full-body triple-strength myomer implants became available to covert operatives in the Capellan Confederation as an outgrowth of research into the 'Mech-grade version. As with dermal armor, this technology was used sparingly, by the most elite black ops operatives in the Capellan Confederation and Magistracy of Canopus, before the Jihad saw its much more widespread use by Word of Blake Manei Domini and their Thuggee Phanisgar counterparts.

Like dermal armor, triple-strength myomers were hard to maintain when damaged, and caused their users chronic pain, but they offered incredible strength and injury-resistance that was hard to ignore. Capable of even enhancing the abilities of battle armored infantry in close-quarters combat, warriors augmented with triple-strength myomer became a terror in any melee.

Game Rules: When applied to conventional infantry units, full-body triple-strength myomer implants add nothing to the unit's damage divisor, and have a divisor of 0.5 if no other personal armor is present. Additional personal armor must thus be worn by such troops as normal to achieve any protective effect. (Infantry units equipped with triple-strength myomer implants *and* dermal myomer armor receive the +1 damage divisor for the dermal armor as a result, plus any damage divisors for whatever other personal armor the troopers might be wearing over that; if none, the combination of dermal armor and triple strength myomer implants becomes 1.5.) When making attacks against any unit in the same hex, conventional infantry units augmented by triple-

strength myomer implants add +0.14 points of damage per trooper to reflect their enhanced close-combat strength.

For battle armored infantry, triple-strength myomer armor implants provide no additional armor to represent the trooper inside the battlesuit, but they do add 1 point of damage per trooper for all attacks made against targets in the infantry unit's own hex. This bonus even applies to damage inflicted against armored targets, or when engaging in anti-'Mech attacks such as Leg Attacks and Swarm.

When applied to vehicular units, triple-strength myomer implants protect the pilots and crews against damage from falls, and Crew Stunned results, but do not affect damage from other sources or critical hits.

Construction Rules: A cybernetics-augmented warrior may mount only one triple-strength myomer full-body implant, adding the cost to that of the warrior. Triple-strength myomer implants are incompatible with prosthetic leg MASC but can be combined with dermal camouflage implants or dermal armor implants.

As with most such augmentations, infantry units and other multi-person crews require all of their members to be equipped with the same full-body implants to receive the benefits. Also, when constructing a conventional infantry unit equipped with triple-strength armor myomer implants, reduce the crew requirements for all weapons by 1 (2, if the unit is also equipped with the dermal armor myomer implant), and eliminate the encumbering effects (if any) for such weapons. The minimum crew any infantry weapon may be reduced to is 1. In addition, these platoons may carry up to 3 secondary weapons per squad (4 if the unit is also equipped with the dermal armor myomer implant). Platoons created under these conditions suffer no MP reduction, regardless of the number of secondary weapons carried.

Cybernetic Triple-Core Processor Implant

Era: Jihad (3068-3085)

Factions: Word of Blake

Unit Types: All

The triple-core processor implant was unique to the Word of Blake, and reserved exclusively for unit commanders, particularly those mounted in BattleMechs or other armored units. This is not to say the technology was actually restricted to any particular unit type; the Word simply saw these devices as too valuable to place in their more fragile battlefield assets.

Effectively tailored for tactical battlefield administration, the TCP could synchronize with other computers, and provided a massive database of tactical, technical, and academic information that the user could call up with a thought. It was specifically designed for compatibility with direct neural interfaces, thus enabling even more enhanced control over 'Mechs, vehicles, and other units with such interfaces.

Game Rules: The TCP implant is one of the only cybernetic augmentations that does not have to be applied to all troopers in an infantry unit or all members of a vehicle/aerospace unit's crew. Only the unit's commander requires the TCP to gain its functionality.

A TCP-implanted warrior provides a +2 Initiative modifier to his force's side if he is present in the battlefield and is interfaced with a unit via a VDNI or Buffered VDNI control system. An additional +1 Initiative modifier applies if the unit also features a Cockpit Command Module, a C³ (or C³i) system, or more than 3 tons of communications equipment. Reduce this modifier by 1 Initiative if the TCP-equipped warrior's unit is shutdown, or under the influence of hostile ECM or electronics-impairing environmental

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

75

75



effects such as electromagnetic interference (EMI) or secondary nuclear weapons effects.

If the TCP-equipped unit is equipped with an ECM suite of any kind, the unit's ECM bubble also acts as a counter-ECM that negates enemy interference (which means that an ECM-equipped unit piloted by a TCP-equipped warrior with a VDNI control system can ignore the initiative-reducing effect of hostile ECM).

The Initiative modifier provided by the use of a TCP-implanted warrior applies only once to his force, regardless of the number of TCP-implanted warriors that are present, but the modifier may stack with any provided by other sources.

Regardless of the initiative modifier provided, all MechWarriors, vehicle commanders, and fighter pilots with a TCP implant and a VDNI control system may execute aimed shots as if the unit is equipped with a targeting computer. An additional -1 modifier applies to this aimed shot ability if the unit already possesses a targeting computer of its own. Finally, TCP-implanted MechWarriors and fighter pilots automatically succeed at all shutdown-avoidance checks for extreme heat, except for those described as "automatic shutdown".

Construction Rules: As indicated in the game rules, only the commander or pilot of a given unit requires the triple-core processor implant to gain its initiative benefits. Only one such implant is required per warrior to achieve the necessary functionality. A warrior may possess only one TCP implant.

Cybernetic Vehicular Direct Neural Interface

Era: Clan Invasion through Jihad (3050-3085)

Factions: Word of Blake, Federated Suns, Capellan Confederation

Unit Types: BM, IM, BA, CV, SV, AF, CF

Based on a technology first prototyped by the New Avalon Institute of Science (before one of its leading scientists went rogue), the vehicular direct neural interface (VDNI) enables pilots, battle armor troops, MechWarriors, and vehicle drivers to literally "plug into" their machines. Though the system works in principle like Clan El neural implants, improved circuit breakers and a chemical agent regularly ingested by users of this technology allows these warriors to stave off the worst short-term effects of this technology. Meanwhile, the heavily modified cockpit and control interface used in the vehicle itself translates the pilot's "natural" impulses into the unique motive capabilities of the vehicle type, achieving greater fluidity of control to the point where the line between man and machine becomes blurred.

Game Rules: Regardless of the unit type in question, warriors using VDNI implants receive a -1 modifier for all Gunnery and Piloting to-hit rolls, to reflect their enhanced level of motor control and improved reaction times. The tradeoff for this is the possibility of damage through internal feedback in the event of a penetrating hit, as described below.

For 'Mechs and vehicles, any time the unit's internal structure suffers damage for any reason, the unit's controlling player must roll 2D6. On a result of 8 or higher, the VDNI-implanted warrior suffers 1 point of damage on the pilot's condition monitor (unless the warrior has a pain shunt; see p. 71), making consciousness checks as per the normal rules for pilot hits. Because even VDNI-equipped vehicle units use this method, the unit's controlling player should construct a similar pilot condition monitor in the unit's Notes section to keep track of this damage. In addition to this, vehicle-based VDNI warriors also treat all of the following critical hits as a single hit to the pilot's condition monitor: Commander Hit, Gunner Hit, and Crew Stunned.

(The Crew Killed critical hit on a VDNI-controlled vehicle still kills the pilot outright, however.)

For fighters operated by VDNI-equipped pilots, any damage that delivers a critical hit will require an additional 2D6 roll to determine if the pilot takes feedback damage. Once again, this check delivers a single hit to the pilot's condition monitor on a roll result of 8+, prompting a consciousness check as normal.

Battle armor troopers using VDNI do not have to make feedback damage checks in tactical gameplay.

A standard VDNI (or Buffered VDNI) is required to make use of the Machina Domini interface (see p. 110).

Construction Rules: An augmented warrior may possess only one VDNI implant of any type (standard, buffered, or prototype). Battle armor units must modify all warriors in the unit to receive the game play benefits of this system; vehicle units, fighters, and 'Mechs modified for VDNI operation are automatically reduced to only one required crewman, who serves all of the unit's combat roles.

Furthermore, to gain the benefits of this implant, the control systems of the warrior's battlesuit, vehicle, fighter, or 'Mech must be heavily modified as well. This control system modification does not change the mass or space occupied by the unit's original design, but will apply an additional cost, and—in the case of any vehicles, 'Mechs, or fighters that require more than one crewman—will reduce the unit's required crew to 1. (Unlike the Clan El interface, a unit modified for operation by a VDNI-augmented warrior cannot be piloted without such an implant.)

Cybernetic Buffered VDNI

Era: Jihad (3068-3085)

Factions: Word of Blake

Unit Types: BM, IM, BA, CV, SV, AF, CF

This enhanced form of VDNI emerged a few years after the start of the Jihad, representing the fruits of ongoing research completed by Manei Domini engineers. Buffered VDNI granted pilots, battle armor troops, MechWarriors and vehicle drivers the same direct control over their machines, but featured improved fail-safes against neurological feedback to produce an even more potent version of the same technology with fewer side effects.

Game Rules: Units operated by warriors using buffered VDNI receive only a -1 to-hit modifier for Gunnery Skill checks. They do not receive a similar modifier for Piloting due to a slight "neuro-lag" produced by the requisite buffers, but if the unit in question features a Small Cockpit, the buffered-VNDI pilot ignores its associated +1 Piloting target modifier. (Indeed, buffered VDNI cockpit designs are actually far more compact than conventional control systems, a feature that enables compact control systems that allow for more weapon room on 'Mechs and fighters.)

MechWarriors and vehicle pilots using buffered VDNI do not check for pilot feedback damage from simple internal structure damage, but must do so only when an actual critical hit occurs—regardless of the component struck. Tracking and resolving the effects of these pilot hits otherwise follows the same rules as described in the basic VDNI above.

Fighters and battle armor operated via buffered VDNI do not have to check for feedback damage at all.

A standard VDNI (or Buffered VDNI) is required to make use of the Machina Domini interface (see p. 110).

Construction Rules: The construction rules for buffered VDNI implants—and the requisite modifications to the pilot's battlesuit, vehicle, fighter, or 'Mech—follow the same rules as described above for the basic VDNI system.



Prototype Direct Neural Interface

Era: Clan Invasion (3050-3061)

Factions: Federated Commonwealth

Unit Types: BM

The original direct neural interface technology—and the one the Word of Blake based its perfected vehicular DNI upon—was first pioneered by an NAIS scientist named Burke Kale, who proposed it in 3043 as a replacement for neurohelmets. The direct interface that eventually emerged from his work was fraught with dangerous side-effects, including severe addiction to both the tech and the specialty drugs designed to mitigate the worst of its negative neurofeedback.

Given that the technology drove Kale himself insane—with horrifying results that also exposed the project to outside factions—and given that it was proven to lead to permanent nerve damage, insanity, or even death as early as its first use, the Federated Commonwealth abandoned this research by 3055.

Game Rules: Units operated by warriors using the prototype direct neural interface (DNI) receive a -2 to-hit modifier for Gunnery Skill checks, and a -3 modifier for Piloting, making this the most effective of the direct neural interface implants ever created.

Unfortunately, the feedback of this connection is extremely sensitive. MechWarriors using prototype DNI must make a 2D6 roll to check for pilot feedback damage *any* time their 'Mech suffers damage, even if the hit does not penetrate armor. The target number to avoid pilot feedback damage from use of a prototype DNI is 6 if the hit strikes armor, increasing to 8 if the damage strikes internal structure or causes a critical hit of any kind.

The prototype VDNI cannot be used to operate a Machina Domini interface, nor is it compatible with the Inner Sphere ProtoMech interface.

Construction Rules: The construction rules for prototype DNI implants—and the requisite modifications to the pilot's 'Mech—follow the same rules as described above for the basic VDNI system.

Explosive Suicide Implants

Era: Any

Factions: Any

Unit Types: All

Implanted in many cases as an extreme failsafe device to avoid capture or bring potential enemies down in a defiant last stand, suicide charges implanted within the body have been available (and occasionally used) throughout the centuries, but only really peaked among the Manei Domini and Thuggee Phansigars during the dark days of the Jihad. In fact, it was reported that *all* Domini operatives were fitted with such devices, where they could even be remotely detonated by partners or handlers via satellite and HPG signals. Even more monstrous tales told of subjects being unwillingly implanted with similar charges and sent into battle as cannon fodder.

Generally intended to destroy the operative sufficiently enough to not only kill the operative, but also any personal equipment that might be traced or captured by enemy agencies, most battlefield suicide charges are also designed to act as area effect weapons as well, making it possible to take out enemy infantry and security forces in the process.

Game Rules: Any unit made up of or controlled by warriors equipped with suicide implants can activate these devices during the Attack Phase of any turn. Conventional infantry equipped with suicide implants will also deliver an automatic "attack" against all opposing units in the same hex for every trooper they lose during the same attack.

Because the suicide implants represent area-effect weapons, there is no to-hit number for an attack by suicide implants. For conventional infantry (or dismounted warriors with suicide implants), the damage inflicted by a detonating suicide charge is equal to 0.57 times the number of warriors who self-destruct in the same turn (after which those warriors are marked off, eliminating the entire unit if none remain). This damage affects all other targets (and terrain) in the unit's own hex, be they friend or foe.

In the case of suicide implants detonated inside other units or structures, the following occurs when they are activated:

- **Conventional Infantry/Dismounted Personnel inside a Transport Bay:** The suicide attack delivers damage to the bay in which the transported unit is located, treated as a critical hit to that transport bay within the transport unit. The damage value of the exploding infantry is then assessed against the appropriate internal structure location of the transport unit (or the rear structure/armor of the unit, if no structure is present).
- **Battle Armor Infantry inside its Armor:** The suicide attack automatically destroys the trooper's battlesuit, but does not affect any other targets in the area.
- **MechWarriors and Fighter Pilots in their Cockpits:** The suicide implant destroys the unit's cockpit systems along with the warrior himself. Apply 1 point of internal structure to the 'Mech's head (or 1 point of armor damage to the nose of the fighter) and make roll for a critical hit in that location. Treat as complete cockpit destruction for salvage purposes. No other targets in the area are affected.
- **Vehicle Crew inside their Vehicle:** The suicide implant automatically causes a Crew Killed result, and the vehicle suffers a single point of internal structure damage to all facings. Roll for critical hits to all locations normally. No other targets in the area are affected.
- **Suicide Charges inside Other Aerospace Units:** For every 10 suicide charges set off by the same unit (rounding normally), apply 1 of Structural Integrity damage to the aerospace unit, rolling for any critical effects normally.
- **Suicide Charges inside Structures:** For every 2 suicide charges set off inside a structure, subtract 1 point from the structure's CF.
- **Suicide Charges inside Other Units:** For every 2 suicide charges set off inside any other unit, apply 1 point of damage to the unit's internal structure in an appropriate location. If no location is specified, presume this to affect the unit's rear facing structure. If the unit has no internal structure, apply the damage to armor instead. Roll any applicable critical hits.

Construction Rules: An augmented warrior can only be fitted with one suicide implant.

Prosthetic Leg MASC

Era: Jihad (3068-3085)

Factions: Word of Blake, Capellan Confederation

Unit Types: CI (Foot infantry only)

Miniaturized from the 'Mech-scale version, prosthetic leg myomer accelerator signal circuitry (PL-MASC) swapped the trooper's real legs with speed-enhanced alternatives. Favored by scouts and uncommon among shock troops, this unique modification was only effective for foot infantry units; it would not affect the speed of mounted or battle armored infantry.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ENHANCED PROSTHETIC EQUIPMENT TABLE

Enhancement Type	Effects
<i>Ranged Weapons</i>	
Laser	+0.11 max weapon damage per trooper
Ballistic	+0.01 max weapon damage per trooper
Needler	+0.04 max weapon damage per trooper
Shotgun	+0.05 max weapon damage per trooper
Sonic Stunner	+0.05 max weapon damage per trooper*
Submachine Gun	+0.05 max weapon damage per trooper
<i>Melee Weapons†</i>	
Blade	+0.02 max weapon damage per trooper*
Shocker	+0.04 max weapon damage per trooper*
Vibroblade	+0.14 max weapon damage per trooper
Rumal/Garrote	+0.14 max weapon damage per trooper*
<i>Non-Weapons</i>	
Grappler Line	-2 TN to anti-Mech attacks
Climbing Claws	-1 TN to anti-Mech attacks; +0.02 max weapon damage per trooper*

*Damage vs other conventional infantry only

†Apply a +2 to-hit modifier when attacking

Game Rules: Prosthetic leg MASC gives foot infantry units (and only foot infantry units) an additional +1 Ground MP per turn, so a standard foot infantry unit with PL-MASC may move up to 2 Ground MP per turn, while another unit reduced by encumbering items to “move or fire” mobility will still possess 1 Ground MP per turn and is free to make attacks in the same turn. Attacks against infantry units equipped with PL-MASC suffer a +1 to-hit modifier to account for these troopers’ improved ability to dodge and weave in combat.

Construction Rules: As with other infantry-based augmentations, all members of an infantry unit must be equipped with PL-MASC to gain the benefits of this system. Only one PL-MASC augmentation may be “installed” per trooper.

Prosthetic Limbs, Enhanced

Era: Any

Factions: Any

Unit Types: CI

Enhanced prosthetic limbs reflect modified replacement arms or legs equipped with weapons or other useful equipment, and can only be used effectively on the battlefield by augmented non-battle armor infantry units.

Game Rules: The potential damage or effects of this augmentation applies in addition to the weapons and equipment the unit is constructed with, as indicated in the Enhanced Prosthetic Equipment Table. The limited range and power of these items restricts any attacks made by them to targets in the augmented infantry unit’s own hex only.

Note that all items listed as melee weapons will apply a +2 to-hit modifier to make any attacks, reflecting the effort to close in to apply damage.

Construction Rules: Each prosthetic limb augmentation may be applied up to 2 times per trooper, which—for the sake of simplicity—must be of the same equipment type (e.g. two laser enhancements per trooper, or two submachine gun enhancements per trooper, but not 1 laser and 1 submachine gun per trooper). Applying an augmentation twice per trooper also doubles the augmentation’s cost.

Prosthetic Limbs, Improved Enhanced

Era: Star League (2570-2780), Jihad (3068-3085)

Factions: Terran Hegemony, Word of Blake, Capellan Confederation, Magistracy of Canopus

Unit Types: CI

Improved enhanced prosthetic limbs reflect more extremely modified replacement arms or legs, each designed to feature multiple weapons or items, rather than one apiece. The added expense and sophistication of these augmentations limited their use only to the most elite troops of the original Star League, the Word of Blake Manei Domini, the Capellan Thuggee Phansigars, and elite commando teams from the Magistracy of Canopus’ Ebon Magistrate.

Game Rules: Improved enhanced prosthetics work in the same manner as the standard prosthetic enhancements, except each unit featuring these may have a *minimum* of two enhanced prosthetics at the same time. These augmentations may not necessarily be of the same type, but any damage and bonus effects will stack. Thus, an infantry unit augmented with improved enhanced prosthetic limbs might feature both lasers and climbing claws as part of the unit’s prosthetics.

Regardless of the number of melee weapons placed on an improved enhanced prosthetic limb, the maximum to-hit modifier applied for such weapons is +2.

Construction Rules: Each set of improved prosthetic limb augmentations may be applied up to 2 times per trooper, for a maximum of 4 items “installed” per trooper (2 pairs of items per trooper). The costs for each augmentation apply per trooper.

Prosthetic Limbs, Extraneous (Enhanced) Limbs

Era: Jihad (3068-3085)

Factions: Capellan Confederation

Unit Types: CI

Word of Blake technology enabled the Thuggee Phansigars to explore monstrous options even their own one-time allies had scarcely considered, leading to exotic prosthetic modifications made for the battlefield. Alongside the tail and wings, the Thuggee cyborgs also introduced extraneous prosthetic limbs in an effort to invoke the imagery of the Hindu death goddess they worshipped. Naturally, these extra limbs also incorporated weapons and other items similar to the standard enhanced prosthetics, though their utility was ultimately limited by the limits of the human nervous system.

Game Rules: Extraneous prosthetics work in the same manner as the standard prosthetic enhancements, except they add up to two more limbs to the warrior (be they arms or legs) than a human being is normally born with. These extra weaponized limbs are always added in pairs, provide the warrior with an additional two enhanced prosthetic items that can be used in battle. Thus, a warrior who has two standard prosthetic arms with a weapon in each (or two improved prosthetic arms with two weapons in each), could add two *more* weapons to this combination via a pair of extraneous arms.

As these additional limbs are mounted in pairs, the items mounted in them must be of the same type, but need not match the items found



in any other enhanced prosthetics the warrior might be using. Any damage and bonus effects these items provide will stack.

As always, if melee weapons are placed on an extraneous prosthetic limb, the maximum to-hit modifier applied for such weapons is +2.

Extraneous limbs cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their extra limbs first.

Construction Rules: Extraneous prosthetic limbs are always mounted in pairs, the cost of which is counted on a per-trooper basis, with a maximum of two pairs of extraneous limbs permitted per warrior (one pair, if the warrior is also using either glide wings or flight wings). Extraneous prosthetic limbs may mount only one item per limb (thus providing two items of identical type per limb-set added).

Prosthetic Tail, Enhanced

Era: Jihad (3068-3085)

Factions: Capellan Confederation

Unit Types: CI

Once an expensive (but virtually useless) cosmetic modification designed for elaborate “costume parties” during the days of the first Star League, the combat version of the prosthetic tail appeared in the Jihad as a special enhancement unique to the Manei Domini-inspired Thuggee Phansigars. Featuring increased reach, armor, triple-strength myomers and retractable blades, these tails were made to both enhance the close-quarters combat potential of the Phansigars’ shock troops, and to serve as a psychological weapon.

Game Rules: Prosthetic tails are only effective with conventional infantry units, where they add 0.21 damage points per trooper against any target in the unit’s same hex. As this is a melee attack, a +2 to-hit modifier applies to make this attack, reflecting the effort to close in to apply this damage.

Prosthetic tails cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this prosthetic may operate such units by simply detaching their tails first.

Construction Rules: Only 1 enhanced prosthetic tail may be installed per warrior. As with all augmentations, the cost of the prosthetic is added to that of the warrior himself.

Prosthetic Wings, Glider

Era: Jihad (3068-3085)

Factions: Capellan Confederation

Unit Types: CI

Another elaborate cosmetic prosthetic adapted for combat by the Thuggee Phansigars, glider wings consisted of a collapsible framework grafted onto the warrior’s back and made of flexible yet sturdy material. At full extension, these wings—often formed to resemble bird or bat wings—were used to assist in free-fall

operations or even provide unpowered, short-range flight when air currents are good. However, as the wings were developed for “hands-free” operation (unlike a hang glider or parafoil), the control systems effectively interfered with the operative’s normal motor control in the same way that extraneous limb prosthetics did. While gliding, this typically meant that the operative’s legs (or arms) had to “shut off,” making landings a tricky affair.

Game Rules: Infantry units equipped with glider wings may dismount from VTOL units (and DropShips hovering over the ground map) as a jump infantry platoon (see p. 225, *TW*), so long as they are not operating in vacuum or very thin atmospheres. This gliding ability also protects such units against damage from falls, whether from their own actions (walking off terrain 2 or more levels high, including buildings) or by displacement (see p. 151, *TW*).

Glider wings cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their wings first.

Construction Rules: An infantry unit augmented with wings may only choose one set of glider wings per trooper, but cannot install these wings in conjunction with powered flight wings. If the trooper is also using extraneous prosthetic limbs, the glider wings will limit the warrior’s maximum number of extraneous limbs to only one “pair”.

Prosthetic Wings, Powered Flight

Era: Jihad (3068-3085)

Factions: Capellan Confederation

Unit Types: CI

An even more radical variation on the glider wings discussed earlier, the powered flight wings prosthetic system combined a much more elaborate wing design—complete with the ability to flap and angle for better wind management—with a series of chemical jets and reinforced cybernetic “launch legs.” The result was a combination of gliding and vectored thrust that enabled its user to literally fly for short durations.

Game Rules: In addition to receiving all of the benefits of glider wings (see above), conventional infantry units equipped with powered flight wings also receive 2 MPs of VTOL movement as long as they are not operating in a vacuum.

Powered flight wings cannot be used by any other unit type—including battle armor—but are removable, so that warriors fitted with this enhancement may operate such units by simply detaching their wings first.

Construction Rules: An infantry unit augmented with wings may only choose one set of powered flight wings per trooper, but cannot install these wings in conjunction with glider wings. If the trooper is also using extraneous prosthetic limbs, the flight wings will limit the warrior’s maximum number of extraneous limbs to only one “pair”.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

CENTURION WEAPON SYSTEM (STAR LEAGUE)

R&D Start Date: Circa 2760 (Star League)

Prototype Design and Production: Circa 2762 (Star League)

The Centurion Weapon System was devised in the late twentieth century as a non-lethal means of disabling the advanced Star League military technologies that had proliferated throughout the

Inner Sphere and Periphery. Practical testing and combat simulations quickly showed that even a modicum of electronics hardening and combat maneuvering would still render a target virtually invulnerable to this technology, but research continued nonetheless, and some systems even reached operational capability.



Essentially an energy weapon intended to produce a localized EMP on impact, the Centurion proved effective only against the oldest or most distressed equipment still in the field, and its use was eventually abandoned. During the Jihad, research into the Centurion and—in several rumored cases—copies of the prototype emerged as a side effect of the so-called “RetroTech craze”. While none of these efforts led to full-scale production at the time, they did eventually inspire the development of the more effective TSEMP weapons that emerged decades later.

CENTURION WEAPON SYSTEM GAME RULES

Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC

Tech Base (Ratings): Inner Sphere (E/FFFX)

Rules: The Centurion uses a directed EMP to overload the electronic systems on a target unit, and delivers attacks in the same manner as a standard laser attack (though it cannot make use of a targeting computer). However, the weapon's effective range bands vary based on whether or not the target is susceptible or resistant to its effects, as shown in the Centurion Weapon System Range Table. Susceptible targets may be affected at much greater ranges than those that are classified as resistant.

A unit is considered susceptible to the Centurion if any one or more of the following conditions apply:

- The unit uses Primitive technology or is built using the Primitive Units and RetroTech rules (see pp. 114-125), or is built as a FrankenMech (see pp. 213-214, CO).
- The unit is a Support Vehicle without the Armored or Environmental Sealing chassis modifications.
- The unit has the EM Interference, Poor Life Support, Poor Sealing, Poor Workmanship, or Prototype Design Quirks (see pp. 225-235, CO).
- The unit is using Commercial or Industrial Armor, or has lost all armor in more than one location.
- The unit has suffered at least one sensor critical hit.
- The unit is operating with any form of partial repair effect (see pp. 208-209, CO).
- The unit is physically older than 150 years. (This detail should be determined in advance by the players.)

CENTURION WEAPON SYSTEM RANGE TABLE

Target is...	Range (Min/Sht/Med/Long)
Susceptible to CWS	0/6/12/18
Resistant to CWS	0/1/2/3

Infantry units (including battle armor), and aerospace units exceeding 200 tons in total weight, are automatically immune to the effects of the Centurion Weapon System. All other unit types not considered susceptible to the Centurion Weapon System are considered resistant to its effects.

Upon a successful hit, the player controlling the target unit must immediately make a shutdown roll as if the target's heat level is 14 points higher than its current level. If the roll is successful, the unit continues to operate normally. If the roll fails, the unit shuts down at the end of the attack phase in which the hit occurred. The “heat” generated by a Centurion attack is not affected by the normal limits on heat from external sources, and is not actually applied to the unit's heat scale; it merely represents the surge caused by the Centurion's EMP.

If the unit struck by a Centurion Weapon System does not use a heat scale (i.e. the target is a vehicle or a battle armor unit), ignore the heat scale rule and simply roll 2D6 against a target number of 4 to avoid shutdown.

If the weapon successfully hits a unit that is already shut down in the current turn (for whatever reason) the unit remains shut down throughout the following turn.

CENTURION WEAPON SYSTEM CONSTRUCTION RULES

A unit may mount any number of Centurion weapons in accordance with its construction rules. As an energy weapon, the Centurion requires heat sinks and power amplifiers as appropriate when placed on a vehicles or units powered by non-fusion engines.

DARK AGE EQUIPMENT (DARK AGE)

Introduced: Variable (See Rules)

Despite the general decline in military build-up that followed the Jihad, a number of new technologies were introduced for use on the battlefield. While many of these were new—and often extra-specialized—armor and weapons, others included the non-lethal TSEMP weapon, HarJel-based battlefield armor-repair system, and an upgraded, self-refreshing coolant system dubbed the radical heat sink.

Note: Dark Age technology innovations also included a few altogether new unit types, like the Clan QuadVees or the superheavy tripod 'Mechs often referred to as “Colossals”. These distinctive new units will be covered separately in this chapter.

ANTI-PENETRATIVE ABLATION (ABA) ARMOR

Introduced: 3114 (Draconis Combine)

Often shortened to “ablative” armor (despite not at all resembling the anti-laser personal armor that uses the same term), anti-penetrative ablation armor is specifically designed to thwart the effects of armor-penetrating munitions and tandem-charge missiles.

This is accomplished by enhancing otherwise-standard armor plates with additional layers of ribbed or perforated steel. This feature warps incoming penetrator rounds and explosives before they even reach the internal structure, but does nothing against lasers, particle weapons or raw kinetic rounds. This armor has seen limited deployment, mainly because its added weight barely offsets its benefits against special munitions.

Anti-Penetrative Ablation (ABA) Armor Rules

Rules Level: Advanced

Available to: BM, IM, CV, SM, AF, CF

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: As long as the location struck still has at least 1 point of armor remaining, ABA Armor applies an additional –2 roll modifier to the critical hit check for all attacks made by weapons with armor-piercing abilities, including armor-piercing autocannon ammo, tandem-charge missiles, and tasers of all kinds. This modifier also applies to the special armor-defeating critical checks made for a hit location roll of 2 (whether

or not the Floating Critical rule is in play). In all other respects, ABA armor functions as normal. Critical hits to ABA armor slots have no effect.

Construction Rules: ABA armor provides 12 points of protection per ton of armor. It occupies 6 critical slots on 'Mech units, 1 on vehicles, and 1 on fighters (assigned to the fighter's aft location). ABA armor may be mounted on Omni-units, but may not be pod-mounted.

BALLISTIC-REINFORCED ARMOR

Introduced: 3131 (Draconis Combine)

Commonly referred to simply as "reinforced" armor, ballistic-reinforced armor was born as an attempt to combine and refine the features of Jihad-era hardened and reactive armors. The result was a less bulky, lighter-weight version of hardened armor, with an added layer of non-myomer cable mesh that helps trap and distort the effects of direct-fire ballistic shells and explosives.

Ballistic-Reinforced Armor Rules

Rules Level: Advanced

Available to: BM, IM, CV, SV, AF, CF

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: Each point of ballistic-reinforced armor absorbs up to two points of damage from attacks of the DB or M types before being destroyed. Leftover single points of damage are discarded, but a damage source will always destroy at least one point of this armor.

Construction Rules: Ballistic-reinforced armor provides 12 points of protection per ton of armor. It occupies 10 critical slots on 'Mech units, 1 on vehicles, and 2 for fighters (assigned 1 each to the fighter's wing locations). Ballistic-reinforced armor may be mounted on Omni-units, but may not be pod-mounted.

HEAT-DISSIPATING ARMOR

Introduced: 3123 (Capellan Confederation), 3125 (Clan Hell's Horses)

Derived from the Clans' fire-resistant armor tech, heat-dissipating armor staves off the system-taxing effects of incendiary weapons and fire against BattleMechs, but can only do so as long as the armor remains relatively intact. While otherwise effective against standard weapons as well, an unfortunate trade-off of this armor—which incorporates additional layers of insulation and modified sealants to achieve its thermal effectiveness—is that it provides less overall protection per ton than most other contemporary armor types.

Though the Capellan Confederation first put this new armor type into production, the Clans of the Inner Sphere followed suit. Interestingly enough, the Clan version is merely a copy of the Capellan formula, likely produced after the Hell's Horses Clan procured some samples with aid of Sea Fox merchants.



Draconis Combine BattleMechs make a defiant last stand to protect a shattered city block.

Heat-Dissipating Armor Rules

Rules Level: Advanced

Available to: BM, IM

Tech Base (Ratings): Inner Sphere/Clan (E/XXXE)

Game Rules: As long as the location struck still has at least 1 point of armor remaining, heat-dissipating armor reduces the external heat effects caused by flamers, plasma weapons, infernos, and other external sources (including fire) by half. Round this reduced heat effect down to the nearest point, to a minimum of 0 heat.

Construction Rules: Heat-dissipating armor provides 10 points of protection per ton of armor, and occupies 6 critical slots on 'Mech units, regardless of the technology base used. Heat-dissipating armor may be mounted on OmniMechs, but may not be pod-mounted.

IMPACT-RESISTANT ARMOR

Introduced: 3103 (Lyran Commonwealth)

As new armor types go, impact-resistant armor is arguably among the strangest. Developed originally for use in the arenas of Solaris VII and other gladiatorial venues, this armor reduces the effectiveness of physical attack damage caused primarily by 'Mech-grade melee weapons like hatchets and swords.

To accomplish this, its underlayment uses a far more flexible sealant formula and interlocking rings that are designed to yield under pressure and allow the armor "give" beneath broad-impact strikes. In addition, a thick, flexible shell—similar to combat vehicle tire and track treads—is layered over the armor along the broader surfaces. While this all renders the armor more effective against physical attacks, it also makes it more susceptible to breaches in hostile environments, or when struck by special armor-defeating munitions.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADVANCED ARMOR TABLE

Advanced Armor Type	Points per Ton	BM	IM*	Space		CF	AF	Construction Notes
				CV	SV*			
Anti-Penetrative Ablation	12	6	6	1	1	1	1	Fighter Slots: 1 (aft)
Ballistic-Reinforced	12	10	10	1	1	2	2	Fighter Slots: 1 (per wing)
Heat-Dissipating	10	6	6	N/A	N/A	N/A	N/A	None
Impact-Resistant	14	10	10	N/A	N/A	N/A	N/A	None

*Support Vehicles must have the Armored Chassis Mod and a Minimum Chassis Tech rating of D to install Advanced Armor; IndustrialMechs may only mount these armor types under Experimental Mixed-Tech rules.

PATCHWORK ARMOR ADDENDUM

Armor Type	Slots per Location*	Tons per Point
Anti-Penetrative Ablation	1 / 1	0.0833
Ballistic-Reinforced	2 / 1	0.0833
Heat-Dissipating	1 / N/A	0.1000
Impact Resistant	2 / N/A	0.0714

*Number left of slash applies to 'Mechs and support vehicles; number right of slash applies to fighters and combat vehicles.

Impact-Resistant Armor Rules

Rules Level: Advanced

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: As long as the location struck still has at least 1 point of armor remaining, impact-resistant armor reduces the damage effects from collisions, falls, and physical attacks of all types (including punches, kicks, charges, Death from Above, and the like) by 1 point for every 3 points delivered (or fraction thereof), to a minimum of 1 damage point. The armor has no effect against damage from other sources, and—due to its deliberately flexible under-layers—applies a +1 modifier to any rolls made when checking for hull breach in hostile environments, including underwater and vacuum.

Furthermore, if a location protected by armor is struck by weapons with armor-piercing capabilities—including armor-piercing autocannon ammo, tandem-charge missiles, and tasers of all kinds—all rolls for critical hits required for such munitions will receive an additional +1 modifier. This reflects the armor's added susceptibility to such attacks.

Construction Rules: Impact-resistant armor provides 14 points of protection per ton of armor, and occupies 10 critical slots. Impact-resistant armor may be mounted on OmniMechs, but may not be pod-mounted.

HARJEL REPAIR SYSTEMS

Introduced: 3136 (Clan Sea Fox [HarJel II]), 3139 (Clan Sea Fox [HarJel III])

Based on the original HarJel hull-sealing technology developed in the Homeworlds, and utilizing a similar compound discovered in the Twycross system eighty years ago, Clan Sea Fox improved upon this technology by combining it with a revolutionary form of hyper-fast hardening compound that could be pumped through tubes laced just beneath the armor plates of any 'Mech-sized unit. Though expensive in the extreme, and requiring extensive modifications that include effectively "re-skinning" the 'Mech designed to use it, HarJel II (and III) provides greater protection than the early BattleMech HarJel systems

developed in the 3060s by not only sealing against hull breaches, but even providing a degree of temporarily "regrown" armor strong enough to resist weapons fire.

HarJel Repair System Rules

Rules Level: Advanced

Available to: BM

Tech Base (Ratings): Clan (F/XXXX)

Game Rules: HarJel repair systems are available in two forms, known as HarJel II and HarJel III. Both remain operational as long as the location they are mounted in retains at least 1 point of armor protection and the HarJel repair system in that location has not itself suffered a critical hit. HarJel repair systems provide a +2 target number modifier to all rolls made when checking the unit's hull integrity in hostile environments or underwater (see p. 121, TW). In addition to this, each turn a location protected by a HarJel repair system suffers armor damage, the unit will recover 2 points of armor protection in that location (4 for HarJel III) during the following End Phase. While they can repair more armor in this fashion than was actually damaged by the attack during that turn, the number of armor points restored to any given location may never exceed that location's starting armor value. For torso locations, the replaced armor points must be split as evenly as possible between front and rear facings if both facings are damaged (if not, any excess HarJel repair points will go to the facing that still has damage).

HarJel repair systems cannot restore internal structure, nor can they restore damage to internal components.

A critical hit to either HarJel repair system destroys the component completely and forces the controlling player to make an additional check for additional critical hits as if the location suffered an ammunition explosion (though no checks are required for pilot damage). Destroyed HarJel slots cannot be repaired; they must be replaced. A unit equipped with HarJel repair system automatically receives the Difficult to Maintain Design Quirk (see p. 231, CO).

Construction Rules: HarJel is only compatible with units that employ standard, heavy industrial, light ferro-fibrous, standard ferro-fibrous,



and heavy ferro-fibrous armor. HarJel repair systems can only be mounted on BattleMechs. OmniMechs that use HarJel repair systems must always treat them as fixed items, as this equipment may not be pod-mounted.

Each HarJel repair system is mounted separately, and protects only one body location; each protected location may only mount one HarJel repair system.

Units may not combine different HarJel repair systems. Thus, if a unit mounts HarJel II in one location, all other HarJel repair systems mounted on the same unit must be HarJel II.

RADICAL HEAT SINKS

Introduced: 3122 (Federated Suns)

More properly known as the reclaimed coolant flush injector, the so-called “radical heat sink” system is, in effect, a logical upgrade to the coolant pod technology prototyped by the Federated Commonwealth in 3049. Where the original pods proved to be one-shot devices, this system enables a ‘Mech or fighter to make more frequent flushes in combat.

The repeatability is not without some risk, however; while the flush lines have been reinforced and better insulated to enable its functions, there exists a significant chance of rupture over time, especially if the warrior relies too heavily on the system to keep heat levels under control during an intense firefight. For this reason, many pilots and MechWarriors are cautioned to treat the “radical heat sink” system as if it has a more limited recharge supply, stressing that it should be used only in cases of extreme emergency.

Radical Heat Sink Rules

Rules Level: Advanced

Available to: BM, IM, AF

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: The radical heat sink system works like the coolant pod (see p. 115-116, *TO:AUE*), except that it can be activated more than once during a scenario. Unfortunately, repeated use of this system—especially in rapid succession—raises the chances for a catastrophic failure.

A radical heat sink system may be triggered only once per turn—at the start of the unit’s Heat Phase—and increases the cooling capacity of the unit’s functioning heat sinks by 1 point each in that turn (regardless of heat sink type). Each time the radical heat sink system is used, the unit’s controlling player must roll 2D6 and compare it to the Radical Heat Sink Failure Table, based on the number of consecutive turns the device has been used at that point. If this roll equals or exceeds the number indicated in the Avoid Failure On column, the device continues to work normally. If the roll fails, apply 1 critical hit to the radical heat sink system, starting with the upper-most undamaged slot.

RADICAL HEAT SINK FAILURE TABLE

Number of Turns Used*	Avoid Failure On
1	3
2	5
3	7
4	10
5	11
6+	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 2).

For each turn the unit does not use its radical heat sink system, the failure chance reduced by one level, to a minimum failure roll of 2 or less. (Astute players will notice that this failure chance is the same as that of the MASC system.)

Unlike the coolant pod, the radical heat sink system will not explode if it suffers a critical hit in combat. Instead, a damaged device will leak coolant from the unit’s entire heat exchange system for the remainder of the scenario. To reflect this effect, increase the heat costs for all movement actions by +1 every time a unit with a damaged radical heat sink system moves (even fighters will add +1 heat for any turn in which they expend Thrust). Furthermore, if a unit with a damaged radical heat sink system fires any weapons, apply an additional +1 heat to the total weapon heat generated in that turn. (Moving and firing weapons thus adds +2 total heat to the unit that does so with a damaged radical heat sink system.)

Construction Rules: Only BattleMechs, IndustrialMechs, and aerospace fighters may mount a radical heat sink device, which must be placed in a torso location. A unit may mount only one radical heat sink system at a time, and may not mount coolant pods on the same unit. The radical heat sink system may be pod-mounted.

RE-ENGINEERED LASERS

Introduced: 3130 (Federated Suns)

The “re-engineered” laser weapon was developed in an attempt to mate the high-power effects of Clan heavy lasers with the enhanced accuracy and high-firing rate of a pulse laser. Numerous revisions to balance the heat, damage, and range factors that made such a design impractical, finally resulting in a weapon scarcely more effective than standard-model lasers, but for one curious feature: the ability to completely defeat the beneficial effects of anti-laser specialty armors. This effect is largely due to a high-frequency/short-pulse compromise system that emerged in the laser’s redesign, which delivers a powerful twin burst to roughly the same impact point that, while not potent enough to produce a great deal more damage than standard hits, has the benefit of boring away through several of the newer armor types introduced since the Jihad—including laser-reflective, ferro-lamellor, and even hardened armor—while still delivering enough explosive force to make up for the damage lost in the effort.

Re-engineered Laser Rules

Rules Level: Advanced

Available to: BM, IM, PM, CV, SV, AF, CF, SC, DS, JS, SS, WS, MS

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: Even though they are technically pulse lasers, re-engineered lasers only apply a –1 to-hit modifier to weapon attacks, as their pulses are too brief and close together to gain the full targeting modifier of such weapons. Re-engineered lasers ignore the damage-reducing effects of laser-reflective armor, ferro lamellor armor, and even hardened armor. (In all of these cases—even hardened armor—this means that the armor is damaged as if it is standard armor when hit by a re-engineered laser, with the number of armor points lost equal to the re-engineered laser’s damage value.)

Construction Rules: Re-engineered lasers may be mounted in accordance with the appropriate unit’s standard construction rules for mounting weapons.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

REMOTE DRONE COMMAND CONSOLE

Introduced: 3140 (Republic of the Sphere)

This specially modified form of the Cockpit Command Console enables units with limited seating space—particularly BattleMechs and fighters—to operate a remote drone via the second pilot in the unit's cockpit area. Though a simple enough evolution of technologies that have existed since the days of the Star League, the fact that conventional, vehicle-based drone carrier control systems already existed precluded any real need for such a system. It was thus not until quite recently that remote drone operation was integrated into a "dual cockpit" system, with the first prototypes introduced by Lyran engineers in recent Solaris arena duels as a gimmick, before showing up in RAF usage.

Remote Drone Command Console Rules

Rules Level: Advanced

Available to: BM, IM, AF, CF

Tech Base (Ratings): Inner Sphere (E/XXXX)

Game Rules: A unit using a Remote Drone Command Console (RDCC) adds a MechWarrior damage condition monitor to its record sheet, to reflect the drone operator occupying the command console. During any End Phase, this "secondary warrior" may swap positions with the unit's pilot, effectively becoming the unit's pilot while the other warrior takes over the secondary position.

For 'Mech and fighter units, the secondary warrior suffers no damage from ammunition explosions, though heat effects and damage done to the cockpit location does affect both warriors. (For 'Mech-based consoles, both warriors must make Piloting Skill rolls to avoid damage in the event of a fall.) If the primary cockpit slot in a BattleMech or aerospace unit is destroyed, the secondary pilot automatically takes over the unit. If both cockpit slots are destroyed, the unit is considered destroyed per standard rules.

The secondary warrior uses the RDCC to remotely operate a single unit that has been fitted with a Drone (Remote) Operating System (see p. 117, *TO:AUE*). When doing so, the console functions in the same manner as a Drone (Remote) Carrier Control System (see pp. 117-118, *TO:AUE*). The operator of a RDCC can control only a single drone during a single game turn, but may switch to any other available friendly drone at the start of a subsequent turn. (For the purposes of these rules, a friendly remote drone is considered to be "available" if the drone is functional, free from interference, and not already under the control of another command console or carrier control system.)

Construction Rules: Remote Drone Command Consoles must always be placed in the same location as the primary cockpit (usually the head of a 'Mech or the body of a vehicle). A Remote Drone Command Console cannot be placed on a unit that also has either a Cockpit Command Console or a Drone (Remote) Carrier Control System.

TIGHT-STREAM ELECTRO-MAGNETIC PULSE (TSEMP) WEAPONS

Introduced: 3095 (Republic of the Sphere [TSEMP OS]), 3109 (Republic of the Sphere [TSEMP Cannon])

Tight-stream electromagnetic pulse weapons (TSEMPs for short) were derived from abandoned Word of Blake research based on the original Star League's Centurion Weapon System project. First introduced by the Republic of the Sphere as a single-shot version, a newer repeating-fire version eventually followed.

As the name implies, TSEMPs are basically targeted-EMP weapons, intended to disrupt or even shut down opposing machinery—including BattleMechs—without relying on the harpoon line/fusion surge of Jihad-era tasers. Although their use also tends to interfere with the firing unit's other advanced electronics, stealth equipment, and targeting systems, the TSEMPs' effectiveness and reusability eventually rendered taser weapons obsolete.

TSEMP Weapon Rules

Rules Level: Advanced

Available to: BM, IM, PM, CV, SV, AF, CF, SC, MS

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: TSEMP weapons are only effective against targets weighing no more than 200 tons and only deliver effects against conventional infantry if they are cybernetically augmented (in which case, a successful TSEMP attack is resolved as a standard machine gun, delivering 2D6 burst damage to the unit).

Both the TSEMP Cannon and the one-shot TSEMP (TSEMP OS) deliver attacks in the same manner as standard direct-fire energy weapons, but ignore any effects from specialty defenses (such as heat-resistant and laser-reflective armors or the Blue Shield PDS).

Except as noted above when attacking cybernetically-augmented infantry, TSEMPs inflict no physical damage to a target unit. Instead, upon any successful hit, the attacker makes a second 2D6 roll to determine the effects, applying a -2 to the result if the unit is powered by steam engines, or -1 if the unit is powered by internal combustion engines. An additional -2 modifier is added if the target weighs 100 tons or more. Any modified result of less than 2 is treated as a 2.

The TSEMP Effects Table shows the range of results the roll result required to cause any effects by target unit type. A result of that falls under the "No Effect" range for a unit indicates that the target suffers no significant effect from the attack. A result that falls under "Interference" indicates that the target's sensors and electronics experience a surge that will apply a +2-to-hit modifier for all weapon attacks and sensor operation checks, while also treating the target unit as though it is operating within a hostile ECM field. A result that falls under the "Shutdown" column indicates that the unit experiences a shutdown effect.

Any effects from a successful TSEMP attack will last until the End Phase of the turn after the target unit was hit, after which the target will resume operating normally. An effect of "NA" means the specified target cannot be affected by a TSEMP attack.

TSEMP EFFECTS TABLE

Target Unit	No Effect (2D6 roll)*	Interference (2D6 roll)*	Shutdown (2D6 roll)*
BattleMech	2-6	7-8	9+
IndustrialMech	2-5	6-7	8+
ProtoMech	2-5	6-8	9+
Battle Armor**	2-5	6-7	8+
Combat Vehicles	2-5	6-7	8+
Support Vehicles	2-4	5-6	7+
Aerospace Fighter/Small Craft	2-6	7-8	9+
Conventional Fighter	2-5	6-7	8+
Target Mass: 100+ tons	-2 to roll	-2 to roll	-2 to roll
Target Mass: 200+ tons	NA	NA	NA
Mobile Structure	NA	NA	NA
Conventional Infantry	NA	NA	NA

*Apply a -2 to the roll result if the target is powered by a Steam engine (-1 for ICE engines)

**For simplicity, a TSEMP attack against battle armor affects the entire squad equally



In addition to affecting its target, the unit firing a TSEMP will automatically suffer the effects of a TSEMP-delivered Interference effect on itself (as described above). Furthermore, because the TSEMP Cannon requires time to recharge, the weapon cannot be fired in consecutive turns.

Multiple TSEMP weapon attacks against the same target in the same turn add a +1 modifier to the Effects roll against that target (to a maximum stacking modifier of +4). Each Effects roll resolves separately, so the first TSEMP hit resolves with no stacking modifier, while the second receives a +1 stacking modifier, the third receives a +2, and so forth. This stacking effect only applies to the Effects roll, however; multiple Interference effect results will not stack.

Critical hits to a TSEMP Cannon (or a TSEMP OS that has not yet been fired) will result in a 10-point internal explosion due to the intense power surge that is released. This is treated in the same way as a Gauss weapon explosion. Like Gauss weapons, TSEMP explosions cannot be triggered by excess heat.

Construction Rules: TSEMP weapons may be mounted in accordance with the appropriate unit's standard construction rules for mounting weapons. TSEMP cannons can only be mounted and used by units powered by fusion or fission engine types. The TSEMP One-Shot may be mounted on units powered by non-fusion engines, but will require heat sinks and power amplifiers as per the normal rules for mounting an energy weapon on such units.

DARK AGE RISC EQUIPMENT (DARK AGE)

Introduced: Variable (See Rules)

The Republic Institute of Strategic Combat (RISC) was a short-lived think tank that developed a range of experimental weapon and equipment systems throughout the 3130s. Some of these developments—often based on already-existing equipment—reached prototype status and found their way to the field as such, but many remained on the drawing board.

Though some of these advanced technologies proved impressive in their limited applications, many also suffered from catastrophic failure rates. As a result, only one piece of RISC technology—the advanced point-defense system—was eventually adopted by Republic industries and reached production status by the end of the Dark Age era. The rest were abandoned by the mid-3140s.

RISC ADVANCED POINT DEFENSE SYSTEM

Introduced: 3134 (Republic of the Sphere [Battle Armor]), 3137 (Republic of the Sphere [Standard])

The advanced point defense system (APDS) was developed as an improved anti-missile system, boasting increased accuracy and a broader field of fire than possible with previous ballistic and energy-based models. Using enhanced target triangulation, this defensive weapon could engage any missile attack that passed within ninety meters of its position. Unfortunately, the APDS lacked the ability to function effectively in aerospace applications, and proved itself prone to rapid ammo-depletion as a consequence of its greater range and sensitivity.

Despite these flaws, the APDS project was spared a premature cancellation when Rhodes Foundry Ltd. managed to introduce an effective small-scale version for use on battle armor. First deployed on their "Aegis" suits (a customized variant on StarCorps' Angerona model), the reduced-size APDS made it possible for battle armor troops to help protect larger units against missile fire.

Advanced Point Defense System Rules

Rules Level: Advanced

Available to: BA, BM, IM, CV, SV, MS

Tech Base (Ratings): Inner Sphere (E/XXXE)

Game Rules: The APDS functions as a standard anti-missile system in game play (see pp. 129-130, *TW*), with the following exceptions:

- The APDS is ineffective when used by aerospace units (including airborne Support Vehicles and mobile structures).
- As long as it is active, an APDS may engage any missile weapon attack directed against a friendly unit within the APDS' range and firing arc.
- If engaging a missile attack made against its own unit (or against a friendly unit in its own hex), the APDS applies a -4 modifier to

missile attack's roll on the Cluster Hits Table (Streak launchers are presumed to have made a base roll of 11 for the purposes of this rule.) This modifier increases by 1 for every hex away from the APDS-equipped unit that the system attempts to defend. Thus, if defending an adjacent friendly unit, the APDS applies a -3 Cluster Hits modifier; a -2 modifier if defending a friendly unit 2 hexes away; and a -1 modifier when defending a friendly unit 3 hexes away. The APDS cannot engage missile flights farther than 3 hexes away. When in doubt, the hex nearest to the unit being defended by an APDS is used to identify the appropriate Cluster Hits Table modifier.

- If the modified Cluster Hits Table roll result is less than 2, the missile flight is completely destroyed by the APDS.
- If the missile weapon normally fires only a single missile in a shot (such as a Narc Missile Beacon), roll 1D6: on a result of 1-3 the missile is destroyed, on a result of 4-6 the missile strikes the target. Modify the result by +1 if the defending unit up to 2 hexes away or by +2 if defending a unit 3 hexes away.
- Battle armor squads equipped with an APDS use this system as a group, but reduce the range 0 Cluster Hits effect to -3 if only 2 or 3 troopers are active in the squad; and -2 if the squad has only 1 active trooper remaining. (A squad of 4 or more troopers receives the normal -4 Cluster Hits effect at range 0.) All other effects for range remain as indicated above.
- Each APDS may only engage 1 missile attack per turn, regardless of how many APDS items the unit mounts in the same arc. (Battlesuit squads with APDS equipment are always counted as a single APDS for the purposes of these rules, and thus can only engage one missile flight per squad.) It is therefore up to the player controlling any unit with multiple APDS mounts to identify which APDS is engaging which missile flight.
- The defensive abilities of an APDS may be combined with that of a different anti-missile system type (be it standard, Clan, or laser-based). In this case, a single missile flight may only be targeted by 1 APDS and 1 AMS in the same turn. In this case, the Cluster Hits roll is modified by the effective modifiers of both systems together, imposing a modifier as severe as -8 against the attack. Once more, an effective Cluster Hits roll reduction to less than 2 will indicate the complete destruction of the entire missile flight.
- Each time a standard APDS is used, it consumes 1 shot of ammo and generates heat in accordance with the item's standard rules. (As with all ballistic weapons, battlesuit APDS units do not track ammunition in normal gameplay.)
- As a ballistic weapon, the APDS generates no heat when fired by non-heat tracking units.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Construction Rules: Units may mount more than one standard APDS, but must follow the core construction rules for the unit regarding ammunition placement and such. Though classed as a heavy weapon, the APDS is automated, and does not require gunners on any unit type. It does, however, require advanced fire control systems to be mounted on support vehicles, IndustrialMechs, and mobile structures.

The battle armor version of the APDS may only be mounted on battle armor units, weighs 350 kilograms, and requires 2 item slots on the suit's chassis. The battlesuit APDS may be installed in modular mounts. Each additional magazine of battlesuit APDS ammo weighs 15 kilograms and provides 6 rounds of fire.

Airborne support vehicles (including airship, fixed-wing, and satellite support vehicles) and airborne mobile structures may not mount the APDS.

RISC EMERGENCY COOLANT SYSTEM

R&D Start Date: 3135 (Republic of the Sphere)

Prototype Design and Production: 3136 (Republic of the Sphere)

The Federated Suns' "Radical Heat Sink" system was already more than ten years old when the Republic of the Sphere began its research into improvements in the technology aimed at lessening its overall mass and bulk. Combined with other heat-management technologies, such as the heat sink override kit and super-cooled myomers, this improved coolant system could theoretically aid any 'Mech in maintaining its battlefield prowess even under intense fire—a crisis often faced by RAF units in the wake of the HPG network failure.

While the ultimate outcome of these projects could have collectively made it possible to devote more tonnage than ever before, the prototypes that emerged for each one left much to be desired. The emergency coolant system, for example, proved more prone to catastrophic rupture than the radical heat sink system, with the added hazard of damaging the unit's engine as well. The decision to wire the ECS up in such a way that it could not be deliberately overused mitigated the effects somewhat, but not enough for the system to ever pass approval for mass production.

Emergency Coolant System Rules

Rules Level: Experimental

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (F/XXXF)

Game Rules: The emergency coolant system automatically triggers in the End Phase of any turn where the unit's heat level 14 points or higher. At heat levels of 13 points or less, the system simply will not engage, even though it is "always on" for the purposes of resolving critical damage.

Each time an emergency coolant system is triggered, the unit's controlling player must roll 2D6 and compare it to the emergency coolant system Failure Table, based on the number of consecutive turns the device has been activated at that point. If this roll equals or exceeds the number indicated in the Avoid Failure On column, the device continues to work normally, and will reduce the unit's current heat level by 6 points plus the roll's margin of success.

If the roll fails, the emergency coolant system will suffer a catastrophic blow-out, which not only destroys the system itself, but inflicts an automatic critical hit to the first critical slot of the engine in the coolant system's location. (If there are no engine critical slots available in the system's location, the critical engine hit "transfers" to the next-most inward section of the unit's body and inflicts a critical engine hit there instead.) On top of this, the unit will leak coolant so badly that the heat costs for all movement actions will be increased by +1 heat point for any movement actions other than standing still, and an additional +1 heat point must be applied to the total heat generated if the unit fires

any weapons during the Combat Phase.

A blow-out caused by a failed system failure roll is not treated as an internal ammo explosion for pilot damage purposes, and inflicts no additional structural damage.

For each turn the unit does not use its emergency coolant system, the failure chance is reduced by one level, to a minimum failure chance of 3 or less.

If the emergency coolant system suffers a critical hit, it will explode for 5 points of internal structure damage, resolved as a standard ammo explosion, with critical damage checks made in accordance with standard rules. Additionally, the 'Mech will suffer from the same coolant leak effect for movement and weapons fire as detailed above. Because a critical hit releases the system's pressure more directly, the automatic engine critical does not occur in this case.

Construction Rules: Only BattleMechs and IndustrialMechs may mount an emergency coolant system (ECS). Such units may only mount 1 ECS at a time, and must place the system in a location that also contains engine critical slots. The ECS cannot be combined with a radical heat sink system or coolant pods on the same unit, but may be combined with a heat sink override kit, super-cooled myomers, and all of the heat sink types available to 'Mechs.

The emergency coolant system may not be pod-mounted, but can be part of an OmniMech's base chassis.

EMERGENCY COOLANT SYSTEM FAILURE TABLE

Number of Turns Used*	Avoid Failure On
1	3+
2	5+
3	7+
4	10+
5	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 3).

RISC HEAT SINK OVERRIDE KIT

R&D Start Date: 3133 (Republic of the Sphere)

Prototype Design and Production: 3134 (Republic of the Sphere)

RISC's heat sink override kit was a somewhat dubious side project at best. Little more than a modification of the engine temperature sensors, backed up by a software patch, the override kit impairs the normal emergency shutdown process, slowing it down by a combination of false data reporting and mechanical inhibitors in the engine itself. Overall, this makes it easier for pilots to abort a heat-induced shutdown without overtly removing all safety protocols entirely, but accomplishes little else to boost the 'Mech's performance. In fact, field tests of the system have demonstrated a chance for catastrophic engine damage as a result of an ill-timed override, a condition that can cripple the unit at a critical moment, when simply better heat management would have averted such a disaster.

Heat Sink Override Kit Rules

Rules Level: Experimental

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (D/XXXF)

Game Rules: The heat sink override kit applies a -2 target modifier to the MechWarrior's roll to avoid a shutdown from extreme heat levels. The kit only applies to shutdown avoidance checks, however, and has no effect on ammunition explosion checks, pilot damage from extreme heat, and the like.



In addition, on an unmodified shutdown-avoidance roll of 2, the heat sink override will catastrophically malfunction, causing damage to the unit's engine. Resolve this effect as a critical hit check to the 'Mech's center torso, applying 1 additional critical hit to the roll result. (Thus, a roll result of 7 or less will still cause 1 critical hit, while a roll result of 12 will inflict 4 critical hits, rather than 3.) All critical hits that result from an override kit malfunction are applied to the 'Mech's engine, starting with the top-most undamaged engine slot and continuing downward. If all of the 'Mech's center torso engine slots are marked off in this manner, the engine is considered destroyed and cannot be repaired. Excess engine critical hits from an override failure are not applied elsewhere, and have no further effect.

Construction Rules: The heat sink override kit can only be installed on a 'Mech, and occupies no weight or critical slots. Nevertheless, an override kit must be noted among the unit's weapon list on the record sheet.

RISC HYPER LASER

R&D Start Date: 3133 (Republic of the Sphere)

Prototype Design and Production: 3134 (Republic of the Sphere)

The hyper laser may have been the ultimate development in heavy laser technology. Despite being derived from Clan-made improved heavy lasers, the hyper laser prototypes were constructed entirely by RISC engineers.

Pushing the physical limits of modern laser shielding and plasma lasing chemistry, the hyper laser promised both incredible range and destructive power, but the prototypes demonstrated immense physical and thermal stress that made the weapon especially prone to explosive malfunctions. In at least one Republic "false flag" operation, this catastrophic flaw turned the tide of battle against a *Mad Cat Mk IV* that had been specially fitted with hyper lasers, and likely contributed to the project's eventual cancellation.

Hyper Laser Rules

Rules Level: Experimental

Available to: BM, IM, CV, SV, CF, AF, SC, DS, JS, WS, MS

Tech Base (Ratings): Inner Sphere (F/XXXF)

Game Rules: The hyper laser functions as a standard laser weapon in game play. In addition, much like improved heavy lasers, the hyper laser will explode if it suffers a critical hit. An exploding hyper laser will deliver 10 points of damage to the unit's structure and immediately destroys all of the weapon's critical slots.

Worse still, any unmodified attack roll result of 2 or 3 by a hyper laser will result in the same effects as a critical hit against the weapon, and will deliver no damage to the target (even if the roll would ordinarily result in a hit).

Construction Rules: Hyper lasers may be mounted in accordance with the appropriate unit's standard construction rules for mounting energy weapons. Due to the considerable power requirements of the weapon, a fusion or fission engine is required for any unit that is to carry a hyper laser.

RISC LASER PULSE MODULE

R&D Start Date: 3134 (Republic of the Sphere)

Prototype Design and Production: 3137 (Republic of the Sphere)

The advanced RISC laser pulse module picked up on truncated research into X-Pulse lasers dating back to the days of the Clan Invasion. Designed to achieve the rapid-fire effect of pulse lasers through use of a special add-on module

affixed to standard lasers, its goal was to retain the standard laser's inherent range, rather than sacrifice hitting distance for accuracy.

While arguably one of the most promising of RISC's endeavors, the laser pulse module never reached production status before the RISC was absorbed into various military branches and industries. The prototypes that hit the field therefore offered only a modest improvement in providing standard lasers with pulsing capability, while simultaneously producing an increased cost in heat and the potential for catastrophic failure that could destroy both the pulse module and the laser to which it was attached.

Laser Pulse Module Rules

Rules Level: Experimental

Available to: BM, IM, PM, CV, SV, CF, AF, SC, DS, JS, WS, MS

Tech Base (Ratings): Inner Sphere (F/XXXF)

Game Rules: Any standard or ER laser modified by a RISC laser pulse module may select to fire in standard mode—using its existing heat, damage, range, and attack modifiers—or pulse fire mode. The pulse fire mode retains the weapon's range and damage values, but applies an additional -2 to-hit modifier to the attack, and increases the weapon's total heat generated by 2 points (regardless of weapon size).

In addition to the above, if an undamaged laser pulse module suffers a critical hit, or if pulse module-modified laser rolls an unmodified attack result of 2 while firing in pulse mode, the weapon's pulse module will catastrophically fail. The resulting explosion is treated as a 2-point internal ammunition explosion and destroys the pulse module, but instead of rolling for additional critical hits normally, the unit will suffer 1 automatic critical hit to the first undamaged slot of the laser weapon that the module was used to modify. In all other aspects, this damage is treated as an internal ammo explosion.

If a laser weapon modified by a pulse module suffers critical damage before its attached pulse module, the pulse module will be rendered inert as well. Pulse modules that are rendered inert will not explode if they suffer a critical hit later.

Lasers modified by a laser pulse module may make use of targeting computers in either mode of fire; as per the standard targeting computer rules, lasers firing in pulse mode cannot use the targeting computer to attempt an aimed shot.

Construction Rules: Laser pulse modules may be attached to standard or ER lasers of any size, as long as they are constructed using an Inner Sphere technology base. A laser pulse module may modify only 1 laser at a time, and cannot be stacked. A laser may not be modified by more than 1 laser pulse module.

Regardless of the size and class of laser being modified, its attached laser pulse module weighs 1 ton and occupies 1 critical slot. This module must be placed in the same location as the laser it modifies. In the case of turret-mounted lasers, this also means that the module weight and space is counted in the weapon weight of the turret mechanism.

For all non-Mech units, the laser pulse module and the laser it modifies are considered a single weapon mount (support vehicles add 1 critical slot to the weapon, to correspond to the laser pulse module, but do not treat the module as a separate component). Vehicles and other non-heat tracking units must also mount additional heat sinks to account for the extra 2 heat points generated by a modified laser's pulse mode.

If the unit also carries a targeting computer, the weight of any laser pulse modules it carries must be counted as part of the weapon when calculating the computer's size or tonnage.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



RISC REPEATING TSEMP

R&D Start Date: 3131 (Republic of the Sphere)

Prototype Design and Production: 3133 (Republic of the Sphere)

One of the Republic of the Sphere's most revolutionary weapons was the tight-stream electromagnetic pulse (TSEMP) cannon, an energy-based weapon designed to disable armored targets without destroying them. This effort was as much motivated by public relations as it was an effort to conserve battlefield resources; having long billed itself as the forerunners of a new age of peace, the RAF saw the TSEMP as a rare opportunity to demonstrate this ideal even in combat.

By the early 3130s, the Institute of Strategic Combat felt that even the reusable TSEMP cannon—itsself an upgrade over an earlier one-shot version—could be further enhanced with an improved firing rate. Unfortunately, the so-called Repeating TSEMP never reached the same reliability as conventional TSEMP cannons. RISC still produced a small run of prototypes, some of which managed to reach the black market. The Republic only ever fielded this equipment on ad-hoc Omni configurations.

Repeating TSEMP Rules

Rules Level: Experimental

Available to: BM, IM, PM, CV, SV, AF, CF, SC, MS

Tech Base (Ratings): Inner Sphere (E/XXXXF)

Game Rules: Repeating TSEMP follows the same rules as the TSEMP cannon (see pp. 84-85), but—unlike the TSEMP cannon—the repeating TSEMP may fire every turn.

As with a TSEMP cannon, critical hits to a repeating TSEMP will result in a 10-point internal explosion due to the intense power surge released. This is treated in the same way as a Gauss weapon explosion. As with Gauss weapons, TSEMP explosions cannot be triggered by excess heat.

In addition to the above, the repeating TSEMP will also suffer the same effects as a critical hit on any unmodified attack roll of 2 made when using the weapon. A repeating TSEMP that explodes in this fashion will deliver no effects to the target, even if the roll would ordinarily hit.

Construction Rules: Repeating TSEMPs may be mounted in accordance with the unit's appropriate standard construction rules for mounting energy weapons, but only units powered by fusion or fission engine types may carry or use a repeating TSEMP.

RISC SUPER-COOLED MYOMER

R&D Start Date: 3132 (Republic of the Sphere)

Prototype Design and Production: 3132 (Republic of the Sphere)

Super-cooled myomer (SCM) was a RISC experiment that was abandoned not because of its ambitious scope, but because it represented a dead-end in the face of current technologies. Interlacing myomers with special friction-reducing fluids and secondary coolant lines, and sheathing key bundles in an extra layer of thermal insulation, the new musculature all but eliminated waste heat caused by routine movement.

The system was abandoned before the increased vulnerability of the cooling system was addressed, largely because superior heat dissipation systems already existed, and the added complexities involved in producing, installing, and maintaining super-cooled myomers rendered the concept far more troublesome to employ than it was worth.

Super-Cooled Myomer Rules

Rules Level: Experimental

Available to: BM

Tech Base (Ratings): Inner Sphere (F/XXXXF)

Game Rules: A BattleMech equipped with super-cooled myomers does not generate any movement heat for walking, running, sprinting, or executing any other movement actions that use ground MPs. When using jumping or UMU MPs, the 'Mech will generate movement heat per its normal rules.

Unlike other myomer types that occupy critical slots, critical hits to super-cooled myomer slots are not rerolled, but instead are marked off as component damage. When a super-cooled myomer slot is hit (or a location containing super-cooled myomer slots is destroyed), mark off one of the unit's heat sinks, to reflect a loss of the unit's overall heat dissipation capability. Super-cooled myomers will still retain their ability to negate ground movement heat after suffering critical hits, but only as long as at least 1 of the myomer's critical slots are not destroyed.

Critical hits to other heat sinks on the unit are resolved as normal. If a unit with super-cooled myomers suffers enough critical hits—to both myomers and heat sink slots alike—to destroy more heat sinks than the unit actually features, additional critical hits to super-cooled myomer slots will have no further effect.

The use of super-cooled myomers also applies the effects of a Difficult to Maintain Design Quirk to the unit if maintenance and repair rules are in play (see pp. 191-209, CO).

Construction Rules: Super-cooled myomers can only be installed on BattleMechs (but not on IndustrialMechs), and may not be combined with MASC or triple-strength myomer on the same unit. The 6 critical slots occupied by super-cooled myomers must be distributed across the unit's arms, legs, and side-torsos (each location receives 1 critical slot apiece). Super-cooled myomer may not be pod-mounted, but can be used as part of an OmniMech's base chassis.

RISC VIRAL JAMMERS

R&D Start Date: 3135 (Republic of the Sphere)

Prototype Design and Production: 3136 (Republic of the Sphere [Decoy Jammer]), 3137 (Republic of the Sphere [Homing Jammer])

RISC's viral jammers might have been the ultimate weapon in electronic warfare, could they have been made more stable and reliable in the field. Effectively devised as a kind of smart "hacking" software—at least distantly related to the first Star League's Centurion weapon system—these systems produced a massive barrage of almost-randomly generated code that could interfere with hostile sensors and networking systems. The effect could overload enemy systems with indecipherable "junk data", creating a far more persistent effect than standard ECM fields alone.

The transmitter system and the purpose-built computers used to make these viral jammers work, however, proved to be volatile. With modern sensor arrays and electronics warfare equipment fairly well hardened against external interference, these jammers had to be purpose-built to defeat particular electronics system types, and burned out quickly in the effort to overpower these systems' inherent safeguards against interference.

This was particularly exacerbated by the fact that the viral jammers were literally "fire-and-forget" technology, incapable of shutting down once engaged, and so aggressive in countering foreign signals that they could potentially interfere with friendly and hostile EW systems alike. Although RISC's specialists were reportedly able to program the jammers to synchronize with friendly electronics, improper coordination protocols or a flaw in the jammers' design often saw the system cause havoc to friend and foe alike.

Viral Jammer Rules

Rules Level: Experimental

Available to: BM, IM, PM, CV, SV, MS

Tech Base (Ratings): Inner Sphere (F/XXXXF)

Game Rules: Viral jammers can only be used by units on the ground map. Airborne units (including airborne support vehicles, mobile structures, or any other unit type that uses Thrust Points), cannot effectively use viral jammer units unless they are landed.





Regardless of the type used (decoy or homing), a viral jammer may be activated at the start of the unit's turn, as a free action during the unit's Movement Phase. Once activated, the jammer may not be disengaged for the remainder of the game, but will become inactive if the unit shuts down for any reason (such as overheating or destruction). A viral jammer that becomes inactive for any reason cannot be restarted during the scenario, and must be replaced.

Each turn a viral jammer is active, the controlling player must roll 2D6 during the Combat Phase to determine if the jammer continues to function normally. The target number for this roll is 3, plus the number of turns the jammer has been active by that point. Once this target number exceeds 12, the jammer will automatically fail.

Once a viral jammer fails its check, the device suffers an automatic critical hit, and is considered destroyed. As above, a viral jammer that becomes inactive as a result of this roll cannot be reactivated for the remainder of the scenario and must be replaced.

An active viral decoy jammer may disable all ECM systems (including Angel, Nova, and Watchdog suites, as well as EW equipment), within 17 hexes of the operating unit. Any stealth systems that rely on a functioning ECM will cease to work as well, but will continue to produce heat as per the normal rules until deactivated.

An active homing jammer may disable all Apollo and Artemis systems (including Artemis IV, Artemis V and ATM versions),

C³ systems of all types (including Nova and Boosted C³), Narc beacons (including iNarc), Streak missile systems, and homing ammunition within 17 hexes of the jamming unit. (TAG will still function, but because homing ammunition will be affected, this targeting gear will be rendered useless.) Streak launchers will still be able to fire, but will function as standard launchers of the appropriate range and rack size, and therefore will fire even on a missed shot, and will require rolls on the Cluster Hits table to resolve successful attacks.

To determine if a unit's electronics succumb to an active viral jammer, first determine whether the unit has a valid line of sight to the jamming unit, and if it has electronics that might be affected by the jammer in question. If so, the controlling player must roll 2D6. If the result is 9 or higher, the target unit will avoid the effects of the jammer for the current turn. On a result of 8 or less, all of the unit's electronics—based on the jammer type employed—will be rendered inoperative for the remainder of the turn. As long as the jammer is active, this check must be made at the beginning of each subsequent turn. A unit with an active viral jammer must also make the check to avoid its effects.

Construction Rules: Viral jammers may be mounted in accordance with the appropriate unit's standard construction rules, but only one jammer of any type may be mounted on a single unit. Vehicles that mount a viral jammer require sufficient heat sinks to offset the viral jammer's heat.

EARLY CLAN IMPROVED EQUIPMENT (EARLY CLAN)

Introduced: Variable (See Rules)

Extinct: Variable (See Rules)

The Clans' ancestors carried with them great stores of knowledge that was lost to the Inner Sphere after the fall of the Star League. As the self-declared exiles evolved in their distant homeworlds, they used this information as the springboard for the development of the advanced weapons that would terrorize the Inner Sphere when they returned in 3050.

During this transitional period, the scientists of what would become the Clans developed a range of intermediate weapons that were soon superseded by the familiar weapons seen today. Most of these were simply lighter and more compact versions of the standard versions that had become so familiar over the centuries. But a few—like the Enhanced PPC reportedly deployed first by Clan Wolverine—made more significant improvements in performance that would spark the true leap to modern Clan-spec weaponry.

With most of these weapons only produced for less than twenty years, these weapons were long vanished from active service by the time the Clans came to the Inner Sphere, but occasionally, some appeared on ancient BattleMechs and vehicles that were pressed back into service centuries after they had been mothballed.

GENERAL EARLY CLAN IMPROVED WEAPONS RULES

Rules Level: Experimental

Available to: BM, IM, PM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Clan (E/XDXX)

Although they are created using a Clan technology base, the rules for using and mounting the various Early Clan-era improved weapons largely follow those of their original Inner Sphere analogs, as found in *TechManual* and *Total Warfare*. Additional details are provided for each class of weapons below.

IMPROVED LASERS

Introduced: 2818 (Improved Large Laser), 2820 (Improved Large Pulse Laser)

Extinct: 2830 (Improved Large Laser), 2826 (Improved Large Pulse Laser)

The improved lasers used by the early Clans included the standard large laser and the large pulse laser. In both cases, engineering and machining refinements rendered these weapons smaller and more compact than their forebears, without sacrificing performance.

Improved Laser Rules

Game Rules: Both the improved large laser and the improved large pulse laser perform in the same fashion, and with the same heat, damage, range, and to-hit modifiers as those made using the Inner Sphere technology base.

Construction Rules: Both improved laser types may be mounted on any unit in accordance with the unit's standard construction rules regarding energy weapons.

IMPROVED AND ENHANCED PPCS

Introduced: 2820 (Improved PPC), 2823 (Enhanced PPC)

Extinct: 2832 (Improved PPC), 2831 (Enhanced PPC)

As with laser weapons, the improved particle weapons developed by the proto-Clans focused on lighter and more space-efficient manufacturing. But where the improved PPC simply made the standard model smaller without sacrificing power, the enhanced PPC improved on the destructive output of the Star League's extended-range version.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Improved and Enhanced PPC Rules

Game Rules: The improved PPC performs in the same fashion, and with the same heat, damage, range, and to-hit modifiers, as the standard Inner Sphere PPC, while the enhanced PPC matches the Inner Sphere ER PPC in all of the same ways except for its increased damage.

Construction Rules: Improved and Enhanced PPCs may be mounted on any unit in accordance with the unit's standard construction rules regarding energy weapons. As with other PPCs, OmniMechs mounting improved or enhanced PPCs must remove their lower arm and hand actuators in any arm location where an improved or enhanced PPC is placed.

IMPROVED AUTOCANNON

Introduced: 2818 (All)

Extinct: 2833 (All)

Early Clan ballistic weapons tech also benefited from advanced metallurgy and construction techniques that rendered these classics of warfare lighter and more compact. These weapons enjoyed only a brief service life before more significant advances to the Ultra and LB-X autocannon types rendered standard-model cannons obsolete.

Improved Autocannon Rules

Game Rules: All four improved standard autocannons perform in the same fashion, and with the same heat, damage, range, and to-hit modifiers as those made using the Inner Sphere technology base.

Construction Rules: Improved autocannons may be mounted on any unit in accordance with its standard construction rules for ballistic weapons. Vehicles and units powered by non-fusion engines do not require heat sinks or power amplifiers to use them, but all units mounting autocannons will require at least 1 ton of ammunition.

As with the standard rules, improved autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a 'Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-'Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an improved autocannon is being mounted.

Improved autocannons may make use of all specialized ammo, with the exception of the LB-X cluster munitions (which may be used only by LB-X AC types).

IMPROVED GAUSS RIFLE

Introduced: 2822 (Improved Gauss Rifle)

Extinct: 2837

Clan technology would scarcely improve the performance of the standard Gauss rifle beyond its Star League-era glory, but the improved version nevertheless demonstrated how Kerensky's disciples proceeded along that path.

Improved Gauss Rifle Rules

Game Rules: Gauss rifle capacitors remain charged (and thus explosive) throughout game play, even if the unit is shut down or its crew/pilot is unable to act, and an improved Gauss rifle will deliver a 20-point internal explosion if it suffers a critical hit. As with most early Clan improved weapons, the improved Gauss rifle has the same heat, damage, range values, and shots-per-ton as its Inner Sphere version.

Construction Rules: Improved Gauss rifles may be mounted on any unit per standard weapon and equipment rules for Gauss rifles. Bipedal OmniMechs that choose to mount a Gauss rifle in the arm must remove that arm's hand actuator before doing so.

IMPROVED STANDARD MISSILE LAUNCHERS

Introduced: 2817 (Improved SRMs), 2818 (Improved LRMs)

Extinct: 2828 (Improved SRMs), 2831 (Improved LRMs)

A marvel of miniaturization, the Clans reduced the weight of their LRM launchers by half and somewhat reduced their bulk. Further improvements would create the familiar Clan LRM, which even eliminated the weapon's minimum range deficiencies.

Going a different direction, however, were the improved SRMs that appeared a full year before the new LRMs. Utilizing more powerful launch mechanisms, the early Clan weapons-makers increased the SRMs' effective range by one-third, even though launchers themselves remained about the same weight and size as their original counterparts. Combining this advancement with the more accurate Streak targeting system would eventually consign the improved SRM to obscurity, but not before other manufacturing upgrades enabled the Clans to shrink their standard SRM launchers to half their original weight.

Improved Standard Missile Launcher Rules

Game Rules: Improved LRM launchers come in all the same rack sizes as their Inner Sphere equivalents, and maintain the same heat, ranges, per-missile damage, cluster tables, and volley-per-ton values as well. Improved SRM launchers, meanwhile, use the same heat, per-missile damage, cluster hits tables, and magazine sizes as their Inner Sphere counterparts—but boast the range brackets of the modern Clan Streak SRM instead.

Construction Rules: Improved missile launchers may be mounted on any unit in accordance with the unit's standard core construction rules for missile weapons. On BattleMechs, IndustrialMechs and Support Vehicles, improved missile launchers may be enhanced by Artemis IV (or V) fire-control systems, but must allocate both the launcher and the Artemis system to the same location, and must upgrade *all* applicable launchers on the unit in the same fashion. Artemis systems on such units may be given a separate critical slot as the launcher can still fire with a damaged Artemis, but this slot must be placed in the same body location as the launcher it modifies. (All other units that carry Artemis-enhanced launchers—such as combat vehicles, fighters and DropShips—install the combined launcher and Artemis system as a single weapon.)

Omni units that mount improved missile launchers capable of using Artemis must adhere to the above rules, even if the launcher is hardwired into the base configuration. For example, an OmniMech that hardwires an improved SRM launcher in its Center Torso location in such a way as to leave no extra critical slots in that area may not subsequently add Artemis-enhanced missile launchers to a later configuration, as the Center Torso SRM has no room for its own enhancement.

Improved missile launchers are compatible with all special munitions types that are available for the standard missile launcher of corresponding type and rack size.





EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

In addition to improving on the existing technologies of the Star League, the nascent Clans also began to expand on many weapon systems in the years just prior to Operation Klondike. During their conquest of the war-ravaged Pentagon worlds, several of these prototype weapons (identified by the suffix “-CP”) saw extensive field testing. These items would eventually evolve into their final Clan-spec forms

GENERAL EARLY CLAN PROTOTYPE SYSTEMS RULES

Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Clan (E/XFXX)

The rules for using and mounting the various Early Clan-era prototype items featured here use the baseline abilities (heat, damage, range, and so forth) of their production-grade Inner Sphere versions as seen in *TechManual* and *Total Warfare*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature “Standard Production” dates. This date indicates the point where the technology matured into its final “Clan-spec” form as reflected by the item’s normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after just a few years.

ER LASERS (ER-CP)

Introduced: circa 2819 (Clan Jade Falcon)

Standard Production: 2824 (Clan Jade Falcon [Medium]), 2825 (Clan Jade Falcon [Small])

Advanced laser technologies were among the first to be mastered by the Clans, but during Operation Klondike testing was still underway on the new systems. Experimental versions of the small- and medium-sized versions of the extended-range laser (ER-SL-CP and ER-ML-CP) were available during the return to the Pentagon.

ER Lasers (Clan Prototype) Rules

Game Rules: Both the ER small and ER medium lasers perform in the same fashion as their Inner Sphere versions.

Construction Rules: Both prototype ER laser types may be mounted on any unit in accordance with the unit’s standard construction rules regarding energy weapons. Once again, these weapons use the construction values of their Inner Sphere versions as a baseline, though the Clan prototype ER medium laser weighs 1.5 tons, rather than 1.

LB-X AUTOCANNON (LB-X-CP)

Introduced: circa 2820 (Clan Coyote)

Standard Production: 2825 (Clan Coyote [5-X]), 2826 (Clan Goliath Scorpion [2-X]), and Clan Hell’s Horses [20-X])

Early Clan prototypes of the LB 2-X, 5-X and 20-X (the LB-X-CPs) also underwent testing during Operation Klondike. Though a little less effective and a little more bulky than their modern Inner Sphere-made equivalents, all three of these autocannons paved the way for what became known as the Clan standard.

LB-X Autocannon (Clan Prototype) Rules

Game Rules: The Clan prototype LB 2-X, 5-X, and 20-X autocannons (LB 2-X-CP, 5-X-CP, and 20-X-CP) all use the same rules as their production-grade Inner Sphere versions, except that, when firing cluster munitions, these prototypes must apply a –1 roll modifier on the Cluster Hits Table upon a successful attack. A roll result of less than 2 on this roll is treated as a 2.

Construction Rules: Aside from occupying 1 more critical slot than its Inner Sphere equal, the Clan prototype LB 2-X, 5-X, and 20-X autocannons may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for all Clan prototype LB-X autocannons may only be installed in full-ton lots.

As with the standard rules, LB-X autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a ‘Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-‘Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an LB-X autocannon is being mounted.

STREAK SRM (STREAK-CP)

Introduced: circa 2819 (Clan Star Adder)

Standard Production: 2826 (Clan Star Adder)

In the final years of the Star League-in-Exile, SLDF researchers and weapons manufacturers attempted to increase the size of the Streak SRM launchers to include four- and six-missile racks. While they had some limited success, the true breakthroughs would not come until the beginning of the Golden Century, when Clan scientists conquered problems with the Streak targeting and guidance systems in the larger rack sizes. Experimental versions of Streak SRM-4 and -6 racks were available in limited quantities during and immediately after Operation Klondike.

Streak SRM (Clan Prototype) Rules

Game Rules: Although designated as Streak SRM launchers, the Clan prototypes were actually less ammunition-efficient, but slightly more accurate than their modern Inner Sphere equivalents. To reflect this, the Clan prototype Streak SRM-4 and Streak SRM-6 use the same heat, per-missile damage, range, and shots-per-ton as their Inner Sphere version, but resolve attacks as follows.

First, the Clan prototype Streak-4 and Streak-6 each receive a –1 to-hit modifier. Second, even if a shot from a Clan prototype Streak-4 or Streak-6 misses, the weapon will still fire and generate heat. Finally, upon a successful hit, the Clan prototype Streak-4 and Streak-6 launchers apply a +4 roll modifier on the Cluster Hits Table (treating any modified result over 12 as a 12 result).

Missile-enhancing technologies such as Artemis and Narc are incompatible with Clan prototype Streak launchers, and will have no effect on their operation when used.

Construction Rules: Clan prototype Streak missile launchers may be mounted on any unit in accordance with the unit’s standard core construction rules for Streak missile weapons. They are incompatible with Artemis IV (or V) fire-control systems, and no such systems are required for Clan prototype Streak launchers if the unit uses other launchers that have them.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Clan prototype Streak missile launchers may only carry Streak missiles for the standard missile launcher of corresponding type and rack size.

Note: When mounted on aerospace units, prototype Streak launchers receive an effective attack value equal to a roll result of 11 on the appropriate weapon's Cluster Hits column.

ULTRA AUTOCANNON (UAC-CP)

Introduced: circa 2820 (Clan Sea Fox)

Standard Production: 2825 (Clan Sea Fox [AC/10], Steel Viper [AC/20]), 2827 (Clan Goliath Scorpion [AC/2])

Prototype versions of the Ultra Autocannon/2, /10, and /20 all saw limited use with the Clans during Operation Klondike. As with the other weapons of this era, the final evolution of modern "Clan-spec" versions would not come until after the conquest of the Pentagon worlds and the dawn of the Golden Century.

Ultra Autocannon (Clan Prototype) Rules

Game Rules: The Clan prototype Ultra AC/2, Ultra AC/10, and Ultra AC/20 (UAC/2-CP, UAC/10-CP, and UAC/20-CP) all use the same

rules as their production-grade Inner Sphere versions, except that these weapons will suffer failure when firing at double-rate on any unmodified to-hit roll of 3 or less, rather than just a 2 result. As with production-grade Ultra autocannons, Clan prototype Ultra autocannon that suffer this kind of weapon jam will remain inoperative for the remainder of the scenario, and may not be cleared "in the field".

Construction Rules: Aside from occupying 1 more critical slot than its Inner Sphere equal, the Clan prototype Ultra autocannons/2, /10, and /20 may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for all Clan prototype Ultra autocannons may only be installed in full-ton lots.

As with the standard rules, Ultra autocannons that occupy 8 critical slots or more may be divided among two adjacent locations on a 'Mech unit, if desired. Weapons so divided use the most restrictive firing arc of the two locations. Non-'Mech units may not divide a single weapon among multiple locations. OmniMechs must also remove lower arm or hand actuators in any arm location where an Ultra autocannon is being mounted.

EXPANDED PROTOMECHS (WARS OF REAVING)

Introduced: 3083 (Quadruped [Clan Cloud Cobra]), 3083 (Ultraheavy [Clan Coyote]), 3084 (Glider [Clan Snow Raven])

Three new classes of ProtoMechs emerged during the Wars of Reaving: Ultraheavy ProtoMechs (Ultras), ProtoMech Quads (ProtoQuads), and Glider ProtoMechs (Gliders). Each of these offered specific advantages that further enhanced their combat potential, and all were developed first by the rebellious scientists who united in a short-lived rebellion against the warrior castes. While the fallout of this act led many Clans to abandon ProtoMechs altogether, a few

not only retained the unique unit class, but also adopted many of the innovations the "Society" had introduced.

Ultraheavy ProtoMechs (Ultras)

Pushing ProtoMech design techniques to their limits, Ultraheavy ProtoMechs can reach a maximum weight of 15 tons (15,000 kilograms), overlapping the tonnage of Ultralight BattleMechs. Achieving this without using BattleMech-scale components—including gyros—meant creating a larger control system based around a modified PA(L) suit. In addition to giving the Ultra the same flexibility of control, this suit-based cockpit and control unit doubles as an escape system for ProtoMech warriors, something not possible for lighter, standard-weight ProtoMechs.

ProtoMech Quads (ProtoQuads)

Though conceived as early as 3065, quadruped-style ProtoMechs faced numerous minor design hurdles, not the least of which was the unique quirk of the pilot-ProtoMech interface that virtually demanded a human-style gait and mobility. When these issues were worked out—either through intensive training or use of the Society's infamous Feralize treatments—the four-legged ProtoMechs that resulted achieved faster mobility and greater payload capacity than their bipedal equivalents. ProtoQuads could even make use of turret-based weapons similar to the Inner Sphere's four-legged battlesuits, and could be built in the standard weight range as well as the Ultraheavy category.



Ostensibly attempting to regain order, a swarm of Clan Blood Spirit Cecerops ProtoMechs breach the inner wall of Kerensky's Bloodchapel.



Glider ProtoMechs (Glanders)

Uniquely designed for bipedal Ultras as a consequence of the design's specialized motive systems, Gliders are low-altitude, limited-flight ProtoMechs that rely on a combination of thrust and glide wings that effectively mimic how LAMs operate in AirMech mode. Their elaborate flight systems, which include an adapted form of ProtoMech partial wing technology, modified jump thrusters, and a specialized musculature, are specifically designed to give them greater mobility in the air. As a result, Gliders have very little ground speed. Glider ProtoMechs can be deployed in vacuum or underwater, but they are incapable of using their WiGE-style movement capabilities in either situation.

EXPANDED PROTOMECH GAME RULES

Rules Level: Advanced

Available to: PM

Tech Base (Ratings): Clan (F/XXED [Quad]; XEE [Glider] XXDD [Ultraheavy])

All three of these unique ProtoMech types will operate using the same organization and rules of play as standard ProtoMech units (see pp. 184-187, *TW*), except as modified below:

Expanded ProtoMech Movement Rules

Non-Glider ProtoMech Movement: All non-Glider ProtoMechs—including standard, quadruped, and Ultraheavy versions—use the standard ground movement rules for ProtoMechs. If these units possess jump jets, partial wings, or underwater maneuvering units (UMUs), these items will also work in accordance with their normal rules for non-Glider ProtoMechs, with all normal terrain restrictions, modifiers, and movement effects applied.

Glider ProtoMech Ground Movement: Glider ProtoMechs that have landed may only move 1 MP (Walking) on the ground in any turn. All normal movement costs for terrain and turning apply to Glider ProtoMechs as they do for other ProtoMechs on the ground.

Glider ProtoMech WiGE Movement: Glider ProtoMechs use their thrusters and wings to “fly” in a fashion similar to a miniature Land-Air BattleMech (LAM) in its hybrid (AirMech) mode. To reflect this, they use a modified form of the WiGE rules in *Total Warfare* (see p. 55, *TW*), except that Glider ProtoMechs only require a minimum of 4 WiGE MP (and working legs) to take off, and must spend a minimum of 4 WiGE MP per turn to remain aloft. Glider ProtoMechs may also increase (or decrease) their gliding height by spending 1 WiGE MP per elevation change (akin to VTOL movement rules), and can even hover in one hex by spending 4 WiGE MP in that hex doing so. Lacking the thrust power of LAMs, however, Glider ProtoMechs may not ascend higher than 12 levels above the underlying terrain in this fashion.

Glider ProtoMech Landing Movement: To safely land, a Glider ProtoMech with functioning legs must simply return to the level of the underlying terrain and make a special Landing Check, rolling 2D6 against a target number of 4. If the roll result is less than 4, or if the Glider ProtoMech has suffered leg destruction (or leg damage resulting in a No Movement critical hit), the landing fails, and the Glider ProtoMech suffers damage equal to 2 times the total number of levels it descended during the turn its landing was attempted, allocated directly to the Glider's legs. (Excess leg damage transfers to the torso per normal rules.)

Expanded ProtoMech Firing Arcs

Non-Quadruped ProtoMechs: All non-quadruped ProtoMechs—including standard, Glider, and Ultraheavy versions—use the standard firing arc and torso rotation rules for ProtoMechs. If these units possess main gun mounts, these weapons will also function in accordance with their normal rules for non-quadruped ProtoMechs, including restrictions on firing main guns together with arm-mounted weapons, and the ability to fire into forward and side arcs together, and combining this ability with torso facing.

Quadruped ProtoMechs: Quadruped ProtoMechs use the same firing arcs that four-legged BattleMechs do, including the inability to twist their torsos. Quadruped ProtoMechs equipped with a main gun mount, however, treat any weapons placed in that location as if they are housed in a vehicle turret, complete with a full 360-degree rotation arc.

Ultraheavy Main Gun Mounts: In the case of Ultraheavy ProtoMechs of any kind, a main gun that mounts more than one weapon must use the same firing arc for these main gun weapons, based on the unit's current rotation. Thus, an Ultraheavy quadruped ProtoMech with two weapons in its main gun mount would need to fire both weapons to the rear if that was the direction its main gun was rotated to face in that turn.

Expanded ProtoMech Attack Rules

For Glider ProtoMechs on the ground, and all other ProtoMech types, the standard rules for resolving attacks based on the appropriate movement modifiers and terrain apply.

Glider ProtoMechs using WiGE movement must apply a +1 attacker to-hit modifier to any attacks they make when using WiGE Cruising MP; if using WiGE Flank MP, this attacker to-hit modifier becomes +2 instead. When attacks are made *against* a Glider ProtoMech using its WiGE MP, the Glider ProtoMech receives the standard additional +1 to-hit modifier applied for attacks against jumping or airborne targets.

For line of sight purposes, all ProtoMechs—regardless of weight and configuration—are considered to stand only 1 level tall.

Expanded ProtoMech Hit Locations

All attacks against a ProtoMech are resolved using the normal ProtoMech hit locations table, except as follows:

Glider ProtoMechs: Any successful attack against a Glider ProtoMech that strikes a “Near Miss” hit location still inflicts no armor damage to the Glider itself. However, this near miss *will* strike the Glider's more delicate wing structure or flight systems, regardless of the attacking weapon's actual damage value. This hit inflicts no actual damage to the Glider's armor, but will reduce the Glider's WiGE Cruising MP by 1 (to a minimum of 0). The Glider's WiGE Flanking MP must then be recomputed accordingly. If, through this damage, a Glider ProtoMech is reduced to less than 4 WiGE MP while in flight, the unit will become unable to remain aloft and must immediately follow the rules for crash-landing (see *Glider ProtoMech Crash Landing*, p. 94).

Quadruped ProtoMechs: Because four-legged ProtoMechs do not have arm locations, hits to the arm locations automatically strike the legs. Like bipedal ProtoMechs, ProtoMechs only have one hit location for their legs, which covers all four of them.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

EXPANDED PROTOMECH TORSO WEAPON CRITICAL HIT TABLE

1D6 Roll	Weapon Critical Hits			
	Standard (Biped)	Standard (Quad)	Ultra (Biped)*	Ultra (Quad)
1	Torso Weapon A	Torso Weapon A	Torso Weapon A	Torso Weapon A
2	Torso Weapon A	Torso Weapon B	Torso Weapon A	Torso Weapon B
3	Torso Weapon B	Torso Weapon C	Torso Weapon B	Torso Weapon C
4	Torso Weapon B	Torso Weapon D	Torso Weapon B	Torso Weapon D
5	No Effect	No Effect	Torso Weapon C	Torso Weapon E
6	No Effect	No Effect	Torso Weapon C	Torso Weapon F

*Includes Glider ProtoMechs.

Expanded ProtoMech Critical Hits

For all ProtoMechs, a critical hit to the torso marked with an asterisk (*) indicates that a torso-mounted weapon (if any) may be destroyed. To determine which weapon is hit, roll 1D6 and consult the Expanded ProtoMech Torso Weapon Critical Hit Table. If the listed weapon does not exist or has already been destroyed, no additional weapon critical effects occur.

Glider ProtoMechs: In addition to the other rules for critical hits, any Jumping MP loss created by critical hits to a Glider ProtoMech's torso will instead affect the Glider ProtoMech's WiGE Cruising MP. Recompute Flanking MP accordingly any time a Glider's WiGE Cruising MP are reduced. As with near miss effects, if this damage reduces the Glider to less than 4 WiGE MP while the unit is still in flight, the unit will suffer a crash landing effect (see p. 94).

Ultraheavy Quadrupe Main Guns: Ultraheavy ProtoMechs may carry up to two weapons in their main gun turrets, but a single critical hit to this location still destroys the mount completely—and with it, both weapons installed therein.

Expanded ProtoMech Physical Attacks

ProtoMechs of all kinds may execute the frenzy physical attack in accordance with the normal rules (see p. 187, *TW*), but with the following additions.

Glider ProtoMechs: If in flight, a Glider ProtoMech can only inflict a frenzy attack against a target at the same elevation as it is currently operating. However, because the Glider is airborne, reduce its normal frenzy damage value by 1 point (to a minimum of 1).

Note that if the target of the Glider ProtoMech's physical attack is a 'Mech unit, the Glider ProtoMech's elevation, relative to the target, must be taken into consideration when resolving the appropriate hit locations that may be struck by its frenzy. A Glider ProtoMech operating at the same height as a 'Mech's upper body will thus deliver damage using the appropriate Punch Hit Locations Table, while a Glider ProtoMech operating at the same height as a 'Mech's lower body will deliver its frenzy damage using the appropriate Kick Hit Locations Table.

Quadrupe ProtoMechs: The quadrupe ProtoMech's frenzy attack delivers the same damage as a normal ProtoMech frenzy.

Ultraheavy ProtoMechs: The base damage for an Ultraheavy ProtoMech's Frenzy attack is 3 points. Despite their greater weight, Ultras still lack the ability to effectively carry and wield clubs the way 'Mechs can.

ProtoMech Melee Weapons: Any melee weapons the ProtoMech mounts will modify this value according to the standard rules for such equipment.

Glider ProtoMech Crash-Landing

If critical damage or near miss effects reduce a Glider ProtoMech to less than 4 WiGE Flank MP while airborne, the Glider ProtoMech cannot remain aloft and drops to the level of the underlying terrain. At this point, the pilot must make an emergency landing check against a target number of 8. If this check fails (or if the Glider ProtoMech has suffered leg destruction and/or a No Movement critical hit), the Glider ProtoMech will suffer 2 damage points for every level of height it has fallen. Apply this crashing damage randomly in 5-point clusters.

Ultraheavy ProtoMech Ejection System

The pilot of an Ultraheavy ProtoMech (biped, quadrupe, or Glider) may use the same ejection rules as a 'Mech (see pp. 164-166, *TO:AR*). Because the cockpit location is in the torso, the ejection modifiers

based on damage to the 'Mech's head structure instead apply based on the damage done to the ProtoMech's torso structure.

If an Ultraheavy ProtoMech suffers its third critical hit to the torso (Proto Destroyed) location, or suffers a complete loss of all torso structure, the pilot will auto-eject using the same rules as a 'Mech that has suffered the destruction of its head location (see p. 165, *TO:AR*).

An ejected Ultraheavy ProtoMech pilot follows the same rules as an ejected MechWarrior. Because there is no room in the Ultraheavy ProtoMech's cockpit for hostile environment gear, ProtoMech warriors who eject into hazardous environments—such as vacuum, underwater, toxic atmospheres, and so forth—will suffer their full effects.

EXPANDED PROTOMECH CONSTRUCTION RULES

The following additional rules modify those presented for constructing ProtoMechs using *TechManual* (see pp. 80-89, *TM*).

Maximum ProtoMech Weight

The maximum weight for a ProtoMech is now 15 tons (15,000 kilograms). ProtoMechs are still built in 1-ton (1,000-kilogram) increments. ProtoMechs weighing 10 to 15 tons are classified as Ultraheavy ProtoMechs (or Ultras).

Chassis Type Restrictions

ProtoMechs of all weights (including Ultraheavy ProtoMechs) may be constructed using either the bipedal or quadrupe (quad) chassis types. Glider ProtoMechs may only be constructed using the bipedal Ultraheavy ProtoMech chassis type.

ProtoMech Structure and Armor Table

The Expanded ProtoMech Structure and Armor Table shows the weight for each ProtoMech's internal structure (by ProtoMech tonnage), as well as the number of internal structure boxes per location, and the maximum armor limits of each location.

As with standard ProtoMechs, Ultraheavy ProtoMechs, ProtoMech Quads, and Glider ProtoMechs may install a Main Gun at their option. Even though the ProtoMech Quad Main Gun functions as a turret, it does not require any additional tonnage devoted to its turret mechanisms.

ProtoMech Weight and Space Limits (by Location)

The slot and weight limits for each Advanced ProtoMech type are shown on the Expanded ProtoMech Location Restrictions Table.



EXPANDED PROTOMECH STRUCTURE AND ARMOR TABLE

ProtoMech Tonnage	Structure Weight	Head	Torso	Internal Structure Boxes (Max. Armor)			Main Gun**	Armor Factor (Without/ With Main Gun)
				Arms* (Left/Right)	Legs* (Both)	Legs* (Quad, All)		
2	200 kg	1 (3)	2 (4)	1 (2)	2 (4)	4 (8)	1 (3)	15/18
3	300 kg	1 (3)	3 (6)	1 (4)	2 (4)	4 (8)	1 (3)	17/20
4	400 kg	1 (4)	4 (8)	1 (4)	3 (6)	5 (10)	1 (3)	22/25
5	500 kg	1 (4)	5 (10)	1 (4)	3 (6)	5 (10)	1 (3)	24/27
6	600 kg	2 (5)	6 (12)	2 (4)	4 (8)	8 (16)	1 (3)	33/36
7	700 kg	2 (5)	7 (14)	2 (4)	4 (8)	8 (16)	1 (3)	35/38
8	800 kg	2 (6)	8 (16)	2 (4)	5 (10)	9 (18)	1 (3)	40/43
9	900 kg	2 (6)	9 (18)	2 (4)	5 (10)	9 (18)	1 (3)	42/45
10	1,000 kg	3 (7)	10 (20)	3 (6)	6 (12)	12 (24)	2 (6)	51/57
11	1,100 kg	3 (7)	11 (22)	3 (6)	6 (12)	12 (24)	2 (6)	53/59
12	1,200 kg	3 (8)	12 (24)	3 (6)	7 (14)	13 (26)	2 (6)	58/64
13	1,300 kg	3 (8)	13 (26)	3 (6)	7 (14)	13 (26)	2 (6)	60/66
14	1,400 kg	4 (9)	14 (28)	4 (6)	8 (16)	14 (28)	2 (6)	65/71
15	1,500 kg	4 (9)	15 (30)	4 (6)	8 (16)	14 (28)	2 (6)	67/73

*Quad (four-legged) ProtoMechs do not have arms; to find the Internal Structure and Max. Armor Boxes for a Quad ProtoMech, use only the Legs (Quad, All) column in place of the standard Arms and Legs columns.

**The Main Gun is an optional ProtoMech component, which provides no internal structure boxes (or armor) when not installed.

EXPANDED PROTOMECH LOCATION RESTRICTIONS TABLE

Protomech Location	Standard (Biped)	Maximum Items (Combined Weight)*		
		Standard (Quad)	Ultra (Biped)**	Ultra (Quad)
Head	0 / 0 kg	0 / 0 kg	0 / 0 kg	0 / 0 kg
Torso	2 / 2,000 kg	4 / 5,000 kg	3 / 4,000 kg	6 / 8,000 kg
Arms, Each	1 / 500 kg	N/A	1 / 1,000 kg	N/A
Legs	0 / 0 kg	0 / 0 kg	0 / 0 kg	0 / 0 kg
Main Gun	1 / Unlimited	1 / Unlimited	1 / Unlimited	2 / Unlimited

*Ammunition is not counted toward combined weight or item slots; missile launchers comprised of multiple same-type missile tubes are counted as one weapon for purposes of determining item limits.

**Includes Glider ProtoMechs

ProtoMech Engine Rating and Mobility Formulas

When finding the desired Engine Ratings of a ProtoMech, determine the ProtoMech's desired Running MP. For Glider ProtoMechs (which have a maximum Walking and Running MP of 1, regardless of Engine Rating), use the desired WiGE Flanking MP. As with 'Mechs and vehicles, the Running/Flanking MP of a ProtoMech is equal to 1.5 times its Walking/Cruising MP.

For bipedal, non-gliding ProtoMechs (including bipedal Ultraheavy ProtoMechs), the ProtoMech Engine Rating formula remains unchanged. Quadruped and Glider ProtoMechs receive an efficiency bonus due to their unique designs, enabling them to get more MP out of a given Engine Rating. To reflect this, subtract 2 from the desired Running/WiGE Flanking MP for ProtoMech Quads and Glider ProtoMechs. (Glider ProtoMechs must also receive a minimum WiGE Flanking MP of 4; ProtoQuads must have a minimum Running MP of 3.)

No ProtoMech may receive an Engine Rating of 0 or less.

As with standard ProtoMech construction rules, Engine Ratings of 39 or less weigh 25 kilograms per point of Engine Rating. ProtoMech Engine Ratings of 40 or more must round up to the nearest 5 points,

and then use the weight for the appropriate standard fusion engine shown in the Master Engine Table (see p. 49, *TM*).

ProtoMech Jump Jets and Other Mobility Enhancements

Under these rules, all ProtoMech types except for Glider ProtoMechs may install jump jets (standard and extended), ProtoMech UMUs, ProtoMech partial wings, or the ProtoMech myomer booster system per those systems' standard rules. (**Note:** Jump jets and UMUs for Ultraheavy ProtoMechs weigh 150 kg per Jumping MP).

Because of their incorporated thrusters, lifting surfaces and specialized musculature, Glider ProtoMechs may not mount any special motive enhancements, including jump jets, partial wings, UMUs or myomer boosters.

ProtoMech Control Systems

For all ProtoMechs under 10 tons, the standard 500-kilogram control system must be used. ProtoMechs over 9 tons must assign 750 kilograms to their cockpit systems, to reflect the enhanced power armor-style control and ejection system these units use.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Expanded ProtoMech Engine Rating and Mobility Formulas

Running/WiGE Flanking MP = Desired Walking/WiGE Cruising MP x 1.5 (round up)

Biped Non-Glider ProtoMech Engine Rating = ProtoMech Tonnage x Running MP ProtoMech

Quad Engine Rating = ProtoMech Quad Tonnage x (Running MP - 2)

Glider ProtoMech Engine Rating = Glider ProtoMech Tonnage x (WiGE Flanking MP - 2)*

*Glider ProtoMechs always receive a Walking and Running MP of 1 for ground movement, regardless of Engine Rating. Remember that a Glider ProtoMech requires a minimum of 4 WiGE MP to take off.

EXPANDED PROTOMECH JUMP JET WEIGHT TABLE

ProtoMech Weight	Jump Jet Weight
2 to 5 tons	50 kg/Jumping MP
6 to 9 tons	100 kg/Jumping MP
10 to 15 tons	150 kg/Jumping MP

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

R&D Start Date: circa 3063 (Word of Blake)

Prototype Design and Production: circa 3071 (Word of Blake)

Only deployed in extremely limited circumstances—and possibly a prototype form of what became the Machina Domini system—the Word of Blake's prototype ProtoMech interface used Manei Domini technology to operate captured Clan ProtoMechs. Essentially based around a modified cockpit module that works in place of the Clan version, it combined the Word's standard vehicular direct neural interface (VDNI) implant technology with a self-contained life support system meant for specialized warriors.

With little space to spare (because the Clan ProtoMechs were built for small-framed aerospace pilot washouts), the Word of Blake ProtoMech operators could only be Manei Domini who were also quadruple amputees—effectively reducing the pilot to an armless, legless torso and head that would be wired directly into the machine.

INNER SPHERE PROTOMECH INTERFACE GAME RULES

Rules Level: Experimental

Available to: PM

Tech Base (Ratings): Inner Sphere (E/XXFX)

The Word of Blake's ProtoMech interface enables the use of ProtoMechs in the same fashion as Clan warriors with EI neural implants, but requires that the pilot be fitted with a standard (non-buffered) VDNI implant. The implanted pilot may not possess any limbs—prosthetic or otherwise—but may be equipped with other cybernetic modifications including dermal armor and cybernetic eye, ear, and other internal organ replacements.

In gameplay, a ProtoMech operated via an Inner Sphere ProtoMech interface will function in the same manner as a standard ProtoMech. The interface lacks any form of ejection or escape systems.

INNER SPHERE PROTOMECH INTERFACE CONSTRUCTION RULES

When fitted with an Inner Sphere ProtoMech interface, the ProtoMech is considered a Mixed Technology unit. The interface cockpit weighs as much as a standard ProtoMech cockpit, and occupies no space on the ProtoMech's record sheet.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The discovery of the famous Helm Memory Core (also known as the Gray Death Memory Core) in 3028 sparked a resurgence of research and development in Star League-era technologies that had been lost since the early Succession Wars. By the time of the War of 3039, many of these technologies had re-entered limited production, though many still lacked the refinements of their final Star League-era specifications.

GENERAL INNER SPHERE RECOVERED PROTOTYPES RULES

Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Inner Sphere (E/XFX)

The rules for using and mounting the various Late Succession Wars-era prototype items featured here use the baseline abilities (heat, damage, range, and so forth) of their production-grade Inner Sphere versions as seen in *TechManual* and *Total Warfare*. Additional details are provided for each item class below.

Note: Because these items represent the prototype-phase versions of equipment that later went into standard production, in place of extinction dates, these items feature "Standard Production"

dates. This date indicates the point where the technology matured into its final form as reflected by the item's normal rules. After this standard production date, the prototype versions featured here were gradually phased out of service, with most fully retired after a decade.

DOUBLE HEAT SINKS (FREEZERS)

Introduced: 3022 (Federated Suns)

Standard Production: 3040 (Federated Suns)

Unlike many technologies fielded during the War of 3039, the rediscovered Star League-era double heat sinks were not extracted from the Helm Memory Core. Instead, Davion scientists first debuted an experimental double heat sink during the battle for Hoff, in 3022. During the Fourth Succession War the St. Ives Compact fielded several BJ-3X *Blackjacks* that showcased double heat sinks—an alleged case of simultaneous development, but one that more likely came about as a result of espionage.

It was not until after the War of 3039 ended that the NAIS, working on information from the Helm Memory Core, solved the final issues that enabled mass production of Star League-grade double heat sinks to begin.



Double Heat Sink (Recovered Prototype) Rules

The gameplay and construction rules for recovered prototype double heat sinks (freezers) are identical to those described under their Age of War-era prototype form under *Double Heat Sinks (DHS-P)* (see p. 65).

ENDO STEEL (ES-P)

Introduced: 3035 (Draconis Combine, Lyran Commonwealth)

Standard Production: 3040 (Draconis Combine)

While many realms were working to crack the secrets of Star League-era endo steel internal structure for their BattleMechs, the Draconis Combine was among the first to field working prototypes in time for the War of 3039. It was not until after the war's end, however, that they were able to produce the lightweight structure to its original Star League-era specifications.

Endo Steel Structure (Prototype) Rules

The gameplay and construction rules for recovered endo steel internal structure are identical to those described under their Age of War-era prototype form under *Endo Steel (ES-P)* (see p. 65).

ER AND PULSE LASERS (ER-LL-P AND MPL-P)

Introduced: 3030 (Federated Suns [ER Large Laser]), 3031 (Draconis Combine [Medium Pulse Laser])

Standard Production: 3037 (Draconis Combine [ER Large Laser and Medium Pulse Laser])

Advanced laser technologies were among the first to be mastered by the combatants involved in the War of 3039, but testing was still underway even during that conflict. The AFFS and LCAF both deployed experimental versions of the ER Large Laser (ER-LL-P) and Medium Pulse Laser (MPL-P) before then, but both armies would be surprised to learn that their Combine enemies had already managed to field their own fully-developed versions before the first shots of the war were fired. (This historical note is hotly debated, even today, as many suspect the Combine-made lasers were actually provided by ComStar via a secret deal with then-Kanrei Theodore Kurita.)

ER and Pulse Laser (Recovered Prototype) Rules

Game Rules: The recovered prototype ER large laser functions as its production-grade Inner Sphere counterpart, except that it suffers a +1 to-hit modifier to attack, and generates an additional 1D6 heat when fired.

The recovered prototype medium pulse laser also functions as its production-grade Inner Sphere version, but generates an extra +1D6 heat when fired.

This random heat generated by both weapons is rolled each time the weapon is fired, and applies in addition to the heat the weapons normally generate.

Construction Rules: A unit may mount one or more of both of these prototype lasers, in accordance with its normal rules for mounting such weapons.

Vehicles and other units that must mount heat sinks to offset energy weapons must mount enough heat sinks to cover the maximum number of extra heat points these weapons may generate when fired (+6 heat for both). Aerospace units must also assess the heat generated by these weapons as if the maximum result is rolled.

FERRO-FIBROUS ARMOR (FF-P)

Introduced: 3034 (Lyran Commonwealth); Ferro-Aluminum: 3028 (Federated Suns)

Standard Production: 3040 (Draconis Combine)

As with Star League-era endo steel, the race to recover Star League-quality ferro-fibrous armor was close between the Draconis Combine and its enemies. The Lyran Commonwealth managed to produce the first prototypes of this technology before for the War of 3039, and shared it with its allies in the Federated Suns; though it was the reverse for ferro-aluminum. But after the war's end, it was the Combine that first managed to put ferro-fibrous armor into general production.

Ferro-Fibrous Armor (Prototype) Rules

The gameplay and construction rules for recovered ferro-fibrous armor are identical to those described under their Age of War-era prototype form under *Ferro-Fibrous (FF-P)* (see p. 66).

GAUSS RIFLE (GAUSS-X)

Introduced: 3038 (Federated Suns, Lyran Commonwealth)

Standard Production: 3040 (Free Worlds League, Lyran Commonwealth, Draconis Combine)

While several realms raced to recreate one of the Star League's most effective anti-Mech weapons, it was the Federated Suns and Lyran Commonwealth who fielded the first prototypes of the standard Gauss rifle (codenamed Gauss-X) in the last months of the war.

Gauss Rifle (Recovered Prototype) Rules

The gameplay and construction rules for the recovered prototype Gauss rifle are identical to those described under their Age of War-era prototype form under *Gauss Rifle (GR-P)* (see p. 66).

PROTOTYPE IMPROVED JUMP JETS (IJJ-P)

Introduced: 3022 (Federated Suns)

Standard Production: 3069 (Clan Wolf-in-Exile)

The concept of the improved-range jump jet technology finally reached fruition in the late 3060s, but had previously been attempted at various stages of Succession Wars history. The most famous near-breakthrough was House Davion's experiments on Hoff in the early 3020s. While prototype improved jump jets were lighter and smaller than their modern incarnations, they ran hotter and were prone to exploding when damaged. After the project's destruction in the midst of the Wolf's Dragoons' raid on Hoff, further development was halted. Compared to the old system, modern improved jump jets feature additional shielding and cooling circuits, making them bulkier and heavier, but ultimately safer and much more reliable.

Improved Jump Jets (Recovered Prototype) Rules

Game Rules: Prototype improved jump jets have identical game rules as standard jump jets (see p. 225, *TM*). Heat generated by these jets is also doubled, at 2 heat points per hex jumped, with a minimum cost of 6 heat points. To reflect the volatility of these experimental jets, a critical hit to a prototype improved jump jet destroys the extra capacitor banks powering the electron beam emitters used to ignite the jets. This results in a catastrophic discharge of the capacitor's stored energy that is identical to a 10-point internal ammunition explosion in the location containing the jet.

Construction Rules: Prototype improved jump jets have identical construction rules as standard jump jets (see p. 225, *TM*), but—like modern improved jump jets—they offer a maximum Jump MP equal to the Mech's maximum Running MP.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

LB 10-X (LB-X-P)

Introduced: 3030 (Federated Suns)

Standard Production: 3035 (Federated Suns)

Alongside the Ultra autocannon/5, the recovered LB 10-X actually reached its final form before the onset of the War of 3039, but by then, several early prototypes had already been circulated throughout the AFFS and LCAF forces. As a result, many of these early, less-reliable versions saw action in combat years after they had already been rendered obsolete.

LB 10-X Autocannon (Recovered Prototype) Rules

The gameplay and construction rules for the recovered prototype LB 10-X autocannon are identical to those described under their Age of War-era prototype form under *LB 10-X (LB 10-X-P)* (see p. 66).

TRIPLE-STRENGTH MYOMER (TSM-X)

Introduced: 3028 (Capellan Confederation)

Standard Production: 3050 (Capellan Confederation)

Unlike most of the weapons and equipment that debuted in the late Succession Wars period, triple-strength myomers were not a recovery of ancient Star League lostech, but a wholly new invention. Developed during the Fourth Succession War, this enhancement for BattleMechs was deemed a failure by its original designers in the Federated Suns, and “leaked” to the Capellan Confederation as part of an elaborate spy game between the two realms.

While the ploy worked for House Davion initially, the Confederation would never give up on perfecting triple-strength myomers, a project that achieved success just in time for the Clan Invasion. Nevertheless, by that time, the CCAF had fielded many BattleMechs augmented by the older, prototype form of this musculature, and even the Federated Commonwealth states had begun producing IndustrialMechs that used the chemically unstable formula for their own use.

Triple-Strength Myomer (Prototype) Rules

Game Rules: Unlike standard triple-strength myomers, prototype triple-strength myomers do not require the unit to operate at any given heat level, nor do they modify the unit’s movement rate at any heat level. The myomers are thus always active, unless the unit is shutdown. A unit with active prototype triple-strength myomers receives no additional MPs, but doubles its damage delivered by a successful punch, kick, or club attack, as well as any physical weapon attacks that may be modified by normal triple-strength myomer. A ‘Mech augmented by prototype triple-strength myomer also doubles its normal lifting ability (see p. 261, *TW*).

The chemically unstable nature of these myomers, however, makes for difficult maintenance and a critical susceptibility to catalysts that were weaponized even before the first prototype TSM units walked out of Capellan hangars (see *Specialty Munitions: Anti-TSM Missiles*, p. 98).

When performing general maintenance on a unit with prototype triple-strength myomers (see pp. 191-197, *CO*), apply a +1 target number modifier to any maintenance rolls required. If repairing a unit augmented by prototype triple-strength myomers (see pp. 197-209, *CO*), double all repair/replacement times, and apply a +2 target number modifier for all repairs and replacements that involve the following components or conditions: internal structure, actuators, limb reattachment, or destroyed locations.

Construction Rules: Prototype triple-strength myomers use the same construction rules as their standard version.

ULTRA AUTOCANNON (UAC/P)

Introduced: 3029 (Federated Suns)

Standard Production: 3035 (Federated Suns)

While the Federated Suns had managed to perfect the Ultra autocannon/5 before the start of the War of 3039, prototype versions of this weapon were still in circulation and saw limited use with elite AFFS and LCAF forces throughout the conflict.

Ultra Autocannon (Recovered Prototype) Rules

Game Rules: The recovered prototype Ultra autocannon/5 uses the same rules as its production-grade Inner Sphere versions, except that these weapons will suffer failure when firing at double-rate on any unmodified to-hit roll of 4 or less, rather than just a 2 result. Even when fired normally, an unmodified attack roll of 2 will also jam the weapon. As with production-grade Ultra autocannons, recovered prototype Ultra autocannons that suffer this kind of weapon jam will remain inoperative for the remainder of the scenario, and may not be cleared “in the field”.

Construction Rules: Aside from occupying 1 more critical slot than its production-standard version, the prototype Ultra autocannon/5 may be mounted on any unit in accordance with its normal rules for mounting such weapons. Ammunition for recovered prototype Ultra autocannons may only be installed in full-ton lots.

SPECIALTY MUNITIONS: ANTI-TSM (“GREEN SMOKE”) MISSILES

Introduced: 3027 (Federated Suns)

According to the much-dramatized tales of the Fourth Succession War, anti-triple-strength myomer (Anti-TSM) missiles were originally developed as part of an elaborate ruse House Davion employed against the Capellan Confederation. Allowing the Capellans to capture an experimental myomer-boosting technology that NAIS engineers deemed too unstable for combat use, the anti-TSM missiles deployed a green chemical smoke that exploited known weaknesses in the myomer bundles to devastating effect. Because the post-war Confederation nevertheless persisted in fielding limited amounts of TSM-augmented BattleMechs and pursued its own research into perfecting the technology, anti-TSM munitions remained available—albeit in limited numbers—for decades after the war.

By 3050, the Confederation had resolved the issues that made their enhanced-myomer ‘Mechs vulnerable to anti-TSM missiles, and the munitions lapsed out of production. Still, enough prototype-grade TSM remained in the CCAF arsenal to prompt many realms to maintain a stockpile of anti-TSM munitions. This proved fortuitous—especially for the Confederation itself—when triple-strength myomer was adapted to infantry-scale use by cybernetically augmented agents like the Word of Blake’s Manei Domini.

Anti-TSM “Green Smoke” Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with standard LRM, SRM, or MML launchers

Tech Base (Ratings): Inner Sphere (E/XXFF)

Game Rules: Anti-TSM missiles are incompatible with Streak, Artemis, and Narc systems, and can only be used by standard SRM and LRM launchers. Because these missiles lack the targeting capabilities of standard warheads (which had to be swapped out in favor of the gas canisters), reduce the number of warheads that strike a target on any given volley by half (rounding down to a minimum of 1 missile hit).

Wherever a volley of anti-TSM warheads strikes, it fills the hex with a green smoke that rises 2 levels above the underlying terrain and



imposes to-hit modifiers as Light Smoke (see *Smoke*, pp. 45-46, *TO:AR*). If a volley of anti-TSM rounds misses its target, roll 1D6 to determine a scatter direction and place the resulting green smoke 1 hex away from the targeted unit in that direction. The green smoke persists for 3 turns before it dissipates.

If the target of the attack is equipped with prototype TSM (see p. 98), or industrial TSM created before 3050 (see p. 143, *TW*), apply an additional 6 points of damage to any unarmored locations struck by an anti-TSM warhead or which are exposed to anti-TSM smoke (such as by entering or passing through a hex filled with green smoke). In addition, any time the target unit suffers a critical hit, increase the number of critical hits to that location by 1. Resolve each critical hit that results, even if the modified result indicates 3 critical hits or more, and transfer critical normally if no other slots are available in the affected location; anti-TSM missiles cannot cause a limb/head blown off effect except through damage.

If the target of an anti-TSM missile attack is a conventional infantry unit augmented with triple-strength myomer implants (see p. 75), resolve the attack as a standard missile attack, but apply an additional 2D6 burst damage to the unit to reflect the effects of the green gas. Reduce this extra damage to 1D6 if the unit is merely entering or passing through a hex filled with anti-TSM green smoke, or if it is attacked while equipped with environmental protection of some kind (such as environmental suits, space suits, marine combat environment suits, or any other form of infantry armor rated for vacuum and/or toxic environments; see pp. 129-130, *TO:AUE*).

If the target is not a unit equipped with prototype TSM, industrial TSM created before 3050, or conventional infantry equipped with triple-strength myomer implants, treat the green gas as heavy smoke, and resolve damage from the warheads that hit as an attack by an equivalent number of standard missiles.

Construction Rules: Anti-TSM missiles are compatible only with standard LRM and SRM missile launchers, and may only be carried in full-ton lots. A ton of anti-TSM missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPECIALTY MUNITIONS: LISTEN-KILL MISSILES

Introduced: 3037 (Federated Suns, Lyran Commonwealth)

Extinct: 3040

Listen-kill (L-K) missiles were developed for use with standard short- and long-range missile launchers as one of the earliest efforts to achieve an electronics advantage in the late Succession Wars period. While they provided an initial advantage to the allied Davion and Steiner forces, they proved easily thwarted even before the full recovery of Star League-era ECM suites and the like. By the end of the War of 3039, the L-K missile system was deemed unable to compete with the pace of modern technology and further development was discontinued.

Listen-Kill Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with standard LRM, SRM, or MML launchers

Tech Base (Ratings): Inner Sphere (D/XXFX)

Game Rules: L-K missiles are incompatible with Streak, Artemis, and Narc systems, and can only be used by standard SRM and LRM launchers. When fielded in any scenario set before 3040, they provide a -1 modifier to the attacker's to-hit roll, but lose this

ability when fired into or through ECM fields of any kind. If fielded after 3039, L-K missiles function like standard SRMs and LRMs of the appropriate size launcher.

Construction Rules: Listen-Kill missiles are compatible only with standard LRM and SRM missile launchers, and may only be carried in full-ton lots. A ton of L-K missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes.

SPACE STATION K-F ADAPTER

Introduced: 2350 (Terran Hegemony)

Standard Production: 2375 (Terran Hegemony)

Extinct: 2850 (Inner Sphere)

Reintroduced: 3048 (Federated Suns)

The advent of the KF-boom for DropShips finally removed the weight limits imposed by internally-carried DropShuttles for interstellar voyages, and—in conjunction with the modern docking collars—paved the way for larger DropShips. This same technology, in the form of the space station KF adapter, also enabled an equally rapid deployment of space stations across the Inner Sphere. Though stations larger than a DropShip still had to be shipped in parts for local assembly, those weighing 100,000 tons and less could be transported to their destinations whole.

The Terran Hegemony used this modified KF boom technology to rapidly deploy battlesats and advanced listening posts along its borders. Though the technology fell into disuse during the Succession Wars (largely due to a dearth of station construction in that time), the Federated Suns revived it when they began to produce their *Capitol*-class system defense stations.

Space Station K-F Adapter Rules

Rules Level: Advanced

Available to: SS

Tech Base (Ratings): Both (C/DFDD)

Game Rules: A space station equipped with a K-F adapter may attach to the docking collar of a JumpShip or WarShip using the same procedure as a DropShip (see pp. 54-56, *SO*), except that the normal docking and undocking times are doubled, and neither the vessel nor the station may expend any Thrust while doing so.

Space stations may only dock with the collars on the JumpShip or WarShips' broadside locations (which must be noted prior to game play). While docked, the space station is fully shut down, and may not fire weapons, use sensors, or perform any special communications actions. Attacks from the carrying unit or against the docked space station are carried out as per the *Attacks from Docked Units* and *Attacking a Docked Unit* rules (see p. 55, *SO*).

Construction Rules: K-F adapters may be installed on any space station of 100,000 tons or less. The adapter itself is integrated into the station's hull, and takes up no mass or space on the station's record sheet, but will increase the station's C-bill cost.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

Introduced: 2680 (Terran Hegemony [Bimodal]), 2688 (Terran Hegemony [Standard])

Extinct: 2688/3050 (Inner Sphere [Bimodal/Standard]), —/2825 (Clans [Bimodal/Standard])

The Land-Air BattleMech (or Land-Air 'Mech—abbreviated as LAM) began with the radical request of SLDF Admiral David Peterson, then-commander of the SLDF, for Terran Hegemony manufacturers to create a series of BattleMechs that could both fly and function as light ground units. Allied AeroSpace, Inc. won the first bid and soon debuted its *Shadow Hawk* bimodal LAM, but only a handful of these early convertible BattleMechs were built before competitors perfected the standard three-mode LAM that survived into the Succession Wars.

Although LAMs went on to form a prominent component of all SLDF divisions, they were more expensive to maintain than conventional BattleMechs, and required extensive cross-training to use effectively. Combined with limited upgradability and a high rate of attrition, few remained after the Liberation of Terra. Once the Successor States had annihilated their navies in the early Succession Wars, a growing emphasis on ground-based combat relegated the LAM to a battlefield curiosity that few commanders could effectively employ or afford to risk. By the Fourth Succession War, the best academy for LAM pilots took fully three times as long as the worst State MechWarrior academies to churn out qualified pilots. Worse, the depredations of the Succession Wars reduced LAM manufacturing to a bare trickle by the time of the Clan invasion, leaving fewer of these machines available to graduates each year. Pilots failing to earn LAM assignments found themselves mediocre MechWarriors or aeriojocks compared to their peers and frequently died in combat without ever piloting a real LAM in battle.

When Clan Nova Cat destroyed the last LAM parts factory on Irece it marked the end for the struggling LAM. Though some Clans (notably the Jade Falcons) experimented with a dual-cockpit version for their own forces, and the Word of Blake's short-lived Spectral LAMs demonstrated a renewed interest in the concept, the hybrid machines never returned to widespread use.

BIMODAL LAMS

Rules Level: Experimental

Available to: BM

Tech Base (Ratings): Inner Sphere (E/EFXX)

The Bimodal LAM actually represents the first attempt at BattleMech-to-fighter conversion technology. Only one of these LAM types—the *Shadow Hawk* LAM—ever entered production, and only a few walked off the assembly line before competing manufacturers perfected the three-mode LAMs that would become the standard that survived into the Succession Wars.

STANDARD LAMS

Rules Level: Experimental

Available to: BM

Tech Base (Ratings): Inner Sphere (E/DEFX)

What became the standard LAM design emerged less than a decade after the LAM project began, when LexaTech Industries delivered the first fully functional LAM based upon the *Stinger* BattleMech, followed shortly by the Harvard Company's *Wasp* LAM. Outclassed by this innovation, Allied AeroSpace swiftly abandoned their bimodal *Shadow Hawk* LAM in favor of the *Phoenix Hawk* LAM.

GENERAL LAM GAME RULES

Bimodal LAMs have only two modes of operation: BattleMech mode and Fighter Mode, while Standard LAMs operate in three modes: BattleMech, Fighter, and a special "AirMech" Mode that is a hybrid of both.

The following game rules describe how each mode functions in phase of game play. Damage and heat for all LAMs are tracked using the LAM Record Sheet. Unless otherwise noted, all of the normal rules for each mode will apply to all operations the LAM performs in that mode, regardless of whether the unit is a Bimodal or Standard LAM.

LAM Pilot Skills

Because they are designed to operate as both aerospace fighters and as BattleMechs, LAMs require a more intensive cross-training regimen for their pilots. In gameplay, this means that a LAM pilot requires two sets of Gunnery and Piloting Skills, rather than one. The first set of these skills applies to the LAM's BattleMech functions, while the second set applies to its aerospace functions.

In gameplay, the Gunnery or Piloting Skill required in any given situation will depend on what mode the LAM is currently operating in, and—in the case of LAMs in AirMech Mode—what movement mode is being used. Unless the rules for a situation describe otherwise, substitutions are not allowed. If a roll requires the MechWarrior to use his BattleMech Gunnery Skill, the warrior cannot use his Aerospace Gunnery Skill instead (and vice versa).

The LAM Skill Table identifies what skills apply based on the LAM's current configuration and movement modes. In any turn where the LAM is converting from one configuration to another, the skills applicable to the previous (starting) configuration apply.

When generating random experience and skill ratings for LAMs (see p. 273, *TW*), apply a +3 modifier to the random experience roll, and apply a –2 modifier to the random skill roll. Roll for all four skills (BattleMech piloting, BattleMech gunnery, aerospace piloting, and aerospace gunnery) separately. The adjusted rolls cannot be less than zero or exceed the values on the tables.

LAM CONVERSION

Conversion is the process of switching from one of three LAM Modes to another: BattleMech Mode, AirMech Mode and Fighter Mode (in this context, the term "Fighter Mode" always refers to an aerospace fighter). The process is dictated by the mode the LAM is in, and the map the LAM is on (i.e. ground, low-altitude, high-altitude, or space).

Some standard rules apply regardless of these factors (additional rules for conversion, based on mode and map, follow this general list):

LAM SKILL TABLE

Configuration and Movement Mode	Piloting	Gunnery
Aerospace Fighter	Aerospace	Aerospace
AirMech Expending BattleMech MP	BattleMech	BattleMech
AirMech Expending AirMech MP	Aerospace	BattleMech
BattleMech	BattleMech	BattleMech



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENTALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

- Conversion is always announced at the start of the LAM's movement and is complete at the end of the LAM's movement for that turn's Movement Phase.
- A LAM maintains its facing when converting.
- During the turn of conversion the LAM maintains its previous movement type, but at half the normal movement rates (rounded down).
- Except when airborne and converting to and from Fighter Mode, a LAM does not have to move during the turn in which it changes modes.
- Converting LAMs may make attacks with a +3 to-hit modifier during the turn they are converting—they use the skills according to the mode they have converted from that turn.
- LAMs may change modes in back-to-back turns. For example, a LAM in BattleMech Mode could convert to AirMech Mode during the Movement Phase of turn 1, and from AirMech to Fighter Mode in the Movement Phase of turn 2.
- LAMs can only carry mechanized battle armor in BattleMech Mode. If the LAM converts to any other mode while transporting battle armor (or while being swarmed by hostile battle armor), the battle armor unit is automatically forced off in the process and suffers damage equivalent to a Level 2 fall. Furthermore, a LAM that fails to deploy any transported battle armor (or otherwise remove a swarming battle armor unit) before changing modes must roll on the Determining Critical Hits Table (see p. 124, TW) and apply the appropriate number of critical hits to a random hit location, determined on the Front/Back Table.
- A LAM that changes modes while being swarmed by conventional infantry will automatically apply 1D6 damage to the infantry unit, plus the effects of a Level 2 fall as the infantry is forced off. In addition, the converting LAM must roll once on the Determining Critical Hits Table (see p. 124, TW) with a -2 modifier added to the roll's result. Apply any critical hits that occur to a random hit location on the LAM, determined on the Front/Back Table.

Bimodal LAMs

Bimodal LAMs lack a middle AirMech Mode, and thus cannot convert to or from that mode, or use any movement rules applicable only to AirMech Mode. Bimodal LAMs on the ground cannot convert to Fighter Mode if they have expended any Walking, Running, or Jumping MP in the same Movement Phase.

Critical Hits: If any of the following critical hits have occurred, a Bimodal LAM may not convert: Shoulder, Upper Arm, Lower Arm, Hip, Upper Leg or Lower Leg Actuators, or Gyro. (**Exception:** The first hit to a heavy-duty gyro will not disable conversion, but the second and subsequent ones will.)

Standard LAMs

When operating on the ground or low-altitude maps, these units may change from BattleMech or Fighter Mode to AirMech, or from AirMech to BattleMech or Fighter Modes (but not directly from BattleMech Mode to Fighter Mode and vice versa) in a single turn.

A Standard LAM on the high-altitude or space map may convert to any mode in a single turn.

Damage to a LAM never forces it to change modes, but does affect conversion as follows:

Shoulder, Upper Arm and Lower Arm Actuator Critical Hits: These critical hits will disable any conversion to or from BattleMech Mode, but the LAM may still convert between Fighter and AirMech Modes.

Hip, Upper Leg Actuator and Lower Leg Actuator Critical Hits: These critical hits will disable conversion to or from Fighter Mode, but the LAM may still convert between BattleMech and AirMech Modes.

Gyro Critical Hits: May not convert between any modes. (**Exception:** As with Bimodal LAMs, the first hit to heavy-duty gyro will not disable conversion, but the second and subsequent ones will.)

Ground Conversion

These rules apply when a LAM ends its Movement Phase at 0 elevations above the underlying terrain and does not expend aerospace Thrust in the current turn.

LAMs may not convert while underwater, or even while partially submerged.

If, for any reason, a converting LAM ends its movement in a hex that is prohibited terrain for its new movement Mode, it is reduced to 0 MP (but not considered immobile) until it converts to a mode for which the terrain is not prohibited.

Airborne Conversion

Both Bimodal and Standard LAMs may convert while airborne. A LAM is airborne for conversion purposes if it is on the space map in a hex affected by gravity, on the high-altitude map, or on the low-altitude map. Dropping LAMs may not convert until jettisoning their drop cocoon (if applicable).

Converting to AirMech Mode (Standard LAMs only): A LAM that converts to AirMech Mode while airborne above Altitude 3 on the low-altitude map is treated as a BattleMech making a drop (see p. 20, SO) and begins falling in the Aerospace Movement Phase of the following turn. The fall rate on the high-altitude/space map is 1 hex per turn. If a LAM enters the space/atmosphere interface hex row from a space hex in any mode other than Fighter (or a BattleMech in a cocoon), it is destroyed immediately. The fall rate on the low altitude map is 3 Altitude rows per turn, modified as normal for atmospheric density (see p. 20, SO).

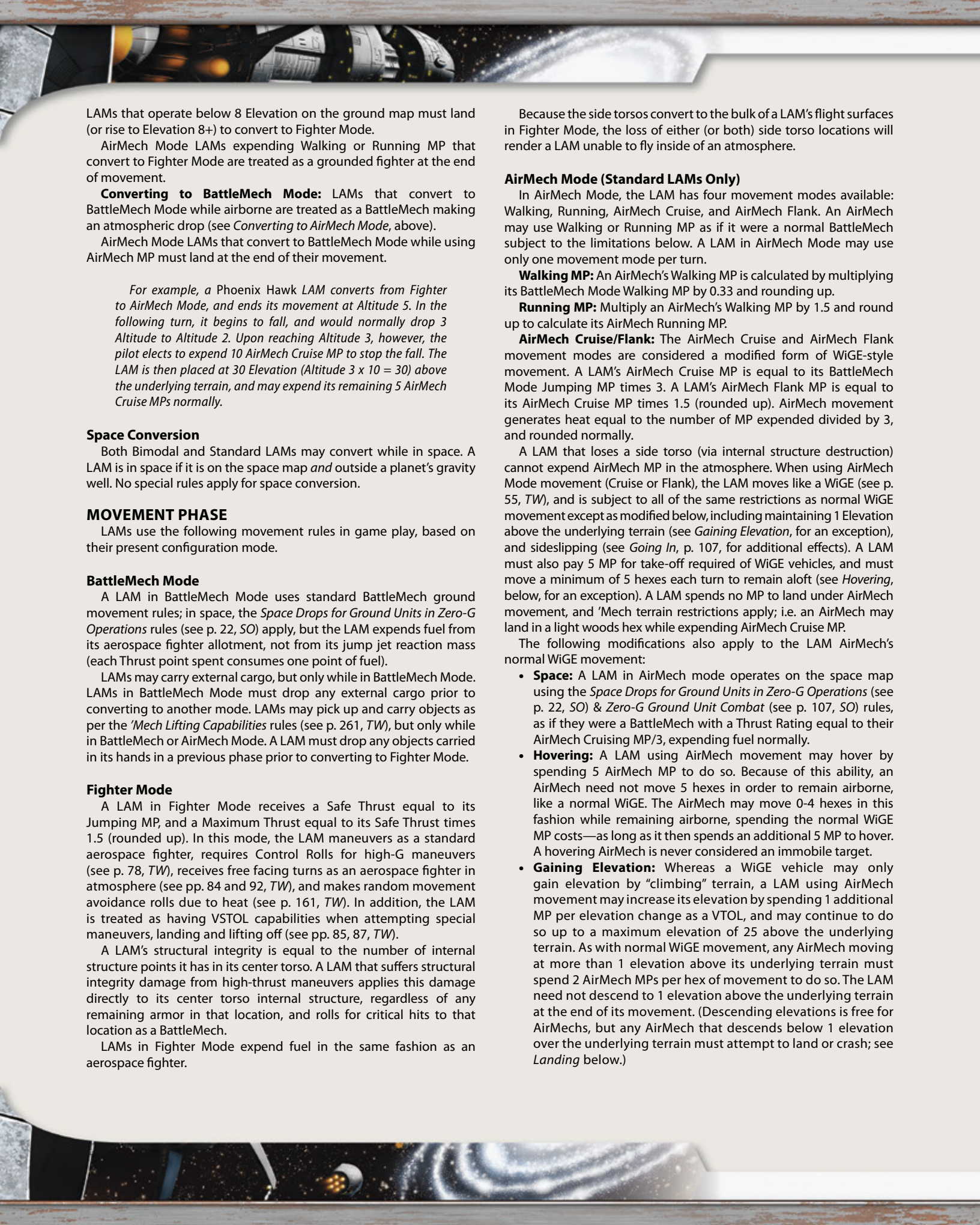
An AirMech that drops to Altitude 3 or lower may stop its descent by expending 10 AirMech MP at the beginning of the phase. Multiply the AirMech's Altitude by 10 and place it at that elevation above the underlying terrain on the ground map. The LAM may then continue moving normally using its remaining AirMech MP.

A Fighter Mode LAM that converts to AirMech Mode and ends its movement at Altitude 3 or less does not begin dropping, but is placed at its altitude times 10 in elevations above the underlying terrain.

A BattleMech Mode LAM that converts to AirMech Mode while dropping continues to drop, but may stop its fall by expending 10 AirMech MP once it reaches Altitude 3 or lower.

Converting to Fighter Mode: If a LAM converts to Fighter Mode while it is airborne, it continues to drop as normal, but may begin expending Thrust as a fighter during the Aerospace Movement Phase of the following turn—as long as its conversion occurs before it falls to an Altitude of 0. A converting LAM that falls to Altitude 0 at the end of its Movement Phase crashes as an aerospace fighter (see p. 81, TW).

AirMech Mode LAMs expending AirMech MP must reach 8 or more elevations above the underlying terrain by the end of their movement to convert to Fighter Mode while remaining airborne. At this point, they are placed at Altitude 1 (NOE) in the corresponding hex on the low-altitude map, and may begin the next Movement Phase in Fighter Mode. (If the *Aerospace Units on Ground Mapsheets* rule—see p. 91, TW—is in use, these units may continue expending AirMech MP to remain aloft.) AirMech Mode



LAMs that operate below 8 Elevation on the ground map must land (or rise to Elevation 8+) to convert to Fighter Mode.

AirMech Mode LAMs expending Walking or Running MP that convert to Fighter Mode are treated as a grounded fighter at the end of movement.

Converting to BattleMech Mode: LAMs that convert to BattleMech Mode while airborne are treated as a BattleMech making an atmospheric drop (see *Converting to AirMech Mode*, above).

AirMech Mode LAMs that convert to BattleMech Mode while using AirMech MP must land at the end of their movement.

For example, a Phoenix Hawk LAM converts from Fighter to AirMech Mode, and ends its movement at Altitude 5. In the following turn, it begins to fall, and would normally drop 3 Altitude to Altitude 2. Upon reaching Altitude 3, however, the pilot elects to expend 10 AirMech Cruise MP to stop the fall. The LAM is then placed at 30 Elevation (Altitude 3 x 10 = 30) above the underlying terrain, and may expend its remaining 5 AirMech Cruise MPs normally.

Space Conversion

Both Bimodal and Standard LAMs may convert while in space. A LAM is in space if it is on the space map *and* outside a planet's gravity well. No special rules apply for space conversion.

MOVEMENT PHASE

LAMs use the following movement rules in game play, based on their present configuration mode.

BattleMech Mode

A LAM in BattleMech Mode uses standard BattleMech ground movement rules; in space, the *Space Drops for Ground Units in Zero-G Operations* rules (see p. 22, SO) apply, but the LAM expends fuel from its aerospace fighter allotment, not from its jump jet reaction mass (each Thrust point spent consumes one point of fuel).

LAMs may carry external cargo, but only while in BattleMech Mode. LAMs in BattleMech Mode must drop any external cargo prior to converting to another mode. LAMs may pick up and carry objects as per the *'Mech Lifting Capabilities* rules (see p. 261, TW), but only while in BattleMech or AirMech Mode. A LAM must drop any objects carried in its hands in a previous phase prior to converting to Fighter Mode.

Fighter Mode

A LAM in Fighter Mode receives a Safe Thrust equal to its Jumping MP, and a Maximum Thrust equal to its Safe Thrust times 1.5 (rounded up). In this mode, the LAM maneuvers as a standard aerospace fighter, requires Control Rolls for high-G maneuvers (see p. 78, TW), receives free facing turns as an aerospace fighter in atmosphere (see pp. 84 and 92, TW), and makes random movement avoidance rolls due to heat (see p. 161, TW). In addition, the LAM is treated as having VSTOL capabilities when attempting special maneuvers, landing and lifting off (see pp. 85, 87, TW).

A LAM's structural integrity is equal to the number of internal structure points it has in its center torso. A LAM that suffers structural integrity damage from high-thrust maneuvers applies this damage directly to its center torso internal structure, regardless of any remaining armor in that location, and rolls for critical hits to that location as a BattleMech.

LAMs in Fighter Mode expend fuel in the same fashion as an aerospace fighter.

Because the side torsos convert to the bulk of a LAM's flight surfaces in Fighter Mode, the loss of either (or both) side torso locations will render a LAM unable to fly inside of an atmosphere.

AirMech Mode (Standard LAMs Only)

In AirMech Mode, the LAM has four movement modes available: Walking, Running, AirMech Cruise, and AirMech Flank. An AirMech may use Walking or Running MP as if it were a normal BattleMech subject to the limitations below. A LAM in AirMech Mode may use only one movement mode per turn.

Walking MP: An AirMech's Walking MP is calculated by multiplying its BattleMech Mode Walking MP by 0.33 and rounding up.

Running MP: Multiply an AirMech's Walking MP by 1.5 and round up to calculate its AirMech Running MP.

AirMech Cruise/Flank: The AirMech Cruise and AirMech Flank movement modes are considered a modified form of WiGE-style movement. A LAM's AirMech Cruise MP is equal to its BattleMech Mode Jumping MP times 3. A LAM's AirMech Flank MP is equal to its AirMech Cruise MP times 1.5 (rounded up). AirMech movement generates heat equal to the number of MP expended divided by 3, and rounded normally.

A LAM that loses a side torso (via internal structure destruction) cannot expend AirMech MP in the atmosphere. When using AirMech Mode movement (Cruise or Flank), the LAM moves like a WiGE (see p. 55, TW), and is subject to all of the same restrictions as normal WiGE movement except as modified below, including maintaining 1 Elevation above the underlying terrain (see *Gaining Elevation*, for an exception), and sideslipping (see *Going In*, p. 107, for additional effects). A LAM must also pay 5 MP for take-off required of WiGE vehicles, and must move a minimum of 5 hexes each turn to remain aloft (see *Hovering*, below, for an exception). A LAM spends no MP to land under AirMech movement, and 'Mech terrain restrictions apply; i.e. an AirMech may land in a light woods hex while expending AirMech Cruise MP.

The following modifications also apply to the LAM AirMech's normal WiGE movement:

- **Space:** A LAM in AirMech mode operates on the space map using the *Space Drops for Ground Units in Zero-G Operations* (see p. 22, SO) & *Zero-G Ground Unit Combat* (see p. 107, SO) rules, as if they were a BattleMech with a Thrust Rating equal to their AirMech Cruising MP/3, expending fuel normally.
- **Hovering:** A LAM using AirMech movement may hover by spending 5 AirMech MP to do so. Because of this ability, an AirMech need not move 5 hexes in order to remain airborne, like a normal WiGE. The AirMech may move 0-4 hexes in this fashion while remaining airborne, spending the normal WiGE MP costs—as long as it then spends an additional 5 MP to hover. A hovering AirMech is never considered an immobile target.
- **Gaining Elevation:** Whereas a WiGE vehicle may only gain elevation by "climbing" terrain, a LAM using AirMech movement may increase its elevation by spending 1 additional MP per elevation change as a VTOL, and may continue to do so up to a maximum elevation of 25 above the underlying terrain. As with normal WiGE movement, any AirMech moving at more than 1 elevation above its underlying terrain must spend 2 AirMech MPs per hex of movement to do so. The LAM need not descend to 1 elevation above the underlying terrain at the end of its movement. (Descending elevations is free for AirMechs, but any AirMech that descends below 1 elevation over the underlying terrain must attempt to land or crash; see *Landing* below.)

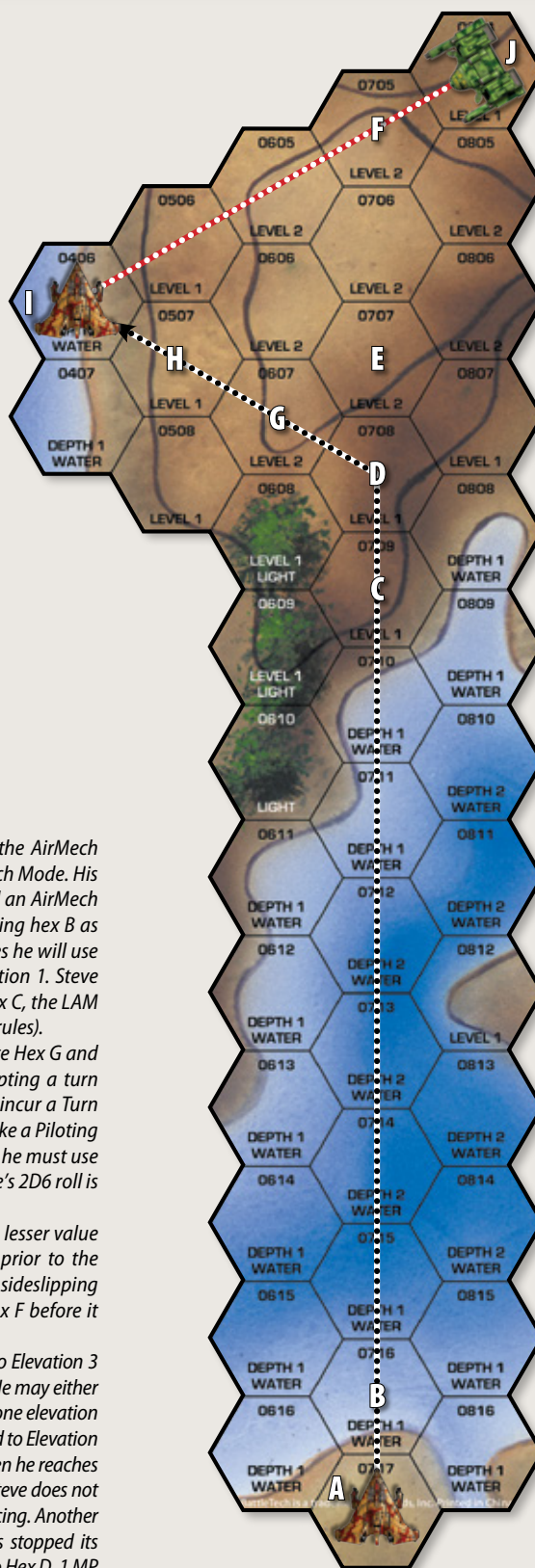
- **Landing:** When using AirMech movement modes, a LAM that descends to the level of the underlying terrain is attempting to land. No Piloting Skill Rolls are required to land unless the LAM has suffered critical damage to its gyro, hip, or leg actuator critical slots. In such a case, the LAM must make a successful Control Roll when landing to avoid a crash (see *Going In*, p. 107).
- **Stacking:** A LAM in AirMech Mode uses 'Mech stacking rules (see p. 57, *TW*), only when expending Walking or Running MP. When expending AirMech MP, the LAM uses WiGE stacking rules when it operates at 2 or fewer elevations above the underlying terrain; when 3 or more elevations above the underlying terrain, LAMs in AirMech Mode use the stacking rules for VTOLs.
- **Acceleration and Deceleration:** Even though AirMech movement is based on that of a WiGE vehicle, LAMs using AirMech movement are not bound by the acceleration/deceleration rules for vehicles as found in *Tactical Operations:AR* (see p. 22, *TO:AR*), if those optional rules are in play.
- **Turn Modes:** A LAM using AirMech movement must follow the rules for turn modes (see p. 23, *TO:AR*), even if the optional Turn Modes rules are not otherwise being used. Terrain and environmental conditions do not modify the roll. If the Turn Mode Roll fails, apply a +0 Vehicle Type Modifier to the roll on the Failed Maneuver Table (see p. 24, *TO:AR*).
- **Overdrive and Bonus MP:** A LAM using AirMech movement may not use the Overdrive speed described for vehicles in *Tactical Operations:AR* (see p. 23, *TO:AR*), but may gain bonus MP as a consequence of its WiGE-based movement equal to 1 extra MP for every 3 consecutive hexes of decreasing elevation (see pp. 23-24, *TO:AR*).
- **Evasive Action/Evading:** A LAM using AirMech movement may not use Evasive Action (p. 77, *TW*) or Evading (p. 15, *TO:AR*).

Steve is moving his Phoenix Hawk LAM on the Large Lakes #1 map in the AirMech Movement and Combat Diagram. In the previous turn he converted to AirMech Mode. His Phoenix Hawk LAM has 5 Jumping MP giving it an AirMech Cruise of 15 and an AirMech Flank of 23 ($15 \times 1.5 = 22.5$, round up to 23). He begins the turn in hex A facing hex B as shown. He wants to move to Hex I to engage the 'Mech in Hex J. Steve decides he will use AirMech Flank movement. It costs 5 MP to lift off, putting the LAM at Elevation 1. Steve starts moving the LAM forward at a cost of 1 MP per hex. When it reaches Hex C, the LAM automatically rises to Elevation 2 at no additional cost (per WiGE movement rules).

After moving into Hex D, Steve turns the LAM one hexside to the left to face Hex G and continues moving. Because it has moved more than 3 hexes before attempting a turn (required for spending 19 MP; see Turn Modes, p. 23, *TO:AR*), Steve does not incur a Turn Mode Roll. However, since the LAM is moving at Flank speed, he still must make a Piloting Skill Roll to avoid sideslipping. Consulting the LAM Skill Table, Steve sees that he must use his Aerospace Piloting Skill for this roll. His Aerospace Piloting is a 5, and Steve's 2D6 roll is a 7 so his movement continues normally.

Had Steve rolled a 2 instead, the LAM would have sideslipped 3 hexes (the lesser value between the warrior's Margin of Failure and the LAM's distance traveled prior to the sideslip -1) into Hex E. Because hex E is only one level higher than Hex D, the sideslipping LAM would have automatically risen to Elevation 3 and continued on to Hex F before it could continue moving normally.

Continuing its movement from Hex D, Steve's LAM gains 1 elevation, rising to Elevation 3 when it enters Hex G. When Steve's LAM enters Hex H, he has a choice to make. He may either continue moving at Elevation 3 (at a cost of 2 MP per hex) or he may descend to one elevation above the underlying terrain (putting him at Elevation 1). Steve decides to descend to Elevation 2, and then descends again (to Elevation 1) as he moves from Hex H to Hex I. When he reaches Hex J, Steve's LAM makes a 1-hexside turn to the right and ends its movement. Steve does not need to make a Turn Mode Roll since the LAM moved 3 hexes before changing facing. Another Piloting Skill Roll to avoid side-slipping is also unnecessary, since the unit has stopped its movement here. The total MP expenditure is 19: 5 MP to take off, 9 MP to move to Hex D, 1 MP to turn and face Hex G, 1 MP to move to hex H, 1 MP to move to Hex I, and 1 MP to turn in Hex I.



• AIRMECH MOVEMENT AND COMBAT DIAGRAM •

LAM CRITICAL HIT TABLE

Critical Hit	BattleMech Mode	AirMech Mode	Fighter Mode
Avionics			
First hit	No Effect	+1 Piloting Modifier	+1 Piloting Modifier
Second hit	No Effect	+2 Piloting Modifier	+2 Piloting Modifier
Third hit	No Effect	+5 Piloting Modifier	+5 Piloting Modifier
Cockpit	Pilot Killed	Pilot Killed	Pilot Killed
Engine			
First hit	+5 Heat per turn	+5 Heat per turn	+2 Heat per turn
Second hit	+10 Heat per turn	+10 Heat per turn	+4 Heat per turn
Third hit††	Engine Destroyed	Engine Destroyed	Engine Destroyed
Jump Jets	−1 Jump MP (each hit)	−3 AirMech Cruise MP* (each hit)	−1 Safe Thrust* (each hit)
Landing Gear			
First hit	No Effect	No Effect	+1 Piloting to Land
Second hit	No Effect	No Effect	+2 Piloting to Land
Third hit	No Effect	No Effect	+5 Piloting to Land
Gyro			
First hit	+3 Piloting Modifier	+3 Piloting Modifier	+3 Piloting Modifier
Second hit	Gyro Destroyed‡	Gyro Destroyed‡	+6 Piloting Modifier
Sensors			
First hit	+2 To-Hit	+2 To-Hit	+2 To-Hit
Second hit	Weapon attacks impossible, regardless of current movement mode		
Arm Actuators			
Shoulder	+4 To-Hit†	+4 To-Hit†	+4 To-Hit†
Upper Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Lower Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Hand	+1 to Punch	+1 to Punch	No Effect
Leg Actuators			
Hip	Half Walk MP* +2 Piloting Modifier	+2 Piloting to Land	No Effect
Upper Leg	−1 Walk MP**, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Lower Leg	−1 Walk MP* , +1 Piloting Modifier	+1 Piloting to Land	No Effect
Foot	−1 Walk MP* , +1 Piloting Modifier	+1 Piloting to Land	No Effect
Other Equipment	Per normal rules	Per normal rules	Per normal rules

*Recalculate AirMech Flank and Maximum Thrust MPs normally (x 1.5). Always round up.

**Recalculate Run MP normally (x 1.5). Always round up.

†Affects weapons in that arm only

††The third engine hit destroys the engine and the LAM shuts down, which may result in a no-thrust landing attempt (see p. 86, *TW*).

‡In BattleMech and AirMech Modes, the LAM will automatically fall and may not stand

Gyro Note: The first critical hit to the gyro disables the LAM's ability to convert between modes, regardless of the current movement mode. (If the LAM has a heavy-duty gyro, treat the first hit as a +1 Piloting Skill modifier instead, and the LAM may still convert between modes. The effects for the first hit on this table, including the loss of conversion capability, will thus occur with the second hit against such gyros. A third hit to a heavy-duty gyro destroys the gyro.)

Actuators Note: Critical hits to any arm actuator other than the hand will disable the LAM's ability to convert to or from BattleMech mode. Critical hits to any leg actuator other than the foot will disable the LAM's ability to convert to or from Fighter mode.

COMBAT PHASE

LAMs use the following combat rules in game play, based on their present configuration mode.

All Modes

The following rules apply to LAMs regardless of the conversion mode they are in at the time:

Piloting Skill Modifiers: Like aerospace units, LAMs apply a +1 to-hit modifier to all Piloting Skill Rolls for each pilot hit suffered by a LAM pilot.

Critical Hits: LAMs always suffer critical hits in accordance with the rules for BattleMechs, not aerospace fighters. This includes checking for critical hits whenever a location's internal structure suffers damage, rather than through damage that exceeds its aerospace armor threshold (see below). Consult the LAM Critical Hits Table (at left) when resolving critical hits against a LAM.

Bombs and Bomb Bays

Because doing so would interfere with their conversion abilities, LAMs may not carry bombs or external ordnance the way an aerospace fighter does. Instead, they must be constructed with internal bomb bays capable of accommodating weapons and equipment normally used in such a fashion (see *LAM Construction*, p. 108).

The bombs and other external ordnance usable within a LAM bomb bay are listed in the LAM Bomb Bay Ordnance Table (see p. 106).

In Fighter Mode, LAMs may carry, use, and jettison any items in its bomb bays as a normal aerospace fighter would use external ordnance (see pp. 245-247, *TW*). Because these items are carried internally, and their weight is largely accounted for during the unit's construction, the mass and size of any ordnance stored in these bomb bays will not affect the LAM's Thrust ratings in Fighter Mode.

In AirMech Mode, the LAM may carry, use, and jettison the items in its bomb bays via the rules used by VTOLs with external stores (see p. 106, *TO:AR*). Because these items are carried internally, and their weight is largely accounted for during the unit's construction, the mass and size of any external ordnance in these bomb bays will not affect the LAM's AirMech MPs.

In BattleMech Mode, a LAM becomes unable to execute bombing missions. Thus, in this mode, the LAM may only use TAG and rocket launcher weapons stored in its bomb bays, treating such weapons as if they were mounted in the appropriate torso locations for their bays. These weapons always fire into the unit's forward arc. If a LAM in BattleMech Mode opts to jettison its bombs or other bomb bay stores, it may do so using the normal rules for dumping ammo (see p. 104, *TW*).

Excess Heat and Bomb Bays: In any mode of operation, a LAM that overheats while carrying bombs within its internal bays must check for ammunition explosion as if it is a 'Mech carrying Inferno munitions (see p. 141, *TW*).



LAM BOMB BAY ORDNANCE TABLE

Bomb Type	Description
Air-to-Air Arrow	20-point air-to-air missile (see p. 169, <i>TO:AUE</i>)
Anti-Ship Missile	30-point anti-ship missile (see p. 170, <i>TO:AUE</i>)
Anti-ship EW Missile	Capital-scale electronic-warfare missile (see p. 170, <i>TO:AUE</i>)
Arrow IV Missile	20-point air-to-ground missile, homing or unguided (see pp. 170-171, <i>TO:AUE</i>)
Cluster	5-point-per-hex air-to-ground cluster bomb (see pp. 249-250, <i>TW</i>)
Fuel	Provides 40 additional fuel points
High Explosive	10-point standard air-to-ground bomb (see pp. 249-250, <i>TW</i>)
Inferno	Incendiary air-to-ground bomb, generates 10 heat or damage (p. 171, <i>TO:AUE</i>)
Laser Guided	10-point TAG-guidable air-to-ground bomb (see pp. 249-250, <i>TW</i>)
Light Air-to-Air Missile	6-point air-to-air missile (see p. 171, <i>TO:AUE</i>)
Rocket Launcher	Provides single-shot Rocket Launcher 10 to unit
TAG	Provides TAG weapon to unit (see p. 250, <i>TW</i>)
Thunder	Delivers 20-point standard minefield to target area (see p. 172, <i>TO:AUE</i>)
Thunder Active	Delivers 20-point active minefield to target area (see p. 172, <i>TO:AUE</i>)
Thunder Vibrabomb	Delivers 20-point vibrabomb minefield to target area (see p. 172, <i>TO:AUE</i>)
Torpedo	10-point air-to-water bomb (see p. 172, <i>TO:AUE</i>)

LAM BOMB BAY CRITICAL HIT TABLE

Bomb Type	Critical Hit Effect
Air-to-Air Arrow	Explodes for 20 points of damage
Anti-Ship Missile	Explodes for 30 points of damage
Anti-Ship EW Missile	Explodes for 5 points of damage
Arrow IV Missile	Explodes for 20 points of damage
Cluster	Explodes for 5 points of damage
Fuel	Explodes on 2D6 roll 10+; 1 point of damage per point of fuel remaining
High Explosive	Explodes for 10 points of damage
Inferno	LAM adds 10 heat points in the current turn
Laser Guided	Explodes for 10 points of damage
Light Air-to-Air Missile	Explodes for 6 points of damage
Rocket Launcher	Explodes for 10 points of damage
TAG	Destroys TAG
Thunder	Explodes for 20 points of damage
Thunder Active	Explodes for 20 points of damage
Thunder Vibrabomb	Explodes for 20 points of damage
Torpedo	Explodes for 10 points of damage

Critical Hits to Bomb Bays: A critical hit to most of a LAM's internal stores (bomb bays) may cause an explosion doing damage as shown on the LAM Bomb Bay Critical Hit Table (see above). If a bomb is not listed, assume it explodes causing 10 points of damage. Treat an exploding bomb as an internal ammunition explosion (including causing 2 points of damage to the LAM's pilot). CASE or CASE II in the same location as the bomb bay will affect a bomb explosion just as it effects an ammo explosion. A critical hit to an empty Bomb Bay destroys the bay, but causes no further effect.

Repairing LAM Bomb

Bays: Repairing a LAM's bomb bay takes 60 minutes. Apply a -1 Skill modifier to the Repair Check (see p. 204, *CO*). Bomb Bays cannot be partially repaired.

BattleMech Mode

A LAM in BattleMech Mode functions just like a BattleMech during the Combat Phase, and may make (and receive) Weapon and Physical Attacks as a 'Mech.

Mechanized Infantry:

The only form in which a LAM may carry and deploy battle armor is in its BattleMech Mode. Because LAMs may not be constructed as OmniMechs, however, the only way such units can do so is if the battle armored unit is

equipped with magnetic clamps. Any battle armor a LAM carries should be deployed before the LAM can switch modes, or both units may suffer damage (see *LAM Conversion*, p. 100).

Infantry Physical Attacks: As noted under the LAM Conversion rules, LAMs that are being swarmed by infantry risk damage to themselves if they switch modes before the infantry unit has been removed or destroyed.

Fighter Mode

LAMs in Fighter Mode deliver the attack using the same rules as an aerospace fighter. However, because LAMs are actually reconfigured BattleMechs, the LAM Fighter Firing Arcs Table (see p. 106) is used to translate the LAM's normal BattleMech firing arcs into their appropriate Fighter Mode equivalents.

Units attacking a LAM in Fighter Mode resolve the action with the same rules for attacks against an aerospace fighter, applying all appropriate modifiers for angle of attack, atmospheric effects, and so forth. The hit locations used, whether in space or atmosphere, are determined by using the LAM Fighter Hit Location Table (see p. 106).

For the purposes of Advanced Atmospheric Control Rolls (see p. 85, *SO*) or other rules that reference a fighter's damage threshold, a LAM in Fighter Mode receives a threshold value equal to the current internal structure points remaining in the location struck. However, while Control Rolls will still be required any time the LAM's Damage Threshold is exceeded, LAMs in Fighter Mode only check for possible critical hits if the damage exceeds a location's armor and hits the internal structure, like a 'Mech. Furthermore, the only way a LAM's structural integrity can be reduced while in Fighter Mode is when its center torso suffers a loss of internal structure points through damage (including damage from high-thrust maneuvers; see *Movement Phase*, p. 102).

LAMs in Fighter Mode are also still treated as BattleMechs when operating in vacuum, and thus may suffer hull breach chances when operating in space (see p. 52, *TO:AR*).

Aside from these modifications, a LAM in Fighter Mode follows all normal aerospace fighter combat rules.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

LAM FIGHTER HIT LOCATION TABLE

2D6 Roll	Nose	Aft	Side	Above/Below
2	Center Torso	Center Torso\$	Head	Right Torso
3	Right Torso	Right Torso\$	Arm‡	Arm†
4	Right Arm	Right Torso\$	Center Torso	Arm†
5	Right Arm	Right Arm	Center Torso	Leg†
6	Right Torso	Right Leg	Torso‡	Right Torso
7	Center Torso*	Leg†*	Arm‡	Center Torso
8	Left Torso	Left Leg	Torso‡	Left Torso
9	Left Arm	Left Arm	Leg‡*	Leg†
10	Left Arm	Left Torso\$	Leg‡	Arm†
11	Left torso	Left Torso\$	Arm‡	Arm†
12	Center Torso	Center Torso\$	Leg‡	Left Torso

*Control Roll required if the damage exceeds the LAM's Damage Threshold

†Roll 1D6: 1–3 Right, 4–6 Left

\$Roll 1D6: 1–4 Apply Damage to Front Torso, 5–6 Apply Damage to Rear Torso

‡Hits the corresponding arm, leg, or torso, e.g. attack from left side hits left arm, left torso, or left leg

AIRMECH ATTACKER MODIFIERS TABLE

Attacker Movement Mode	Modifier
Walking	+1
Running	+2
AirMech Cruise	+3
AirMech Flank	+4

AirMech Mode

For LOS purposes, a LAM in AirMech Mode has a height of 1 level and thus cannot benefit from partial cover. When calculating a LAM's Attacker Movement Modifier while in AirMech Mode, consult the AirMech Attacker Modifiers Table (see above).

Units attacking a LAM in AirMech Mode treat the LAM as a 'Mech for calculating Target Movement Modifiers.

A LAM in AirMech Mode that expends AirMech MP is considered airborne and receives a +1 Target Movement Modifier. Attacks that would ordinarily receive a special modifier against airborne targets (such as flak) also apply this modifier.

A LAM in AirMech Mode uses BattleMech firing arcs both to execute its attacks and when resolving attacks made against it, but unlike a standard BattleMech, a LAM in AirMech Mode cannot rotate its torso facing. Calculate attack direction and LOS as if the LAM is a 1-level-tall 'Mech at its current elevation and facing. Remember that if the AirMech is airborne, it will generally be at least 2 elevations high, counting its elevation and unit height together. Use the appropriate column of the 'Mech Hit Location Table (see p. 119, *TW*) to resolve damage against the LAM in AirMech Mode.

Physical Attacks: LAMs in AirMech Mode may make physical attacks whether they are on the ground or airborne, but the standard attack and damage rules for a BattleMech only apply if the LAM used Walking or Running MP during its Movement Phase.

Airborne AirMechs (those using AirMech MPs in the Movement Phase), may execute kick, punch, and melee weapon attacks in this movement mode, but must resolve these physical attacks using the

LAM FIGHTER FIRING ARCS TABLE

BattleMech Location	Fighter Firing Arc
Head	Nose
Center Torso	Nose
Center Torso (Rear)	Aft
Left Torso	Left Wing
Left Torso (Rear)	Left Wing (Aft)
Right Torso	Right Wing
Right Torso (Rear)	Right Wing (Aft)
Left Arm	Left Wing
Right Arm	Right Wing
Left Leg	Aft
Right Leg	Aft

AirMech's Aerospace Piloting Skill for the Base To-Hit Number, rather than the normal BattleMech Piloting Skill. Furthermore, the LAM's elevation must also be accounted for when executing such attacks, using the rules for different levels (see p. 150, *TW*).

Successful kick, punch, and melee weapon attacks performed while using AirMech MPs will inflict only half of their normal damage (rounded up). If such attacks fail for any reason—including punches and melee weapon attacks—a Control Roll is immediately required to avoid a crash (see *Going In*, p. 107).

AirMech Ram: LAMs using AirMech MPs cannot execute a charge attack, but may make a modified attack known as an "AirMech Ram". This attack cannot target infantry units or ProtoMechs. An AirMech Ram requires the LAM's controlling player to first roll an 11 or 12 on 2D6, representing the pilot's effort to summon the willpower for such a suicidal maneuver, made immediately prior to the LAM's movement. If the roll fails, the LAM must move normally, and may not attempt to ram. If successful, the pilot may attempt the AirMech Ram using a Base To-Hit Number of 5.

Add the LAM's Aerospace Piloting Skill to the ramming attack's base to-hit number, and subtract its target's Piloting Skill. Terrain modifiers applicable to the target's hex and elevation are also added to the to-hit number for this attack. If the roll is equal to or higher than this modified target number, the ram is successful.

A successful AirMech Ram delivers 1 point for every 5 tons of the LAM's weight, multiplied by the number of hexes the LAM moved in the turn of the attack (rounded up). This damage is applied to a single hit location against the target, appropriate to the direction of the attack (Front, Side, or Rear). A successful AirMech Ram is always resolved against the target's normal hit location table (not the Punch or Kick tables). Meanwhile, the LAM will suffer 1 point of damage for every 10 tons its target weighs, multiplied by the number of hexes the LAM moved during the turn (rounded up). This damage is automatically applied directly to the LAM's front center torso.

If the LAM or its target are destroyed before an AirMech Ram to-hit roll is made, the attack automatically fails. A failed AirMech Ram attack forces the LAM's controlling player to make a Control Roll to avoid crashing (see *Going In*, p. 107).

A successful AirMech Ram places the unit in the hex adjacent to its target along its path of travel, and forces the LAM's controlling player to make a Control Roll. If this roll succeeds, the LAM lands safely in that hex (and will begin the following turn on the ground). Otherwise, the LAM suffers additional damage as if it fell in that hex from a height of 1 elevation above the underlying terrain.



HEAT PHASE

BattleMech Mode: LAMs in BattleMech Mode generate and dissipate heat in the same manner as a 'Mech.

Fighter Mode: LAMs in Fighter Mode generate and dissipate heat in the same manner as an aerospace fighter.

AirMech Mode: LAMs in AirMech Mode that use Walking or Running MP generate heat in the same manner as a BattleMech (1 point for Walking MP; 2 for Running MP). When using AirMech MPs, LAMs generate 1 point of movement heat for every 3 AirMech MPs expended (rounded normally).

AirMech Mode also confers Heat Sink capabilities as per the Partial Wing rules (see pp. 104-105, *TO:AUE*). For example, in standard atmospheric pressure LAMs in AirMechs Mode apply -3 to their heat during the Heat Phase.

Steve's AirMech is in Hex I as shown in the AirMech Movement and Combat Diagram (see p. 103). He ended his movement at Elevation 1, putting his LAM at Level 2 for LOS purposes. His target, a CHP-1N Champion in Hex J, is standing on Level 1 terrain and is thus at Level 3 for LOS purposes. Because the hill in Hex F intervenes, the Champion will get partial cover.

Steve checks the LAM Skill Table and sees that he'll use his BattleMech Gunnery Skill (4) for this combat. Consulting the LAM Attacker Modifiers Table, Steve adds 4 to his to-hit number for using AirMech Flank movement. The Champion moved for a +2, giving Steve a Modified To-Hit Number of 10 for a short-range shot with the Phoenix Hawk's large laser, and 12s for his shots with the medium lasers. Steve rolls 5, 12 and 8, landing a 5-point hit on the Champion.

Steve calculates his heat build-up for the turn. His AirMech Flank movement generates heat equal to the number of MP divided by 3, rounded normally. Since he spent 19 MP, this equals 6.33, which rounds to 6 points of heat. His large laser generates 8 heat points, and each medium laser generates 3, for a total of 20. His Phoenix Hawk LAM has 12 single heat sinks and shunts another 3 since it's in AirMech Mode so Steve's looking at 5 on the heat scale, assuming he doesn't take any significant damage.

The Champion returns fire with its SRM 6, two medium lasers, and an LB 10-X autocannon. The Champion's Gunnery Skill is 3, and applies a +1 for using Walking movement. The Phoenix Hawk LAM's AirMech movement adds a +4 modifier, with another +1 applied because the LAM is airborne. The Champion's SRM and medium lasers are at medium range, applying a +2 modifier to those weapons, but its LB 10-X is at short range and using cluster munitions, which give it a -2 Flak modifier against the AirMech. This means the SRM 6 and medium lasers will need 11s, while the LB 10-X needs an 8.

The Champion manages to roll a 12 for its SRM 6, an 11 for one medium laser, a 5 for the other medium laser, and an 8 for the LB 10-X. After resolving the damage—none of which manages to penetrate the LAM's armor—Steve notes that his AirMech has sustained 21 points of damage.

The Phoenix Hawk must now make a Control Roll due to this massive damage. Once again looking at the LAM Skill Table, Steve sees that he will need to use his Aerospace Piloting Skill for this roll, which is 5. The modifier is +1 for taking 21 points of damage, giving Steve a target number of 6. It's a bad day for Steve as he rolls a 4. Since his LAM was airborne, he will lose his MoF in elevation. Since he is only 1 elevation above the surface of the water, this results in a crash.

Now things get tricky. The total number of levels fallen is 3, the difference between Elevation 1 and Elevation -1 (the bottom of the water hex at Depth 1), plus 1 additional level (see

p. 68, TW). Steve's LAM will take damage equal to its tonnage divided by 10 (rounded up) times the number of levels fallen, or 18 points, but since the LAM is falling into a water hex, this is reduced by half. Steve rolls a 5-point Damage Value grouping and a 4-point Damage Value grouping on his LAM, and checks for a hull breach for both hits. Fortunately, his LAM survives the damage with no breached locations. Unfortunately, since the LAM is only one level tall, it is completely submerged in the Depth 1 water hex. It cannot change modes underwater, and will have to walk out using its AirMech Walking MP of 2. As the nearest Level 0 hex is four hexes away, it will take Steve four turns to get his LAM back onto land. The only good news for Steve is that with his LAM completely submerged, it dissipates 6 additional points of heat, keeping him heat neutral this turn.

GOING IN

AirMechs can move much faster than most BattleMechs and vehicles, but when something upsets their "flight", the increased speed can have disastrous results.

Side-slipping: If a LAM using AirMech Flank MP makes a facing change at any point in its movement and attempts to enter a new hex in the same turn, the player must make a Control Roll before the AirMech enters its new hex. If the roll is successful, the AirMech's movement continues as normal. Otherwise, the AirMech sideslips and may crash, collide with other terrain, or skid. If an AirMech skids, crashes, or collides with something, its movement automatically ends for the current turn.

A side-slipping AirMech will move in the direction of the hex to which it would have moved without the facing change, in the same manner as a side-slipping VTOL (see pp. 67-68, *TW*). The number of hexes a LAM will sideslip is equal to the Control Roll's margin of failure, or the number of hexes moved in the current turn (minus 1), whichever is less.

Even when side-slipping, if an AirMech using AirMech MP enters a hex that is only one level higher than the level of the underlying hex from which it exits, the AirMech will automatically rise one elevation above the level of the new hex. If the terrain in the hex entered is two levels higher than the hex exited, the AirMech begins a skid (see *Skidding*, below). If the hex entered is three or more levels higher than the hex exited, the AirMech will suffer a collision (see *Collisions*, below).

Skidding: An AirMech may skid in one of two situations: crashing (as the result of failing a Control Roll) or side-slipping into a hex two levels higher than the hex exited. An AirMech skids in the direction it was traveling and takes damage equal to half its normal falling damage (that is, a fall when standing in a clear hex) per hex skidded. The distance skidded is the *greater* of the MoF of the Control Roll or half the number of hexes moved in the current turn (rounded down). If an AirMech was side-slipping prior to skidding, subtract the number of hexes side-slipped from the skid distance.

An AirMech that skids into a water hex takes half normal skidding damage (one-quarter normal falling damage) per hex. If the AirMech occupies a water hex at the end of its skidding movement, it sinks to the bottom and takes damage for hitting the bottom of the water hex equal to half its normal crashing damage (see *Crashing*, p. 108).

Collisions: If an AirMech enters a hex that is three or more levels higher than the hex from which it exited for any reason, it suffers a collision. The damage is equal to the number of hexes the AirMech moved in the current turn, times its tonnage, divided by 10 (rounded up). Assign the damage in 5-point Damage Value groupings, applied to the direction facing the obstruction the AirMech just hit.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Unintentional Charging: A skidding or side-slipping AirMech must make an unintentional Charge attack against any units (or buildings) in the path of its skid/side-slip. A side-slipping AirMech must make an unintentional Charge attack against units in the path of its side-slip only if the level of the unit it side-slips into (that is, the level of the underlying terrain, plus the level of the unit) is equal to or higher than the AirMech's elevation.

Crashing: An airborne AirMech must make a Control Roll in the following situations:

- It misses with any physical attack (including the AirMech Ram).
- It is successfully hit by a push, charge, or Death From Above physical attack.
- During any turn it remains aloft using AirMech MP and suffers 20+ points of damage. In this case, a cumulative +1 modifier to the Control Roll is added for every full increment of 20 points of damage sustained in the current phase, plus any other applicable modifiers (including weight class modifiers, if used; p. 21, *TO:AR*).
- It attempts a landing with a damaged gyro or leg actuators.

If the roll fails, the AirMech falls a number of elevations equal to its MoF. If this is greater than its elevation, it crashes into the hex it occupies (possibly creating an accidental fall from above attack, if another unit occupies the same hex). A crashing AirMech suffers damage equal to one tenth of the AirMech's tonnage (rounded up), multiplied by 1 plus the number of elevations fallen ($[\text{Tonnage} \div 10] \times [\text{Elevations} + 1]$). Reduce this damage by half if the AirMech falls into a water hex.

An AirMech that crashes automatically skids in the direction it was moving at the time it crashed, unless it was hovering during the Movement Phase in which it crashed (in which case, the LAM simply crashes into the hex it was hovering above, and ends there).

An airborne LAM in AirMech or Fighter Mode that loses a side torso automatically crashes (use a MoF of 5 if required). Use the rules above to resolve an AirMech Mode crash, or use the rules on page 81 of *Total Warfare* to resolve a crash if the LAM is in Fighter Mode.

LAM CONSTRUCTION

LAMs are constructed using the same rules for BattleMech construction in *TechManual*, but with the following changes and additions.

LAMs may only be constructed using an Inner Sphere technology base, and may not be constructed as OmniMechs. Only bipedal BattleMechs weighing up to 55 tons may be constructed as LAMs. LAMs may not be constructed weighing more than 55 tons or using four-legged (quad) or three-legged (tripod) chassis types.

Furthermore, due to the complexity and precision of their conversion process, LAMs may not mount certain weapons, equipment, and structural components that would interfere with the conversion process (see *Prohibited Technologies*, at right). Except for bomb bays (see p. 108), LAMs may not be constructed with internal cargo carrying capacity.

Other specific restrictions and requirements for LAM construction are as noted below:

Actuators: LAMs must be constructed with both lower arm actuators.

Minimum Jumping MP: LAMs must be constructed with a minimum Jumping MP of 3.

Fuel: LAMs receive 1 free ton's worth of fuel as part of their conversion equipment. This free ton provides 80 fuel points but does not add to the unit's allocated weight, nor does it occupy a critical slot. Additional fuel may be added in full-ton lots (each providing an additional 80 fuel points), with each ton of fuel occupying 1 critical slot.

Structural Integrity: A LAM's structural integrity is equal to the number of center torso internal structure points.

Weapon Locations: Unlike fighters, LAMs do not need to mount weapons and equipment symmetrically (matching weapons in opposite torsos and arms).

Conversion Equipment

Bimodal LAMs must devote 15 percent of the unit's total mass (rounded up to the nearest whole ton) to conversion equipment. Standard LAMs only require 10 percent of the unit's total mass (rounded up to the nearest whole number) in conversion equipment. Both Bimodal and Standard LAMs must then allocate additional "conversion equipment" on their Critical Hit Table as shown on the Conversion Equipment Table.

CONVERSION EQUIPMENT TABLE

Item	Number of Critical Slots and Location
Landing Gear	1 Center Torso, 1 Left Torso, 1 Right Torso
Avionics	1 Head, 1 Left Torso, 1 Right Torso
Fuel	None (1 ton of fuel is considered to contained within the engine)

Bomb Bays

LAMs may mount up to 20 bomb bays, each of which weighs 1 ton and occupies 1 critical space in the unit's left or right torso. Each bomb bay accommodates a single-slot bomb, and has no effect on the unit's movement.

The bombs (and other external ordnance items) that may be carried in LAM bomb bays are as shown in the LAM Bomb Bay Ordnance Table (see p. 105).

Prohibited Technologies

Except as noted on this list, a LAM may use any equipment not prohibited to BattleMechs, IndustrialMechs, or aerospace fighters. The following items are prohibited in LAMs:

Armor: LAMs may not use hardened armor and any other armor that requires critical hit slots, including ferro-fibrous armor, modular armor, and stealth armor. LAMs may use armored components, however.

Cockpits: LAMs may not use torso-mounted cockpits, nor any cockpits that requires additional critical hit slots.

Engines: LAMs may not use any engine other than a standard or a compact fusion engine and cannot mount a supercharger.

Gyros: Only standard, compact, and heavy-duty gyros may be employed by LAMs.

Internal Structure: LAMs may not use any internal structure that requires critical hit slots, such as endo steel.

Primitive Components: LAMs may not mount any primitive core components, such as engines, cockpits, gyros, and the like. Primitive and prototype weapons (see pp. 112 and 64) may be mounted on a LAM, however.

Extra-Large Weapons: LAMs may not mount any weapon system that must be allocated to more than one hit location (e.g. Right Arm & Right Torso), such as the Thumper or Arrow IV artillery weapons, nor may any weapon that can be optionally split between locations be mounted in more than one location. LAMs may not carry artillery weapons of any kind (bomb munitions are permitted via bomb bays).

Other Items: Aside from avionics and landing gear, any items that require the allocation of critical slots to more than one hit location may not be mounted on LAMs. This includes items that may normally be split between multiple hit locations on other BattleMech types. For example, a LAM may mount MASC or triple-strength myomer as either system may be allocated entirely in one hit location, but it cannot mount the Chameleon Light Polarization Shield, because that system requires 1 critical slot placed in each of the 'Mech's limbs and side torsos.



LAMs also may not mount backhoes, bridge-laying equipment, combines, dumpers, external stores, mechanical jump boosters, partial wings, or jump packs/drop packs.

Finally, except for physical attack weapons, LAMs may not mount any weapon that requires a Piloting skill as part of its use (such as the heavy Gauss rifle).

Lisa is building a LAM version of the classic Phoenix Hawk. Her first step in designing this unit is to select a 50-ton chassis. This is slightly heavier than the original 45-ton BattleMech, which she hopes will help offset some of the extra construction costs incurred by the LAM's conversion systems.

The fact that Lisa is building a LAM means that she cannot use an endo steel internal structure to save weight, nor does she want to spend the extra weight for reinforced structure, or deal with the in-game damage potential of composite structure. Thus, she opts for standard internal structure, which weighs 10 percent of the LAM's total mass (5 tons). The LAM's conversion gear will take up another 10 percent of the LAM's weight (5 more tons).

With 10 tons allocated so far, Lisa moves on to determining the Phoenix Hawk's engine.

The original Phoenix Hawk had a Walking MP of 6, but in order to free up mass for conversion equipment and weapons, Lisa downgrades the 270 engine to a 250, giving her LAM a Walking MP of 5. Multiplying the LAM's 50 tons by 5 equals 250, and consulting the Master Engine Table (see p. 49, TM) Lisa sees that a 250-rated engine weighs 12.5 tons. While she'd love to save tonnage by using an XL engine, she knows that a LAM can only mount a standard fusion engine and so the engine weight remains 12.5 tons.

Next, Lisa determines the LAM's gyro weight by dividing its 250 engine rating by 100. This yields 2.5 which rounds up to 3, for a 3-ton gyro. As the Phoenix Hawk will need to jump in order to be a LAM, Lisa then adds 5 standard jump jets. Per the Jump Jets Table (see p. 51, TM) these will weigh 0.5 tons each, for a total of 2.5 tons in jump jets.

Adding a 3 ton standard cockpit brings the running total to 31 tons.

The LAM gets 10 heat sinks free with its engine; she decides to make them double heat sinks. Lisa divides the engine's 250 rating by 25 and determines that only 10 heat sinks can be contained within the engine. As she plans to equip her Phoenix Hawk with several lasers, she opts to install two additional double heat sinks at a cost of 2 tons.

Lisa next gives her Phoenix Hawk 8 tons of standard armor for a total of 128 points. She records the details and moves on to the next step: Weapons and Ammo. An ER large laser gives the Phoenix Hawk its main offensive punch. Lisa decides to back this up with four medium lasers. The weapons and armor add another 17 tons to the Phoenix Hawk, bringing the total to 50 tons.

Finally, the conversion equipment, weapons and ammo must be allocated on the critical hit table. The conversion equipment consists of: 3 Avionics components which are placed in the head and left and right torsos; 1 fuel tank that Lisa notes is included within the LAM's engine—if Lisa had chosen to add additional fuel, each ton of fuel would occupy 1 critical hit location; 3 landing gear struts, 1 placed in the center torso, and 1 each in the left and right torsos. After allocating the conversion equipment, Lisa still must record the locations for the Phoenix Hawk's weapons, heat sinks, and 5 jump jets.

The final stats for the Phoenix Hawk LAM are:

Type: Phoenix Hawk LAM MK I

Technology Base: Inner Sphere (Advanced)

Tonnage: 50

Battle Value: 1,942

Equipment		Mass
Internal Structure		5
LAM Conversion Equipment		5
Engine	250	12.5
Walking MP:	5	
Running MP:	8	
Jumping MP:	5	
AirMech Cruise MP:	15	
AirMech Flanking MP:	23	
Safe Thrust:	5	
Maximum Thrust:	8	
Heat Sinks:	12 [24]	2
Gyro:		3
Cockpit:		3
Fuel:	80	0
Structural Integrity:	16	
Armor Factor:	128	8
	Internal Structure	Armor Value
Head:	3	6
Center Torso:	16	23
Center Torso (rear):		5
R/L Side Torso:	12	18
R/L Side Torso (rear):		4
R/L Front Leg:	8	10
R/L Rear Leg:	12	15

Conversion Equipment Allocation

Location	Item	Spaces Remaining
Head	1 Avionics	0
Center Torso	1 Landing Gear	1
Right Torso	1 Landing Gear	10
	1 Avionics	
Left Torso	1 Landing Gear	10
	1 Avionics	
Right Arm	—	8
Left Arm	—	8
Right Leg	—	2
Left Leg	—	2

Weapons and Ammo	Loc	Critical	Tonnage
Medium Laser	RA	1	1
ER Large Laser	RT	2	5
Medium Laser	LT	1	1
Medium Laser	LT	1	1
Medium Laser	LA	1	1
Jump Jets	RT	2	1
Jump Jet	CT	1	.5
Jump Jets	LT	2	1

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



MACHINA DOMINI INTERFACE (JIHAD)

R&D Start Date: circa 3068 (Word of Blake), circa 3082 (Clan Hell's Horses)
Prototype Design and Production: circa 3078 (Word of Blake), 3083 (Clan Hell's Horses)

The so-called "Machina Domini" interface was an experimental effort by the Word of Blake's Manei Domini to further enhance the connection between MechWarriors and their machines, while simultaneously protecting the warrior from the most brutal punishment. Derived from efforts to crack Clan ProtoMech technology, this interface used a three-component control system that required a VDNI-enhanced MechWarrior, a modified power armor suit, and a compatible interface cockpit. Combined, these technologies not only created a true symbiosis between man and machine, but also protected the warrior from virtually all harm. The Machina Domini interface obviated the need for both the BattleMech's gyro and most functions of the Diagnostic Interpretation (DI) Computer; to the warrior, the 'Mech moved as a direct extension of his own body.

While Machina Domini technology was known to have reached field-testing phase, only a dozen or so units using this system saw action beyond the doomed world of Gibson. None of these "Gestalt" machines survived the Jihad, and efforts to duplicate the Word of Blake's research in the decades since have been largely abandoned by the Inner Sphere powers. Curiously enough, however, scientists from Clan Hell's Horses began trials on a similar system soon after the war. Evidently adapted to work with Clans' enhanced-imaging neural technology instead of VDNI implants, these Clan versions of the Machina Domini interface have yet to go past the prototype stage.

MACHINA DOMINI INTERFACE GAME RULES

Rules Level: Experimental

Available to: BM, BA

Tech Base (Ratings): Inner Sphere (E/XXFX), Clan (F/XXFF)

The "Machina Domini" interface requires three key components to function: A MechWarrior equipped with either a buffered or standard Vehicular Direct-Neural Interface (VDNI) implant (see p. 76), a PA(L) suit equipped with a BattleMech Neural Interface Unit (see p. 110), and a BattleMech equipped with a BattleMech Interface Cockpit (see p. 110). Without all three of these components in working order, the "Machina Domini" connection (and, of course, the BattleMech itself) will not function.

In game play, a "Machina Domini" BattleMech functions in accordance with standard rules, with the following modifications:

MechWarrior Skills: A BattleMech operating with an active Machina Domini interface automatically receives a -1 modifier to all Gunnery and Piloting target numbers.

Piloting Skill Checks: Even if the Machina Domini 'Mech still mounts a gyro, any critical hits to Gyro slots are ignored while the Machina Domini interface is working. A unit with a working Machina Domini interface also ignores the effects of gyro destruction.

MechWarrior Damage: The Machina Domini MechWarrior ignores all pilot damage from head hits and internal ammunition explosion effects, but can still be killed if the head location is destroyed. MechWarrior damage from overheating will still occur if the BattleMech sustains any Life Support critical hits, as will MechWarrior damage resulting from failed Piloting Skill rolls made during a fall.

Hostile Environments and Hull Breaches: If operating in a hostile environment, the Machina Domini MechWarrior will suffer no effects unless the cockpit armor is breached *and* the PA(L) interface suit is reduced to an armor value of 0.

Cockpit Critical Hits: If the interface cockpit itself suffers a critical hit, the Machina Domini MechWarrior will receive two pilot hits from

the attack, the PA(L) suit he is wearing will suffer 1 point of armor damage, and the BattleMech will suffer the equivalent effects of a single Gyro critical hit. On a second critical hit to the interface cockpit, the Machina Domini MechWarrior will suffer two more pilot hits, the PA(L) suit will suffer an additional 1 point of armor damage, and the interface connection will be critically damaged (with effects treated as a second Gyro hit). (If, through interface cockpit critical hits, the interface suit is reduced *below* an armor value of 0, both the suit and the MechWarrior wearing it are considered destroyed.)

Ejection: A Machina Domini may eject from his 'Mech at any time per the standard rules (see pp. 164-166, *TO:AR*), but receives a -2 target number modifier when doing so, to reflect the added resilience of the PA(L) interface suit. Once ejected, the Machina Domini MechWarrior is treated as a single battle armor unit with a squad size of 1 trooper. The armor value of this unit is equal to that of the PA(L) itself, minus any armor damage sustained from Interface Cockpit hits.

Special Pilot Abilities (Optional): At the players' discretion, the use of the Machina Domini interface can also impart onto its MechWarrior one free Gunnery or Piloting Skill-based Special Pilot Ability as featured in *A Time of War* (see pp. 219-224, *AToW*), regardless of the ability's prerequisites. The nature of this ability must be determined before play begins and is selected by the MechWarrior's controlling player.

Clan Machina Domini Interface: The Clan version of the Machina Domini interface functions identically to the Inner Sphere version, except that the pilot must be equipped with enhanced imaging neural implants (see p. 69) instead of any form of VDNI. Units using a Clan Machina Domini interface cannot be operated by pilots that lack EI neural implants, even if they possess a VDNI, and if the EI is disabled, the Machina Domini interface fails and the 'Mech shuts down.

MACHINA DOMINI INTERFACE CONSTRUCTION RULES

In addition to a MechWarrior equipped with some form of VDNI implant, the "Machina Domini" Interface requires two additional components: The BattleMech Neural Interface Unit (which is built into the interface suit), and the BattleMech Interface Cockpit (which replaces the standard BattleMech cockpit).

BattleMech Neural Interface Unit (NIU)

The BattleMech NIU can only be mounted in the interface suit, which must be constructed as a PA(L)-type battlesuit (as larger battlesuits cannot fit in the interface cockpit). The BattleMech NIU weighs 100 kilograms and occupies 2 slots in the suit's torso location.

BattleMech Interface Cockpit

The BattleMech interface cockpit weighs 4 tons and takes one extra Cockpit critical slot. The Interface can only be installed in BattleMechs, and may not be mounted in a Torso location. The interface cockpit cannot be protected with component armor, nor can it be combined with a cockpit command module or any other cockpit types (including small cockpits). A BattleMech equipped with an interface cockpit also may not employ the Cramped Cockpit Design Quirk.

A BattleMech with an interface cockpit may be constructed without a gyro, in which case the usual Gyro slots on the unit's Critical Hit Table are treated as empty, and can be used for other components.

Clan Machina Domini Interfaces

Use the same construction rules as the Inner Sphere version, except that a MechWarrior equipped with an EI neural implant is required, instead of VDNI implants.





MODULAR SPACE STATIONS (MULTIPLE ERAS)

Introduced: 2565 (Terran Hegemony)

Standard Production: 2585 (Terran Hegemony)

Extinct: 2790 (Inner Sphere)

Recovered: 3090 (Republic of the Sphere)

Since mankind's earliest ventures into space, the construction of large and complex spaceborne assets has been accomplished only by piecemeal operations, where various components and modules were assembled "on-site" to create larger structures. Few early examples of such early modular constructs have been as memorable as Crippen Station, the platform from which the first fusion-powered spacecraft was launched. At its height, Crippen massed several million tons, and was really more a cobbled-together mixture of smaller, independent components than a true station in the modern sense. As technology advanced, these amalgam stations became impractical due to the weaknesses inherent in their delicate and complicated—and often improvised—construction.

As humanity expanded, the space stations built in their new colonies were often shipped in parts, carried in the cargo holds of numerous shuttles and JumpShips, to be painstakingly assembled at their destinations. When the K-F boom enabled JumpShips to carry larger, externally-mounted craft through hyperspace, the advent of the K-F adapter for space stations enabled the transport of DropShip-sized stations, but larger facilities still needed to be assembled from parts delivered via cargo holds.

In the late twenty-sixth century, the Star League Defense Force needed a means to move its latest system defense station—the *Bastion* class—from Nicholas Spacecraft's New Earth Shipyards to locations across the Inner Sphere. At 150,000 tons, however, the *Bastion* was simply too large to mount a K-F adapter, but its complicated systems and unique architecture promised to make hauling them in parts a daunting (and expensive) proposition.

With the SLDF unwilling to compromise on the *Bastion's* specs, a new transport method was needed. Nicholas Spacecraft responded with a new, jump-friendly modular design approach intended to allow for the station to be shipped in DropShip-sized parts for rapid assembly on site. This subtle-yet-sublime technique allowed stations to be built in separate modules stable enough for external transport, while simplifying the assembly process immeasurably. The *Bastion* was thus built in two 75,000-ton modules, each with

an integral K-F adapter, which could then be linked together and activated in record time. Similar methods became the norm for all oversized space stations, space habitats, and orbital factories constructed throughout the Star League period, including the massive *Hughes*-class mobile yard station. (Note, today, many believe the Wolf's Dragoons' enigmatic *Hephaestus* station was actually a highly-modified version of a *Hughes*-class yard, and was thus also delivered to the Inner Sphere as a modular station.)

MODULAR SPACE STATION GAME RULES

Rules Level: Advanced

Available to: SS

Tech Base (Ratings): Inner Sphere (D/EXXE); Clan (D/EEEE)

Modular space stations may be dismantled into separate modules for hyperspace transit, with each module weighing no more than 100,000 tons, and requiring its own docking collar. Docking a modular space station is performed in the same manner as a DropShip-to-JumpShip docking sequence (see pp. 54-56, SO). Any failed docking attempts will double the normal docking time.

Assembling or dismantling a modular space station takes 1 day for every 15,000 tons of the final station's weight (rounded up). The station is inhabitable after one quarter of this total assembly time has elapsed, but the station's weapons, sensors, and any bay equipment will not become operational until the entire station is fully assembled.

Once assembled, a modular space station operates exactly as a standard space station.

Moving a disassembled modular space station follows the same rules as found under the K-F Adapter (see p. 99).

MODULAR SPACE STATION CONSTRUCTION RULES

Any space station designed to have a final total mass of more than 100,000 tons may be built as a modular space station. Modular stations automatically incorporate integral K-F adapters. These adapters take up no significant weight, nor do they take up any space on the station's record sheet, but they will increase the station's cost by the number of adapters required. In essence, a modular space station receives 1 K-F adapter for every 100,000 tons of station mass (or fraction thereof).

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

Introduced: Variable (see Rules)

Extinct: Variable (see Rules)

During the Age of War, only a few of the weapon systems seen in *BattleTech* today were widely available for use on vehicles, fighters and (eventually) BattleMechs. Prior to 2460, these weapons were the machine gun, flamer (standard and vehicular), standard LRMs and SRMs, all standard lasers, standard AC/2s and AC/5s, and the Thumper, Sniper and Long Tom artillery pieces. After 2460, production models of the AC/10 and PPC became widely available. Finally, the AC/20, developed specifically as a 'Mech-killer weapon system, emerged as a production weapon after 2500.

Likewise, other vital technologies emerged in this time period, such as the K-F booms and K-F compatible docking collars that made the modern DropShip/JumpShip combination possible, as well as the jump jet system for BattleMechs.

Before all of these items debuted, a number of early versions hit the field, with many of these "primitive prototypes" remaining in use for decades after their more efficient upgrades were introduced. By the dawn of the Star League age, few of these early examples of modern technology remained in service.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

PRIMITIVE PROTOTYPE EQUIPMENT RULES

Rules Level: Experimental

Available to: BM, IM, CV, SV, AF, CF, SC, JS, DS, SS, WS, MS

Tech Base (Ratings): Inner Sphere (C/FXXX)

Game Rules: Based on their type, Primitive prototype weapons will operate differently in game play, as described below. Any of these weapons may be deployed before their standard production date, as long as the scenario or units are set after the prototype year shown in the Prototype Dates for Basic Weapons Table. Note that a few items—specifically the machine gun, flamers, and most tube artillery weapons—were so well established by the time of the Age of War that they effectively have no prototype phase to speak of.

Primitive prototype energy weapons (lasers and PPCs) will produce 50 percent more heat when fired (rounding up).

Primitive prototype ballistic weapons (standard autocannons and the Long Tom artillery weapon) will suffer a jam on any to-hit roll result of 2 and may carry only three-quarters of their listed ammunition capacity (rounding up) per ton. Jammed weapons cannot be cleared in battle, and are considered damaged—but not destroyed—for game play and repair purposes. Thus, an autocannon/20—introduced in 2500—*could* be fielded in the 2490s, but it would be a prototype that carries only 4 rounds of ammo per ton [$0.75 \times 5 = 3.75$, rounded up to 4], and would be as prone to weapon jams as a modern Ultra autocannon.

Primitive prototype missile weapons (standard LRMs, SRMs, and their torpedo equivalents) apply a -2 modifier on the Cluster Hits Table for every successful attack, treating any modified result of 1 or less as a minimum result of 2. Primitive missile and torpedo launchers may carry only three-quarters of their listed ammunition capacity (rounding up) per ton. When assessing the damage value of a Primitive prototype missile launcher, use the 5 result on the Cluster Hits Table, rather than the 7 result.

Regardless of their nature, all Primitive prototype basic weapons are incompatible with modern targeting enhancers, including Artemis, Narc, and the targeting computer.



CD

Some DropShips still in operation have service records dating back hundreds of years.

PROTOTYPE DATES FOR BASIC WEAPONS TABLE

Weapon System	Prototype	Production
Machine Gun	NA*	Pre-Spaceflight*
Flamer (Standard)	NA*	Early Spaceflight*
Flamer (Vehicle)	NA*	Pre-Spaceflight*
LRMs (All)	2295	2300
SRMs (All)	2365	2370
Torpedo Launchers (LRT/SRT)	2370	2380
Autocannon/2	2290	2300
Autocannon/5	2240	2250
Autocannon/10	2443	2460
Autocannon/20	2490	2500
Small Laser	2290	2300
Medium Laser	2290	2300
Large Laser	2306	2310
PPC	2439	2460
Thumper Artillery	NA*	Pre-Spaceflight*
Sniper Artillery	NA*	Pre-Spaceflight*
Long Tom Artillery	2445	2500

*These items were perfected to modern standards prior to interstellar space travel and thus have no Prototype phase.

Construction Rules: Aside from the difference in heat for primitive prototype energy weapons, the difference in ammunition capacity per ton for primitive ballistic weapons, artillery, and missile launchers, and the modified aerospace damage values for primitive missile launchers, all other data for primitive prototype weapons—including weight, cost, and critical space—is identical to their standard versions.

PRIMITIVE PROTOTYPE DROPSHIP AND JUMPSHIP EQUIPMENT

Rules Level: Advanced

Available to: DS (K-F Boom); JS, WS (DropShuttle Bay and Pre-Boom Docking Collar)

Tech Base (Ratings): Inner Sphere (C/CXXX [DropShuttle Bay], B/CXXX [Pre-Boom Docking Collar], C/CXXX [Prototype KF Boom])

Until the dual development of the DropShip K-F boom and the JumpShip docking hardpoint (a modified form of the standard docking collar) in the mid-twenty-fourth century, JumpShips carried their DropShips within internal bays that significantly limited both the number of ships they could carry as well as their maximum transport tonnage. The development of the boom made it possible for JumpShip designers to discard these inefficient internal bays, and instead mount one or more DropShips—each of much greater mass than previously possible—on external docking points around which the hyperspace field could now be extended.

This technology revolutionized interstellar transport, quickly becoming the standard while drastically slashing transport costs; JumpShips could be built smaller and more economically, while massive DropShips, which could now carry more cargo tonnage than ever before, became the norm.

Note: Prior to the introduction of the K-F Boom and the docking hardpoint, docking collars still existed and appeared also on space stations and mobile structures. These pre-boom collars did not



allow for hyperspace jumps, and instead functioned merely as connection points between such large-scale units, enabling the transfer of cargo, fuel, and personnel. In terms of unit construction, there is no difference between a modern docking collar/hardpoint and the pre-boom docking collar except for the use of KF-extending boom technology.

DROPSHUTTLE BAYS

Introduced: ~2110 (Terran Alliance)

Standard Production: 2120 (Terran Alliance)

Extinct: 2500

In the early days of interstellar travel, most jump-capable vessels were equipped with the same transit drives found mostly on modern DropShips and WarShips. Of course, even then, these ships remained incapable of actually entering a planetary atmosphere to transfer cargo and personnel. While small-craft shuttles sufficed for early colonial projects and exploration, the need for larger ship-to-surface transports led JumpShip designers to build larger bulk craft—DropShuttles—that were the ancestor to modern DropShips. To carry these vessels, JumpShips employed DropShuttle bays, which mainly amounted to an upscaled version of a typical small craft launch bay.

Ultimately, the size limitations of DropShuttle bays, combined with long launch and recovery times, led engineers to work on externalizing these bays, resulting in the creation of a standardized docking collar system in the early 2300s. When the introduction of the K-F Boom in the mid 2400s then made it possible for these externally-docked DropShips to transit through hyperspace with their parent JumpShips, DropShuttle bays quickly fell into disuse.

Game Rules: A DropShuttle bay may accommodate up to two DropShuttles or DropShips, each weighing no more than 5,000 tons, and with a combined weight that may not exceed 10,000 tons. The process of launching or recovering craft from a DropShuttle bay follows the same rules as for a DropShip docking procedure (see pp. 54-56, *SO*), except that the time taken by the entire process—per DropShuttle—is calculated differently. This time is computed as 30 minutes, plus 1 minute for every 200 tons the DropShuttle weighs (rounded up). Thus, a DropShuttle weighing 5,000 tons would take 55 minutes to launch from (or be recovered by) a JumpShip's DropShuttle bay ($30 + [5,000 \div 200] = 55$). Only one DropShip/DropShuttle may launch from a DropShuttle bay at any given time.

Craft entering or exiting from a DropShuttle bay may be attacked as a separate unit, and may not make any attacks that would pass through the JumpShip they are entering or exiting from. Damage to a bay containing a DropShuttle is handled as per the rules for repair facilities (see p. 146-147, *TO:AUE*).

Units that possess DropShuttle bays must apply a +1 target modifier to any Control Rolls required while such bays are occupied, but otherwise may maneuver and execute weapon attacks as normal.

Construction Rules: A JumpShip, WarShip or space station may be constructed with one or more DropShuttle bays, each of which must be assigned a unique armor facing. This means that such vessels may only place a maximum of 1 DropShuttle bay per armor facing. Furthermore, no unit may mount more than 1 DropShuttle bay per 100,000 tons of its own total weight (rounded up). Thus, a 450,000-ton JumpShip may mount a maximum of 5 DropShuttle bays ($450,000 \div 100,000 = 4.5$, round up to 5), with each bay assigned its own unique armor facing.

Each DropShuttle bay weighs 11,000 tons, and counts as two docking collars against the unit's maximum number of docking hardpoints for construction purposes (see p. 116, *TO:AUE*).

PROTOTYPE DROPSHIP K-F BOOM

Introduced: 2458 (Terran Hegemony)

Standard Production: 2470 (Terran Hegemony)

Every modern DropShip capable of completing a hyperspace jump while docked with a JumpShip is able to do so thanks to its integral K-F boom, a device that extends the JumpShip's K-F field beyond its own hull to envelop the DropShip. Without this technology, a hyperspace jump would destroy any external DropShips and possibly the JumpShip itself (though safety mechanisms predating these booms simply abort such jumps before they can be executed).

K-F boom technology was developed so that it could be easily retrofitted into older vessels, albeit at significant cost in money and shipyard time. Thanks to this, hundreds of refit services emerged during the latter twenty-fourth century throughout the Inner Sphere and Periphery states specifically to "modernize" older DropShips with K-F booms.

Game Rules: For game purposes, the standard K-F boom is an integral part of a DropShip's docking collar (see p. 238, *TM*), while prototype versions simply add a +2 target modifier to the Control Roll needed to successfully dock with a JumpShip or WarShip. If this docking roll fails by 2 or more, the KF boom fails to successfully "sync up" with the mothership, and any attempts to jump while docked will automatically abort, forcing the two vessels to undock and re-dock if they want to try again. DropShips built after 2469, and/or those that undergo an upgrade to a production-grade KF Boom (as described below) may ignore this modifier and its associated effects.

DropShips built before the development of the K-F boom, or which simply lack a K-F boom, instead treat any critical hits to the K-F boom as an avionics critical hit. Moreover, any such vessels that link up with the docking collar of a JumpShip or WarShip will render such vessels incapable of entering hyperspace in any way.

DropShips without a K-F boom, including those constructed before the development of the K-F boom, may be retrofitted to incorporate a primitive boom and a standardized docking collar as a Class E Refit (see p. 212, *CO*). This refit requires a total of 30 days to complete, at a cost of 12 million C-bills.

Construction Rules: The K-F boom has no mass, and is integrated into the DropShip's docking collar. From 2458 to 2469, DropShips constructed with a K-F boom increase the cost of the ship's docking collar to 1,010,000 C-bills to reflect the prototype's cost. (From 2470 and onward, the standard collar incorporates a production-grade boom, and the price drops to the standard 10,000 C-bills for new DropShip construction, with refits available for 120,000 C-bills.)

DOCKING HARDPOINT (DOCKING COLLAR) [PRE-KF BOOM]

Introduced: 2304 (Terran Alliance)

Standard Production: 2350 (Terran Hegemony)

The introduction of the DropShip K-F boom made it possible for jump-capable ships to eliminate massive internalized DropShuttle bays, and devote that space to living quarters, weapons, or more utilitarian cargo storage. Prior to that development, however, some vessels still featured external docking mechanisms that could accommodate DropShuttles and other large in-system craft that today fall under the classification of DropShips. (Such craft could then be used to ferry supplies and crew from stations and surface bases without taking the excessive amount of docking time required of DropShuttle bays and such.)

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Although vessels docked with these pre-boom collars could not be carried through hyperspace, the advent of the KF Boom in 2458 opened the door to a wave of refits that upgraded these collars to their modern form with only a modest amount of re-engineering. Thus, the presence of pre-boom collars made it easier for older JumpShips and WarShips to transition into a new age of hyperspace travel even as a surge of new ship types quickly evolved to make full use of the new JumpShip-and-DropShip combination.

Game Rules: When docked with a DropShip (see pp. 54-56, *SO*), a vessel that features a pre-Boom docking collar will be unable to execute a hyperspace jump. All such efforts will automatically abort, as the vessels must undock first. Otherwise, pre-Boom docking collars will function normally in gameplay.

JumpShips built after the development of the KF boom may subsequently upgrade their pre-Boom docking collars with standard (post-Boom) DropShip docking hardpoints. This process is treated as a docking collar replacement operation (see pp. 204-209, *CO*), and costs 5,000,000 C-bills for each hardpoint replaced.

Construction Rules: The pre-Boom JumpShip docking hardpoint weighs the same as its standard version, and uses the same construction rules to install (see p. 142, *SO*), but costs 500,000 C-bills per collar.

PRIMITIVE PROTOTYPE JUMP JETS

Introduced: 2464 (Terran Hegemony)

Standard Production: 2471 (Terran Hegemony)

Standard production model jump jets (along with their required BattleMech gyroscope modifications and control software upgrades) debuted in 2471 within the Terran Hegemony (later, in each of the other Inner Sphere and Periphery nations). Prototype jump jet models were introduced in 2464 with the debut of the *Wasp* BattleMech (prototype jump jets were later included in the *BattleAxe* and the *Shadow Hawk*).

Game Rules: Any BattleMech mounting prototype jump jets that jumps must make a Piloting Skill Roll with a TN of +3 (in addition to any other modifiers) to avoid falling when it lands (see *Piloting/Driving Skill Rolls*, p. 59, *TW*). Primitive prototype jump jets generate heat as standard jump jets.

Construction Rules: Primitive prototype jump jets have the same mass, take up the same critical space, and maintain the same mounting rules as standard jump jets.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

Introduced: Variable (See Rules)

All technologies begin somewhere. Though the modern combat vehicles, BattleMechs, fighters, and spacecraft had already become ubiquitous by the days of the first Star League, there was a time where all of those common engines of warfare existed in cruder, less polished forms. For most of these machines, this infancy period covered the span of centuries between the fall of the original Terran Alliance and the rise of the first Star League, an era dominated by the bloody time known as the Age of War.

Historians across the Inner Sphere came to see the closing years of the twenty-fourth century as the point where virtually all major military technologies attained their maturity, with BattleMechs striding the fields on thousands of worlds, delivered by fusion-powered DropShips under the escort of titanic WarShips. For even though many more sophisticated upgrades and refinements were yet to come, it was by the dawn of the 2500s that virtually all of the engineering principles we recognize today crystallized into their present forms.

Indeed, as if to emphasize that point, the trials of the Word of Blake Jihad even prompted many realms to delve into the standards of these “primitive” pre-modern technologies as a means to quickly build up their depleted armies. Dubbed “RetroTech”, the machines that resulted, borne of desperation, nevertheless created a glimpse into the ancestry of today’s BattleMechs, while simultaneously reminding an increasingly tech-jaded Inner Sphere how far we had come.

PRIMITIVE UNITS OVERVIEW

Rules Level: Advanced

Available to: BM, IM, SV, AF, SC, JS, DS, WS

Tech Base (Ratings): Primitive/Inner Sphere (Variable)

The following rules will enable players to create and use vehicles, fighters, ‘Mechs, and spacecraft such as those introduced during the Age of War era. While these units are collectively referred to here as Primitive, the majority of these rules will also apply to the modern-primitive units (known as RetroTech) that were also constructed during the Word of Blake Jihad.

Unless specifically stated otherwise, all of the Primitive and RetroTech units built using these rules will conform to the game play rules found in *Total Warfare (TW)*, *Tactical Operations: AR (TO:AR)*, and the rest of the core rules line, except as noted below (see *Primitive Units Game Rules*). Likewise, the construction rules for these units will modify those found in *TechManual (TM)*, *Tactical Operations: AUE (TO:AUE)*, and *Strategic Operations (SO)* as appropriate.

PRIMITIVE UNITS GAME RULES

The following game rules apply to Primitive (and RetroTech) units in combat.

Primitive ‘Mechs

The following rules modifications apply to combat involving Primitive (and RetroTech) BattleMechs and IndustrialMechs:

Primitive ‘Mech Cockpits: The Primitive BattleMech cockpit functions as a standard BattleMech cockpit, and applies no modifiers in combat. Primitive IndustrialMech cockpits, however, apply a +2 to-hit modifier to all weapon attacks made by the Primitive IndustrialMech (reduced to +1 if the cockpit is modified with advanced fire control).

Critical Hits: When determining critical hits against a Primitive (or RetroTech) ‘Mech, apply a +2 to the roll result if the target is a BattleMech (+4 if it is an IndustrialMech). For Primitive BattleMechs, any modified result of 13 or more is treated as a 12 result. For Primitive IndustrialMechs, a result of 14 or more will result in 4 critical hits to a torso location, or a limb/head blown off effect in an arm, leg, or head location.

Primitive Combat Vehicles and Conventional Fighters

The following rules modifications apply only to combat involving Primitive vehicles and conventional fighters:

Primitive Targeting Systems: For combat vehicles and conventional fighters created before 2300, apply a +1 to-hit modifier for all weapon attacks. This modifier is in addition to the unit’s existing fire control system modifiers (if any; so, a primitive fighter using a



PRIMITIVE VS. MODERN

Technically speaking, all BattleMechs, IndustrialMechs, combat vehicles, and aerospace units might be considered “modern” designs in the *BattleTech* universe, but the engineering behind them evolved most dramatically in the earliest centuries of the setting. To reflect the nature of more primitive units (such as those available during the Age of War), these rules introduce a new Technology Base classification: Primitive.

The Primitive Tech Base is effectively confined to the Inner Sphere (and the Periphery); a unit constructed using a Primitive Tech Base may not use Clan technology unless it has been built after 2850 and the designer is using the Mixed Technology rules found in *Tactical Operations: AUE* (see p. 189, *TO:AUE*). A Primitive unit designed and built with modern technologies reflects the throwback standards known as “RetroTech”, rather than the truly Primitive Tech Base. Even so, RetroTech units may employ Clan-made weapons (and weapon accessories, such as Artemis IV and targeting computers), but other Clan components are such as heat sinks, armor, and the use of OmniMech pod-mounting technology are simply too far advanced to work on a Primitive-level frame.

Modern Tech Introduction: For historical purposes, “modern” technology, as defined under these rules, refers to the point where the standard construction rules for BattleMechs, combat vehicles and aerospace units apply as found in the *TechManual*. Players running games set in specific points of *BattleTech* history, using armies affiliated with the specific realms of the day, should therefore note where each of the major Inner Sphere and Periphery powers of the Age of War period finally and fully adopted this modern level of unit construction, as indicated below.

Year	Realm
2470	Terran Hegemony
2475	Federated Suns and Lyran Commonwealth
2487	Draconis Combine
2501	Free Worlds League
2503	Rim Worlds Republic
2504	Capellan Confederation
2505	Taurian Concordat

basic fire control system will suffer a +2 to-hit modifier: +1 for primitive targeting systems +1 for basic fire control = +2).

From 2300 and after, the added modifier for primitive targeting systems no longer applies.

Support Vehicle Rules: The units covered by these rules are referred to as “Primitive Combat Vehicles” and “Primitive Conventional Fighters” primarily for context, but it should be remembered that the standard construction rules for both unit types did not exist as such originally. Because these units are actually constructed using the rules for Support Vehicles, they are, in fact, bound by the Support Vehicle game play rules as well.

Primitive Aerospace Fighters and Small Craft

The following rules modifications apply only to combat involving Primitive aerospace fighters and small craft:

Primitive Aerospace Targeting Systems: For Primitive aerospace fighters and small craft, apply an additional +1 to-hit modifier for all weapon attacks made at Long and Extreme ranges. This modifier does not apply to aerospace units built as RetroTech units, nor does it apply to Primitive aerospace fighters and small craft from 2300 and after.

Primitive Large Aerospace Craft

Beyond the construction rules modifications outlined later, Primitive DropShips, JumpShips, and other large aerospace units receive no additional gameplay modifications. Note, however, that some rules options available to large craft will be unavailable until the advent of suitable technologies during the “Primitive” period. These include the following:

DropShip Docking Operations: Prior to 2458, jump-friendly docking collars and K-F booms did not exist as such, rendering DropShips unable to link up with JumpShips externally and transit with them through hyperspace. However, prior to this, DropShips weighing 5,000 tons or less could serve as “shuttles” that could in turn be launched and recovered by larger JumpShips as if they were small craft (requiring a specialized DropShuttle bay for the capability).

Until the advent of the KF Boom and the corresponding “post-boom” collars, DropShips weighing more than 5,000 tons could not be transported through hyperspace by any means other than as dismantled cargo. Even if the vessel possesses a naval repair facility of sufficient capacity, vessels carried within would still require a KF boom to enable transition through hyperspace. Efforts to jump while docked with a vessel that lacks a KF boom will automatically abort the procedure.

Jump Sail and Jump Drive Charging: Prior to 2200, the jump sail did not exist as such. As a result, all JumpShips constructed before 2200 must charge their K-F drives directly from the ship’s fusion engines using the quick-charge rules (see pp. 75-77, *SO*).

RESTRICTED TECHNOLOGIES

The construction rules presented in the following pages define how Primitive units modify the existing standard construction rules found either in *TechManual* (for ‘Mechs, vehicles, fighters, small craft, and DropShips), or in *Strategic Operations* (for JumpShips and WarShips). Because of the similarities between them, these rules modifications will apply when building the truly Primitive units and their modern-primitive RetroTech equivalents.

Still, differences *do* exist between the two types of Primitive units, primarily in the items and equipment that may be mounted on the original Primitives, and their RetroTech throwbacks. When constructing units using the basic Primitive Tech Base, the following weapons and equipment restrictions apply as indicated. For items that are prohibited to RetroTech units, see *RetroTech*, below:

Armor (All Units): Primitive ‘Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive Armor. Primitive combat vehicles and conventional fighters created before 2300 are limited to support vehicle armor with a maximum Tech Rating of C, and a maximum BAR value of 7. Primitive combat vehicles and conventional fighters created from 2300 and after are limited to support vehicle armor with a maximum Tech Rating of D, and a maximum BAR value of 7. A maximum BAR rating of 8 applies after 2425, and a maximum BAR rating of 9 after 2440. After 2464, primitive combat vehicles and conventional fighters may mount support vehicle armor of BAR 10.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Cockpits and Control Systems (All Units): Primitive 'Mechs and aerospace fighters may only employ Primitive cockpits. Primitive control systems for all other units are handled in accordance with their specific rules as well, and cannot be upgraded to "modern" standards.

Where a unit requires a fire control system for combat functionality (including the Basic and Advanced Fire Control systems available to support vehicles and IndustrialMechs), the construction rules for their appropriate unit types are still used, but when these systems are used on a Primitive unit, they will function in game play as described under Primitive Units Game Rules referenced earlier.

Engines (All Units): Primitive 'Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive engines as spelled out in their rules. Primitive combat vehicles and conventional fighters created before 2300 are limited to support vehicle engines with a maximum Tech Rating of C. Primitive combat vehicles and conventional fighters created from 2300 and after are limited to support vehicle engines with a maximum Tech Rating of D.

Gyros ('Mechs): Primitive 'Mechs can only use Primitive gyros.

Internal Structure ('Mechs and Vehicles): Primitive 'Mechs can only make use of standard internal structure (or standard IndustrialMech structure, for IndustrialMechs). Endo steel and other advanced structures listed in *Tactical Operations: AUE* may not be used by Primitive 'Mechs. Primitive combat vehicles and conventional fighters created before 2300 can only use support vehicle structure with a maximum Tech Rating of C. Primitive combat vehicles and conventional fighters created from 2300 and after can use support vehicle structure with a maximum Tech Rating of D.

Docking Collars (Small Craft, DropShips, JumpShips): While external docking collars were available prior to the advent of the JumpShip/DropShip combination in 2470, these systems could not be used to enable hyperspace transit until the development of the K-F boom (which was mounted on DropShips) and the matching post-KF boom docking hardpoint in 2458.

Players designing large spacecraft before 2458 thus *can* mount a standard docking collar on these units, but must identify these as pre-boom collars, incapable of entering hyperspace when DropShips are docked to them. From 2458 and forward, the K-F boom and matching docking hardpoints will become available, and this restriction will no longer apply. (Of course, even so, the year of the unit's construction will still determine if the unit may mount a prototype form of these technologies, or the final "modern" form.)

Jump Jets ('Mechs): Primitive 'Mechs can only make use of prototype jump jets (see p. 104) or standard jump jets.

Weapons and Equipment: Primitive units (unless otherwise stated) may add weapons, ammunition and other equipment per standard rules for the unit in question, except all such weapons and equipment may only be installed if they have an introduction date of 2500 or earlier. (After that period, enough manufacturers had improved their engineering processes to the point where units were constructed under standard construction rules, and efforts to support the obsolete engineering standards of Primitives were abandoned.)

Note that the above also permits the use of primitive and prototype weapons and equipment from the Age of War period featured in this book, as long as they also have introductory dates before 2500.

RetroTech

During the Word of Blake Jihad, extensive damage to factories and infrastructure at nearly every level paralyzed many realms' ability to replace their equipment losses or support local defenses against an enemy that seemed willing and able to hit anywhere, at any time. Desperate to muster any kind of defense, several local civilian factories and refit facilities launched limited-capacity supporting production lines capable of turning out BattleMechs and combat vehicles built to

lesser design standards. Though seen by many as scarcely better than armed industrial equipment, these machines were actually patterned on Age of War-era equipment. Because they were still built with a limited capacity to handle newer technologies, these otherwise primitive units became collectively known as "RetroTech".

While the actual "RetroTech craze" ran mostly from the middle of the Jihad to its end, RetroTech rules apply any time a unit built with the Primitive Tech Base is designed to employ any non-Primitive weapons or equipment.

RetroTech 'Mechs, vehicles, and fighters are built using the same basic rules modifications for Primitive units, but because they appeared long after the appearance of modern technologies, they have a broader range of options available to them. When constructing RetroTech units, the following weapons and equipment restrictions apply to the Primitive construction rules in place of those established above:

Armor (All Units): RetroTech units can only mount primitive armor available to the unit type, and cannot use modern armors such as ferro-fibrous, hardened, and the like. RetroTech combat vehicles and conventional fighters are still built using the support vehicles rules, and so may only mount armor types available to support units (but are still bound to any Tech Base or BAR restrictions).

Cockpits and Control Systems (All Units): RetroTech 'Mechs and aerospace fighters may only mount Primitive Cockpits. Primitive control systems for all other units are handled in accordance with their specific rules as well, and cannot be upgraded to "modern" standards. Note that with the exception of Primitive IndustrialMech cockpits, RetroTech cockpits and targeting systems will not suffer the targeting modifiers associated with their original Primitive versions.

Engines (All Units): RetroTech 'Mechs, aerospace fighters, small craft, and larger aerospace units (including DropShips and JumpShips) may only mount Primitive engines as spelled out in their rules. RetroTech combat vehicles and conventional fighters likewise remain limited to support vehicle engines with a maximum Tech Rating of C.

Gyros ('Mechs): RetroTech 'Mechs can only use Primitive gyros.

Internal Structure ('Mechs and Vehicles): RetroTech 'Mechs can only make use of standard internal structure (or standard IndustrialMech structure, for IndustrialMechs). Endo steel and other advanced structures listed in *Tactical Operations: AUE* may not be used by RetroTech 'Mechs. RetroTech combat vehicles (and conventional fighters) can only use support vehicle structure with a maximum Tech Rating of C.

Docking Collars (Small Craft, DropShips, JumpShips): RetroTech aerospace units may mount docking collars normally.

Jump Jets ('Mechs): RetroTech 'Mechs can make use of any type of jump jets, including modern versions such as the standard and improved variety.

Weapons and Equipment: RetroTech units may add weapons, ammunition and other equipment from any era per standard rules for the unit in question.

Mixed Tech

If a Primitive or RetroTech unit employs a non-Primitive cockpit, engine, gyro or internal structure of any kind, it may no longer be considered Primitive or RetroTech, but instead becomes classified as having a mixed-technology unit with an Inner Sphere Tech Base (see *Mixed Technologies*, p. 189, *TO:AUE*).

PRIMITIVE 'MECH CONSTRUCTION

Rules Level: Advanced

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (D/CFEF)

Primitive BattleMechs and IndustrialMechs are built using the standard BattleMech and IndustrialMech Construction rules (see pp. 44–59, and pp. 63–75, *TM*), but with the changes described below.





Timeline: In universe, the Primitive IndustrialMech (also called a WorkMech) was introduced in 2350 and the Primitive BattleMech in 2439. The “primitive stage” of ‘Mech development lasted until 2520; such construction began to phase out in 2500, but it would take another two decades until all primitive production stopped.

Step 1: Design the Chassis

The following rule changes apply to Step 1 of BattleMech or IndustrialMech design (designing the chassis).

Choose Technology Base: Primitive BattleMechs and IndustrialMechs can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 115, for exceptions covering “modern Primitive” designs). Primitive ‘Mechs cannot be constructed as OmniMechs, nor may they be designed as LAMs, QuadVees, or Tripods. Primitive ‘Mechs may only be built as bipeds or four-legged units.

Choose Weight (Tonnage): Primitive BattleMechs and IndustrialMechs may weigh between 10 and 100 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the ‘Mech’s engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Allocate Tonnage for Internal Structure: Primitive ‘Mech internal structure is identical in all ways to standard internal structure (including cost), with Primitive BattleMech internal structure taking up 10 percent of the unit’s total weight, and Primitive IndustrialMech internal structure taking up 20 percent of the unit’s total weight.

The number of internal structure boxes a Primitive ‘Mech receives are as those of an equivalent-weight modern ‘Mech on the Internal Structure Table (see p. 47, *TM*). As indicated under Restricted Technologies (see pp. 115-116), Primitive ‘Mechs may not employ any alternative internal structure types (such as endo steel).

Charles is going to create the MSK-55 Mackie, the first operational Primitive BattleMech introduced by the Terran Hegemony in 2439. As a Primitive BattleMech, the Mackie can only use Inner Sphere technology.

Charles intends the Mackie to have a standard humanoid chassis configuration; he chooses to make the Mackie 100 tons.

With a mass of 100 tons, Charles allocates 10 tons for the Mackie’s internal structure.



Step 2: Install Engine and Control Systems

The following rule changes apply to Step 2 of BattleMech or IndustrialMech design (installing the engine and control systems):

Install Engine: Both Primitive BattleMechs and Primitive IndustrialMechs can use ICE, fuel cell, fission, or standard fusion engine types. Primitive engines are identical in all ways to their modern engines (including costs), except that, after calculating the unit’s Engine Rating as normal, the result must be multiplied by 1.2 and rounded up to the nearest available Engine Rating from the Master Engine Table (see p. 49, *TM*). This modified Engine Rating is then used to find the weight of the Primitive ‘Mech’s engine.

Note that even though the normal Master Engine Table is used in this step, the requirement for a heavier, higher-rated engine to achieve the same performance is intended to reflect the reduced efficiency of an obsolete engine type. This means that the resulting engine is considered a Primitive engine, and will not improve its performance when placed in a modern chassis.

Add Gyroscope: Primitive gyros are identical in all ways to standard gyros (including costs), but compute their weight based on the Primitive ‘Mech’s modified Engine Rating (as indicated above), rather than their actual, modern Engine Rating. (See pp. 50–51, *TM*.)

Determine Jump Capability: Only fusion- or fission-powered Primitive ‘Mechs built after 2464 may mount jump jets. These jets are mounted in accordance with the standard rules for BattleMech jump jets (see p. 51, *TM*).

Primitive ‘Mechs built from 2464 to 2470 may only use Primitive prototype jump jets (see p. 114), while Primitive ‘Mechs built after 2470 may mount standard or Primitive prototype jump jets. Improved jump jets are incompatible with Primitive technology, as are the various jump boosters featured in *Tactical Operations: AUE*.

Special Physical Enhancements: The engines, structure, and musculature used in Primitive ‘Mechs are incompatible with physical enhancements such as MASC, triple-strength myomers, and similar speed- or strength-boosting technologies featured in *Tactical Operations: AUE* (such as an engine supercharger).

Determine Cockpit Type: Primitive cockpits are identical in all ways to standard cockpits (including costs), except that both the Primitive BattleMech cockpit and the Primitive IndustrialMech cockpit weigh 5 tons. Primitive BattleMechs may only mount a Primitive BattleMech cockpit, while Primitive IndustrialMechs may only mount a Primitive IndustrialMech cockpit.

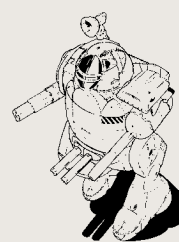
As noted in the combat rules, Primitive IndustrialMech cockpits lack targeting systems by default, as well as any ejection systems for the pilot. They may be upgraded with such equipment as noted in *TechManual*, but even so, a Primitive IndustrialMech will still suffer a +1 to-hit modifier in addition to the modifiers applicable to the IndustrialMech’s fire control systems (if any). Primitive BattleMech cockpits do not suffer this deficiency, and automatically feature advanced fire control.

Primitive ‘Mechs may not use modern targeting computers or C³ or C³i systems unless they are also equipped with advanced fire control. Because those technologies post-date the days when Primitive ‘Mechs were originally constructed, however, installing such systems automatically makes the ‘Mech a RetroTech unit. Remember that Primitive BattleMech receive advanced fire control by default.

Charles’ Mackie is a 100-ton Primitive BattleMech with a Walking MP of 3. Normally this would require a 300-rated engine, but because this is a Primitive ‘Mech, the rating is multiplied by 1.2 to give a final engine rating of 360. As the Mackie is to use a fusion engine, the weight is found to be 33 tons, and the ‘Mech receives the standard 10 free single heat sinks.

With a 360-rated engine, Charles’ Mackie requires a 4-ton gyro.

As it is the first BattleMech ever produced, with an introduction date of 2439, Charles’ Mackie cannot mount jump jets (which will not appear—even in prototype form—until 2471). It also uses the 5-ton Primitive BattleMech cockpit, which comes with its own advanced fire control system.



Step 3: Add Additional Heat Sinks

Primitive ‘Mechs may only install standard (single) heat sinks. The number of “weight-free” heat sinks (if any) that a Primitive ‘Mech receives from its engine is based on its engine type as per the normal rules in *TechManual* (see p. 71, *TM*).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

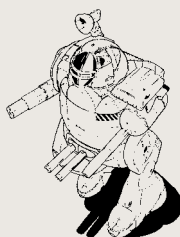
INDEX

RECORD SHEETS

Per standard BattleMech Construction rules, the number of sinks that need not be allocated to the Primitive 'Mech's Critical Hit chart is equal to the 'Mech's modified Engine Rating, divided by 25 (rounded down).

Since Charles installed a fusion engine, his Mackie will receive 10 heat sinks at no cost in weight. He chooses to add an additional 7 single heat sinks, to offset the combat heat he expects the 'Mech to generate once fully armed.

Given the Mackie's modified Engine Rating of 360, 14 of these 17 sinks need not be placed on the unit's ($360 \div 25 = 14.4$, rounded down to 14); the other three must be allocated critical spaces on the record sheet.



Step 4: Add Armor

As with normal 'Mech design, the armor used by Primitive 'Mechs may be purchased in half-ton lots, and the maximum number of armor points that may be mounted in each of the 'Mech's body locations are identical to those of a modern BattleMech of the same weight (see pp. 54–57, *TM*).

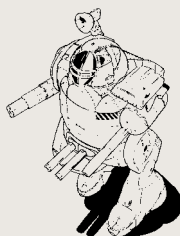
For Primitive 'Mechs, the only armor types permitted are as follows (RetroTech 'Mechs may mount alternative armor types, as indicated under *Restricted Technologies*, see pp. 115-116):

Primitive BattleMech Armor: Primitive BattleMechs can only mount Primitive BattleMech armor, which has an effective BAR of 10 and multiplies the number of standard armor points provided per ton (16) by 0.67 (rounding down to the nearest whole number).

Primitive IndustrialMech Armor: Primitive IndustrialMechs may only mount Commercial armor, which has an effective BAR of 5 and multiplies the number of points provided per ton of standard armor (16) by 1.5 (rounding down to the nearest whole number).

The Mackie carries 20 tons of Primitive BattleMech armor. This gives the 'Mech 214 points of armor [20 (armor tonnage) $\times$ 16 (standard points per ton) $\times$ 0.67 (Primitive armor factor)] = 214.4, rounded down to 214.

Charles allocates the armor thus: 9 points to the head, 31 points to the front center torso, 20 points each to the front side torsos, 10 points to all three rear torso locations, 24 points to each arm and 28 points to each leg.



Step 5: Add Weapons, Ammunition and Other Equipment

Primitive 'Mechs (unless otherwise stated) may add weapons, ammunition and other equipment per standard rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pages 115-116, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where 'Mechs from every realm could be made using standard construction rules and equipment. Any post-2500 'Mechs built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive 'Mechs use the standard 'Mech record sheet, which is completed as normal (see p. 59, *TM*).

Charles completes his Mackie design by adding a PPC (7 tons) to the left arm, a large laser (5 tons) to the center torso and an autocannon/5 (8 tons) to the right arm (with a ton of ammunition located in the right torso).

When completing his Mackie's record sheet, Charles consults the normal TechManual specs for the large laser and autocannon, but because he chose to place a PPC in a 2439-vintage 'Mech, he was forced to select the Primitive prototype version of that weapon, and thus consults the rules in this book (see Primitive Prototype Equipment, pp. 111-114), to find the specs for that weapon.

PRIMITIVE COMBAT VEHICLE CONSTRUCTION

Rules Level: Tournament Legal

Available to: SV

Tech Base (Ratings): Inner Sphere (C/CDEF)

Even though they are classified as Combat Vehicles in terms of their battlefield function, Primitive combat vehicles are actually designed using the Support Vehicle rules found in *TechManual* instead (see pp. 116-155, *TM*). Primitive combat vehicles may be built using the hover, naval, tracked, VTOL, wheeled, or wing-in-ground effect (WiGE) motive types, as appropriate. When building such units, the following restrictions apply:

Restricted Technologies: All *Restricted Technologies* rules defined for vehicles (see pp. 115-116) apply to Primitive combat vehicles as appropriate.

Maximum Technology: Primitive combat vehicles follow the maximum Tech Ratings under *Restricted Technologies* for the vehicle's chassis and engine (see pp. 115-116). This also applies to chassis modifications, so Primitive combat vehicles may not be constructed using advanced chassis modifications such as Ultra-Light before TR D is available or the Omni chassis modification.

Maximum BAR: Primitive combat vehicles follow the maximum Tech Ratings and BAR values restricted by date under *Restricted Technologies* (see pp. 115-116) for the vehicle's armor.

RetroTech vs. Modern Support Vehicles: A support vehicle built with any weapons and equipment listed in the *Restricted Technologies* rules—while still using a chassis, engine, and armor of Tech Rating of C or less, may be considered a RetroTech combat vehicle. If a support vehicle is built with a chassis or engine that has a Tech Rating higher than C, it is considered a modern Support Vehicle instead.

PRIMITIVE CONVENTIONAL FIGHTER CONSTRUCTION

Rules Level: Tournament Legal

Available to: SV

Tech Base (Ratings): Inner Sphere (C/CDEF)

Even though they function exactly as Conventional Fighters, Primitive conventional fighters are actually designed using the Fixed-Wing Support Vehicle rules found in *TechManual* instead (see pp. 116-155, *TM*). Primitive conventional fighters may only be built with the fixed wing motive type; airship support vehicles are never considered to be anything other than a support vehicle, even when armed.

When building Primitive conventional fighters, the following restrictions apply:

Restricted Technologies: Primitive conventional fighters follow the maximum Tech Ratings under *Restricted Technologies* for the fighter's chassis and engine (see pp. 115-116). This also applies to chassis modifications, so Primitive conventional fighters may not be constructed using advanced chassis modifications such as Ultra-Light before TR D is available or the Omni chassis modification.

Maximum Technology: A maximum Tech Rating of C applies for the fighter's chassis and engine. This also applies to chassis



modifications, so Primitive fighters may not be constructed using advanced chassis modifications such as Ultra-Light construction or Omni-chassis.

Crew Needs: For purposes of computing crew needs, Primitive conventional fighters use the minimum gunners requirements of a Small size support vehicle, with only one gunner required per weapon facing. This gunner can include the fighter's pilot.

Maximum BAR: Primitive conventional fighters follow the maximum Tech Ratings and BAR values restricted by date under *Restricted Technologies* (see pp. 115-116) for the fighter's armor.

RetroTech vs. Modern Support Vehicles: A fixed-wing support vehicle built with any weapons and equipment listed in the *Restricted Technologies* rules—while still using a chassis, engine, and armor of Tech Rating of C or less, may be considered a RetroTech conventional fighter. If a fixed-wing support vehicle is built with a chassis or engine that has a Tech Rating higher than C, it is considered a modern Support Vehicle instead.

PRIMITIVE AEROSPACE FIGHTER CONSTRUCTION

Rules Level: Tournament Legal

Available to: AF

Tech Base (Ratings): Inner Sphere (D/DEFF)

As with Primitive 'Mechs, constructing a Primitive aerospace fighter uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with a few minor changes as outlined below:

Timeline: In universe, the Primitive aerospace fighter was introduced in 2300. The "primitive stage" of fighter development lasted until 2520; such construction began to phase out in 2500, but it would take another two decades until all primitive production stopped.

Step 1: Design the Chassis

The following rule changes apply to Step 1 of aerospace fighter design (designing the chassis).

Choose Technology Base: Primitive aerospace fighters can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 115, for exceptions covering "modern Primitive" designs). Primitive aerospace fighters cannot be constructed as OmniFighters.

Choose Weight (Tonnage): Primitive aerospace fighters may weigh between 10 and 100 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the fighter's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Step 2: Install Engine and Control Systems

The following rule changes apply to Step 2 of aerospace fighter design (installing the engine and control systems):

Install Engine: Primitive aerospace fighters can only use standard fusion engine types. As with Primitive 'Mech engines, after calculating the unit's Engine Rating as normal, multiply that value by 1.2 and round up to the nearest available Engine Rating on the Master Engine Table (see p. 49, *TM*). This modified Engine Rating is then used to find the weight of the Primitive aerospace fighter's engine. In all other ways, Primitive fighter engines are identical in all ways to their modern counterparts (including costs).

Note that even though the normal Master Engine Table is used in this step, the requirement for a heavier, higher-rated engine to achieve the same performance is intended to reflect the reduced efficiency of an obsolete engine type. This means that

the resulting engine is considered a Primitive engine, and will not improve its performance when placed in a modern chassis.

Add Control/Crew Systems: Primitive aerospace fighter cockpits are identical in all ways to standard cockpits (including costs), except that the Primitive aerospace fighter cockpits weigh 5 tons, and automatically impose an additional +1 to-hit modifier for attacks made at Long and Extreme ranges.

Primitive fighters may not use modern targeting computers or C³ or C³i systems.

Step 3: Add Armor

As with normal aerospace fighter design, the armor used by Primitive aerospace fighters may be purchased in half-ton lots, with the maximum number of armor points that may be mounted on the fighter's four armor facings (nose, aft, and both wings) equal to the fighters tonnage x 8.

Primitive aerospace fighters may only use Primitive aerospace fighter armor. This armor is identical to that used by Primitive BattleMechs; it has an effective BAR of 10, and multiplies the number of standard armor points provided per ton (16) by 0.67 (rounding down to the nearest whole number). This armor may be allocated by the designer in accordance with the normal aerospace fighter armor rules (see pp. 190-191, *TM*).

Step 4: Add Additional Heat Sinks

Primitive aerospace fighters may only install standard (single) heat sinks. Because all Primitive aerospace fighters must use fusion engines, this engine type automatically provides 10 "weight-free" heat sinks. Additional heat sinks may be added to improve the Primitive fighter's heat efficiency.

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive aerospace fighters may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pages 115-116, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where aerospace fighters from every realm could be made using standard construction rules and equipment.

Any post-2500 aerospace fighters built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive aerospace fighters use the standard aerospace fighter record sheet, which is completed as normal (see pp. 198-199, *TM*).

PRIMITIVE SMALL CRAFT CONSTRUCTION

Rules Level: Tournament Legal

Available to: SC

Tech Base (Ratings): Inner Sphere (D/DEFX)

Constructing a Primitive small craft uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with a few minor changes as outlined below:

Step 1: Design the Chassis

The following rule changes apply to Step 1 of small craft design (designing the chassis).

Choose Unit Type and Shape: Primitive small craft may be constructed in either spheroid or aerodyne shapes. Unless

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

otherwise specified in the basic rules and these modifications, both shapes of Primitive small craft will adhere to the same construction rules and restrictions.

Choose Technology Base: Primitive small craft can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 115, for exceptions covering “modern Primitive” designs).

Choose Weight (Tonnage): Primitive small craft may weigh between 100 and 200 tons, determined in five-ton increments. Within these limits, the player may choose any tonnage. The total weight of the small craft’s engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of small craft design (installing the engine and control systems):

Install Engine: The mass of the Primitive small craft’s engine is dependent upon the period when the vessel is constructed. Begin by finding the Primitive small craft’s Base Movement Factor per the standard rules (see *Aerospace Unit Engine Table*, p. 185, *TM*). Then, in place of the normal small craft engine weight formula, use the one found under the Primitive Engine Weight Formula column of the Primitive Small Craft Engine/Controls Weight Table (see below), based upon the ship’s year of introduction. Round all engine weights up to the nearest half-ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive small craft are computed as normal for a standard small craft of equivalent weight and shape. SI weights for Primitive small craft are likewise identical to their normal versions.

Fuel: When determining the Primitive small craft’s tactical fuel efficiency, *divide* its number of fuel points per ton (normally 80 points) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel’s lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the small craft’s strategic fuel efficiency, *multiply* its usual number of fuel tons per burn-day (normally 1.84 tons/burn-day) by its Primitive Fuel Factor (see *Determine Fuel Capacity*, p. 186, *TM*). Round this figure up to the nearest 0.01 tons per burn day.

Add Control/Crew Systems: As with their engines, the weight of the control systems used by a Primitive small craft is dependent on the vessel’s year of introduction. In place of the normal small craft control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive Small Craft Engine/Controls Weight Table (see below). Round all control system weights up to the nearest half-ton.

Like aerospace fighters, the control systems of Primitive small craft automatically impose an additional +1 to-hit modifier for attacks made at Long and Extreme ranges.

Crew: The crew numbers for a Primitive small craft are computed as normal. All crewmen must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, if desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.

Step 3: Add Armor

Primitive small craft armor is identical in all ways to standard armor (including costs), except that all armor mounted on a Primitive small craft—including the “free” armor provided by the vessel’s structural

integrity value—must be multiplied by 0.66, rounding down to the nearest whole number.

Step 4: Add Additional Heat Sinks

Primitive small craft may only install standard (single) heat sinks. This includes the “weight-free” heat sinks provided with the vessel’s engine (which are computed as normal).

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive small craft may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pages 115-116, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where small craft from every realm could be made using standard construction rules and equipment.

Any post-2500 small craft built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive small craft use the standard small craft record sheet appropriate to their hull type (aerodyne or spheroid). This sheet is completed as normal (see pp. 198-199, *TM*).

PRIMITIVE DROPSHIP CONSTRUCTION

Rules Level: Tournament Legal

Available to: DS

Tech Base (Ratings): Inner Sphere (D/DFXX)

The modern DropShip didn’t fully develop until after the advent of the docking collar, which also led to the K-F boom that allowed for the extension of the K-F field around externally-carried DropShips. Prior to that time, any non-jump-capable interplanetary drive vessel was formally called a shuttle, even though many contemporary pilots often used the term “dropship” to reference shuttles small enough to dock inside a JumpShip. (Shuttles were also constructed in this period that could not fit inside a JumpShip, however. These large craft were thus bound to the solar system where they were assembled, and typically appeared only in systems with multiple planets, or with zones under active colonization or mining efforts.)

When modern construction techniques took over in 2500, and all DropShips mounted docking collars as a matter of standard procedure, the term “DropShip” became formalized.

PRIMITIVE SMALL CRAFT ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive Engine Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Base Movement Factor x 0.143	2.2	Tonnage x 0.01575
2151 - 2200	Base Movement Factor x 0.1235	1.9	Tonnage x 0.01425
2201 - 2250	Base Movement Factor x 0.1105	1.7	Tonnage x 0.01275
2251 - 2299	Base Movement Factor x 0.0975	1.5	Tonnage x 0.01125
2300 - 2399	Base Movement Factor x 0.091	1.4	Tonnage x 0.00975
2400 - 2499	Base Movement Factor x 0.078	1.2	Tonnage x 0.00825
2500+	Base Movement Factor x 0.065**	1.0**	Tonnage x 0.0075**

*Round all weights up to the nearest 0.5 tons.

**These Factors apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when “modern-day” construction arrived).



Constructing a Primitive DropShip uses the standard rules given in *TechManual* (see pp. 181-199, *TM*), with the changes outlined below. Note that despite the nuanced use of the term "shuttle" versus "dropship" that applied in this early time period, these rules will refer to all large non-hyperspace craft by the general term of "Primitive DropShip".

Military vs. Civilian: Before 2500, the various technologies and engineering techniques involved in large system-transit spacecraft had not yet advanced enough to permit the more robust and dedicated military DropShips of the modern age. As such, unless specifically stated otherwise, all of these rules will be based on those established for civilian DropShips.

Step 1: Design the Chassis

The following rules changes apply to Step 1 of DropShip design (designing the chassis).

Choose Unit Type and Shape: Primitive DropShips may be constructed in either spheroid or aerodyne shapes. Unless otherwise specified in the basic rules and these modifications, both shapes of Primitive DropShip will adhere to the same construction rules and restrictions.

Choose Technology Base: Primitive DropShips can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 115, for exceptions covering "modern Primitive" designs).

Choose Weight (Tonnage): Primitive DropShips may weigh from 200 tons to the maximum defined by their weight limit in the Primitive DropShip Maximum Weight Limit Table, based on the vessel's shape and year of introduction. Like their modern kin, the weight of a Primitive DropShip must be determined in 100-ton increments. Within these limits, the player may choose any tonnage. The total weight of the vessel's engine and components (as well as weapons and armor, if appropriate) may not exceed this amount.

Interstellar Travel: A Primitive DropShip must be 5,000 tons or less to be carried within a Primitive JumpShip for interstellar travel. If it is larger than 5,000 tons, then it is an interplanetary-only craft.

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of DropShip design (installing the engine and control systems):

Install Engine: The mass of the Primitive DropShip's engine is dependent upon the period when the vessel is constructed. Begin by finding the Primitive DropShip's Base Movement Factor per the standard rules (see *Aerospace Unit Engine Table*, p. 185, *TM*). Then,

PRIMITIVE DROPSHIP MAXIMUM WEIGHT LIMIT TABLE

Year of Introduction	Weight Limit (in tons), Spheroid / Aerodyne
2110-2129	3,000 / 1,000
2130-2149	4,000 / 1,500
2150-2164	7,000 / 2,500
2165-2174	10,000 / 3,500
2175-2199	14,000 / 5,000
2200-2249	15,000 / 6,000
2250-2299	19,000 / 7,000
2300-2349	23,000 / 8,000
2350-2424	30,000 / 10,000
2425-2499	50,000 / 20,000
2500+	100,000* / 35,000*

*These maximums apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when "modern-day" limitations arrived).

in place of the normal DropShip engine weight formula, use the one found under the Primitive Engine Weight Formula column of the Primitive DropShip Engine/Controls Weight Table (see below), based upon the ship's year of introduction. Round all engine weights up to the nearest half-ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive DropShip are computed as normal for a standard DropShip of equivalent weight and shape. SI weights for Primitive DropShips are likewise identical to their normal versions.

Fuel: When determining the Primitive DropShip's tactical fuel efficiency, *divide* its number of fuel points per ton (see p. 186, *TM*) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel's lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the DropShip's strategic fuel efficiency, *multiply* its usual number of fuel tons per burn-day (based on its equivalent-weight civilian DropShip, see *Determine Fuel Capacity*, p. 186, *TM*) by its Primitive Fuel Factor. Round this figure up to the nearest 0.01 tons per burn day.

Add Control/Crew Systems: As with its engines, the weight of the control systems used by a Primitive DropShip is dependent on the vessel's year of introduction. In place of the normal DropShip control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive DropShip Engine/Controls Weight Table (at left). Round all control system weights up to the nearest half-ton.

Unlike Primitive aerospace fighters and small craft, the control systems of Primitive DropShips impose no additional to-hit modifiers for weapon attacks at any range.

PRIMITIVE DROPSHIP ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive Engine Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Base Movement Factor x 0.130	2.0	Tonnage x 0.0150
2151 - 2200	Base Movement Factor x 0.117	1.8	Tonnage x 0.0135
2201 - 2250	Base Movement Factor x 0.104	1.6	Tonnage x 0.0120
2251 - 2299	Base Movement Factor x 0.091	1.4	Tonnage x 0.0105
2300 - 2350	Base Movement Factor x 0.0845	1.3	Tonnage x 0.00975
2351 - 2499	Base Movement Factor x 0.0715	1.1	Tonnage x 0.009
2500+	Base Movement Factor x 0.065**	1.0**	Tonnage x 0.0075**

*Round all weights up to the nearest 0.5 tons.

**These Factors apply to the standard construction rules only and cannot be used with these Primitive Construction Rules (they are provided for fictional context only, to show when "modern-day" construction arrived).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Crew: The crew numbers for a Primitive DropShip are computed as normal. This crew must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, if desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.

Step 3: Add Armor

Primitive DropShip armor is identical in all ways to standard armor (including costs), except that all armor mounted on a Primitive DropShip—including the “free” armor provided by the vessel’s structural integrity value—must be multiplied by 0.66, rounding down to the nearest whole number.

Step 4: Add Heat Sinks

Primitive DropShips can only mount standard (single) heat sinks. This includes the weight-free heat sinks provided with the DropShip’s engine. To determine the number of these weight-free heat sinks, use the formula from the Primitive DropShip Heat Sinks Table, instead of the formulas provided on page 193 of *TechManual*.

PRIMITIVE DROPSHIP HEAT SINKS TABLE

Aerospace Unit Type	Weight-Free Heat Sinks
Aerodyne Primitive DropShip	Engine Tonnage ÷ 75*
Spheroid Primitive DropShip	√(Engine Tonnage x 1.3)*

*Round down

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive DropShips may add weapons, ammunition and other equipment per the normal rules, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pages 115-116, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where DropShips from every realm could be made using standard construction rules and equipment.

Any post-2500 DropShip built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Step 6: Complete Record Sheet

Primitive DropShips use the standard DropShip record sheet appropriate to their hull type (aerodyne or spheroid). This sheet is completed as normal (see pp. 198-199, *TM*).

PRIMITIVE JUMPSHIP CONSTRUCTION

Rules Level: Advanced

Available to: JS, WS

Tech Base (Ratings): Inner Sphere (D/EFXX)

The modern JumpShips and WarShips seen throughout human-occupied space evolved from far more primitive vessels during mankind’s early exodus from Terra, and the Age of War that followed. Built as much to haul cargo and personnel as they were to defend themselves from harm, the early Kearny-Fuchida ships balanced

jump range against maneuvering drives, fuel storage, cargo holds, quarters, armor, and armaments.

With early jump cores and maneuvering drives particularly limited in terms of weight-to-performance ratios, few ships stood out as particularly dedicated to transport or combat. It was only as drive efficiencies increased, and larger hull sizes became more practical, that the distinctive evolution of transport-exclusive JumpShips and combat-focused WarShips became possible. The advent of the JumpShip/DropShip combination further divided these jump vessel types, as they enabled the construction of cheaper (but much larger) dedicated cores for JumpShips, leaving the more established (but much more expensive) compact cores to the modern WarShips.

Constructing a Primitive JumpShip (or WarShip) uses the standard rules given for WarShip construction in *Strategic Operations* (see pp. 139-149, *SO*), including determining costs, with the changes outlined below. Note that even though modern JumpShips and WarShips are distinctly different unit classes, these rules will refer to all large hyperspace-capable craft by the general term of “Primitive JumpShip”, and will apply the rules to both vessel types, regardless of their function.

Step 1: Design the Chassis

The following rules changes apply to Step 1 of WarShip design (designing the chassis).

Choose Unit Type: Although the unit classification is technically that of a JumpShip (regardless of whether the unit is designed as a dedicated transport or a combat vessel), for construction purposes, all Primitive JumpShips are built as WarShips.

Choose Technology Base: Primitive JumpShips can only be built using Inner Sphere technology (see *Primitive vs. Modern*, p. 115, for exceptions covering “modern Primitive” designs).

Choose Weight (Tonnage): Primitive JumpShips may weigh from 50,000 tons to the maximum weight limit shown in the Primitive JumpShip Maximum Weight Limit Table, based on the vessel’s year of introduction. Like their modern kin, the weight of a Primitive JumpShip must be determined in 1,000-ton increments. Within these limits, the player may choose any tonnage. The total weight of the vessel’s engine and components (as well as weapons and armor, if appropriate) may not exceed this chosen amount.

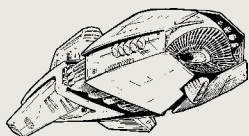
PRIMITIVE JUMPSHIP MAXIMUM WEIGHT LIMIT TABLE

Year of Introduction	Terran Alliance	Terran Hegemony	Great Houses	Periphery
2110-2129	100,000	NA	NA	NA
2130-2149	150,000	NA	NA	NA
2150-2164	200,000	NA	NA	NA
2165-2174	250,000	NA	NA	NA
2175-2199	350,000	NA	NA	NA
2200-2299	500,000	NA	350,000	300,000
2300-2349	NA	1,000,000	600,000	450,000
2350-2399	NA	1,600,000	800,000	600,000
2400-2459	NA	1,800,000	1,000,000	1,000,000
2460+	NA*	NA*	NA*	1,000,000*

*From 2460 and onward, Primitive JumpShips ended production throughout most of the Inner Sphere; Periphery-made JumpShips could still be produced to Primitive standards up until 2500.



David is building the Aquilla-class Transport JumpShip. As a Primitive JumpShip, the Aquilla only uses Inner Sphere technology.



David decides he wants the Aquilla to be a truly ancient design, built by the Terran Alliance when the human race was first colonizing. He decides to give it a 2148 introduction date, which means the maximum weight is 200,000 tons. David decides the Aquilla will weigh 100,000 tons.

Step 2: Install Engines and Control Systems

The following rule changes apply to Step 2 of WarShip design (installing the engine and control systems):

Install Engine: The mass of the Primitive JumpShip's engine is dependent upon the period when the vessel is constructed, the vessel's total tonnage, and its desired Safe Thrust. To find the proper formula, find the Primitive JumpShip's year of introduction on the Primitive JumpShip Engine/Controls Weight Table, and use the formula found under the Primitive JumpShip Maneuvering Drive Weight Formula column. This formula replaces the standard formulas found in the standard rules. All engine weights must be rounded up to the nearest full ton.

Note that in the days of Primitive JumpShips, virtually all such vessels used maneuvering drives rather than the station-keeping drives of modern JumpShips. If a Safe Thrust of less than 1 is desired, apply a minimum value of 0.2 to the appropriate engine weight formula, which will produce a weight consistent with a station-keeping drive system.

The Maximum Thrust of any Primitive JumpShip is equal to its Safe Thrust x 1.5, rounded up to the nearest whole number. (In the case of a "station-keeping" Primitive JumpShip, with a Safe Thrust of less than 1, the vessel receives no Max Thrust value.)

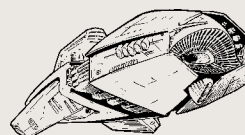
Fuel: When determining a Primitive JumpShip's tactical fuel efficiency, divide its number of fuel points per ton (see p. 135, SO) by the Primitive Fuel Factor appropriate to its year of introduction, to reflect the vessel's lower fuel efficiency. Do not round this value until after assigning the desired fuel tonnage (at which point the fuel points round down to the nearest whole number).

For the JumpShip's strategic fuel efficiency, multiply its usual number of fuel tons per burn-day (based on its equivalent-weight modern WarShip, see *Determine Fuel Capacity*, p. 135, SO) by its Primitive Fuel Factor. If the Primitive JumpShip has been given a station-keeping drive (represented by a Safe Thrust of less than 1), divide this modified strategic fuel efficiency value by 10. Round the final figure up to the nearest 0.01 tons per burn day.

Fuel Pumps: As with modern JumpShips and WarShips, the fuel pump system adds 2 percent to the total tonnage devoted to the vessel's fuel, rounded up to the nearest full ton.

Structural Integrity: The minimum and maximum structural integrity (SI) values for a Primitive JumpShip are computed as normal for a WarShip of equivalent weight. SI weights for Primitive JumpShips are likewise identical to that of a modern WarShip.

Since he knows the engine is likely to be huge on such an early craft, David decides to only give it a Safe Thrust of 1. Given the JumpShip's 2148 date, this means that the formula for its engine weight is



$Tonnage \times Safe Thrust \times 0.120$. Plugging in the ship's tonnage and Safe Thrust yields a total weight of 12,000 tons for the maneuvering drive ($100,000 \times 1 \times 0.120 = 12,000$).

Before resolving his fuel needs, David decides to determine the weight for his ship's structural integrity. After reviewing the rules in Strategic Operations, he knows that the vessels' Max Thrust of 2 (Safe Thrust $1 \times 1.5 = 1.5$, round up to 2) will give him a legal SI value range between 2 and 60. He decides that, since this is such an early design, an integrity value of 10 feels appropriate.

He then determines the weight devoted to the ship's SI will be 1,000 tons [$10 (SI) \times 100,000 (ship tonnage) \div 1,000 (per p. 136, SO) = 1,000 tons$]. That starts his running total at 13,000 tons.

David then figures how much fuel he wants to add. He decides on a nice, even 2,500 tons. This would give a modern ship 25,000 points of fuel (10 points per ton for ships weighing 100,000 tons), but must be divided by the Primitive Fuel factor of 2, and so the Aquilla receives only 12,500 points of fuel as a result. At 2,500 tons for fuel, David also finds that he must add another 50 tons for fuel pumps (2% of 2,500 tons = 50 tons). This gives him a running total of 15,550 tons.

Determine K-F Jump Capability: During the early years of JumpShip development, while the K-F drive was being perfected, the actual performance of those drives fell far short of the 30 light-year range now achievable. Longer-ranged jumps invariably required ever-larger drive sizes, and so smaller drive cores were often preferred to allow room for cargo, fuel, and other equipment. As the technology was perfected, drive cores were maximized for both weight efficiency and cost-effectiveness, creating the modern 30-LY drives in standard and compact-core formats.

To find the weight of a Primitive JumpShip's Kearny-Fuchida drive, determine a maximum jump range in whole light-years (with a minimum of 15) and use the Primitive Kearny-Fuchida Drive Formula (see p. 124) to find its weight relative to the ship's total tonnage.

K-F Drive Integrity: As with a modern WarShip, a Primitive JumpShip's K-F Drive Integrity value is equal to 2 + (K-F drive weight $\div 25,000$), rounded up to the nearest whole number.

Jump Sail: Prior to 2200, no K-F ships mounted a jump sail, and thus

PRIMITIVE JUMPSHIP ENGINE/CONTROLS WEIGHT TABLE

Year of Introduction	Primitive JumpShip Maneuvering Drive Weight Formula*	Primitive Fuel Factor	Primitive Control System Weight Formula*
2100 - 2150	Tonnage x Safe Thrust x 0.120	2.0	Tonnage x 0.00625
2151 - 2200	Tonnage x Safe Thrust x 0.102	1.7	Tonnage x 0.005
2201 - 2250	Tonnage x Safe Thrust x 0.084	1.4	Tonnage x 0.0035
2251 - 2299	Tonnage x Safe Thrust x 0.066	1.1	Tonnage x 0.00275
2300+	Tonnage x Safe Thrust x 0.06**	1.0**	Tonnage x 0.0025**

*Round up to the nearest 0.5 tons.

**At this point, JumpShip engines and controls reached their modern construction standards, even though a number of other components still had yet to mature.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

PRIMITIVE KEARNY-FUCHIDA DRIVE FORMULA

K-F Drive Weight (% of Total JumpShip Weight): 5% + 3% per light-year

Maximum Jump Distance (All Primitive K-F Drives): 30 light years.

PRIMITIVE JUMP SAIL WEIGHT TABLE

Year of Introduction	Primitive Jump Sail Weight Formula
2200 - 2229	300 + (Tonnage ÷ 2,000)
2230 - 2259	150 + (Tonnage ÷ 4,000)
2260 - 2299	75 + (Tonnage ÷ 8,000)
2300+	30 + (Tonnage ÷ 20,000)*

*At this point, K-F jump sails reached their modern construction standards, even though a number of other JumpShip components still had yet to mature.

this piece of equipment cannot be added to any Primitive JumpShip with an introduction date before 2200. For ships introduced between 2200 and 2300, jump sails may be added, but run much larger and heavier than their modern descendants. To reflect this fact, use the ship's year of introduction to find its appropriate Primitive Jump Sail Weight Formula on the Primitive Jump Sail Weight Table (see above). Round any jump sail weights up to the nearest full ton.

Regardless of the weight formula used, jump sails receive an integrity value equal to 1 plus the sail's mass, divided by 20. The jump sail integrity value is rounded up to the nearest whole number.

The Aquilla-class transport was the mainstay of the Calderon Expedition that would go on to form the Taurian Concordat. To avoid squandering all of his tonnage on the maximum possible jump range, David gives the vessels a jump range of only 15 light-years. Thus, the vessel's K-F drive will weigh 50,000 tons [5% (Base) + (3% x 15 (LY range)) = 50% of the Aquilla's total mass; 100,000 x .50 = 50,000]. This provides a running total of 65,550 tons.

David next figures the K-F drive's integrity. Like a modern WarShip of equal drive weight, this will equal 4 [2 + (50,000 ÷ 25,000) = 4].

Because his Aquilla pre-dates the advent of the jump sail, David does not install one, and thus does not need to compute the sail's weight or integrity.

Add Control/Crew Systems: As with its engines, the weight of the control systems used by a Primitive JumpShip is dependent on the vessel's year of introduction and its total tonnage. In place of the normal JumpShip (or WarShip) control systems weight formula, use the appropriate one found under the Primitive Control System Weight Formula column of the Primitive JumpShip Engine/Controls Weight Table (see p. 123). Round all control system weights up to the nearest full ton.

Unlike Primitive aerospace fighters and small craft, the control systems of Primitive JumpShips impose no additional to-hit modifiers for weapon attacks at any range.

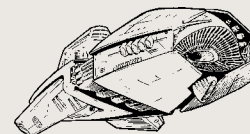
Crew: The crew numbers for a Primitive JumpShip are computed as normal for a WarShip of equivalent weight. This crew must be assigned at least steerage-grade quarters (at 5 tons per crewman), but better quarters can be assigned instead, as desired. The weight of all Primitive crew and passenger quarters are the same as their modern versions.

Next David determines the weight of the control systems. Once more, he consults the Primitive JumpShip Engine/Controls Weight Table, this time

consulting the Primitive Control System Weight Formula column, where he finds that his ship's introduction date yields a formula of Tonnage x 0.00625. This makes the control systems equal to 625 tons (100,000 tons x 0.00625 = 625 tons).

After reviewing the Advanced Aerospace Unit Minimum Crew Table on page 138 of Strategic Operations, David determines his Aquilla's minimum crew requirements will be 65 [45 + (1 per 5,000 tons (100,000 ÷ 5,000 = 20)) = 65]. He also wants to add 30 second-class passenger accommodations, which means a total of 665 tons. Since he hasn't assigned weaponry yet, he doesn't know how many gunners he'll need or ultimately how many officers will be required, so he'll have to figure those later.

Counting the crew and passenger quarters he has already assessed for minimum crew and passengers, David's running total stands at 66,840 tons spent.



Step 3: Add Heat Sinks

Primitive JumpShips can only mount standard (single) heat sinks. This includes the weight-free heat sinks provided with the JumpShip's engine, as well as any added to that by the designer. To determine the number of these "weight-free" heat sinks, add the number 45 to the square root of the primitive JumpShip's engine weight (rounded down). This replaces the normal heat sink formulas for the equivalent modern vessels (as provided on p. 139, SO).

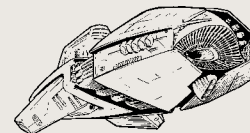
PRIMITIVE JUMPSHIP HEAT SINKS TABLE

Weight-Free Heat Sinks

45 + √(Engine Tonnage)*

*Round down

Using the formula from the Primitive JumpShip Heat Sinks Table, David comes up with 154 heat sinks his vessel will receive at no cost in weight: 154 [45 + √(12,000) = 154.54; rounded down to 154]. As he does not plan this ship to be laden with weapons, he feels he won't need to add any more heat sinks, leaving him with the same running total of 66,840 tons.



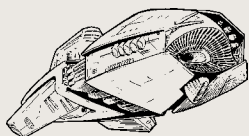
Step 4: Add Armor

Primitive JumpShips use the rules and limits for standard WarShips when computing their armor values (see p. 140, SO), and may not mount any of the advanced armor types such as improved ferro-aluminum, ferro-carbide, or lamellor ferro-carbide. This means that the maximum tonnage of armor a Primitive JumpShip may carry is equal to the ship's SI tonnage, divided by 50 (rounded down to the nearest half ton). In addition to this, as with modern WarShips, Primitive JumpShips will receive additional "weight-free" armor points



per facing, based on their structural integrity values. All armor mounted on a Primitive JumpShip—including the “free” armor provided by the vessel’s structural integrity value—must be multiplied by 0.66, rounding down to the nearest whole number.

Reviewing the Advanced Aerospace Unit Armor Table lets David know that he could assign a maximum of 20 tons of standard armor to his ship $[1,000 (SI \text{ mass}) \div 50 = 20, \text{ no rounding required}]$. Even though this is a low amount, he decides he’s going to assign only 19 tons of Primitive armor.



Before placing the armor, he first determines how much “weight-free” armor the Aquilla will receive in addition to this, which is 1 point of capital-scale armor per facing, for a total of 6 points $[10 (SI) \div 10 = 1 \text{ per facing}; 6 \text{ facings} \times 1 \text{ point per facing} = 6 \text{ points}]$.

David then multiplies the 19 tons of armor he has opted for by the standard Advanced Aerospace Unit Armor Weights for a 100,000-ton Inner Sphere WarShip using standard armor, and finds that this yields 15 armor points $[19 (\text{armor tonnage}) \times 0.8 (\text{standard armor for a 100,000 vessel}) = 15.2, \text{ rounded down to } 15]$. He then adds the free 6 points to 16 for a total of 21. Multiplying this total armor value by the Primitive armor factor of 0.66, he finds he has 13 armor points to allocate $[21 (\text{non-Primitive armor points}) \times .66 (\text{Primitive armor factor}) = 13.86, \text{ rounding down to } 13]$.

He thus assigns this armor as follows: 3 to the nose, 2 to each fore-side, 2 to each aft-side and 2 to the aft.

This leaves a running total of 66,859 tons.

Step 5: Add Weapons, Ammunition and Other Equipment

Unless otherwise stated, Primitive JumpShips may add weapons, ammunition and other equipment per the normal rules for WarShips, except all such weapons and equipment can only be installed if they have an introduction date of 2500 or earlier. See *Restricted Technologies*, pages 115-116, for more information.

After 2500, enough manufacturers had improved their engineering processes to the point where JumpShips and WarShips from every realm could be made using standard construction rules and equipment.

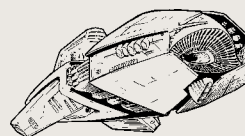
Any post-2500 JumpShips or WarShips built using Primitive components would thus either follow RetroTech rules and restrictions, or would be considered Mixed Technology units.

Docking Collars: The external docking collar system was not available to JumpShips or WarShips prior to 2304. From 2304 through 2458, docking collars are available under the standard construction rules, but these pre-boom collars lack the means to extend the JumpShip’s KF field to any attached vessels. It is only after the development of the DropShip KF boom and compatible collar systems in 2458 that JumpShips and WarShips will be able to mount modern-style docking collars.

Step 6: Complete Record Sheet

Primitive JumpShips always use the standard WarShip record sheet. This sheet is completed as normal (see p. 147, SO).

Right away David designs to arm his vessel. Knowing how truly ancient the design is compared to all the weaponry available within Tech-



Manual and Tactical Operations: AUE, and knowing this was one of the very first of its kind and open conflict simply wasn’t thought of, he decides for some machine guns. He places 2 machine guns (1 ton) and 2 tons of ammo in the nose; 1 machine gun (.5 tons) plus 1 ton of ammo in each fore location; 1 machine gun (.5 tons) and 1 ton of ammo in each broadside; 1 machine gun (.5 tons) and 1 ton of ammo in each aft side location; 2 machine guns (1 ton) and 2 tons of ammo in the aft: this generates a total of 15 tons.

Now that he’s figured the weaponry, he can wrap up figuring the crew. He knows he needs 2 gunners, which equates to 14 tons for crew quarters $[2 (\# \text{ of gunners}) \times 7 (\text{second-class crew quarters}) = 14]$. He then reviews the Additional Crew table again on page 150 of SO and determines he needs 12 officers $[65 (\text{base crew}) + 2 (\text{total gunners}) = 67 \div 6 = 11.17, \text{ rounding up to } 12]$. That equates to a total officer crew quarters tonnage of 120 $[12 (\text{officers}) \times 10 (\text{first-class crew quarters}) = 120]$.

Next, David decides he wants to provide 8 Small Craft (with a total of 4 doors), which equates to 1,600 tons. David also adds a single DropShuttle Bay in the Aquilla’s nose (with 1 door), which costs another 11,000 tons.

David then adds 20 escape pods, at 7 tons a piece, for a total of 140 tons. All of this gives him a running total of 79,748.

Finally, David takes the remaining tonnage and assigns it into 2 cargo bays of 10,126 tons each, with a single door for each cargo bay.

PROTOTYPE SPECIALTY MISSILES (CLAN INVASION)

Introduced: Variable (See Rules)

Extinct: Variable (See Rules)

At the start of the Clan Invasion, Inner Sphere weapons designers were in the midst of a military tech renaissance that not only brought back many of the advances of the fallen Star League, but also spurred a number of new developments intended for battlefield use. While some would go on to become mainstays of the Inner Sphere armies, others never made it past the limited production of their prototype stage. These special munitions types are described below.

SPECIALTY MUNITIONS: DEAD-FIRE (DF) MISSILES

R&D Start Date: ca. 3050 (Draconis Combine)

Prototype Design and Production: 3052 (Draconis Combine)

Dead-Fire (DF) missiles emerged as one of the Draconis Combine’s early efforts to offset rising munitions costs. They were devised at first as an alternative missile load for use standard LRM and SRM launchers, featuring larger warheads at the expense of targeting systems and thruster power. While at first the DCMS appeared impressed by their potential, the advent of the MRM launcher led the Combine to abandon these missiles by the end of the 3050s—but not before the technology was shared or copied by virtually every Inner Sphere state at the time.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Dead-Fire (DF) Missile Rules

Rules Level: Experimental

Available to: Any units equipped with standard LRM or SRM launchers

Tech Base (Ratings): Inner Sphere (C/XXEE)

Game Rules: DF missiles may only be fired from standard LRM and SRM launchers (including those modified with Artemis fire control systems). They may not benefit from any form of targeting enhancements, however, so the use of Artemis, Narc, and the like will have no effect on the use of dead-fire missile volleys.

DF missiles use shorter range brackets than their standard launcher ranges (as indicated in the Additional Alternate Era Weapons and Equipment Tables), but generate the same amount of heat when fired. Upon a successful hit, the number of missiles in a given DF missile flight is resolved using the appropriate column of the Cluster Hits Table, with a -3 modifier applied to the roll. On any result of less than 2, only a single DF missile hits the target.

Each missile in a DF LRM volley will deliver 2 points of damage, distributed in 5-point clusters as a normal LRM flight; each DF SRM missile delivers 3 points of damage, with each missile that hits rolled for a separate hit location.

In the event of an internal ammunition explosion, DF warheads explode with the damage value of a full flight of missiles, multiplied by the remaining flights in the ammo slot.

Construction Rules: Dead-Fire missiles are compatible only with standard-type LRM and SRM launchers, and may only be carried in full-ton lots. A ton of DF missiles provides the same number of shots as an equivalent ton of standard missiles for all given launcher sizes and types. DF missiles are not available in torpedo format, nor may they be combined with features from other specialty munitions.

When assigning aerospace damage values for a unit that uses DF missiles, use the damage value of an equivalent-sized rack of missiles as if it struck its target with a Cluster Hits Table roll of 4.

SPECIALTY MUNITIONS: RETRO-STREAK (RS) MISSILES

R&D Start Date: ca. 3045 (Draconis Combine)

Prototype Design and Production: 3048 (Draconis Combine)

Retro-Streak (RS) missiles were a special alternative missile load specifically developed for use with the Streak SRM launcher, as a defensive countermeasure against enemy Streak launchers. These warheads, which "spoofed" incoming Streak missiles to divert them away from the target, proved only partially effective in the field, despite several attempts to improve their performance. Combined with the fact that their use tied up ammo-conservative Streak launchers on defensive duties, this lackluster utility prompted the various factions working on these weapons to abandon their use by the late 3050s.

Retro-Streak (RS) Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with Streak SRM launchers

Tech Base (Ratings): Inner Sphere (E/XXFX)

Game Rules: RS missiles may only be fired from Streak SRM launchers, and will only fire when the unit is successfully attacked by a hostile Streak SRM launcher. If multiple Streak SRMs with RS warheads are on the defending unit, its controlling player may determine which of his Streak SRM launchers fires its RS warheads. RS warheads may not be fired offensively, and will not fire if the attacking unit fails to deliver a Streak SRM attack.

Regardless of the size of the rack that fires them, RS missiles force the attacking Streak SRM to resolve its number of missile hits using

the appropriate column of the Cluster Hits Table, as if the attack originated from a standard SRM. An additional modifier of -2 applies to this Cluster Hits Table roll, with any modified roll result less than 2 translating to a miss by the entire flight.

In the event of an internal ammunition explosion, RS warheads explode with the damage as an equivalent number of standard Streak SRMs.

Construction Rules: Retro-Streak missiles are compatible only with Streak SRM launchers, and may only be carried in full-ton lots. A ton of RS missiles provides the same number of shots as an equivalent ton of standard Streak missiles for all given launcher sizes.

SPECIALTY MUNITIONS: SHOOT-AND-SIT (SS) MISSILES

R&D Start Date: ca. 3046 (Federated Commonwealth)

Prototype Design and Production: 3049 (Federated Commonwealth)

Shoot-and-Sit (SS) missiles were a special alternative missile load specifically developed for use with the Narc missile beacon launcher, as a modified form of explosive pods. These warheads used the same latching mechanisms as a standard Narc pod, coupled with an explosive charge triggered by remote activation.

The premise was to attach several of these explosive limpets before detonating them, in the hopes that the sudden surge of damage could better down the enemy than spreading the damage out by individual hits. Given the existence of more powerful contact-explosive Narc pods, and the preference among most MechWarriors to leave the damage-dealing job to weapons specifically designed for same, led the NAIS to ultimately shelve these missiles by the end of the Clan Invasion era.

Shoot-and-Sit (SS) Missile Rules

Rules Level: Experimental

Available to: Any unit equipped with standard Narc missile beacon launchers

Tech Base (Ratings): Inner Sphere (E/XXFX)

Game Rules: SS missiles may only be fired from standard Narc missile beacon launchers. A Shoot-and-Sit missile does not deliver damage on a hit, but instead attaches to the hit location it strikes and arms itself for later activation. For this reason, the attacker must keep track of where the SS missiles hit his target; should the location be subsequently destroyed before the SS is detonated, the warhead is lost along with the destroyed location.

Detonating SS missiles is performed in any later Weapon Attack Phase by the unit which fired the missiles (or another unit friendly to it). If such units do not have a valid line of sight to the target unit that has been struck with SS missiles, or if a hostile ECM bubble lies between the attacker and target, the detonation signal cannot be relayed.

When a detonation signal is relayed, all SS missiles still attached to the target unit will explode, delivering 3 points of damage per missile. A detonation signal to SS missiles cannot set off only a portion of the attached missiles on a given unit, but will not set off SS missiles latched onto a different target. Only one detonation signal to friendly SS missiles can be sent per attacking unit per turn.

In an internal explosion (due to heat or critical damage), SS warheads deliver 3 points of damage per missile.

Construction Rules: Shoot-and-Sit (SS) missiles are compatible only with standard Narc launchers (not improved or compact Narc launchers), and may only be carried in full-ton lots. A ton of SS missiles provides the same number of shots as an equivalent ton of standard Narc missiles.



QUADVEES (DARK AGE)

Introduced: 3135 (Clan Hell's Horses [Tracked]), 3148 (Clan Hell's Horses [Wheeled])

The QuadVee was developed by Clan Hell's Horses as a kind of ground-based equivalent of the defunct Land-Air BattleMech. This BattleMech-vehicle hybrid, tailor-made for the combined arms aspects of warfare in the Dark Age, incorporates a two-man crew, and offers greater flexibility in combat, including the 360-degree field of fire common to turreted vehicles, and the ability to circumvent immobilizing damage by converting between operational modes.

Although the QuadVee was initially seen as a lackluster new unit type at best, and was initially limited to tracked vehicle conversions, the Horses continued to experiment with this concept even as the wars of the Dark Age intensified. In 3150, a new wheeled version of this unit type was reportedly being tested deep within the Clan's Occupation Zone.

QUADVEE GAME RULES

Rules Level: Advanced

Available to: BM

Tech Base (Ratings): Clan (F/XXXX)

In game play, QuadVees are largely bound by all of the rules for a four-legged BattleMech, but the following modifications apply due to the unique nature of these hybrid units.

Piloting/Gunnery Skills

To overcome the intensive cross-training of two skill sets required by a LAM pilot, a QuadVee has two crewmen: one serves as the unit's dedicated driver, with the other as the dedicated gunner. A QuadVee may operate with just one crewman, but depending on which is not present, extra penalties will apply as noted below.

Dedicated Pilot: Whenever in BattleMech Mode, the dedicated pilot uses his Piloting Skill to resolve all piloting actions as a MechWarrior. In Vehicle Mode, this same warrior uses his Piloting Skill in place of Driving Skill when any Driving Skill Rolls are made. Physical Attacks of any kind are also resolved using the pilot's Piloting Skill Rating.

Dedicated Gunner: As long as the QuadVee has a dedicated gunner, it may select up to three primary targets per turn before incurring the secondary target modifier (see *Multiple Targets Modifier*, p. 109, TW).

Disabled or Missing Crew: If the dedicated pilot is disabled (i.e. unconscious or killed) or not present, the QuadVee's gunner can take over pilot duties, but must apply a +2 target number modifier to all Piloting/Driving Skill checks (including those made for Physical Attacks). Likewise, if the dedicated gunner is disabled or not present, the pilot can still fire the QuadVee's weapons, but does so at an additional +2 to-hit modifier, and loses the ability to designate more than one primary target.

Conversion

Conversion is the process of switching between the QuadVee's two modes of operation: BattleMech and Vehicle. The conversion process must be announced at the start of the unit's movement and is considered complete by the end of its move in that turn's Movement Phase.

QuadVees cannot switch between modes while submerged. Regardless of the mode the QuadVee is converting from,

conversion costs 2 MP, plus 1 additional MP for every critical hit suffered to the unit's leg actuators, conversion equipment, or tracks. (If the total cost of MPs needed for conversion exceeds the QuadVee's maximum available MPs for the turn, it cannot convert between modes.) The facing of a QuadVee does not change during the conversion process, but if the unit has any remaining MPs after conversion, it may use them to move and change facing.

If the terrain occupied by a QuadVee at the end of its conversion is illegal for its movement type, the QuadVee is reduced to 0 MP upon completing its conversion, but is not considered immobile.

A QuadVee that attempts to use its weapon in the same turn it opts to switch between modes will suffer a +3 to-hit modifier for any such actions, using the skills appropriate to the mode the unit converted *from*. The conversion process imposes no additional modifiers for attacks made against a QuadVee.

A QuadVee can still perform conversions even with a destroyed gyro, but will be unable to use its MPs in BattleMech Mode with such damage. For conversion purposes only, gyro damage does not count against the unit's MPs.

Movement Phase (BattleMech Mode)

A QuadVee in BattleMech Mode uses standard four-legged 'Mech ground movement rules.

Movement Phase (Vehicle Mode)

A QuadVee in Vehicle mode uses all standard and advanced movement rules applicable to a tracked vehicle (if it possesses Tracks) or a wheeled vehicle (if it possesses Wheels; use the movement reduction rules due to damage for quad units with Tracks, per p. 143, TW). For tracked QuadVees, the unit's Walking MP and Running MP translate directly into Cruise and Flank MP (respectively), while Wheeled QuadVees receive 1 extra Cruise MP in Vehicle mode, and recalculate their Flank MP as normal. Any MP modifiers resulting from leg actuator critical hits have no effect on a QuadVee in its Vehicle mode.

QuadVees with jump jets may not use Jumping MP while in Vehicle mode.

Unlike normal tracked and wheeled vehicles, QuadVees *may* enter and traverse water in their Vehicle Mode, but must apply the standard MP reductions for BattleMech movement when doing so.

QuadVees in Vehicle Mode ignore any Piloting Skill Rolls to avoid falls, but remain susceptible to skidding, collisions, and other piloting effects.

Combat Phase (BattleMech Mode)

QuadVees in BattleMech mode use the following combat rules in game play:

A QuadVee in BattleMech Mode uses standard four-legged 'Mech combat rules, with the following additions:

Rotating the Fire Arc: As long as the QuadVee's gyro is undamaged, its torso is able to rotate through 360 degrees, just like a tank turret (see *Rotating The Firing Arcs, Vehicles*, p. 106, TW). A damaged gyro reduces the QuadVee to the torso twist range of up to 2 hexsides—like a standard bipedal BattleMech that has the Extended Torso Twist Design Quirk (see p. 226, CO). A destroyed gyro reduces torso rotation further, to that of a standard biped BattleMech's torso twisting limit (1 hexside).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Combat Phase (Vehicle Mode)

A QuadVee in Vehicle Mode uses standard four-legged 'Mech combat rules, with the following additions:

Rotating the Firing Arc: In Vehicle Mode, a QuadVee retains the same 360-degree torso-rotation range as it has in BattleMech Mode.

Line of Sight: For line of sight (LOS) purposes, a QuadVee in Vehicle Mode is 1 level high.

Physical Attacks: A QuadVee in Vehicle Mode can only execute Charging (Ramming) attacks. If subject to physical attacks from other 'Mechs, the QuadVee is treated as a 'Mech that stands 1 level lower than its present level (thus a QuadVee being attacked by a BattleMech on the same level is treated as if it is actually standing one level below its attacker).

Infantry swarm attacks against QuadVees in vehicle mode apply the standard -2 to-hit modifier for attacking vehicles.

Heat: QuadVees in Vehicle Mode still track their heat exactly as if they were in BattleMech Mode.

QuadVee Pilot Damage (Both Modes)

Only the pilot receives damage due to an ammunition explosion, though heat effects, as well as any damage to the head, apply to both warriors. If the pilot cockpit slot is destroyed (see *Cockpit*, below), the gunner automatically takes over, provided he is present (see *Piloting/Gunnery Skills*, p. 127, for the modifiers that would apply to such a situation).

If both cockpit slots are destroyed, or there is no surviving warrior to take over the primary pilot position, the QuadVee is considered destroyed per the standard game play rules for cockpit destruction.

QUADVEE CONSTRUCTION RULES

QuadVee follow all the same construction rules as four-legged 'Mechs, with the following additions and modifications:

Technology Base

QuadVees can only be built using the Clan Technology Base. QuadVees may be constructed as OmniMechs.

Weight Limits

QuadVees may only be constructed within the weight limits of standard BattleMechs. They cannot be constructed as super-heavy 'Mechs.

Cockpit

A QuadVee mounts a special 4-ton cockpit that takes up 2 critical slots; assign a "cockpit" to Slot 4 in the head location. Slot 3 is the "Pilot" slot; Slot 4 is the "Gunner" slot. No other cockpit type, including Cockpit Command Console, may be installed on a QuadVee.

Conversion Equipment

QuadVees must devote 10 percent of the unit's total mass (rounded up to the nearest whole ton) to conversion equipment, and must assign 1 "Conversion Equipment" critical slot to all four legs (for a total of 4 critical slots).

Other Equipment

A QuadVee must mount Tracks in all four legs (see p. 249, *TM*) if built to convert into a tracked Vehicle mode. These Tracks occupy 1 critical slot in all four legs, and have a combined weight equal to 10 percent of the QuadVee's total mass, rounded up to the nearest half-ton.

If built to convert into a wheeled Vehicle mode, the vehicle must mount Wheels in all four legs instead. These Wheels occupy the same number of critical slots as the Tracks, but have a combined weight equal to 15 percent of the QuadVee's total mass, rounded up to the nearest half-ton.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

Introduced: Various (See Rules)

There are a host of autonomous robotic/drone control systems that cover the gamut from ground units up to massive WarShips. Regardless of their name or era of deployment, the systems discussed here all fall under the broad category of "robotic control systems".

Robotics versus Remotes: Unless otherwise specified, the rules and equipment featured in this section will cover autonomous and semi-autonomous robotic units. These differ from the remote-operated systems described under in *Tactical Operations: AUE* (see p. 117, *TO:AUE*), as they are designed to function with little to no human interaction.

GENERAL ROBOTIC UNIT GAME RULES

Rules Level: Experimental

Available to: Variable (See rules)

Tech Base (Ratings): Variable (See rules)

The following rules dictate the baseline functions and rules for all robotic units, specifically those which feature the smart robotic control system (SRCS), the SDS (Caspar) drone control system, the Caspar II advanced SRCS, and the shielded aerospace SRCS. While those specific control systems and equipment—as presented later in this section—may modify these rules based on the unique features of those items, all will derive their core features from these rules.

Robotic Independent Command Rules

Except when otherwise stated in these rules or those of their specific control equipment, robotic units will follow all standard movement,

combat, and heat rules applicable to their unit type. However, due to their structured programming, robotic units may not move and attack as intuitively as normal human-controlled units. Instead, most robotic unit actions are dictated by a list of pre-determined events and reactionary orders (see *Robotic Independent Command Rules*, p. 143).

The Robotic Independent Command rules will require that all robotic units determine their Aggression levels at the start of the scenario. A robotic unit's Aggression level may not be changed afterward, unless such orders are received from a designated Control Unit (see pp. 133-134). If a robotic unit is under the direction of a control unit and is not prevented from receiving commands (such as by hostile ECM), the controlling player may change the robotic unit's Aggression level during the End Phase of any turn.

Depending on the nature of control systems in use, a robotic unit's response to command will take effect either immediately upon its next Initiative Phase, or a full turn afterward.

Robotic Skill Ratings

Unlike remote-operated drones, robotic units have their own Piloting and Gunnery Skill ratings, which are determined by the unit's type and the relative mass it devotes to its robotic control system. The construction rules for each of the robotic control systems featured in this section include tables to identify the base target numbers for all Gunnery and Piloting/Driving Skills that robotic units may receive, as well as any modifications that may be built in during the unit's construction.



MAN'S NEVER-ENDING DREAM FOR ARTIFICIAL LIFE

Since man's earliest industrial forays into industrialization, there has always been a fascination with technology that was capable of independent operation. Human innovation gave us clockwork automatons which would lead to automated manufacturing robots and from there to predictive response systems that greatly improved passenger vehicle safety. Human imagination would soar beyond these technological limitations to create fictional worlds where technology could create a utopian paradise, or a frightening vision of man subjugated by his technology. The crossing of imagination and innovation would lead to incredible leaps of technology as man spread his wings and took to the stars.

Robotic Units

The evolution of "smart" technology, as it applied to robotic units during mankind's first steps into outer space, was a far cry from the often feared malevolence of pre-spaceflight speculative fiction, where many writers and thinkers anticipated an apocalyptic "robot revolution". Rigidly programmed, robotic units filled a wide variety of critical roles as little more than sophisticated drones. Automated search and rescue missions, deep sea and space mining automatons, smart surveillance satellites, and deep space combat fighters, were just a few of the applications for which robots were adapted.

Even the most sophisticated robots of the Star League remained truly incapable of independent thought. Despite some of the best approximations of human brain processing possible, these high-tech wonders relied on a fundamental base programming—thought algorithms that could only anticipate so many variables. Nevertheless, the fear of robots run amok prompted the majority of the commercial and industrial robot producers throughout the Inner Sphere to incorporate hard-wired "safety programming" intended to render their products harmless to humans. (Military and police robots, of course, were another matter entirely.)

Star League Space Defense System Drones

The Terran Hegemony's Space Defense System (SDS) Network was one of the most advanced technological achievements in history. The brainchild of First Lord Jonathan Cameron, it was conceived as a completely integrated defense network able to defend a system from jump point to planet surface with the minimal use of manpower. Deployed across the Hegemony it was intended to defend the nation from all-out invasion, a reality that would tragically come to pass when Stefan Amaris took command of the system and used it to hold off the power of the SLDF navy for years. At the time of its implementation it met with heavy resistance from the Star League Council members. That the system would be deployed within the Hegemony borders caused significant concern; Cameron allayed these fears by explaining the untried network should be rolled out near their place of manufacture. Once the system was proven reliable, the member state capitals would each get their own SDS system. Many Hegemony worlds already possessed ground-based capital weapon defenses and the first SDS drones took flight in 2695, with the network considered fully operational by 2730. Despite this, it was never rolled out beyond the Hegemony's borders.

The heart of this network was its automated aerospace drones, a mixture of robotic fighters, drone DropShips, space stations and

WarShips, including the infamous M-5 *Caspar* drone. The SDS drones used an ultra-sophisticated artificial intelligence system that allowed it to operate with only a handful of humans monitoring an entire network of drones. When linked by a special battle computer network, the SDS drones became even more fearsome, calling on the digitized skills of the Star League's best admirals. Using equally automated space stations and space ports, the SDS drones were capable of basic repairs, rearmament and the launch and recovery of sub-units. Typically SDS drones were deployed at a system's jump points as their primary deployment, with deployment around a system's primary world done for key worlds of the Hegemony. At Terra this was taken to the extreme with the entire system blanketed by overlapping drones, space stations, control ships, and planetary based capital weapon systems.

Jonathan Cameron's goal of the ultimate protective system was fully realized in the Hegemony's SDS Network, much to the misfortune of General Kerensky, the SLDF and ultimately the entire Inner Sphere. During the campaign to liberate the Hegemony from Stefan the Usurper, a huge percentage of the SLDF's naval forces were devastated by the SDS network.

Fortunately, or unfortunately, what we know of the network today is mostly limited to battleROM recordings and eyewitness accounts. After liberating Terra, Kerensky set out to destroy the entire SDS Network and all records associated with it. His purge left little behind and has all but ensured the system will never be rebuilt.

The M-Series Drones

The M-series drones would make up the vast majority all SDS drones produced. Few other drone models were produced and those rarely made it out of prototype stage with none surviving the Amaris Civil War. This includes the DropShip and smaller experimental prototypes constructed by Amaris's scientists. This attempt to build out the existing SDS network was essentially unsuccessful, accounting for only a handful of kills in the final campaign to liberate Terra.

The M-5 drone was the most famous and successful of the Star League's SDS drones, but it was not the only one. Below is an overview of the eleven unit classes that made up this series.

M-1: The original proof-of-concept drone used an *Ares Mk VII* Attack Craft hull as its base. Equipped with a slightly smaller engine and comparable firepower, the M-1 saw its first test flights in 2692. It saw moderate use until the development of the *BlackWasp* series drone fighters. While the robot brain of the *BlackWasp* was not as sophisticated, it proved more versatile. There were no M-1s in service by the time of the Amaris coup.

M-2: The second SDS Drone used the 1,800 ton *Hector* hull to test larger scale deployments. After the friendly fire episodes involving the M-2 drones, the Hegemony scrapped it in favor of focusing on the larger M-3.

M-3: Based on the *Pentagon* DropShip, the M-3 was the first SDS Drone to see wide scale deployment. The M-3 proved the viability of the SDS drones and would see service alongside the larger M-5 through the life of the SDS network. The last M-3s were destroyed during the Kerensky's final approach over Terra.

M-4: The first WarShip SDS drone used aging *Baron*-class hulls refitted with drone controllers. Intended only as a proof of concept, the last of the ten M-4s built was scrapped in 2735.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

MAN'S NEVER-ENDING DREAM FOR ARTIFICIAL LIFE (CONTINUED)

M-5: The M-5 SDS drone was a ground-up robotic WarShip based mainly on the *Lola*-class destroyer. The pinnacle of SDS drone capability, these *Caspar*-class drones would become the stuff of legends and nightmares.

M-6: This drone was a failed attempt to outfit a *Texas* battleship with an SDS control system. The size of the ship proved too daunting to wire with the advanced control systems and the only prototype was destroyed when it slammed itself into Pluto.

M-7 and M-8: Much smaller cousins to the M-9, these SDS stations were fully unmanned, lightly armed and served as repair and refit stations for robotic fighters and SDS drones throughout the Hegemony.

M-9: Rarely referred to by its M-series designation, the *Pavise* SDS Battlestation was the largest SDS system ever deployed.

M-10: Using refitted *Titan* hulls, this little seen SDS drone was used for deploying or transporting large formations of robotic fighters into combat. Few were built as the effort to refit the DropShips to drone controls was not usually worth the effort and standard carrier DropShips were used to deploy ASF drones.

M-11: The success of the part-drone, part-human M-9 would lead to the M-11. Dubbed the *Da Vinci*-class, the M-11 would be the most advanced drone system ever produced and would allow a skeleton crew to service drones and remote stations across the Hegemony without the need for

costly yard time. The existence of the M-11 was not discovered until the late thirty-first century; previous reports mistook these vessels as standard *Newgrange*-class YardShips, upon which the concept was being tested.

Word of Blake SDS Network

When Kerensky dismantled the Hegemony's SDS network, he destroyed the pinnacle of artificial intelligence. The purge extended beyond just the SDS system and reached out to try and wipe away any technology that was based on the SDS system's advanced intelligence. His efforts proved to be incredibly effective, and when he departed the Inner Sphere virtually nothing remained to point the way to how to rebuild the infamous network. Not even the organization that would become ComStar retained enough information to duplicate the system. It is believed that Jerome Blake fully supported and was instrumental in Kerensky's efforts to destroy the network.

In the centuries since Kerensky's exodus, other realms attempted to build SDS systems, based on the simpler robotic and remote-controlled units, but none of these could ever match the technological perfection of the Terran Hegemony's network. That was, of course, until the thirty-first century, when the Word of Blake came very close.

Note that robotic 'Mechs have a much higher Piloting Skill target number than other robotic unit of equivalent control system sophistication. This stems from the lack of human pilots and the neurohelmet input that is so vital to their balancing systems and fine motor control. Special Piloting modifiers that might augment this Skill—such as the -2 modifier for quadruped 'Mechs—will apply to the robotic unit's Piloting target numbers as normal.

Robotic Initiative

Because of their limited battlefield awareness and non-existent sense of intuition, most robotic units will resolve their Initiative rolls as a separate force from any other human-operated units (including remote-controlled drones). This makes all robotic units attached to a given force the equivalent of an independent force, separate from—and usually slower than—its human masters.

If multiple robotic unit types (such as Caspar II drones and units using basic SRCS equipment) are present, the robotic units may need to make even more segregated Initiative rolls to handle the different control system types.

Movement and Terrain Restrictions

Robotic units move in accordance with the standard rules for their unit type, with the following additional restrictions:

Physical Attacks: Robotic units cannot deliberately perform physical attacks, such as ramming, charging, pushing, punching, and kicking, unless such actions are specifically called for by an Event Order under the unit's Independent Command Rules (see pp. 143-147).

High-G Maneuvers (Robotic Aerospace Units): Depending on the robotic aerospace unit's current Aggression level, such units may use high-G maneuvers during combat, even if it means possible damage to the unit's structural integrity (see p. 78, *TW*). Robotic aerospace units never have to roll to avoid pilot damage when executing a high-G maneuver, but will need to make any required Control Rolls to check for SI damage.

Regardless of Aggression levels, a robotic aerospace unit will not make use of high-G maneuvers if it has a current SI value of 1. As long as the unit's SI is 2 or more, a robotic aerospace unit at an Aggression level of "Aggressive" can always execute high-G maneuvers. If the unit is at an Aggression level of "Neutral", it may only execute high-G maneuvers when there are targets within the unit's weapons range. A robotic aerospace unit set to a "Defensive" Aggression level may only use high-G maneuvers when there are targets within its weapons' Short range bracket.

Restricted Terrain/Environments: In addition to the normal terrain restrictions for their unit types, robotic units may suffer further terrain and environmental restrictions due to the restrictive programming that guides their actions. These added restrictions are described below. If a robotic unit is forced into environmental conditions or terrains outside of its normal or robotic limitations and is not destroyed, the unit will shut down for the remainder of the scenario.

- **BattleMechs:** Robotic BattleMechs may not operate on the Low Altitude Map, High Altitude Map, or Space Map. Robotic BattleMechs may not be deployed via combat drop, orbital drop, or perform space drops.
- **Combat Vehicles, Support Vehicles and IndustrialMechs:** For the most part, all of these robotic unit types may not operate on the Low Altitude Map, High Altitude Map, Space Map, or Underwater. As special exceptions, robotic combat and support vehicles built as submarines can function normally underwater, while robotic support vehicles built as airships, fixed-wing aircraft, and VTOLs may fly with the standard airborne terrain restrictions of their non-robotic equivalents. Robotic satellites may only operate in space, above the atmospheric interface layer.
- **Conventional Fighters:** Robotic conventional fighters receive no additional restrictions over their non-robotic equivalents.
- **Aerospace Fighters and Small Craft:** Robotic aerospace fighters and small craft will not use the *Aerospace Units on Ground Mapsheets* rules (see pp. 91-92, *TW*) except when attempting to take off or land. Robotic aerospace units will not purposely cross the Interface layer between space and high atmosphere (see p. 78, *TW*). If a robotic aerospace unit operating in space is



forced through the Interface layer and into the atmosphere for any reason (such as gravity or a failed Control Roll), it will attempt to land at the nearest friendly landing field. If no friendly field is available, the unit will attempt a landing in the closest clear or water terrain not occupied by other units or buildings. Once landed, a robotic aerospace unit will deactivate. A robotic aerospace fighter or small craft that begins play within an atmosphere will never attempt to climb beyond the Interface layer.

- **DropShips:** Robotic DropShips will not use the *Aerospace Units on Ground Mapsheets* rules (see pp. 91-92, *TW*) except when attempting to take off or land.
- **JumpShips, Space Stations, and WarShips:** Robotic JumpShips or space stations that cross the Interface layer into an atmosphere for any reason will cease all offensive operations, and use all available Thrust to attempt a return to space. If unable to return to space, robotic JumpShips and space stations will use all available Thrust to attempt a crash-landing in the nearest major body of water or clear terrain not occupied by other units or buildings.

Robotic Non-Combat Units

Robotic units built as non-combat units (such as IndustrialMechs and commercial vehicles) are not designed to engage in hostile actions; their programming is limited to performing specific operations such as mining, harvesting, or surveillance. In compliance with universally recognized laws on drones and robotics, these units feature safety protocols specifically designed to avoid causing damage to personnel and property, while also preserving the robotic unit's own functionality.

To reflect this, any time a robotic non-combat unit is attacked in any fashion, it will signal an alert to its human control unit (if any), and attempt to retreat from the field as a crippled unit under the Forced Withdrawal rules. If unable to escape the field, the threatened robotic unit will shut down.

Using Weapons and Equipment

Although robotic units have no crew for game play purposes, they may operate any and all mounted weapons in accordance with the unit's rules, and will never suffer modifiers for operating any weapons, sensors, or communications equipment with insufficient crew. This even extends to the use of advanced sensors rules as found in *Strategic Operations* (see p. 105, *SO*).

Other specialty equipment that requires additional crew to operate—such as MASH units, field kitchens, and the like—may be mounted on robotic units, but these items cannot be operated without outside assistance or on-board “passengers”. An exception is the Advanced Robotic Transport Bay System (see p. 141).

Ammunition: Robotic units may carry any legal ammunition for their on-board weapons, but cannot switch between them at will. Instead, all ammunition assigned to a weapon must be expended in a set sequence, based on its placement on the unit's record sheet, beginning with the ammunition slot located in the most upper-left position on the sheet, and continuing to the ammunition slot in the most lower-right position on the same sheet.

For example, a robotic BattleMech with autocannon ammunition in its left arm and left torso will begin firing ammunition from the ammo slot in its left arm first, and will only begin to expend rounds from the left torso ammo slot when all shots in the left arm are exhausted (or is otherwise rendered unavailable).

When in doubt as to what ammunition slots feed what weapon, the controlling player must determine the sequence

of ammunition types the unit will use in advance, changing munitions types only on a ton-by-ton basis.

Heat: Robotic units that track heat will operate within certain predefined limits intended to maximize their survivability and effectiveness. These heat limits will be defined by the robotic unit's type as well as its current Aggression level (see Heat Management Decision Tree, p. 153).

Heat from external sources (such as fire, flamers, and plasma weapons) is not counted against the unit's general heat restrictions, but may force a robotic unit into higher heat levels than normally permitted by its programming. Any heat-tracking robotic unit that ends its turn with more than 14 points of excess heat may perform no other action in the following turns beyond basic movement at a Walk/Cruise/Safe Thrust rate, until its heat levels have returned to 0.

Pilot/Crew Damage

Because they lack an actual crew, robotic units do not need to make Consciousness checks when they suffer critical hits that would ordinarily wound or stun their pilots and crews. Instead, any time a robotic unit suffers a critical hit that would stun or wound its pilot/crew, the unit will suffer a temporary disruption that applies a +1 target modifier to all Piloting and Gunnery actions during the following turn. (This modifier does not stack if more than one stun or wound effect occurs in the same turn, and will only persist for 1 turn in such an event.)

If a robotic unit receives a critical hit that would kill its pilot or crew (including the destruction of the unit's cockpit location), the critical hit destroys the unit's operating systems, knocking the unit out of commission for the remainder of the game. The unit is treated as if it has suffered a destroyed cockpit or killed crew, and removed from play.

Hazardous Environments, Heat, and High-G Maneuvers: Robotic units ignore all pilot damage that would otherwise be sustained from overheating or hazardous environments. Robotic aerospace units are immune to any pilot damage effects for high-G maneuvers (see p. 78, *TW*).

Electronic Warfare and Interference

Even though they are designed to operate independently, and are directed by on-board programming that requires little to no actual communications, many robotic units are susceptible to electronic warfare and other significant interference effects via their sensory equipment. For these units, sensory overload caused by electronic interference can have an unpredictable effect, based largely on the nature of the unit being affected.

For ground-based robotic units, including all mobile structures and buildings, hostile ECM fields of any kind—including attacks from hostile Haywire Narc pods, ECM systems of all types, or electromagnetic pulses from any source (EMP mines, nuclear weapon attacks, EMI terrain conditions, and so forth)—all create interference powerful enough to affect the unit.

For robotic aerospace units (including space stations, but *not* including airborne mobile structures), ground-based ECMs have no effect, but EM pulses from nuclear weapons detonated in atmosphere, hits from ASEC missiles, and all ECM systems used by other aerospace units while the electronic warfare rules in *Strategic Operations* are in play (see pp. 98-102, *SO*), will produce effects powerful enough to cause them interference.

When a robotic unit is exposed to an electronic interference source that can affect it, the robotic unit's controlling player must roll 1D6, and consult the Robotic Electronic Interference Effects Table.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Special Conditions

The following special rules govern robotic units when such events occur in the course of their operation.

Boarding Actions: Any unit type that may normally be targeted by a boarding action (including large naval vessel support vehicles, small craft, DropShips, JumpShips, space stations, and WarShips) may even be targeted for such actions if they are operating as a robotic unit.

These boarding actions follow the rules found in *Tactical Operations* and *Strategic Operations* as appropriate to their unit type (pp. 167-175, *TO:AR* and pp. 34-36, *SO*), with the following additions and exceptions.

Robotic units cannot initiate boarding actions.

When resolving any boarding actions against a robotic unit, the robotic unit receives a Marine Point value that reflects its closed control systems, lack of standard crew passages, and fixed internal defenses

including small arms and self-sealing containment sections. These base Marine Point values, shown in the Robotic Unit Base Marine Points Table, are determined based on the robotic unit's type, its control systems, and the amount of control tonnage it has devoted to the equivalent number of crewmen (factored as steerage-class quarters for the crew and gunners a manned unit would need; this latter detail is further described in the construction rules for each robotic control system covered in this section.)

If any human passengers are being carried by a robotic unit that is being boarded, those passengers may add to this base Marine Point value to augment the unit's defense. Any robotic unit that can be targeted by a boarding action must note its final Marine Point value on its record sheet prior to the start of play.

Note that if a robotic unit is shut down at the time it is being boarded, the robotic unit is treated as if it has a Marine Point value of 0 (plus any Marine Points added by human passengers).

Any successful boarding action that eliminates the robotic unit's defenders will prompt the robotic unit to shut down. A unit shut down by boarding action cannot be restarted during the same scenario, but may be salvaged and used by the capturing force later (presuming it is not destroyed in the process, and does not have and employ a booby trap device).

Fighter Squadrons: Robotic aerospace fighters may be combined into squadrons, as long as they are of identical control system types (so robotic aerospace fighters may not be grouped together into squadrons with remote-operated drones or human-controlled units; likewise, robotic aerospace units employing basic SRCS cannot be combined into squadrons with robotic aerospace units using shielded aerospace SRCS). Though robotic fighters of different Skill ratings may be combined, the entire squadron always receives the worst (highest) base target numbers of all its component members for its Gunnery and Piloting ratings.

Players choosing to field robotic fighters in squadrons must arrange these squadrons prior to the start of play;

ROBOTIC ELECTRONIC INTERFERENCE EFFECTS TABLE

Roll	Effects (by Robotic Unit Type)
1-4	Non-aerospace units shut down for 3 turns, restarting in the Movement Phase of the fourth turn. If still within an interference effect upon reactivation, unit executes Forced Withdrawal and may not return, even if it escapes the interference effect.
	Aerospace units suffer +1 target modifiers to Gunnery and Piloting Skill checks (+2 if the ECM source is a hostile WarShip). Effect lasts 1 turn, after which the unit must check again if still within an interference area.
	Mobile Structures and Buildings suffer no effects.
5	Non-aerospace units continue to move in the direction of their last heading, at the same speed as their last movement rate, for the next 3 Movement Phases, but may take no other actions in that time. If this movement places the unit in illegal terrain, the unit crashes into it and becomes immobilized within the first illegal hex, suffering damage as if it fell into the new terrain from the hex before it.
	If any other units or buildings lie in the path of a non-aerospace unit's movement, check for collision by rolling a charge/ram attack for the unit, with a +4 to-hit modifier. A missed charge/ram attack simply indicates that the unit's "target" was able to sidestep, and the robotic unit passed without contact. After 3 turns, the unit returns to normal.
	Aerospace units may not expend Thrust or take any other actions for 1 turn, and thus drifts at its current heading and velocity). If in atmosphere or within a map area affected by gravity, the unit will also drop 1 High-Altitude Map hex row toward the ground (3 altitudes on the Low-Altitude Map), crashing if they are reduced to (or below) the ground hex row/altitude. After 1 turn, the unit returns to normal.
6	Mobile Structures and buildings shut down for $1D6 \div 2$ turns (round up), restarting in the Movement Phase of the turn after that. The unit returns to normal operations upon restarting.
	All units except for mobile structures and buildings will berserk on this result. While berserk, the unit closes on the nearest active unit—friend or foe—and attacks it with all available weapons (even attempting to ram the target, if the robotic unit is unarmed), ignoring heat effects. The unit remains in this state as long as it is still exposed to the interference effect that triggered this result, or until the unit is destroyed. If a berserking unit destroys its target, it will immediately seek out another.
	Mobile Structures and buildings shut down for $1D6 \div 2$ turns (round up), restarting in the Movement Phase of the turn after that. The unit returns to normal operations upon restarting.

ROBOTIC UNIT BASE MARINE POINTS TABLE

Robotic Control System Type	Small Craft	Satellite	Large Craft*	Crew / Gunners**
Smart Robotic Control System (SRCS)	1	1	3	+0.5 / +0.25
Shielded Aerospace SRCS	1	1	3	+0.5 / +0.25
SDS (Caspar) Drone Control System	4	NA	10	+1 / +0.5
Caspar II Advanced SRCS	2	NA	5	+1 / +0.5

*Includes DropShips, JumpShips, Space Stations, WarShips, and Large Naval Support Vehicles, where applicable.

**Per 7 tons of control systems devoted to equivalent Crewmen/Gunners (see construction rules), round normally.



robotic fighters cannot form up into squadrons, or break off from squadrons during the course of the scenario.

In all other respects, robotic fighter squadrons follow the standard rules and restrictions for fighter squadrons (see p. 25, *SO*).

Human Controls: Most robotic units featuring a SRCS may not be operated by human crews. Robotic 'Mechs, combat vehicles, fighters, small craft and satellites possess no interface controls, and may not be modified for human operation without a complete refit that includes the replacement of the unit's cockpit and control systems.

Robotic support vehicles, DropShips, WarShips, and space stations, however, *do* possess rudimentary "maintenance" controls that allow basic operations by a skeleton crew. When these robotic units are operated by human crews, the robotic unit may function as a normal unit of equivalent type and does not have to follow the Robotic Independent Command Rules. While under human control, the robotic unit uses the base Gunnery and Piloting Skills of its human operators, but applies a +2 target modifier to all Piloting Skill Rolls, and a +4 target modifier for all Gunnery Skill Rolls. A robotic unit operating under direct human control in this fashion also may not move or accelerate faster than its current Cruise/Safe Thrust.

Hyperspace Travel: Robotic units—including JumpShips equipped with robotic control systems—are unable to initiate hyperspace travel without outside intervention. To transit through hyperspace, a human crew must generally board a robotic JumpShip (or stow the robotic units within a human-crewed JumpShip for travel), and then "drive" the vessel through hyperspace normally with all robotic control systems deactivated for the duration of the process (see pp. 74-75, *SO*). Once the jump is completed, the crew then reinitializes all robotic control systems before departing, at which point the units' Aggression levels are set and they may resume operating normally.

Robotic units attached or loaded within a robotic or drone JumpShip may not detach or launch without a command from a designated Control Unit.

If, for any reason, a robotic unit undergoes hyperspace transit without first being deactivated, resolve the effect as though the unit were an aerospace unit exposed to electronic warfare, but apply a +3 modifier to the 1D6 roll. A result of 6 or more is treated as a 6. All effects of hyperspace travel on robotic units persist until the unit is shut down or destroyed.

Shutdown Robotic Units: A robotic unit that shuts down while on the ground becomes an immobile unit. Robotic VTOLs and WiGEs while airborne will crash to the ground in the following turn's Movement Phase. Robotic units that shut down while in space will drift at their current heading and velocity, and will automatically fail any required Control Rolls.

All other airborne robotic units that shut down while operating in the Space/Atmosphere Interface, atmospheric rows, or ground row of hexes on the High-Altitude Map (or while operating at any altitude of the Low Altitude Map), will fall 1 hex per turn of inactivation (or 3 altitudes, if the Low Altitude Map is in play). If there is more than one possible hex the falling unit may enter, determine which hex the unit falls into randomly. Shutdown airborne units begin to fall during the aerospace Movement Phase of the turn following their shutdown. If it falling unit enters a Ground Hex on the High-Altitude Map, or Altitude 0 on the Low-Altitude Map, the unit crashes.

If a robotic unit is not destroyed and can be reactivated later, it will resume normal operation.

Shutdown robotic units that may be targeted by boarding actions have an effective Marine Point value of 0, for purposes of Boarding Actions (see above).

Control Units

Friendly human-operated units may be designated as Control Units for friendly robotic units prior to the start of a scenario. Unlike control units for remote-operated drones, robotic Control Units need not maintain constant communication with their drones. Instead, Control Units need only relay periodic commands, whenever they are needed to modify the robotic units' behavior.

Control Unit Requirements: Any unit weighing 200 tons or less in total mass must have functioning sensors and at least 3 tons of communications equipment, a C³ command computer, an improved C³ computer, or a cockpit command console, in order to act as a robotic Control Unit. Units so equipped can send 1 command to robotic units per turn for each such piece of equipment possessed (to a minimum of 1 command sent per turn). For example, a BattleMech that features both a cockpit command console and an improved C³ computer would be able to send 2 commands to friendly robotic units per turn.

For mobile structures, buildings, and all other units weighing over 200 tons—including Support Vehicles and all types of large spacecraft—the unit need only possess functioning sensors and advanced (military-grade) fire control systems, or a minimum 3 tons of communications equipment. Units so equipped can send 1 command per turn for every firing arc the unit possesses. An additional 2 commands per arc may be issued if the unit possesses a small Naval Comm-Scanner Suite, or 3 commands per arc if the unit possesses a large Naval Comm-Scanner Suite (see pp. 144-145, *TO: AUE*). Thus, a spheroid DropShip lacking NCSS equipment, could send up to 6 commands to friendly robotic units per turn as a robotic Control Unit, while a WarShip with a large NCSS could relay up to 32 commands per turn to friendly robotic units (4 per arc x 8 firing arcs).

Relaying Commands: Robotic Control Units relay their commands during their Weapon Attack phase, and may only relay commands to friendly robotic units within their line of sight. If the Control Unit is ground-based, it may relay commands to robotic units up to 80 kilometers away (approximately 160 map sheets, or 2,667 hexes); if the Control Unit is an aerospace unit, its maximum relay range is 3,000,000 kilometers (approximately 166,667 space hexes).

Each robotic Control Unit may only relay 1 command to a given friendly robotic unit at a time, and a robotic unit may only receive 1 command per turn from a designated Control Unit. For the purposes of these rules, robotic aerospace units arranged into fighter squadrons are treated as a single robotic unit; all other robotic units must be commanded one at a time. Commands relayed to friendly robotic units do not take effect until the start of the turn after the command was relayed.

If the Control Unit weighs less than 200 tons, sending commands prevents the unit from executing any other weapon attacks unless the unit is doing so via a cockpit command console or dedicated communications equipment; units relaying commands via C³ equipment alone cannot relay commands and execute weapon attacks at the same time. For all other unit types, every 4 robotic commands relayed (rounded up) reduces the unit's ability to use one of its weapon arcs in the same turn.

Special Equipment: Control Units equipped with an Autonomous Tactical Analysis Computer (ATAC) or Direct Tactical Analysis Control (DTAC) system relay commands differently. See the rules for those items to determine their additional impact on relaying commands as a robotic Control Unit.

Legal Commands: Only four commands can be issued to a robotic unit by a Control Unit: Activate, Shut Down, Change Aggression Level, and Designate Priority Target:

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

- **Activate:** Activates a robotic unit that has been shut down by a previous shutdown command or a hyperspace jump effect. The robotic unit will activate at the start of the next combat turn.
- **Shut Down/Prepare for Boarding:** Deactivates an active robotic unit. The robotic unit will shut down at the start of the next combat turn. If in space, the unit will continue drifting along its previous course and velocity. If in flight where gravity has influence, the unit will begin to fall toward the ground at a rate of 1 High-Altitude Map hex per turn (or 3 Low-Altitude Map hex row/altitude per turn), and will crash if they reach ground hex row/altitude in this fashion. Unless otherwise noted, shut down robotic units that can be boarded also deactivate their internal defenses, and thus have a base Marine Point value of 0.
- **Change Aggression Level:** This command allows the Control Unit to change the robotic unit's Aggression level. When issuing the command, the controlling player simply announces the new Aggression level for the unit. The new Aggression level takes effect at the start of the following turn.
- **Designate Priority Target:** Designating a priority target overrides the robotic unit's normal target selection process as outlined in the Robotic Independent Command Rules (see pp. 143-147), and makes the new target the robotic unit's top priority for all attacks, starting in the next turn. Once the priority target is destroyed, the robotic unit returns to its normal target selection process via the Robotic Independent Command Rules.

SMART ROBOTIC CONTROL SYSTEM (SRCS)

Introduced: Early spaceflight

Truly robotic drones date back to the earliest years of Terran spaceflight. Moving beyond remote-controlled technologies of the day, these units were capable of independent operation via a structured set of pre-programmed commands. While not truly intelligent in any fashion, these units used sophisticated "smart" software to resolve actions based on specific parameters



Word of Blake Tiamat DropShip automated with Caspar II artificial intelligence.

set in advance of their deployment. The main drawback to these independent robotic units, which greatly limited their military application, was their susceptibility to ECM, combined with programming that proved too rigid to adapt to a rapidly changing battlefield environment.

Although a smart robotic control system (SRCS) could be installed in virtually any type of vehicle, the technology was most commonly mated with aerospace units, which operated far from significant terrain variables, and the risk to civilian populations and property was vastly reduced. In the commercial sector, many firms still produce robotic control systems for the civilian and industrial use, but the technology fell out of use in the military sector following the collapse of the Star League, and did not return to significant use until the years leading up to the Word of Blake's Jihad.

Smart Robotic Control System (SRCS) Game Rules

Rules Level: Advanced

Available to: BM, IM, CV, SV, CF, AF, SC, DS, JS, SS, MS, Buildings

Tech Base (Ratings): Inner Sphere (C/DXFF), Clan (C/XFFF)

Units equipped with the basic smart robotic control system (SRCS) presented here follow all general robotic unit game rules described on pages 128-135, with the specific modifications noted below.

Changing Aggression: If a Control Unit directs a unit operating with a SRCS to change to a new Aggression level, the change will not take effect until after the second Initiative Phase following the End Phase in which the order was given. During the intervening turn, the robotic unit will maintain its previous Aggression level.

Initiative: Robotic units operating with an SRCS must resolve their Initiative rolls separately from all human-operated units, remote drone units, and even other friendly robotic units that use a Caspar or Caspar II control system. Only other friendly robotic units using either the basic SRCS or the shielded aerospace SRCS may share the same Initiative roll, which receives a modifier of -4, regardless of how many such units are combined.

Hyperspace Travel: Although not as unstable when exposed to hyperspace as more sophisticated AI systems, robotic units equipped with a basic SRCS are still overwhelmed by the sensory and data surge that accompanies a jump through hyperspace. Any robotic unit driven by a basic SRCS that goes through a K-F jump without first being deactivated will arrive at the destination point in a shut down state, and will need to be restarted by orders from a friendly command unit or boarding action.

Smart Robotic Control System (SRCS) Construction Rules

For all units weighing less than 10 tons in total mass, the robotic control system adds no weight beyond that of the unit's existing control systems.

For units 10 tons and over, the SRCS adds extra weight to the basic cockpit and/or control systems already installed on the unit. This additional weight is determined as a percentage of the unit's total weight (or, in the case of JumpShips, the unit's remaining weight after the installation of its K-F drive), as shown in the Smart Robotic Control Systems Table. Also shown in the table are the Gunnery and Piloting/Driving Skills the unit will receive, based on the percentage of the unit's mass spent on the SRCS.

For mobile structures and static buildings designed to use a SRCS, assign steerage-class crew quarters for the minimum required crew needs of a manned version of the same unit. This tonnage is considered to be the unit's SRCS instead.

Improvements: Robotic BattleMechs, combat vehicles, aerospace fighters, small craft, DropShips, JumpShips, and space stations may improve their Gunnery and Piloting Skill numbers (by 1 point each) by assigning an additional 2 percent of the unit's total mass (or leftover



mass on JumpShips) to their SRCS equipment. This improvement modifier may only be applied once, and the robotic control system must be noted as "Improved" on the unit's record sheet. For units less than 10 tons in total mass, this same effect is accomplished by spending 1 ton on additional control system weight, rather than an added 2 percent.

Note: If the unit requires weight to be spent on life-support systems (typically represented as crew quarters or cockpits), the drone unit is *not* exempt from this requirement (see *Add Control/Crew Systems* p. 188, *TM* and p. 137, *SO*), as such systems reflect a mix of accommodations for any short-term maintenance crews to work in, or necessary heating, cooling, and ventilation required of the unit's computers and electronics. This tonnage is also required to help identify the robotic units Marine Point values in the event the unit is targeted by boarding actions.

SHIELDED AEROSPACE SMART ROBOTIC CONTROL SYSTEMS

Introduced: 2755 (Terran Hegemony)

Extinct: 2780 (Inner Sphere), circa 2850 (Clans)

Recovered: 3077 (Word of Blake)

To combat the potential dangers of electronic interference, Hegemony scientists debuted a shielded form of the smart robotic control system for use with drone fighters and other small spacecraft during the mid-2750s. While the technology was never adapted for use with ground units, it worked well in conjunction with the SDS networks defending many Terran Hegemony worlds, with notable examples like the Mk 39 *VoidSeeker* series of robotic fighters often working in massed squadrons to take down hostile ships.

As part of their efforts to improve the Caspar II Drone system, the Word of Blake was able to duplicate the original Star League era shielding technology. They had only just begun experimenting with squadron of *Hive*-class fighters when Devlin Stone's allied coalition liberated Terra. Fortunately, Republic scientists were able to piece together the Word's research data and began fielding their own prototypes by the late 3080s, allowing for shielded robotic fighters to augment Terra's defenses once more.

Shielded Aerospace Smart Robotic Control System (SA-SRCS) Game Rules

Rules Level: Experimental

Available to: AF, SC, SV (Satellites only), and SS

Tech Base (Ratings): Inner Sphere (D/EXFF), Clan (D/XEEF)

The shielded aerospace smart robotic control system (SA-SRCS) presented here follows all general rules for robotic control systems described on pp. 128-135, with the specific modifications noted below.

Changing Aggression: If a Control Unit directs a unit operating with a shielded aerospace SRCS to change to a new Aggression level, the change will not take effect until after the second Initiative Phase following the End Phase in which the order was given. During the intervening turn, the robotic unit will maintain its previous Aggression level.

Initiative: Like standard SRCS-controlled robotic units, those operating with a shielded-aerospace SRCS must resolve their

SMART ROBOTIC CONTROL SYSTEMS TABLE

Unit Type	Gunnery	Piloting/Driving	Mass*
IndustrialMech	7	9	5%
BattleMech	5	9	5%
Combat Vehicle	5	6	5%
Support Vehicle	6	6	5%
Conventional Fighter	5	6	5%
Aerospace Fighter	5	6	5%
Small Craft	5	6	5%
Satellite	5	6	5%
DropShip	5	6	7%
JumpShip	5	6	10%**
Space Station	5	6	7%
Mobile Structures/Buildings	5	6	†
Improvement Modifiers			
Standard SRCS (Improved)	-1	-1	+2%††
Shielded Aerospace SRCS (Improved)	-1	-1	+1%‡
Shielded Aerospace SRCS (Elite)	-2	-2	+3%‡

*Round all weights up to the nearest .5 tons.

**For JumpShips, the mass of the SRCS is based on the free mass left over after assigning tonnage to the vessel's K-F drive system, rather than the tonnage of the entire vessel (see *Advanced Aerospace Units Construction* p. 130, *SO*).

†Mobile Structures and Buildings treat all crew quarters required for a manned version of the same unit as the SRCS tonnage instead.

††Available only to robotic BattleMechs, Combat Vehicles, Aerospace Fighters, Small Craft, DropShips, JumpShips, and Space Stations; Maximum of 1 SRCS improvement allowed; For units weighing less than 10 tons, 1 ton of additional control system weight is required to achieve the same effect.

‡Available only to robotic Aerospace Fighters, Small Craft, Space Stations, and Satellite Support Vehicles; Maximum of 1 Shielded Aerospace SRCS improvement (of either type) allowed; Units weighing less than 10 tons may only make one improvement (at -1 per Skill) by applying 1 ton of additional weight to the control systems.

Initiative rolls separately from all human-operated units, remote drone units, and even other friendly robotic units that use a Caspar or Caspar II control system. Only other friendly robotic units using either the shielded aerospace SRCS or the basic SRCS may share the same Initiative roll, which receives a modifier of -4, regardless of how many such units are combined.

Electronic Warfare: As aerospace units, robotic units using a shielded aerospace SRCS are unaffected by ECM mounted on ground units. If the electronic warfare rules from *Strategic Operations* are in play (see pp. 98-102, *SO*), these robotic units receive the equivalent benefits of having a Guardian ECM suite, even if they do not actually possess such equipment. This, in turn, enables the shielded aerospace units to make use of the advanced ECM and ECCM rules found there. SA-SRCS-equipped units do not suffer from interference like drones mounting ASRCS.

Hyperspace Travel: Although not as unstable when exposed to hyperspace as more sophisticated AI systems, robotic units equipped with the shielded aerospace SRCS are just as overwhelmed by the sensory and data surge that accompanies a jump through hyperspace as units using the standard SRCS. As such, a robotic unit driven by a shielded aerospace SRCS that goes through a K-F jump without first being deactivated will arrive at the destination point in a shut down state, and will need to be restarted by orders from a friendly command unit or boarding action.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Shielded Aerospace Smart Robotic Control System

Construction Rules

The shielded aerospace SRCS follows the same construction rules used to mount a standard SRCS in any equivalent aerospace unit type. This includes the use the Smart Robotic Control Systems Table (see p. 135) to determine the base weight of the robotic controls, and the requirement for steerage-class quarters to be assigned as appropriate for the vessel's minimum required "crew" and "gunners", but improvements are handled differently, as described below. Shielded aerospace SRCS equipment can only be installed on aerospace fighters, small craft, satellite support vehicles, and space stations.

Improvements: Unlike the basic SRCS, a unit with shielded aerospace SRCS may improve its base Gunnery and Piloting target numbers by as much as -2 each. For an additional 1 percent of unit mass assigned to the control systems, "Improved" shielded aerospace SRCS provides a -1 base target modifier to both skills. To achieve the -2 base target modifiers of "Elite" shielded aerospace SRCS instead, apply an additional 3 percent of unit mass to the control systems instead.

Robotic units that weigh less than 10 tons in total mass can only improve their base Gunnery or Piloting Skills by 1 point, at a cost of 1 ton of additional control weight (instead of the added 1% described above).

SDS (CASPAR) DRONE CONTROL SYSTEM (SDS-DCS)

Introduced: 2695 (Terran Hegemony)

Extinct: 2780 (All)

Recovered: N/A

Amid its efforts to produce a far more flexible, effective, and sophisticated defense network for its core worlds, Star League scientists made astounding breakthroughs in the development of artificial intelligence. Based on the first complete and successful "mental map" of a human brain, these computers were capable of fast and intuitive thinking that easily trumped the structured programming of older robotic control systems. Verging on true sapience, combined with the experience of one of the Hegemony's greatest naval strategists, the Als that resulted could out-think all but the greatest military minds of the Star League. When mated with the hulls and firepower of the Terran Hegemony's Space Defense System (SDS) ships, the "Caspar" drone control system became the pinnacle of Star League technology—and, as fate would have it, its own deadly Achilles' Heel.

While rumors persist of other applications of the Caspars' underlying AI technology—including predictive analysis computers that allegedly forecasted Stefan Amaris' coup right down to the very day—the science that made it all possible was tightly controlled by the Hegemony, and lost in the savage fighting between Emperor Amaris and Kerensky's SLDF. Furthermore, given the fact that even the most perfect artificial intelligence ever created proved easy to turn against its own makers by the mere flip of a switch, few of the realms that survived the Star League's fall were willing to expend serious efforts in replicating such technology.

SDS (Caspar) Drone Control System (SDS-DCS) Game Rules

Rules Level: Experimental

Available to: SC, DS, WS, and SS

Tech Base (Ratings): Inner Sphere (F/EXXX)

Units mounting the SDS Drone system operate per the standard rules for their unit type. To reflect their extremely sophisticated intelligence, robotic units driven by a SDS (Caspar) drone control system do not use the Robotic Independent Command Rules. Instead, they function exactly like human-operated units, except as noted below.

Piloting and Gunnery: Like other robotic units, an SDS drone's Piloting and Gunnery Skill is determined by its unit type and how much

mass is devoted to its control system during the unit's construction (see the *SDS Drone Control System Equipment Table*, p. 138).

Initiative: In game play, all SDS drones operate on their own Initiative roll. Even if friendly non-drone units, remote-controlled units, or other (SRCS-based) robotic unit types are in play, all SDS drones will roll their own team Initiative and are counted as a separate force from their allied human-operated units for Initiative purposes. This Initiative roll receives no modifier.

Movement and Combat Basics: SDS drones may maneuver and make weapons attacks as a human-operated unit, but because they are robotic units, they ignore any pilot damage checks required for making high-G maneuvers, or exposure to hazardous environments of any kind.

SDS drones may execute high-G maneuvers at will, regardless of the target's range or the SDS unit's current SI value.

SDS drones may target multiple targets in a turn with a reduced penalty. The first 2 targets a SDS drone attacks in a turn will receive no to-hit modifiers for secondary targeting; the third and all subsequent targets will receive only a +1 to-hit modifier for secondary targeting.

SDS drones making evasive maneuvers (see p. 77, *TW*) only suffer a +1 to-hit modifier when making weapon attacks, rather than the usual +2.

If an SDS drone has received more than three critical hits of any kind (not including destroyed weapons) or has lost more than 50% of its starting weapons (Capital weapons for WarShips), it may conduct ramming attacks (see p. 241, *TW*), on a Control Roll of 6 or higher. This roll is made at the start of the movement phase and before any movement is made. If the roll is failed, the drone may perform another action per the normal rules.

SDS drones may not initiate a hyperspace jump under any circumstances (see below).

Heat: SDS drones are allowed to overheat during play at the player's discretion, so long as they do so in accordance with the unit type's standard rules for heat management.

Critical Hits: Critical hits against SDS drones that would normally stun or wound the pilot/crew will have no noticeable effect on drones, but must be tracked nevertheless. Once a SDS drone suffers a critical hit that would kill its pilot/crew, that critical hit destroys the drone's ability to send or receive communications from a friendly unit using an ATAC system. Also at this point, the SDS drone will continue to operate, but no longer does so as part of any larger force of SDS drones. Instead, the drone must make its own individual Initiative roll, with a -2 modifier applied to the result. The distributed nature of their SDS drone control system allows such units to continue operating until destroyed or deactivated.

Electronic Warfare: If using the electronic warfare rules in *Strategic Operations* (see pp. 98-102, *SO*), SDS drones follow the standard ECM/ECCM rules and ignore the interference effects that can affect other robotic units mounting SRCS-type systems. Furthermore, as a byproduct of its communication systems, the radius of a SDS drone's ECM zone of effect is increased by 1 additional hex over the normal radius of a unit of equal class. Thus, SDS drone WarShips would have an ECM field that extends up to 3 hexes away, while SDS drone DropShips have a 2-hex ECM radius, and SDS drone small craft can blanket all adjacent hexes in ECM.

Anti-Ship Electronic Warfare Missiles: If an ASEC missile successfully strikes a SDS drone (see p. 170, *TO:AUE*), the attacking player must roll 2D6. If the result is 12, the SDS drone will shut down for a period of 5 turns, starting with the End Phase in which the unit was struck. After the fifth End Phase of the unit's shut down, it will restart and function normally.

On any other roll result, the drone will lose its contact with any connected ATAC unit for a period of $1D6 \div 2$ turns (round down). Like a SDS drone that has suffered a crew killed effect, SDS-controlled robotic units in this situation will continue to operate, but must roll their own individual Initiative at a -2 result modifier for the duration of this effect.



Afterwards, the interference ceases and the SDS drone returns to normal. Additional ASEC missile hits will not change the Initiative modifier or stack its duration of effect on the unit.

Control Units: SDS drone units may only receive commands by a friendly Control Unit using an ATAC system (see *Autonomous Tactical Analysis Computer*, p. 139).

Human Controls: SDS drones with human internal controls follow the same general robotic unit game rules for direct human operation as SRCS-equipped units (see pp. 134-135).

Boarding Action: Except for the different base Marine Point value, SDS drones follow the same general robotic unit game rules for boarding actions as SRCS-equipped units (see pp. 134-135).

Hyperspace travel: The artificial intelligence that drives Caspar drones is extremely sensitive to hyperspace travel, and lacks the resiliency of the human brain to cope with the transit across a K-F jump. As a result, SDS drones that are not properly shut down and carried through a jump by direct human-controlled means almost invariably become disoriented and revert to an almost "feral" self-perseveration mode.

To reflect this, any time a SDS Caspar drone is not shut down prior to a hyperspace jump, its controlling player must roll 2D6 against a target number of 12 once the unit arrives at its destination. If this roll fails by a margin of 8 or more, the drone will initiate a self-destruct sequence upon arrival, and will ignore all commands from outside sources, regardless of affiliation. If the drone fails this roll by a margin of 7 or less, it will instead go "rogue", and treat all units as hostile, regardless of affiliation. Rogue SDS drones lose all higher command functions and function as a standard robotic unit with an Aggression level of Aggressive. Resolve all actions by a rogue SDS drone using the Robotic Independent Command Rules, but ignore any outside commands by Control Units of all kinds; a rogue SDS Caspar's rampage unit can only be stopped through the unit's destruction or a successful capture in a boarding action. If the 2D6 roll of 12 is made upon the SDS Caspar drone's arrival, the unit will simply shut itself down, and can only be restarted by a friendly human boarding party.

Note that these effects were well known to the creators of the SDS Caspar drones, and as a result, all SDS units equipped with Kearny-Fuchida drives were built with fail-safes specifically designed to prevent a jump with the Caspar's AI still active. Thus, a functional SDS Caspar drone can never jump while its AI is active. In order to successfully initiate its K-F drive, the Caspar WarShip must first be given a deactivation command from a friendly, human-controlled unit equipped with an ATAC system, and then given a "prepare for boarding" command. A human crew must then board the vessel and manually engage the ship's K-F drive, before restarting the robotic control systems on the other side.

Shut Down: SDS drones follow the same rules for shut down as SRCS-equipped robotic units (see pp. 134-135), but with the following exception. The internal defenses of an SDS drones remains active unless the unit has received a valid "Prepare for Boarding" command from a friendly Control Unit equipped with an ATAC system. Thus, shutdown does not alter the Marine Point value of a SDS drone.

SDS DRONE CONTROL SYSTEM EQUIPMENT TABLE

Unit Type	Gunnery	Piloting	Mass*	Notes**
Small Craft	5	6	5%	Additional 2% tonnage will increase skills to 4/5
DropShip	5	6	4%	Additional 4% tonnage will increase skills to 4/5
Space Station	4	5	8%	Additional 4% tonnage will increase skills to 3/4
WarShip†	4	5	6%	Additional 4% tonnage will increase skills to 3/4

*Round all weights up to the nearest applicable weight increment (see p. 184, TM for Small Craft and DropShips and p. 145, SO for Space Stations and Warships).

**Craft with a standard control system are indicated by the modifier "standard" in front of their equipment listing, while those with upgraded gunnery and piloting are indicated by the modifier "improved"

†The maximum tonnage an SDS WarShip may be is 800,000 tons

SDS (Caspar) Drone Control System Construction Rules

SDS (Caspar) drone control systems can only be installed on small craft, DropShips, WarShips, and space stations. The base weight for the control system itself is found using the SDS Drone Control System Equipment Table, which defines the extra percentage of the vessel's weight that must be added to its standard control system equipment.

In addition to this, SDS drones must also devote tonnage to steerage-class quarters for a minimum number of required crew (including officers, gunners, and crew). This represents various automation and internal maintenance support components, as well as access ways and temporary housing for visiting technical teams. To find this minimum "crew support" complement, first consult the appropriate rules for the unit's class and found in *TechManual* (for small craft and DropShips; see pp. 188-190, TM) and *Strategic Operations* (for WarShips and stations; see pp. 137-138, SO). After determining the minimum number of crew and gunners for an equivalent human-operated vessel of equivalent type and capabilities, divide that number in half, rounding up to the nearest crewman, to find the number of "quarters" that must be installed on the SDS drone.

Improvements: As indicated in the SDS Control Systems Equipment Table, applying additional vessel mass to the basic SDS control systems will improve the unit's Gunnery and Piloting Skills. An improvement may only be applied once per vessel class.

CASPAR II ADVANCED SMART ROBOTIC CONTROL SYSTEM

Introduced: 3064 (Word of Blake)

Extinct: 3078 (All)

Recovered: 3082 (Republic of the Sphere)

Unable to replicate the truly autonomous nature of the Star League's SDS drone control system, the Word of Blake instead diverted its attention toward substantial improvements in the older smart robotic control systems (SRCS).

Dubbed the "Caspar II" system, this advanced smart robotic control system created a more suitable combat platform by mating independent command subroutines with human-controlled tactical operations. While the resulting system lacked the true autonomy possible with the Star League version, robotic units driven by an advanced SRCS could now adjust their missions on the fly, making them much more effective in a battle.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Caspar II Advanced Smart Robotic Control System Game Rules

Rules Level: Experimental

Available to: SC, DS, WS, and SS

Tech Base (Ratings): Inner Sphere (E/XXFX)

Units equipped with the Caspar II advanced smart robotic control system follow all general robotic unit game rules described on pp. 128-134, with the specific modifications noted below.

Switchable Command Rules: The Caspar II system is a hybrid of a modified smart robotic control system and tele-operated control via human operators using a DTAC system. As such, Caspar II robotic units will operate under the Robotic Independent Command Rules (see pp. 143-147) only when not specifically receiving commands from a DTAC-equipped Control Unit (see pp. 140-141). When receiving commands from a DTAC-equipped Control Unit, the Caspar II drone will follow orders in accordance with that equipment's rules.

Caspar II Skill Ratings: A Caspar II drone's Piloting and Gunnery Skill target numbers are determined by the unit's type as well as how much of its mass has been devoted to its control system (see the Caspar II Advanced SRCS Equipment Table, p. 139). The Caspar II unit's Skills remain the same whether or not it is receiving commands directly from a human operator, or working independently.

Caspar II Initiative: Caspar II drones roll Initiative differently depending on whether they are operating independently or under the direct control of human operators using a DTAC system. When operating independently, all allied Caspar II drones must roll a separate Initiative from the other forces in play, applying a -2 modifier to this roll. When operating under direct command from a human-controlled unit using a DTAC system, all allied Caspar II drones are treated as part of the DTAC Control Unit's force for the purposes of Initiative; they thus do not make a separate Initiative roll, or apply modifiers to the same.

Using Weapons and Equipment: Caspar II drones operating independently follow the same rules for weapons and equipment use as standard SRCS drones (see p. 134).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones may employ weapons and select munitions in the same fashion as a human-controlled unit. The Caspar II drone may also be instructed by a friendly Control Unit to conduct ramming attacks at will, and do not require a roll to "gather the nerve" for such a ramming action (see p. 241, *TW*).

Heat: Caspar II drones operating independently follow the same rules for heat as standard SRCS drones (see p. 134).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones will manage heat in the same manner as a human-controlled unit of equivalent type.

Electronic Warfare: If using the electronic warfare rules in *Strategic Operations* (see pp. 98-102, *SO*), Caspar II drones follow the standard ECM/ECCM rules and ignore the interference effects that can affect other robotic units mounting SRCS-type systems. Furthermore, as a byproduct of its communication systems, the radius of a Caspar II drone's ECM zone of effect is increased by 1 additional hex over the normal radius of a unit of equal class. Thus, Caspar II drone WarShips would have an ECM field that extends up to 3 hexes away, while Caspar II drone DropShips have a 2-hex ECM radius, and Caspar II drone small craft can blanket all adjacent hexes in ECM.

Anti-Ship Electronic Warfare Missiles: If an ASEW missile successfully strikes a Caspar II drone (see p. 170, *TO:AEU*), the attacking player must roll 2D6. If the result is 10 or higher, the Caspar II drone will shut down in the End Phase immediately after the unit was struck. A Caspar II drone shut down by an ASEW missile will remain shut down until reactivated by a command from a DTAC-equipped Control Unit.

On any other roll result, the drone will lose its contact with any connected DTAC-equipped Control Units for a period of $1D6 \div 2$ turns

(round down). If the drone was already operating independently, no further effect occurs, beyond the unit being unable to receive commands from its Control Unit during that time frame. If the drone was under direct control at the time of the ASEW attack, the attacker must roll 1D6. If the result is 6, the Caspar II drone will maintain its course and acceleration for the duration of the interference effect, retreating from play if doing so sends it off the edge of the playing area. On a result of 5 or less, the unit will revert to independent control.

Movement and Terrain Restrictions: Caspar II drones operating independently follow the same rules for movement and terrain restrictions use as standard SRCS drones (see p. 134).

If operating under direct command from a human-operated Control Unit using a DTAC system, Caspar II drones will execute all maneuvers commanded by their human operators, but remain subject to all terrain restrictions for their unit type.

Caspar II Control Units: Caspar II drone units may only be issued commands by a friendly, human-controlled unit equipped with a Direct Tactical Analysis Computer (DTAC) system (see pp. 140-143).

Shutdown Caspar II Units: Caspar II drones follow the same rules for shutdown as SRCS-equipped drones (see p. 134), with the following exception. The internal defense systems within Caspar II drones remain active in the absence of a Prepare for Boarding command issued by a friendly Control Unit. Thus, unless such a command is issued and received by the unit, the Caspar II drone maintains its full Marine Point value. If a valid Prepare for Boarding command is issued and received from a friendly Control Unit, the Caspar II drone's base Marine Point value will drop to 0 (until the unit receives an Activate command).

Independent Command Rules: Caspar II drones operating independently must note their Aggression level at the start of game play. This Aggression level will not change unless specifically commanded by a friendly Control Unit.

If no such change is ordered during the period in which the Caspar II drone is under direct command, and the drone becomes independent due to disruption or destruction of its Control Unit, the Caspar II drone will operate under its last-known Aggression level.

Caspar II Advanced Smart Robotic Control System Construction Rules

Consult the Caspar II Equipment Table below for the weight of the equipment to be installed, based on the unit type and the desired Gunnery and Piloting target numbers. Caspar II controls add extra weight to the unit's standard control systems, based on a percentage of the unit's total weight. For WarShip-sized units, this additional base control system weight will not exceed 400,000 tons, but more tonnage will be required as indicated below.

Caspar II drones must still devote tonnage to steerage-style quarters for all required minimum crew (officers, gunners, and crew), representing various automation and internal maintenance units and access ways (see *Add Control/Crew Systems*, pp. 188, *TM*, and 137, *SO*). To find this minimum crew requirement for a Caspar II drone, start by calculating the normal minimum crew needed for a human-operated unit of equivalent type and gunnery needs, disregarding any bay personnel. Divide this result by half—rounding up to the nearest whole number—to find the number of "crew quarters" the Caspar II will require.

Although the Advanced SRCS (Caspar II) control system is installed in addition to the vessel's standard control systems, it occupies no additional critical slots. Its presence must still be noted on the unit's record sheet, to clearly differentiate a Caspar II drone from its human-crewed analogs.

Aside from the weight costs for the control system and "crew quarters", a unit built with an Advanced SRCS may be constructed normally.





CASPAR II ADVANCED SRCS EQUIPMENT TABLE

Unit Type	Gunnery	Piloting	Base Weight
Small Craft	5*	6*	6%
DropShip	4**	5**	8%
Space Station	4**	5**	10%
WarShip	4**	5**	12%

*For an additional 2% of the unit's total mass, the Caspar II will increase this unit's skills to Gunnery 4, Piloting 5.

**For an additional 4% of the unit's total mass, the Caspar II will increase the unit's skills to Gunnery 3, Piloting 4.

AUTONOMOUS TACTICAL ANALYSIS COMPUTER (ATAC)

Introduced: 2705 (Terran Hegemony)

Extinct: 2780 (All)

Recovered: N/A

Comprising a sophisticated array of neural networks and simulation engines designed to encapsulate the strategic and tactical thinking of generations of Terran Hegemony admirals, the ATAC system could coordinate the actions of an entire fleet of drone spacecraft. Often overlooked, next to the miracle of its drones' near-sentence, the ATAC was a key part of what made the Star League's SDS network even deadlier than the sum of its drones. A single ATAC system could transform the already effective Caspar drones from a pack of brutal, but independent-minded predators into a polished and professional battle fleet.

Autonomous Tactical Analysis Computer (ATAC) Game Rules

Rules Level: Experimental

Tech Base (Ratings): Inner Sphere (E/FXXX)

Available to: DS, WS, SS

The autonomous tactical analysis computer (ATAC) is required for a unit to serve as a Control Unit over robotic units equipped with the SDS Caspar drone control system, and also works with robotic units driven by SRCS and shielded aerospace SRCS equipment. It will not work in conjunction with units operated by a Caspar II advanced SRCS.

The ATAC may be mounted on human-controlled vessels or on robotic drones equipped with a SDS Caspar drone control system. The ATAC's functions replace the normal Control Unit rules found under the general robotic unit game rules as follows:

Networks: Control Units using an ATAC system, like other robotic Control Units, need only relay periodic commands as needed to modify their drones' behavior, but the units assigned to an ATAC network must be assigned prior to the start of the scenario. Only one ATAC may be linked to a friendly, compatible, robotic unit (or drone fighter squadron) at any time.

Control Unit Requirements: The weight of a Control Unit's ATAC system directly determines the number of SDS Caspar drones and SRCS-based fighter squadrons that may be combined in the Control Unit's network. SRCS-driven robotic fighters cannot be controlled by an ATAC system on an individual basis; they must always receive commands as a squadron "unit".

ATAC Initiative, Piloting and Gunnery Modifiers: Units operating as part of an ATAC-coordinated group receive modifiers to their group Initiative rolls and Piloting and Gunnery Skills. This

ATAC MODIFIER TABLE

Distance from Control Unit	Piloting/Gunnery	Initiative
0-50 hexes	-1	+4
51-100 hexes	-1	+2
Over 100 hexes (or Off-Map)	-0	+0

reflects the command and control nature of the network, which enables all networked units to share combat data. These bonuses degrade with the distance the drones operate away from their ATAC-equipped Control Unit as shown in the ATAC Modifier Table.

Relaying ATAC Commands: ATAC Control Units relay their commands during their Weapon Attack phase, and may only relay commands to friendly robotic units within their line of sight. An ATAC Control Unit has a maximum relay range is 9,000,000 kilometers (500,000 space hexes), and may even be located off the map, though ATAC Control Units must be on the map and within 100 hexes of their drones to provide the Initiative and Skill modifiers indicated above.

An ATAC Control Unit may only relay 1 command to a given friendly robotic unit at a time, and a robotic unit may only receive 1 command per turn from a designated ATAC Control Unit. For the purposes of these rules, robotic aerospace fighters must be arranged into fighter squadrons to receive commands from an ATAC Control Unit; all other compatible robotic units must be commanded one at a time. All commands relayed to friendly robotic units do not take effect until the start of the turn after the command was relayed.

Unlike the general robotic Control Unit rules, the use of an ATAC to relay commands will not reduce the number of firing arcs the Control Unit may use while sending commands to its drones.

Legal Commands: Eight commands can be issued to a robotic unit by a Control Unit using an ATAC: Activate, Shut Down, Navigate to Position, Prepare for Boarding, Leave Network, Join Network, Share Target Data, and Destruct:

- **Activate:** Activates a robotic unit that has been shut down by a previous shutdown or prepare for boarding command, or by a hyperspace jump effect. The robotic unit will activate at the start of the next combat turn.
- **Shut Down:** Deactivates an active robotic unit. The robotic unit will shut down at the start of the next combat turn. If in space, the unit will continue drifting along its previous course and velocity. If in flight where gravity has influence, the unit will begin to fall toward the ground at a rate of 1 High-Altitude Map hex per turn (or 3 Low-Altitude Map altitudes per turn), and will crash if they reach ground hex row/altitude in this fashion. Robotic units equipped with a SDS Caspar drone control system or SDS self-destruct system will leave all internal defenses active even when given a shut down command, and thus maintain their normal base Marine Point value, while the self-destruct system remains live. A Prepare for Boarding command is required to shut down these secondary defenses.
- **Navigate to Position (Direct or Patrol):** Navigation commands the drone to a specific location in space. If the command is issued as "Direct Navigation", the drone will travel to its destination, but will only defend itself if attacked. With a "Patrol Navigation" command, the drone will engage any hostile targets if it detects any en route.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

- **Prepare for Boarding:** This command can only be given to a SDS Caspar unit by a friendly Control Unit with an ATAC system. This command disables any self-destruct equipment on the drone, as well as all internal defenses on the drone, thus reducing its base Marine Point value to 0. Such a command is required before an SDS drone unit can be taken through hyperspace, and must follow a command to shut down the drone in such a case.
- **Leave Network:** This command releases the selected drone from its ATAC network. In the turn following this command, the drone unit operates in accordance with its normal control system rules. Drone fighter squadrons that leave an ATAC network will return to the Robotic Unit Independent Command Rules.
- **Join Network:** This special command can only be issued to a compatible, friendly SDS drone unit (or SRCS-based drone fighter squadron) that is not already part of another ATAC network, and which is within 100 hexes of the ATAC-equipped Control Unit. The command can only be issued if the ATAC network has enough capacity to take on the robotic unit.
- **Share Targeting Data:** This special command can only be relayed to SDS Caspar-controlled units. See *Drone Fire-Control Network* for more information.
- **Destruct:** A fail-safe command more than anything, this command initiates the auto-destruct protocol for the selected drone. If the unit in question is equipped with a Booby Trap or SDS Self-Destruct System, that item's rules are followed; otherwise, the unit will use the standard self-destruct rules found on page 76 of *Tactical Operations: AR*.

ATAC Fighter Squadrons: When an ATAC-equipped unit is used to direct a robotic fighter squadron, the robotic fighter squadron is treated as a fully intelligent game unit, and does not follow the Robotic Unit Independent Command Rules (see pp. 143-147). If the ATAC control unit is destroyed or the robotic fighter squadron's connection to it is otherwise disrupted, the fighter squadron will revert to Robotic Unit Independent Command Rules until the connection is re-established.

Drone Fire-Control Network: The ATAC provides the same abilities as a Naval C³ to all of its drones that also possess an SDS Caspar control system (see p. 141, *TO: AUE*). While part of their designated ATAC network, up to 6 such drones can be linked together to share targeting data, as long as the drones are not in an ECM field generated by a large craft. These can either be 6 distinct SDS drones in the same network, or 5 SDS drones and their ATAC-equipped Control Unit. Sharing targeting data in this fashion counts as a special command to all drones that are doing so.

Electronic Warfare: If using the Electronic Warfare rules from *Strategic Operations* (see pp. 98-102, *SO*) ECM effects will interfere with a robotic unit's drone's ability to communicate with its ATAC-equipped Control Unit, as described below.

In the End Phase of each turn, the SDS drone checks its line of sight to its ATAC-equipped unit. If there is a hostile ECM field between the SDS drone and the ATAC equipped unit, make an immediate ECCM roll by the ATAC equipped unit and apply any ECCM modifiers to hostile ECM as if it were targeting the SDS drone. If the ATAC equipped unit counteracts the hostile ECM, the SDS drone operates normally.

If the drone enters a zone where ECM interference provides a +1 to-hit modifier, then the drone will also suffer a -1 Initiative modifier and an additional +1 to-hit modifier for all attacks made at its Extreme range bracket starting in the next turn (regardless of any C³ effects from the drones' fire-control network). If the ECM interference provides a +2 to-hit modifier, these modifiers change to a -2 to Initiative, and an extra +1 to-hit at the Long and Extreme range brackets. If the ECM effect creates a +3 to-hit modifier, the affected drones suffer a -3 Initiative roll modifier and an extra +1 to-hit modifier at any range bracket. If the ECM effects produce a +4 to-hit modifier, the drones are severed entirely from the ATAC network

and will function independently, with the same attack and Initiative modifiers for being in a +3 ECM interference zone.

These effects will persist as long as the ECM interference lingers, but the effects must be checked during each Weapon Attack Phase, after rolling ECCM again, to find the to-hit modifiers that will apply for that turn.

If the ATAC-equipped Control Unit is located off-board, then its line of sight to it is considered obstructed if a hostile ECM comes between the controlled unit and the center hex of the drone units' home map edge.

Autonomous Tactical Analysis Computer (ATAC)

Construction Rules

The ATAC has a base weight equal to 2 percent of the equipped unit's weight, to a maximum tonnage of 50,000 tons. For each SDS drone it is intended to direct (of any size), 150 tons is added to this weight. ATACs may be installed in human-crewed ships, or in a WarShip-sized SDS drone. On human-crewed ships, 1 crewman is required for every 3 drones the ATAC can direct.

The ATAC does not occupy a critical slot, but its presence must be noted on the unit's record sheet.

DIRECT TACTICAL ANALYSIS CONTROL (DTAC) SYSTEM

Introduced: 3072 (Word of Blake)

Extinct: 3078 (Inner Sphere)

Recovered: 3082 (Republic of the Sphere)

The Direct Tactical Analysis Control (DTAC) system was the Word of Blake's attempt to produce a manually-operated version of the Star League's ATAC system for use with their own Caspar II technology. Essentially a supersized tele-operations control system, the DTAC system combined with components of the Draconis Combine's Naval C³ technology to transform their Caspar II control ships into even more effective tactical command hubs.

Leaving the core functions of their drones to the advanced Caspar II control systems, the DTAC made it easier for human operators on their control ships to act as tactical guides, while also providing the sensor- and data-sharing abilities that made the ATAC so fearsome.

Direct Tactical Analysis Control (DTAC) System Game Rules

Rules Level: Experimental

Available to: DS, WS, SS, MS

Tech Base (Ratings): Inner Sphere (F/XXFF)

The direct tactical analysis control (DTAC) system is *not* required for a unit to serve as a Control Unit over robotic units equipped with the Caspar II advanced robotic control system, but it works with those robotic units, as well as any other driven by SRCS and shielded aerospace SRCS equipment. It will not work in conjunction with units operated by a SDS Caspar drone control system.

The DTAC may only be mounted on human-controlled vessels, as it requires a crew to operate. When in use, the DTAC's functions modify those of the normal Control Unit rules found under the general robotic unit game rules as follows:

Networks: Control Units using a DTAC system, like other robotic Control Units, need only relay periodic commands as needed to modify their drones' behavior. Robotic and drone units assigned to a DTAC network must be assigned prior to the start of the scenario. Only one DTAC may be linked to a friendly, compatible, robotic unit (or drone fighter squadron) at any time.

Control Unit Requirements: The weight of a Control Unit's DTAC system directly determines the number of Caspar II drones and SRCS-based fighter squadrons that may be combined in the Control Unit's network. SRCS-driven robotic fighters cannot be controlled by an DTAC system on an individual basis; they must always receive commands as a squadron "unit".



DTAC MODIFIER TABLE

Distance from Control Unit	Piloting/Gunnery	Initiative
0-50 hexes	-1	+4
51-100 hexes	-1	+4
Over 100 hexes (or Off-Map)	-0	+0

*Apply an additional -4 for non-Caspar II SRCS-controlled units; -2 for Caspar II-controlled units.

DTAC Piloting, Gunnery, and Initiative Modifiers: DTAC units use their own modifier table, but otherwise follow the same rules as ATAC units for bonuses to Initiative, Piloting and Gunnery (see p. 139). Furthermore, these modifiers must also apply the normal Initiative modifiers that come with the robotic units' control systems (-4 for SRCS and shielded aerospace SRCS units; -2 for units using Caspar II equipment).

Relaying DTAC Commands: DTAC-equipped Control Units relay their commands during their Weapon Attack phase in the same fashion as an ATAC system does for its drones (see pp. 139-140), but only have an effective command relay range of 4,500,000 kilometers (250,000 space hexes). As with ATAC-equipped Command Units, DTAC-equipped Command Units may even be located off the map, but being present and within a distance of 100 hexes will provide Initiative and Skill modifiers to their drones (see below).

DTAC Fighter Squadrons: DTAC equipped units may direct robotic fighters following the same rules as for human-controlled ATAC units (see p. 139).

Drone Fire-Control Network: DTAC units possess the same ability to network Caspar II-equipped drones as ATAC units do to network SDS Caspar drones (see p. 140). This includes the ability to share targeting data with up to 6 networked Caspar II drones.

Direct Control: DTAC-equipped units use the same rules as ATAC-equipped units for issuing direct control orders to a Caspar II drone (see p. 139).

Electronic Warfare: DTAC-equipped units use the same rules as ATAC-equipped units for Electronic Warfare (see p. 140). All robotic units that become separated from a DTAC-equipped Control Unit will revert to the Robotic Independent Command Rules in the following turn.

Direct Tactical Analysis Control (DTAC) System Construction Rules

The DTACS has a base weight equal to 3 percent of the equipped unit's weight. For each Caspar II drone it is intended to direct (of any size), 150 tons is added to this weight. The DTACS may only be installed in human-crewed ships, and requires 1 crewman per drone, up to the maximum number of drones that the system can direct.

The DTACS does not occupy a critical slot, but its presence must be noted on the unit's record sheet.

ADVANCED ROBOTIC TRANSPORT SYSTEM (ARTS)

Introduced: 2609 (Terran Hegemony)

Extinct: 2804 (Inner Sphere)

Recovered: 3068 (Word of Blake)

The ability of Star League-era *Caspar* drone systems to perform their own launch and recovery operations, and even perform basic maintenance such as ammo loading and refueling, was built upon earlier advances in robotic warehouse technologies. The Terran Hegemony's SDS network took this to the point where entire robotic space stations could help support the SDS drone network.

Robotic transport bays took this ordinarily land-bound technology and applied it to larger space-going vessels. While their use greatly streamlined shipping and reduced crew sizes on Hegemony ships, the system never replaced crews completely, and quickly succumbed to the Star League's fall.

Advanced Robotic Transport (ART) System Game Rules

Rules Level: Advanced

Available to: SC, DS, SS, and WS

Tech Base (Ratings): Inner Sphere (E/DXFF), Clan (E/XEEF)

A unit equipped with this system requires no bay personnel to perform launch/recovery, ammunition loading and unloading, or small craft/fighter refueling. Drone units equipped with an ART system may launch and recover small craft and fighters (drone or human-controlled) as though they were a normally crewed unit.

If a human-controlled small craft or aerospace fighter lands in an ART system-modified bay on board a robotic drone unit, the human crew may not safely exit their craft unless the drone's internal defense system deactivated. If the system is active, the humans must conduct a boarding action (see p. 167, *TO:AR* and p. 34, *SO*).

Repair facilities equipped with an ART system are capable of performing basic maintenance on all aerospace craft of DropShip size or larger that are docked within them, using the repair rules and times from the *Maintenance, Repair, Salvage and Customization* rules (see pp. 204-209, *CO*). The ART system can make the following repairs at Veteran skill rating (a base target number of 6):

- Replace any damaged armor.
- Repair units with less than 25 percent Structural Integrity damage. (For example, an M-5 has an SI of 50. If its SI is between 37 and 49 points, the ART system can fix it. If the M-5's SI was 36, it would need to be repaired at a standard, human-crewed shipyard.)
- Repair 1 critical hit to the following systems: Avionics, CIC, Sensors
- Repair up to 2 critical hits to Thrusters or Engines.
- Replace all heat sinks.

Advanced Robotic Transport (ART) System Construction Rules

ART systems may be installed in place of standard small craft or fighter transport bays, or as a replacement for a standard (pressurized or unpressurized) repair facility. ART system bays are indicated on the unit's record sheet by placing "ARTS" before the name of the bay's type. The ART system increases the transport bay's normal weight by an additional 25 percent over its standard version (rounded up to the nearest half-ton), so an ART system fighter bay would weigh 187.5 tons, while an ART system small craft bay would weigh 250 tons, and a 5,000-ton standard repair facility would increase to 6,250 tons.

As automated components, ART system bays do not add bay personnel to a unit's construction.

SDS SELF-DESTRUCT SYSTEM

Introduced: 2695 (Terran Hegemony)

Extinct: 2780

Recovered: N/A

In the time of the Star League it was thought the SDS self-destruct system was put in place after a tragic episode in 2694. A squadron of M-2 *Hector* drones became non-responsive and destroyed three civilian transport JumpShips because their IFF beacons were broadcasting out of sync. In reality, files recovered from ComStar archives reveal the true reason for the self-destruct system was Jonathan Cameron's fear of the SDS technology falling into the hands of the other Member States.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



The self-destruct system was little more than a massive bomb fitted into, or in some cases around, the engine compartment. In the event the ship was disabled or otherwise compromised, the destruct system would engage and scuttle the ship, reducing all the proprietary technology to slag. When combined with the SDS drones' programming to ram enemy combatants if critically damaged, this also turned the self-destruct system into a powerful suicide weapon.

SDS Self-Destruct System Rules

Rules Level: Experimental

Available to: SC, DS, WS, and SS

Tech Base (Ratings): Inner Sphere (C/DFXX)

Game Rules: The SDS self-destruct operates identically to the booby trap rules in *Tactical Operations: AUE* (see p. 109, *TO:AUE*), with the following exceptions:

If a unit equipped with a SDS self-destruct successfully rams another unit, its self-destruct is triggered automatically, and will deliver additional damage directly to the rammed unit's Structural Integrity. This extra damage is equal to the Drone's Safe Thrust multiplied by its tonnage, to a maximum of 500 points of Structural Integrity damage.

The SDS self-destruct can be accidentally set off if the equipped vessel is damaged from the rear. On any critical hit to the aft section of a unit equipped with a SDS self-destruct system, the attacker resolves critical hits normally, and then rolls another 2D6. If the result is 12 or higher, the self-destruct system activates, destroying the engine and applying the self-destruct system's damage directly to its own ship's Structural Integrity.

An SDS drone will otherwise activate its self-destruct if any of the following event triggers occur: All engine criticals are destroyed; the vessel loses 98 percent or more of its Structural Integrity (round up); the drone loses "control" during a boarding action; or the drone receives a Destruct command from a friendly, human-operated ATAC system.

Construction Rules: The SDS self-destruct system requires 10 percent of the drone unit's weight (rounded up to the nearest whole ton), to a maximum weight of 10,000 tons. The system is located in the unit's engine section, but occupies no critical slot space on the unit's record sheet.

SLDF SDS JAMMER SYSTEM

Introduced: 2776 (SLDF)

Extinct: 2780

Recovered: N/A

As the war to liberate Terra wore on, the SLDF was able to gather more and more data on the super-secret Terran Hegemony controlled SDS Network. Analysis showed that drones would lose their coordination and suffer a loss in accuracy when exposed to heavy ECM interference. To capitalize on this weakness, dozens of SLDF WarShips filled their cargo decks with multi-kiloton jamming systems. These ECM arrays allowed Kerensky's troops to blanket hundreds of kilometers with jamming waves that disrupted the SDS drones, and crippled their ability to form the devastatingly cohesive formations they had used to great effect in earlier confrontations.

SLDF SDS Jammer Rules

Rules Level: Experimental

Available to: WS

Tech Base (Ratings): Inner Sphere (E/FFXX)

Game Rules: A ship equipped with an SLDF SDS Jammer system may activate it in the End Phase of any turn. Once activated, the system extends a jamming field out to 50 hexes. If an ATAC-equipped unit is located within this jamming field, the jammer generates a +4 ECM

modifier for the sole purpose of determining if an SDS drone also in the jamming field can network with that ATAC equipped unit (see *Electronic Warfare*, p. 140).

If the ATAC-equipped unit is located outside the SDS jamming field, it is automatically incapable of communicating with any friendly SDS units operating inside the jamming field. For all intents and purposes, the jamming field blocks line-of-sight for all C³-style network effects into the jammed area. SDS drones inside the jamming field thus may not spot for any friendly units outside the field, and all SDS units outside the field will not "see" any units within the jamming field for the purposes of delivering attacks. In order for an SDS drone to target and attack any ships inside a jamming field, it must first enter the field.

Unless under direct human command (such as from a human-operated, ATAC-equipped unit), an SDS drone must roll an 8 or higher on 2D6 during the unit's Movement Phase before attempting to enter an SDS jamming field. If the roll fails, the drone may not intentionally enter the jamming field, and must instead attempt to maneuver around it, maneuver away from it, or come to a halt outside the field.

Construction Rules: The SLDF SDS Jammer weighs 30,000 tons. It may be hard-mounted during the WarShip's construction, or carried "unmounted" within a WarShip's cargo bay (provided the bay is large enough to fit the item) without any other modifications to the WarShip.

WORD OF BLAKE DRAGON'S BREATH MULTI-MISSILE LAUNCH SYSTEM

Introduced: 3077 (Word of Blake)

Extinct: 3078

Recovered: N/A

An attempt to devise a capital-scale launch rack similar to a 'Mech's SRM launcher, the Dragon's Breath multi-capital missile (MCM) launch system was a non-mounted weapon system, designed to fire a mix of nuclear and electronics-based warheads at a single target. Its intent was to obliterate or incapacitate enemy WarShips in a single volley, while generating sufficient ECM to confuse the target's point-defenses and guarantee a kill. Hastily built by the Word of Blake when the invasion of Terra became imminent, these weapons could not be mounted properly on vessels and platforms quickly enough, and thus posed nearly as much of a potential danger to their users as to their targets.

Thanks to its flaws, the Dragon's Breath proved to be a literal one hit wonder. Of the ten such launch systems built and deployed in the Terran system, only one operated as designed. The remaining systems failed in various fashions, their missiles either failing to launch, or to avoid hitting each other while en route to their targets.

Dragon's Breath Rules

Rules Level: Experimental

Available to: WS, SS

Tech Base (Ratings): Inner Sphere (E/XXFX)

Game Rules: The Dragon's Breath is an automated weapon that may only attack aerospace units of DropShip size and larger, with a designated weight range that must be determined prior to the start of the scenario.

If a hostile unit of the designated weight (or higher) enters the weapon's Medium capital range bracket, roll 2D6. On a result of 8+ the system will attack, targeting the nearest unit that falls within its designated target weight range and the weapon's firing arc. If more than one target is equidistant from the Dragon's Breath, use the *Bearings Launch Capital Missile* rules for target selection (see p. 90, *SO*).

If a hostile unit of DropShip size or larger—regardless of weight—enters the Dragon's Breath's Short capital range bracket, the weapon will automatically attack that target.



The attack from a Dragon's Breath launcher consists of 10 modified Killer Whale missiles. Four of these missiles are ECM-tipped, while the remaining 6 are tipped with either standard warheads or Peacemaker nuclear warheads (see *Nuclear Weapons*, pp. 163-171).

To execute an attack, the controlling player must first roll 2D6 against a target number of 8+. If this roll fails, the system fails to fire and all circuits burn out, rendering the Dragon's Breath inoperative for the remainder of the scenario. If the roll succeeds, the Dragon's Breath will successfully launch its full arsenal at its designated target.

Once the missiles are launched, the attacker rolls another 2D6 against a target number of 9+. If this second roll fails, the missiles veer wildly, colliding with one another and detonating prematurely. Otherwise, the attack continues.

The four ECM-tipped missiles in a Dragon's Breath volley will attempt to generate ghost targets. To resolve this, the controlling player makes a third 2D6 roll against a target number of 9. On a failed roll, no ghost targets are generated (and, if this roll result is 2 or 3, the rest of the attack will automatically fail as well due to the ECM accidentally frying the targeting systems of its own companion warheads). On a result of 9 or 10, each of the 4 ECM-tipped missiles generates 2 ghost targets. On a roll of 11 or 12, each ECM missile generates 5 targets each.

Whether or not ghost targets are generated (and as long as the missiles have launched and not been destroyed or disabled en route), the remaining 6 missiles in a Dragon's Breath volley will finally resolve their own attacks in accordance with all normal rules for capital missile fire. Each missile resolves its attack independently, using the same to-hit number based on the attacking unit's Gunnery rating. For any missiles that hit, resolve damage in three phases: For the first three 3 missiles that hit, resolve damage and critical hits normally, and apply all effects immediately. For the next 2 that hit, resolve damage and critical effects as if the damage from the previous missiles struck in a previous combat phase. Finally, if the sixth missile successfully hits, apply its damage and critical effects as if all the other missiles delivered their effects in a previous phase.

Point Defense fire against an incoming Dragon's Breath volley will always "hit", but may target a sensor ghost instead of the missiles themselves. To determine this, add the total number of sensor ghosts generated by the Dragon's Breath's ECM warheads to the number 6. This is the number of missiles the point-defense will attempt to engage. For each point-defense system that fires on an incoming Dragon's Breath volley, determine at random which missile (or ghost target) the point-defense weapon engages before resolving the missiles' fire. Modifiers for point-defense weapons will only affect those missiles the point-defense system successfully engages.

Due to the unmounted nature of the launch systems, any successful Dragon's Breath launch will automatically deliver 20 points of capital-scale damage to the Structural Integrity of the unit within which the weapon is mounted, applying any critical hits normally.

Construction Rules: The Dragon's Breath system is an unmounted weapon, and thus may only be placed and fired from an open, unpressurized repair facility with a weight capacity of 5,000 or more. The Dragon's Breath itself weighs 5,000 tons (including its ammunition payload of 10 modified Killer Whale missiles). The weapon cannot be installed with additional ammunition. As an automated weapon system, the Dragon's Breath launcher requires no gunners to operate.

ROBOTIC INDEPENDENT COMMAND RULES

Rules Level: Advanced

Available to: Units mounting SRCS, shielded aerospace SRCS, or Caspar II control systems (see pp. 134, 135, and 137, respectively)

The following rules are used to reflect the artificial intelligence structure of any robotic or drone units in game play when they are not operating under the direct control of a human-driven Control Unit (or an SDS Caspar drone equipped with the ATAC system). As such, these rules apply to any units mounting smart robotic control system (SRCS), shielded aerospace SRCS, or Caspar II advanced SRCS equipment.

Command Tree: Each Robotic Independent Command (RIC) Decision Tree consists of Events, which are made up of Events Triggers and Orders based on the unit's "Aggression level" (described below). During the End Phase of every turn that a robotic unit is operating independently, it will begin to determine its actions for the next turn by beginning at the top of the Decision Tree. If an Event's Trigger is valid, the robotic unit will execute the order for that Event. If the Event's Trigger is not valid, the robotic unit proceeds to the next Event in the Decision Tree. If the active robotic unit proceeds through the entire Decision Tree without encountering a valid Event Trigger, it will perform no new actions in the following turn, and will instead carry on its last task.

Note that there are two main RIC Decision Trees that will apply to robotic units, based on whether they are aerospace units (operating either in space or in atmospheric combat), or ground-based units. In addition to these trees, there are some secondary decision trees that are called upon under select circumstances. These include the Transport RIC Decision Tree (applicable to aerospace units assigned to transport missions), the Ground Movement Decision Tree (applicable to resolving the nuances of ground-level unit navigation), the Hostile Unit Selection Tree (also used by ground units), and the Heat Management Decision Tree (usable by all robotic units that track heat levels).

Aerospace and Ground Decision Trees: Aerospace units (including airborne mobile structures) use the Aerospace Operations RIC Decision Tree (see p. 144). Ground units (including VTOLs and WiGE vehicles) use the Ground Operations RIC Decision Tree (see p. 148).

Aggression Levels: When an Event Trigger occurs, the robotic unit will execute its Orders based on the unit's Aggression level. The Aggression levels a robotic unit may be set to are: Aggressive, Neutral, and Defensive. Each robotic unit must have an Aggression level assigned to it at all times, which will apply to all Event Orders the unit carries out (unless an Event Order specially overrides this). Aggression levels are set at the start of game play for all robotic units that begin deployed on the playing area, while units not deployed need not have their Aggression levels set until the turn in which they are deployed on the map.

A robotic unit's Aggression level may only be changed by a designated Control Unit, which may only do so during the Control Unit's Weapon Attack phase in any given turn. If a Control Unit commands a robotic unit to change its Aggression level, the change will not take place until the start of the following turn.

Illegal Movement: Space stations, satellites, and fixed structure (building) robotic units ignore all movement orders. All other robotic units may only execute movement orders in accordance with the capabilities of their unit types.

Robotic Large Craft: When using these rules, mobile structures and buildings are counted as robotic large craft, along with DropShips, space stations, and WarShips.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Valid Targets: When using these orders, references to large craft targets includes not only DropShips, space stations, JumpShips, and WarShips, but also covers Large-size support vehicles, mobile structures, and buildings.

Caspar Drones: Caspar II drones are considered robotic units for the purposes of these rules, but SDS Caspar drones are so sophisticated that they do not work within so rigid a framework. Unless specifically called out, drone WarShips will follow all of the same orders as a robotic DropShip or other large craft.

Launching/Recovering, Landing and Liftoff: Robotic units follow the normal rules for *Launching/Recovering* (see p. 86, *TW*) and *Landing and Liftoff* (see p. 87, *TW*) with no additional modifiers.

Mission Orders: In addition to an Aggression level, aerospace robotic units must select a primary mission at the start of gameplay. This mission can effect which Event Orders apply on their RIC Decision Tree. The missions are as follows:

- **Space Operations:** The robotic unit is tasked with offensive or defensive combat operations outside of a planetary atmosphere.
- **Atmospheric Operations (Combat Air Patrol):** The robotic unit is tasked with offensive or defensive combat operations within a planetary atmosphere, directed exclusively against other aerospace units.
- **Atmospheric Operations (Ground Attack):** The robotic unit is tasked with offensive combat operations within a planetary atmosphere, directed exclusively against ground

targets. Note that a robotic aerospace unit given a Ground Attack mission cannot be assigned a Defensive level of Aggression. Furthermore, robotic units assigned to Ground Attack missions while on an Aggression level of Neutral will be restricted to bombing attacks only; robotic aerospace units with an Aggressive level of Aggression may use all air-to-ground attack options.

- **Transport:** The robotic unit is tasked with simply traveling from one point to another, possibly while carrying cargo or troops. Transport operations modify the normal Aerospace Operations RIC Decision Tree.

Facing Changes and Special Maneuvers (Atmospheric Operations Only): Fuel economy is less of a concern for robotic units set to an Aggression level of Aggressive. Thus, unless noted otherwise in the Aerospace Operations RIC Decision Tree, only robotic aerospace units that are Aggressive may expend Thrust Points to make additional facing changes in atmospheric combat (see p. 84, *TW*); Neutral and Defensive aerospace units will not burn fuel to force a potentially hazardous mid-air facing change.

In addition, robotic aerospace units with an Aggression level of Neutral or Aggressive may use any special maneuvers allowed to their unit type during combat (see pp. 84-85, *TW*), if doing so will aid them in executing their current Event Orders. Robotic aerospace units with a Defensive level of Aggression will only use the Half-Roll and Split-S special maneuvers as necessary.

AEROSPACE OPERATIONS RIC DECISION TREE

The following rules apply to aerospace robotic units mounting one of the various SRCS systems (including Caspar II units). If the rules refer to a specific system, those rules only apply to a unit mounting that system.

Overriding Orders

These orders will take effect whenever conditions are met, regardless of any other Event Triggers. As with the Event Triggers, these overriding orders are processed in their listed order.

Target of Opportunity: If a hostile large craft (DropShip, Large-size fixed-wing Support Vehicle, mobile structure, fixed structure, space station, JumpShip, or WarShip) lies within the robotic unit's forward arc, is within Short or Medium weapons range, and the robotic unit did *not* attack another target the previous turn, it will attack that Large Craft with all available weapons.

Large Craft Priority Target: Large craft robotic units are programmed to target other large craft as a priority. When selecting a valid target, large craft robotic units will always choose the nearest hostile large craft in range, unless overridden by another event. If more than one large craft is equidistant from the robotic unit, use the *Bearings Launch Capital Missile* rules for target selection (see p. 90, *SO*).

No Large Craft Targets: Large craft robotic units that find no valid, hostile large craft in range will fire on any valid hostile target, starting with the closest one. This is in addition to any action required by an Event.

Remaining Weapons: If, after firing all valid weapons at its primary target, a large craft robotic unit has unfired weapons, sufficient heat sinks to fire them, and another valid target is within range of an appropriate fire arc, the robotic unit will fire on the nearest hostile target, regardless of its size or class.

Ground Attack: Robotic aerospace units on a ground-attack mission (see Mission: Ground Attack) will select primary targets from among ground units first. They will thus target ground-based

large craft (landed DropShips, mobile structures, large-size support vehicles, and armed buildings) as their primary targets. If such targets cannot be found in the combat area, or damaged by the robotic unit's weapons, the unit will instead attack the largest hostile ground target that can be damaged by its available weapons.

If targeted by hostile aerospace, a robotic unit performing a ground-attack mission will temporarily switch missions to combat air patrol for the following turn (see Mission: Combat Air Patrol). The robotic unit will remain on combat air patrol for 2 full turns before attempting to resume its ground-attack mission.

Out of Ordnance: Robotic aerospace units set to a Neutral aggression level on a ground-attack mission will conduct a Forced Withdrawal (see p. 258, *TW*) once they have dropped all external payloads.

Transport: Robotic units performing a transport mission (see Mission: Transport) follow a unique sub-tree unless otherwise noted by that tree. See *Transport RIC Decision Tree*, page 147.

1. EVENT: Omega

Event Trigger: Robotic unit is crippled (see *Crippling Damage*, p. 258, *TW*).

Orders (Aggressive): Unit will accelerate at Maximum Thrust toward the nearest hostile unit of equal or larger size class that lies within its forward arc. While closing, the robotic unit will fire all weapons at this target, and will attempt to ram the hostile unit once it reaches its position. No roll is required to "gather the nerve" to make this ramming attack.

If on a ground-attack mission, the robotic unit will instead target the largest concentration of hostile ground forces in its flight path. Robotic DropShips will attempt to land near these hostile units and conduct ground-to-ground attacks if successful, while all other robotic units will intentionally crash into the largest available hostile ground target.



AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

Orders (Neutral): The robotic unit will attempt to keep all hostile large craft at Long range, protecting its most damaged components. If unable to do this, it will attempt to stay at Long range from the *largest* hostile craft, while attempting to attack the nearest hostile large craft. If a hostile target of any kind is at Short or Medium range, the robotic unit will also conduct evasive maneuvers.

Robotic units on a ground-attack mission will cease its mission immediately and switch to combat air patrol, and follow the neutral orders above.

Orders (Defensive): Robotic unit will conduct a Forced Withdrawal (see p. 258, *TW*) using legal special maneuvers as Thrust permits. Once the unit reaches the edge of the playing area, it flees the battlefield, and remains out of play for the remainder of the game.

2. EVENT: Collision

Event Trigger: Robotic unit is in danger of colliding with another object or the ground. For Robotic aerospace, conventional fighters and Small Craft units, treat the Aggression level of "Aggressive" as "Neutral" for this Event.

Orders (Aggressive): If the possible collision is with any small craft, aerospace or a non-friendly object that will do less than 20 percent of the robotic unit's total starting armor value in damage to the robotic unit, the robotic unit will ignore the possible collision threat and proceed to next Event in its Decision Tree. Otherwise, treat as response as indicated below for an Aggression level of "Neutral."

Orders (Neutral): Robotic unit will use all available Thrust to avoid collision, while continuing to target hostile units and attempting to maneuver so as to remain within combat range with these units.

Orders (Defensive): Robotic unit will use all available Thrust to avoid collision, forgoing all other actions until it is no longer in danger of collision.

3. EVENT: Boarding (Space Operations Only)

Event Trigger: If any hostile small craft, ground unit operating in Zero-G (see pp. 22-24, *SO*), or VTOL enters the same or adjacent hex as the robotic unit and ends its movement there with a velocity within 4 points of the robotic unit's own, the robotic unit will interpret this as a possible boarding attempt. If the robotic unit is of a type that cannot be targeted by boarding actions (such as an aerospace fighter or BattleMech), it will ignore this Event Trigger.

Note: Airborne mobile structures and space stations that respond to this Event Trigger will follow the Defensive Orders for this event, regardless of their actual Aggression level.

Orders (Aggressive): The robotic unit will not attempt to avoid the unit.

Orders (Neutral): The robotic unit will spend its next Movement Phase expending up to its Maximum Thrust to either increase the distance between itself and the possible boarding unit, or to increase difference in velocities between them to 5 points or more.

Orders (Defensive): The robotic unit will act as per Neutral orders, and will also make the possible boarding unit its primary target during the next Weapon Attack Phase, firing all available weapons at it.

4. EVENT: Swarm

Event Trigger: A hostile large craft (or a small craft, if the robotic unit is a fighter, satellite, or small craft) lies crippled and within 12 hexes of the robotic unit (6 hexes, if the hostile is 200 tons or less). A robotic unit will consider any target crippled if it fits the criteria defined in *Crippling Damage* (see p. 258, *TW*).

Note: WarShip and airborne mobile structures with an Aggression level of Aggressive will respond to this event as if they have a Neutral Aggression level instead.

Orders (Aggressive): If the hostile unit is a large craft, the robotic unit will immediately attempt to ram. Otherwise, the robotic unit will close to its Short range bracket and fire on the target—angling its attack for the facing with the lowest current armor rating, if possible.

Orders (Neutral): In its next Movement Phase, the robotic unit will close on the crippled target using Safe Thrust only. While doing so, it will shift fire from any active target and attack the crippled unit for the next Weapon Attack phase, angling its fire at the facing with lowest current armor rating, if possible.

Orders (Defensive): A robotic unit in Defensive mode will ignore a crippled unit and move on to the next Event Trigger.

5. EVENT: Target Locked

Event Trigger: The robotic unit is still within weapons range of an active, hostile large craft that it fired upon in the turn immediately before now.

Orders (Aggressive): The robotic unit will attempt to close to its Short range bracket, using Maximum Thrust, if necessary. In the next Weapon Attack, it will fire all of its available weapons upon the target, angling for the facing with the lowest current armor rating, if possible.

Orders (Neutral): The robotic unit will maintain its current range bracket with the target, using Maximum Thrust, if necessary. In the next Weapon Attack, it will attempt fire all of its available weapons upon the target, angling for the facing with lowest current armor rating, if possible.

Orders (Defensive): The robotic unit will maintain its current range bracket with the target, using no more than its Safe Thrust. In the next Weapon Attack, it will attempt fire all of its available weapons upon the target, angling for the facing with lowest current armor rating, if possible.

6. EVENT: Support

Event Trigger: The robotic unit is not currently engaged with a hostile large craft, and a friendly unit (robotic or non-robotic) is in active combat with a hostile large craft that lies within the robotic unit's Long or Extreme range brackets.

Orders (Aggressive): The robotic unit will attempt to close to within Short range of the friendly unit's target, while firing at it with any available weapons.

Orders (Neutral): The robotic unit will attempt to engage the friendly's unit's target while trying to maintain its current weapons range bracket. If the target moves beyond the range band at which the robotic unit began its attack, the robotic unit will pursue to maintain its previous distance.

Orders (Defensive): The robotic unit will engage hostile unit but will not change its current course or range band. It will make no attempt to pursue the friendly unit's target, even if it moves away.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

7. EVENT: Engaging Target

Event Trigger: The robotic unit is not engaged with a hostile large craft, and a hostile large craft is within range of any weapons mounted in the robotic unit's forward arc.

Note: For robotic units weighing less than 200 tons, any hostile craft that enters weapons range will trigger this event.

Orders (Aggressive): The robotic unit will attempt to close to within its Short range bracket using any Thrust necessary, while firing whatever weapons are available.

Orders (Neutral): The robotic unit will engage the hostile unit while attempting to maintain the current range bracket between them. If the target moves away, the robotic unit will pursue it to maintain the range bracket.

Orders (Defensive): The robotic unit will engage any hostile unit in range, but will not pursue it if it moves away, and will not actively move to change the range between them.

8. EVENT: Target at Range

Event Trigger: The robotic unit is not engaged with a hostile large craft, but a hostile large craft is within 50 hexes of the robotic unit's current position.

Note: For robotic units weighing less than 200 tons, any hostile craft that lies within this distance will trigger this event.

Orders (Aggressive): The robotic unit will move towards the nearest hostile unit at its Maximum Thrust, and will begin attacking as soon as its modified to-hit number for an attack is 12 or less for any weapon. Once the modified to-hit number falls to 10 or less, return to the start of the unit's Decision Tree.

Orders (Neutral): The robotic unit will move towards the nearest hostile unit at its Safe Thrust rate, and will begin attacking as soon as its modified to-hit number for an attack is 12 or less for any weapon. Once the modified to-hit number falls to 9 or less, return to the start of the unit's Decision Tree.

Orders (Defensive): The robotic unit will move towards the nearest hostile unit while using evasive maneuvers, and will not exceed its Safe Thrust rating while doing so. Once the modified to-hit number for an attack by any of the unit's weapons falls to 9 or less, return to the start of the unit's Decision Tree.

9. EVENT: Target Acquired

Event Trigger: The robotic unit is not engaged with a hostile large craft, but a hostile large craft is within 100 hexes of the robotic unit's current position.

Note: For robotic units weighing less than 200 tons, ignore this event.

Orders (Aggressive): The robotic units will move towards the nearest hostile target at Maximum Thrust. If the target's starting Maximum Thrust is higher than that of the robotic unit, it will choose the next closest target instead. If no target can be intercepted in this fashion, move to Event Trigger 10, unless specifically commanded otherwise by a Control Unit (see p. 133).

Orders (Neutral or Defensive): The robotic units will move towards the nearest hostile large craft at Safe Thrust. If the target's starting Maximum Thrust is higher than the Safe Thrust of the robotic unit, it will choose the next closest target instead. If no target can be intercepted in this fashion, go to Event Trigger 10 unless specifically commanded otherwise by a Control Unit (see p. 133).

10. EVENT: Minimal Threat

Event Trigger: No hostile target lies within 100 hexes of the robotic unit that has a starting Maximum Thrust equal to or greater than the robotic unit's current Maximum Thrust rating.

Orders (Aggressive, Space Operations Only): If the robotic unit is a large craft, it will move at its Maximum Thrust in the direction of the nearest hostile large craft. If the robotic unit's Max Thrust is insufficient to intercept, it will instead expend Safe Thrust to lower its velocity to 0 (and thus try to maintain its current position). Robotic units under 200 tons in mass will expend Safe Thrust to lower their velocity to 0 in all cases, unless specifically commanded otherwise by a Control Unit (see p. 133).

Orders (Aggressive, Atmospheric Operations Only): In atmosphere, the robotic unit will move at its Maximum Thrust in the direction of the nearest hostile large craft (or any nearest hostile craft if the robotic unit is a fighter or small craft). If the robotic unit's Max Thrust is insufficient to intercept, it will instead enter combat patrol pattern based on its unit type and altitude, as described below.

Spheroid DropShips, spheroid small craft, and airborne mobile structures at any altitude will reduce their lateral velocity to 0 before rising to their maximum atmospheric altitudes to hover in place. These units will maintain their hover until a new Event Trigger overrides this action or they run critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while hovering, it will descend to land. Otherwise, it will return to the start of its Decision Tree.

Aerodyne DropShips, aerodyne small craft, and fighters on the High Altitude Map will expend Safe Thrust to move in a straight line while maintaining their current altitude. On the next turn, they will continue to use Safe Thrust to turn and fly in the opposite direction. They will continue to do this, reversing course every turn, until a new Event Trigger overrides this action or the unit runs critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while flying back and forth in this manner, it will descend to land. Otherwise, it will return to the start of its Decision Tree.

Aerodyne DropShips, aerospace small craft, and fighters on the Low Altitude Map will begin a hexagonally-shaped patrol pattern at their current altitude by proceeding the minimum number of hexes in a straight line before taking their next free facing change to the right (see p. 77, *TW*). They will continue this pattern, always turning to the right, to produce a continuous loop, until a new Event Trigger overrides it or the unit runs critically low on fuel. If a robotic unit runs down to less than 10 points of fuel while circling in this manner, it will attempt to return to base—or attempt a landing as close as possible to its base, if unable to reach it. Otherwise, it will return to the start of its Decision Tree.

Orders (Neutral): The robotic unit will follow the same procedures outlined for an Aggression level of Aggressive, but will only expend Safe Thrust in its attempt to close with the hostile target.

Orders (Defensive): The robotic unit will expend Safe Thrust to lower its velocity to 0 (thus attempting to maintain its current position). If the robotic unit is a fighter or small craft and a friendly unit with empty fighter/small craft cubicles lies within 250 hexes of its position, the robotic unit will move toward that unit at Safe Thrust, to dock with the allied unit for refueling and rearmament, unless specifically ordered by a Control Unit not to do so. Otherwise, the robotic fighter or small craft will maintain a velocity to 0, awaiting further instructions or another Trigger event.





AEROSPACE OPERATIONS RIC DECISION TREE (CONTINUED)

11. EVENT: Bingo Targets

Event Trigger: No hostile targets lie within the immediate combat area (555 hexes for robotic large craft; 55 hexes for robotic fighters, satellites, and small craft).

Orders (Aggressive): The robotic unit will follow the same movement orders defined for Aggressive units in Event 10. While doing so, the unit will make an active Radar (Object) Detection Roll (see p. 106, SO) every turn. If a hostile large craft is detected and the robotic unit is itself a large craft, return to the top of the Decision Tree. If a hostile unit of any type is detected within 50 hexes by a robotic fighter, satellite or small craft unit, go to Event Trigger 8. For all other cases, return to the start of the unit's Decision Tree.

Orders (Neutral or Defensive): The robotic unit will follow the same movement orders defined for Defensive units in Event 10. While the unit is loitering, it will conduct passive sensor sweeps for hostile targets. If a large craft is detected in this manner, return to the start of the unit's Decision Tree. If, on the other hand, the robotic unit is a fighter or small craft within 250 hexes of a friendly unit that possesses empty fighter/small craft cubicles, it will expend Safe Thrust to intercept the allied unit and dock (unless specifically commanded otherwise by a Control Unit). If a robotic unit is in atmosphere when a Bingo Targets event is triggered, the unit will attempt to land at the nearest friendly airfield or—if none exist—the largest concentration of friendly forces within its detection range. In all other cases, return to the start of the unit's Decision Tree.

12. EVENT: Hibernation

Event Trigger: Robotic unit is a large craft (DropShip, WarShip, or airborne mobile structure) with no hostile targets found within its radar detection range (5,555 hexes).

Orders (Aggressive, Space Operations Only): The robotic unit will conduct a patrol of the area, moving 1,000 hexes in a random direction by accelerating for the first 500 hexes, then decelerating until it reaches a Velocity of 0. If no hostile large craft are detected, the unit will return to its original position and repeat the above process in a new direction. If, while doing this, the unit detects a hostile large craft at any point, return to the start of the unit's Decision Tree.

Orders (Aggressive, Atmospheric Operations Only): Robotic units operating in atmosphere will perform the same actions described in Event 10 (Minimal Threat) for units with an Aggression level of Aggressive.

Orders (Neutral): The robotic unit will attempt to land at the nearest friendly airfield or dock with the nearest friendly large craft that possesses a suitable landing/recovery system for the unit's type. If no such option is present, the unit will follow the protocols for an Aggressive unit under this event trigger. If a hostile large craft is detected at any point in this process, return to the start of the unit's Decision Tree.

Orders (Defensive): The robotic unit will attempt to land at the nearest friendly airfield or dock with the nearest friendly large craft that possesses a suitable landing/recovery system for the unit's type. If no such option is present, the unit will rise to orbit (intentionally crossing the interface layer), and enter a safe orbit before shutting down. The unit will remain inactive, but with any internal defenses still running, until it receives further orders from a valid Control Unit. While shut down, the robotic unit will cease to process Event Triggers until reactivated

TRANSPORT RIC DECISION TREE

The following is a modification for the normal Aerospace Operations RIC Decision Tree, applicable to robotic aerospace units operating under Mission: Transport. They are used in conjunction with the Aerospace Operations Robotic RIC Command Decision Tree (see pp. 144-147).

Overriding Orders

These orders will take effect whenever conditions are met, regardless of any Event Triggers that are met. As with the Event Triggers, these overriding orders are processed in list order.

Targeting:

If a hostile large craft enters the robotic transport unit's forward arc at Short or Medium weapons range, and the robotic transport unit did not attack another target the previous turn, it will attack that large craft with all available weapons.

Navigating:

Based on the Aggression level, set prior to the start of the mission, their behavior will be:

Aggressive: If Event 8: Target Acquired is triggered, the drone will cease active navigation and engage the standard Aerospace Operations RIC Decision Tree protocols with an Aggression level of Aggressive and will continue to use the standard Decision

Tree until Event 9: Minimal Threat is triggered. Once Event 9 is triggered, the transport unit will return to its previous course.

Neutral: If Event 8: Target Acquired is triggered, the drone will attempt to evade the hostile units it has detected. While attempting to evade, the drone unit must move closer to its destination at least 1 turn out of every 3 turns spent engaging in evasive maneuvers.

If Event 7: Target in Range is triggered, the drone will cease its active navigation and engage the Aerospace Operations RIC Decision Tree protocols using an Aggression level of Neutral, continuing such operations until Event 9: Minimal Threat is triggered. Once Event 9 is triggered, the robotic transport unit will return to its previous course.

Defensive: If the robotic transport unit detects any hostile targets within its sensor range, it will attempt to avoid the hostile target by any means necessary.

If fired upon, the robotic transport unit will return fire, so long as this does not prevent it from continuing to evade its target.

If Event 1: Omega is triggered, the transport drone will cease its active navigation and engage the standard Aerospace Operations RIC Decision Tree with an Aggression level of Aggressive, and continue to use those protocols until Event 9: Minimal Threat is triggered. Once the threat has abated, the robotic unit will return to its previous course.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



GROUND OPERATIONS RIC DECISION TREE

The Decision Tree for ground-based robotic units is somewhat more involved than that found for aerospace units. Where Aggression levels remain a key component of these decisions, mission parameters are more nuanced, and the greater impact of local terrain and movement options will further influence what a robotic unit can do at this level of play.

The following rules apply to ground-based robotic units mounting one of the various SRCS systems. If the rules refer to a specific control system, those rules only apply to units mounting that system.

Tiered Decision Trees

To address the more diverse variables and constraints that face them, ground-based robotic units (including VTOL and WiGE vehicles) operate under a tiered set of Decision Trees, capped by an overriding set of mission orders. The mission orders define the drone's overall operational parameters, providing it an overall objective, constraints, primary targets, and movement profiles. The robotic unit then uses a Movement Decision Tree to determine how it traverses the battlefield, and a Hostile Target Selection Tree to determine which targets it will attack at any given time.

Prior to combat, the controlling players of all ground-based robotic units must select a Primary Mission for such units, define all Mission Variables, and select the units' Aggression levels.

Ground Unit Missions

Each Mission is made up of a number of variables that define the robotic unit's overall goals and parameters the unit will work toward during combat. These missions, as defined under *Ground-Based Robotic Unit Missions* (see pp. 150-151), feature the following key variables:

Mission Objective: This is the robotic unit's overriding objective. Unless it has triggered an Event: Omega, the robotic unit will always work to achieve this objective. If a robotic unit is given more than one mission objective, these objectives are prioritized in the order they are written.

Mission Objectives may not be changed during the scenario, but Control Units may relay periodic modifications via their normal rules, including changes to the units' Aggression levels or assigning priority targets (see *General Robotic Game Rules*, pp. 128-134).

Primary Target: During combat, ground-based robotic units must determine which specific hostile unit to target based on its threat level (see *Hostile Target Selection Tree*, p. 152). By designating pre-set primary targets, the controlling player establishes any targets that might override the standard selection tree.

As with Mission Objectives, mission-based Primary Targets may not be changed once set before the scenario, but an active Control Unit can assign priority targets during game play.

Target Exclusions: By default, robotic ground units will adhere to a "Standard" level of target exclusion. Under Standard target exclusion, ground-based robotic units will ignore DropShips, mobile structures, buildings and Large-size support vehicles (including trains and naval vessels). In addition to these basic exclusions, the controlling player may instruct his robotic units to ignore certain steps of the *Hostile Target Selection Tree* (see p. 152), to eliminate other "invalid" targets.

Any target exclusions from the Standard that a robotic unit will recognize throughout a scenario must be set prior to the start of gameplay, but Control Units may also issue commands for short-term commands in accordance with the rules for such Control Units under the *General Robotic Unit Game Rules* (see pp. 128-134). This last option enables the Control Unit to assign priority targets, if need be, by effectively adding a "Step 0" to the Target Selection Tree.

There are two types of Target Exclusions: Total Target Exclusion and Primary Target Exclusion. Under Total Target Exclusion, the robotic unit will not target any of the unit types found in its exclusion list,

even if they are hostile or engaging in attacks against friendly units; as a result, only a command sent from a human-operated Control Unit will direct the robotic unit to attack an excluded target. Under Primary Target Exclusion, the robotic unit will *only* fire on an excluded target if no valid, Primary Targets exist in sensor range at all (and the non-Primary excluded target is hostile).

Chris will be playing the Word of Blake in the Devils Tower track from Jihad Hotspots Terra. He will be fielding several Revenant robotic BattleMechs (see p. 153, JHS: Reckoning). Chris wishes to task his Revenants specifically with targeting infantry and light armor, freeing his forces for bigger game. At the start of gameplay, he sets his Revenants to Primary Target Exclusion, with only conventional infantry, battle armor, and combat vehicles of equal or lighter weight class set as Primary Targets. Throughout the battle, his Revenants will only attack their Primary targets—infantry, battle armor, and light vehicle units—ignoring all other hostile unit types unless they can no longer find any hostile infantry, battlesuits, and light vehicles within their weapons range.

Dan, meanwhile, is deploying a robotic Demolisher tank on a battlefield set within a rail yard full of civilian equipment. He knows the assault tank is ill-equipped to handle conventional Infantry, and does not want it wasting ammunition on such low priority targets or the abundance of non-combat vehicles that surround it. He thus notes that his robotic Demolisher will set its Target Exclusions to Total Target Exclusion mode for all conventional infantry and support vehicle units. During the battle to come, the Demolisher will ignore those unit types entirely, even if the only hostiles within range are enemy foot soldiers.

Optimal Weapon Range: During combat, a ground-based robotic unit will try to keep its target at the most optimal range for its weapon systems. To determine a robotic unit's optimum weapon range, first look at the Medium range brackets for all of its ranged weapons, adding together the damage values for any overlapping range brackets (such as multiple medium lasers, or medium lasers and SRM launchers together). The range bracket that delivers the greatest damage potential will become the unit's optimal weapon range.

For example, a robotic *Grasshopper* carries 1 large laser, 1 LRM 5 launcher, and 4 medium lasers. Looking at the range brackets for this 'Mech, the large laser's medium range bracket (6 to 10 hexes) has a maximum damage potential of 8 points; the LRM 5's medium range bracket (8 to 14 hexes) has a maximum damage potential of 5 points; and the medium lasers' range bracket (4 to 6 hexes) has a maximum damage potential of 20 points (5 points x 4 medium lasers = 20). Because the medium lasers can deliver the most potent damage at their medium range, that range bracket—4 to 6 hexes—becomes the *Grasshopper's* optimal weapon range bracket.

Preferred Range: By default, a robotic unit's Preferred Range is the same as its optimal weapon range. Sometimes, however, a robotic unit's optimal range can put it in an overly aggressive position, risking the unit to deadly return fire. For case where optimum range is not desired, the robotic unit's controlling player can set an alternate preferred range band for the robotic unit to engage its target from. This Preferred Range bracket is the range which the robotic unit will attempt to maintain between itself and all hostile units it engages in combat.

A given preferred range bracket can be set strictly as a number of hexes applied to all robotic units equally, or can be defined as a range band relative to the weapons used to determine the particular unit's optimum weapon range. These more relative preferred-range brackets are defined in the Preferred Range Bracket Suggestions Table.

PREFERRED RANGE BRACKET SUGGESTIONS TABLE

Range Bracket	Definition
None/Medium	Default setting: Use the unit's optimum weapon range bracket.
Short	Use the short range bracket for the unit's optimum range weapons.
Far-Short	Use the maximum short-range hex for the unit's optimum range weapons.
Medium-Short	Combine the short and medium range brackets for the unit's optimum range weapons.
Far-Medium	Use the 2 farthest hexes of the medium range bracket for the unit's optimum range weapons.
Medium-Long	Combine the medium and long range brackets for the unit's optimum range weapons.
Long	Use the long range bracket for the unit's optimum range weapons.
Far-Long	Use the farthest 3 hexes of the long range bracket for the unit's optimum range weapons.
Extreme	Use the extreme range bracket for the unit's optimum range weapons (see p. 83, <i>TO:AR</i>).

If a ground-based robotic unit is outside of its preferred range bracket for more than 2 consecutive Weapon Attack Phases, it will make all attempts to return to its default optimal range, so long as this does not otherwise violate its mission objectives.

As with other mission parameters, the controlling player must set the mission's preferred range prior to the start of gameplay. Once set, the unit's preferred range may not be changed, even under orders from a Control Unit.

Ground-Based Robotic Unit Movement Basics

How a robotic unit moves in a scenario depends on both its mission parameters and its Aggression level. As each mission provides a basic set of objectives to work toward, some may also cover movement variables, such as designating navigational waypoints the unit must routinely patrol, or which serve as "home base" in the event of a need to retreat.

In addition to using the Ground Movement Decision Tree to resolve movement actions by a ground-based robotic unit (see p. 150), the following details general rules for how Aggression level plays into robotic movement protocols.

Defensive: A ground-based robotic unit set to a Defensive Aggression level will work to preserve itself and remain operational, in addition to any other mission orders. All of its movement actions will thus be based on this underlying survival drive, as follows:

The robotic unit will not engage in an action that will knowingly require a Piloting skill roll (such as entering a building, or turning on pavement while running).

If it is a 'Mech, the robotic unit will use Careful Stand (see p. 22, *TO:AR*) if its target number to stand is greater than 4.

The robotic unit will always maximize its to-hit modifier for target movement, even if doing so will result in to-hit numbers of 12 or higher to attack its current target. (However, the robotic unit will try to maintain its preferred weapon range.)

The robotic unit will only use jump jets to retreat from combat. When jumping, the robotic unit must always land farther away from the hostile unit it has currently engaged than when it started, and may also not end up closer to any other hostile unit at the end of their jump.

Neutral: A robotic unit set to a Neutral Aggression level will choose a balanced approach to protecting its own safety while ensuring it can still present a hostile target to its opposition, as follows:

When advancing to its preferred range, the robotic unit will not take actions that would knowingly require a Piloting skill roll or result in damage to itself.

Once within its preferred range, the robotic unit will seek to generate the highest to-hit modifier for target movement that it can, up to the point where it creates to-hit numbers of 10 or more to attack its current target.

Aggressive: A robotic unit set to an Aggression level of Aggressive has a primary mission to destroy all designated hostile units, regardless of any concerns for its own safety. To reflect this, its movement actions will be tailored for offensive maneuvers at the expense of defense, as follows:

Once a target is selected, the robotic unit will maneuver to its preferred range as fast and as directly as it can, employing any movement mode to do so, even if it means risking a Piloting Skill roll to accomplish this (for instance, by using Jumping MP, moving through buildings, running over icy terrain, and so forth).



The Revenant drone BattleMech operates in mindless swarms that seek their target's destruction.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Once within its preferred range, the robotic unit will always seek the lowest to-hit numbers possible when attacking its primary target. This may even involve reducing its speed to Cruising/Walking rate, or even becoming stationary.

Robotic units with physical attack abilities (other than ramming/charging) will also close to physical attack range if the opportunity presents itself—but only if doing so gives the potential physical attack a to-hit number of 6 or less.

MOVEMENT DECISION TREE (GROUND UNITS)

The following protocols outline the priority of movement decisions for ground-based robotic units. Unlike the aerospace Decision Trees, these protocols do not wait for triggers and events. Instead, they rely on an assessment of the unit's mission parameters and pre-programmed tactical considerations. These maneuver decisions are modified by the basic maneuvering protocols (see *Ground-Based Robotic Unit Movement Basics*, pp. 149-150).

Step 1: Mission vs. Target Priorities

Offensive Mission: In an offensive mission, Primary targets take automatic priority over other physical objectives. If a Primary target is within range and between the robotic unit and its physical objective, the robotic unit will make the Primary target its main objective until the target is destroyed.

Defensive Mission: In a defensive mission, the physical objectives take priority over other Priority targets. The robotic unit will make defending or achieving its physical objective its primary mission, and thus will not pursue hostile units that move out of range, if doing so means leaving the primary objective unguarded.

Step 2: Avoid Deadly Physical Contact

If a hostile unit has not yet moved, the robotic unit will not enter the potential movement range of that unit, but only if it assesses that the damage from a physical attack by that hostile unit would be enough to cripple or destroy the robotic unit. (This assessment only covers the effects of raw physical attack damage versus the robotic unit's armor and structure; it does not cover "lucky" hits, such as those that may result from a Hit Location roll of 2.)

Exception 1: For the purposes of this step, robotic 'Mechs treat their head location as the sum of both armor and internal structure for purposes potential damage, and will avoid closing with a target that can potentially deliver enough damage to destroy their head in a single punch attack without the use of physical enhancements like triple-strength myomers. (Thus, a robotic unit which has a total

of 10 points of armor and structure in its head will not close with a hostile 'Mech weighing 100 tons or more, but may not recognize the threat of a 50-ton 'Mech equipped with triple-strength myomer.)

Exception 2: Robotic units ignore this restriction if the hostile unit is a hovercraft, VTOL, hydrofoil vessel, aerospace unit, or fixed-wing support vehicle.

Step 3: Keep Front toward Enemy

A robotic unit will always attempt to end its movement with its rear arc facing away from all hostile units. If this is not possible, it will attempt to face the hostile unit with highest starting Battle Value.

Step 4: Get to Enemy's Rear

A robotic unit will attempt to end its movement in the rear arc of any Primary target hostile units. If this is not possible, move on to the next step.

Step 5: Stay at Preferred Range

The robotic unit will attempt to maintain its preferred weapon range.

Step 6: Seek the Highest To-Hit Target Modifier

A robotic unit will attempt to generate the highest possible to-hit modifier against potential enemy fire by using its own movement and terrain to generate those modifiers. Note that this step may be overridden by the robotic unit's Aggression level (see *Ground-Based Robotic Unit Movement Basics*, pp. 149-150).

Step 7: Seek the Lowest To-Hit Attack Modifier

The robotic unit will attempt to attain the lowest possible to-hit modifier for its own attacks against its first valid Primary target. Once again, this step may be overridden by the robotic unit's Aggression level (see *Ground-Based Robotic Unit Movement Basics*, pp. 149-150).

GROUND-BASED ROBOTIC UNIT MISSIONS

Mission: Take and Hold (Offensive)

The robotic unit has been assigned to secure a specific physical objective or location on the map.

Setup/Rules: Prior to the start of gameplay, the defending player designates a section of the game map as the objective for the assault. The targeted location may be no more than 3 hexes by 3 hexes in size per combat unit in the attacking player's force (so a target area for a lance of attacking units can be as large as 12 hexes wide, by 12 across). The target area need not be a single structure of any type; it could be a cluster of buildings, or merely be a section of terrain surrounding a single point of interest.

The objective area must be located on the Defender's half of the map and reachable by at least 25 percent of the Attacking force.

Objectives:

1. Enter any portion of the objective area. Once this objective is achieved, the robotic unit will not exit the objective area of its own accord, and will not willingly leave the area for longer than 1 turn. The robotic unit may exit the objective area only if doing so will enable it to generate higher target to-hit modifiers for defensive purposes (see *Movement Decision Tree*, above), but the unit will then attempt to return in the subsequent turn.
2. Cripple or destroy all hostile units within the objective area.

Priority Targets: Any hostile unit within the designated objective area.

Target Exclusions: Standard

Suggested Preferred Range: Medium





GROUND-BASED ROBOTIC UNIT MISSIONS (CONTINUED)

Mission: Assault (Offensive)

The robotic unit has been assigned to attack all hostile units within a specific physical objective or location.

Setup/Rules: The assault mission uses the same setup rules as Take and Hold Mission.

Objectives:

1. Cripple or destroy all units within the objective area.

Priority Targets: Any hostile unit within the designated objective area.

Target Exclusions: Standard

Suggested Preferred Range: Medium

Mission: Defend (Defensive)

The robotic unit has been assigned to defend a specific physical objective or location.

Setup/Rules: Prior to the start of gameplay, the defending player designates a section of the game map or a single friendly unit as the defense objective. If a fixed location, the targeted location may be no more than 3 hexes by 3 hexes in size, per combat unit in the attacking player's force. The objective area must be on the Defender's side of the map, and reachable by at least 25 percent of the Attacking force.

Objectives:

1. A robotic unit performing a Defend mission will not willingly spend more than 2 consecutive turns outside of its objective area. It may move out of the area only if doing so will allow it to generate a higher target-to-hit modifier (see *Movement Decision Tree*, p. 150), but the unit will then attempt to return in the subsequent turn.

Priority Targets: Any hostile unit within the objective area. If no hostile units are within the objective area, any hostile unit within the mission's preferred range, as measured from the center of the objective area.

Target Exclusions: Standard

Suggested Preferred Range: Far-Medium (Minimum: 0 hexes; Maximum: Long range)

Mission: Recon (Offensive)

The robotic unit's primary mission is to gather information on a specific objective or location.

Setup/Rules: Regardless of the map's set up, the robotic unit will attempt to close to scanning range of any and all Priority targets (and any buildings within the battle area) to scan them.

To attempt a detailed scan, the robotic unit must end its Movement Phase within 3 hexes of the target unit or building (5 if the unit is equipped with any form of active probe equipment), for 2 consecutive turns. If the unit is forced to break away or loses its line of sight to the target, the scan is interrupted and must be attempted again.

A robotic unit attempting this detailed scanning action may not fire any weapons or make physical attacks during the time it takes to complete a scan if it lacks an active probe of any type.

Objectives:

1. If buildings exist on the playing field, the robotic unit will attempt to scan each building.
2. The robotic unit will attempt to achieve LOS with all hostile units and buildings in the battle area, and scan them as well.

Priority Target: Closest hostile combat unit. If more than one, target the highest BV first.

Target Exclusions: Standard

Suggested Preferred Range: Long (to a Minimum range of 2 hexes)

Mission: Harass (Defensive)

The robotic unit's primary mission is to maintain a given distance with a specific set of opposing combat units.

Setup/Rules: At the start of game play, the controlling player must identify which units in the hostile force are the robotic unit's opposing force. This may be as few as 1 unit, or as many of the opposing force's units as there are presently on the map.

During each weapons attack phase, the robotic unit will attempt to fire on as many targets as are within its range. It will fire its highest-BV weapon at its Primary target, then it will attempt to fire its next-highest BV weapon at the nearest hostile unit that is not its primary target, and so on. This dispersed firing process can only be overridden to enable focused fire on a single target by a command from a friendly Control Unit.

Objectives:

1. Stay within weapons range of at least one hostile unit at all times

Priority Targets: Closest unit of the opposing force.

Target Exclusions: Standard

Suggested Preferred Range: Far-Medium, (Minimum: 12 hexes, Maximum: Long range)

Mission: Hunt (Offensive)

The robotic unit's primary mission is to destroy a specific set of opposing combat units, designated as its opposing force.

Setup/Rules: Follow the same rules for selecting the opposing force as defined in Mission: Harass.

Objectives:

1. Destroy all units in the opposing force.

Priority Targets: Whichever opposing units deliver the highest level of potential damage (of those that lie within the robotic unit's weapons range).

Target Exclusions: Standard

Suggested Preferred Range: Medium

Mission: March (Defensive)

The robotic unit's primary mission is to move through a series of specified map points in order.

Setup/Rules: At the start of game play, the controlling player must designate each robotic unit's route. This is done by establishing a series of numbered waypoints. Up to 2 waypoints may be set per individual *BattleTech* mapsheet (16 x 17 hexes). Any waypoint on a valid exit edge of the map (as determined by the scenario) may be designated as an exit waypoint. A robotic unit that starts its movement on this exit waypoint will leave the playing field in that turn.

During game play, the robotic unit will travel from waypoint to waypoint, based on its designated movement profile.

Objectives:

1. Travel through each waypoint in order, and exit the map via the final waypoint.

Priority Targets: None

Target Exclusions: Standard

Suggested Preferred Range: Long, Min-6, Max-None

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

HOSTILE TARGET SELECTION TREE (GROUND UNITS)

At the start of each Weapons Attack Phase, a robotic ground unit must determine its potential targets by using the Hostile Unit Selection Tree, modified as necessary by any Preferred Target and Target Exclusion mission variables.

As with other Decision Trees, the robotic unit selects its target by starting at the top of the tree and proceeds through each step until a valid target is identified by the corresponding criteria. The robotic unit will then fire at the target with all weapons that can possibly hit it. Robotic units will not attack targets that are out of range, or which the robotic unit determines are impossible to hit (i.e., the line of sight is blocked, or the to-hit number to attack it comes to 13 or more). Only

targets that can be hit—even if it requires a to-hit roll of 12 to do so—are valid targets to a robotic drone.

Starting BV: If assessing a target's priority based on Battle Value, use only the base BV for that unit type and variant. Do not include modifiers for pilots, special munitions, or other similar BV modifications.

Multiple Matches: If more than one hostile target exists that fits the listed criteria, and no additional instructions exist to determine the target (such as a mission objective), the robotic unit will fire at the target with the lowest to-hit modifier. If this still leaves more than one option that fits the listed criteria, the robotic unit will determine its target at random.

Step	Criteria
1	Any Primary Target units which has a modified to-hit roll of 5 or less to attack (regardless of range), and which is of equal or lower weight class to the robotic unit.
2	Any Primary Target units which has a modified to-hit roll of 5 or less to attack (regardless of range), and which is of any weight class.
3	Any target fired at in the previous 2 turns of play, as long as the target has a modified to-hit roll of 9 or less to attack.
4	Any Primary Target which has a modified to-hit of 9 or less to attack, regardless of range and weight class.
5	Any target actively engaged by other units in the robotic unit's lance or platoon, and which is also within the robotic unit's optimal range. (Optimal range is any range bracket where the robotic unit receives its lowest possible range-based attack modifiers.)
6	Any target that has a modified to-hit roll of 5 or less, regardless of range and weight class. Exception: Conventional infantry and Small-size support vehicles are ignored in this step.
7	Any aerospace or conventional fighter that is currently conducting a strafing, striking or bombing attack on the mapsheet that the robotic unit occupies. If more than one such unit exists, the robotic unit will target the largest unit. If more than one exists at the same weight, randomly select which is targeted. Exception: If the robotic unit lacks any weapons with a range of 10 hexes or more, skip this step.
8	Any BattleMech of the same or lower weight class as the robotic unit. If multiple possible targets exist, the robotic unit will start with any targets of equal weight class to itself, moving down to the next weight class if none exist. If more than one target of a valid weight class exists, the robotic unit will target the one with the highest starting BV.
9	Any Combat Vehicle (Tracked, Wheeled, Naval Displacement, Naval Submarine) of the same or lower weight class as the robotic unit. Follow the process in Step 8 for multiple weight classes or units of the same weight.
10	Any Primary Target Combat Vehicle (Hover, VTOL, WiGE, Naval Hydrofoil) of the same or lower weight class. Follow the process in Step 8 for multiple weight classes or multiple units of the same weight. Note: Treat VTOLs weighing 25 to 50 tons as medium weight class for the purposes of this selection process.
11	Any IndustrialMech, of any weight class, that is equipped with heavy (vehicle-scale) weapons. If there is more than one such unit to choose from, the robotic unit will target the one with highest starting BV.
12	Any BattleMech of high weight class than the robotic unit. If multiple possible targets exist, the robotic unit will start with any targets of equal weight class to itself, moving up to the next weight class if none exist. If more than one target of a valid weight class exists, the robotic unit will target the one with the highest starting BV.
13	Any Combat Vehicle (Tracked, Wheeled, Naval Displacement, Naval Submarine) of the higher weight class than the robotic unit. Follow the process in Step 12 for multiple weight classes or units of the same weight.
14	Any Primary Target Combat Vehicle (Hover, VTOL, WiGE, Naval Hydrofoil) of higher weight class than the robotic unit. Follow the process in Step 12 for multiple weight classes or multiple units of the same weight. Note: Treat VTOLs weighing 25 to 50 tons as medium weight class for the purposes of this selection process.
15	Any ProtoMech or battle armor. If multiple targets exist, the priority order is: ProtoMechs 7 tons and up, assault-class battle armor, ProtoMechs 5 to 6 tons, heavy-class battle armor, ProtoMechs weighing 4 tons, medium-class battle armor, ProtoMechs 2 to 3 tons, light-class battle armor, and finally PA(L)s and/or exoskeletons.
16	Any Medium-size Support Vehicles (of any weight class) which are also equipped with heavy (vehicle-scale) weapons. If there is more than one such unit, the robotic unit will target the one with highest starting BV.
17	Any Conventional Infantry. If more than one conventional infantry unit exists, the robotic unit will target the one with the highest starting Battle Value.
18	Any grounded aerospace fighters, conventional fighters, small craft, fixed-wing support vehicles, or airship support vehicles. If more than one such unit exists, the robotic unit will target aerospace fighters first, then small craft, conventional fighters, fixed-wing support vehicles, and airship support vehicles—in that order.
19	Any IndustrialMech of any weight class.
20	Any Medium- or Small-size support vehicle, of any type.



HEAT MANAGEMENT DECISION TREE

The Heat Management Decision Tree applies only to units that can track heat and exceed their normal safe limits during gameplay—specifically, BattleMechs, IndustrialMechs, and aerospace fighters. As all other units cannot overheat by design, heat management decisions do not apply to them.

Aggressive:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 9 points in a given turn. If the unit's excess heat exceeds 13 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 5 points.
- **Aerospace Fighters:** These units may voluntarily overheat by up to 9 points in any given turn. If the unit's excess heat exceeds 14 points in any End Phase, the robotic unit can perform no other action beyond basic movements at a Safe Thrust rate, until its heat level drops below 5 points.

Neutral:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 7 points in a given turn. If the unit's excess heat exceeds 13 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 5 points.
- **Aerospace Fighters:** These units may voluntarily overheat by up to 4 points in any given turn. If the unit's excess heat exceeds 9 points in any End Phase, the robotic unit can perform no other action beyond basic movements at a Safe Thrust rate, until its excess heat level drops to 0 points.

Defensive:

- **BattleMechs and IndustrialMechs:** These units may voluntarily overheat by up to 2 points in a given turn. If the unit's excess heat exceeds 7 points during any End Phase, the robotic unit may perform no other action beyond basic movements at Walking or Running rates during all subsequent turns, until the excess heat levels fall below 0 points.
- **Aerospace Fighters:** These units may not voluntarily conduct any actions that will cause them to overheat. If the unit exceeds 4 points of excess heat during any End Phase, it can perform no other action in all subsequent turns, beyond basic movement at a Safe Thrust rate, until its heat levels have returned to 0.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Introduced: 2940 (Free Worlds League [Superheavy IndustrialMech]), 3076 (Word of Blake [Superheavy BattleMech])

Although numerous attempts were made to break through the "hundred-ton barrier" ever since the earliest years of BattleMech use, these efforts were long stymied by the practical limitations in chassis, myomer, and actuator demands, coupled with the skyrocketing weight-to-power ratios of combat-grade fusion engines. While a few specialized industrial-grade superheavy 'Mechs did emerge over the centuries, the first real success even in this venture—Brooks, Incorporated's *Three-Man Digging Machine*—did not appear until the early 2900s, and was specifically designated for use in low-gravity environments where its oversized mass was less crippling.

Meanwhile, the failures of superheavy BattleMech concepts throughout the ages were legion. By far the most infamous of these was the *Matar*, the template for the original Clan *Behemoth* 'Mech, which was developed under the brief reign of Stefan Amaris in the final years of the original Star League. Also known as "Amaris' Folly," that superheavy 'Mech attempt never even made it past the prototype stage.

The *Matar's* legendary failure would live on through the Succession Wars, and was most often cited example of why no BattleMech could ever break the hundred-ton barrier. Then, in 3078, the Word of Blake unveiled its deadly *Omega*-class BattleMechs during their final defense of Terra. Far from a prototype, the *Omegas* drew on post-Clan Invasion technology advancements that finally put BattleMechs as heavy as two hundred tons within the realm of practicality.

SUPERHEAVY 'MECH GAME RULES

Rules Level: Advanced

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (D/XFFF [Superheavy IndustrialMechs]); Inner Sphere (E/XXFF [Superheavy BattleMechs])

Superheavy BattleMechs and superheavy IndustrialMechs are available in two-legged (biped) and four-legged (quad) body types, just like standard 'Mechs. (Tripod superheavy 'Mechs are also possible, but the additional features of three-legged 'Mechs are covered instead under tripod 'Mechs, and thus will not be fully discussed here; see pp. 157-159 for more information on tripod 'Mechs.)

In game play, superheavy 'Mechs function in accordance with the standard rules for a 'Mech of their type, but with the following modifications:

Movement Phase

Superheavy 'Mechs modify the standard movement rules for BattleMechs as indicated below:

Unit Height: Superheavy 'Mechs are considered to stand 3 levels (18 meters) tall for line of sight purposes. When prone (or hull down), a superheavy 'Mech is treated as if it stands 2 levels high for line of sight purposes. Superheavy 'Mechs do not receive any cover modifiers for terrain that stands 2 levels or more below their current height. Thus, a superheavy 'Mech standing upright in Depth 1 water, or behind a Level 1 building would receive no partial cover benefits, but if the same unit stood in Depth 2 water, or behind a Level 2 hill, partial cover rules *would* apply.

Stacking Limits: Superheavy 'Mechs are so massive that no other vehicles or 'Mechs may share the same hex as they occupy. Even friendly vehicles and 'Mechs must maneuver around a superheavy 'Mech's hex during the Movement Phase. (Infantry—including battle armor—remain unimpaired, and treat a superheavy 'Mech as a standard 'Mech for stacking limits.)

Movement: Superheavy 'Mechs reduce by 1 the MP cost for the following terrain types: Woods, Jungle, Rough, Rubble, and Buildings. All other terrain types and conditions (including elevation changes and lateral movement for quads) cost the same number of MPs as they do for standard-size 'Mechs.

Combat Phase

Superheavy 'Mechs modify the standard combat rules for BattleMechs as indicated below:

Attack Modifiers: All weapon and physical attacks against a superheavy 'Mech receive a -1 to-hit modifier, to reflect the target's larger silhouette. All physical attacks performed by a superheavy 'Mech suffer a +1 to-hit modifier, to reflect the reduced agility of their oversized actuators and structure. If a physical attack between two units includes a superheavy 'Mech on a different level, consult the Different Levels Table (Superheavy 'Mechs) below. This table adds to the one found in *Total Warfare* (see p. 150, TW).

Infantry: Anti-'Mech infantry attacks against superheavy 'Mechs receive a -2 to-hit modifier, to reflect the greater ease of such attacks due to the superheavy 'Mech's sheer size and lower range of motion. Despite its greater size, however, a superheavy 'Mech may not be subjected to more than one anti-'Mech swarm attack at any one time.

Mechanized Infantry: Even though superheavy 'Mechs are substantially larger than normal 'Mechs, they may not carry more than one battle armor squad per 'Mech under the Mechanized Battle Armor rules.

Critical Hits: Although items in the arms, legs, and torsos of a superheavy 'Mech effectively compress 2 critical slots' worth of items for every 1 superheavy slot, a critical hit to any item on a superheavy 'Mech's record sheet is always treated as a "single" critical hit, unless the slot stores ammunition or heat sinks.

If a critical hit on a superheavy 'Mech strikes an ammunition slot, *all* ammunition in that superheavy 'Mech slot is affected, even if it contains two standard slots' worth of munitions. Likewise, a critical hit to any slots that contain multiple heat sinks (as may occur in the case of standard or compact heat sinks) will destroy *all* of the sinks in that superheavy critical slot.

As with normal rules, critical hits to a superheavy critical slot that has been previously marked off will have no further effect and must be re-rolled.

Gyro Hits: Even though superheavy 'Mechs make use of a specially-modified "superheavy gyro", this system is just as prone to damage as a standard gyro type. It therefore only takes 2 critical hits to destroy a superheavy 'Mech's gyro.

Compact Engines: If the superheavy 'Mech mounts a compact fusion engine, the engine is considered destroyed at 2 critical hits, rather than 3.

Additional Superheavy 'Mech Rules

Superheavy 'Mechs apply the following additional rules in game play:

Buildings: Superheavy 'Mechs cannot climb buildings. When entering or exiting a building, superheavy 'Mechs apply a +4 target number modifier for all Piloting rolls made to determine if the structure sustains damage.

Advanced Movement and Piloting: If using the advanced *Taking Damage* rules (see p. 21, *TO:AR*), superheavy 'Mechs apply a -4 Piloting Skill target modifier for their weight class. If using any Bog Down special rules (see p. 60, *TO:AR*), superheavy 'Mechs apply an additional +1 Piloting Skill target modifier to avoid bog down effects.

Transporting Superheavy 'Mechs: Superheavy 'Mechs may be transported by DropShips, but because dedicated superheavy 'Mech cubicles do not currently exist, they must be transported as bulk cargo and cannot be dropped from airborne transports.

SUPERHEAVY 'MECH CONSTRUCTION RULES

Superheavy BattleMechs and superheavy IndustrialMechs are available in two-legged (biped), three-legged (tripod), and four-legged (quad) body types, just like standard 'Mechs. The construction of a superheavy 'Mech follows the rules for designing a standard-size 'Mech of equivalent type (IndustrialMech or BattleMech), but with the following modifications:

Record Sheet

Superheavy 'Mechs use the Superheavy 'Mech Record Sheets appropriate to their body configuration. Note that while the slots and locations on these record sheets are identical to those found on standard 'Mech record sheets, the much larger interior capacities are taken into consideration in the rules for Superheavy Critical Space (see p. 157).

Step 1: Design the Chassis

The following modifications for superheavy 'Mechs apply to Step 1 of 'Mech construction (designing the chassis):

Choose Technology Base: Superheavy BattleMechs and superheavy IndustrialMechs are available only to the Inner Sphere Tech Base under these rules. The Clans do not produce superheavy 'Mechs, having abandoned the concept during their formation.

Choose Weight (Tonnage): Superheavy 'Mechs weigh from 105 tons to 200 tons in total mass, increasing in 5-ton increments.

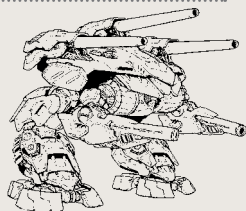
Configurations: Superheavy 'Mechs may be constructed as two-legged, three-legged, or four-legged designs. Superheavy BattleMechs may be constructed as OmniMechs, but superheavy IndustrialMechs may not.

DIFFERENT LEVELS TABLES (SUPERHEAVY 'MECHS)

Target is:	Allowed Physical Attack (Hit Location Table Used)
Standing Superheavy 'Mech 1 level higher	Charge, Punch, Club, Physical Weapon (All on Kick Table)
Standing Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Standing Superheavy 'Mech 2 levels lower	Charge, Kick, Club, Physical Weapon (All on Punch Table)
Prone Superheavy 'Mech 1 level higher	Punch, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 2 levels lower	None



Fred decides he's going to build a superheavy 'Mech. He knows it can only have an Inner Sphere Tech Base and so settles on making it a Word of Blake design used during the defense of Terra towards the end of the Jihad.



While he's tempted to go straight for 200 tons, Fred decides to try a mid-sized superheavy first, and settles on 150 tons.

Superheavy Internal Structure

To support their massive weight, superheavy 'Mechs use an enhanced form of internal structure known as Superheavy Structure. Superheavy internal structure is available in industrial (for superheavy IndustrialMechs only), as well as standard, endo steel, and endo composite (for superheavy BattleMechs only).

Industrial Superheavy Structure: Industrial superheavy structure takes up 40 percent of the superheavy IndustrialMech's total weight (rounded up to the nearest half ton), and occupies no slots on the superheavy IndustrialMech's Critical Hits Table.

Standard Superheavy Structure: Standard superheavy internal structure takes up 20 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and takes up no critical space on the superheavy BattleMech's Critical Hits Table.

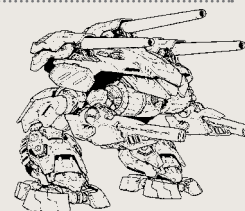
Superheavy Endo Steel Structure: Superheavy endo steel structure takes up 10 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and occupies 7 slots on the superheavy 'Mech's Critical Hit Table (the equivalent of 14 critical slots on a standard BattleMech).

Superheavy Endo Composite Structure: Superheavy endo composite structure, a hybrid of standard and endo steel design, takes up 15 percent of a superheavy BattleMech's total weight (rounded up to the nearest half ton), and occupies 4 slots on the superheavy 'Mech's Critical Hit Table (the equivalent of 7 critical slots on a standard BattleMech).

Other Structure Types: Under these rules, no other internal structure types are available to superheavy 'Mechs. Tripod superheavy 'Mechs add 10 percent to the internal structure weight of a superheavy 'Mech.

Structure Points: To find the number of points of structure per location that a superheavy 'Mech's structure provides, consult the Superheavy 'Mech Structure Table. Note that even the head location on a superheavy 'Mech will possess more internal structure than found on normal-size 'Mechs, increasing from 3 points on 'Mechs under 105 tons in total weight, to 4 points for 'Mechs over 100 tons. (Likewise, the maximum number of armor points the superheavy 'Mech's head can support is also increased, from 9 points to 12.)

Fred settles on using superheavy endo steel. He reviews the Superheavy 'Mech Structure Table to determine that for a 150-ton superheavy 'Mech the structure weighs 15 tons and will take up 7 critical slots. At this stage, after another review of that table, he marks the internal structure on the record sheet down to 4 in the head, 45 in the center torso, 32 in the left and right torso, 25 in each arm and finally 32 in each leg.



SUPERHEAVY 'MECH STRUCTURE TABLE

Total 'Mech Mass	Superheavy Structure Weight				Internal Structure Points by Location				
	Standard	Endo Composite	Endo Steel	Industrial	Head	Center Torso	R/L Torso	Each Arm	Each Leg
105	21	16	10.5	42	4	32	22	17	22
110	22	16.5	11	44	4	33	23	18	23
115	23	17.5	11.5	46	4	35	24	19	24
120	24	18	12	48	4	36	25	20	25
125	25	19	12.5	50	4	38	26	21	26
130	26	19.5	13	52	4	39	27	21	27
135	27	20.5	13.5	54	4	41	28	22	28
140	28	21	14	56	4	42	29	23	29
145	29	22	14.5	58	4	44	31	24	31
150	30	22.5	15	60	4	45	32	25	32
155	31	23.5	15.5	62	4	47	33	26	33
160	32	24	16	64	4	48	34	26	34
165	33	25	16.5	66	4	50	35	27	35
170	34	25.5	17	68	4	51	36	28	36
175	35	26.5	17.5	70	4	53	37	29	37
180	36	27	18	72	4	54	38	30	38
185	37	28	18.5	74	4	56	39	31	39
190	38	28.5	19	76	4	57	40	31	40
195	39	29.5	19.5	78	4	59	41	32	41
200	40	30	20	80	4	60	42	33	42

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Step 2: Install Engines and Control Systems

The following rules modifications for superheavy 'Mechs apply to Step 2 of 'Mech construction (installing engines and control systems):

Install Engine: The Engine Rating for a superheavy 'Mech is computed as normal. Superheavy IndustrialMechs may only use standard and large fusion engine types, while superheavy BattleMechs can use any fusion engine type (including Compact, Standard, Light, XL, XXL, and Large). The weights for fusion engines may be found in their appropriate engine tables in *TechManual* (see p. 49, *TM*) or *Tactical Operations* (p. 120, *TO:AUE*). Non-fusion engine types lack the power to keep a superheavy 'Mech mobile, and so such engines may not be selected, regardless of the superheavy 'Mech's nature.

The critical slot space requirements of a superheavy 'Mech's engine are half of those normally required in a similar standard BattleMech (rounded up). See *Step 5: Add Weapons and Equipment*, page 157, for more information.

Add Gyroscope: Regardless of their type, all superheavy 'Mechs must employ a superheavy gyro. All other gyro types lack the durability and stress tolerances necessary to keep these oversized machines balanced. A superheavy gyro weighs as much as a heavy-duty gyro of equal capacity, and thus can be calculated by dividing the 'Mech's Engine Rating by 100 (rounding up to the nearest whole number), and then multiplying the result by 2.

On a superheavy 'Mech, the superheavy gyro occupies only two critical slots in the center torso.

Determine Jump Jets (or Underwater Maneuvering Units): The challenges of supporting and balancing a superheavy 'Mech as it stands, walks, or runs have proven so significant that no jump jet systems have been devised yet that are capable of safely providing Jump MP for these machines. Superheavy 'Mechs thus may not mount jump jets, improved jump jets, jump boosters, or partial wings of any type.

Likewise, no UMU equipment has been developed that can safely propel and maneuver a superheavy 'Mech underwater. Underwater maneuvering units thus may not be installed in a superheavy 'Mech.

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Fred wants to pile on the weaponry for his massive ride and so decides on an XL. But he also knows that you simply can't make such a big machine fast; and it doesn't need to be, as it's a mildly mobile weapons platform. He decides on a Walking MP of 2. That means the machine will require a 300-rated engine. After checking the Master Engine Table in TechManual, he allocates 9.5 tons to the engine. He knows there are some space rules he'll need to deal with surrounding critical slot allocation, so he holds off on that part until later. That creates a running total of 24.5 tons.

Since a Superheavy Gyro is the only option, Fred assigns 6 tons to that (Engine Rating 300 ÷ 50 = 6); as with the engine, he decides to assign critical slots later. Fred now has a 30.5 tons running total.

Because of its mass, Fred notes that his superheavy 'Mech cannot employ jump jets or other alternative motive systems.

Add Cockpit: The cockpit assembly for a superheavy 'Mech is reinforced, and provides 4 points of internal structure in the head location, with a maximum potential armor level of 12 points. The weight of this reinforced cockpit is 4 tons.

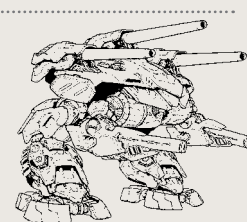
Under these rules, superheavy 'Mechs cannot use standard-size 'Mech cockpits, Small Cockpits, Torso-Mounted Cockpits, Interface Cockpits, or Drone Cockpit types. Superheavy 'Mechs with a biped or quadruped chassis configuration can install Command Consoles, however.

As a special exception, superheavy tripod 'Mechs must use the 5-ton superheavy tripod cockpit instead of the standard superheavy 'Mech cockpit. Because the superheavy tripod cockpit duplicates features of the Command Console, superheavy Tripod 'Mechs cannot make use of a separate Command Console.

Physical Enhancements: In order to meet the incredible demands of their design, superheavy 'Mechs use larger actuators and thicker, harder myomer bundles to provide the strength, flexibility, and resilience they need. This musculature is incompatible with all forms of MASC, Triple-Strength Myomers, and the Actuator Enhancement System.

For similar reasons, superheavy 'Mechs also cannot make use of Superchargers.

.....
Fred knows the only options for the cockpit is the unique 4-ton design used for superheavy 'Mechs and so allocates that tonnage. This gives him a running total of 34.5 tons.



Step 3: Add Additional Heat Sinks

Superheavy 'Mechs mount heat sinks just like their standard-weight counterparts. This includes the ability to select any heat sink type available to the unit's Tech Base, as well as receiving 10 heat sinks free with the 'Mech's fusion engine.

The number of heat sinks that must be allocated on the superheavy 'Mech's record sheet are also computed in the same fashion as standard-size 'Mechs, but depending on the heat sink type chosen, the unique critical space rules for superheavy 'Mechs may impact how many heat sinks can be placed per critical slot. See *Step 5: Add Weapons and Equipment*, page 163, for more information.

Step 4: Add Armor

The following rules modifications for superheavy 'Mechs apply to Step 4 of 'Mech construction (add armor):

Aside from the exceptions noted here, superheavy BattleMechs can use any and all types of armor available to BattleMechs, while superheavy IndustrialMechs can use any and all types of armor available to IndustrialMechs. As with standard-sized 'Mechs, the maximum armor points per location is equal to twice the location's internal structure value, and all torso locations must divide this armor between front and rear facings. A superheavy 'Mech's head location may carry up to 12 points of armor.

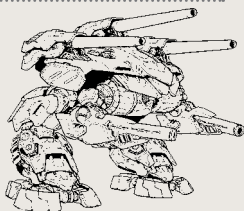
Modular Armor: Under these rules, superheavy 'Mechs may not install modular armor.

Armored Components: Under these rules, superheavy 'Mechs may not use armored components.

Stealth Systems: The sheer size of a superheavy 'Mech's profile renders it unable to use stealth armor and other stealth systems effectively. Thus, BattleMech stealth armor, the Chameleon Light Polarization Shield, the Null-Signature and Void-Signature Systems all have no effect when mounted on a superheavy 'Mech. (ECM Suites still function normally, however.)



As a walking pill-box, Fred decides he wants this armored to the gills. However, he doesn't max out the armor, but comes close, assigning 27 tons of standard armor. He marks the excess circles off the record sheet as he assigns the armor points as follows: 12 to the head, 60 to the front center torso (20 to the back), 45 to the front right and left torsos (19 to both rears), 44 to each arm and finally 62 to each leg. The running total is now 61.5 tons.



Step 5: Add Weapons and Equipment

The following rules modifications for superheavy 'Mechs apply to Step 4 of 'Mech construction (adding weapons, ammo, and other equipment):

Aside from the restrictions noted earlier, superheavy 'Mechs mount weapons just like their standard-weight counterparts. In addition to this, a superheavy 'Mech can also mount artillery weapons ordinarily denied to standard-weight 'Mechs, as long as the unit has the tonnage and space to do so.

Superheavy Critical Space: The immense size of the superheavy chassis provides ample internal space in the torsos, arms, and legs, but simultaneously requires heavier and bulkier actuators to function. As a result, all equipment mounted in a superheavy 'Mech—other than arm and leg actuators, sensors, life support, and the cockpit—effectively occupies half of its ordinary critical slot space (rounded up). This rule includes all non-actuator and non-internal structure critical slots, including those for armor, weapons, ammunition, heat sinks, and engines.

Except for ammunition and heat sink slots (as specifically described below), critical slots may not be shared between different items. For example, if a Superheavy 'Mech were to carry two autocannon/10s (7 critical slots each, when mounted on a standard-size 'Mech), each autocannon would occupy 4 slots on the superheavy 'Mech ($7 \div 2 = 3.5$, round up to 4), for a total of 8 slots occupied—not 7 slots for the two combined.

Additional Weapon Rules: Superheavy 'Mechs may ignore the torso-only mounting restrictions applied to Heavy Gauss Rifles (standard and improved), and may place these items in the arms if desired. Superheavy 'Mechs may also mount up to two items of industrial equipment per body location (see pp. 241-249, *TM*), even if the item normally has a one-per-location limit.

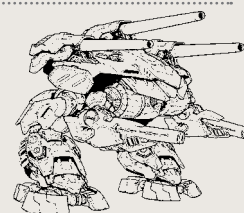
Ammunition: In the case of ammunition bins, every critical slot of ammo placed in the torsos, arms, or legs of a superheavy 'Mech may carry up to two slots of ammunition. This rule does not change the number of shots provided per ton of ammunition; it merely reflects the number of ammo slots that may be "doubled

up" in one critical space. Only ammunition of the same weapon type may be combined in this fashion, but if the weapon in question uses multiple ammo types, the different types (by ton) can be combined in the same Superheavy critical slot. (In such a case, the controlling player must always keep track of the different ammo types that are sharing the slot.)

Heat Sinks: Superheavy 'Mechs may carry as many heat sinks per critical slot as will fit into two critical hit slots on a standard 'Mech. This means that a superheavy 'Mech can fit up to 2 standard (single) heat sinks per critical slot, or 1 Clan double heat sink (if using Mixed-Tech rules), or 4 compact heat sinks. Inner Sphere double heat sinks require two critical hits on a Superheavy 'Mech, but cannot share critical slots. When noting the location of slots where more than one heat sink is present, the number of heat sinks occupying the slot must be identified in the critical hit table.

It's now time to assign weaponry, and Fred comes up with the following:

- 2 LB 10-X ACs for 22 tons
- 4 tons of LB-X ammo
- 3 Gauss rifles for a total of 45 tons
- 10 tons of Gauss ammo
- 4 CASE II for 4 tons
- An Improved C³ Computer for 2.5 tons



That generates a total of 88.5 tons. Since all his weaponry is so heat efficient, Fred decides he doesn't need to add any more heat sinks beyond the 10 that come with the engine. Combined with the 61.5 tons running total, he's now got a complete 150-ton design.

Now it's time to tackle the space rules to finish filling out his record sheet. Reviewing the rules again, Fred knows that all weapons, ammunition and equipment take up half the usual number of slots, rounding up. With that in mind, he assigns the follow:

In each arm: 3 LB 10-X AC slots, a single LB 10-X AC ammo slot which contains 20 shots, and finally a CASE II slot.

In each side torso: 2 XL Fusion engine slots, 4 Gauss rifle slots, 2 Gauss ammo slots with 16 shots each, a CASE II slot, and a Superheavy Endo Steel slot.

In each leg: two Superheavy Endo Steel slots.

In the center torso: he notes the 3 Fusion Engine Slots are XL, the 2 Superheavy Gyro slots are already assigned, then he allocates 4 Gauss rifle slots, 1 Gauss ammo slot with 16 shots, an Improved C³ CPU slot, and a CASE II slot.

In the head: a Superheavy Endo Steel slot.

He's now done. He names it the SHP-4X Omega, and now it's time to try it out on the battlefield!

TRIPOD 'MECHS (MULTIPLE ERAS)

Introduced: 2585 (Terran Hegemony [Standard sizes]); circa 3135 (Republic of the Sphere [Superheavy])

Remarkably enough, three-legged 'Mechs were first conceived and built long before the unveiling of the Republic of the Sphere's superheavy "Colossals". The first tripod BattleMech, known as the *Hedgehog*, was actually devised in the early days of the Star League. The configuration was relatively straightforward, but the

counterintuitive structure and controls left these units a mere curiosity for centuries.

Tripod 'Mechs thus languished as fringe concepts, even rarer than ultralight BattleMechs, with the most recent example before the Colossals appeared being the *Three-Man Digging Machine*, a low-gravity WorkMech that also distinguished itself as being the first practical superheavy 'Mech.

INTRODUCTION

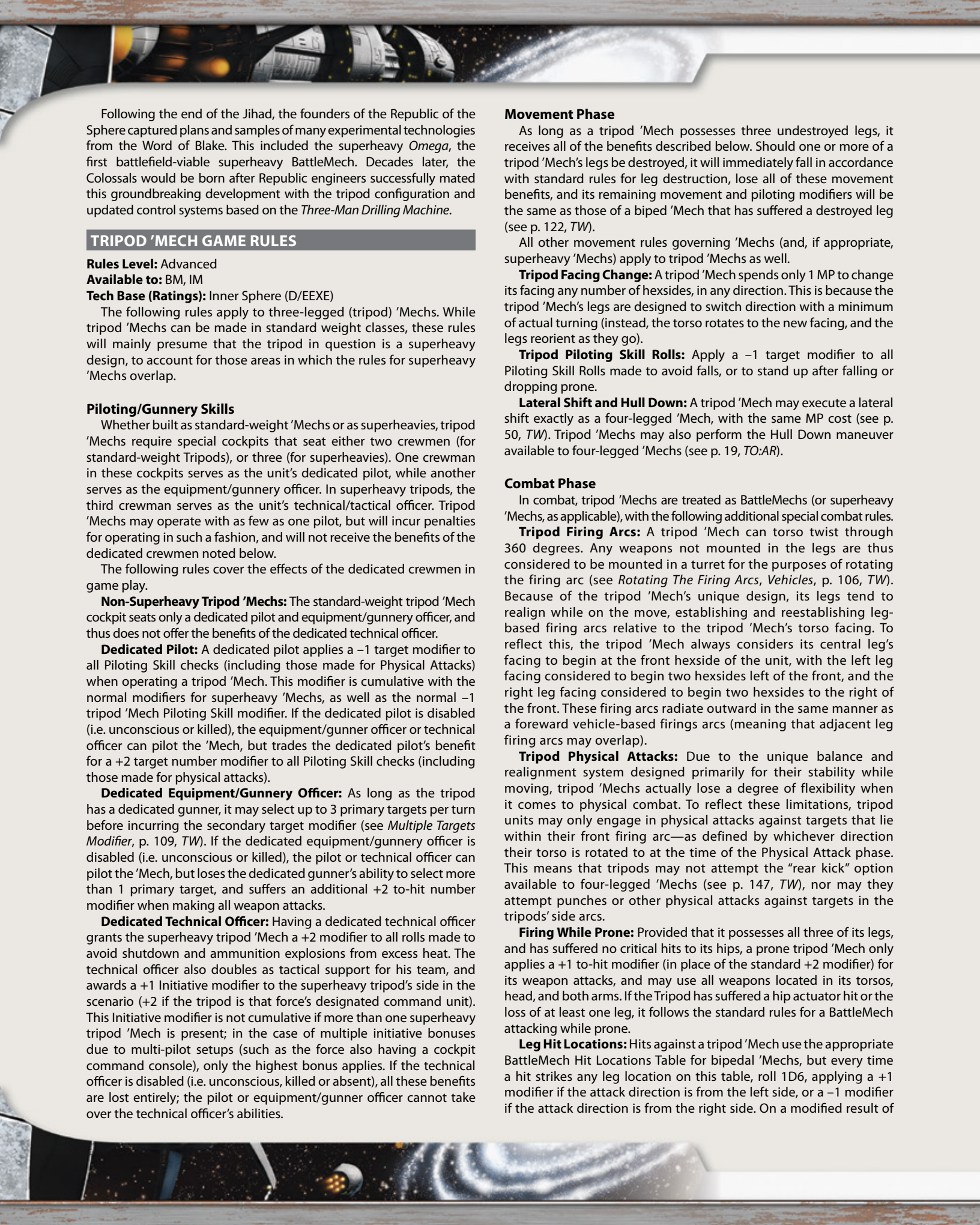
ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Following the end of the Jihad, the founders of the Republic of the Sphere captured plans and samples of many experimental technologies from the Word of Blake. This included the superheavy *Omega*, the first battlefield-viable superheavy BattleMech. Decades later, the Colossals would be born after Republic engineers successfully mated this groundbreaking development with the tripod configuration and updated control systems based on the *Three-Man Drilling Machine*.

TRIPOD 'MECH GAME RULES

Rules Level: Advanced

Available to: BM, IM

Tech Base (Ratings): Inner Sphere (D/EEEXE)

The following rules apply to three-legged (tripod) 'Mechs. While tripod 'Mechs can be made in standard weight classes, these rules will mainly presume that the tripod in question is a superheavy design, to account for those areas in which the rules for superheavy 'Mechs overlap.

Piloting/Gunnery Skills

Whether built as standard-weight 'Mechs or as superheavies, tripod 'Mechs require special cockpits that seat either two crewmen (for standard-weight Tripods), or three (for superheavies). One crewman in these cockpits serves as the unit's dedicated pilot, while another serves as the equipment/gunnery officer. In superheavy tripods, the third crewman serves as the unit's technical/tactical officer. Tripod 'Mechs may operate with as few as one pilot, but will incur penalties for operating in such a fashion, and will not receive the benefits of the dedicated crewmen noted below.

The following rules cover the effects of the dedicated crewmen in game play.

Non-Superheavy Tripod 'Mechs: The standard-weight tripod 'Mech cockpit seats only a dedicated pilot and equipment/gunnery officer, and thus does not offer the benefits of the dedicated technical officer.

Dedicated Pilot: A dedicated pilot applies a -1 target modifier to all Piloting Skill checks (including those made for Physical Attacks) when operating a tripod 'Mech. This modifier is cumulative with the normal modifiers for superheavy 'Mechs, as well as the normal -1 tripod 'Mech Piloting Skill modifier. If the dedicated pilot is disabled (i.e. unconscious or killed), the equipment/gunner officer or technical officer can pilot the 'Mech, but trades the dedicated pilot's benefit for a +2 target number modifier to all Piloting Skill checks (including those made for physical attacks).

Dedicated Equipment/Gunnery Officer: As long as the tripod has a dedicated gunner, it may select up to 3 primary targets per turn before incurring the secondary target modifier (see *Multiple Targets Modifier*, p. 109, *TW*). If the dedicated equipment/gunnery officer is disabled (i.e. unconscious or killed), the pilot or technical officer can pilot the 'Mech, but loses the dedicated gunner's ability to select more than 1 primary target, and suffers an additional +2 to-hit number modifier when making all weapon attacks.

Dedicated Technical Officer: Having a dedicated technical officer grants the superheavy tripod 'Mech a +2 modifier to all rolls made to avoid shutdown and ammunition explosions from excess heat. The technical officer also doubles as tactical support for his team, and awards a +1 Initiative modifier to the superheavy tripod's side in the scenario (+2 if the tripod is that force's designated command unit). This Initiative modifier is not cumulative if more than one superheavy tripod 'Mech is present; in the case of multiple initiative bonuses due to multi-pilot setups (such as the force also having a cockpit command console), only the highest bonus applies. If the technical officer is disabled (i.e. unconscious, killed or absent), all these benefits are lost entirely; the pilot or equipment/gunner officer cannot take over the technical officer's abilities.

Movement Phase

As long as a tripod 'Mech possesses three undestroyed legs, it receives all of the benefits described below. Should one or more of a tripod 'Mech's legs be destroyed, it will immediately fall in accordance with standard rules for leg destruction, lose all of these movement benefits, and its remaining movement and piloting modifiers will be the same as those of a biped 'Mech that has suffered a destroyed leg (see p. 122, *TW*).

All other movement rules governing 'Mechs (and, if appropriate, superheavy 'Mechs) apply to tripod 'Mechs as well.

Tripod Facing Change: A tripod 'Mech spends only 1 MP to change its facing any number of hexsides, in any direction. This is because the tripod 'Mech's legs are designed to switch direction with a minimum of actual turning (instead, the torso rotates to the new facing, and the legs reorient as they go).

Tripod Piloting Skill Rolls: Apply a -1 target modifier to all Piloting Skill Rolls made to avoid falls, or to stand up after falling or dropping prone.

Lateral Shift and Hull Down: A tripod 'Mech may execute a lateral shift exactly as a four-legged 'Mech, with the same MP cost (see p. 50, *TW*). Tripod 'Mechs may also perform the Hull Down maneuver available to four-legged 'Mechs (see p. 19, *TO:AR*).

Combat Phase

In combat, tripod 'Mechs are treated as BattleMechs (or superheavy 'Mechs, as applicable), with the following additional special combat rules.

Tripod Firing Arcs: A tripod 'Mech can torso twist through 360 degrees. Any weapons not mounted in the legs are thus considered to be mounted in a turret for the purposes of rotating the firing arc (see *Rotating The Firing Arcs, Vehicles*, p. 106, *TW*). Because of the tripod 'Mech's unique design, its legs tend to realign while on the move, establishing and reestablishing leg-based firing arcs relative to the tripod 'Mech's torso facing. To reflect this, the tripod 'Mech always considers its central leg's facing to begin at the front hexside of the unit, with the left leg facing considered to begin two hexsides left of the front, and the right leg facing considered to begin two hexsides to the right of the front. These firing arcs radiate outward in the same manner as a forward vehicle-based firings arcs (meaning that adjacent leg firing arcs may overlap).

Tripod Physical Attacks: Due to the unique balance and realignment system designed primarily for their stability while moving, tripod 'Mechs actually lose a degree of flexibility when it comes to physical combat. To reflect these limitations, tripod units may only engage in physical attacks against targets that lie within their front firing arc—as defined by whichever direction their torso is rotated to at the time of the Physical Attack phase. This means that tripods may not attempt the "rear kick" option available to four-legged 'Mechs (see p. 147, *TW*), nor may they attempt punches or other physical attacks against targets in the tripods' side arcs.

Firing While Prone: Provided that it possesses all three of its legs, and has suffered no critical hits to its hips, a prone tripod 'Mech only applies a +1 to-hit modifier (in place of the standard +2 modifier) for its weapon attacks, and may use all weapons located in its torsos, head, and both arms. If the Tripod has suffered a hip actuator hit or the loss of at least one leg, it follows the standard rules for a BattleMech attacking while prone.

Leg Hit Locations: Hits against a tripod 'Mech use the appropriate BattleMech Hit Locations Table for bipedal 'Mechs, but every time a hit strikes any leg location on this table, roll 1D6, applying a +1 modifier if the attack direction is from the left side, or a -1 modifier if the attack direction is from the right side. On a modified result of



0-2, the attack strikes the tripod's right leg; on 3-4, the attack strikes its central leg; and on 5-7, the attack strikes the left leg. Excess damage to the center leg transfers directly to the center torso, while excess damage from either side leg transfers to its adjacent side torsos.

Pilot Damage: Only the tripod 'Mech's dedicated pilot (or whichever pilot is presently handling the Piloting Skill checks) will suffer damage as a result of ammunition explosions. Pilot hits due to heat effects and damage to the head, meanwhile, will apply to all crewmen in the tripod's cockpit.

In the event of a fall, each crewmen must make separate Piloting Skill checks to avoid taking damage, applying any modifiers appropriate to both the 'Mech and the crewman making the Piloting Skill check as appropriate.

If the dedicated pilot is killed or rendered unconscious, another crewman can automatically take over, provided at least one is present (see *Piloting/Gunnery Skills*, p. 158, for the modifiers that would apply to such a situation). If all crewmen in a tripod's cockpit are killed, or the Cockpit critical slot is destroyed, the tripod 'Mech is considered destroyed per the standard game play rules for cockpit destruction.

TRIPOD 'MECH CONSTRUCTION RULES

Tripod 'Mechs follow all the same construction rules as biped 'Mechs of equivalent weight and type (including superheavy 'Mechs), with the following modifications:

Record Sheet

The tripod 'Mech uses a unique record sheet that incorporates its third leg. Superheavy tripods have their own superheavy version of that same record sheet which features three pilot condition monitors as opposed to the standard one.

Internal Structure

A tripod 'Mech's third leg receives the same number of structure points as the 'Mech's other two legs. To reflect the additional limb and its required musculature, the total weight of a Tripod's internal structure—regardless of type—must be increased by 10 percent (rounding up to the nearest half ton).

Cockpit

Tripod 'Mechs weighing up to 100 tons must mount a special 4-ton cockpit, which seats its two crewmen. Superheavy tripod 'Mechs—which weigh from 105-200 tons—must mount a special, 5-ton advanced cockpit, which seats its three crewmen. These cockpit weights and seating capacity remain the same, regardless of whether the tripod is an IndustrialMech or a BattleMech, though IndustrialMech cockpits will lack the fire control and ejection systems of their BattleMech equivalents.

No other cockpit types are available to tripod 'Mechs under these rules. Tripod 'Mechs may not install Small Cockpits, Torso-Mounted Cockpits, Interface Cockpits, or Drone Cockpits, nor can they be constructed with a Cockpit Command Console.

If Design Quirks are in play, Tripod 'Mech cockpits may receive the Rumble Seat or Cramped Cockpit Quirks.

Despite the weight differences, all Tripod cockpits occupy the same number of critical slots on the unit's respective critical hit tables.

Weapons and Equipment

Tripod 'Mechs may mount weapons and equipment in accordance with the standard rules for a 'Mech of equal weight and size.

Distributed Equipment: For special equipment that needs to be spread across multiple body sections—such as stealth armor, the Blue Shield particle field dampener, and the Chameleon light polarization shield—the use of a tripod structure requires additional critical slots for those items. These extra slots must be allocated to the tripod's third leg in accordance with the item's construction rules.

THERMOBARIC WEAPONS (MULTIPLE ERAS)

Introduced: Pre-Spaceflight

Thermobaric weapons are not considered to be weapons of mass destruction, although some—most notably, high-yield fuel-air explosives (FAEs)—are often seen as such thanks to some of their visual effects (and a healthy dose of media hype). Essentially designed to aerosolize a high-combustible fuel source so that it mixes into the surrounding air before ignition, thermobarics derive their destructive force from both intense heat and the explosive force of this rapid, wide-area ignition. Because of this, such weapons are useless in low-atmosphere environments and vacuum, and have minimal effect against heavily fortified structures.

Incendiary LRM munitions are one of the most common types of thermobaric weapons used by the Inner Sphere and Clan forces, but other forms include fuel-air explosives available in both artillery and air-droppable formats.

FUEL-AIR MUNITIONS GAME RULES

Rules Level: Advanced

Available to: BM, IM, CV, SV, CF, AF, SC

Tech Base (Ratings): Inner Sphere (C/EFEE), Clan (C/XEEE)

Airborne units capable of dropping bombs (including those with internal bomb bays) may carry fuel-air munitions as bombs. All other unit types must employ them as an alternate ammo type for the appropriate artillery weapon system (including Long Tom,

Sniper, Thumper artillery weapons, as well as the Arrow IV missile battery). Artillery Cannons (see p. 97, *TO:AUE*) can also fire fuel-air munitions. In all of these cases, fuel-air munitions deliver their attacks in accordance with the appropriate weapon system and unit type, with the following exceptions:

Damage Yield and Area of Effect: The base damage values and area of effect (in hexes) for all common Fuel-Air Munitions are given in the Fuel-Air Munitions Table.

Atmospheric Density: Fuel-Air Munitions (FAMs) deliver no damage effects in Very Thin, Trace, or Vacuum atmospheric levels, nor do they have any effects when deployed in space. If used in Thin atmospheres, the munition's damage values are reduced by half (rounding up).

Airborne Units: Airborne units (fighters, airships, VTOLs, and any other units equipped with either bomb bays or external ordnance hardpoints) may only employ Fuel-Air Munitions as bombs. These bombs come in a small and large size; the small FAM bombs occupy only 1 hardpoint, while the large FAM bombs count as 2.

Infantry: All Fuel-Air Munitions are considered area-effect weapons that deliver incendiary effects coupled with a powerful overpressure wave that is quite effective against softer targets. As a result, all infantry units caught within a FAM's area of effect will suffer twice the weapon's damage value in that hex (doubled again if the unit is in clear or open terrain). In addition to this,

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

FUEL-AIR MUNITIONS TABLE

Fuel-Air Munition Type*	Damage Type	Damage Values (Radius)
Fuel-Air Bomb (Small)	AE	20/10/5 (Radius: 2)
Fuel-Air Bomb (Large)	AE	30/20/10/5 (Radius: 3)
Fuel-Air Missile (Arrow IV)*	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Thumper, Thumper Cannon)	AE	10/5 (Radius: 1)
Fuel-Air Shell (Sniper, Sniper Cannon)	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Long Tom, Long Tom Cannon)	AE	30/20/10/5 (Radius: 3)

*All values are identical for Clan and Inner Sphere versions

all infantry units must also roll 2D6 and add their distance from the FAM's point of impact (in hexes) from the result. If this modified roll is 9 or less for a conventional infantry unit, or is less than 7 for a battle armor unit, the remaining troops in the unit are also destroyed. Fire-resistant armor offers no special protection against the blast of a Fuel-Air Munition in this case.

Buildings and Low-BAR Units: If a light building or a unit with a Barrier Armor Rating (BAR) of less than 10 lies within a Fuel-Air Munition's area of effect, multiply the damage sustained from the

FAM's blast by 1.5 (rounding up). If a Castle Brian building lies within the FAM's area of effect, or if the building is armored (see pp. 112-121, *TO:AR*), reduce the munition's blast damage by half (rounding down) before applying all other effects.

Fire: The incendiary effect of a Fuel-Air Munition is short-lived compared to that of gel-based incendiaries like Infernos, thanks to the rapid expansion and collapse of the weapon's blast wave. To reflect this, use the rules for setting intentional fires to all terrain, units, and buildings within the weapon's area of effect (see pp. 41-42, *TO:AR*), but use the target number for a direct-fire energy

weapon (7+), rather than that of other incendiary weapons. Fires set by a FAM follow the standard rules for spreading, smoke, and the like, as presented on pages 43-44 of *Tactical Operations: AR*.

Heat: Although Fuel-Air Munitions are incendiary by nature, units caught in the blast of a FAM weapon will receive no additional heat from the weapon unless they or their current terrain hexes are set ablaze (see *Fire*, above). Otherwise, the blast of a FAM is simply too fast for heat-tracking units to register.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

Introduced: Various (See Rules)

The use of weapons of mass destruction—ranging from chemical weapons and biological agents to tactical and strategic nuclear warheads—predates mankind's exodus from Terra itself. Throughout the history of the Inner Sphere, the use of such weapons has not been unknown. During the Age of War and early Succession Wars, many realms and forces had no compunctions about resorting to nuclear strikes as their opening move, while the century or so prior to the Jihad saw these weapons deployed as a last resort only (if at all). In the Jihad, the Word of Blake resorted to a broad range of nuclear, chemical, and biological attacks as a means of quickly shattering enemy infrastructure and military forces both as a psychological strategy as well as a means to preserve their limited conventional strength against the combined armies of the Inner Sphere.

For most, the use of "WMDs" has long been seen as the first act of a coward, the threshold where civilized warfare ends. These weapons have been outlawed by numerous international and interstellar laws and edicts, of which the defunct (yet most often cited) Ares Conventions are but one in a series of many. Realms or leaders who resort to deploying such weapons invariably face charges of committing crimes against humanity, and among some powers—such as the Clans—even the *existence* of these weapons as a deterrent is seen as abhorrent in the extreme. And yet, despite all of this, virtually every realm and minor power in all of human-occupied space not only maintains a basic capability to manufacture these weapons, but also keeps stockpiles of them, ready for use at any time.

GENERAL WEAPONS OF MASS DESTRUCTION RULES

By and large, weapons of mass destruction (WMDs for short) should never be used in game play, as even the lightest nuclear devices and lethal bio-chemical weapons can significantly alter the outcome of a scenario or a campaign. To reflect this, nuclear and biological weapons receive no Battle Value to speak of. Game scenarios that use BV as a balancing factor should thus not permit the use of any weapons of

these items. More importantly, given the extreme nature of such weapons in standard game play, all players should read through these rules and agree to their use before play begins.

Individually, the game rules for using weapons of mass destruction are covered under *Nuclear Weapons* (see pp. 163-171), and *Biological and Chemical Weapons* (see pp. 172-176). The following general rules for acquiring and dealing with the consequences of WMD use, however, may be applied regardless of the weapons used.

Acquiring WMDs in Campaign Play

For campaign-level purposes, any military force may attempt to acquire functional WMDs; only the high level of authorization required for their deployment, and a general reluctance to employ such weapons prevents them from being commonplace. The ease with which any given force might obtain access to one or more weapons of mass destruction may be found determined by consulting the *General WMD Acquisition Table*. This table provides a generic listing of the most common tactical weapons found among the stockpiles of the various Inner Sphere and Periphery powers, broken down by the broad classes covered in each weapon type's rules.

To acquire a WMD in campaign play, a force's controlling player may make a 2D6 roll against the weapon's base target number twice per month. The TN is modified as appropriate for the force's experience, reliability, size, affiliation and equipment ratings, as well as the year in which the campaign is presently set and any willingness to pay double (or more) for the cost of these weapons if purchased. If any one or more conditions relevant to this roll are unknown, or if the players are using a force with conditions not specifically featured on the table (such as a force with a Veteran skill rating, or regular reliability), a value of +0 applies to the missing condition.

A roll result equal to or exceeding the target number indicates not only successful access to the desired weapon, but the availability of a number of such weapons equal to the roll's margin of success (to a minimum of 1, for a MoS of 0), which the force may then purchase at

GENERAL WMD ACQUISITION TABLE

Weapon Type	Base TN	C-bills (Warhead)	C-bills (Launcher)
<i>Nuclear Weapons</i>			
Custom Tactical	14 + (1 per 5 Kt Yield)*	1,000,000 x Kt Yield*	As Launcher
Custom Strategic	16 + (1 per 5 Mt Yield)*	10,000,000 x Mt Yield*	As Launcher
Type Ia "Davy Crockett-I"	15	500,000	1,000,000
Type Ib "Davy Crockett-M"	15	500,000	As Launcher
Type II "Alamo"	16	1,000,000	As Launcher
Type III "Santa Ana"	18	15,000,000	250,000
Type IV "Peacemaker"	19	40,000,000	500,000
Elias	14	10,000	N/A
AMW**	17	100,000,000	As Launcher
<i>Chemical Weapons</i>			
Class I (Non-Lethal)†	4	1,000 (per ton)	As Launcher
Class II	9	10,000 (per ton)	As Launcher
Class III	14	250,000 (per ton)	As Launcher
Class IV	16	1,000,000	As Launcher
Class V	18	5,000,000	As Launcher
<i>Biological Weapons</i>			
Class IV	16	5,000,000	As Launcher
Class V	18	50,000,000	As Launcher

*Round up; Nuclear yield values are in Kilotons (Kt) or Megatons (Mt) as appropriate

**Unavailable before 2790

†Multiply the number of available weapons of this class by 2D6 after making the availability roll

GENERAL WMD ACQUISITION MODIFIER TABLE

Condition	Modifier	Condition	Modifier
<i>Force Ratings</i>		ComStar	+0
Experience: Elite	-2	Free Worlds League	+1
Experience: Regular	+1	Capellan Confederation	+2
Experience: Green	+3	Lyran Commonwealth	+2
Loyalty: Fanatical	-2	Clans (All)	+4
Loyalty: Questionable	+4	Minor Power	+1
Equipment: A-B	-1	Independent (Non-Affiliated) World	+2
Equipment: D-F	+2	<i>Era of Play</i>	
<i>Force Size</i>		Before 2400	-1
Per full 'Mech regiment	-1 (max -3)	2401-2411	+0
Unit smaller than a regiment	+1	2412-2570	+2
<i>Force Affiliation</i>		2571-2765	-1
Original SLDF	-3	2766-2850	-2
Taurian Concordat/Calderon Protectorate	-3	2851-2865	+0
Other Periphery (Non-Taurian)	-2	2866-3067	+2
Word of Blake	-2	3068-3085	-1
Draconis Combine	-1	3086-3150	+2
Federated Suns	-1	<i>Cost</i>	
		Per each additional 1x cost spent	-2 (Max -6)

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

the price it named at the time of the roll. If the roll result is less than the modified target number, none of the desired weapons are available, but the force will still incur costs based on the search effort. These costs are expressed in C-bills for the purposes of these rules, but may be converted as desired by the agreement of all players.

Rolls made for larger commands may not be repeated for sub-forces (such as for a battalion within the same regiment) or vice versa (for each battalion and then the regiment they belong to) within the same month.

Anne commands a fanatical, regular-grade force with one 'Mech regiment from the Federated Suns. This force has an equipment rating of C, and is taking part in an action set during the FedCom Civil War (3062-3067). She is interested in obtaining Alamo-class nuclear weapons for her stockpile. The Alamos have a base TN of 17, and a base cost of 1,000,000 C-bills per warhead. (Anne is not interested in launchers; she plans to drop as bombs from fighters, if she uses them at all.)

The modified TN to obtain Alamos is thus 15 [16 (base TN) +1 (Regular) -2 (Fanatical) +0 (Equipment Rating C) -1 (1 'Mech regiment) -1 (Federated Suns affiliation) +2 (3062-3067 period) = 15]. Seeing as this would be an automatic failure, Anne declares that she is willing to pay 4 million C-bills per weapon—four times the base cost of these weapons, and thus a cost increase of three times over and above the base weapon price. This yields an extra modifier of -6 to her roll, so she now needs only a 9 to succeed.

Anne rolls and gets a result of 11—a margin of success of 2. There are two Alamo warheads available for purchase. Because she indicated her willingness to spend up to four times the weapon's costs, she must spend 8 million C-bills to purchase the two Alamos. (Had the roll failed, she still would have needed to spend 4 million C-bills, because she was willing to spend that much on one Alamo, but her effort had failed.)

She may attempt this roll again one more time during the current campaign month to increase her stockpile. Once again, Anne states she is willing to pay 4 million C-bills per Alamo, but this time the roll result is only 10, a MoS of 1. Anne can only purchase one more Alamo by the end of the month, bringing her force's stockpile to 3 Alamos, at a combined cost of 12 million C-bills (8 million for the earlier purchase, plus 4 million for the third weapon). Though she could have picked up some BattleMechs or armor for that money, Anne now has three five-kiloton nuclear bombs available for any last-ditch defense plans she might need...

Consequences of WMD Use

Per Articles I and VI of the Ares Conventions (and the various interstellar and regional laws of nearly every political entity in the Inner Sphere), the use of WMDs is considered a "crime against humanity". Thus, by the letter of the law, any force that uses said weapons should be branded rogue by every state, including that force's own government, unless particularly egregious mitigating circumstances apply (such as the use of nuclear weapons against an exclusively military spaceborne target like a WarShip).

In practice, ever since First Lord Ian Cameron suspended the Ares Conventions before the start of the Reunification War, thus absolving any Star League-affiliated force from penalty in the war to conquer the Periphery, universal enforcement of such conventions has fallen to a number of interstellar human rights organizations and the agencies of often-competing governments whose agendas vary with the politics of the day. Curiously enough, over the centuries, the forces most bound by the Conventions and their like have been mercenaries, whose likes have often been punished for any atrocity on the simple principle that their actions could always be disavowed by any governmental policies.

Because of the moral and legal complexities involved, players involved in a campaign where WMDs are deployed and used are largely left to their own devices on how to address any consequences of WMD use. Any reactions to WMD use should be considered based on era of play and the circumstances that led to the use of such weapons, as well as the type of force wielding the WMDs, the type of weapon used, the general level of WMD use by various opposing realms at the time, and so on.

If a more neutral arbitration is desired, players could also make use of the same process used to gain access to the WMD and repurpose it as a means of determining how much "fallout" affects the survivors of the force that employed such weapons. This process would use the TN of the weapon used, and apply all relevant modifiers to the force that used them (including the force's affiliation, experience, loyalty, and even equipment rating and extra cost spent—the latter factors suggesting legal expenses and/or political favors pulled to avoid repercussions).

If the roll succeeds, the survivors of the WMD-using force suffers no punishment or ill effects as a result of its transgression; otherwise, it will suffer a number of possible outcomes, based on the roll's margin of failure (MoF), as shown in the WMD Use Consequences Table (see below).

WMD USE CONSEQUENCES TABLE

Margin	Suggested Consequence
MoS 1+	No consequences
MoS 0	Slap on the Wrist. (Force suffers -1 Initiative for next 2 scenarios)
MoF 1-3	Morale Loss (Force suffers -MoF to Initiative for MoF x D6 scenarios)
MoF 4-7	Charges and Reprimands (Force reduced 1 step in Loyalty and/or Equipment Ratings)*
MoF 8-9	Severe Punishments (Force reduced 1 step in Loyalty, Equipment, and Experience Ratings)*
MoF 10+	Disbandment (Force is stricken from the rolls; all officers imprisoned or executed.)

*To minimum ratings (Questionable for Loyalty, F for Equipment, Green for Experience)



DK

The last hope for any victory is lost as the heat and pressure of a nuclear blast will soon wash over these warriors.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

NUCLEAR WEAPONS

Rules Level: Experimental

Available to: Various (See Rules)

Tech Base (Ratings): Inner Sphere (Variable, see Rules)

The best known (and most common) among modern WMDs, nuclear weapons come in a variety of yields and types. Used extensively throughout the Age of War prior the Ares Conventions, nuclear weapons remain an important tool within the arsenals of every major power, if only as a deterrent.

While the technology exists to make these weapons on virtually every industrialized world in the Inner Sphere, most nuclear arsenals are maintained by the larger interstellar nations, resulting in a curious standardization in warheads and delivery systems despite the sheer potential for variety. The vast majority of these weapons, fortunately, are tactical weapons, intended to end localized battles or wipe out small cities, military bases, or even individual WarShips at a single hit. Strategic weapons, capable of annihilating entire continents in just a few hits and rendering whole biospheres uninhabitable, are much fewer and far-between.

NUCLEAR WEAPONS GAME RULES

The methods for making an attack with a nuclear weapon can vary between delivery systems, with most dropped as bombs, fired from artillery weapons, or launched as capital-scale missiles. Some can even be delivered as mines or carried inside a target by infantry. The rules for several example weapons, including their typical delivery methods, are provided later, but all will follow the same rules upon detonation, as described here.

In general, the detonation of a nuclear weapon follows the basic pattern of an artillery strike from a capital missile launcher, delivering area-effect damage centered on a single point (hex) of the ground map, and radiating outward, losing damage strength

over distance until it drops to zero. But between the sheer scale of these weapons—which can radiate for entire mapsheets in all directions and rise high enough to affect even airborne units several kilometers above the battlefield—and the secondary effects of electromagnetic radiation, heat, and fire, these weapons have a number of special effects rules that apply as well. These various effects will be detailed further below.

In space, nuclear weapons function like capital missiles, delivering damage on impact, followed by a potential critical hit. Once again, the scale and power of a nuclear weapon modifies these rules somewhat.

Game data for the most common tactical nuclear weapons in the *BattleTech* universe (mostly those of 500-kiloton yields or less) are listed in the *Standard Nuclear Weaponry Table*, but formulas to create custom “generic” nuclear weapons are provided as well, including those of strategic yields (1 megaton and up).

Each weapon listed has the following data:

Weapon Type (Nuclear Yield): This is the common name or type of nuclear device, and its destructive yield in kilotons (kt).

Base Impact Damage: This value is the number of standard-scale damage points the weapon delivers at the center of impact (also known as “Ground Zero”). Even though most targets are completely destroyed at this point, this value is used as a starting point from which all damage decreases as it radiates outward. Nuclear weapons on a ground map always deliver area-effect damage, so the impact damage applies equally to all units in the hex of impact.

Capital Damage (Crit Chance): These values apply when the nuclear device impacts the hull of a spacecraft while in vacuum or space. Because there is no atmosphere to carry the pressure wave and fireball, capital damage from a nuclear weapon is equal to only 1 percent (rounded down) of the weapon’s normal impact damage.

If the weapon then scores a special critical hit—made by rolling 2D6 and meeting or exceeding the value presented under this column in parentheses—this damage also penetrates the armor and delivers 10 times its Capital Damage value directly to the spacecraft's SI. For instance, if a 5-kiloton Type II "Alamo" warhead hits a DropShip in space, it will deliver 10 points of capital-scale damage to the ship's hull, at which point the attacker makes a second 2D6 roll against a TN of 10+. If this roll is 9 or less, the DropShip has suffered only the hull damage and any normal damage effects that might come with it, but if the roll is 10+, the DropShip also sustains 100 points of capital damage directly to its SI, and rolls for critical effects against that (assuming the vessel has any structural integrity left).

Damage Reduction (Ground/Air): These values indicate the number of standard damage points a nuclear weapon loses for every 30-meter hex outward from the point of a ground-level impact (the value left of the slash), or an "air-burst" detonation (the value right of the slash). These numbers presume an air-burst is set off at its optimum altitude for ground damage, and thus still maintain a "ground zero" hex on the ground map that lies directly below the blast center.

Secondary Radius (Ground/Air): These values indicate the number of 30-meter hexes from the detonation point in which a unit may experience secondary effects from a ground-level impact (left of slash), or an air-burst detonation (the value right of the slash). As with damage reduction values, these numbers presume an air-burst is set off for optimum altitude for ground damage, and thus the secondary radius is based on a "ground zero" hex directly below the blast center. While the secondary effect radius is twice the radius of the area affected by any physical damage, these secondary effects will affect all units from the center point to the edge of the secondary radius.

Height (Blast/Secondary): Unlike conventional artillery attacks, nuclear weapons in atmospheres are powerful enough to affect airborne units as much as they can ground units. Thus, the height of a nuclear blast (in Low-Altitude Map Altitudes) is given here, relative to a ground-level detonation. The number to the left of the slash indicates the altitude where an airborne unit will experience heat and physical damage from the nuclear blast, and thus requires a Piloting skill roll to remain airborne (see *Airborne Units in the Blast Area*, p. 165). The number to the right indicates the maximum extent of the secondary effect radius.

Crater Depth: This value indicates the depth (in levels) a nuclear blast will reduce the terrain by at the center of the blast. Crater depth reduces by 1 level for every 2 hexes away from the detonation's

center point, until it reaches a relative depth of 0. All terrain and units occupying hexes that would be reduced by a crater are automatically destroyed. Craters can only be formed by ground-level detonations; nuclear devices detonated by air-burst will not create a crater, though the damage produced will modify terrain features as normal.

RESOLVING A NUCLEAR DETONATION

The following rules apply to resolving nuclear weapon detonations, after the relevant attack rolls are made and the ordnance arrives on target.

Nuclear Attacks on and Above the Ground Map

When a nuclear attack takes place as either a ground-burst (defined here as a direct hit on the underlying terrain), or as an air-burst (above the ground, but at a low-enough altitude to maximize its area of effect against ground targets), the following rules apply to the detonation.

Ground Zero Hex: The Ground Zero Hex is defined as the target hex where a nuclear device strikes. If the attack is delivered as an air burst, the actual center of the detonation takes place on the Low Altitude map, in the hex centered above the ground map, but close enough in height to maximize its effect radius on the ground. Thus, a Ground Zero Hex on a *BattleTech* game board must be determined upon detonation of the air-burst as well, and is considered the ground point located most directly below the center of the air burst.

Any units and or buildings located within the Ground Zero Hex are completely annihilated if they do not possess enough armor (or CF points) to withstand the weapon's Impact Damage value in any single hit location.

Crater Area: Craters can only be produced by a nuclear attack that directly strikes the ground. Air-burst nuclear attacks will not produce a crater as indicated (though terrain damage may occur instead that reduces the terrain anyway). A crater caused by a nuclear ground blast instantly reduces the underlying terrain in the Ground Zero Hex by as many levels as are indicated in the weapon's Crater Depth rating. This crater becomes shallower by 1 level for every 2 hexes away from the Ground Zero Hex, until it reaches a crater depth rating of 0.

All terrain features, structures and units in terrain reduced by a crater effect are annihilated, and replaced by rubble.

For example, a Type III nuclear weapon, with a Crater Depth rating of 3, would reduce the Ground Zero Hex by 3 levels, dropping to 2 levels of crater depth at a distance of 2 hexes from the blast point,

STANDARD NUCLEAR WEAPONRY TABLE

Weapon (Nuclear Yield)	Base Impact Damage (Standard)	Capital Damage (Crit Chance)	Blast Radius* (Ground/Air)	Damage Reduction (Ground/Air)	Secondary Radius* (Ground/Air)	Height (Blast/Secondary)	Crater Depth
Elias (0.05 Kiloton)	10	0 (N/A)	9 / N/A	1 / N/A	18 / N/A	5 / 6	0
Type Ia (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type Ib (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type II (5 Kilotons)	1,000	10 (10+)	43 / 58	23 / 18	85 / 114	8 / 9	1
Type III (50 Kilotons)	10,000	100 (9+)	92 / 123	109 / 81	184 / 246	9 / 10	3
Type IV (500 Kilotons)	100,000	1,000 (8+)	198 / 264	504 / 378	397 / 529	10 / 10	5
AMW (3,000 Kilotons)	600,000	6,000 (N/A)	361 / 481	1,664 / 1,278	721 / 961	Row 1‡ / Row 2‡	9

*In ground hexes (1 mapsheet = 17 ground hexes/1 Low-Altitude Map hex)

**Type Ib weapons are launched only by Long Tom or Arrow IV artillery units; use the base range as indicated by the launcher

†Range in aerospace game play (Type II uses Detailed Weapon Range as AC/10; Type III, Type IV, and AMW as indicated capital missile)

‡ Effects extend into Row 1 or 2 on the High Altitude Map, as indicated



and 1 level crater depth at 4 hexes from Ground Zero. At 6 hexes away from the center of the Type III's impact point, the terrain is no longer cratered, but all units and structures that once stood within 6 hexes of Ground Zero are destroyed.

Blast Area: A nuclear device's blast area is defined as the hexes on a playing map(s), radiating outward from the Ground Zero Hex, within which a nuclear device delivers direct damage. This physical damage mainly represents the intense heat and overpressure wave produced by the detonation, and does not include the additional effects outlined in *Secondary Effects* (see p. 165). Unless a unit, structure, or piece of terrain is annihilated at the Ground Zero Hex (or within a crater area), all such units, structures, and terrain within the blast area of a nuclear attack will suffer damage as outlined below. For units inside buildings, this damage strikes the building first, leaving any remaining damage to the units inside. Otherwise, the damage delivered by a nuclear device is considered to be area-effect in nature, and impacts all units within a hex at its full force.

To determine the damage done to a unit within the blast area, first check to see if there may be any terrain that could protect against the blast (see *Protecting Terrain*, below). If no terrain exists to stop the blast wave, find the distance between the unit and the Ground Zero Hex, then reduce the nuclear attack's Base Impact Damage value by a value equal to that number of hexes times the weapon's Damage Reduction. Be sure to use the Damage Reduction value appropriate to whether or not the weapon was a ground strike or an air-burst. (So, a unit standing 8 hexes from the Ground Zero hex of a ground-bursting Type Ia nuclear weapon would suffer 60 points of damage, rather than the full 100 the weapon generates at Ground Zero: $100 [\text{Base Impact Damage}] - [8 (\text{hexes away}) \times 5 (\text{Reduction by Hex, ground burst})]$, or $100 - 40 = 60$.)

Distribute all damage from a nuclear weapon in 5-point clusters, using the attack direction that faces the Ground Zero Hex to determine which Hit Locations table to use.

'Mechs and vehicles within the Blast Area that survive the damage must make an immediate Piloting Skill Roll at a base +2 target modifier (plus any other applicable modifiers for damage and critical hits). 'Mechs that fail this roll immediately fall, while vehicles that fail this roll suffer random Motive System Damage. No roll is required for units without a Piloting Skill Rating.

Airborne Units in Blast Area: With a Blast Area, airborne units—including VTOLs, airships, low-flying aircraft and aerospace craft—will be subject to the same rules of the nuclear blast, but because of the differences in scale between the ground map and Low Altitude Map, the total affected Blast Area is dependent upon whether these units are operating on the standard ground map (including *Aerospace Units on Ground Map Sheets*, p. 242, *TW*), or if these are aerospace units operating on the Low Altitude Map.

For airborne units operating on the ground map sheet, determine the damage effects in the same way that ground units do: by counting the total number of ground hexes from Ground Zero, and computing damage accordingly. No additional distance is added for being airborne while operating on the ground map.

As with ground units, airborne units within a Blast Area that survive the damage must make an immediate Piloting Skill Roll (or Control Roll) with an additional +2 target modifier in addition to any modifiers caused by damage and critical hits. If this roll fails, the airborne unit immediately falls 2 Low-Altitude Map altitudes for every point by which the Piloting/Control Roll failed, and will crash if this drop places them on the ground row/altitude or lower.

Protecting Terrain: Only intervening hills or buildings strong enough to withstand the damage may block the effects of a nuclear ground burst. To gain the protection of such terrain, the

"hiding" unit must be directly adjacent to (in inside) the hill or building, and the hill or building must be taller than the "hiding" unit's height *and* have sufficient CF or TF points to withstand the damage delivered against that hex by the nuclear blast. If all of these conditions are met, the "hiding" unit can make Piloting Skill check with a +4 target modifier. If this roll succeeds, the unit is successfully protected against all damage effects from the attack (but not secondary effects).

If the nuclear attack is delivered by air-burst, only units located underground, underwater, or inside a structure with sufficient CF to survive the blast damage, will be protected from damage effects.

Terrain Damage: Beyond the crater area, damage to terrain reduces all Woods and Jungle hexes by one level (from Super-heavy to Heavy to Light) for every 20 full points of damage inflicted against the hex. (This is different than the standard Terrain Conversion rules found in *Total Warfare* and *Tactical Operations: AR* due to the fact that nuclear blasts send out a far more concentrated wave of heat, combined with a powerful overpressure wave, which dwarfs the destructive capacity of most conventional weapons.)

Woods or Jungle reduced below Light become Rough terrain, as does any non-water hex that suffers 200 points of damage or more.

Water terrain within a Blast Area—but not within a crater area—is reduced by one level for every 3,000 points of damage. Any "partially destroyed" water features immediately refill their lost space in the following turns based on the volume of water left to fill the area.

Any non-crater, non-water hexes within the Blast Area occupied by woods, buildings or units prior to a nuclear attack may be set aflame per the rules for Fire (see p. 41, *TO:AR*); units set aflame are considered to be the target of a successful Inferno missile attack, with a duration lasting until the end of the scenario, or until the unit is submerged, whichever comes first. For purposes of this effect, consider this an attack on the terrain/building by an energy weapon. Non-Woods/non-Building hexes that qualify for this effect have a modifier of 0 for the roll.

Secondary Effects: The radioactive and electromagnetic effects of a nuclear attack disperse even farther than the blast wave. To reflect these combined effects, all units and structures that lie within a distance equal to twice the Blast Area radius (and that are not already destroyed by the initial blast) must make a 2D6 roll and consult the Secondary Nuclear Effects Table.

Regardless of the outcome, all units within the Secondary Effect Radius will suffer electromagnetic interference (EMI) for the remainder of the scenario, including a +2 to-hit modifier for all ranged weapon attacks, and a -2 modifier to all Cluster Hits Table rolls. No terrain protects against secondary nuclear effects, and all airborne units within the same radius and operating at or below the Secondary Effect Height value for the weapon (the value right of the slash in the weapon's Height column) are also affected.

Heat and Fire: In addition to the raw damage, the Blast Area of a nuclear detonation produces enough heat to start flash-fires. For any unit that tracks heat levels—including airborne units in the Blast Area of Secondary Effect Radius—raise the unit's heat scale by one-tenth of the damage the unit received from the explosion itself (to a maximum of +15 heat points).

Any flammable terrain (including non-hardened buildings) that has not been destroyed within the Blast Area and Secondary Effect Radius may catch fire (see p. 41, *TO:AR*). To determine if this occurs, roll 2D6 for each terrain item that has not been destroyed within the Blast Area, and add one-tenth of the weapon damage value to the result. If this modified

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

SECONDARY NUCLEAR EFFECTS TABLE

Roll*	Results
2–4	Unit is Destroyed (crew/pilot/troopers all killed; engines shut down; all applicable unit types suffer 1D6 critical hits**)
5–6	Unarmored infantry outside buildings are killed; armored infantry/infantry within buildings suffer 50% casualties (round up); Conventional and support vehicles suffer two critical hits, plus one automatic Crew Killed critical hit; 'Mech and fighter units suffer two critical hits and must make a Shutdown Avoid Check at 10+ (Pilots of these machines suffer four hits)**
7–10	Unarmored infantry outside buildings suffer 50% casualties (round up); armored infantry and infantry within buildings suffer 25% casualties (round up); conventional and support vehicles suffer one critical hit, plus one automatic Crew Stunned critical hit; 'Mech and fighter units suffer one critical hit and must make a Shutdown Avoid Check at 6+ (Pilots of these machines suffer two hits)**
11+	Unit sustains no damage

*Add +2 to the roll for combat vehicles, 'Mechs, battle armor and aerospace craft, as well as an additional +2 for any unit within a hardened structure.

**Critical hits are resolved randomly, the locations determined for each by rolling on whichever side of the unit faces the Ground Zero Hex.

roll yields a 5 or higher, the terrain catches fire. For each hex of flammable terrain that lies beyond the Blast Area, but still exists within the nuclear attack's Secondary Effects Radius, a result of 9 or higher sets the terrain on fire.

Nuclear Weapons on the Low Altitude Map

For airborne units operating on the Low Altitude Map, damage is inflicted as long as the unit is within the blast area and is at or below the altitude of the nuclear weapon's Blast Height. To determine if an airborne unit on the Low Altitude Map is within the radius of a nuclear detonation, convert the Blast Radius corresponding to the weapon's detonation type (ground burst or air burst) to Low Altitude Map hexes by dividing it by 17 (and rounding up).

An airborne unit within the blast area and height of a nuclear detonation on the Low Altitude Map will modify the damage it sustains, compared to a unit on the ground map. To find the damage from blast areas on the Low Altitude Map, count the distance in Low Altitude hexes between the airborne unit and the hex corresponding to the weapon's detonation point. If this is 0 hexes (the airborne unit is in the same hex as the blast), treat the result as a minimum distance of 0.5. Then, multiply this Low Altitude Hex distance by 8.5 times the nuclear weapon's Damage Reduction value for an air burst. Round this final value up to the nearest whole number, and subtract it from the weapon's Impact Damage to find the damage sustained by the airborne unit.

Airborne units that sustain damage from a nuclear blast and survive must make a Piloting/Control Skill check with a +2 target modifier, in addition to all other applicable modifiers for damage and critical effects. If this roll fails, the airborne unit immediately falls 2 Low-Altitude Map altitudes for every point by which the Piloting/Control Roll failed, and will crash if this drop places them on the ground hex row/altitudes or lower.

For example, a Stuka aerospace fighter is at an altitude of 4 on the Low Altitude Map when a Type II/Alamo nuclear device, delivered by air-burst, detonates 3 hexes away from it. The Type II has a base Impact Damage of 1,000, a Blast Radius of 58 as an air burst, an air-burst Damage Reduction of 18 points, and a blast Height of Altitude 8. Because this radius, divided by 17, would cover Altitude 4 hexes ($58 \div 17 = 3.41$, round up to 4), the Stuka is within the radius, and its current altitude places it well within the blast zone. To determine the damage inflicted, the Stuka's player multiplies the distance (3 hexes), by 8.5×18 (the Damage Reduction rate). This result—459 points—is reduced from the Type II's 1,000-point base damage, leaving 541 damage

points that the Stuka will sustain. (The Stuka does not have that much armor in all of its hit locations put together, however, and will not survive the blast.)

Nuclear Weapons in Space

In space, nuclear weapons must make actual contact to deliver their damage, as the effects of vacuum and the radiation shielding carried by all spacecraft sharply reduces their effectiveness. Furthermore, they must penetrate the target's armor sufficiently to make up for the loss of most of their yield in order to inflict any major damage. To reflect these effects, a successful nuclear attack against any aerospace unit in space inflicts the weapon's capital-scale damage value against the target, which is resolved as a single damage value against one hit location as per a regular weapon attack.

Like capital missiles, nuclear weapons may inflict additional damage upon a successful critical hit, and thus make a special critical check on every successful attack. The chance for a critical hit varies with each weapon type, and is represented by a value shown in parentheses under the Capital Damage column of the Standard Nuclear Weaponry Table. After the unit has recorded its damage from the strike itself, if the attack roll meets or exceeds this value on an unmodified 2D6 roll, a critical hit is scored.

Instead of inflicting a critical hit as listed on the damage location table, a critical hit from a nuclear weapon delivers additional damage to the unit equal to 10 times the weapon's normal capital-scale damage. This damage is applied directly to the target's structural integrity (SI), even if it has armor remaining. Moreover, however SI damage is inflicted by a nuclear device, this damage is never halved. If the target vessel is not destroyed by this effect, any additional critical hit effects resulting from damage to the vessel's structural integrity must be resolved normally.

Any target fortunate enough to survive the damage from a nuclear strike must make an immediate Control Roll with a +4 target modifier, but suffers no additional effects. Additionally, all units within a space hex in which a nuclear weapon was detonated will suffer electromagnetic interference (EMI) for the remainder of the scenario, including a +2 to-hit modifier for all ranged weapon attacks and a –2 modifier to all Cluster Hits Table rolls. No other nuclear weapons effects apply in space.

Nuclear Weapons at High Altitudes

On the High Altitude map, nuclear attacks against an aerospace unit use the same rules as those in space, but the attack roll suffers a –2 modifier, and any nuclear attack that hits its target automatically destroys it. If the attack occurs within 18 kilometers of the planetary



surface (the Ground Row of the High Altitude Map), resolve the attack instead as an airburst on the Low Altitude Map, and consult the relevant rules under *Nuclear Attacks on the Low Altitude Map* (see p. 166).

Special Conditions

A number of special conditions may further modify the outcome and effects of a nuclear attack or its aftermath. These special conditions are detailed below.

Alternate Environments:

As demonstrated between the space, atmospheric and surface-burst effects described above, nuclear weapons have different effects based on the environment in which they are used. Underwater units may be caught in the blast radius; likewise, combat in caverns underground may lead to sub-surface detonations that can affect other battlefield units in the vicinity.

While these rules do not specifically cover the numerous additional effects of detonations deep underground or underwater (many of which are left for the players to agree upon for the sake of brevity), the *Alternate Environments Table* lists the modifiers for existing nuclear weapon effects based on such conditions as underground detonations, effects on underwater units and variable atmospheric pressures.

Other effects, such as those for nuclear detonations made within alternative atmospheric compositions, may occur at the discretion of the gamemaster or with player agreement. (Fallout, another special atmospheric effect that can follow a nuclear ground-burst, is discussed below.)

Fallout: Players looking to cover even additional effects of a nuclear assault can mimic the effects of fallout in the wake of a ground-level nuclear strike, provided the impact has taken place within a planetary atmosphere density other than Vacuum or Trace (see pp. 52-53, *TO:AR*).

Fallout represents radioactive contamination mixed with blowing ash and other particulate matter that generally follows a ground-level nuclear strike for some time afterward. This effect can be represented by combining the Blowing Sand weather condition (see p. 60, *TO:AR*), and Toxic (Radiological) Atmosphere terrain condition (see pp. 54-55, *TO:AR*), throughout any area within 2D6 times the nuclear attack's original Secondary Effect Radius. This condition will persist for up to 2D6 weeks, times the weapon's yield in kilotons, and may even drift further based on local weather conditions.

ALTERNATIVE ENVIRONMENTS TABLE

Defending Unit is underwater and within the blast radius of...*	
(Nuclear Airburst)	Divide damage to submerged targets by their current depth x 10 (based on pre-blast depths)*
(Nuclear Ground Burst)	Divide Damage Degradation Rate by 2**
Nuclear Explosion is Subterranean...*	
(At/Within Max. Crater Depth)†	Use standard rules for ground-burst attack, centered over ground zero.
(Over 1x to 2x Max. Crater Depth)†	Treat blast as standard ground-burst attack, using only 10% of base damage at ground zero (damage degrades normally, centered over ground zero).
(Over 2x to 5x Max. Crater Depth)†	Treat area above the weapon's normal cratering area (radius of 2x crater depth, centered over ground zero) as a severe earthquake, imposing a +5 penalty on all rolls for the turn of detonation.
(Over 5x Max. Crater Depth)†	No effect.
Atmospheric Pressure‡	
Vacuum	Multiply Damage Degradation Rate by 10
Trace	Multiply Damage Degradation Rate by 3
Thin	Multiply Damage Degradation Rate by 1.5
Standard	Multiply Damage Degradation Rate by 1
High	Multiply Damage Degradation Rate by 0.67
Very High	Multiply Damage Degradation Rate by 0.5

*Units underwater and units subjected to the effect of subterranean explosions at deeper than 1x the weapon's maximum crater depth do not suffer secondary effects.

**Underwater units add 1 hex of distance from ground zero for each full 5 depths. A "ground burst" is considered to be any nuclear attack that occurs at or near the water's surface.

†Crater depth for Type I weapons is considered 1.

‡Relative to Terran standard; round up fractions.

After this initial period, the Blowing Sand weather condition will dissipate, and the settled atmosphere will transition from Toxic (Radiological) Atmosphere to Tainted (Radiological) Atmosphere. The radiological taint conditions in the atmosphere will linger for another 2D6 months before the atmosphere returns to its previous (pre-detonation) conditions.

In addition to this, the radioactive effects of fallout may also produce persistent electromagnetic interference (EMI) in any area where fallout has occurred (see p. 53, *TO:AR*). This EMI effect can linger for as long as 2D6 years after all other effects have dissipated.

Internal Detonations: On occasion, a boarding team, mutineer, or terrorist might detonate a nuclear weapon inside a vehicle, spacecraft, mobile structure, or building.

For spacecraft (small craft, space stations, DropShips, JumpShips, and WarShip), internal detonations are treated as an automatic critical hit per *Nuclear Weapons in Space* (see p. 166), even if the listed nuclear weapon does not normally have a critical hit chance (such as the Elias). If this detonation occurs while the target is in space, and the target's SI is completely destroyed as a result, the target is destroyed, as are all units docked with it, operating inside it, or standing upon the target's surface. Any extraneous damage or secondary effects to a spacecraft unit destroyed by an internal detonation in space is lost.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

167

If the spacecraft unit is not in space when destroyed by an internal detonation, any damage exceeding the unit's SI value is multiplied by 10 and treated as the new Impact Damage value for the weapon before radiating outward from the unit's location, degrading at the weapon's normal rate.

For non-spacecraft units, divide the weapon's Impact Damage value equally among *all* of the unit's current internal structure locations (or, for the case of buildings, the structure's CF). If the damage destroys the unit, the total remaining damage is used as the weapon's new Impact Damage value before radiating outward. Any critical hits are resolved normally for units that are not destroyed by the internal detonation.

A nuclear weapon's Secondary Effect Radius will remain unaffected by an internal detonation as long as the target is destroyed. If a target is somehow not destroyed by a nuclear blast, the secondary effects will not radiate outward at all.

All other applicable rules for resolving an internal nuclear detonation apply normally.

Multiple Attacks: Multiple nuclear weapon attacks against a target area are resolved separately, and do not stack for purposes of determining Blast Area and secondary effects. In the wake of a nuclear attack, additional effects may be imposed on the affected region, including continuous EMI as well as nuclear fallout from ground-level detonations (see *Fallout*, above).

Salvage: Any unit destroyed by a nuclear weapon attack (be it on the ground, in atmosphere, or in space) is always considered to be unsalvageable. This applies whether the unit was annihilated in the Ground Zero hex or crater area, or was damaged to the point of destruction by blast damage.

Units crippled—but not destroyed—by the effects of a nuclear attack may be salvaged later, but will require decontamination performed on them before technicians can begin repairing and replacing parts. This decontamination cycle takes 24 hours and requires the supervising technician to make a successful, unmodified Skill check. If the roll fails, the decontamination will still succeed, but the cycle is extended by another 4 hours for every point by which the roll failed.

STANDARD NUCLEAR WEAPONS

The following rules describe several of the most iconic nuclear devices employed by the various factions in the *BattleTech* universe.

Elias

Introduced: 2792 (Federated Suns)

Available to: CI, BA

Tech Base (Ratings): Inner Sphere (E/FFFF)

The "Elias" is a modern version of the kind of decaton-yield demolition grenades that first debuted in the late twenty-first century. A rectangular device massing only 5 kilograms and capable of delivering an explosive yield of just 0.05 kilotons (5 decatons), the device could be deployed as a satchel charge by specially-equipped infantry units, or as a special landmine payload.

Game Rules: The "Elias" has no launcher or attack range to speak of, and is too small to deploy by any unit type other than infantry, or a special command-detonated landmine. The Elias always attacks as a ground-burst.

Infantry units carrying an "Elias" can deliver the weapon to their target by simply entering the target's hex and making a successful attack against it. An additional to-hit modifier of -2 applies to this attack—even if the attack chosen is that of an anti-Mech Swarm or Leg Attack—since the Elias need not be precisely applied or jammed into vulnerable spots to do its damage. If the attack fails, the Elias fails to arm and the weapon is spent. A successfully-laid Elias arms itself immediately, and may be remote-detonated by its controlling

infantry unit during any Attack Phase afterward, so long as no hostile ECM comes between the infantry unit and its armed Elias.

Elias mines use the same basic rules as a Command-Detonated Minefield (see p. 177, *TO:AUE*), for deployment and detonation purposes, but do not require a density value (since it only takes one Elias mine to deliver maximum effect).

Disarming an Elias requires a successful mine-clearing action in the hex where the Elias is presently deployed (see pp. 178-179, *TO:AR*). An additional +2 target number modifier applies to this roll if the Elias has been placed on a mobile unit (rather than simply placed on static terrain, within a structure, as a landmine, and so forth).

Construction Rules: For infantry construction purposes, each Elias in an infantry unit is treated as a Support Weapon with a crew of 1 and 1 shot of ammunition. This means that a single squad may carry up to 2 Elias warheads at maximum. Battle armor infantry may carry 1 Elias per trooper as a special pop-up mine alternative, or delivered via a modified mine dispenser payload (which, again, can only deploy a single Elias per dispensing unit).

Type Ia/Davy Crockett

Introduced: 2412 (Terran Hegemony)

Available to: CI

Tech Base (Ratings): Inner Sphere (E/FFFF)

The versatile and compact Type Ia (also known as the Davy Crockett at various time periods) is an infantry support weapon designed to deliver a half-kiloton warhead via a heavily modified, single-shot, man-portable missile launcher. Though unpopular because even its improved range proved too limited to keep its users out of harm's way, it was most commonly mounted in light vehicles in the hopes that the added mobility could help the firing squad find an optimal firing position to launch from and then dart behind cover.

Game Rules: The Type Ia (or Davy Crockett) is a one-shot infantry-portable artillery weapon that includes a special launch system mounted on a towable cart for mobility. While the warhead itself is scarcely bigger than a single SRM, it features a heavier booster-rocket apparatus to give the weapon greater range. The weapon requires a full 7-man squad to deploy and fire, so platoons reduced to fewer than 7 troopers cannot fire a Type Ia weapon.

An infantry unit with a Type Ia may make a special attack with the weapon only once per scenario. The infantry unit must not have moved or executed an anti-Mech attack in the same turn it fires its nuclear weapon, but the unit may make standard weapon attacks as normal. The Type Ia uses the rules for standard artillery to target a hex and fire from on- or off-board, including all relevant artillery rules for shell flight times and scatter.

A Type Ia/Davy Crockett weapon cannot be used to deliver an air-burst.

Construction Rules: The type Ia and its launch system may only be transported by a motorized or mechanized/wheeled conventional infantry units. Though the weapon counts as a support weapon with a crew requirement of 7, only one Type Ia may be carried by a single conventional infantry platoon. The mobile launcher and its warhead together add 3 tons to the base platoon weight.

Type Ib/Davy Crockett-M

Introduced: 2480 (Terran Hegemony)

Available to: BM, IM, CV, SV, AF, CF, SC, DS, MS

Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type Ib uses the same half-kiloton warhead as the infantry-fired Ia version, but is designed to be delivered via heavy artillery ordnance instead of a small, short-range vehicle. Though it originally



debuted as an augment shell type for Long Tom artillery systems, its later adaptation for the Arrow IV missile battery gave it the eventual nickname of Davy Crockett-M.

Game Rules: The Type Ib is available for the Long Tom and Arrow IV artillery weapon systems. Both are treated as non-homing artillery, and possess the same range and attack methods as the standard rounds used by the weapon system that fires them. Both also apply the applicable artillery rules for their firing units with respect to shell flight times and the scatter effects of a missed shot.

Like the Type Ia, the Type Ib Davy Crockett-M cannot be used to deliver an air-burst.

Critical hits to ammunition slots containing Type Ib/Davy Crockett-M munitions will cause them to explode as a standard ammo rounds; they will not set off a nuclear detonation.

Construction Rules: Nuclear ordnance for Long Tom and Arrow IV artillery weapons are specially modified for their purpose. As a result, a ton of nuclear ordnance in either weapon provides only 1 shot. Beyond this, Type Ib munitions have no further impact on unit construction.

Type II/Alamo

Introduced: ca. 2200 (Terran Alliance)

Available to: CF, AF

Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type II nuclear missile (later codenamed Alamo) is a special fighter-carried space-to-space (or air-to-ground) nuclear ordnance designed for use by aerospace and conventional fighters. With its five-kiloton payload, the warhead is powerful and fairly lightweight, which makes it equally useful in devastating sprawling ground fortifications as it is in wiping out or crippling all but the largest and most heavily armored WarShips in history. Indeed, during the Age of War, early Succession Wars, and the Jihad, the Type II and its modern equivalents often served as a weapon of choice in dealing with fleet assets and ground-based rallying points alike.

Game Rules: The Type II/Alamo nuclear missile is a special ordnance that can be carried by fighters like an external bomb, but which actually can be fired air-to-air (or space-to-space) as a single shot weapon. As external ordnance, a single Type II occupies 10 bomb slots, and imposes a corresponding loss of 2 Thrust Points. Units capable of using external ordnance may carry multiple Type II/Alamo missiles, as long as they have the bomb slots and Thrust to do so.

When fired air-to-air (or in space), the Type II/Alamo resolves its attack roll as if it were a capital missile weapon, but can only attack targets up to the medium standard-scale range bracket (if using detailed weapon ranges, the Type II has the range profile of a standard Autocannon/10). An additional -2 to-hit modifier applies for air-to-air attacks made with this weapon while on the High Altitude map. A Type II/Alamo missile cannot be fired across the space-atmosphere interface.

If advanced point defense rules are in play (see p. 84, SO), the Type II/Alamo may be engaged by point defenses as if it were a Barracuda capital missile, with 2 points of capital-scale armor. A successful attack by a Type II/Alamo in space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground mapsheet.

When fired air-to-ground, the Type II/Alamo is treated as an artillery attack made from as many mapsheets away as the attacking unit was flying at the moment the weapon was fired. If the attacking air unit was directly over the mapsheet at the time, the attack is resolved as per the rules of an on-board artillery strike; otherwise, the missile is treated as an off-board artillery strike, with a shell flight time of 10 mapsheets per turn. Furthermore, at the time of firing a Type II/Alamo warhead air-to-ground, the attacker must designate whether the weapon is armed for an air-burst or ground-burst attack. (Type II/Alamo nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

A missed shot by a Type II/Alamo in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to bomb slots containing a Type II/Alamo missile will not set off a nuclear detonation.

Construction Rules: Type II/Alamo nuclear ordnance is treated as a 5-ton bomb that can be carried either in internalized bomb bays of equal or greater size, or on external hardpoints such as those that conventional and aerospace fighters automatically possess. Beyond this, Type II nuclear munitions have no further impact on unit construction.

Type III/Santa Ana

Introduced: ca. 2412 (Terran Hegemony)

Available to: SV, SC, DS, JS, WS, SS, MS

Tech Base (Ratings): Inner Sphere (E/FFFF)

The Type III nuclear device (also known today as the Santa Ana) is a modified form of the White Shark-class capital missile modified to carry a fifty-kiloton warhead. Ideal for use by WarShips and surface-to-orbit defense batteries, these missiles were considered "surgical strike nukes," and were among the most common WMDs employed throughout the early Succession Wars.

Game Rules: The Type III can be launched by any unit that carries a White Shark or AR10 capital missile launcher. The missile weighs as much as a standard White Shark, and follows all normal rules for executing attacks against other units or as orbit-to-ground fire. Against any ground targets, a Type III/Santa Ana must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack. (Type III/Santa Ana nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

An alternative surface-to-surface, long-range form of the Santa Ana also exists that consists of a single 40-ton missile and its 160-ton launcher mechanism. This launcher-based version resolves its attack as a non-homing artillery strike with a maximum effective range of 10,000 mapsheets (about 5,000 kilometers). The shell-flight times for these weapons are resolved as those of a cruise missile (taking 1 turn, plus 1 additional turn for every 5 full mapsheets traversed, before impact). As with the capital missile versions, the launcher version of the Type III must be declared as armed for either an air-burst or ground-burst attack at the time of firing.

If advanced point defense rules are in play (see p. 84, SO), the Type III/Santa Ana may be engaged by point defenses as if it were a White Shark capital missile, with 3 points of capital-scale armor. A successful attack by a Type III/Santa Ana in

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground mapsheet.

A missed shot by a Type III/Santa Ana in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to ammo slots containing Type III/Santa Ana missiles will not set off a nuclear detonation.

Construction Rules: Type III/Santa Ana missiles may be loaded as alternative munitions for any White Shark or AR10 capital missile launcher. Each Type III nuclear missile weighs the same as a corresponding White Shark.

Type III/Santa Ana surface-to-surface launchers are one-shot weapons that can be mounted on support vehicles, DropShips, or mobile structures (or housed within static structures). The launcher and its missile, combined, weigh a total of 200 tons.

Type IV/Peacemaker

Introduced: ca. 2300 (Terran Hegemony)

Available to: SV, SC, DS, JS, WS, SS, MS

Tech Base (Ratings): Inner Sphere (E/FFFF)

The largest of the tactical nuclear weapons, the Type IV (sometimes known as the Peacemaker) is a bigger missile based upon the Killer Whale missile that shares much in common with the Type III weapon. Like the smaller Type III, this half-megaton nuclear device may be launched from ship- or ground-based capital missile launchers, or from a special strategic-range, surface-to-surface launcher. The convenience of making it usable with extant capital launchers made it as easy to deploy as a Type III in the early Succession Wars, but the missile was often reserved for orbital bombardment duty, rather than ship-to-ship combat.

Game Rules: The Type IV can be launched by any unit that carries a Killer Whale or AR10 capital missile launcher. The missile weighs as much as a standard Killer Whale, and follows all normal rules for executing attacks against other units or as orbit-to-ground fire. Against any ground targets, a Type IV/Peacemaker must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack. (Type IV/Peacemaker nuclear weapons fired at targets in flight, or in space, are always set for contact detonation.)

An alternative surface-to-surface, long-range form of the Peacemaker also exists that consists of a single missile and a 210-ton launcher mechanism. This launcher-based version resolves its attack as a non-homing artillery strike with a maximum effective range of 20,000 mapsheets (about 10,000 kilometers). The shell-flight times for these weapons are resolved as those of a cruise missile (taking 1 turn, plus 1 additional turn for every 5 full mapsheets traversed, before impact). As with the capital missile versions, the launcher version of the Type IV must be declared as armed for either an air-burst or ground-burst attack at the time of firing.

If advanced point defense rules are in play (see p. 84, *SO*), the Type IV/Peacemaker may be engaged by point defenses as if it were a Killer Whale capital missile, with 4 points of capital-scale armor. A successful attack by a Type IV/Peacemaker in space, or while on the High Altitude map, is resolved as per the rules for a nuclear weapon in space. A successful attack in the air at low altitude will not only affect the airborne target in the same fashion as a target struck in space, but will also affect any targets directly below the airborne target's hex as if it were an air-burst detonation over the corresponding ground mapsheet. For simplicity, this air-burst is considered to be centered over said ground mapsheet.

A missed shot by a Type IV/Peacemaker in space has no further effect in gameplay. Missed shots against airborne targets on the High Altitude map will travel to the weapon's maximum range, and then detonate in the air at whatever altitude they were fired, affecting only the units in that hex (if any). Missed shots aimed at the ground, or fired on the Low Altitude map, will scatter as per a missed artillery attack.

Critical hits to ammo slots containing Type IV/Peacemaker missiles will not set off a nuclear detonation.

Construction Rules: Type IV/Peacemaker missiles may be loaded as alternative munitions for any Killer Whale or AR10 capital missile launcher. Each Type IV nuclear missile weighs the same as a corresponding Killer Whale.

Type IV/Peacemaker surface-to-surface launchers are one-shot weapons that can be mounted on support vehicles, DropShips, or mobile structures (or housed within static structures). The launcher and its missile, combined, weigh a total of 260 tons.

Asset Management Weapon (AMW)

Introduced: 2790 (Free Worlds League)

Available to: SV, SC, DS, JS, WS, SS, MS

Tech Base (Ratings): Inner Sphere (E/FFFF)

Though it was quickly followed by identical adaptations in other realms, the Asset Management Weapon (AMW) was a three-megaton strategic weapon first introduced by House Marik during the First Succession War. Used extensively in the "economic warfare" of the First War, this devastating weapon placed its warhead within a Barracuda capital missile housing, but at the cost of all space-to-space guidance systems and armor-penetration aids found in the conventional missile.

While the AMW was effectively useless in ship-to-ship combat, it provided the means to saturate entire continents at will. AMWs were often deployed in the thousands against strategically important planets, typically from squadrons of converted freighter DropShips (known as "boomers") that carried a dozen or so launchers and large magazines.

Game Rules: The AMW can be launched by any unit that carries a Barracuda or AR10 capital missile launcher. The missile weighs as much as a standard Barracuda, but cannot execute attacks against other units in space or atmosphere; it can only be used for an orbit-to-surface fire. Against ground targets, an AMW must designate at the time of firing whether it has been armed for an air-burst or ground-burst attack.

If advanced point defense rules are in play (see p. 84, *SO*), the AMW may be engaged by point defenses as if it were a Barracuda capital missile, with 1 point of capital-scale armor.

A missed shot by an AMW will scatter as per a missed artillery attack.



GENERIC NUCLEAR CRITICAL HIT TABLE

Yield (in kt)	Critical Hit
Under 0.5	NA
0.5 to 4.99	11+
5 to 49.99	10+
50 to 149.99	9+
150 to 749.99	8+
750 to 2,499.99	7+
2,500 to 9,999.99	6+
10,000 to 29,999.99	5+
30,000 and Over	4+

Critical hits to ammo slots containing AMW missiles will not set off a nuclear detonation.

Construction Rules: AMW missiles may be loaded as alternative munitions for any Barracuda or AR10 capital missile launcher. Each AMW nuclear missile weighs the same as a corresponding Barracuda.

There is no surface-to-surface launcher analog for the AMW.

Custom (Generic) Nuclear Weapons

Introduction: Pre-Spaceflight

Available to: See Rules

Tech Base (Ratings): Inner Sphere (C/FFFF)

In addition to the standard nuclear weapons described earlier, players may wish to create their own custom-yield nuclear devices. In truth, virtually every suitably industrialized and well-populated world in the *BattleTech* setting is potentially capable of developing its own nuclear arsenal, while delivery systems possible for such warheads can range from suitcase-portable charges to silo-launched ballistic missiles.

Though these weapons are also bound by the difficulties in acquiring any WMDs (see *Acquiring WMDs in Campaign Play*, pp. 160-162), the methods for how these weapons are constructed, and what their deployment processes might be, will be left largely up to the players' discretion.

The game rule values for the warhead itself, however, may be constructed with the aid of the Generic Nuclear Weapons Formulas provided here. These formulas simply require the player to select a desired destructive yield (from 0.01 kilotons to 50 megatons), at which point the relevant game rule values for the weapon's detonation are then resolved. Because these formulas include the use of fourth-root (or "to the power of 1/4") and

GENERIC NUCLEAR WEAPONS FORMULAS

Where Yield = Weapon's rated explosive yield (in kilotons of TNT, "kt")
Maximum Yield = The maximum yield for any single nuclear weapon is 50 megatons (50,000 kt)

Base Impact Damage (Standard Scale) = $200 \times \text{Yield (in kt)}$

Capital Weapon Damage (Capital Scale) = $2 \times \text{Yield (in kt)}$

Impact and Primary Area of Effect (in 30-meter hexes)

Crater Depth = $\text{Yield} \wedge (1/4)^*$

Blast Radius (Ground Burst) = $25 \times [\text{Yield} \wedge (1/3)]^*$

Blast Radius (Air Burst) = Ground Burst Blast Radius $\times 1.33$

Damage Degradation (by hex)

Ground Burst = Base Impact Damage $\div$ Blast Radius**

Air Burst = (Base Impact Damage $\div$ Blast Radius) $\times 0.75^{**}$

Secondary Area of Effect (in 30-meter hexes)

Secondary Effect Radius (Ground Burst) = Blast Radius $\times 2^{**}$

Secondary Effect Radius (Air Burst) = Blast Radius $\times 2.67^{**}$

Secondary Effect Height = Secondary Effect Radius (Air-Burst) in meters; consult Low-Altitude Table, p. 81, TW.†

Additional Values

Blast Effect Height = Secondary Effect Height (in meters) $\div 2$; then consult Low-Altitude Table, p. 81, TW.†

Critical Hit Chance = See Generic Nuclear Critical Hit Table

Warhead Weight (Tech Rating C) = $15 \text{ kg} + [\text{Yield (in kt)} \times 2 \text{ kg}]^\ddagger$

Warhead Weight (Tech Rating D) = $10 \text{ kg} + [\text{Yield (in kt)} \times 1 \text{ kg}]^\ddagger$

Warhead Weight (Tech Rating E+) = $5 \text{ kg} + [\text{Yield (in kt)} \times 0.5 \text{ kg}]^\ddagger$

*Round these figures down to nearest whole number (to a minimum 0)

**Round these figures down to nearest whole number (to a minimum 1)

†For any heights of 18,000 meters or more, divide the result by 18,000, and round up; this is the number of High-Altitude Map hex rows instead.

‡Does not include weight of launchers, missiles, delivery systems, or fuel. Value provided for cargo space only.

cube-root (or "to the power of 1/3") math, scientific calculators or spreadsheet programs capable of these features are a must.

Warhead Weights: As noted in the formulas, the weight of a given warhead, regardless of the technology rating used in its construction, does not include its launch systems or any missile housings, as such delivery methods are ultimately up to the players. Players seeking to maintain proper continuity with existing *BattleTech* weapon systems must therefore add the weight of any existing delivery system similar (or superior to) the deployment method they wish to use. A nuclear warhead without any extra mass, for example, may only be employed as a basic "demolitions charge", placed and armed by infantry on site, while one meant to be fired from an artillery weapon must weigh at least as much as a single shot from that weapon.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

BIOLOGICAL AND CHEMICAL WEAPONS

Rules Level: Experimental

Available to: Various (See Rules)

Tech Base (Ratings): Any (See Rules)

Biological and chemical weapons encompass a wide array of different agents, delivered through a variety of means, designed to impair, injure or kill opponents without the accompanying mass devastation caused by heavy weapons fire. Throughout recorded history, combatants have employed poisons and disease against their enemies in an attempt to reduce their ability to attack or defend without risking their own soldiers in combat, though the use of these special weapons did not begin to mature until the early decades of the twentieth century, when the first truly effective chemical weapons were deployed on the battlefield. In the centuries since, biological and chemical weapon technologies—as well as those designed to defeat the effects of these weapons—have advanced even further.

Of course, so too have the rules and conventions on the use of biological and chemical weapons advanced. By the end of the twentieth century, research and development efforts had split down two very different paths: non-lethal weapons designed to subdue or incapacitate their targets (and thus minimize bloodshed while avoiding charges of war crimes), and toxic weapons intended primarily to kill or inflict suffering. The former remain accepted tools of military and civil authorities alike throughout the centuries and across the stars, while the latter have been classified as weapons of mass destruction since before mankind's exodus from Terra.

BIOLOGICAL AND CHEMICAL WEAPON GAME RULES

The following rules incorporate the use of biological and chemical weapons into their *BattleTech* games. As with nuclear weapons, the methods for making an attack with a biological or chemical weapon can vary between delivery systems, with many dropped as bombs, or used as alternative warheads in missiles. Some of the more insidious versions, however, may not even have a delivery method, and must be resolved more as an abstracted event, rather than a proper battlefield weapon attack.

Note: The rules for these weapons will generally refer to their effects against individual units on the battlefield, where most games would be played. Players may alternatively choose to roll any illness effects that apply to infantry units and other units with multiple crewmen by each individual member, but doing so will dramatically increase the time it takes to resolve them.

Acquisition

When using the *Acquiring WMDs in Campaign Play* rules (see pp. 160-162), each biological or chemical weapon a force acquires is equal to a single "use" of the weapon type on the battlefield. For weapons delivered by alternative munitions, this is equal to a single ton of alternate ammunition. For infantry units, this is equal to 50 grenades or alternate infantry-grade ordnance. For other delivery options, this is equal to a single deployment.

Weapon Data

A full description of the nature and rules for each of the five general classes of chemical and biological weapons will follow below, but all receive several basic values as shown in the Biological and Chemical Weapons Table.

Effects Resistance TN (Partial / Full): This represents the target numbers required for an unprotected unit's personnel to resist the effects of a chemical or biological weapon, with the number to the left of the slash indicating the minimum roll needed to at least partially resist the weapon's effects, and the number to the right indicating the roll needed to completely resist the weapon's effects. A unit whose unprotected personnel roll less than the Partial value will suffer the weapon's full effects. Unit Skill ratings can also affect this TN, with units rated Green (or worse) suffering a +1 TN modifier, while units rated Elite (or better) receive a -2 TN modifier.

Non-Weapon Modifier: This indicates the additional TN modifier that applies if the weapon is delivered via indirect (non-weaponized) means.

Time to Effect: This defines how long it takes, in game turns, before crews and personnel exposed to a given chemical or biological weapon begin to suffer the weapon's effects. An entry of "Immediate" in this column indicates that the weapon's effects will manifest as soon as the unit comes into contact with the weapon and fails its Effects Resistance roll. Otherwise, the time indicates the number of turns (or hours) that the weapon takes to incubate. The effects will then manifest at the start of the first game turn after this time has elapsed.

Persistence: This indicates how long each unit's crew or personnel will suffer a weapon's effects after failing an Effects Resistance roll. Targets that failed their Effects Resistance roll will suffer full effects for the entire period indicated by the weapon's Persistence, after which they will experience partial effects for the same length of time. Targets that suffer only from partial effects will also only suffer for the

BIOLOGICAL AND CHEMICAL WEAPONS TABLE

Weapon Class	Effects Resistance TN (Partial / Full)*	Non-Weapon TN Modifier	Time to Effect	Persistence	Contamination	Stacking Effect
Class I	4 / 8	-3	Immediate	1D6 + 2 turns	3D6 + 6 turns	N
Class II	2 / 5	-2	Immediate	1D6 days	3D6 + 6 turns	N
Class III	4 / 6	+0	1D6 turns	4D6 days	2D6 + 3 turns	N
Class IV (Chemical)	4 / 8	+1	1D6 + 2 turns	1D6 days	2D6 days	+1x (max. +6x)
Class IV (Biological)	5 / 9	+1	1D6 + 2 hours	1D6 days	1D6 x 8 hours	+1x (max. +6x)
Class V	2 / 6	+2	2D6 x 12 hours	2D6 days	4D6 months	+3x (max. +12x)

*Apply the following TN modifiers for unit Skill rating: Green +1, Regular +0, Veteran -1, Elite -2.



length of time indicated by the weapon's Persistence, after which the effects will wear off entirely.

Contamination: This represents the period in which a chemical or biological weapon remains potent once it is used, as well as how long any protective gear or vehicles exposed to such weapons pose a potential health risk to any other technicians or personnel who come into contact with them. Any personnel who come into contact with a contaminated area or unit must make a fresh Effects Resistance roll.

Stacking Effect: This indicates a special impact that can be attained at the higher classes of chemical and biological weapons, where additional doses increase the Persistence and Contamination cycles. Stacking chemical or biological weapons does not change the target number or modifiers for any Effects Resistance checks, but instead alters the base amount of time the weapon's Persistence and Contamination periods last. This additional time is expressed as an added multiple of whatever time period is rolled up, with a maximum limit for multiple weapon attacks. Thus, a notation of "+1x (max +6x)" on a Persistence of 1D6 days means that the player would first roll 1D6 to find the number of days the weapon's effects would persist normally, then add the same amount again on a second dose, and again on a third and so forth until the weapon maxes out at a total of 7 times its rolled up Persistence duration.

In addition to these details from the Biological and Chemical Weapons Table, each weapon type described below will define its game play effects for full and partial exposure, as well as the specific measures that those potentially affected by the weapon can use to counter these effects.

Weapon Delivery

Under these rules, all biological and chemical agents may be delivered via any missile, grenade, mortar, or artillery weapon capable of delivering smoke munitions, including those used by infantry. These chemical munitions behave just like their smoke round equivalents (see pp. 168 and 183, *TO:AUE*), but are designed to disperse over a wider area and produce less obscurant. To reflect this, chemical weapon ordnance increases its radius by 1 hex over its equivalent smoke munitions, and generates Light Smoke effects in the affected hexes (even if the munitions would ordinarily deliver Heavy Smoke). Regardless of the radius, chemical smoke rises 3 levels above the underlying terrain.

All units entering or moving through hex affected by biological or chemical weapons fire without adequate protection will be affected by the weapon in accordance with the detailed rules for its type.

Non-Weapon (Indirect) Delivery

Ranged weapons are not the only way to deliver some of these agents. Indeed, many biological agents work better if they are not delivered by a ranged weapon. While all of the biological and chemical agents presented in these rules can be delivered via non-weapon means, many become much less potent due to various factors. To reflect this, units exposed to a chemical or biological weapon that was delivered via such indirect means will apply the appropriate Non-Weapon Modifier to their Effects Resistance target numbers.

Non-weapon delivery methods are indirect by nature, and can be as varied as poisoning a local reservoir with a heavy dose of the chemical weapon, or surreptitiously infecting several individuals to act as "carriers" before setting them loose to spread their infection across a larger population. Because of this, the specific means for resolving a non-weapon delivery of chemical or

biological weapons must be left up to the players; the process can be as simple as a single die roll, or as complex as performing an objective-driven scenario where the act of successfully capturing the objective instead means that the biological or chemical weapon has been properly released.

For game purposes, a non-weapon delivery that succeeds must apply all battlefield effects prior to the start of the scenario. If the non-weapon delivery fails, no battlefield effects occur.

When determining the area of effect of a chemical or biological weapon delivered by non-weapon means, triple the weapon's usual effect radius.

Protective Gear

In general, modern armies ensure that their combatants are protected against the most common biological and chemical weapons they might encounter in the battlefield. BattleMech and aerospace pilots, and crews of combat vehicles, all remain protected from the immediate effects of biological and chemical weapons—so long as they keep their cockpits and crew compartments sealed (although support vehicles and IndustrialMechs require special Environmental Sealing modifications).

Conventional infantry and other ground combat personnel typically possess gear that can easily protect them against many such attacks, but only if they have enough warning to don that gear. This gear is bulky, however, and takes time to equip on the fly. The process of donning protective gear in game play will render any unit that is ordered to do so—including conventional infantry and support vehicle crews—unable to move or fire for $1D6 \div 2$ turns (rounded up). Furthermore, the bulk, limited range of motion, and limited peripheral vision that generally comes with all forms of environmental protective gear, will impart a +1 target modifier to all skill-based rolls the unit must perform while in such gear, including those for all weapon and physical attacks, as well as piloting skill checks and special operations such as minesweeping. Conventional infantry units in protective gear will also lose 1 Ground MP from their normal movement rates, to a minimum movement of 1 MP.

Any vehicle, 'Mech, ProtoMech, fighter, or battle armor unit that suffers a complete loss of armor in its pilot's or crew's location will be exposed to a biological or chemical agent as soon as they end a Movement Phase within an area affected by such weapons. This includes the loss of armor to any location (other than rotors) on any vehicle type, the reduction of any battle armor trooper to a single point (which represents the warrior himself), the loss of all torso armor on a ProtoMech, the loss of all nose armor on a fighter, or the loss of all head armor on a 'Mech. 'Mechs and fighters that suffer a Life Support critical hit are likewise exposed to the effects of a chemical or biological agent.

Decontamination

Even if a unit is unaffected by a biological or chemical attack because of protective gear, the pilot, crew or soldiers may be susceptible to the effects of these weapons unless they decontaminate their 'Mech, vehicle, aerospace craft or protective gear before exiting the unit or doffing their protective gear. Decontamination is performed by specialized Engineer (or Combat Engineer) squads in XCT protective gear (see pp. 162-163, *TO:AUE*), and requires only a successful Maintenance Check appropriate to the unit type being treated (no check is required for treating buildings and terrain). A failed decontamination check doubles the clean-up process time.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Pilots, crews and infantry that exit contaminated units or doff contaminated protective gear before the Contamination period of the weapon has elapsed, may potentially suffer the weapon's effects. When checking for these effects, the unit must make the same Effects Resistance roll they would for direct exposure to the weapon, but with a -2 target modifier.

BIOLOGICAL AND CHEMICAL WEAPON CONSTRUCTION RULES

Weapon-delivered chemical and biological agents are treated as a variant form of smoke ammunition, and use the same weight and shots-per-ton values as smoke munitions for the appropriate missile launcher, mortar, grenade launcher, artillery weapon, or bomb ordinance used.

Non-weapon delivery versions of these agents weigh 1 ton per "dose" for Class I, II, and III weapons, 3 tons per dose of Class IV weapons, and 5 tons per dose of Class V weapons.

CHEMICAL AND BIOLOGICAL WEAPON CLASSES

The following rules describe the six main classes of biological and chemical weapons employed at various times throughout the history of the *BattleTech* universe.

Class I (Non-Lethal Irritants and Subduing Chemicals)

Introduced: Pre-Spaceflight

Tech Base (Ratings): Both (A/C/CCC)

Class I weapons are legal, non-lethal chemical agents that are commonly used by police and other security forces when dealing with disruptive groups, and when those persons must be dispersed or subdued without injuring or killing them.

The two most common Class I agents include "tear gas" and "knock-out gas". Though the effects can vary within this range, "tear gas" is an irritant that induces uncontrollable coughing and/or vomiting, combined with serious discomfort on all exposed skin, eyes, and mucus membranes (as well as around the eyes, nose, and mouth), while "knock-out gas" is a subduing chemical mix intended to render all targets temporarily unconscious or stunned.

Game Rules: Full "tear gas" effects apply a +4 target number modifier to all actions for the duration of the weapon's Persistence, to reflect the debilitating effects as the target is blinded and/or unable to speak or hear clearly. Targets without military or police training must immediately make a special Morale check at an additional +4 to the TN, or break into a panic (see pp. 179-181, *TO:AR*). Partial "tear gas" effects apply a +2 target number modifier to all actions, and the Morale check required of targets without military or police training must be made at a +2 modifier. Units panicked by chemical or biological weapons move as fast as possible in a random direction until they have exited the area of effect.

Full "knock-out gas" effects render the crew and personnel of any affected targets immediately unconsciousness for the duration of the weapon's Persistence, rendering them unable to move, attack, or undertake any actions requiring a crew. Furthermore, such targets will automatically fail any Piloting or Control Rolls required of them as long as they remain affected. Partial "knock-out" gas effects leave the unit with a "hazy" or stunned sensation, applying a +2 target modifier to all actions (including Piloting, Gunnery, and so forth). Targets that can suffer pilot/crew hits temporarily act as if they have suffered 2 such hits while under partial knock-out gas effects, while conventional infantry units suffer 2D6 "casualties" for the duration of the weapon's Persistence. If either of these latter effects would render the unit destroyed, the unit is removed from play, but can be recovered later.

Countermeasures: Personnel who don protective gear or are within a sealed environment can completely avoid the effects of Class I agents. Simple "gas mask"/filter masks will not be sufficient to negate effects entirely, as these agents are also able to enter the body through pores in the skin. If only filter masks or gas masks are used, exposed personnel will receive a -1 target modifier to the Effects Resistance roll.

Class II (Fast-Acting, Light Injurious Chemicals)

Introduced: Pre-Spaceflight

Tech Base (Ratings): Both (B/C/CCC)

Class II agents are the lowest level of agents to actually be classified as WMDs. These are typically fast-acting chemical agents designed to injure or otherwise incapacitate their targets, but without any specific goal of leaving them alive afterward. These weapons often leave their targets with horrible external injuries or widespread internal damage. Those who survive Class II chemical weapon attacks are rarely ever the same again, physically.

Game Rules: Full Class II weapons initially apply a +4 target modifier to all action checks made by the target units (including Piloting, Gunnery, and so forth) before rendering these targets completely incapacitated 1D6 turns after the initial effects begin. Units that track pilot hits apply 4 such hits to their pilots/crews as well. Any targets incapacitated by a Class II chemical or biological weapon are removed from play.

Targets affected by partial Class II weapon effects are subject to a +2 target modifier to all skill checks, and any targets that can suffer pilot or crew hits suffer two such hits. A partial Class II weapon effect will not render crews or personnel incapacitated over time.

After the battle, any targets incapacitated or rendered removed from play as an immediate result of the weapon's damage must make a second Effects Resistance roll with an added -4 target modifier. If this roll fails, the incapacitated unit's personnel have succumbed to the weapon and died before medical aid could stabilize them. For infantry units that fail this second roll, roll 4D6 and subtract that many troopers from the unit's original strength to determine how many actually survived the attack.

Any targets that survive a Class II chemical or biological weapon attack, but which still suffered any effects from such weapons, must make one final Effects Resistance roll after the end of the scenario. If this final roll succeeds, these personnel will suffer no lingering effects and can return to duty after the weapon's Persistence period passes and they undergo decontamination. If this roll fails, however, these personnel suffer a permanent +1 target modifier to all skills, as well as a -1 Initiative modifier if commanding a force.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class II agents. Simple "gas mask"/filter masks will not be sufficient to negate effects entirely, as these agents are also able to enter the body through pores in the skin. If only filter masks or gas masks are used, exposed personnel will receive a -1 target modifier to the Effects Resistance roll.

Class III (Fast-Acting, Lethal Chemicals)

Introduced: Pre-Spaceflight

Tech Base (Ratings): Both (B/C/DCD)

Class III agents are fast-acting bio-chemical weapons, designed to kill their targets immediately. Such agents include "nerve gas" and other highly toxic poisons. Those who survive Class III attacks are often left with severe physical impairments and other lasting health problems.





Game Rules: A failed Effects Resistance roll against a Class III chemical or biological weapon will kill all crew and personnel in an affected unit at the end of its Time to Effect cycle (1D6 turns), unless a medical team can administer the proper counter-agents in time (see *Countermeasures*, below). Between the time of exposure and death, affected targets suffer the effects of a partial resistance to the Class III weapon.

Personnel that manage only partial Effects Resistance result against Class III weapons (or who have not yet perished from a failed result) suffer a +3 target modifier to all skill checks, and a -2 Initiative roll modifier if commanding a force. Furthermore, targets that can suffer pilot/crew hits sustain 3 such hits from a Class III partial resistance result. (If this results in killing the pilot or crew, then the pilot or crew has died and the unit is treated as destroyed.)

Any targets that survive after suffering any effects from a Class III agent must make one final Effects Resistance roll after the end of the scenario. If this final roll succeeds, these personnel will suffer no lingering effects and can return to duty after the weapon's Persistence period passes and they undergo decontamination. If this roll fails, however, these personnel suffer a permanent +1 target modifier to all skills, as well as a -1 Initiative modifier if commanding a force.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class III agents. The effects of Class III agents can potentially be countered through the immediate injection of a counter-agent; these counter agents are typically a mixed "drug cocktail" designed to counteract the worst effects of most Class III weapons, but are not issued to troops in the field unless a WMD attack is expected as they have limited "shelf lives" and, if injected in a person not affected by a Class III agent, could in fact cause serious medical problems above and beyond any inflicted by WMD use.

One Class III counter-agent dose (enough for one person) costs 100 C-bills, and will only last for 7 days if not continuously stored in a controlled environment. If a person exposed to a Class III agent is injected with a Class III counter-agent between exposure and the randomly rolled Time to Effect, that individual immediately makes a second Effects Resistance roll with a +2 modifier applied to the target number. The effects for the second result stand, even if they are worse than the first (reflecting a bad reaction or a counter-agent that has lost its potency).

Any individual administered a Class III counter-agent without first being exposed to a Class III chemical or biological weapon will suffer the partial effects of a Class II agent as a result (see p. 174).

Class IV

(Slow-Acting, Debilitating Chemical/Biological Toxin)

Introduced: Early Spaceflight

Tech Base (Ratings): Both (C/DDDD)

Class IV weapons are slow-acting bio-chemical agents designed to taint air and water supplies and thus be ingested (or inhaled) over a relatively lengthy period. Usually based on engineered viruses and bacteria or weaponized versions of particularly exotic specimens found in nature, this class of weapon also includes slow-acting chemical toxins that rely on gradual build-up to achieve their full effect. Although the technology to develop weapons of this nature truly dates back to antiquity, medical and pharmaceutical advances developed as humanity first settled the Inner Sphere forced chemical and bio-weapons manufacturers to evolve accordingly.

Class IV weapons cause illness in almost anyone that comes into contact with them, but do not break down quickly. This makes them difficult to direct against specific targets. They are most commonly delivered through covert operations—tainting a city's drinking water or infecting a small group of prisoners and then releasing them into a population. Delivery though a weapon strike is possible, but because such overt attacks are relatively easy to investigate, and do not yield immediate results, they often give the intended targets ample time to deploy countermeasures before full effects can set in.

Game Rules: Prior to deploying the Class IV agent, the controlling player must determine if this is an attack using a Class IV chemical (poison) weapon or a Class IV biological (virus or germ) weapon, as this will affect the Effects Resistance TNs as well as the contamination period. Poison attacks will follow all standard rules listed here for those who are affected by them, but biological attacks will add the possibility of contamination spread to new individuals every time they interact with one another. In game terms, this means that any unprotected crews that are otherwise not affected by an attack will need to make an Effects Resistance check if they should come into contact with a unit that has already failed (or partially failed) its own check previously.

Targets suffering the full effects of a Class IV agent—of either type—will receive a +1 target modifier to all action checks, as well as 1 pilot/crew hit for units that can suffer such hits, and a -1 Initiative modifier if the affected unit commands a force. These effects will stack for each 24-hour day of Persistence, so if a Persistence roll for a Class IV chemical weapon were 3, the unit which fails its check would suffer a +1 to-hit modifier, 1 pilot hit, and a -1 Initiative modifier for the first day of infection, a +2 to-hit modifier, 2 pilot hits, and a -2 Initiative modifier on the second, and a +3 to-hit modifier, 3 pilot hits, and a -3 Initiative modifier on the third. If this effect reaches a modifier of +7 or more, or the pilot/crew suffers enough hits to be considered killed, the infected unit must make at one final Effects Resistance roll. If the roll succeeds, the infected personnel slip into a coma for the remainder of the weapon's Persistence; otherwise, they die.

Targets suffering the partial effects of a Class IV agent must apply the same accumulating modifiers described above for a failed Effects Resistance roll, but in this case, the modifiers accumulate at 48-hour intervals, rather than 24.

Any targets that survive after suffering any effects from a Class IV agent will immediately begin to recover, reducing the cumulative modifier effects incurred while they were under the weapon's effects by 1 point per 24-hour day after the weapon's Persistence period ends. This continues until all modifiers applied by the weapon return to 0.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class IV agents.

There are no "generic" counter-agents capable of counter-acting the effects of a Class IV agent. Each individual Class IV agent has its own unique counter-agent that must be researched, developed, synthesized and then distributed, which typically takes weeks of time—or longer—if the agent has never been encountered before, though every major nation maintains some stockpiles of counter-agents that can fight the effects of the most common weapons its enemies might use.

To abstractly resolve the process of finding and treating the effects of a Class IV weapon exposure, roll 2D6 after the scenario has ended; on a result of 2-10, the Class IV agent is "known" and has an already-researched counter-agent; on an 11 or 12, the agent is "unknown" and a counter-agent must be created.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

Diagnosing whether or not a Class IV agent is known will take the medical staff assigned to the afflicted force 1D6 days after its exposure to the weapon. Counter-agents for “known” weapons can be synthesized and/or shipped to the battlefield within another 1D6 days and cost 500 C-bills per dose; counteragents for “unknown” weapons require 5D6 days for R&D and then synthesis, at a cost of 1,000 C-bills per dose (thereafter the Class IV agent is “known”).

A counter-agent can only be administered in a medical setting (first aid station, MASH, hospital, etc.). Anyone exposed to a Class IV agent and injected with its counter-agent between exposure and the randomly-rolled Time to Effect must make a second Effects Resistance Roll. If the counter-agent is administered after effects have set in, the target makes a second Effects Resistance Roll, but with a +1 TN modifier. In either case, the effects of the second roll will apply, even if they are worse than the first result.

Class V (Slow-Acting, High-Lethality Chemical/Biological Toxin)

Introduced: Early Spaceflight

Tech Base (Ratings): Both (C/EFFF)

Class V chemical and biological agents are slow-acting, extremely vicious, and always lethal. They include bio-engineered viruses designed not merely to kill human targets, but to poison the earth and water as well. This class of chemical and biological warfare also covers makeshift radiological devices designed to spread radioactive debris over a wide area. Class V agents can render entire swaths of territory uninhabitable for months or longer, at least until significant cleanup efforts are expended, while those lucky few who survive a Class V biological or chemical attack can generally expect to suffer lingering health problems and shortened life spans.

Game Rules: Prior to deploying the Class V agent, the controlling player must determine if this is a radiological attack or a biological attack. Radiological agent attacks follow all standard rules listed here. Biological agent attacks are made at a -1 to the listed TNs, but any unprotected individual that comes into contact with someone

infected by the agent after the first 1D6 x 8 hours must make an Effects Resistance roll at a total of a -1 to the TNs; unprotected individuals must make this roll *every* time they come into contact with an infected target (rolling for each target they come into contact with); once infected, the target cannot be subject to more serious effects.

Targets affected by the full effects of a Class V agent will die within 1D6 days of the onset of effects; before then, they suffer a cumulative +1 penalty to all skill check TNs, -1 to all Initiative rolls, and one pilot/crew hit (if they can suffer such hits) for each 24 full hours until they die.

Targets affected by the partial effects of a Class V agent suffer a cumulative +1 penalty to all skill check TNs, -1 to all Initiative rolls, and one pilot/crew hit (if they can suffer such hits) for each 48 hours of Persistence (at the start of the first, third, fifth, etc. days). On the eleventh day, the target must succeed at one final Effects Resist Roll, with a TN of 10 (modified as normal) or die.

Any targets that survived and suffered any effects of the agent *may* begin to recover. 48 hours after the agent’s Persistence expires, the target must make an Effects Resistance roll against a TN of 10. If this roll fails, the target does not improve and may make another Effects Resistance roll in 48 hours against a TN of 9; if that one fails, the target may make one final Effects Resistance roll against a TN of 8; if that one fails, the target dies. A success means recovery; for every full 48 hours after recovery begins, that target reduces the penalty to all skill checks and Initiative rolls by one and recovers one pilot/ crew hit.

Countermeasures: Personnel must don protective gear or be within a sealed environment to avoid the effects of Class V agents. Decontamination requires a standard maintenance check by a decontamination squad with a +2 modifier to the TN.

There are no Class V counter-agents.

Note: The Class V weapon’s Area of Effect is three times the normal. All terrain affected by a Class V weapon is considered either *Tainted* or *Toxic Radiological/Poisonous* (see p. 54, *TO:AR*). Roll 1D6: on a result of 1-4 that area is Tainted; on 5-6 it is Toxic.



DK

Despite being safely sealed in their cockpits, these lancemates know their planet will never be the same once the enemy has unleashed a Class V toxic gas.



WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

R&D Start Date: Unknown (ComStar?)

Prototype Design and Production: circa 3059 (Word of Blake)

During the Jihad, the Word of Blake demonstrated an amazing ability to deploy troops to all corners of the Inner Sphere in a fraction of the expected time, even if a command circuit of lithium-fusion equipped JumpShips lay along their course. This feat was believed to have been accomplished thanks to a revolutionary—and exceedingly dangerous—“super-jump” technique, which might have been based on experimental research by a number of conglomerates throughout the years.

Less a piece of equipment than a series of shunts, bypasses and computers, this Word of Blake technology simply required a jump-capable vessel that also featured a functional lithium-fusion battery. While powerful in the extreme, it also proved insanely costly, as no jump drive or battery system ever survived even a successful super-jump of any range.

This critical flaw led even the Word of Blake to make use of the technique only sparingly, and was often used on captured ships to avoid expending too many of the Word's own fleet assets for short-term gains. Because of this fact and the lack of surviving data on how the super-jump effect was harnessed, this technology vanished entirely after the Jihad.

WORD OF BLAKE SUPER-JUMP SYSTEM GAME RULES

Rules Level: Experimental

Available to: JS, WS

Tech Base (Ratings): Inner Sphere (F/XXFX)

Installing the Super-Jump System: The Word of Blake's “super-jump” technology is not an all new drive system, but can be installed as a modification kit on a vessel that has both a functional K-F drive and a lithium-fusion battery system. Technicians then add several components of inconsequential weight and bulk that override and bypass the safety protocols and mechanisms built into both the drive and battery systems. This is a modification that can be done in the field, as a repair check on the vessel's K-F drive (see pp. 204-208, CO). If this modification skill check fails, it must be attempted again from the beginning.

The Jump Process: Before engaging a super-jump, both the K-F drive core and the L-F battery must be at full charge. Once engaged, the jumping vessel initiates a normal K-F jump sequence with the charge stored in the drive core and then—almost instantly—begins a second jump sequence that magnifies the jump by several orders of magnitude, effectively creating a “jump within a jump.”

The *actual* maximum range for a super-jump (in light-years) is 1,200 – (1D6 x 50) and is determined at the time the jump is made. If a super-jump is attempted beyond this range, the jumping vessel's controlling player must make a Control Roll with a +1 target number modifier for every 25 light years (LY) beyond the ship's determined super-jump limit. If this Control Roll fails,

the super-jump fails, and the vessel is considered destroyed in hyperspace. This Control Roll is made separate from any other rolls determining the jump's success.

This technique produces a jump range that is effectively unlimited, but is very risky, applying a +3 target number modifier both to the jump calculations themselves (see pp. 74-75, SO), but also to the Control Roll made on arrival (see p. 77, SO). If a misjump occurs, the JumpShip and all attached vessels are destroyed. Otherwise, the jumping vessel safely arrives at its destination, but in doing so, it destroys its K-F drive *and* its lithium-fusion batteries upon completion. (A vessel that executes a Word of Blake super-jump is therefore making a one-way trip unless it can get to a friendly space dock where its drive and battery can be replaced; drives and batteries burned out by a super-jump cannot be repaired.)

Damage to Nearby Units: Because the safety systems are disengaged, a Word of Blake super-jump will not abort due to the presence of a nearby K-F field. If a jump-capable vessel with a K-F drive integrity of 1 or more is within 2 hexes (36 kilometers) of a vessel executing a Word of Blake super-jump, that vessel will suffer 10 points of K-F drive integrity damage, plus 10 x 2D6 points of structural integrity damage, due to the interacting jump fields, and the super-jumping vessel will have to apply an additional +2 target number modifier to survive its emergence at the other end.

In addition to this, all aerospace units within 2 hexes of a vessel executing a Word of Blake super-jump, which are not docked with the super-jumping vessel at the time of its jump, must make a Control Roll with a +2 target modifier to avoid damage. The damage from a failed Control Roll is equal to 3D6 times the roll's margin of failure, in capital-scale points.

Detection: From a detection point of view, an incoming super-jump has an emergence wave that actually resembles that of a super-large incoming vessel, which then dissolves into a group of smaller signals, creating the impression of a massive JumpShip or WarShip coming through with an escort group in tight formation. When using the *Advanced Sensors* rules to detect an incoming super-jump (see pp. 105-107, SO), this effect translates to a –3 detection modifier for both the infrared and emergence wave detection checks.

WORD OF BLAKE SUPER-JUMP SYSTEM CONSTRUCTION RULES

The Word of Blake super-jump system adds no significant weight or space to the K-F drive on a JumpShip or WarShip, but the system can only be installed on those vessels that include *both* a K-F drive and a lithium-fusion battery system.

Any jump-capable ship that has both a K-F drive and a lithium-fusion battery can be modified in the field with the Word of Blake super-jump system as a K-F drive “repair” operation, including the +5 target number modifier for the repair's Skill check, and a 10-day base repair time.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



This Hunchback 7R and Rommel Howitzer pair, once prototype machines, enter combat in a display of defensive desperation by the Republic Standing Guard.

The C-bill cost calculations for the equipment found in this chapter are largely described under the appropriate columns for said items in the Additional Alternate Era Weapons and Equipment Tables located on pp. 210-218.

For the sake of simplicity, all costs are given in C-bills. For the purposes of this section, C-bills are treated as a “universal currency”, applied even in those eras and settings where the C-bill itself was not actually in use (such as the Age of War/Star League eras, and the various Clan sub-eras). This enables players who are running campaigns or forces tied to currency-spending mechanisms to make their purchases based on an “absolute value”, without requiring elaborate conversion between the C-bill and any actual currencies of the era in question.

As noted at the beginning of the Alternate Era Units and Equipment chapter (see p. 58), items specific to the Dark Age era of play use four-letter Availability codes to clarify their proliferation in that period of play, while the majority of the other items described in this chapter show only 3-letter codes that cover pre-Dark Age eras. Dark Age-specific items are thus not available to previous eras of play, while those of previous eras may still be available (if they have not gone extinct beforehand, as noted by an “X” for the last letter of the item’s three-letter Availability code). To approximate the availability of a pre-existing item that has not gone extinct in the Dark Age era of play, simply reduce the item’s third letter code by one letter grade (to a minimum availability level of “A”).

The following section adds further cost formula clarifications as needed.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The weapons and equipment introduced by the Clans during the Wars of Reaving are listed in the Additional Alternate Era Weapons and Equipment Table under *Wars of Reaving Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

Electric Discharge ProtoMech (EDP) Armor: The listed cost for this armor is presented as a formula ($1,250 \times AP$), indicating that the cost is

computed by armor point, rather than armor tonnage. Thus, the cost for 15 points of EDP Armor would be $18,750 \text{ C-bills}$ ($1,250 \times 15 = 18,750$).

Extended Jump Jet System: The listed cost for the extended jump jet system is presented as a formula ($TT \times 500 \times \text{Jump}^2$). In this case, “TT” refers to the ProtoMech’s tonnage, and “Jump²” indicates the unit’s Jump MP, squared. Thus, a 6-ton ProtoMech with a Jump of 8 using an extended jump jet system would spend 192,000 C-bills on the jump jet system ($6 \times 500 \times 8^2 = 6 \times 500 \times 64 = 192,000$). Note that this cost applies to the entire jump jet system, and is not per jump jet.

Fusillade Launcher: The cost listing for a Fusillade Launcher’s ammunition refers to the single 2-shot magazine the weapon uses, rather than a full ton of ammunition. This cost should be modified as appropriate for alternative munition types. If the selected ammo types are mixed, each individual shot has a base price of 200 C-bills.

Special Munitions Costs: The costs for special Wars of Reaving-era munitions are given as multipliers, rather than a static cost. This multiplier applies to the standard munitions cost for the listed weapon. All costs must be rounded up to the nearest C-bill.

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

The following costs apply to the advanced pilot interfaces introduced in this chapter. The cost data for each of these items can be found in their appropriate era in the Additional Alternate Era Weapons and Equipment Table, as described below.

Damage Interrupt Circuit: The damage interrupt circuit is listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*. It adds its cost to the base price of the unit’s cockpit, regardless of the cockpit type used. If the unit has multiple pilots (such as in the case of a ‘Mech equipped with a cockpit command console), multiply the DIC’s cost by the number of crew the cockpit can seat.

Direct Neural Interface Modification: The direct neural interface modification, listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*, adds its cost to the



base price of the unit's cockpit, regardless of the cockpit type used. The cost for augmenting a warrior to use the DNI modification is found under Augmented Warriors, below, but does not apply directly to a unit designed for their operation.

SLDF Advanced Neurohelmet: The SLDF advanced neurohelmet is listed in the Additional Alternate Era Weapons and Equipment Table under *Star League Equipment*, and adds its cost to the base price of the unit's cockpit. If the unit has multiple pilots (such as in the case of a tripod 'Mech's cockpit), multiply the cost of the advanced neurohelmet by the number of crew the cockpit can seat.

Virtual Reality Piloting Pod: The VRPP is listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*, and replaces the cost of the unit's cockpit, rather than adding to it. The costs for the unit's sensors and life support equipment remain unchanged.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The proto-Star League weapons and equipment introduced in the closing years of the Age of War are those listed as "Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Age of War Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

Prototype Endo Steel Structure: The listed cost for prototype endo steel structure is given a formula ($4,800 \times TT$), which indicates that the structure cost is computed based on the unit's total tonnage weight. Thus, the cost for a 50-ton unit's prototype endo steel structure would be 240,000 C-bills ($4,800 \times 50 = 240,000$).

Prototype XL Engine: The listed cost for a prototype XL engine is presented as a formula ($100,000 \times ER \times TT \div 75$). Here, "TT" refers to the unit's tonnage, and "ER" indicates the unit's engine rating. Thus, a 40-ton 'Mech with a prototype XL engine rating of 280 would spend 1,493,334 C-bills on its engine ($[100,000 \times 280 \times 40] \div 75 = 1,120,000,000 \div 75 = 1,493,333.33$, round up to 1,493,334).

Prototype Ferro-Fibrous Armor: The listed cost for prototype ferro-fibrous armor is presented as a formula ($60,000 \times AT$), which indicates that the armor cost is computed based on total armor weight (in tons) the unit carries. Thus, a cost for 12.5 tons of prototype ferro-fibrous armor would be 750,000 C-bills ($60,000 \times 12.5 = 750,000$).

AUGMENTED WARRIORS (MULTIPLE ERAS)

Aside from conventional infantry, the cost of any combat personnel is generally treated as an incidental cost when purchasing units, or a monthly salary line in the force's roster. Artificially augmented warriors therefore apply their augmentation costs to the final C-bill costs of any units they operate. So, a MechWarrior who has been augmented with cybernetics will add his augmentation costs to that of the 'Mech he is assigned, while the augmentations to *each* of an infantry platoon's troopers will add to the platoon's overall cost.

The individual augmentations described in this chapter are listed in the Additional Alternate Era Weapons and Equipment Table under *Warrior Augmentations*. These costs are per augmentation per warrior. If a single warrior receives more than one augmentation, his added cost to the unit will be the sum of all augmentation costs, taken together. Because the rules presented for augmented warriors presumes that units comprised of multiple warriors will receive the same augmentations, augmented infantry units multiply the additional costs of any augmentations by the number of augmented troopers in the unit. For vehicles, this cost addition is multiplied by the number of augmented crewmen required to operate the vehicle.

For example, if each warrior in a 30-trooper Manei Domini infantry platoon is augmented with dermal armor implants (1,500,000 C-bills per trooper), and 2 enhanced prosthetic arms (100,000 C-bills per limb per trooper), the per-trooper cost added to the platoon will be 1,700,000 C-bills ($1,500,000 + [2 \times 100,000] = 1,700,000$), which will add 51,000,000 C-bills to the platoon's final cost ($30 \text{ troops} \times 1,700,000 \text{ per troop} = 51,000,000$).

Note: For simplicity's sake, the cost tables for prosthetic enhancements that can vary with weapon load presume the most expensive weapon options. Thus, regardless of whether an enhanced prosthetic limb has been fitted with a vibroblade or a shotgun, the limb's cost remains 100,000 C-bills.

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The cost for the Centurion Weapon System is listed in the Additional Alternate Era Weapons and Equipment Table under *Star League Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The weapons and equipment introduced during the years of the Republic of the Sphere appear in the Additional Alternate Era Weapons and Equipment Table under *Dark Age Equipment*. This includes not only weapons and component introduced during the relatively peaceful Age of the Republic, but also newer developments such as the experimental and dangerous RISC equipment. Units mounting these items follow all appropriate rules for cost calculations.

Dark Age Specialty Armors: The listed costs for the various armor types are presented as formulas based on the amount of armor tonnage assigned to the unit (AT). Thus, the cost for 5 tons of heat dissipating armor (which has a formula of $25,000 \times AT$) would be 125,000 C-bills ($25,000 \times 5 = 125,000$).

RISC Advanced PDS: While the listed cost for the standard version of this item indicates both the item's cost and that of a full ton of ammunition, the battlesuit version indicates the cost of a single battlesuit-mounted item and a single magazine (6 shots) of ammunition for that suit.

RISC Laser Pulse Module: The listed cost for this item is in addition to the cost of whatever laser weapon it modifies.

RISC Super-Cooled Myomer: The listed cost for this item is presented as a formula ($10,000 \times TT$), which indicates that the musculature cost is computed based on the unit's total tonnage weight. Thus, the cost for a 65-ton unit's super-cooled myomers would be 650,000 C-bills ($10,000 \times 65 = 650,000$).

EARLY CLAN IMPROVED EQUIPMENT (EARLY CLAN)

The improved weapons and equipment first introduced by the Clans in their early years are listed as "Improved" (or "Enhanced") in the Additional Alternate Era Weapons and Equipment Table under *Early Clan Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The prototype weapons and equipment added to the Clan arsenals during their early years are listed as "Prototype" in the Additional Alternate Era Weapons and Equipment Table under *Early Clan Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

EXPANDED PROTOMECHS (WARS OF REAVING)

The Ultraheavy-, Quadruped-, and Glider-type ProtoMechs introduced into Clan arsenals during the Wars of Reaving compute their component costs in the same manner as their standard-type

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



versions discussed in *TechManual*. The four core structural components worth noting are listed in the Additional Alternate Era Weapons and Equipment Table under *Expanded ProtoMech Components*.

Ultraheavy ProtoMechs: The listed structure and cockpit cost differences applicable to Ultraheavy ProtoMechs (those weighing from 10 to 15 tons in total mass) are noted in the table, with structure expressed as a formula ($400 \times \text{TT}$), to indicate that its cost is based on the unit's total tonnage. The cockpit cost listed (800,000 C-bills) replaces the normal cockpit cost for a standard ProtoMech as well.

Quadruped ProtoMechs: The listed structure cost difference applicable to Quadruped ProtoMechs is also noted in the table, expressed as a formula ($500 \times \text{TT}$), to indicate that its cost is computed based on the unit's total tonnage. This structure cost replaces the standard cost listed, regardless of the unit's weight class.

Glider ProtoMechs: The listed structure cost difference applicable to Glider ProtoMechs is also noted in the table, expressed as a formula ($600 \times \text{TT}$), to indicate that its cost is computed based on the unit's total tonnage. This structure cost replaces the standard cost listed, regardless of the unit's weight class.

Augmented Warrior Cost: Although the EI neural implants used to control a ProtoMech are listed under warrior augmentations, the cost for this augmentation is waived for ProtoMech warriors, since it is a required part of the control system, rather than an optional one. Thus, no additional warrior augmentation cost is required for ProtoMech pilots (unless they receive another augmentation in addition to the EI implants).

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The cost for the ProtoMech Interface Cockpit is listed in the Additional Alternate Era Weapons and Equipment Table under *Jihad Equipment*. This cost replaces the ProtoMech's normal cockpit cost.

Augmented Warrior Cost: Although the VDNI implants, used to control a ProtoMech via an Inner Sphere interface, are listed under warrior augmentations, the cost for these required augmentations is waived in this case. No additional warrior augmentation cost is thus required for ProtoMech pilots using an Inner Sphere interface (unless the warrior receives other augmentations in addition to the VDNI implants).

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The prototype forms of the Star League-era weapons and equipment reintroduced in the latter decades of the Succession Wars appear as those listed as "Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Late Succession Wars Equipment*. This includes not only recovered Star League-style weapons and components, but also newer developments such as triple-strength myomers and special munitions. Units mounting these items follow all appropriate rules for cost calculations.

Prototype Endo Steel Structure: The listed cost for prototype endo steel structure is presented as a formula ($4,800 \times \text{TT}$), which indicates that the structure cost is computed based on the unit's total tonnage weight. Thus, the cost for a 30-ton unit's prototype endo steel structure would be 144,000 C-bills ($4,800 \times 30 = 144,000$).

Prototype Ferro-Fibrous Armor: The listed cost for prototype ferro-fibrous armor is presented as a formula ($60,000 \times \text{AT}$), which indicates that the armor cost is computed based on total armor weight (in tons) the unit carries. Thus, the cost for 10 tons of prototype ferro-fibrous armor would be 600,000 C-bills ($60,000 \times 10 = 600,000$).

Prototype Triple-Strength Myomer: The listed cost for this item is presented as a formula ($32,000 \times \text{TT}$), which indicates that the musculature cost is computed based on the unit's total tonnage weight. Thus, the cost for a 45-ton unit's prototype triple-strength myomers would be 1,440,000 C-bills ($32,000 \times 45 = 1,440,000$).

Special Munitions Costs: The costs for special Late Succession Wars-era munitions are given as multipliers, rather than a static cost. This multiplier applies to the standard munitions cost for the listed weapon. All costs must be rounded up to the nearest C-bill.

Space Station K-F Adapter: Due to its original introduction date, the Space Station K-F Adapter is actually found under *Age of War Equipment*, rather than under *Late Succession Wars Equipment* in the Equipment Table. This value is presented as final cost multiplier ($\times 20$) that replaces the normal space station final cost modifier of $\times 5$ (see p. 146, *SO*). Note that even though modular space stations integrate K-F Adapters into their design, the multiplier for such adapters is already factored into the modular space station multiplier (see *Primitive Prototype Equipment*, p. 111).

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

The extra cost for constructing a BattleMech as a LAM is listed in the Additional Alternate Era Weapons and Equipment Table, under *LAM Components*. This covers both the LAM conversion costs as well as special components available only to LAM units.

LAM Conversion Costs: Expressed as a formula ($\text{WSC} \times 0.65$ for Bimodal LAMs, and $\text{WSC} \times 0.75$ for Standard LAMs), this cost is derived from cost of all the weapons, equipment, and structure the unit also mounts (represented by the term "WSC"), and is then *added* to the unit's cost before the 'Mech's final cost multiplier is applied. Thus, if an 'Mech had run up a cost of 1,850,000 C-bills in structural, weapon, and equipment costs, its additional cost for conversion into a standard LAM would be 1,387,500 ($1,850,000 \times 0.75 = 1,387,500$).

LAM Bomb Bays and Fuel Tanks: In addition the costs for any LAM bomb bays and fuel tanks (beyond the single ton that comes with the unit's engine) are also found in the same section of the Additional Alternate Era Weapons and Equipment Table. These are both counted as weapon/equipment items for cost calculation purposes, with each price given per 1-ton bomb bay or 1-ton fuel tank. Thus, the costs for these items are applied before the addition of the LAM conversion costs.

MACHINA DOMINI INTERFACE (JIHAD)

The Machina Domini BattleMech interface system prototyped in the Jihad era appears in the Additional Alternate Era Weapons and Equipment Table, under *Jihad Equipment*. This includes both the BattleMech Interface Cockpit—which applies its cost to the 'Mech's construction—and the BattleMech Neural Interface Unit—which applies as an item installed on a PA(L) battlesuit. Units mounting these items follow all appropriate rules for cost calculations.

Augmented Warrior Cost: Although the VDNI implants, used to complete a Machina Domini interface, are listed under warrior augmentations, the cost for these required augmentations is waived in this case. No additional warrior augmentation cost is thus required for Machina Domini pilots using the Machina Domini interface system (unless the warrior receives other augmentations in addition to the VDNI implants).

Units equipped with a Clan Machina Domini interface require EI neural implants instead of VDNI implants. As above, the cost of this augmentation is waived for Clan Machina Domini pilots using a Clan Machina Domini interface system.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

The Modular Space Station cost value is found in the Additional Alternate Era Weapons and Equipment table, under *Star League Equipment*. This value is presented as a final cost modifier that applies to the total cost of the space station. This final cost multiplier replaces the normal $\times 5$ multiplier assigned to space stations (see p. 146, *SO*), and effectively includes the K-F Adapter cost modifier. (Thus, players do not need to add the costs of the requisite K-F Adapters when finding the final C-bill values of a modular space station.)



PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The primitive, pre-Star League weapons and equipment introduced during the Age of War are those listed as "Primitive Prototypes" in the Additional Alternate Era Weapons and Equipment Table under *Age of War Equipment*. Units mounting these items follow all appropriate rules for cost calculations.

DropShuttle Bays: Although they are not listed specifically as "Primitive Prototype" equipment, DropShuttle Bays appear in the same section, with a listed C-bill cost per each 2-shuttle bay. Furthermore, each DropShuttle Bay also counts as the equivalent of two docking collars for K-F Drive cost calculations (see p. 146, SO).

Primitive Prototype K-F Boom: The listed cost for this item incorporates the cost of the DropShip's docking collar system as well, so it does not need to be added to any existing costs.

Pre-KF Boom Docking Collar: Although they are not listed specifically as "Primitive Prototype" equipment, Pre-KF Boom Docking Collars also appear in the *Age of War* section, with a listed C-bill cost per collar. Each Pre-KF docking collar also counts as one standard docking collar for the purposes of K-F Drive cost calculations (see p. 146, SO).

Primitive Prototype Jump Jets: The listed cost for this item is presented as a formula ($TT \times 200 \times \text{Jump}^2$). In this case, "TT" refers to the 'Mech's tonnage, and "Jump²" indicates the unit's Jump MP squared. Thus, a 30-ton BattleMech with a Jump of 6 using prototype jump jets would spend 216,000 C-bills on the jump jets ($30 \times 200 \times 6^2 = 30 \times 200 \times 36 = 216,000$). This cost applies to the total number of jump jets installed, rather than per jump jet.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

The cost calculations for all types of primitive and RetroTech units created using the rules presented in this chapter follow those of their standard unit types. Additional primitive core components required when constructing these units are also found in the Additional Alternate Era Weapons and Equipment Table under *Primitive and RetroTech Components*. Units mounting these items follow all appropriate rules for cost calculations.

Primitive 'Mech Musculature: The listed cost for this item is presented as a formula ($1,000 \times TT$), which indicates that the musculature's cost is computed based on the unit's total tonnage weight. Thus, the cost for a 90-ton primitive 'Mech's musculature would be 90,000 C-bills ($1,000 \times 90 = 90,000$).

Primitive Armor: The listed cost for both Primitive Aerospace Fighter and Primitive 'Mech/Industrial armor is presented as a formula ($5,000 \times AT$), which indicates that the cost is based on total armor weight (in tons) the unit carries. Thus, a cost for 8 tons of primitive armor would be 40,000 C-bills ($5,000 \times 8 = 40,000$).

Primitive Aerospace Small and Large Craft: Aside from the primitive prototype versions of the K-F Boom and Docking Collars found under Primitive Prototype Equipment (see pp. 111-114), the costs for all of the primitive forms of the various aerospace unit types that are larger than aerospace fighters (including small craft, DropShips, and space stations) may be computed as normal for those unit types, with Primitive JumpShips computed as modern WarShips.

Even though primitive core aerospace components, such as jump drives and sails, are substantially different from their modern forms, many of these feature weight modifications and such that impact costs by default, and thus require no additional modification. Additionally, for cost purposes, all Primitive K-F jump drives and components are treated as modern WarShip drives and components, including K-F drive support systems, rather than modern JumpShip drives and components.

Primitive Combat Vehicles and Primitive Conventional Fighters: Remember that both combat vehicles and conventional fighters built to Primitive standards employ the support vehicle construction rules, rather than standard combat vehicle and conventional fighter rules. As a result, costs for these unit types must be computed using cost calculations for support vehicles.

PROTOTYPE SPECIALTY MUNITIONS (CLAN INVASION)

These specialty missiles, introduced by the Inner Sphere on the eve of the Clan Invasion, are listed in the Additional Alternate Era Weapons and Equipment Table under *Clan Invasion Equipment*. As special munitions, their costs are given as multipliers, rather than static C-bills amounts. This multiplier applies to the standard munitions cost for the listed weapon. All ammo costs must be rounded up to the nearest C-bill.

QUADVEES (DARK AGE)

The extra cost for constructing a BattleMech as a QuadVee is listed in the Additional Alternate Era Weapons and Equipment Table, under *QuadVee Components*. This covers both the QuadVee conversion costs as well as special components available only to QuadVee design.

QuadVee Conversion Cost: Expressed as a formula ($WSC \times 0.5$), this cost is derived from cost of all the weapons, equipment, and structure the unit also mounts (represented by the term "WSC"), and is then *added* to the unit's cost before the 'Mech's final cost multiplier is applied. Thus, if an 'Mech had run up a cost of 3,533,334 C-bills in structural, weapon, and equipment costs, its additional cost for conversion into a QuadVee would be 1,766,667 ($3,533,334 \times 0.5 = 1,766,667$).

QuadVee Cockpit: The QuadVee's cockpit cost replaces that of the standard 'Mech cockpit.

QuadVee Tracks and Wheels: QuadVee Tracks compute their costs in the same manner as standard 'Mech Tracks (see p. 278, TM). QuadVee Wheels calculate their cost using a similar formula: $(750 \times ER \times TT) \div 75$. In this formula, "ER" represents the unit's Engine Rating, and "TT" represents its total weight (in tons). As with Tracks, this value is added before the 'Mech's final cost multiplier is applied.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

The cost of a unit modified for robotic or drone operation is calculated as normal for the unit's type, but the special components unique to the robotic and drone construction—including control systems, assistance systems, and other special devices discussed in this chapter—appear in the Additional Alternate Era Weapons and Equipment Table under *Robotic and Drone Unit Systems*. Units mounting these items follow all appropriate rules for cost calculations, replacing standard cockpits and crew systems as appropriate.

Smart Robotic Control System

The C-bill cost for the Smart Robotic Control System replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula ($5,000 + [10,000 \times IT]$), which indicates that the robotic control system is computed based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the robotic control system's tonnage.

Thus, the standard SRCS mounted in a 55-ton combat vehicle would weigh 6 tons (5 percent for the vehicle's standard control systems, rounded up to 3 tons, plus another 5 percent for the SRCS added to it, also rounded up to 3 tons, equals 6 tons of SRCS).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

weight). For this system, the C-bill cost would come to 65,000 ($5,000 + [10,000 \times 6] = 65,000$).

Shielded Aerospace Smart Robotic Control System

The C-bill cost for the Shielded Aerospace SRCS replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula ($6,250 + [12,500 \times IT]$), which indicates that the control system cost is based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the control system tonnage.

Thus, the Shielded Aerospace SRCS mounted in a 60-ton aerospace fighter would weigh 6 tons (3 tons for the fighter's cockpit, plus another 5 percent of 60 tons for the Shielded Aerospace SRCS added to it, equals 6 tons of SRCS weight). For this system, the C-bill cost would come to 81,250 ($6,250 + [12,500 \times 6] = 81,250$).

SDS (Caspar) Drone Control System

The C-bill cost for the SDS Caspar drone control system replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula ($500,000 + [50,000 \times IT]$), which indicates that the control system cost is based on the item's own tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the Caspar system's total tonnage.

Thus, the Caspar control system mounted in a 4,500-ton DropShip would weigh 259 tons (34 tons for the DropShip's control systems, plus another 5 percent of 4,500 tons—225 tons—for the Caspar systems added to it, equals 259 tons of Caspar control system weight). For this, the C-bill cost would come to 13,450,000 ($500,000 + [50,000 \times 259] = 13,450,000$).

Caspar II Advanced Smart Robotic Control System

The C-bill cost for the Caspar II advanced SRCS replaces the unit's normal cockpit/crew systems (but not its sensors or life support). The listed cost for this item is presented as a formula ($50,000 + [20,000 \times IT]$), which indicates that the control system cost is based on the item's own

tonnage weight. Remember to include the weight of the unit's default control systems, which are added to the Caspar II system's tonnage.

Thus, the Caspar II control system mounted in a 200-ton small craft would weigh 11.5 tons (1.5 tons for the craft's control systems, plus another 5% of 200 tons—10 tons—for the Caspar II systems added to it, equals 11.5 tons of Caspar II control system weight). For this, the C-bill cost would come to 280,000 ($50,000 + [20,000 \times 11.5] = 280,000$).

Autonomous Tactical Analysis Computer

The C-bill cost for the ATAC is presented as a formula ($100,000 \times IT$), which indicates that the computer's cost is based on its own tonnage weight. Thus, an ATAC that weighs 3,060 tons would have a C-bill cost of 306,000,000 ($100,000 \times 3,060 = 306,000,000$).

Direct Tactical Analysis Control System

The C-bill cost for the DTAC system is presented as a formula ($50,000 \times IT$), which indicates that the system's cost is based on its own tonnage weight. Thus, a DTAC system that weighs 3,090 tons would have a C-bill cost of 154,500,000 ($50,000 \times 3,090 = 154,500,000$).

Advanced Robotic Transport System

The C-bill cost for the ART system is presented as a modifier (+1,000,000), which indicates that the system's cost adds 1,000,000 C-bills to the base cost of the transport bay it modifies. Thus, an ART system that modifies a single 20,000-C-bill fighter bay would increase that bay's cost to a total value of 1,020,000 C-bills ($20,000 + 1,000,000 = 1,020,000$).

SDS Self-Destruct System, SLDF SDS Jammer, and Dragon's Breath Launcher

The C-bill cost for the SDS self-destruct system, the SLDF SDS jammer, and the Word of Blake's Dragon's Breath MCM launch system, are presented as fixed prices in the Additional Alternate Era Weapons and Equipment Table under *Robotic and Drone Unit Systems*.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

The cost of a superheavy 'Mech is calculated as normal for the 'Mech's type, but the special components unique to the superheavy unit's construction—including cockpits, actuators, musculature, and the like—appear in the Additional Alternate Era Weapons and Equipment Table under *Superheavy 'Mech Components*. Units mounting these items follow all appropriate rules for cost calculations.

Superheavy 'Mech Cockpits: The listed cost for superheavy 'Mech cockpits replace those of a standard 'Mech in the normal calculation rules.

Superheavy 'Mech Actuators: The listed cost for superheavy 'Mech actuators is presented as a formula ($2 \times \text{Standard Cost}$), which indicates that the actuator cost for a superheavy 'Mech is computed by simply doubling the cost of an equivalent actuator under the standard formula. Thus, where the upper arm actuator for a standard 'Mech would equal $100 \times \text{Unit Tonnage}$, the cost for a superheavy 'Mech's upper arm actuator would be equal to $2 \times (100 \times \text{Unit Tonnage})$, or $200 \times \text{Unit Tonnage}$. This means that a 145-ton superheavy 'Mech's actuator would cost 29,000 C-bills ($200 \times 145 = 29,000$), while the same actuator for a 45-ton BattleMech would cost only 4,500 C-bills ($100 \times 45 = 4,500$).

Superheavy 'Mech Musculature and Internal Structures: The listed costs for the musculature and internal structure types available to superheavy 'Mechs are all presented as formulas based on the unit's total tonnage (TT). Thus, the cost for a 145-ton superheavy 'Mech's endo-steel internal structure (given as $16,000 \times TT$) would come to 2,320,000 C-bills ($16,000 \times 145 = 2,320,000$).



JH

Hubris and insanity were required to push BattleMech technology past the 100-ton mark.



TRIPOD 'MECHS (MULTIPLE ERAS)

The extra costs for constructing a BattleMech as a tripod are listed in the Additional Alternate Era Weapons and Equipment Table, under *Tripod 'Mech Components*. This covers both cockpit types available to tripod 'Mechs, and a structure cost modifier to account for the unique nature of the tripod's configuration.

Tripod 'Mech Cockpits: The tripod 'Mech cockpit costs replace those of a standard 'Mech cockpit in the equivalent unit weight class.

Tripod 'Mech Structure: Expressed as a formula ($SC \times 1.2$), this cost is derived from the cost of the internal structure of equivalent weight and type on a standard biped or quadruped 'Mech, and applies based on whatever formula is used to compute that structure. Thus, if a tripod 'Mech weighing 50 tons used a standard internal structure, which costs $400 \times \text{Unit Tonnage}$ (in C-bills), the tripod version would cost $400 \times \text{Unit Tonnage} \times 1.2$, or 24,000 C-bills ($400 \times 50 \times 1.2 = 24,000$). Alternatively, if the tripod was a 130-ton 'Mech using superheavy endo-composite structure—which has a cost formula of $6,400 \times \text{Unit Tonnage}$ —the tripod structure would cost 998,400 C-bills ($6,400 \times 130 \times 1.2 = 998,400$).

THERMOBARIC WEAPONS (MULTIPLE ERAS)

The C-bills costs for all of the fuel-air munitions introduced in this chapter appear in the Additional Alternate Era Weapons and Equipment Table under *Thermobaric Weapons*. For the fuel-air bombs, this is given as a flat C-bill cost per individual bomb. For all other fuel-air munitions, the C-bill cost is given as a multiplier that applies to the normal per-ton ammo costs of the appropriate weapon system.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

The C-bills costs for all of the weapons of mass destruction introduced in this chapter appear in the Additional Alternate Era Weapons and Equipment Table under *Weapons of Mass Destruction*. Unlike most of the equipment covered in this chapter, many of these weapons are treated as either a special munitions type unto themselves (and thus apply no actual cost under unit construction rules) or incorporate their own launchers and delivery systems, which are incorporated into the weapon's overall cost.

Weapons with Launchers: Where a weapon has its own dedicated launcher, two C-bill costs will appear, separated by a slash. The cost to the left of the slash is that of the launcher, while the cost to the right is that of a single shot of that weapon type. (Except where noted in the weapons' rules, WMDs are purchased by shot, not tonnage.) If a dagger symbol (†) appears instead of a set cost for a launcher, the weapon uses an existing launcher type that has its own cost defined elsewhere.

Cost Shorthand: Furthermore, due to the extreme expense of these weapons, their cost listings have been simplified to thousands of C-bills (costs ending in "K"), or millions of C-bills (costs ending in "M"). A Class III chemical weapon, with a listed cost of 250K, thus costs 250,000 C-bills to purchase. Meanwhile, a Type III nuclear weapon, listed at 15M, costs 15,000,000 C-bills per shot.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

As a modification distributed across the existing systems on board a JumpShip with both a working K-F drive and lithium-fusion battery, the cost for the Word of Blake super-jump drive system, as listed in the Additional Alternate Era Weapons and Equipment Table under *Jihad Equipment*, is added to the unit's final cost.

BATTLE VALUE

The following covers the Battle Values for the equipment/rules found in this section.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The Battle Value for the weapons and equipment introduced by the Clans during the Wars of Reaving are listed in the Additional Alternate Era Battle Values Table under *Wars of Reaving Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Nova Composite Electronic Warfare System: In addition to adding its listed value to the unit's Defensive Battle Rating, the C³-style features of the Nova CEWS adds to the total BV of a force that includes units equipped with this system. This increase—which only applies if two or more friendly units equipped with this item are present in the force—equals 5 percent of the total BV for all friendly units that mount a Nova CEWS. The maximum total increase a force's Battle Value can receive from the use of the Nova CEWS is equal to 35 percent of the force's base Battle Value.

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

The Battle Value for the various advanced pilot interfaces introduced in this book are listed in the Additional Alternate Era Battle Values Table under their various era of introduction, as described below. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Damage Interrupt Circuit: The damage interrupt circuit appears under *Clan Invasion Equipment*. It has no impact on the unit's Battle Value.

Direct Neural Interface Modification: The Battle Value for the control systems modifications made to allow a unit to be piloted by one of the various direct-neural implant technologies appears under *Clan Invasion Equipment*. By itself, the modification has no impact on a unit's Battle Value, so the BV modifiers appear only with the warrior augmentations necessary to take advantage of this interface.

SLDF Advanced Neurohelmet: The Battle Value for the SLDF advanced neurohelmet introduced during the Star League era is listed in the Additional Alternate Era Battle Values Table under *Star League Equipment*. Its modifier applies only once, even if the unit seats more than one crewman. Units mounting this item follow all other appropriate rules for Battle Value calculations.

Virtual Reality Piloting Pod: The Battle Value for the virtual reality piloting pod devised by the Federated Commonwealth appears in the Additional Alternate Era Battle Values Table under *Clan Invasion Equipment*. It multiplies the unit's Battle Value by 1.4, to reflect the MechWarrior's improved Piloting and Gunnery skills due to the system interface.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The Battle Value for the proto-Star League weapons and equipment introduced during the Age of War are listed in the Additional Alternate Era Battle Values Table under *Age of War Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Prototype Artemis IV FCS: Multiply the BV for all missile launchers enhanced by prototype Artemis IV by 1.1. This modification does not apply to the launcher's ammunition.

Prototype CASE: When computing the unit's Defensive Battle Rating, subtract 8 points (rather than 15) for any ammunition critical slots protected by prototype CASE.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Prototype Extralight (XL) Engine: If the unit is a heat-tracking unit (such as a BattleMech or aerospace fighter), remember to account for the additional heat generated by its prototype XL engines when computing its Battle Value.

Prototype Pulse Lasers: When calculating the heat efficiency of a unit using prototype pulse lasers, use the average heat level possible when these weapons are used (4 heat for prototype small pulse lasers, 7 heat for prototype medium pulse lasers, and 13 heat for prototype large pulse lasers).

AUGMENTED WARRIORS (MULTIPLE ERAS)

The Battle Value for the various warrior augmentations discussed in this book are listed in the Additional Alternate Era Battle Values Table under *Warrior Augmentations*. Units using such augmented pilots, crews, and troops follow all other appropriate rules for Battle Value calculations.

In many cases, these augmentations may apply modifiers to the unit based on Skill modifiers, in which case the unit's final BV is computed normally, and then multiplied as appropriate using the BV Skill Multiplier (see p. 314, *TM*). Through these modifiers, the minimum rating to which a Skill may be reduced is 0, while the highest rating to which any Skill may be raised is 8.

Note that the Clan Enhanced Imaging Interface is listed on the same table under *Clan Invasion Equipment*, as is the direct neural interface modification necessary to operate a unit via a prototype DNI, VDNI, or buffered VDNI implant.

Stacked Benefits: For the purposes of Battle Value calculations, any warrior augmentations that have the same gameplay benefits will not stack. Only items that provide different benefits from one another may be applied to a given augmented warrior.

Belter Infantry Package: When computing an infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p. 191, *TO:AUE*), a Belter Infantry Package adds 1 to the unit's Sum of Damage Divisors.

Belter Fighter Pilot Package: When applying the total BV multiplier for Skill to a fighter unit piloted by this warrior, be sure to account for the warrior's -1 Piloting Skill target modifier. Thus, an augmented Belter fighter pilot with a base Piloting Skill of 5 would apply the BV multiplier for a Piloting Skill of 4 due to his pilot package Skill modifier.

Enhanced Imaging Neural Implants: When applying the total BV multiplier for Skill to a unit piloted by a warrior with EI implants, apply a -1 target modifier each to the warrior's Piloting and Gunnery Skills, but only if he is piloting a unit that features an EI Neural Interface. Thus, an EI-augmented MechWarrior with a base Piloting Skill of 3 and a base Gunnery Skill of 2 would apply the BV multipliers for a Piloting Skill of 2 and a Gunnery Skill of 1 to his 'Mech's total BV—but only as long as his 'Mech has the equipment to enable those benefits.

A warrior with EI implants who is assigned to a 'Mech that lacks the requisite interface may only apply the BV multiplier for his non-augmented Skills.

Artificial Pain Shunt: For Battle Value purposes, any unit whose pilot/crew/troops are equipped with a Pain Shunt applies an effective Piloting Skill modifier of -1 when finding the unit's BV Skill Multiplier.

Communications Implant: For Battle Value purposes, any unit whose pilot or commander is equipped with a Communications Implant applies an effective Piloting Skill modifier of -1 when finding the unit's BV Skill Multiplier.

Boosted Communications Implant: For Battle Value purposes, any unit whose pilot or commander is equipped with a Boosted Communications Implant is treated as a unit equipped with a standard C³ slave, making it eligible to act as part of a C³ network,

and thus must be accounted for under the C³ rules for constructing a battle force (see p. 314, *TM*).

Sensory Implants (All Types): For Battle Value purposes, any unit whose pilot, commander, or troops are equipped with Sensory Implants of any kind (including basic sensory implants, multi-modal sensory implants, or enhanced multi-modal sensory implants) applies an effective Gunnery Skill modifier of -1 when finding the unit's BV Skill Multiplier.

Gas Effuser Implant, Pheromone: Only conventional infantry units may apply a BV modifier for use of a pheromone gas effuser implant. This modifier—0.05 points per trooper—is added to the infantry unit's Defensive Battle Rating, before multiplying that value by the unit's Defensive Movement Factor.

Gas Effuser Implant, Toxin: Only conventional infantry units may apply a BV modifier for use of a toxin gas effuser implant. This modifier—0.23 points per trooper—is added to the infantry unit's Weapon Battle Rating, before multiplying that value by the unit's Speed Factor.

Dermal Armor Implants: Dermal armor implants only affect the Battle Value of infantry unit types. Dermal armor implants have no impact on the Battle Value of non-infantry units.

When computing a conventional infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p. 191, *TO:AUE*), dermal armor implants add 1 to the unit's Sum of Damage Divisors.

When computing a battle armored infantry unit's Battle Value, warriors augmented with dermal armor implants add 3 BV per augmented trooper before applying Skill modifiers.

Dermal Camouflage Implants: Dermal camouflage implants only affect the Battle Value of conventional infantry unit types. When computing a conventional infantry unit's Defensive Battle Rating (see *Advanced Infantry*, p. 191, *TO:AUE*), remember to apply the target modifier produced by the dermal camouflage effect when determining the unit's highest potential modifier.

For example, a foot infantry unit capable of only 1 MP per turn will generate a defensive modifier of +0 normally, but with dermal camouflage, it can generate a defensive modifier as high as +3 by remaining stationary, or +2 while moving. Because the +3 modifier is higher, that value is used to find the unit's Defensive Battle Rating.

Triple-Strength Myomer Implants: Triple-strength myomer implants only affect the Battle Value of infantry unit types. These implants have no impact on the Battle Value of non-infantry units.

When computing a conventional infantry unit's Offensive Battle Rating (see *Advanced Infantry*, p. 191, *TO:AUE*), triple-strength implants add 0.1 per trooper to the unit's Weapon Battle Value.

When computing a battle armored infantry unit's Battle Value, warriors augmented with triple-strength implants add 1 BV per augmented trooper before applying Skill modifiers.

Triple-Core Processor: For 'Mech, combat vehicle, and aerospace fighter units piloted by a warrior augmented with a triple-core processor, apply a -1 Gunnery Skill modifier when determining the unit's BV Skill Multiplier. For all other unit types, the triple-core processor implant is treated as a -1 Piloting Skill modifier when determining the unit's BV Skill Multiplier instead.

Vehicular Direct Neural Interface: When a warrior with a VDNI implant commands a unit equipped with a compatible control system, the unit receives the -1 Gunnery and Piloting Skill modifiers that in turn apply to its BV Skill Multiplier.

Buffered Vehicular Direct Neural Interface: When a warrior with a buffered VDNI implant commands a unit equipped with a compatible control system, the unit receives the -1 Gunnery Skill modifier that in turn applies to its BV Skill Multiplier.



Explosive Suicide Implant: The explosive suicide implant adds 0.12 (per trooper) to the Weapon Battle Value of a conventional infantry unit. Warriors augmented by this implant apply no other BV effects to any other unit types.

Prosthetic Leg MASC: The additional movement capabilities produced by prosthetic leg MASC must be accounted for when finding the Defensive Battle Rating of a conventional infantry unit augmented by this item. All other unit types receive no BV effect for the use of prosthetic leg MASC.

Prosthetic Limb Enhancements: The additional weapons and equipment that may be featured on any applicable prosthetic limb will add to the Offensive Battle Value of a conventional infantry unit so equipped on a per-trooper basis. These effects are shown in the Prosthetic Limb Enhancement BV Modifiers Table below. Unless noted otherwise, all of these values are applied to the infantry unit's Weapon Battle Value in addition to any standard or support weapons the unit receives at creation.

No other unit types can receive a BV effect for the use of prosthetic limb enhancements.

Prosthetic Tail, Enhanced: Only conventional infantry units apply Battle Value effects for the use of prosthetic tails. This value—0.2 per trooper—is applied to the unit's Offensive Battle Value in addition to any standard or support weapons the unit receives at creation.

Prosthetic Glider Wings: Prosthetic glider wings have no impact on a unit's Battle Value.

Prosthetic Powered Flight Wings: The additional movement capabilities produced by prosthetic powered flight wings—including the modifier for VTOL movement—must be accounted for when finding the Defensive Battle Rating of a conventional infantry unit augmented by this item. All other unit types receive no BV effect for the use of prosthetic wings.

PROSTHETIC LIMB ENHANCEMENT BV MODIFIERS

Enhancement Item	BV (per trooper)
<i>Ranged Weapons</i>	
Laser	0.24
Ballistic	0.02
Needler	0.08
Shotgun	0.08
Sonic Stunner	0.10
Submachine Gun	0.10
<i>Melee Weapons</i>	
Blade	0.02
Shocker	0.04
Vibroblade	0.14
Rumal/Garrote	0.14
<i>Non-Weapons</i>	
Grappler Line	0*
Climbing Claws	0.02*

*In addition, multiply this unit's Anti-Mech Battle Rating by 1.2 if equipped with Grappler Lines or Climbing Claws

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The Battle Value for the Centurion Weapon System is listed in the Additional Alternate Era Battle Values Table under *Star League Equipment*. Units using this item follow all other appropriate rules for Battle Value calculations.

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The Battle Value for the weapons and equipment introduced across the Inner Sphere during the post-Jihad Dark Age eras are listed in the Additional Alternate Era Battle Values Table under *Dark Age Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Dark Age Armors: Most of the various special armor types introduced in the Dark Age era apply a modifier to the BV of the unit's armor. To determine how, multiply the armor points the unit possesses by its armor type multiplier as found in the Dark Age Armor Modifiers Table. (In the case of units with patchwork armor, this multiplier only applies to the armor points in the section of the unit that uses the appropriate special armor type, rather than to the entire unit.)

HarJel Repair Systems: The HarJel repair systems provide armor modifiers similar to those of Dark Age armor types, but only for body sections where a HarJel system is located. Even though HarJel repair systems currently work with no armor types that provide a special modifier, this multiplier will stack with any armor type multipliers that affect the same section, so a HarJel II's armor BV multiplier of 1.1 would stack with another armor multiplier of 1.2 for a final armor BV multiplier of 1.32 ($1.1 \times 1.2 = 1.32$). Additionally, every critical slot of HarJel repair system a unit mounts will add -1 to the unit's Defensive BV.

Radical Heat Sinks: When computing the heat sink capacity of a unit using the Radical Heat Sink System, multiply the unit's normal heat sink capacity by 1.4, and round up to the nearest whole number. This multiplier applies in addition to any others for special heat sink types (such as double heat sinks). For example, a unit with 15 double heat sinks and a Radial Heat Sink system would end up at a heat sink capacity of 36 for heat capacity purposes ($15 \times 2 \times 1.4 = 42$).

RISC Super-Cooled Myomers: If the unit does not have UMU or jump jets of any kind, the unit's movement heat is counted as 0 for 'Mech Heat Efficiency calculations.

DARK AGE ARMOR MODIFIERS TABLE

Armor Type	Armor BV Multiplier
Anti-Penetrative Ablation Armor	1.2
Heat-Dissipating Armor	1.05
Impact-Resistant Armor	1
Ballistic-Reinforced Armor	1.2
HarJel Repair System (HarJel II)	1.1*
HarJel Repair System (HarJel III)	1.2*

*While not technically armor, HarJel's effect on armor gives it an armor type modifier as well. This only applies to locations protected by a HarJel Repair System, and may stack with whatever other armor type modifier also applies to that section. Each HarJel Repair System critical slot also applies -1 Defensive BV to the unit.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

EARLY CLAN IMPROVED SYSTEMS (EARLY CLAN)

The Battle Value for the upgraded Inner Sphere weapons and equipment introduced by the early Clans are listed as "Improved" or "Enhanced" in the Additional Alternate Era Battle Values Table under *Early Clan Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The Battle Value for the prototype weapons and equipment introduced by the early Clans are listed as "Prototype" in the Additional Alternate Era Battle Values Table under *Early Clan Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

EXPANDED PROTOMECHS (WARS OF REAVING)

The Battle Values for the Ultraheavy, Quadrupe, and Glider ProtoMechs introduced in this book may be computed using the same rules as established for standard ProtoMechs in *TechManual*, with only one modification applicable to Glider-type ProtoMechs.

Glider ProtoMechs: When calculating the defensive factor and the speed factor for a Glider ProtoMech, use the unit's WiGE Flanking MP. Glider ProtoMechs are considered airborne.

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The Inner Sphere ProtoMech Interface system does not modify a ProtoMech's Battle Value in any way.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The Battle Value for the prototype weapons and equipment introduced by the Inner Sphere in the late Succession Wars are listed as "Prototype" in the Additional Alternate Era Battle Values Table under *Late Succession Wars Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Prototype ER Large Laser: When computing the unit's heat efficiency, treat the prototype ER large laser as if it generates an average heat of 13 points.

Prototype Medium Pulse Laser: When computing the unit's heat efficiency, treat the prototype medium pulse laser as if it generates an average heat of 7 points.

Prototype Triple-Strength Myomer: When computing the unit's Offensive Battle Rating, multiply its tonnage by 1.5 if it is equipped with prototype triple-strength myomers.

Special Munitions: Anti-TSM LRMs and SRMs: The Battle Values for anti-triple-strength myomer types are listed as a multiplier, rather than a fixed value. This multiplier is applied to the ammunition BV for the launcher that uses this special munition, rounding up the result to its nearest whole number.

Special Munitions: Listen-Kill LRMs and SRMs: For Listen-Kill missiles, the Battle Value Table also provides ammunition BVs for each size and class of launcher that can fire these munitions. Even though the multi-missile launcher system did not exist at the time L-K missiles were in use, Battle Values for those weapons are also provided, as such launchers may technically employ them.

Space Station K-F Adapter: The Space Station K-F Adapter has no effect on a unit's Battle Value.

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

Calculate the base Battle Value for a LAM (see p. 99) as a BattleMech with the following modifications.

Target Movement Modifiers: For standard LAMs, use the LAM's AirMech flank speed when calculating its target movement modifier,

and apply the additional +1 for an airborne target. For bimodal LAMs, calculate the unit's target movement modifier as a normal 'Mech.

Defensive Battle Rating: When calculating the defensive battle rating for an LAM, treat each slot of fuel and each bomb bay slot as explosive ammunition (i.e. subtract 15 points for each).

Base Weapon Battle Rating: When calculating the base weapon battle rating, add 9 to the LAM's heat sink capacity (this replaces the 6 points that are added to a 'Mech's heat sink capacity), and subtract movement heat for AirMech flank speed.

Rear-Facing Weapons: Use the LAM's 'Mech mode to determine whether or not a weapon is rear firing.

Speed Factor: To determine the LAM's speed factor, add its running MP in 'Mech mode to half its AirMech Flank MP (rounded normally).

Pilot Skills: To calculate the Battle Value for a LAM with variable skill ratings (see p. 314, *TM*) use the average of the pilot's 'Mech and aerospace piloting for piloting skill and the average of 'Mech and aerospace gunnery skill. Round normally when determining the average scores.

Calculating the Battle Value for a Phoenix Hawk LAM

CALCULATE DEFENSIVE BATTLE RATING

128 points of standard armor (1.0 multiplier)	
Total Armor Factor x 2.5:	128 x 2.5 x 1.0 = 320
83 points of standard internal structure (1.0 multiplier)	
With standard fusion engine (1.0 multiplier)	
Total Internal Structure	
Points x 1.5 x 1.0 x 1.0:	83 x 1.5 x 1 x 1 = 124.5
Standard Gyro: (0.5 multiplier)	55 x 0.5 = 27.5
Total BV of all Defensive Equipment:	472
AirMech Flank Speed: 23 (+5) plus airborne modifier (+1)	
Target Movement Modifier: +6 (1.6 defensive factor)	457
	x 1.6
Defensive Battle Rating =	731.2

CALCULATE OFFENSIVE BATTLE RATING

LAM heat efficiency: (9 + 12 - 8)	13
Total heat generated: (8 + 3 + 3)	14
Large Laser	123
Medium Laser	46
Medium Laser	46
Medium Laser	46
Medium Laser	46
LAM Tonnage	50
	271
Speed Factor: (8 + 12 = 20, speed factor 3.00)	
	271 x 3.00 = 651
Offensive Battle Rating =	651

CALCULATE FINAL BATTLE VALUE

Defensive Battle Rating + Offensive Battle Rating = BV

731.2 + 651 = 1382

Phoenix Hawk LAM BV = 1382



MACHINA DOMINI INTERFACE (JIHAD)

Calculate the Battle Value of a Machina Domini unit—PA(L) or BattleMech—as normal, with the following additions. Note that these rules apply regardless of whether the unit is using Inner Sphere or Clan Machina Domini interfaces:

BattleMech Interface Cockpit: A BattleMech equipped with a BattleMech Interface Cockpit multiplies its Final BV by 1.30.

BattleMech Neural Interface Unit: The BattleMech Neural Interface Unit alone has a Battle Value of 0.

Gyroless 'Mechs: If a 'Mech with a Machina Domini Interface Cockpit is not equipped with a gyro, treat the unit as if it is equipped with a standard gyro when finding its Defensive Battle Rating.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

Compute the Battle Value of a modular space station as though it were a standard space station. No additional Battle Value modifiers are required for this unit type.

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The Battle Value for the Primitive-quality pre-Star League weapons and equipment introduced during the Age of War are listed as "Primitive Prototypes" in the Additional Alternate Era Battle Values Table under *Age of War Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

DropShuttle Bays: DropShuttle Bays have no effect on a unit's Battle Value.

Pre-KF Boom Docking Collar: The pre-KF boom docking collar has no effect on a unit's Battle Value.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

Calculate the Battle Value of all Primitive and RetroTech units as per the normal rules for units of equivalent type and weight. When doing so, remember to bear in mind the following:

Primitive Combat Vehicles and Conventional Fighters: Because they are constructed as Support Vehicles, Primitive combat vehicles and conventional fighters must calculate their Battle Values as appropriate for such unit types.

Primitive Armor: When calculating a Primitive unit's Battle Value, remember to account for any armor modifications for any units that feature BAR values below 10.

Primitive Fire Control Systems and Cockpits: When calculating the Battle Value of any unit that features Primitive fire control systems, sensors, or piloting systems, remember to account for any resulting Skill modifiers at the end of the BV calculation process.

PROTOTYPE SPECIALTY MISSILES (CLAN INVASION)

The Battle Value for the prototype specialty missiles introduced by the Inner Sphere in the Clan Invasion are listed as "Special Munitions" in the Additional Alternate Era Battle Values Table under *Clan Invasion Equipment*. Units mounting these items follow all other appropriate rules for Battle Value calculations.

Special Munitions: Dead-Fire LRMs and SRMs: For Dead-Fire missiles, the Battle Value Table provides ammunition BVs for each size and class of launcher that can fire these munitions. Even though the multi-missile launcher system did not exist at the time D-F missiles were in use, Battle Values for those weapons are also provided, as such launchers may technically employ them.

Special Munitions: Retro-Streak SRMs: Regardless of the Streak SRM launcher used to fire them, Retro-Streak ammo adds 15 to the unit's Defensive Battle Value.

Special Munitions: Shoot-and-Sit Narcs: Shoot-and-Sit Narc missiles have no Battle Value.

QUADVEES (DARK AGE)

Compute the Battle Value of a QuadVee as though it were a standard four-legged BattleMech. No additional Battle Value modifiers are required for this unit type.

Pilot Skills: To calculate the Battle Value for a QuadVee with variable skill ratings (see p. 314, *TM*) use the average of the two pilot's Piloting and Gunnery Skills, respectively. Round normally when determining the average scores.

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

For any unit operating with one of the robotic and drone systems featured in this chapter, compute the unit's Battle Value as a normal unit of equivalent type, except as noted by the systems and components below.

Robotic and Drone Pilot Skills: Do not forget to apply the final Piloting and Gunnery Skill modifiers for a unit operating with a robotic control system of any type. This modifier applies to the unit's final BV after all other features and components are accounted for.

Smart Robotic Control System: After calculating the Battle Value of a unit equipped with a Smart Robotic Control System normally, multiply its final BV by 0.85 to reflect its robotic controls.

Shielded Aerospace Smart Robotic Control System: After calculating the Battle Value of any unit equipped with a Shielded Aerospace SRCS normally, multiply its final BV by 0.90 to reflect the robotic controls.

SDS (Caspar) Drone Control System: Calculate the Battle Value of any unit equipped with an SDS Drone Control System as normal.

Caspar II Advanced Smart Robotic Control System: After calculating the Battle Value of any unit equipped with a Caspar II Advanced Smart Robotic Control System as normal, multiply its final BV by 0.90 to reflect the robotic controls.

Autonomous Tactical Analysis Computer System: If two or more units in a battle force are linked by an ATAC system they are treated as if part of a C³ network (see p. 131, *TW*). Add 7 percent to the total BV of all units in the ATAC network to each of the units linked by each network.

Direct Tactical Analysis Control System: If two or more units in a battle force are linked by a DTAC system they are treated as if part of a C³ network (see p. 131, *TW*). Add 5 percent to the total BV of all units in the DTAC network to each of the units linked by each network.

Advanced Robotic Transport System: The advanced robotic transport system has no effect on a unit's Battle Value.

SDS Self-Destruct System: The SDS self-destruct system has no effect on a unit's Battle Value.

SLDF SDS Jammer System: The SDS Jammer System has no effect on a unit's Battle Value.

Dragon's Breath MCM Launch System: The Battle Value for the Dragon's Breath MCM launch system is listed in the Additional Alternate Era Battle Values Table under *Robotic and Drone Unit Systems*.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Calculate the Battle Value of Superheavy 'Mechs as a BattleMech or IndustrialMech, with the following exceptions:

Gyro: For BV purposes, treat a Superheavy 'Mech's Gyro as a standard Gyro.

Superheavy Engine Type BV: For Superheavy 'Mechs, use the Superheavy Engine Type BV Modifier Table in place of the standard Battle Value modifiers.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

SUPERHEAVY ENGINE TYPE BV MODIFIER TABLE

Engine Type	Modifier
Standard	1.0
Light	0.825
Compact	1.0
XL (Inner Sphere)	0.75
XL (Clan)	0.825
Large	1.0
XXL (Inner Sphere)	0.5
XXL (Clan)	0.75
Large XXL (Inner Sphere)	0.5
Large XXL (Clan)	0.75

Explosive Components: When assessing the BV of a Superheavy 'Mech that carries explosive ammunition or components, treat the Superheavy 'Mech as a Clan 'Mech if the explosive components are in a location protected by any form of CASE (if the location is protected by CASE II and the explosive component is any type of Gauss weapon, subtract nothing). If the Superheavy 'Mech makes use of explosive components not protected by CASE systems, treat it as a standard Inner Sphere 'Mech. Remember, however, that these rules apply per slot, regardless of how many tons of explosive components occupy said slot.

Pilot Skills: To calculate the Battle Value for a multi-pilot Superheavy 'Mech with variable skill ratings (see p. 314, *TM*) use the average of the pilots' Piloting and Gunnery Skills, respectively. Round normally when determining these average scores.

TRIPOD 'MECHS (MULTIPLE ERAS)

For Tripod 'Mechs, calculate the unit's Battle Value as a biped BattleMech of equivalent weight class.

Pilot Skills: To calculate the Battle Value for a Tripod 'Mech with variable skill ratings (see p. 314, *TM*) use the average of the pilots' Piloting and Gunnery Skills, respectively. Round normally when determining the average scores.

THERMOBARIC WEAPONS (MULTIPLE ERAS)

The Battle Values for fuel-air munitions are found under the Thermobaric Weapons header in the Alternate Era Weapons and Equipment Battle Value Table. For fuel-air bombs (small and large), this BV is given as a flat per-bomb value. For all other fuel-air munitions, the BV is given as a multiplier per ton of standard munitions fired by the weapon.

WEAPONS OF MASS DESTRUCTION (MULTIPLE-ERAS)

Weapons of Mass Destruction (WMD) are simply beyond the scope of the Battle Value system, and so no such values exist.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

The Word of Blake super-jump drive system does not modify the unit's Battle Value in any way.



As it heavily monitored and censured 'Mech production around its borders, opponents of the Republic of the Sphere would cry hypocrisy at the sight of the Ares.

ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE

Item	Item BV	Ammo BV*	Special
Age of War Equipment			
Primitive Prototype Autocannon/2	37	4	
Primitive Prototype Autocannon/5	70	7	
Primitive Prototype Autocannon/10	123	12	
Primitive Prototype Autocannon/20	178	17	
Primitive Prototype Long Tom Artillery	368	35	
Primitive Prototype Small Laser	9	—	
Primitive Prototype Medium Laser	46	—	
Primitive Prototype Large Laser	123	—	
Primitive Prototype LRM 5	38/8	4	
Primitive Prototype LRM 10	78/16	8	
Primitive Prototype LRM 15	132/26	13	
Primitive Prototype LRM 20	168/34	16	
Primitive Prototype SRM 2	10/2	1	
Primitive Prototype SRM 4	21/4	3	
Primitive Prototype SRM 6	41/8	4	
Primitive Prototype PPC	176	—	
Prototype Arrow IV	240	30	
Prototype Artemis IV FCS	—	—	Multiply modified launcher BV by 1.1
Prototype Beagle Active Probe	10**	—	
Prototype CASE	—	—	Ammo critical slots count as -8 BV, rather than -15
Prototype Double Heat Sink	—	—	
Prototype Endo Steel Structure	—	—	
Prototype Extralight Engine	—	—	See rules.
Prototype Ferro-Fibrous Armor	—	—	
Prototype Gauss Rifle	320\$	40\$	
Prototype Guardian ECM Suite	61**	—	
Prototype LB 10-X Autocannon	148	15	
Prototype Narc Missile Beacon	15	0	
Prototype Small Pulse Laser	11	—	Count as 4 heat for heat efficiency calculations
Prototype Medium Pulse Laser	43	—	Count as 7 heat for heat efficiency calculations
Prototype Large Pulse Laser	108	—	Count as 13 heat for heat efficiency calculations
Prototype Remote Sensors	0	0	
Prototype Rocket Launcher 10	15	—	
Prototype Rocket Launcher 15	18	—	
Prototype Rocket Launcher 20	19	—	
Prototype TAG	0	—	
Star League Equipment			
Centurion Weapon System	190	—	
SLDF Advanced Neurohelmet	—	—	-1 Piloting for BV Skill Modifier
Early Clan Equipment			
Improved Autocannon/2	37	5	
Improved Autocannon/5	70	9	
Improved Autocannon/10	123	15	
Improved Autocannon/20	178	22	
Improved Gauss Rifle	320	40\$	
Improved Large Laser	123	—	
Improved Large Pulse Laser	119	—	
Improved PPC	176	—	
Enhanced PPC	329	—	

Item	Item BV	Ammo BV*	Special
Improved LRM 5	45/9	6	
Improved LRM 10	90/18	11	
Improved LRM 15	136/27	17	
Improved LRM 20	181/36	23	
Improved SRM 2	28/5	4	
Improved SRM 4	52/10	7	
Improved SRM 6	79/16	10	
Prototype ER Small Laser	17	—	
Prototype ER Medium Laser	62	—	
Prototype LB 2-X Autocannon	42	5	
Prototype LB 5-X Autocannon	83	10	
Prototype LB 20-X Autocannon	237	30	
Prototype Streak SRM 4	59/12	7	
Prototype Streak SRM 6	89/18	11	
Prototype Ultra Autocannon/2	56	7	
Prototype Ultra Autocannon/10	210	26	
Prototype Ultra Autocannon/20	281	35	
Late Succession Wars Equipment			
Prototype Double Heat Sink	—	—	
Prototype Endo Steel Structure	—	—	
Prototype ER Large Laser	136	—	Count as 13 heat for heat efficiency calculations
Prototype Medium Pulse Laser	43	—	Count as 7 heat for heat efficiency calculations
Prototype Ferro-Fibrous Armor	—	—	
Prototype Gauss Rifle	320\$	40\$	
Prototype LB 10-X Autocannon	148	15	
Prototype Triple Strength Myomer	—	—	See rules
Prototype Ultra Autocannon/5	112	14	
Special Munitions: Anti-TSM LRMs	—	x1	Multiplier applies to standard ammo BV
Special Munitions: Anti-TSM SRMs	—	x1	Multiplier applies to standard ammo BV
Special Munitions: Listen-Kill LRM 5	—	7	
Special Munitions: Listen-Kill LRM 10	—	14	
Special Munitions: Listen-Kill LRM 15	—	21	
Special Munitions: Listen-Kill LRM 20	—	28	
Special Munitions: Listen-Kill SRM 2	—	6	
Special Munitions: Listen-Kill SRM 4	—	12	
Special Munitions: Listen-Kill SRM 6	—	18	
Special Munitions: Listen-Kill MML 3 (SRM)	—	4	Value provided for reference
Special Munitions: Listen-Kill MML 3 (LRM)	—	9	Value provided for reference
Special Munitions: Listen-Kill MML 5 (SRM)	—	7	Value provided for reference
Special Munitions: Listen-Kill MML 5 (LRM)	—	15	Value provided for reference
Special Munitions: Listen-Kill MML 7 (SRM)	—	10	Value provided for reference
Special Munitions: Listen-Kill MML 7 (LRM)	—	21	Value provided for reference
Special Munitions: Listen-Kill MML 9 (SRM)	—	13	Value provided for reference
Special Munitions: Listen-Kill MML 9 (LRM)	—	27	Value provided for reference

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE (CONT.)

Item	Item BV	Ammo BV*	Special
Clan Invasion Equipment			
Damage Interrupt Circuit	0	—	
Direct Neural Interface Modification	0	—	Enables BV modifiers for DNI/VDNI implant use
Enhanced Imaging Interface	0	—	Enables BV modifiers for EI Neural Implant use
Virtual Reality Piloting Pod	—	—	–2 Piloting, –1 Gunnery for BV Skill Modifier
Special Munitions: Dead-Fire LRM 5	—	9	
Special Munitions: Dead-Fire LRM 10	—	17	
Special Munitions: Dead-Fire LRM 15	—	26	
Special Munitions: Dead-Fire LRM 20	—	35	
Special Munitions: Dead-Fire SRM 2	—	4	
Special Munitions: Dead-Fire SRM 4	—	7	
Special Munitions: Dead-Fire SRM 6	—	10	
Special Munitions: Dead-Fire MML 3 (SRM)	—	6	Value provided for reference
Special Munitions: Dead-Fire MML 3 (LRM)	—	6	Value provided for reference
Special Munitions: Dead-Fire MML 5 (SRM)	—	8	Value provided for reference
Special Munitions: Dead-Fire MML 5 (LRM)	—	9	Value provided for reference
Special Munitions: Dead-Fire MML 7 (SRM)	—	11	Value provided for reference
Special Munitions: Dead-Fire MML 7 (LRM)	—	12	Value provided for reference
Special Munitions: Dead-Fire MML 9 (SRM)	—	15	Value provided for reference
Special Munitions: Dead-Fire MML 9 (LRM)	—	17	Value provided for reference
Special Munitions: Retro-Streak SSRMs	—	15**	
Special Munitions: Shoot-and-Sit Narcs	—	0	
Wars of Reaving Equipment			
Electric Discharge ProtoMech Armor*	32	—	
Extended Jump Jet System	†	—	
Fusillade Launcher	11	—	
Improved ATM 3	83	21	
Improved ATM 6	164	39	
Improved ATM 9	231	54	
Improved ATM 12	333	78	
Magnetic Clamp System	1	—	
Nova CEWS‡	68**	—	
ProtoMech Quad Melee Weapon System	(Dmg x 1.25)	—	
Special Munitions: Imp. IMP iATMs	—	x2.0	
Special Munitions: Imp. IIW iATMs	—	x1.3	
Jihad Equipment			
Machina Domini Interface Cockpit (Clan or IS)	—	—	–1 Piloting, –1 Gunnery for BV Skill Modifier
BattleMech Neural Interface Unit (Clan or IS)	0	—	Enables BV modifiers for VDNI/EI implant use
ProtoMech Interface Cockpit	0	—	
Word of Blake Super-Jump Drive	0	—	

Item	Item BV	Ammo BV*	Special
Dark Age Equipment			
Anti-Penetrative Ablation Armor	—	—	Armor BV Multiplier: 1.2
Heat-Dissipating Armor	—	—	Armor BV Multiplier: 1.1
Impact-Resistant Armor	—	—	
Ballistic-Reinforced Armor	—	—	Armor BV Multiplier: 1.5
HarJel II Self-Repair System	–1 per slot**	—	Armor BV Multiplier: 1.1
HarJel III Self-Repair System	–1 per slot**	—	Armor BV Multiplier: 1.2
Radical Heat Sink System	—	—	Add (unit's # of heat sinks x 0.4, rounded up) to unit Heat Efficiency
Small Re-Engineered Laser	14	—	
Medium Re-Engineered Laser	65	—	
Large Re-Engineered Laser	161	—	
Remote Drone Command Console	0	—	
TSEMP Cannon	488\$§	—	
TSEMP One-Shot	98\$§	—	
RISC Advanced PDS (Standard)	64**	22**	
RISC Advanced PDS (Battlesuit)	7**	—	
RISC Laser Pulse Module\$§	x1.15††	—	
RISC Emergency Coolant System\$§	—	—	Add +4 to unit Heat Efficiency
RISC Heat Sink Override Kit	—	—	Multiply unit's final BV by 1.01
RISC Hyper Laser	596\$§	—	
RISC Repeating TSEMP Cannon\$§	600	—	
RISC Super-Cooled Myomer	—	—	See Rules
RISC Viral Jammer (Decoy)	284**	—	
RISC Viral Jammer (Homing Beacon)	284**	—	
ER PPC + Capacitor (Clan)	548\$§	—	
Robotic and Drone Unit Systems			
Smart Robotic Control System	—	—	Multiply unit's final BV by 0.85
Shielded Aerospace SRCS	—	—	Multiply unit's final BV by 0.90
SDS Caspar Control System	—	—	
Caspar II Advanced SRCS	—	—	Multiply unit's final BV by 0.90
Advanced Tactical Analysis Computer	—	—	Adds 7% BV of all linked units to Force BV.
Direct Tactical Analysis Control System	—	—	Adds 5% BV of all linked units to Force BV.
Advanced Robotic Transport System	0	N/A	
SDS Self-Destruct System	0	N/A	
SLDF SDS Jammer System	0	N/A	
Dragon's Breath MCM Launch System	1,076	N/A	
Expanded ProtoMechs			
Glider ProtoMechs	—	N/A	Use WiGE Flank MP to calculate Speed Factor
LAMs			
Bimodal LAMs	—	N/A	See Rules
Standard LAMs	—	N/A	See Rules
LAM Bomb Bay	–15 per slot**	—	See Rules
LAM Fuel Tanks	–15 per slot**	—	See Rules



ALTERNATE ERA WEAPONS AND EQUIPMENT BATTLE VALUE TABLE (CONT.)

Item	Item BV	Ammo BV*	Special
Primitive and RetroTech Units			
—	—	—	See Rules
QuadVees			
—	—	—	Calculate BV as per standard quad BattleMech
QuadVee Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Superheavy 'Mechs			
—	—	—	See Rules
Superheavy 'Mech Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Superheavy 'Mech Gyro	—	—	Treat as Heavy Duty Gyro for BV purposes
Superheavy 'Mech Engine	—	—	See Rules
Tripod 'Mechs			
—	—	—	See Rules
Tripod 'Mech Cockpit	—	—	Average Gunnery and Piloting for BV Skill Modifier
Thermobaric Weapons			
Fuel-Air Bomb (Small)	—	37 each	
Fuel-Air Bomb (Large)	—	63 each	
Fuel-Air Missile (Arrow IV)*	—	x1.0	
Fuel-Air Shell (Thumper, Thumper Cannon)	—	x1.4	
Fuel-Air Shell (Sniper, Sniper Cannon)	—	x1.4	
Fuel-Air Shell (Long Tom, Long Tom Cannon)	—	x1.4	
Weapons of Mass Destruction WMDs are incompatible with the Battle Value system.			
Warrior Augmentations			
Belter Infantry Package	0	N/A	+1 to Damage Divisor Sum for DBR (see rules)
Belter Fighter Pilot Package	0	N/A	-1 Piloting for BV Skill Modifier
Belter Vacuum-Resistance Package	0	N/A	
Enhanced Imaging (EI) Neural Implants	0	N/A	-1 Piloting, -1 Gunnery for BV Skill Modifier
Artificial Pain Shunt	0	N/A	-1 Piloting for BV Skill Modifier
Communications Implant	0	N/A	-1 Piloting for BV Skill Modifier
Boosted Communications Implant	0	N/A	Treat unit as if equipped with C3 Slave
Sensory Implants (IR/EM/Audio)	0	N/A	-1 Gunnery for BV Skill Modifier
Sensory Implants (Laser/Telescopic)	0	N/A	-1 Gunnery for BV Skill Modifier
Multi-Modal Sensory Implants	0	N/A	-1 Gunnery for BV Skill Modifier

Item	Item BV	Ammo BV*	Special
Enhanced M-M Sensory Implants	0	N/A	-1 Gunnery for BV Skill Modifier
Filtration Implants	0	N/A	
Gas Effuser Implant, Pheromone	5**	N/A	Added to Infantry unit's DBR (see rules)
Gas Effuser Implant, Toxin	0.16	N/A	Per Infantry trooper; add to Infantry unit's WBR
Dermal Armor Implants	0	N/A	+1 to Damage Divisor Sum for DBR (see rules)
Dermal Camouflage Implants	0	N/A	May affect DBA via defensive modifiers (see rules)
Triple-Strength Myomer Implants	0.1/1	N/A	See Rules
Triple-Core Processor Implant	0	N/A	-1 Piloting or Gunnery for BV Skill Modifier (see rules)
Vehicular Direct Neural Interface (VDNI)	0	N/A	-1 Piloting, -1 Gunnery for BV Skill Modifier
Buffered VDNI	0	N/A	-1 Gunnery for BV Skill Modifier
Prototype Direct Neural Interface (DNI)	0	N/A	-3 Piloting, -2 Gunnery for BV Skill Modifier
Explosive Suicide Implant	0.12	N/A	
Prosthetic Leg MASC	0	N/A	May affect DBA via defensive modifiers (see rules)
Prosthetic Limb, Enhanced	Var	N/A	See Rules
Prosthetic Limb, Improved Enhanced	Var	N/A	See Rules
Prosthetic Limb, Extraneous	Var	N/A	See Rules
Prosthetic Tail, Enhanced	0.2	N/A	See Rules
Prosthetic Glider Wings	0	N/A	See Rules
Prosthetic Powered Flight Wings	0	N/A	May affect DBA via defensive modifiers (see rules)

*EDP Armor does not apply an armor type modifier; instead, count armor points per standard armor, and add the listed 32 BV as a weapon.

**Defensive BV

§This ammunition type is not counted as explosive.

§§Treat this item as a Gauss weapon critical space for Defensive Battle Value purposes.

†Compute ProtoMech BV as normal for its respective Running and Jumping MP.

††Multiplier applies only to the modified weapon.

‡In addition to their defensive battle rating Nova CEWSs add 5 percent of the total BV of all friendly units equipped with the system on the battlefield to each of the units equipped with it (but never more than 35% of the friendly force's BV overall). This effect applies regardless if the units are linked at the beginning of the game or not. There must be at least two friendly units equipped with Nova CEWS for this rule to apply.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

BATTLEFORCE ADDENDUM

The following provides *BattleForce*-scale game rules for the material in this section.

ADVANCED CLAN EQUIPMENT (WARS OF REAVING)

The advanced Clan equipment that debuted during the Wars of Reaving have the following effects in *BattleForce* games.

Electric Discharge ProtoMech (EDP) Armor

Electric Discharge ProtoMech Armor has no special effect in *BattleForce*-scale games.

Extended Jump Jet (XJJ) System

ProtoMechs equipped with an Extended Jump Jet (XJJ) System are treated as jump-capable elements in *BattleForce*-scale games.

Fusillade and Improved ATM Launchers

Elements with sufficient number of Fusillade launchers and/or improved ATM launchers will receive the IATM special. Elements with the IATM special may use the following abilities, based on the special munitions selected:

Indirect Fire: This ability is available only to an element with IATMs firing standard munitions only (as a standard load is presumed to include extended-range missiles by default). In this case, the element may execute an attack as if it has an IF special of equal value (i.e., an IATM2 special can also act as an IF2 special). This ability cannot be used if the element has designated any other alternate munitions for its IATMs.

Magnetic Pulse: Using this alternate munition, the element's normal Short-range damage value is reduced by 1 point, but any attacks that hit at Short range will reduce the target's MP by 1 and apply a -1 to-hit modifier for all of the target's weapon attacks, throughout the following turn. (Multiple magnetic pulse hits will not stack these modifiers.)

Improved Inferno: Using this alternate munition, the element's normal attack is reduced by 1 point at Short range. But if this attack hits a target in the Short range bracket, the target suffers the effects of a HT# special attack equal to the numerical value of the element's IATM# special (i.e., an IATM2 will translate to a HT2 effect).

Magnetic Clamp System

ProtoMechs with magnetic clamps may ride on a BattleMech as if they were a battle armor infantry element with the XMEC special (see p. 144, *IO:BF*). No more than 2 ProtoMechs with the MCS special (or 1 with the UCS special) may ride on a single transporting 'Mech at the same time.

When transporting ProtoMechs via the MCS or UCS special, the transporting 'Mech will lose 1 MP per ProtoMech carried, as long as the ProtoMechs remain attached to it.

Nova Composite Electronic Warfare System

An element with the NOVA special mounts a special electronics warfare system that not only provides the abilities of the ECM and PRB specials, but also acts as a C³-style network that can link up to 3 friendly elements (see pp. 154-155, *IO:BF*) as long as they are also equipped with the NOVA special. (The NOVA is incompatible with Inner Sphere C³ systems of all types.)

Unlike a normal C³i system, the Nova cannot be disrupted by ECM, LECM, and WAT specials; it can only be disrupted by a hostile element with the NOVA special.

ProtoMech Quad Melee Weapon System

A ProtoMech equipped with a Quad Melee System is able to execute physical attacks.

Specialty Munitions: IMP and IIW Missiles

Improved Magnetic Pulse (IMP) missiles and Improved Inferno Warhead (IIW) missiles are alternate munitions available only to Improved ATM (and Fusillade) launchers. Full rules for these munitions may be found under the rules for Fusillade and improved ATM launchers (see p. 59).

The rules governing the use of alternative munitions in *BattleForce* are found in *Interstellar Operations: BattleForce* (see pp. 108-110, *IO:BF*).

ADVANCED PILOT INTERFACES (MULTIPLE ERAS)

Of the advanced pilot interfaces covered in this chapter, only two have any effects in *BattleForce* games: the Direct Neural Control System and the Virtual Reality Piloting Pod. These effects are defined below.

The other pilot interface technologies featured in this chapter—Damage Interrupt Circuit and the SLDF Advanced Neurohelmet—have no effect at the *BattleForce* scale of play.

Direct Neural Control System

An element featuring a DN special ability has a cockpit modified for use by a warrior or crew with a DNI implant—including the prototype DNI, vehicular DNI, or buffered VDNI implants (see *Augmented Warriors*, pp. 68-79). If the pilot or crew lacks such implants, the element operates normally, with no benefits from the system.

Otherwise, the use of this feature applies a -1 modifier to the pilot's Skill rating, so a DNI-implanted pilot or crew with a base Skill rating of 2 will become a Skill rating of 1 in an element with this special. However, any Fire Control critical hit the element receives during a scenario will result in a Crew Stunned effect to the element (regardless of the element's type). If this happens to an aerospace element operating within the Radar Map above a ground battle, treat the stunned element as if it has shut down for a duration of 1 turn.

Virtual Reality Piloting Pod

An element with the VR special applies a -1 target modifier to any special Control Rolls required of the element (such as those to avoid skidding or becoming stuck in bog-down terrain), but the element becomes unable to use the *Ejection/Abandoning Elements* rules (see p. 114, *IO:BF*).

Furthermore, if an element with this special begins its Combat Phase within an area affected by hostile ECM of any type (such as those generated by LECM, ECM, NOVA, and WAT specials), it may not attempt any ranged weapon attacks, and suffers a +2 to-hit modifier for any physical attacks it attempts.

ADVANCED PROTOTYPE SYSTEMS (AGE OF WAR)

The advanced prototype weapons and equipment that debuted in the years leading up to (and during) the Reunification War have the following effects in *BattleForce* games.

Advanced Prototype Weapons

Elements mounting these advanced prototype weapons follow all appropriate rules for standard weapons in gameplay.



Prototype Artemis IV

In gameplay, prototype Artemis IV has no special effect on an element's attacks.

Prototype Beagle Active Probe

The prototype Beagle active probe (BAP-P) has the same effects as a standard active probe in *BattleForce* game play.

Prototype CASE

When an element with prototype CASE (CASEP) suffers an Ammo Explosion critical hit, the attacker rolls 1D6. On a 3 or higher, the critical hit is ignored. On a result of 2 or less, the element suffers an explosion and is destroyed.

Prototype Double Heat Sinks

Prototype double heat sinks have no special effects in *BattleForce* gameplay.

Prototype Endo Steel Structure

Prototype endo steel internal structure (ES-P) has no special effects in *BattleForce* gameplay.

Prototype Extralight Fusion Engine

Prototype XL fusion (XL-P) engines have no special effects in *BattleForce* gameplay.

Prototype Ferro-Fibrous Armor

Prototype ferro-fibrous armor (FF-P) has no special effects in *BattleForce* gameplay.

Prototype Guardian ECM

The prototype Guardian ECM suite (ECM-P) has the same effects as a standard ECM suite in *BattleForce* gameplay.

Prototype Narc Missile Beacon

The prototype Narc missile beacon (NARC-P) has the same effects as a standard Narc missile beacon in *BattleForce* gameplay.

Prototype Remote Sensor Dispenser

The prototype remote sensor dispenser (RS-P) provides the same reconnaissance benefits as a standard remote sensor dispenser in *BattleForce* gameplay.

Prototype TAG

Prototype TAG (TAG-P) functions in the same manner as the production-grade Inner Sphere TAG in *BattleForce* gameplay.

AUGMENTED WARRIORS (MULTIPLE ERAS)

The following rules address the use of modified warriors in *BattleForce*, but only covers the cases where such augmentations have an actual effect at this scale of play. While the effects of some of these enhancements may seem trivial, others can be quite

unbalancing for normal games, and players should limit their use to forces rated Elite or better, to further reflect their rarity.

If the players are tracking casualties in an ongoing campaign, the abilities provided by an augmented warrior are lost if that augmented warrior is killed or captured, even if his vehicle or equipment is salvaged.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Belter Augmentations

Belter warriors receive a -1 Skill modifier as long as the scenario in question takes place in space or under low-gravity conditions (G-ratings of 0.7 and under, see p. 115, *IO:BF*). In addition to this, Belter aerospace fighter pilots receive an additional -1 Skill modifier, but only when operating in space.

Cybernetic Augmentations

The following rules cover cybernetic warrior augmentations that have an effect in *BattleForce*.

Communications Implants: Elements controlled by warriors with a communications implant (or its boosted version described below) receive the CI special unit ability. If used as a spotter for indirect fire (see p. 35, *IO:BF*), the element applies a -1 to-hit modifier to the indirect fire attack.

Boosted Communications Implants: In addition to receiving the CI special unit ability and the benefits of a basic communications implant described above, elements controlled by warriors with the boosted communications implant will also receive the C³I special unit ability (but *not* the MHQ special).

Sensory Implants: Any element controlled by a warrior with sensory implants (including multi-modal sensory implants) receives the LPRB and RCN abilities. Multi-modal sensory implants will improve weapon damage by such elements as well.

Enhanced Multi-Modal Sensory Implants: Elements controlled by warriors with enhanced multi-modal sensory implants receive the PRB and RCN abilities, reflecting a greater detection range.

Filtration Implants: Infantry elements equipped with filtration implants receive the FI special unit ability. If exposed to atmospheric toxins from poisonous atmosphere or nerve gas weapons, these elements ignore these effects. They do, however, remain susceptible to drowning from underwater hull breaches, and cannot operate in vacuum.

Dermal Camouflage Armor: Conventional infantry elements whose warriors possess this implant receive the LMAS special unit ability.

Triple-Strength Myomer Implants: Infantry elements whose warriors possess this implant type receive the TSI special unit ability. These elements will be susceptible to the effects of Anti-TSM warheads (see p. 98).

Triple-Core Processor: An element controlled by a warrior with a triple-core processor (TCP) implant receives the TCP special unit ability and applies a +2 Initiative modifier for that element's force—but only if the TCP-augmented warrior is also the force's overall commander. (This Initiative modifier is lost if this command element is destroyed.)

Having a warrior with a TCP also adds a MHQ1 special to the warrior's element for the purposes of battlefield intelligence (see *Battlefield Intelligence*, pp. 63-65, *IO:BF*). If the element already has the MHQ special and its warrior is the force commander, the Initiative modifier increases to +3, and the element's MHQ# special increases by 1 point.

Finally, if the warrior's element possess ECM of any type (including LECM, ECM, and WAT specials), the triple-core processor implant makes that warrior's element immune to hostile ECM effects.

Direct Neural Interface (DNI) Implant: Only a pilot with a DNI implant (including the Prototype DNI, Vehicular DNI, or Buffered VDNI implants), or using an EI neural implant in an element equipped with an EI-compatible interface, may activate the features of a direct-neural control system in an element that possesses one (see *Direct Neural Control System*, p. 207).

Prototype DNI Implant: In addition to the effects described for the Direct Neural Interface implant above, an element piloted by a warrior using a prototype DNI implant must roll 2D6 every time the element is hit. If the result of this roll is 8 or less, the element suffers the effects of a Crew Stunned critical hit, regardless of its element type.

Prosthetic Leg MASC: Conventional infantry elements augmented by warriors with prosthetic leg MASC receive the PL special. Attacks against these elements apply an additional +1 to-hit modifier.

Prosthetic Wings: A conventional infantry element whose warriors have been augmented with prosthetic wings (including glider wings and powered flight wings) receives the PAR special element ability (see p. 149, *IO:BF*). If the element possesses powered flight wings, it also receives the ability to move 2 MP per turn as a VTOL (movement code v).

Augmented Warriors

Because warrior augmentations affect the pilots, crews, and troops in a *BattleForce* element, rather than its actual capabilities, it is up to the players to identify and keep track of which elements are operated by augmented warriors, and which are not.

Skill-Modifying Augmentations: When converting any element that is piloted or crewed by warriors augmented in a way that affects their Skill rating, use the modified Skill rating for the element's final Point Value calculations.

Communications Implants: An element controlled by warriors with the communications implant or boosted communications implant receives the CI special unit ability. The boosted communications implant also adds the C³I special unit ability to the element (but not the MHQ special).

Sensory Implants (Basic, Enhanced, and Multi-Modal): Elements controlled by warriors with sensory implants receive the LPRB and RCN special unit abilities. If the sensory implants are identified as "enhanced", the element receives the PRB and RCN specials instead.

In addition to this, when converting damage values for an element controlled by sensory-implant augmented warriors, multiply all of the element's weapon attacks by 1.05 (before rounding) if the warriors are augmented with multi-modal sensory implants of either type (e.g., a PPC's damage increases from 10 points to 10.5).

Dermal Armor Implants: Infantry elements whose warriors are modified by dermal armor implants (including camouflage and triple-strength myomer) must remember to apply the armor divisors for these systems in the conversion process. Non-battle armor infantry elements with dermal camouflage armor also receive the LMAS special.

Non-infantry elements with dermal implants of any type receive no benefit from them in gameplay, and thus ignore these implants during the conversion process.

Triple-Core Processor Implant: An element commanded by a warrior with this augmentation receives the TCP special unit ability.

Triple-Strength Myomer Implant: In addition to the armor divisors mentioned above, remember that any extra damage granted by triple strength myomer implants is factored into the infantry element's attack values during the conversion process. In addition, such infantry elements will also receive the TSI special unit ability. (Non-infantry elements with triple-strength myomer implants receive no benefit from them in gameplay, and thus ignore these implants during the conversion process.)

VDNI and Prototype DNI Implants: The Skill modifiers granted by these implants only apply when combined with an element that already has the DN special unit ability. If the element does not have the DN special unit ability, the Skill modification does not apply.

Prosthetic Leg MASC: The extra MP provided by prosthetic leg MASC is factored into the infantry element's base movement during the conversion process. In addition, such infantry elements will also receive the PL special unit ability. (Only foot infantry elements with prosthetic leg implants receive these modifications in conversion; all other element types ignore these augmentations during the conversion process.)

Prosthetic Limbs (All Types): Conventional infantry elements that make use of all types of prosthetic limbs—including the enhanced,

improved enhanced, and extraneous enhanced—must include the added damage values provided by any weapons mounted within them prior to conversion. All other element types ignore these augmentations in the conversion process.

Prosthetic Wings: Conventional infantry elements with prosthetic wings gain the PAR special unit ability. Powered flight prosthetic wings also add 2 MP of VTOL movement to the element's capabilities. All other element types (including battle armor infantry) ignore these augmentations during the conversion process.

CENTURION WEAPON SYSTEM (STAR LEAGUE)

The Centurion weapon system that debuted during the Star League era functions in *BattleForce* like a TSEMP weapon (see p. 96).

DARK AGE AND RISC EQUIPMENT (DARK AGE)

The advanced weapons and equipment that debuted in the Dark Age era have the following effects in *BattleForce* games.

Dark Age Weapons

Elements mounting these Dark Age weapons follow all appropriate rules for standard weapons in gameplay.

Anti-Penetrative Ablation (ABA) Armor

An element with the ABA special unit ability is protected by anti-penetrative ablation armor—often simply called ablative armor—is resistant to specialty munitions designed to pierce most other armor types. A unit with this special ignores attacks by taser weapons (MTAS# and BTAS# specials), and negates the bonus critical hit check made for attacks that use armor-penetrating ammunition and tandem-charge missile munitions (see pp. 109 and 110, *IO:BF*).

Ballistic-Reinforced Armor

An element with the BRA special unit ability is protected by armor specially developed to counter projectile weapons and missiles, ballistic-reinforced armor reduces all damage delivered by attacks that make use of the AC, IATM, IF, LRM, or SRM specials, by half (rounding up). This reduction is applied whether the attack is delivered using an element's normal damage values, or by just its special unit abilities.

Thus, if an element that delivers normal attack values of 5/4/2, with an AC2/2/0 special, delivers a successful standard attack at Medium range against an element with the BRA special, the damage will be reduced by 1 point (half the AC attack value at Medium range), dropping the normal total of 4 points to 3.

Though similar to reactive armor in many ways, ballistic-reinforced armor will not reduce damage from attacks made using the ART, BOMB, MSL, or FLK specials.

HarJel Repair Systems

An element that features the BHJ2 or BHJ3 special unit abilities is equipped with improved versions of the hull-sealing technology known as BattleMech HarJel. In addition to providing the same hull breach resistance of standard HarJel (see p. 142, *IO:BF*), units protected by HarJel II or HarJel III will recover armor points lost to damage as long as they begin the End Phase with at least 1 point of armor remaining. The amount of armor recovered at this point is 1 point for elements that have the BHJ2 special, or 2 points for elements with the BHJ3 special.

The maximum armor points an element may recover with BattleMech HarJel II or III may never exceed the element's original



armor value. BHJ2 and BHJ3 special abilities will not recover structure points or critical damage, and these abilities will cease to function entirely if the element is reduced to 0 armor points before its End Phase.

Heat-Dissipating Armor

An element protected by heat-dissipating armor receives the same benefits in *BattleForce* as one protected by fire-resistant armor (see p. 144, *IO:BF*).

Impact-Resistant Armor

An element with the IRA special unit ability is protected by impact-resistant armor. When an element with this special sustains damage as a result of a physical attack (including those delivered using a MEL special, or self-inflicted damage from a Death from Above attack), the damage sustained by the element is reduced by 1 point, to a minimum of 1 point.

In addition to this, all critical hit rolls and hull breach checks made against this element apply a +1 modifier to the roll result. For critical hits, treat any modified result over 12 as an Engine Hit critical.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Radical Heat Sink System

An element with the RHS special possesses a “radical heat sink system” that can perform a special coolant flush action in any End Phase where its Heat Scale is 1 point or higher. This coolant flush will reduce the element’s heat level by 1 point (to a minimum of 0), but the controlling player must then roll 1D6. If the roll result is 1, the RHS special must be marked off, and the element fails to reduce its heat level for that turn. A radical heat sink system that has been marked off in this fashion is no longer usable for the remainder of the scenario.

Re-Engineered Lasers

An element that has the REL special carries enough re-engineered lasers to offset many of the benefits presented by several types of specialty armors, such as reflective. When an element with this ability successfully attacks an element featuring reflective armor (RFA special), ignore that armor’s damage-reducing effects.

Furthermore, if an element with this ability successfully attacks a target that features the critical-resistant (CR) special, replace the target’s normal –2 modifier for any critical hit rolls with –1.

Remote Drone Command Console

The remote drone command console is a smaller version of the drone carrier control (DCC) system described in *Interstellar Operations: BattleForce* (see p. 144, IO:BF). Intended for use in ‘Mech and fighter cockpits, this system can only direct the operation of a single drone at one time. Otherwise, it functions just like the drone carrier control system.

Tight-Stream Electromagnetic Pulse (TSEMP) Weapons

An element with the TSEMP# or TSEMP-O# special unit ability carries a number of tight-stream EMP weapons (TSEMPs), which function much like an energy-based version of the taser (see p. 152, IO:BF). As with taser weapons, the numerical value for this special ability indicates the number of TSEMP weapon attacks the element

may attempt per *BattleForce* turn. If this numerical value is preceded by a “-O”, then the element is only carrying one-shot TSEMPs, and the number instead indicates how many TSEMP attacks it may attempt for the entire scenario.

An element may only attempt TSEMP attacks during its Combat Phase, and these may only be directed against targets at Short or Medium range brackets in ground combat. (TSEMP weapons are ineffective in airborne combat, but may be part of an air-to-ground attack by fighters so equipped.)

A successful TSEMP attack has no effect against conventional infantry elements, DropShips, or any other elements that possess the VLG or SLG specials. For all other element types, a successful TSEMP attack must be followed by a second 2D6 roll, adding a –1 roll modifier if the target is a BattleMech or aerospace element, a –2 if the target has the LG special, and a +2 if the target is a support vehicle element.

If the modified roll result is 8 or higher, the target shuts down for 1 turn. On a 7 or less, the target instead suffers a +1 target modifier for all attacks and Control Rolls required of it for 1 turn. Multiple TSEMP attacks against the same target will not increase these modifiers, but each attack should make its effects roll as long as the target is not shut down. TSEMP effects against a target automatically wear off in the End Phase of the following turn.

RISC Advanced Point Defense System

An element with the RAMS special unit ability is equipped with a RISC advanced point defense system may use this special ability to reduce incoming missile fire against itself as a standard anti-missile system (see *Anti-Missile System*, p. 141, IO:BF), or it may use the system to reduce the missile damage to any other friendly element within its own lance/Star unit by 1 point.

The use of the RAMS special to defend its own element (or a friendly element) must be declared when the missile attack is resolved; a RAMS ability used to defend its own element cannot be used to defend a friendly element (and vice versa) in the same turn.



RISC Heat Sink Override Kit

The RISC heat sink override kit has no effect in *BattleForce* gameplay.

RISC Emergency Coolant System

An element with the ECS special possesses a RISC emergency coolant system. This system works much like the radical heat sink system (see p. 208), but with potentially more devastating effects in the event of a system failure. Like the RHS special, the system is activated in the End Phase of the turn, but will only do so if the element has reached a Heat Scale of 4 (Shutdown). Also like the RHS, the system requires a 1D6 check to determine if it suffers a failure when attempting its coolant flush.

If this 1D6 roll result is 2 or higher, the ECS reduces the element's Heat Scale by 2 points. If the result of the 1D6 roll is 1, the ECS special must be marked off and, just like the RHS, it will fail to reduce the element's heat level. In addition to this, an ECS failure will *also* inflict one Engine Hit critical on the element itself. The ECS remains inoperable for the remainder of the scenario once it is marked off.

RISC Laser Pulse Module

The RISC laser pulse module improves the accuracy of standard and extended-range versions of standard Inner Sphere laser weapons at a trade-off in heat. At the *BattleForce* scale of play, these effects are factored into the heat and damage values provided by the modified weapon.

RISC Super-Cooled Myomers

The RISC super-cooled myomer system has no effect in *BattleForce* gameplay.

RISC Viral Jammers

An element with RISC Viral Jammers will be noted with either a HJ special unit ability (for homing jammers), or a DJ special unit ability (for decoy jammers). A viral jammer may only be activated at the start of the element's Movement Phase, and will have the effects outlined below for its jammer type against all elements within 6 hexes of the jamming element, and which have an LOS to it at the end of their Movement Phase. Note that viral jamming affects friendly and opposing elements alike.

A RISC viral jammer remains active for 5 turns once it is activated, and cannot be shut off before then except through the destruction or shutdown of the operating element. Once a jammer is disabled in any way (or its 5 turns of operation elapse), its negative effects will dissipate, and the jammer's special ability is marked off the element's stats.

Decoy Jammers (DJ): Once a decoy jammer is activated, all elements within the jammer's area of effect must roll 2D6. If this roll result is 9 or higher, the element is unaffected by the jammer. Otherwise, any AECM, ECM, LECM, STL, or WAT specials the target element possesses will be rendered inoperative for the duration of the jammer's effect.

Homing Jammer (HJ): Once a homing jammer is activated, all elements within the jammer's area of effect must roll 2D6. On a result of 9 or more, these elements will function normally. Otherwise, the targeted elements will be unable to use any TAG, C³ systems of any kind (including C³BSM, C³BSS, C³EM, C³I, C³M, C³RS, or C³S), or the NOVA special, for the duration of the jammer's effect. In addition, if such elements feature an IATM, LRM, CNARC, SNARC, or SRM special, all attacks made that include these weapons' damage or effects will suffer a +1 to-hit modifier.

Clan ER PPC Capacitor

The development of a PPC capacitor compatible with Clan-made ER PPCs occurred in the decades following the Jihad. The Clan ER PPC and Capacitor combination has no special effects.

EARLY CLAN IMPROVED SYSTEMS (EARLY CLAN)

The improved weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Early Clan Improved Weapons

Elements mounting these improved weapons follow all appropriate rules for standard weapons in gameplay.

EARLY CLAN PROTOTYPE SYSTEMS (EARLY CLAN)

The prototype weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Early Clan Prototype Weapons

Elements mounting these prototype weapons follow all appropriate rules for standard weapons in gameplay.

EXPANDED PROTOMECHS (WARS OF REAVING)

With the exception of the Glider type of ProtoMech, the expanded ProtoMech technologies that were unveiled during the Clan Wars of Reaving function according to the standard *BattleForce* rules for such element types.

Glider ProtoMechs

Glider ProtoMechs are noted by having the Glider (GLD) special unit ability, and will feature two MP values, separated by a slash. The value left of the slash is the ProtoMech's ground MP, while the value to the right of the slash is its WiGE MP (movement code g).

In *BattleForce* gameplay, a Glider ProtoMech element must declare which movement mode it is using at the start of its Movement Phase. Glider ProtoMechs that opt to use their ground MP must follow all relevant rules for ProtoMechs using non-jumping ground movement, while those that use their WiGE movement must use the rule appropriate for Wing-in-Ground Effect vehicles (see p. 20, *IO:BF*)—including the minimum movement requirement of 2 hexes to remain aloft.

Furthermore, if an attack against a Glider ProtoMech element misses its modified to-hit number by 1 point, the attacker must roll 1D6. If the result is 5 or 6, the Glider ProtoMech suffers a glancing hit to its wings. This glancing blow reduces the element's WiGE MP by 1, but otherwise delivers no damage to the ProtoMech.

INNER SPHERE PROTOMECH INTERFACE (JIHAD)

The Inner Sphere ProtoMech interface that was prototyped during the Jihad has no special effect in *BattleForce* play, except that such elements can only be piloted by warriors who have received a direct neural implant of some kind.

INNER SPHERE RECOVERED PROTOTYPES (LATE SUCCESSION WARS)

The recovered Star League-era equipment, and prototype technologies that debuted in the Late Succession Wars have the following effects in *BattleForce* games.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Recovered Prototype Weapons

Elements mounting these recovered prototype weapons follow all appropriate rules for standard weapons in gameplay.

Prototype Double Heat Sinks (Freezers)

Prototype double heat sinks have no special effects in *BattleForce* gameplay.

Prototype Endo Steel Structure

Prototype endo steel internal structure (ES-P) has no special effects in *BattleForce* gameplay.

Prototype Ferro-Fibrous Armor

Prototype ferro-fibrous armor (FF-P) has no special effects in *BattleForce* gameplay.

Prototype Triple-Strength Myomer

Elements with the prototype form of triple-strength myomer (identified by the TSMX special unit ability) deliver 1 additional point of damage to all successful physical attacks they execute, regardless of the element's current heat level. This added damage is cumulative with any provided by a Melee (MEL) special ability.

Unlike standard and industrial TSM, prototype TSM does not provide a movement boost. More importantly, elements equipped with prototype TSM are susceptible to Anti-TSM special munitions (see below).

Specialty Munitions:

Listen-Kill Missiles and Anti-TSM Munitions

Listen-Kill missiles and Anti-TSM warheads missiles are alternate munitions available only to standard LRM and SRM launchers, and cannot be used by elements that lack either of those special abilities. The general rules governing the use of alternative munitions in *BattleForce* are found in *Strategic Operations* (see pp. 308-310, SO). The following rules detail the specific effects of these munitions in *BattleForce* play.

Anti-TSM Warheads: When making a successful ranged attack by elements equipped with Anti-TSM warheads—either while using just the element's IF, LRM, or SRM special abilities, or as part of a standard attack—reduce the attack's damage by 1 point. If the target possesses the TSMX or TSI specials, it sustains 2 additional points of damage and 1 additional critical hit, even if there is still armor remaining.

In addition to these effects, Anti-TSM warheads fill a 1-hex area with smoke centered on the element they hit. This "green smoke" which will linger, drift, and affect LOS as per the rules for normal smoke (see p. 118, IO:BF). Elements with the TSMX or TSI specials that enter this smoke area—or which begin their Movement Phase within a smoke area previously created by Anti-TSM warheads—will immediately suffer 1 point of structure damage if they do not possess any armor at that time, resolving Critical Hits accordingly.

Listen-Kill Missiles: Elements using Listen-Kill missiles receive a -1 to-hit modifier when executing attacks against a target, whether doing so with just the element's LRM or SRM special, or as part of a full standard attack. (**Note:** For scenarios set after 3039, this modifier is negated.)

Space Station K-F Adapter

Elements with Space Station K-F Adapters are counted as DropShips for the purposes of being transported by ships with KF-capable docking collars (represented by the DT# special). Docking and undocking a station element fitted with a K-F adapter follows the standard rules for this item (see p. 99), except the number of turns required is halved. Any

K-F Drive critical hits to a space station with a K-F adapter are treated as a K-F Boom critical hit instead (see p. 85, IO:BF).

LAND-AIR BATTLEMECHS (MULTIPLE ERAS)

An element that is built as a Land-Air BattleMech (LAM) will have either a LAM (#g/#a) special, or a BIM (#a) special to identify itself as such. LAMs can change modes from that of a BattleMech to that of an aerospace fighter, using the movement rules for the element type corresponding to their mode. LAMs not indicated as bimodal-only (those with the BIM special) also include a hybrid configuration known as AirMech mode, in which the 'Mech can move as a wing-in-ground effect (WiGE) vehicle element.

Regardless of their current mode of operation, LAMs are technically considered BattleMechs, and will thus function in accordance with the standard *BattleForce* rules for 'Mech elements except as follows:

Mode Switches and Movement

When a LAM switches between modes, this switch always takes place at the start the element's Movement Phase. The action is incidental to the element's movement, and switches it to the movement type of its chosen form:

- LAMs in 'Mech mode function as jump-capable BattleMechs, and may only use the movement rules and modifiers applied to standard ground and jumping movement types in this mode. These movement ranges will be shown on the element's basic Move stats.
- LAMs in AirMech mode function as BattleMechs with a WiGE movement type (the movement mode ending in "g" after the LAM special), and may only use the movement rules and modifiers applied for WiGE vehicle elements in this mode. Note that the number of MPs a WiGE receives may be different from the amount of MPs it receives in 'Mech mode.
- LAMs in Fighter mode function as aerospace elements for movement purposes. Once the switch to this mode occurs, the element's Thrust is identified by the aerodyne movement value (the movement mode ending in "a" after the LAM or BIM special).
- If a LAM is currently being attacked by Anti-'Mech Infantry (see p. 122, IO:BF)—or was attacked by an Anti-'Mech Infantry element that has yet to move away from the previous turn—when it changes modes, the LAM delivers 1 point of damage to the attacking infantry element, but must roll for and resolve a Critical Hit against itself before it can perform any other actions in the turn where it converts.

Combat Phase

The following rules additional rules apply to LAMs in combat:

Target Movement Modifiers: Attacks against LAMs use the target movement modifiers appropriate to their current mode of operation. LAMs in Fighter and AirMech mode are considered airborne elements for targeting purposes, with attacks against AirMech-mode LAMs treated as an attack against an airborne 'Mech, and attacks against Fighter-mode LAMs treated as an attack against an airborne aerospace fighter.

Weapon Attack Arcs: LAMs in all modes use the same weapon attack arcs as a BattleMech.

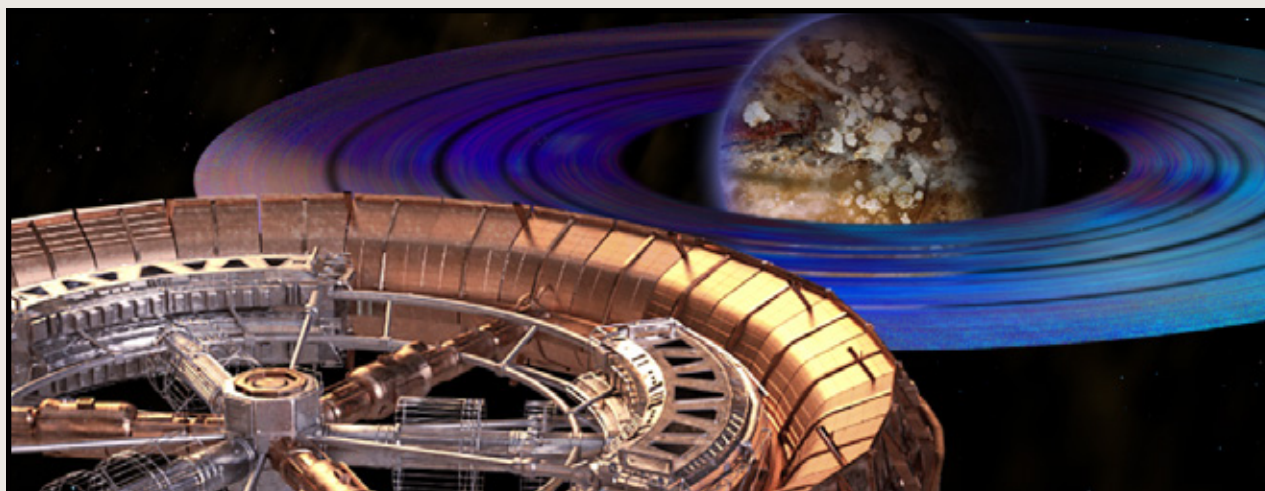
Control Rolls: LAMs in fighter mode make Control Rolls whenever they would normally be required for aerospace elements.

Damage and Critical Hits: In all three modes, LAMs suffer damage and critical hits as a BattleMech.

Additional Land-Air BattleMech Rules

LAMs also apply the following additional rules during *BattleForce* game play:





Bimodal LAMs: A LAM identified as bimodal—with the BIM (#a) special—cannot make use of the AirMech mode. Bimodal LAMs can only switch between standard 'Mech and fighter configurations.

Unit Transports: Another advantage to LAMs is that they can be carried by transports intended for either 'Mechs or fighters by simply switching to the appropriate mode. A LAM in 'Mech mode can be transported and deployed by units that possess 'Mech cubicles (MT# special), while one in fighter mode can be carried and launched from units that possess fighter cubicles (AT# special).

MACHINA DOMINI INTERFACE (JIHAD)

A 'Mech element that is operated by a Machina Domini Interface (Clan or Inner Sphere) functions as a normal BattleMech in *BattleForce* play, with a -1 Skill modifier applied to the operating warrior. Be sure to adjust the element's *BattleForce* Point Value to account for this Skill improvement. In addition to this, warriors piloting a Machina Domini-operated element automatically eject in the event their element is destroyed in combat (see p. 114, *IO:BF*).

Only warriors who have been augmented with a VDNi implant of some type may operate an element fitted with a Machina Domini interface. While operating a 'Mech element via a Machina Domini interface, the operator's battle armor-based control system is treated as part of the 'Mech, and thus is not tracked as a separate element. When ejected or otherwise outside of its 'Mech, the suit is treated as an ejected warrior per the Ejection/Abandoning Elements rules cited above.

MODULAR SPACE STATIONS (MULTIPLE ERAS)

An element that is built as a modular space station follows the standard *BattleForce* rules for space stations, but is treated as having a Space Station K-F Adapter. Assembly/disassembly follows the standard rules (see p. 111), except the number of turns required is halved. Disassembled modular space stations may then be docked with any jump-capable elements that possess a DT# special ability, with a maximum of 2 space station modules per jump-capable element.

PRIMITIVE PROTOTYPE EQUIPMENT (AGE OF WAR)

The primitive prototypes of the weapons and equipment that debuted in the early years of Clan development have the following effects in *BattleForce* games.

Primitive Prototype Weapons

Elements mounting these improved weapons follow all appropriate rules for standard weapons in gameplay.

DropShuttle Bays

Elements with DropShuttle Bays count as having the DropShip Transport ability (DT#), with each DropShuttle Bay counting as the equivalent of 2 docking collars (see p. 144, *IO:BF*). Docking attempts follow the standard rules (see p. 119), except the required number of turns is halved.

Pre-KF Boom Docking Collar

Elements with a Pre-KF Boom Docking Collar treat these as standard docking collars for most operations, adding the DT# special to the unit for each pre-boom collar the element possesses, but must add a lower-case "p" to the end of the special ability code to identify the transport capability as pre-boom (e.g. DT3p for an element with 3 pre-boom docking collars). Elements that mount pre-boom collars may not execute hyperspace jumps while any DropShips are docked with it.

Other Primitive Prototype Equipment

The other "primitive prototype" equipment featured in this chapter—K-F drive booms and post-KF boom docking collars for spacecraft, and jump jets for 'Mechs—operate as their normal counterparts under *BattleForce* rules. No special rules apply for their use in gameplay.

PRIMITIVE UNITS AND RETROTECH (MULTIPLE ERAS)

The following *BattleForce* rules apply to elements built using the rules for primitive units. Players running games set after the Age of War period may still employ primitive construction rules, but any elements built via the primitive construction rules after the founding of the Star League (2570) will be classified as "RetroTech" instead. It is up to the players to clearly identify which elements are which in the event that a scenario features a mix of primitive, modern, and/or RetroTech elements.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Primitive Targeting Modifiers

In *BattleForce* play, primitive IndustrialMechs with the AFC special ability and aerospace fighter elements automatically suffer a +1 to-hit modifier for all attacks due to their less sophisticated targeting systems. This same modifier also applies to primitive combat vehicles with the AFC special, and primitive conventional fighters with the AFC, which are built using support vehicle rules, and thus use the rules for those element types in *BattleForce* play.

Primitive elements that have the BFC special unit ability (Basic Fire Control) will suffer a +2 Skill modifier instead of the +1 indicated above, while primitive IndustrialMechs and vehicle elements with *neither* the AFC nor the BFC specials will suffer a +3 Skill modifier.

Primitive BattleMechs suffer no added to-hit modifiers due to their primitive construction, nor will any modern elements built to primitive standards (also known as “RetroTech” elements).

Damage to Primitive and RetroTech Elements

When applying damage to elements built with a primitive or RetroTech construction rules, use the standard *BattleForce* gameplay rules, including those for special unit abilities such as BAR.

If the element is a ‘Mech, roll twice for any required Critical Hit checks, even if the element is a BattleMech. If the element is an IndustrialMech, apply an additional +2 roll modifier for these Critical Hit rolls, treating any result higher than 12 as a “Fuel Hit” critical result (even if the element does not carry fuel).

For all other primitive and RetroTech elements, no additional special rules apply.

PROTOTYPE SPECIALTY MUNITIONS (CLAN INVASION)

Of the short-lived prototype specialty munitions that appeared in the Clan Invasion era, only dead-fire missiles, and shoot-and-sit missiles have an effect in *BattleForce* play. Dead-fire missiles are alternate munitions available only to standard LRM and SRM launchers, and cannot be used by elements that lack either of those special abilities, while shoot-and-sit missiles are only available to elements equipped with a standard Narc launcher (SNARC special).

The general rules governing the use of alternative munitions in *BattleForce* are found in *Interstellar Operations: BattleForce* (see pp. 108-110, IO:BF). The following rules detail the specific effects of these munitions in *BattleForce* play.

Dead-Fire Missiles

When delivering an attack using dead-fire missiles, increase the damage delivered by the element’s LRM or SRM special by 1 point, but decrease its maximum range by 1 bracket. (For example, with dead-fire missiles, the LRM1/2/2 special would become LRM2/3/0, while the SRM3/3 special would become SRM4/0.)

When using dead-fire missiles as part of a standard weapon attack, remember to adjust the element’s normal damage values accordingly (e.g. eliminating the Long range LRM damage values for elements with LRM specials while increasing their Short and Medium range damage by 1; or eliminating the Medium range SRM damage values for elements with SRM specials, while increasing their Short range damage by 1).

Shoot and Sit Missiles

Shoot-and-sit (SS) missiles were an early version of the explosive Narc pods that could either be detonated immediately on contact (like the explosive pods, as defined on p. 109, IO:BF), or detonated later.

When making a weapon attack, an element using shoot-and-sit missiles can declare when attacking that it is either using these warheads as normal contact-explosive pods—in which case the explosive pod rules are used, and deliver 1 point of damage per 2 pods, rounded down—or is withholding the detonation for later. If

the attacker opts for a later detonation, it must track each successful hit made against its target using the SNARC special. To detonate these missiles later, the attacker must begin its Combat Phase with a valid LOS to the target that has been “seeded” with SS missiles, and declare that it is setting off the explosives as part of its own weapon attack.

The detonation delivers damage to the target equal to 1 point for every 2 successful SNARC attacks previously made against the target using SS missiles. When detonated later in this manner, all of the SS missiles are set off at once; the attacker cannot choose to set some off and save others for later.

An element using SS missiles can only detonate its own missiles in this manner. If the element using SS munitions is destroyed before it can set off its explosives, the unexploded missiles will not be detonated (and can be safely removed post-battle).

QUADVEES (DARK AGE)

An element that is built as a QuadVee will have the QV special to identify itself as such, as well as a base movement code given as either “qt” or “qw”. Because the torso of a QuadVee also functions as a turret, these units will also feature a TUR (###/##) special ability.

Similar to a LAM, but entirely ground-based, a QuadVee is a ‘Mech designed to switch between ‘Mech and vehicle movement options. Unlike LAMs, QuadVees do not have a hybrid mode of operation.

QuadVees are considered BattleMech elements regardless of their current mode, and thus will function in accordance with the standard *BattleForce* rules for ‘Mech elements except as follows:

Mode Switches and Movement

When a QuadVee switches between modes, its conversion always takes place at the start the element’s Movement Phase. The action is incidental to the element’s movement, and switches it to the movement type of its chosen form:

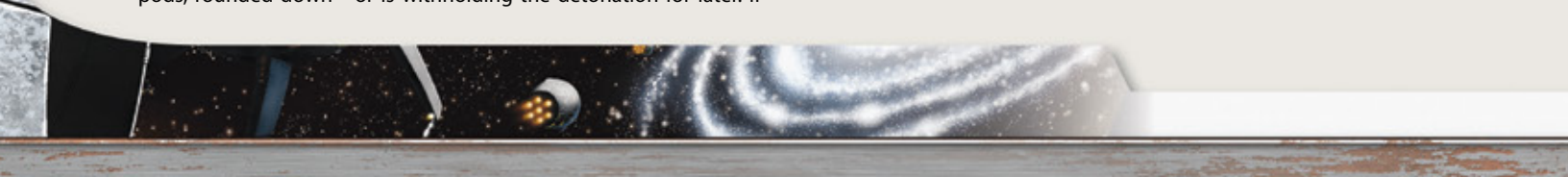
- QuadVees in ‘Mech mode function as four-legged ‘Mechs, and thus may use the standard movement rules and modifiers applied to ‘Mech elements (including jump capability, if indicated in the element’s stats). These movement ranges are as those shown on the element’s basic Move stats.
- QuadVees in vehicle mode function as ground vehicles for movement purposes, but the type of movement used in this mode varies with element’s movement code. A QuadVee movement code of “qt” indicates that the element uses tracked movement when in vehicle mode, while a code of “qw” indicates that it uses wheeled movement in vehicle mode. The base MP a QuadVee has in vehicle mode is identical to its non-jumping ‘Mech mode. While in vehicle mode, a QuadVee must obey all terrain restrictions for vehicles of its movement type, and cannot use jumping movement even if it possesses that ability in ‘Mech mode. However, vehicle-mode QuadVees *will* gain other benefits unique to vehicles (such as the extra 1 MP of movement on paved terrains).
- Wheeled QuadVees in vehicle mode increase their available MP per turn by 1.

Combat Phase

The following rules additional rules apply to QuadVees in combat:

Target Modifiers: Attacks against QuadVees use all target modifier rules appropriate to the QuadVee’s current mode of operation.

Weapon Attack Arcs: QuadVees in both modes possess a 360-degree weapon attack arc, as indicated by the fact that the element’s damage values are also given as a TUR (###/##) special. Despite this, the element retains a rearward facing and attacks through its rear arc are resolved with the same modifiers and effects as a rear attack on a BattleMech.





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Autonomous and unmanned, M-5 Caspar Capital Drones once guarded the Terran Hegemony worlds with cold logic and heartless lethality.

Damage and Critical Hits: In both modes, QuadVees suffer damage and critical hits as a BattleMech. Unlike vehicles, QuadVees do not check for Motive Systems Damage under any circumstances (see p. 41, *IO:BF*).

Other QuadVee Rules

QuadVees also apply the following additional rules during *BattleForce* game play:

Water Movement: Unlike normal vehicles, QuadVees in vehicle mode may enter water of Depth 0 or 1, but must be in 'Mech mode to enter Depths 2+. Vehicle-mode QuadVees in water of Depths 0 and 1 use the movement costs applied to 'Mech elements.

Unit Transports: Another advantage to QuadVees is that they can be carried by transports intended for either 'Mechs or vehicles by simply switching to the appropriate mode. A QuadVee in 'Mech mode can be transported and deployed by elements that possess 'Mech cubicles (MT# special), while one in vehicle mode can be carried and launched from units that possess vehicle bays (VTM#, VTH#, or VTS# specials).

The only concern when carrying vehicle-mode QuadVees in this manner is that the QuadVee must be within the size limits described for the appropriate bay type (see p. 153, *IO:BF*).

ROBOTIC AND DRONE SYSTEMS (MULTIPLE ERAS)

Virtually all element types found in *BattleForce* may be constructed as drones. Drones are either driven remotely by human operators, or controlled by their own on-board artificial intelligence software. For the sake of these rules, a unit with the Drone (DRO) special is considered to be a remote-controlled unit, while those with the Robotic (RBT or SDCS) specials operate independently.

Remote-Operated Drones

The use of remote-operated drones is largely covered already by the rules for the Drone and Drone Carrier Control System special unit abilities found in *Interstellar Operations: BattleForce* (see p. 144, *IO:BF*). Additional rules regarding these drones are covered under *Additional Drone Rules* (see p. 202).

Robotic Drones

Robotic elements—identified by the RBT special unit ability code—are designed for independent operation, and thus do not rely on constant communication for combat directions, nor do they require the presence of a control element as remote drones do. Despite this, robotic drones can still be impaired by hostile ECMs as their sensor suites become blinded or disoriented by the interference. The following rules cover the operation of robotic drones in *BattleForce* games.

Robotic Initiative: Because they are specifically designed to operate independent of human control, any time a force of robotic elements is present in a scenario, all robotic elements fielded by each side must roll their own Initiative. A robotic force's Initiative roll automatically

applies a -2 modifier automatically (-1, if the robotic unit features the SDCS special).

Robotic Skill Ratings: As with remote drones, robotic drones that lack the SDCS special receive a Skill rating 1 point higher than an equivalent human-operated equivalent. Thus, a Regular-rated non-SDCS robotic tank would possess an effective Skill of 5, rather than 4. Robotic elements *with* the SDCS special receive a Skill rating equal to any human-operated element of the equivalent Skill Rating.

Because few robotic AIs can match the intuitive abilities of a human, the maximum Skill Rating a robotic unit may possess is Elite—so, a robotic unit without the SDCS special may not receive a Skill rating better than 3, while the best Skill rating a robotic drone *with* the SDCS special may attain is 2.

Robotic Aggression Modes: At the *BattleForce* scale of play, the elaborate decision trees described earlier in this book are replaced with a simpler guide to robotic drone behavior, based on the element's "Aggression Mode". Prior to the start of a scenario involving robotic drone elements, the drones' controlling player must assign an Aggression Mode to each unit of robotic elements. This Aggression Mode will establish the drones' general mission and tactical functions for the scenario, and may be set as Aggressive, Defensive, Passive, or Suicidal.

- **Aggressive Mode:** An aggressive robotic element will take an active role in combat, targeting and attacking any hostile elements that come within its weapons' range and line of sight. The aggressive element may pursue its enemies as the controlling player sees fit, and will continue to pursue for any distance, unless the drone suffers crippling damage (at which point it will follow Forced Withdrawal rules and return to its base).

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

- **Defensive Mode:** Defensive robotic elements will stay close to an objective or designated map area that it is tasked with protecting, never straying farther than 12 hexes from its charge. Defensive drones will only target hostile elements that enter their weapons' range, and may seek better positions to strike at them from, but they will never allow themselves to be drawn too far away from their defensive objective. If a defensive drone does find itself farther than 12 hexes from the focus of its defense, it will move back toward it at the earliest opportunity. As with aggressive drones, defensive drones return to base per *Forced Withdrawal* rules once they have sustained crippling damage.
- **Passive Mode:** A passive robotic element is even less apt to move and engage enemies than a defensive one. These drones will only attack a hostile target that has entered their Short range bracket, and are always susceptible to *Forced Withdrawal* rules if they sustain crippling damage. A passive drone will not move farther than 3 hexes from its assigned position.
- **Suicidal Mode:** Robotic drones set to a suicidal level of aggression will always attempt to close with and engage the nearest hostile element during combat. Suicidal drones will also ignore *Forced Withdrawal* rules under all conditions. If a suicidal drone is crippled and rendered unable to attack a target, it may—at the controlling player's option—initiate a self-destruct sequence. A self-destructing drone with a Booby Trap device will deliver the full damage value of that device to all elements in its hex (see p. 142, *IO:BF*); if it lacks such a device, the self-destructing drone will deliver damage equal to its Size value to all elements in its hex.

Aerospace Drones: When using the Aggression Modes for robotic aerospace elements with the abstract aerospace combat rules, disregard the range references described, and replace the movement range limitations of the defensive and passive modes as follows:

- For defensive robotic elements, all movement must be restricted to the Central Zone and the Inner, and Middle Rings of the Radar Map that the element is operating in.
- Passive robotic elements will restrict their movement range to the Central Zone and Inner Ring only. If forced to retreat for any reason, the robotic element will return to its base vessel or landing area, or—if none has been defined—simply move to stay as close to the Central Zone as possible.

ECM Effects on Robotic Elements: Unlike remote-controlled drones, robotic elements caught within a hostile ECM field will not simply shut down. Instead, whenever a robotic element begins its Movement Phase inside the area of a hostile ECM field, the drone's controlling player must roll 1D6.

On a result of 4 or less, the robotic element becomes blinded for that turn. A blinded robotic element will behave as a crippled element under *Forced Withdrawal* rules, and retreat toward its home area.

On a result of 5, the robotic element becomes dazed for that turn. While dazed, the element will simply move in a random direction (turning only to avoid entering illegal terrain), and will attempt no attacks in the Combat Phase.

On a 6 result, the robotic element goes berserk. In this state, the robotic element behaves as if it has been set to a Suicidal Aggression Mode, and will target, close with, and attack the nearest element of any type. Because its sensors are disrupted at this time, the berserking robotic element will not be able to tell friend from foe in this state, and will attack the nearest element from *any* side.

ECM effects against robotic elements end at the start of any turn in which the robotic element is no longer within a hostile ECM field.

Additional Drone Rules

Neither of the drone types covered by these rules—remote-controlled or robotic—may benefit from special command or pilot abilities (such as those found on pp. 65-68 and pp. 96-107, *IO:BF*). If such optional command rules are in play, drone elements are omitted from any chains of command that may receive special tactical commands. Furthermore, remote-controlled and robotic drones may take advantage of any rules that rely on the MHQ# special unit ability (such as Battlefield Intelligence, see pp. 63-64, *IO:BF*)—but they may still benefit from any other on-board special unit abilities noted in their stats.

Drones and Psychological Warfare: Drones of all types are immune to the effects of morale (see pp. 95-97, *IO:BF*), and special abilities and command tactics that would demoralize, distract, intimidate, or enrage human crewed units.

Special Equipment Rules for Robotic Elements

The rules that follow detail additional effects of robotic- and drone-specific equipment that has been featured in this book.

Smart Robotic Control System

An element with a smart robotic control system is identified as a robotic element with the RBT special unit ability. These elements follow the standard rules for robotic drones as described above.

Shielded Aerospace Smart Robotic Control System

An aerospace element with a shielded aerospace smart robotic control system is identified as a robotic element with the RBT special unit ability, and also receives the ECM special to reflect its ability to resist hostile electronic warfare systems. These elements follow the standard rules for robotic drones as described above, and may use their ECM abilities as appropriate to the scenario at hand.

SDS (Caspar) Drone Control System

Elements with a Caspar control system identify themselves as such with the SDCS special unit ability. This extremely sophisticated and highly adaptive robotic control system reduces the Skill modifier for the robotic element to +0. Furthermore, if all elements in the drone force are equipped with SDCS, the force's Initiative modifier changes from -2 to -1.

Caspar II Advanced Smart Robotic Control System

Elements constructed with a Caspar II advanced smart robotic control system receive both the drone (DRO) and robotic (RBT) special unit abilities. This feature enables them to operate independently (using the robotic drone rules described on pp. 201-203) and as remote-operated drones (by any friendly element with element with both the DCC and NC³ special abilities, which together represent a DTACS-equipped command element).

A Caspar II element that has no command element in play (or which cannot communicate with such elements due to some form of interference) will operate as a robotic element in accordance with its last assigned Aggression Mode. If a friendly control element is present and able to communicate, it may either change the Caspar II's at the start of the control element's Movement Phase, or assume direct command over the Caspar II element, directing its actions as a drone (see p. 144, *IO:BF*).



Autonomous Tactical Analysis Computer

An element with an autonomous tactical analysis computer (ATAC) system is identified by the ATAC# special unit ability. This equipment enables the element to feed improved tactical input to robotic and remote-operated elements, translating to a -1 Skill modifier for all elements in its network (much like a Naval C³ system).

The number of elements with the DRO, RBT, or SDCS abilities that may benefit from this boost is equal to the element's ATAC# value, so an element with an ATAC³ special can provide this Skill modifier to up to 3 robotic units.

Direct Tactical Analysis Control System

An element with a direct tactical analysis control system (DTACS) functions as though it were equipped with a combination of both a drone carrier control system and a Naval C³, and thus such elements will be identified by the presence of both the DCC# and the NC³ special abilities.

A DTACS is compatible only with elements that have the RBT special *without* the SRCS special, and provides a -1 Skill modifier to a number of such elements equal to the command element's DCC# special. If commanding an element that has the RBT special only, this element can only alter a friendly robotic element's Aggression level during its own Movement Phase; if the friendly robotic element also possesses the DRO special.

Advanced Robotic Transport System

An element equipped with the advanced robotic transport system uses modified transport bays primarily intended to operate in conjunction with drones. In *BattleForce* play, the function of an ARTS bay is indistinguishable from that of an equivalent fighter, small craft, 'Mech, or vehicle transport bay.

Elements with ARTS bays also gain the benefits of a mobile field base, which enables them to serve as repair assets between scenarios.

SDS Self-Destruct System

The SDS self-destruct system operates as the equivalent of a booby trap device on drones so equipped. Players should note that, to avoid capture, virtually every Star League-era robotic elements equipped with such self-destruct systems would automatically activate them once they sustained crippling damage, regardless of the element's Aggression level.

SLDF SDS Jammer

An element with this special unit ability cancels the -1 to-hit modifier provided by an opposing element's ATAC or Naval C³ special abilities. This jamming effect works as long as the opposing elements lie within its Extreme range weapon bracket (or closer).

Dragon's Breath MCM Launch System

An element equipped with the Dragon's Breath MCM launch system receives the DB special unit ability. Once per scenario, an element with this ability may execute an attack against any target that comes within the element's Medium range bracket. Apply a +4 to-hit modifier to this attack, in addition to all other modifiers appropriate to the element's normal ranged weapon attack. If the attack succeeds, roll 4D6 and apply that many points to the target.

Once a Dragon's Breath weapon is fired, mark it off the element's record sheet.

SUPERHEAVY 'MECHS (MULTIPLE ERAS)

Superheavy 'Mechs are identified as 'Mech-type elements, with a Size value of 4, and the Large (LG) special unit ability. Superheavy 'Mechs are treated like standard 'Mechs in *BattleForce* play, except as indicated below.

Movement Phase

Superheavy 'Mechs use the standard movement rules for 'Mech elements, except for the following changes:

Movement: Superheavy 'Mechs reduce the MP costs for all Woods, Jungle, Rough, Rubble, and Buildings terrain by 1 (to a minimum cost of +0 MP). For all other terrain types and conditions, including elevation changes and lateral movement for quads, the movement costs for a superheavy 'Mech are the same as they would be for a standard size 'Mech element.

Stacking Limits: Although other Large-size elements normally occupy an entire *BattleForce*-scale hex (see p. 29, *IO:BF*), a single superheavy 'Mech only counts as 4 elements for stacking purposes. Given the limit of 20 elements per hex in standard *BattleForce*-scale play, this allows up to 5 superheavy 'Mechs to operate as a single unit and occupy the same hex.

Combat Phase

Superheavy 'Mechs in *BattleForce* modify the standard combat rules for 'Mechs as indicated below:

Attack Modifiers: All attacks made against a superheavy 'Mech receive a -1 to-hit modifier, to reflect their Large size. In addition to this, any physical attacks performed by a superheavy 'Mech will suffer a +1 to-hit modifier, due to their reduced agility.

Infantry: Anti-'Mech infantry elements receive a -2 to-hit modifier when attempting an anti-'Mech attack against a superheavy 'Mech (see pp. 122-123, *IO:BF*). This modifier replaces the standard -1 attack modifier described above, but only for anti-'Mech attacks.

Mechanized Infantry (and ProtoMechs): Even though superheavy 'Mechs are substantially larger than normal 'Mechs, they still may not carry more than 1 battle armor element per 'Mech under the Mechanized Battle Armor rules (see p. 124, *IO:BF*).

Likewise, if carrying ProtoMechs equipped with magnetic clamp systems (see p. 208), a superheavy 'Mech can only carry 2 ProtoMech elements with the MCS special—or 1 ProtoMech element with the UCS—at a time.

A superheavy 'Mech may never carry mechanized infantry *and* magnetic-clamped ProtoMechs at the same time.

Critical Hits: Superheavy 'Mechs resolve critical hits using the same rules for a normal 'Mech of equivalent type. This also means that superheavy IndustrialMechs still roll twice for critical hits when such elements suffer damage to their Structure points.

Additional Superheavy 'Mech Rules

Superheavy 'Mechs also apply the following additional rules in *BattleForce* play:

Buildings: When using the advanced Buildings rules (see pp. 111-113, *IO:BF*), superheavy 'Mechs operate as normal sized 'Mechs, but cannot climb buildings, and have an effective Size value of 5 for the purposes of the building's weight capacity. (This essentially means that even a Hardened building cannot support the weight of a superheavy 'Mech on top of it.)

Furthermore, in addition to the MP reduction indicated earlier, a superheavy 'Mech passing through a building hex will inflict 2 points of damage to the building as it passes through.

Transporting Superheavy 'Mechs: Superheavy 'Mechs may not be transported as standard 'Mechs via the MT# special. They may only be transported by elements that have a cargo capacity

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



listed in tonnage, as long as that cargo capacity is at least 220 tons per superheavy 'Mech. This lack of dedicated superheavy 'Mech transport cubicles also means that superheavy 'Mechs cannot use the *Dropping Troops* rules (see pp. 113-114, *IO:BF*), and must always be transported as cargo (see *Elements as Cargo*, p. 126, *IO:BF*).

THERMOBARIC WEAPONS (MULTIPLE ERAS)

Under *BattleForce* rules, the fuel-air munitions presented in this volume are deployed in accordance with their appropriate methods (as bombs from fighters and other airborne units, or as artillery rounds from appropriate launchers).

As with the standard rules, these weapons may not be employed at Atmospheric Densities below Thin, and their damage values are halved in Thin atmospheric pressure conditions. Note that any of these weapons with damage values separated by a slash represent munitions that inflict area effect damage to multiple hexes, with the value left of the slash applying to the point of impact, and the value right of the slash applied to all adjacent hexes. Apply this damage to all elements and buildings in the appropriate affected hexes, multiplying the damage by 1.5 and rounding up if the element is infantry of any type, or possesses the BAR special.

If the *Fire* rules are in play (see pp. 117-120, *IO:BF*), treat an attack by fuel-air munitions as any other indirect fire attack for the purposes of starting fires.

TRIPOD 'MECHS (MULTIPLE ERAS)

'Mechs constructed with a three-legged (tripod) configuration function as normal 'Mech elements of their appropriate weight/Size class in *BattleForce*, except as follows:

Weapon Attack Arcs: The weapons mounted in a tripod's torso, arms, and head possess a 360-degree weapon attack arc. To reflect this, these elements will possess a TUR (###/##) special unit ability that defines the firepower allocated to these locations. Despite this feature, tripod 'Mech elements still possess a rear facing, and thus will suffer additional damage from any attacks that strike the element through its rear facing.

WEAPONS OF MASS DESTRUCTION (MULTIPLE ERAS)

As discussed under their core rules for *Total Warfare*-scale play, weapons of mass destruction (WMDs) are an extreme option, suitable only for use in space combat where large craft are a persistent factor, or in advanced, grand-scale campaigns where regiments or divisions clash across hundreds or even thousands of kilometers of terrain.

At the *BattleForce* scale of play, these weapons are no less devastating, and should be used sparingly, if at all. There are no rules for determining game balance in any scenario where WMDs are involved; simply put, any semblance of game balance flies out the airlock the moment someone chooses to field a WMD in a tactical game.

Basic BattleForce WMD Rules

The *BattleForce*-scale rules presented here will mainly describe the game effects of each WMD class (and, where applicable, their most common delivery methods). Subtle nuances about how such weapons are acquired, stored, and so forth, are thus left open to player determination. This is not only in keeping with the more abstracted nature of *BattleForce* itself, but also an acknowledgement that there are a great many ways to deliver a WMD attack by any force desperate enough to resort to such weaponry.

WMDs are indiscriminate; all described effects are considered universal, and will affect elements regardless of their affiliation. In the cases of chemical and biological weapons are in use, where some precautions may protect the users against the weapon effects, this will be reflected by a preparedness modifier.

Nuclear Weapons in BattleForce

Nuclear attacks in *BattleForce* may be delivered by any element with an Artillery (ARTX-#), Bomb (BOMB#), or capital missile (SDS-CM or MSL) special ability. To reflect the rarity of such weapons, each element armed with nuclear ordnance treats the weapon special ability so armed as though it has exchanged all of its normal munitions for a single, one-shot, nuclear payload. As a result, these elements may execute one nuclear attack per scenario using that special ability. Once the attack is made—regardless of its success—the element's controlling player must then mark off the special ability that delivered the attack.

For ease of reference, the standard-type nuclear weapons described under the *BattleTech* rules for these weapons have been converted for use in *BattleForce* in the *BattleForce Nuclear Weapons Table* on page 206.

Ground Attacks: Attacks against ground targets using a nuclear weapon resolve the point of impact as per a standard artillery weapon attack from the attacking element—including any flight times required from artillery elements striking from off the map (see pp. 85-87, *IO:BF*).

When a nuclear attack strikes, the attacker delivers damage equal to the weapon's Ground Zero Damage value to all elements, buildings, and terrain within the hex of impact. This damage then radiates in all directions outward from the point of impact to a number of hexes equal to the weapon's Primary Radius value. As the damage radiates, it is reduced by a number of points equal to the weapon's Damage Reduction value for each hex outward from the impact point. This reduced damage continues to affect all elements, terrain, and buildings in the hex. Beyond the Primary Radius, elements will suffer no immediate damage from the nuclear attack, but they may suffer secondary effects.

After resolving all primary damage effects, the attacker must then resolve secondary effects. Any elements from the points of impact to a hex distance equal to the weapon's Secondary Radius value will need to check for secondary effects if they have not already been destroyed by the weapon's damage. This check is a 2D6 roll—made by the target element—that subtracts the target's Skill value from the result. An extra -2 modifier applies to the roll if the element is conventional infantry or a support vehicle with a BAR special. Consult the Secondary Effects Table to determine the effects of each modified roll result, and apply it as appropriate to the element within the secondary effect area.

Beyond the Secondary Radius, no elements, terrain, or buildings will be affected by the nuclear attack (though spreading fires and smoke may occur as a result of the nuclear strike).

A nuclear attack on the ground automatically fills the hex of impact with fire and smoke (see pp. 117-120, *IO:BF*), and will convert terrain in accordance with the amount of damage delivered to that hex (see pp. 123-124, *IO:BF*).

During a BattleForce scenario set during the Jihad, a Word of Blake force has decided to launch a Type II nuclear device into the melee against House Davion forces. An artillery strike identifies the hex of impact—a heavy woods hex that also features a lance of Davion 'Mechs. The weapon's Ground Zero Damage indicates that each of those four 'Mechs will sustain 100 points of damage, as will the heavy woods terrain itself. Not surprisingly, none of the Davion elements have enough armor and structure to survive 100 points, so the entire 'Mech force is annihilated. Likewise, the 100-point strike wipes out the heavy woods, which could only sustain 27 points of damage before being reduced to light woods, which in turn could only sustain another 15 points before being reduced to rough terrain (per p. 123, IO:BF).



Type II ordnance has a Primary Radius of 14. This means that from the center hex to a distance of 14 hexes away, the physical damage of the weapon will continue to affect all terrain, buildings, and elements on the map. A Damage Reduction value of 7 indicates that, for every hex away from the center, the nuclear blast will reduce itself by 7 points. This means that every element, building, and terrain feature within 1 hex of the impact point will sustain 93 points of damage ($100 - 7 = 93$), while every element, building, and terrain feature 2 hexes away will sustain 86 points of damage ($100 - [7 \times 2] = 86$), and so forth. At 14 hexes from Ground Zero, the Type II delivers only 2 points of damage to all elements, terrain, and buildings in the hex ($100 - [7 \times 14] = 2$). Beyond that, no more physical damage occurs.

After resolving the damage effects (which were quite horrendous), the attacking player now needs to resolve all secondary effects from the Type II nuclear strike. With a Secondary Radius value of 28 for a Type II, this means that all elements that have not already been destroyed will need to make a 2D6 roll if they are within 28 hexes of the impact hex.

Among the elements caught in this area are a BattleMech whose MechWarrior has a Skill rating of 3; a combat vehicle that has suffered the loss of all of its Armor points and has a crew Skill rating of 4; a battle armor infantry element with a Skill rating of 2; and a MASH unit with the BAR special and a Skill rating of 5.

The Mech rolls 2D6 and gets a result of 10, which subtracts 3 from the result for the warrior's Skill rating for a modified result of 7. This means the Mech must roll once on the Critical Hit table for secondary effects.

The combat vehicle rolls 2D6 and gets a result of 8. After subtracting 4 for its Skill rating, it finds the modified result is 4. This would prompt 2 Critical Hit checks on the vehicle, but the fact that it also lacks Armor points right now increases this to 3 Critical Hit rolls due to secondary weapon effects.

The battle armor element rolls 2D6 and gets a result of 11. After subtracting 2 for the element's Skill rating, and another 2 for being an infantry element, the modified result is 7. Because it is an infantry element, this does not prompt a Critical Hit check; instead, the element sustains 1 point of damage from secondary effects.

The MASH element rolls 2D6 and gets a 5. After subtracting its Skill rating of 5, and another 2 for being an element with the BAR special, the modified result is -2. This means that secondary effects have destroyed the element, killing all personnel on board.

As a final effect of the nuclear strike, fire erupts in the central hex. Over time, this fire—and the smoke it spawns—may spread further.

Air and Space Attacks: Attacks against airborne or spaceborne targets are resolved using the rules for the appropriate special ability type used to make the attack. If the attack misses a target in space, or misses an airborne target that is not operating over the ground-level map, the nuclear weapon has no effect. If it misses an airborne target that is operating over the ground map, resolve it as a ground attack aimed at the center-most hex on the ground map, but scatter it by a distance (in hexes) equal to the number of points by which it missed the airborne target.

An air or space attack that hits its target delivers the damage value indicated in the weapon's Space column. If the target is not destroyed outright by the nuclear attack, roll 2 Critical Hit rolls

against the target, and apply both results—in addition to any critical effects prompted by other factors, such as damage to the element's Structure points.

During a space battle set during the First Succession War, a House Liao Congress-class frigate uses its forward missile launcher to deliver nuclear ordnance against an inbound enemy House Davion Overlord-class DropShip. The Congress is using Type III nuclear weapons, which have a Space Attack Value of 100.

Prior to the attack, the Overlord has an Armor value of 26, and a Structure value of 9 points. As the combined amount of Armor and Structure comes to 35 points—far less than the incoming nuke—the Overlord's crew (including the battalion of Davion 'Mechs it was carrying to the ground battle below) has no chance to survive if this weapon hits!

Chemical Weapons in BattleForce

Chemical attacks in *BattleForce* may be delivered by any element with an Artillery (ARTX-#), Bomb (BOMB#), LRM, or SRM special ability. As with nuclear ordnance, an element armed with chemical weapons treats the weapon special ability so armed as though it has exchanged all of its normal munitions for a limited number of chemical weapon rounds. In this case, the total number of chemical attacks that can be performed per special ability is equal to the ability's numerical value.

(For the SRM and LRM specials, the value used is that of the ability's Short-range attack, and the element's normal attack values must be reduced by the values of the LRM and/or SRM special ability that has swapped its munitions for chemical rounds.)

Deploy chemical munitions under these rules is treated as a normal attack appropriate to the weapon type used, with ARTX-# specials using the Artillery rules (see pp. 85-87, IO:BF), the BOMB# specials using bombing rules (seep. 44-45, IO:BF), and LRM/SRM specials using the rules for a standard weapon attack using such specials. In all cases, the chemical attack is aimed at terrain, rather than other elements, so attacks made using LRM and SRM specials also receive a -4 to-hit modifier to reflect the immobile nature of the target terrain. As with all such attacks, missed shots will scatter in a random direction.

For each attack made using a chemical munition, reduce the numerical value of the special ability used by 1 point. Once the special is reduced to a value of 0 in this manner, the chemical munitions are expended, and the special ability is marked off. (Thus, an element with an SRM 3/3 special that make only 3 chemical weapon attacks using its SRM special, while a fighter with a BOMB4 special could execute 4 chemical weapon bombing attacks.)

Chemical weapons under these rules deliver their effects in the form of a "chemical smoke" field. This smoke follows the rules described on page 118 of *Interstellar Operations: BattleForce*, and will persist until a dissipation roll of 10+ is made per the normal smoke rules. These weapons can only affect elements at ground level; elements that are underwater or airborne during a chemical weapon attack are immune to these effects.

Chemical Effects: For the purposes of *BattleForce* play, a chemical weapon attack is always presumed to be of a fast-acting and lethal or debilitating variety, so weapon classes are not tracked under these rules.

Any element that begins its Movement Phase in a hex filled with chemical smoke—or which moves into/through a

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

chemical smoke hex during its Movement Phase—must make a 2D6 roll to see if it suffers the effects of the weapon. Apply to this roll all of the appropriate modifiers for the Element's Skill rating, type, armor, special abilities, and affiliation, as shown in the Chemical Weapon Resistance Modifiers table. If the modified roll result is 8 or better, the element suffers no ill-effects of the weapon at this time.

If the roll result is 7 or less, the element suffers a +1 to-hit modifier for all attacks and Control Rolls (if any) that are required of it for the remainder of the scenario. This chemical effect stacks with itself to a maximum of 3 times per scenario (to a maximum to-hit modifier of +3), and must be checked for every time the element begins its Movement Phase in a chemical smoke hex or passes through it during the course of the turn.

If the element fails to resist its exposure a *fourth* time, its pilot or crew is killed, and the element is removed from play.

Biological Weapons in BattleForce

Biological weapons are far more subtle, insidious, and long-lasting than chemical weapons. Because of this, they are not tracked in *BattleForce* play, except as a pre-existing condition of the scenario. In other words, the only time players must check for the effects of a biological weapon is long after such weapons have been deployed and have had time to poison the local atmosphere.

Biological Weapon Effects: In any scenario where a biological weapon attack is considered a factor, the attack is considered to have already taken place before the elements of either side joins the battle. The effects of this attack are similar to those described above for chemical weapons, except for the following:

- First, the entire ground map is considered tainted by the biological weapon attack, so all elements in play are considered to be exposed from the start.



- Second, the resistance roll for a biological weapon attack must be made at the End Phase of the first turn of play, and is only repeated on every fifth turn thereafter. This roll uses the same target number and roll modifiers used for a chemical weapon attack.
- Third, the biological weapon effects stack with themselves up to a maximum of 6 times before killing an element's crew or pilot, rather than 3.
- Finally, any elements not killed by a biological weapon attack by the end of the scenario are considered safe from further contamination. This reflects a timely intervention by medical teams once the shooting stops.

BATTLEFORCE NUCLEAR WEAPONS TABLE

Weapon Type	Ground Zero Damage	Primary Radius	Secondary Radius	Damage Reduction	Space Attack Value
Elias	1	3	6	0	0
Type Ia/Ib	10	7	13	1	1
Type II	100	14	28	7	10
Type III	1,000	33	61	30	100
Type IV	10,000	66	132	152	1,000
AMW	60,000	120	240	500	6,000

SECONDARY NUCLEAR EFFECTS TABLE

Roll Result	Effect (Non-Infantry Elements)	Effect (Infantry Elements)*
1 or less	Crew or Pilot Killed/Element Destroyed	Element Destroyed
2-4	Roll 2 Critical Hits**	Element suffers 1D6 damage
5-7	Roll 1 Critical Hit**	Element suffers 1 damage
8 or more	No effect	No effect

*Includes battle armor elements.

**Roll 1 additional Critical Hit against IndustrialMechs, elements with the BAR special, and elements with no Armor points remaining.

WORD OF BLAKE SUPER-JUMP DRIVE (JIHAD)

For the purposes of *BattleForce* play, the Word of Blake super-jump drive is treated as a normal K-F drive, with a lithium-fusion battery.

CHEMICAL WEAPON RESISTANCE MODIFIERS

Condition	Modifier
<i>Target's Skill Rating</i>	
5 or More	-1
2 or Less	+2
<i>Target...</i>	
...is Conventional Infantry	-2
...has 0 Armor points	-2
...has BAR special ability	-2
...is on the side that used this chemical weapon	+4
...underwater or airborne	Auto-Success

ADDITIONAL BATTLEFORCE SPECIAL UNIT ABILITIES

The following summarizes the new special unit abilities for *BattleForce* that have been covered previously in this section. Also included are some expanded rules for existing special unit abilities suitable for *BattleForce* campaigns.

Autonomous Tactical Analysis Computer (ATAC#)

An element with this special is able to feed improved tactical input to robotic elements that feature the SDCS or RBT special unit abilities. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pages 201-203.

Anti-Penetrative Ablation Armor (ABA)

An element with the ABA special unit ability is protected by anti-penetrative ablation armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Ballistic-Reinforced Armor (BRA)

An element with the BRA special unit ability is protected by ballistic-reinforced armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Bimodal Land-Air BattleMech (BIM (#a))

A 'Mech with this special has been built to convert between 'Mech and aerospace fighter modes of operation. The *BattleForce* rules for LAMs, may be found on pages 195-197.

Communications Implant (CI)

An element with this special ability is being operated by a warrior, crew, or troops that have been augmented with a cybernetic communications implant of some type. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pages 193-195.

Direct Neural Control System (DN)

An element featuring a DN special ability has a cockpit modified for use by a warrior or crew with a DNI implant—including the prototype DNI, vehicular DNI, or buffered VDNI implants. It also applies to units operated by pilots using Enhanced Imaging implants. The *BattleForce* rules for this special ability are found under *Advanced Pilot Interfaces*, pp. 192-193.

Dragon's Breath MCM Launch System (DB)

An element with this special ability features the one-shot Dragon's Breath multi-capital missile (MCM) launch system. Because it was often used in conjunction with robotic elements, the *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pages 201-203.

Filtration Implant (FI)

An infantry element with this special ability has been equipped with filtration implants that render it immune to gas attacks and tainted or toxic atmosphere conditions. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pages 193-195.

Glider ProtoMech (GLD)

A ProtoMech element with this special ability has been built with a special low-level flight capability similar to a Wing-in-

Ground Effect vehicle. Rules for using Glider ProtoMechs in *BattleForce* games may be found on page 197.

HarJel Repair Systems (BHJ2, BHJ3)

An element that features the BHJ2 or BHJ3 special unit abilities is equipped with improved versions of the hull-sealing technology known as BattleMech HarJel. The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Impact-Resistant Armor (IRA)

An element with the IRA special unit ability is protected by impact-resistant armor. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Improved ATM Launchers (IATM (##/##))

Elements with the IATM special feature Fusillade Launchers or improved ATM launchers. The *BattleForce* rules for this special may be found under *Advanced Clan Equipment* (see p. 192).

Land-Air 'Mech (LAM (#g/#a))

A 'Mech with this special has been built to convert between 'Mech, AirMech, and aerospace fighter modes of operation. The rules for LAMs may be found on pages 198-199.



JH

Never making it into later eras, the Shadow Hawk Mk I LAM nevertheless provided valuable design lessons to its beleaguered technician teams.

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS



Magnetic Clamp System (MCS, UCS)

ProtoMech elements with the MCS or UCS specials are equipped with a magnetic clamp system. The *BattleForce* rules for these specials may be found under *Advanced Clan Equipment* (see p. 192).

Mobile Army Surgical Hospital (MASH#)

An element with MASH equipment can tend to wounded warriors, and helps to recover their injuries between battles. During *BattleForce* play, an element with MASH equipment can accommodate infantry elements as if it has an Infantry Transport (IT#) special equal to half of the element's MASH# value, rounded up. (For example, an element with a MASH6 special could act as an element with the IT3 special.)

Between battles, MASH-equipped units provide a bonus to "repairing" infantry units.

Mobile Field Base (MFB)

An element with a mobile field base is one that is equipped to handle technical servicing, maintenance, and even battlefield repairs on other elements. During *BattleForce* play, this special has no direct effect, but between battles, its presence in a player's force enables bonuses to repairing other combat elements.

Naval C3 (NC3)

This special represents an advanced large-scale version of the C³ network system, developed for spacecraft. Up to 6 large craft elements may link into a single NC³ network.

In abstract aerospace combat (including capital-scale combat), all units in a NC³ network receive a -1 to-hit modifier. Naval C³ networks are immune to ECM, but not to the SDS Jammer (JAM) system.

Nova Composite Electronic Warfare System (NOVA)

An element with the NOVA special mounts the advanced Nova composite electronic warfare system. The *BattleForce* rules for this special may be found under *Advanced Clan Equipment* (see p. 192).

Prosthetic Leg MASC (PL)

This special indicates that the infantry element has been augmented with prosthetic leg MASC system. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 193-194.

Prototype CASE (CASEP)

An element with the CASEP special is equipped with a prototype form of CASE. The *BattleForce* rules for this ability are found under *Advanced Prototype Systems*, on pp. 193-195.

QuadVee (QV)

A 'Mech element with this special ability has been constructed as a QuadVee. The rules for these elements may be found on pp. 200-201.

Radical Heat Sink System (RHS)

An element with the RHS special possesses a "radical heat sink system" designed for emergency coolant flushes. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Re-Engineered Lasers (REL)

An element that has the REL special carries enough re-engineered lasers to offset many of the benefits presented by several types of specialty armors, such as reflective. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

RISC Advanced Point Defense System (RAMS)

An element with the RAMS special unit ability is equipped with a RISC advanced point defense system. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (pp. 195-197).

RISC Emergency Coolant System (ECS)

An element with the ECS special possesses a RISC emergency coolant system. The *BattleForce* rules for this ability are found under *Dark Age and RISC Equipment* (see pp. 195-197).

RISC Viral Jammers (DJ, HJ)

An element with RISC Viral Jammers will be noted with either a HJ special unit ability (for homing jammers), or a DJ special unit ability (for decoy jammers). The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Robotic Drone (RBT)

Elements with this special are driven by autonomous programming that enables them to function as a drone that does not require remote human direction. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 201-203.

SDS Drone Control System (SDCS)

Elements with this special have an extremely sophisticated and highly adaptive robotic control system superior to that of the standard robotic drone. The *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 201-203.

SDS Jammer (JAM)

An element with this special ability features an advanced, high-power jamming system intended to impede robotic elements in space combat. Because of its intended function, the *BattleForce* rules for this ability are found under *Robotic and Drone Systems* on pp. 201-203.

Tight-Stream Electromagnetic Pulse Weapons (TSEMP#, TSEMP-O#)

An element with the TSEMP# or TSEMP-O# special unit ability carries a number of tight-stream EMP weapons (TSEMPs). The *BattleForce* rules for these abilities are found under *Dark Age and RISC Equipment* (see pp. 195-197).

Triple-Core Processor (TCP)

This special indicates that the element is a unit commanded by a warrior who has been augmented with triple-core processor implant. The *BattleForce* rules for this special may be found under *Augmented Warriors*, pp. 193-195.

Triple-Strength Implants (TSI)

Infantry with this special have been augmented with triple-strength myomer implants. While most gameplay effects are covered under *Augmented Warriors* (see pp. 193-195), these elements are also susceptible to the effects of anti-TSM munitions (see p. 198).

Virtual Reality Piloting Pod (VR)

An element with the VR special uses a virtual reality pilot interface instead of a standard cockpit. The *BattleForce* rules for this special ability are found under *Advanced Pilot Interfaces*, pp. 192-193.



INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type S	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Age of War Equipment								
Primitive Prototype Autocannon/2	DB, S	1 (1)	2 (2)	4/8/16/24 (Long)	34	0	N	Exp
Primitive Prototype Autocannon/5	DB, S	1 (1)	5 (5)	3/6/12/18 (Medium)	15	0	N	Exp
Primitive Prototype Autocannon/10	DB, S	3 (3)	10 (10)	0/5/10/15 (Medium)	8	0	N	Exp
Primitive Prototype Autocannon/20	DB, S	7 (7)	20 (20)	0/3/6/9 (Short)	4	0	N	Exp
Primitive Prototype Small Laser	DE	2 (2)	3 (3)	0/1/2/3 (Short)	N/A	0	N	Exp
Primitive Prototype Medium Laser	DE	5 (5)	5 (5)	0/3/6/9 (Short)	N/A	0	N	Exp
Primitive Prototype Large Laser	DE	12 (12)	8 (8)	0/5/10/15 (Medium)	N/A	0	N	Exp
Primitive Prototype LRM 5	M, C, S	2 (2)	1/Msl, C5/5 (3)	6/7/14/21 (Long)	18	0	N	Exp
Primitive Prototype LRM 10	M, C, S	4 (4)	1/Msl, C5/10 (6)	6/7/14/21 (Long)	9	0	N	Exp
Primitive Prototype LRM 15	M, C, S	5 (5)	1/Msl, C5/15 (9)	6/7/14/21 (Long)	6	0	N	Exp
Primitive Prototype LRM 20	M, C, S	6 (6)	1/Msl, C5/20 (12)	6/7/14/21 (Long)	4	0	N	Exp
Primitive Prototype SRM 2	M, C, S	2 (2)	2/Msl, C2/2 (2)	0/4/8/12 (Medium)	37	0	N	Exp
Primitive Prototype SRM 4	M, C, S	3 (3)	2/Msl, C2/4 (4)	0/4/8/12 (Medium)	18	0	N	Exp
Primitive Prototype SRM 6	M, C, S	4 (4)	2/Msl, C2/6 (6)	0/4/8/12 (Medium)	11	0	N	Exp
Primitive Prototype PPC	DE	15 (15)	10 (10)	3/6/12/18 (Medium)	N/A	0	N	Exp
Primitive Prototype K-F Boom	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
DropShip Docking Collar (pre-Boom)	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
DropShip Docking Collar (post-Boom)	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
DropShuttle Bays	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Space Station K-F Adapter	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Primitive Prototype Jump Jets	PE	x1 (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Arrow IV	AE, S, F	10 (10*)	20A (N/A)*	8 boards (N/A)	3	0	N	Exp
Prototype Artemis IV FCS	T	N/A (N/A)	* (*)	As Standard Weapon	N/A	0	N	Exp
Prototype Beagle Active Probe	E	0 (0)	N/A (N/A)	0/0/0/4 (Short)	N/A	0	N	Exp
Prototype CASE	PE	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Double Heat Sink	PE	-2 (-2)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Endo Steel Structure	Structure	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Extralight Engine	Engine	1 (1)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Ferro-Fibrous Armor	Armor	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	N/A	0	N	Exp
Prototype Guardian ECM Suite	E	0 (0)	N/A (N/A)	0/0/0/6 (Short)	N/A	0	N	Exp
Prototype LB 10-X Autocannon	DB, C, F, S	2 (2)	10 (6)	0/6/12/18 (Medium)	10	0	N	Exp
Prototype Narc Missile Beacon	M, E, S	0 (0)	* (*)	0/3/6/9 (Short)	5	0	N	Exp
Prototype Small Pulse Laser	P	2+1D3 (5)	3 (3)	0/1/2/3 (Short)	N/A	-1	Y	Exp
Prototype Medium Pulse Laser	P	4+1D6 (10)	6 (6)	0/2/4/6 (Short)	N/A	-1	Y	Exp
Prototype Large Pulse Laser	P	10+1D6 (16)	9 (9)	0/3/7/10 (Medium)	N/A	-1	Y	Exp
Prototype Remote Sensors	E	0 (0)	N/A (N/A)	0/0/0/0 (Same Hex)	60	0	N	Exp
Prototype Rocket Launcher 10	M, C, OS	3 (3)	1/Msl, C5/10 (6)	0/5/11/18 (Medium)	05	+1	N	Exp
Prototype Rocket Launcher 15	M, C, OS	4 (4)	1/Msl, C5/15 (9)	0/4/9/15 (Medium)	05	+1	N	Exp
Prototype Rocket Launcher 20	M, C, OS	5 (5)	1/Msl, C5/20 (12)	0/3/7/12 (Medium)	05	+1	N	Exp
Prototype TAG	E	0 (0)	N/A (N/A)	0/5/9/15 (Medium)	N/A	0	N	Exp
Star League Equipment								
Centurion Weapon System	DE, E	4 (4)	0 (0)*	0/6/12/18 (Medium)*	N/A	0	Y	Exp
SLDF Advanced Neurohelmet	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	Y	Adv
Modular Space Stations	PE	N/A (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Early Clan Equipment								
Improved Autocannon/2	DB, S	1 (1)	2 (2)	4/8/16/24 (Long)	45	0	Y	Exp
Improved Autocannon/5	DB, S	1 (1)	5 (5)	3/6/12/18 (Medium)	20	0	Y	Exp
Improved Autocannon/10	DB, S	3 (3)	10 (10)	0/5/10/15 (Medium)	10	0	Y	Exp
Improved Autocannon/20	DB, S	7 (7)	20 (20)	0/3/6/9 (Short)	5	0	Y	Exp
Improved Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	8	0	Y	Exp
Improved Large Laser	DE	8 (8)	8 (8)	0/5/10/15 (Medium)	N/A	0	Y	Exp
Improved Large Pulse Laser	P	10 (10)	9 (9)	0/3/7/10 (Medium)	N/A	-2	Y	Exp
Improved PPC	DE	10 (10)	10 (10)	3/6/12/18 (Medium)	N/A	0	Y	Exp
Enhanced PPC	DE	15 (15)	12 (12)	0/7/14/23 (Long)	N/A	0	Y	Exp
Improved LRM 5	M, C, S	2 (2)	1/Msl, C5/5 (3)	6/7/14/21 (Long)	24	0	N	Exp
Improved LRM 10	M, C, S	4 (4)	1/Msl, C5/10 (6)	6/7/14/21 (Long)	12	0	N	Exp
Improved LRM 15	M, C, S	5 (5)	1/Msl, C5/15 (9)	6/7/14/21 (Long)	8	0	N	Exp



ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space \$S												
						M	P	CV	SV	F	SC	DS	JS	WS	SS	MS		
Age of War Equipment																		
Primitive Prototype Autocannon/2	IS	C/F-X-X	2290P / NA	75,000 / 1,000	6	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype Autocannon/5	IS	C/F-X-X	2240P / NA	125,000 / 4,500	8	4	NA	1	4	1	1	1	1	1	1	1	1	1
Primitive Prototype Autocannon/10	IS	C/F-X-X	2450P / NA	200,000 / 6,000	12	7	NA	1	7	1	1	1	1	1	1	1	1	1
Primitive Prototype Autocannon/20	IS	C/F-X-X	2488P / NA	300,000 / 10,000	14	10	NA	1	10	1	1	1	1	1	1	1	1	1
Primitive Prototype Small Laser	IS	C/F-X-X	2290P / NA	11,250	0.5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype Medium Laser	IS	C/F-X-X	2290P / NA	40,000	1	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype Large Laser	IS	C/F-X-X	2306P / NA	100,000	5	2	NA	1	2	1	1	1	1	1	1	1	1	1
Primitive Prototype LRM 5	IS	C/F-X-X	2295P / NA	30,000 / 30,000	2	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype LRM 10	IS	C/F-X-X	2295P / NA	100,000 / 30,000	5	2	NA	1	2	1	1	1	1	1	1	1	1	1
Primitive Prototype LRM 15	IS	C/F-X-X	2295P / NA	175,000 / 30,000	7	3	NA	1	3	1	1	1	1	1	1	1	1	1
Primitive Prototype LRM 20	IS	C/F-X-X	2295P / NA	250,000 / 30,000	10	5	NA	1	5	1	1	1	1	1	1	1	1	1
Primitive Prototype SRM 2	IS	C/F-X-X	2365P / NA	10,000 / 27,000	1	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype SRM 4	IS	C/F-X-X	2365P / NA	60,000 / 27,000	2	1	NA	1	1	1	1	1	1	1	1	1	1	1
Primitive Prototype SRM 6	IS	C/F-X-X	2365P / NA	80,000 / 27,000	3	2	NA	1	2	1	1	1	1	1	1	1	1	1
Primitive Prototype PPC	IS	D/C-X-X	2439P / NA	200,000	7	3	NA	1	3	1	1	1	1	1	1	1	1	1
Primitive Prototype K-F Boom	PE	C/F-X-X	2342P / NA	1,010,000	0	NA	NA	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA
DropShip Docking Collar (pre-Boom)	PE	B/CXXX	2350 / NA	500,000	1,000	NA	NA	NA	NA	NA	NA	0	0	0	0	0	NA	NA
DropShip Docking Collar (post-Boom)	PE	C/D-C-C	2470 / 2470	100,000	1,000	NA	NA	NA	NA	NA	NA	0	0	0	0	0	NA	NA
DropShuttle Bays	IS	C/C-X-X	2120 / NA	150,000,000	11,000	NA	NA	NA	NA	NA	NA	NA	0*	0*	0*	0*	NA	NA
Space Station K-F Adapter	IS/Clan	C/D-F-D	2375 / 2375	FCx20	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA
Primitive Prototype Jump Jets	PE	C/F-X-X	2464P / NA	Ttx200x(Jump)^2	*	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Arrow IV	IS	E/F-X-X	2593P / NA	1,800,000 / 40,000	16	16	NA	1	16	1	1	1	NA	NA	NA	NA	1	1
Prototype Artemis IV FCS	IS	E/F-X-X	2592P / NA	300,000	+1	+1	NA	+0	+1	+0	+0	+0	+0	+0	+0	+0	+0	+0
Prototype Beagle Active Probe	IS	E/F-X-X	2560P / NA	600,000	2	3	NA	1	3	1	1	1	1	1	1	1	1	1
Prototype CASE	IS	E/F-X-X	2452P / NA	150,000	.5	1	NA	1	1	0	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Double Heat Sink	IS	E/F-X-X	2559P / NA	18,000	1*	3*	NA	NA	NA	0*	0*	0*	0*	0*	0*	NA	NA	NA
Prototype Endo Steel Structure	IS	E/F-X-X	2471P / NA	4,800xTT	TT÷20	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Extralight Engine	IS	E/F-X-X	2556P / NA	(100,000xERxTT)÷75	*	+6*	NA	2	NA	+0	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Ferro-Fibrous Armor	IS	E/F-X-X	2557P / NA	60,000xAT	*	16	NA	3	NA	3*	NA	NA	NA	NA	NA	NA	NA	NA
Prototype Gauss Rifle	IS	E/F-X-X	2587P / NA	1,200,000 / 80,000	15	8	NA	1	8	1	1	1	1	1	1	1	1	1
Prototype Guardian ECM Suite	IS	E/F-X-X	2595P / NA	1,000,000	2	3	NA	1	3	1	1	1	NA	NA	NA	NA	1	1
Prototype LB 10-X Autocannon	IS	E/F-X-X	2590P / NA	1,600,000 / 80,000	11	7	NA	1	7	1	1	1	1	1	1	1	1	1
Prototype Narc Missile Beacon	IS	E/F-X-X	2580P / NA	300,000 / 18,000	3	2	NA	1	2	1	1	1	1	1	1	1	1	1
Prototype Large Pulse Laser	IS	E/F-X-X	2595P / NA	875,000	7	2	NA	1	2	1	1	1	1	1	1	1	1	1
Prototype Medium Pulse Laser	IS	E/F-X-X	2595P / NA	300,000	2	1	NA	1	1	1	1	1	1	1	1	1	1	1
Prototype Small Pulse Laser	IS	E/F-X-X	2595P / NA	80,000	1	1	NA	1	1	1	1	1	1	1	1	1	1	1
Prototype Remote Sensors	IS	E/F-X-X	2586P / NA	60,000 / 42,000	.5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Prototype Rocket Launcher 10	IS/Clan	B/D-F-X	~2320P / ~2320P	15,000	.5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Prototype Rocket Launcher 15	IS/Clan	B/D-F-X	~2320P / ~2320P	30,000	1	2	NA	1	2	1	1	1	1	1	1	1	1	1
Prototype Rocket Launcher 20	IS/Clan	B/D-F-X	~2320P / ~2320P	45,000	1.5	3	NA	1	3	1	1	1	1	1	1	1	1	1
Prototype TAG	IS	E/F-X-X	2593P / NA	150,000	1.5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Star League Equipment																		
Centurion Weapon System	IS	E/F-F-F	~2762P / NA	1,000,000	5	2	NA	1	2	1	1	1	1	1	1	1	1	1
SLDF Advanced Neurohelmet	IS	E/F-X-X	~2760 / NA	5,000*	0*	0*	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA	NA	NA
Modular Space Stations	IS/Clan	D/E-X-X	2585 / 2585	FCx50	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	NA	NA
Early Clan Equipment																		
Improved Autocannon/2	Clan	E/X-C-X	NA / 2818	75,000 / 1,000	5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Improved Autocannon/5	Clan	E/X-C-X	NA / 2818	125,000 / 4,500	7	2	NA	1	2	1	1	1	1	1	1	1	1	1
Improved Autocannon/10	Clan	E/X-C-X	NA / 2818	200,000 / 6,000	11	6	NA	1	6	1	1	1	1	1	1	1	1	1
Improved Autocannon/20	Clan	E/X-D-X	NA / 2818	300,000 / 10,000	13	9	NA	1	9	1	1	1	1	1	1	1	1	1
Improved Gauss Rifle	Clan	E/X-E-X	NA / 2822	300,000 / 20,000	13	6	NA	1	6	1	1	1	1	1	1	1	1	1
Improved Large Laser	Clan	E/X-D-X	NA / 2818	100,000	4	1	NA	1	1	1	1	1	1	1	1	1	1	1
Improved Large Pulse Laser	Clan	E/X-E-X	NA / 2820	175,000	6	2	NA	1	2	1	1	1	1	1	1	1	1	1
Improved PPC	Clan	E/X-D-X	NA / 2820	200,000	6	2	NA	1	2	1	1	1	1	1	1	1	1	1
Enhanced PPC	Clan	E/X-E-X	NA / 2823	300,000	7	3	NA	1	3	1	1	1	1	1	1	1	1	1
Improved LRM 5	Clan	E/X-D-X	NA / 2818	30,000 / 30,000	1	1	NA	1	1	1	1	1	1	1	1	1	1	1
Improved LRM 10	Clan	E/X-D-X	NA / 2818	100,000 / 30,000	2.5	1	NA	1	1	1	1	1	1	1	1	1	1	1
Improved LRM 15	Clan	E/X-D-X	NA / 2818	175,000 / 30,000	3.5	2	NA	1	2	1	1	1	1	1	1	1	1	1

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type S	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Improved LRM 20	M, C, S	6 (6)	1/Msl, C5/20 (12)	6/7/14/21 (Long)	6	0	N	Exp
Improved SRM 2	M, C, S	2 (2)	2/Msl, C2/2 (3)	0/4/8/12 (Medium)	50	0	N	Exp
Improved SRM 4	M, C, S	3 (3)	2/Msl, C2/4 (6)	0/4/8/12 (Medium)	25	0	N	Exp
Improved SRM 6	M, C, S	4 (4)	2/Msl, C2/6 (9)	0/4/8/12 (Medium)	15	0	N	Exp
Prototype ER Small Laser	DE	2 (2)	3 (3)	0/2/4/5 (Short)	N/A	0	Y	Exp
Prototype ER Medium Laser	DE	5 (5)	5 (5)	0/4/8/12 (Medium)	N/A	0	Y	Exp
Prototype LB 2-X Autocannon	DB, C, S, F	1 (1)	2 (2)	4/9/18/27 (Extreme)	45	0	Y	Exp
Prototype LB 5-X Autocannon	DB, C, S, F	1 (1)	5 (3)	3/7/14/21 (Long)	20	0	Y	Exp
Prototype LB 20-X Autocannon	DB, C, S, F	6 (6)	20 (12)	0/4/8/12 (Medium)	5	0	Y	Exp
Prototype Streak SRM 4	M, C	3 (3)	2/Msl, C2/4 (8)	0/3/6/9 (Short)	25	-1	N	Exp
Prototype Streak SRM 6	M, C	4 (4)	2/Msl, C2/6 (12)	0/3/6/9 (Short)	15	-1	N	Exp
Prototype Ultra Autocannon/2	M, C	1/Shot (2)	2/Shot (3)	3/8/17/25 (Extreme)	45	0	Y	Exp
Prototype Ultra Autocannon/10	M, C	4/Shot (8)	10/Shot (15)	0/6/12/18 (Medium)	10	0	Y	Exp
Prototype Ultra Autocannon/20	M, C	8/Shot (16)	20/Shot (30)	0/3/7/10 (Medium)	5	0	Y	Exp
Late Succession Wars Equipment								
Prototype Double Heat Sink	PE	-2 (-2)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Endo Steel Structure	Structure	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype ER Large Laser	DE	12+1D6 (18)	8 (8)	0/7/14/19 (Long)	N/A	+1	Y	Exp
Prototype Medium Pulse Laser	P	4+1D6 (10)	6 (6)	0/2/4/6 (Short)	N/A	-2	Y	Exp
Prototype Ferro-Fibrous Armor	Armor	0 (0)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Gauss Rifle	DB, X	1 (1)	15 (15)	2/7/15/22 (Long)	N/A	0	N	Exp
Prototype LB 10-X Autocannon	DB, C, F, S	2 (2)	10 (6)	0/6/12/18 (Medium)	10	0	N	Exp
Prototype Triple-Strength Myomer	PE	0 (N/A)	* (N/A)	N/A (N/A)	N/A	0	N	Exp
Prototype Ultra Autocannon/5	M, C	1/Shot (4)	5/Shot (7)	2/6/13/20 (Long)	20	0	Y	Exp
Special Munitions: Anti-TSM LRMs	Ammo	** (**)	1/Msl, C5/* (*)	** (**)	x1	0	N	Exp
Special Munitions: Anti-TSM SRMs	Ammo	** (**)	2/Msl, C2/* (*)	** (**)	x1	0	N	Exp
Special Munitions: Listen-Kill LRMs	Ammo	** (**)	1/Msl, C5/* (*)	** (**)	x1	-1*	N	Exp
Special Munitions: Listen-Kill SRMs	Ammo	** (**)	2/Msl, C2/* (*)	** (**)	x1	-1*	N	Exp
Clan Invasion Equipment								
Damage Interrupt Circuit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Exp
Direct Neural Interface Modification	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Enhanced Imaging Interface	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Virtual Reality Piloting Pod	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	Y*	Exp
Special Munitions: Dead-Fire LRMs	Ammo	** (**)	2/Msl, C5/* (*)	4/5/10/15 (Medium)	x1	0	N	Exp
Special Munitions: Dead-Fire SRMs	Ammo	** (**)	3/Msl, C3/* (*)	0/2/4/6 (Short)	x1	0	N	Exp
Special Munitions: RS SSRMs	Ammo	** (**)	0 (*)	N/A (Point)	x1	0	N	Exp
Special Munitions: SS Narcs	Ammo	** (**)	3 (*)	** (**)	x1	0	N	Exp
Jihad Equipment								
BattleMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
BattleMech Neural Interface Unit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
Clan BattleMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
Clan BattleMech Neural Interface Unit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	Y	Exp
ProtoMech Interface Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N	Exp
Word of Blake Super-Jump Drive	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N	Exp
Wars of Reaving Equipment								
EDP Armor	E, Armor	0 (N/A)	* (N/A)	PHYS (N/A)	N/A	0	N	Exp
Extended Jump Jet System	PE	0 (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	TL
Fusillade Launcher	M, C, S*	N/A (N/A)	2/Msl, C5/3 (0)	4/5/10/15 (Medium)	N/A	0	N	Exp
Improved ATM 3	M, C, S*	2 (2)	6 (6)	4/5/10/15 (Medium)	20	0	N	Adv
Improved ATM 6	M, C, S*	2 (2)	12 (12)	4/5/10/15 (Medium)	10	0	N	Adv
Improved ATM 9	M, C, S*	2 (2)	18 (18)	4/5/10/15 (Medium)	7	0	N	Adv
Improved ATM 12	M, C, S*	2 (2)	24 (24)	4/5/10/15 (Medium)	5	0	N	Adv
Magnetic Clamp System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0	N	Adv
Nova CEWS	E	2 (2)	0 (0)	—/—/—/3 (Short)	N/A	0	N	Exp
ProtoMech Quad Melee System	ME	0 (N/A)	Var* (N/A)	PHYS (N/A)	N/A	0	N	Adv
Special Munitions: IMP ATMs	Ammo	** (**)	1/Msl, C5/* (*)	0/3/6/9 (Short)	x1	0	N	Exp
Special Munitions: IIW ATMs	Ammo	** (**)	* (*)	4/5/10/15 (Medium)	x1	0	N	Exp



ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space \$\$\$											
						M	P	CV	SV	F	SC	DS	JS	WS	SS	MS	
Improved LRM 20	Clan	E/X-D-X	NA / 2818	250,000 / 30,000	5	4	NA	1	4	1	1	1	1	1	1	1	
Improved SRM 2	Clan	E/X-D-X	NA / 2817	15,000 / 27,000	1	1	NA	1	1	1	1	1	1	1	1	1	
Improved SRM 4	Clan	E/X-D-X	NA / 2817	90,000 / 27,000	2	1	NA	1	1	1	1	1	1	1	1	1	
Improved SRM 6	Clan	E/X-D-X	NA / 2817	120,000 / 27,000	3	2	NA	1	2	1	1	1	1	1	1	1	
Prototype ER Small Laser	Clan	E/X-D-X	NA / 2819P	11,250	0.5	1	NA	1	1	1	1	1	1	1	1	1	
Prototype ER Medium Laser	Clan	E/X-D-X	NA / 2819P	80,000	1.5	1	NA	1	1	1	1	1	1	1	1	1	
Prototype LB 2-X Autocannon	Clan	E/X-D-X	NA / 2820P	150,000 / 3,300	6	5	NA	1	5	1	1	1	1	1	1	1	
Prototype LB 5-X Autocannon	Clan	E/X-D-X	NA / 2820P	250,000 / 15,000	8	6	NA	1	6	1	1	1	1	1	1	1	
Prototype LB 20-X Autocannon	Clan	E/X-D-X	NA / 2820P	600,000 / 34,000	14	12	NA	1	12	1	1	1	1	1	1	1	
Prototype Streak SRM 4	Clan	E/X-D-X	NA / 2819P	90,000 / 54,000	3	2	NA	1	2	1	1	1	1	1	1	1	
Prototype Streak SRM 6	Clan	E/X-D-X	NA / 2819P	120,000 / 54,000	4.5	2	NA	1	2	1	1	1	1	1	1	1	
Prototype Ultra Autocannon/2	Clan	E/X-D-X	NA / 2820P	120,000 / 1,000	7	4	NA	1	4	1	1	1	1	1	1	1	
Prototype Ultra Autocannon/10	Clan	E/X-D-X	NA / 2820P	320,000 / 12,000	13	8	NA	1	8	1	1	1	1	1	1	1	
Prototype Ultra Autocannon/20	Clan	E/X-D-X	NA / 2820P	480,000 / 20,000	15	11	NA	1	11	1	1	1	1	1	1	1	
Late Succession Wars Equipment																	
Prototype Double Heat Sink	IS	E/X-F-X	3022P / NA	30,000	1*	3*	NA	NA	NA	0*	0*	0*	0*	0*	NA	NA	
Prototype Endo Steel Structure	IS	E/X-F-X	3035P / NA	4,800xTT	TT÷20	16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prototype ER Large Laser	IS	E/X-F-X	3030P / NA	600,000	5	2	NA	1	2	1	1	1	1	1	1	1	
Prototype Medium Pulse Laser	IS	E/X-F-X	3031P / NA	240,000	2	1	NA	1	1	1	1	1	1	1	1	1	
Prototype Ferro-Fibrous Armor	IS	E/X-F-X	3034P / NA	60,000xAT	*	16	NA	3	NA	3*	NA	NA	NA	NA	NA	NA	
Prototype Gauss Rifle	IS	E/X-F-X	3038P / NA	1,200,000 / 80,000	15	8	NA	1	8	1	1	1	1	1	1	1	
Prototype LB 10-X Autocannon	IS	E/X-F-X	3030P / NA	2,000,000 / 80,000	11	7	NA	1	7	1	1	1	1	1	1	1	
Prototype Triple-Strength Myomer	IS	E/X-F-X	3028P / NA	32,000xTT	0	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prototype Ultra Autocannon/5	IS	E/X-F-X	3029P / NA	1,000,000 / 45,000	9	6	NA	1	2	1	1	1	1	1	1	1	
Special Munitions: Anti-TSM LRMs	IS	E/X-F-F	3027 / NA	x2	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: Anti-TSM SRMs	IS	E/X-F-F	3027 / NA	x2	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: Listen-Kill LRMs	IS	E/X-F-X	3037P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: Listen-Kill SRMs	IS	E/X-F-X	3037P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*	
Clan Invasion Equipment																	
Damage Interrupt Circuit	IS	E/X-X-F	3055P / NA	150	0*	0*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Direct Neural Interface Modification	IS	E/X-X-F	3055 / NA	500,000	0*	0*	NA	0*	0*	0*	NA	NA	NA	NA	NA	NA	
Enhanced Imaging Interface	Clan	F/X-X-F	NA / 3048	400,000	*	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Virtual Reality Piloting Pod	IS	F/X-X-F	3052P / NA	1,250,000	3	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Special Munitions: Dead-Fire LRMs	IS	C/X-X-E	3052P / NA	x0.6	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: Dead-Fire SRMs	IS	C/X-X-E	3052P / NA	x0.6	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: RS SSRMs	IS	E/X-X-F	3045P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: SS Narcs	IS	E/X-X-F	3046P / NA	x1.1	*	*	NA	*	*	*	*	*	*	*	*	*	
Jihad Equipment																	
BattleMech Interface Cockpit	IS	E/X-X-F	~3078P / NA	1,500,000	4	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BattleMech Neural Interface Unit	IS	E/X-X-F	~3078P / NA	650,000	0.1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Clan BattleMech Interface Cockpit	Clan	F/X-X-F	NA / 3083P	1,500,000	4	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Clan BattleMech Neural Interface Unit	Clan	F/X-X-F	NA / 3083P	650,000	0.1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
ProtoMech Interface Cockpit	IS	E/X-X-F	3071 / NA	1,000,000	.5	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Word of Blake Super-Jump Drive	IS	F/X-X-F	~3059P / NA	25,000,000	0	NA	NA	NA	NA	NA	NA	NA	0	0	NA	NA	
Wars of Reaving Equipment																	
EDP Armor	Clan	F/X-X-F	NA / 3071P	1,250xAP	*	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Extended Jump Jet System	Clan	F/X-X-F	NA / 3075	Ttx500x(Jump)^2	*	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fusillade Launcher	Clan	F/X-X-F	NA / 3072P	100,000 / 400	1.5	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Improved ATM 3	Clan	F/X-X-F	NA / 3070	100,000 / 3,750	1.5	2	NA	1	2	1	1	1	1	1	1	1	
Improved ATM 6	Clan	F/X-X-F	NA / 3070	250,000 / 7,500	3.5	3	NA	1	3	1	1	1	1	1	1	1	
Improved ATM 9	Clan	F/X-X-F	NA / 3070	450,000 / 10,715	5	4	NA	1	4	1	1	1	1	1	1	1	
Improved ATM 12	Clan	F/X-X-F	NA / 3070	700,000 / 15,000	7	5	NA	1	5	1	1	1	1	1	1	1	
Magnetic Clamp System	Clan	F/X-X-F	NA / 3075	25,000	*	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Nova CEWS	Clan	F/X-X-F	NA / 3065P	1,110,000	1.5	1	NA	1	1	1	1	NA	NA	NA	NA	NA	
ProtoMech Quad Melee System	Clan	F/X-X-F	NA / 3072	70,000	1	NA	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Special Munitions: IMP iATMs	Clan	F/X-X-F	NA / 3070P	x2	*	*	NA	*	*	*	*	*	*	*	*	*	
Special Munitions: IIW iATMs	Clan	F/X-X-F	NA / 3070P	x1.3	*	*	NA	*	*	*	*	*	*	*	*	*	

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type S	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Dark Age Equipment								
Anti-Penetrative Ablation Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Heat-Dissipating Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Impact-Resistant Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Ballistic-Reinforced Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
HarJel II Self-Repair System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
HarJel III Self-Repair System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Radical Heat Sink System	PE	* (*)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Small Re-Engineered Laser	P	4 (4)	4 (4)	0/1/2/3 (Short)	N/A	-1	Y	Adv
Medium Re-Engineered Laser	P	6 (6)	6 (6)	0/3/6/9 (Short)	N/A	-1	Y	Adv
Large Re-Engineered Laser	P	9 (9)	9 (9)	0/5/10/15 (Medium)	N/A	-1	Y	Adv
Remote Drone Command Console	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
TSEMP Cannon	DE, X	10 (10)	*	0/5/10/15 (Medium)	N/A	0	Y	Adv
TSEMP One-Shot	DE, X, OS	10 (10)	*	0/5/10/15 (Medium)	N/A	0	Y	Adv
RISC Advanced PDS (Standard)	PD	2 (N/A)	0 (0)	—/—/—/3 (N/A)	12	0	N	Adv
RISC Advanced PDS (Battlesuit)	PD	N/A (N/A)	0 (0)	—/—/—/3 (N/A)	2.5 kg (6)	N/A	N	Adv
RISC Laser Pulse Module	PE, X	+2* (+2*)	+0 (0)	As Standard Weapon	N/A	-1*	Y*	Exp
RISC Emergency Coolant System	PE, X	* (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Heat Sink Override Kit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Hyper Laser	DE, X	24 (24)	20 (20)	0/8/15/25 (Extreme)	N/A	+0	Y	Exp
RISC Repeating TSEMP Cannon	DE, X	10 (N/A)	* (*)	0/5/10/15 (Medium)	N/A	+0	Y	Exp
RISC Super-Cooled Myomer	PE, X	N/A* (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
RISC Viral Jammer (Decoy)	E	12 (N/A)	N/A (N/A)	—/—/—/17 (N/A)	N/A	N/A	N/A	Exp
RISC Viral Jammer (Homing)	E	12 (N/A)	N/A (N/A)	—/—/—/17 (N/A)	N/A	N/A	N/A	Exp
Expanded ProtoMech Components								
Ultraheavy ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Ultraheavy ProtoMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Quadruped ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Glider ProtoMech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Land-Air BattleMech Components								
LAM Conversion (Bimodal)	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
LAM Conversion (Standard)	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
LAM Bomb Bay	Bomb	0 (0)	* (*)	* (*)	1	0	N	TL
LAM Fuel Tanks	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	80 pts	N/A	N/A	TL
Primitive and RetroTech Components								
Primitive BattleMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive Aerospace Fighter Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	0/+1*	N/A	Adv
Primitive IndustrialMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	+1*	N/A	Adv
Primitive 'Mech Musculature	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive Aerospace Fighter Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Primitive 'Mech/Industrial Armor	Armor	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Components								
QuadVee Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Conversion Equipment	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
QuadVee Wheels	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Robotic and Drone Unit Systems								
Smart Robotic Control System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Adv
Shielded Aerospace SRCS	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
SDS (Caspar) Drone Control System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Caspar II Advanced SRCS	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Autonomous Tactical Analysis Comp.	E	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Direct Tactical Analysis Control System	E	N/A (N/A)	N/A (N/A)	N/A (*)	N/A	*	N/A	Exp
Advanced Robotic Transport System	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
SDS Self-Destruct System	AE, OS	N/A (0)	* (*)	N/A (*)	N/A	0*	N/A	Exp
SDS Jammer System	E	N/A (N/A)	N/A (N/A)	* (Extreme-C)	N/A	N/A	N/A	Exp
Dragon's Breath MCM Launch System	CAP, AE	N/A (0)	* (*)	* (Extreme-C)	OS	0*	N/A	Exp
Superheavy 'Mech Components								
Superheavy BattleMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy IndustrialMech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv



ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space \$\$											
						M	P	CV	SV	F	SC	DS	JS	WS	SS	MS	
Dark Age Equipment																	
Anti-Penetrative Ablation Armor	IS	E/X-X-X-E	3114 / NA	15,000xAT	*	6	NA	1	1*	1*	NA	NA	NA	NA	NA	NA	
Heat-Dissipating Armor	IS/Clan	E/X-X-X-E	3123 / 3126	25,000xAT	*	6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Impact-Resistant Armor	IS	E/X-X-X-E	3103 / NA	20,000xAT	*	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ballistic-Reinforced Armor	IS	E/X-X-X-E	3131 / NA	25,000xAT	*	10	NA	1	1*	2*	NA	NA	NA	NA	NA	NA	
Harjel II Self-Repair System	Clan	F/X-X-X-F	NA / 3136	240,000	2*	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Harjel III Self-Repair System	Clan	F/X-X-X-F	NA / 3139	360,000	3*	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Radical Heat Sink System	IS	E/X-X-X-E	3122 / NA	250,000	4*	3	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	
Small Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	25,000	1.5	1	1	1	1	1	1	1	1	1	1	1	
Medium Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	100,000	2.5	2	1	1	2	1	1	1	1	1	1	1	
Large Re-Engineered Laser	IS	E/X-X-X-E	3130 / NA	250,000	8	5	1	1	5	1	1	1	1	1	1	1	
Remote Drone Command Console	IS	E/X-X-X-F	3140 / NA	50,000	2	1*	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	
TSEMP Cannon	IS	E/X-X-X-E	3109 / NA	800,000	6	5	1	1	5	1	1	NA	NA	NA	NA	1	
TSEMP One-Shot	IS	E/X-X-X-E	3095 / NA	500,000	4	3	1	1	3	1	1	NA	NA	NA	NA	1	
RISC Advanced PDS (Standard)	IS	E/X-X-X-E	3137 / NA	200,000 / 2,000	3	2	NA	1	2*	NA	NA	NA	NA	NA	NA	1	
RISC Advanced PDS (Battlesuit)	IS	E/X-X-X-E	3134 / NA	50,000 / 500	0.35	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RISC Laser Pulse Module	IS	F/X-X-X-F	3137P / NA	200,000	1	1*	+0*	+0*	+1*	+0*	+0*	+0*	+0*	+0*	+0*	+0*	
RISC Emergency Coolant System	IS	F/X-X-X-F	3136P / NA	460,000	2	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RISC Heat Sink Override Kit	IS	D/X-X-X-F	3134P / NA	500	0	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RISC Hyper Laser	IS	F/X-X-X-F	3134P / NA	750,000	8	6	NA	1	6	1	1	1	1	1	1	1	
RISC Repeating TSEMP Cannon	IS	E/X-X-X-F	3133P / NA	1,200,000	8	7	1	1	7	1	1	NA	NA	NA	NA	1	
RISC Super-Cooled Myomer	IS	F/X-X-X-F	3132P / NA	10,000xTT	0	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
RISC Viral Jammer (Decoy)	IS	F/X-X-X-F	3135P / NA	990,000	2.5	1	1	1	1	NA	NA	NA	NA	NA	NA	1	
RISC Viral Jammer (Homing)	IS	F/X-X-X-F	3135P / NA	990,000	2.5	1	1	1	1	NA	NA	NA	NA	NA	NA	1	
Expanded ProtoMech Components																	
Ultraheavy ProtoMech Structure	Clan	D/X-X-D	NA / 3083	400xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ultraheavy ProtoMech Cockpit	Clan	F/X-X-D	NA / 3083	800,000	0.75	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Quadruped ProtoMech Structure	Clan	D/X-X-E	NA / 3083	500xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Glider ProtoMech Structure	Clan	F/X-X-E	NA / 3084	600xTT	TTx0.1	NA	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Land-Air BattleMech Components																	
LAM Conversion (Bimodal)	IS	E/E-F-X	2680 / NA	WSCx0.65	TTx0.15	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
LAM Conversion (Standard)	IS	E/D-E-F	2688 / NA	WSCx0.75	TTx0.1	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
LAM Bomb Bay	IS/Clan	B/E-E-E	2680 / NA	5,000	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
LAM Fuel Tanks	IS/Clan	B/A-A-A	ES / ES	200	1	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Primitive and RetroTech Components																	
Primitive BattleMech Cockpit	IS	D/D-X-X	2449 / NA	100,000	5	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Primitive Aerospace Fighter Cockpit	IS	D/D-X-X	ES / NA	100,000	5	NA	NA	NA	NA	0*	NA	NA	NA	NA	NA	NA	
Primitive IndustrialMech Cockpit	IS	C/C-X-X	2300 / NA	50,000	5	1*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Primitive 'Mech Musculature	IS	D/D-X-X	2300 / NA	1,000xTT	x1	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Primitive Aerospace Fighter Armor	IS	C/B-C-B	~2315 / NA	5,000xAT	*	NA	NA	NA	NA	0	NA	NA	NA	NA	NA	NA	
Primitive 'Mech/Industrial Armor	IS/Clan	C/B-C-B	2430 / 2430	5,000xAT	*	0	NA	0	NA	0	0	0	0	0	0	0	
QuadVee Components																	
QuadVee Cockpit	Clan	F/X-X-X-F	NA / 3135	375,000	4*	6*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
QuadVee Conversion	Clan	F/X-X-X-F	NA / 3135	WSCx0.5	TTx0.1*	4*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
QuadVee Wheels	Clan	F/X-X-X-F	NA / 3150	(750xERxTT)÷75	TTx0.15*	4*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Robotic and Drone Unit Systems																	
Smart Robotic Control System	IS/Clan	C/E-X-F	3067 / ES	5,000+(10,000xIT)*	Var*	0*	NA	0*	0*	0*	0*	0*	0*	0*	0*	0*	
Shielded Aerospace SRCS	IS/Clan	C/E-X-F	3089 / 2755	6,250+(12,500xIT)*	Var*	NA	NA	NA	NA	0*	0*	0*	NA	NA	NA	NA	
SDS (Caspar) Drone Control System	IS	C/E-X-X	2695 / NA	500,000+(50,000xIT)*	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA	
Caspar II Advanced SRCS	IS	E/X-X-F	3082 / NA	50,000+(20,000xIT)*	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA	
Autonomous Tactical Analysis Comp.	IS/Clan	E/F-X-F	2705 / NA	100,000xIT	Var*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	NA	
Direct Tactical Analysis Control Sys.	IS	F/X-X-F	3082 / NA	50,000xIT	Var*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	0*	
Advanced Robotic Transport System	IS/Clan	E/D-E-E	3068 / NA	+1,000,000	Var*	NA	NA	NA	NA	NA	1*	1*	NA	1*	1*	NA	
SDS Self-Destruct System	IS	C/D-F-X	2695 / NA	1,000,000	Var*	NA	NA	NA	NA	NA	0*	0*	NA	0*	0*	NA	
SDS Jammer System	IS	E/F-F-X	2776P / NA	800M	30,000	NA	NA	NA	NA	NA	NA	NA	NA	1*	NA	NA	
Dragon's Breath MCM Launch System	IS	E/X-X-F	3077P / NA	15,000,000	5,000*	NA	NA	NA	NA	NA	NA	NA	NA	0*	0*	NA	
Superheavy 'Mech Components																	
Superheavy BattleMech Cockpit	IS	E/X-X-F	3076 / NA	300,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy IndustrialMech Cockpit	IS	D/X-F-F	2940 / NA	200,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type S	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Superheavy 'Mech Actuators	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Musculature	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Standard I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Endo-Comp. I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Endo-Steel I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Industrial I.S.	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy 'Mech Gyro	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Thermobaric Weapons								
Fuel-Air Bomb (Small)	Ammo	** (**)	N/A (20A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Bomb (Large)	Ammo	** (**)	N/A (30A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Missile (Arrow IV, IS)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Missile (Arrow IV, Clan)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Thumper)	Ammo	** (**)	10A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Sniper)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Long Tom)	Ammo	** (**)	30A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Thumper Cannon)	Ammo	** (**)	10A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Sniper Cannon)	Ammo	** (**)	20A (N/A)	** (**)	N/A	N/A	N/A	Adv
Fuel-Air Shell (Long Tom Cannon)	Ammo	** (**)	30A (N/A)	** (**)	N/A	N/A	N/A	Adv
Tripod 'Mech Components								
Tripod 'Mech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Superheavy Tripod 'Mech Cockpit	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Tripod 'Mech Structure	PE	N/A (N/A)	N/A (N/A)	N/A (N/A)	N/A	N/A	N/A	Adv
Warrior Augmentations								
Belter Infantry Package	PE, Armor	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Belter Fighter Pilot Package	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Belter Vacuum-Resistance Package	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Enhanced Imaging Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Artificial Pain Shunt	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Communications Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Boosted Communications Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	N/A	Exp
Sensory Implants (IR/EM/Audio)	PE, E	N/A (N/A)	0 (N/A)	0/0/0/2* (N/A)	N/A	N/A	N/A	Exp
Sensory Implants (Laser/Telescopic)	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	-1	N	Exp
Multi-Modal Sensory Implants	PE, E	N/A (N/A)	0 (N/A)	0/0/0/2* (N/A)	N/A	-1	N	Exp
Enhanced M-M Sensory Implants	PE, E	N/A (N/A)	0 (N/A)	0/0/0/3* (N/A)	N/A	-1	N	Exp
Filtration Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Gas Effuser Implant, Pheromone	PE, AE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Gas Effuser Implant, Toxin	PE, AE	N/A (N/A)	0.25* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Dermal Armor Implants	PE, Armor	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Dermal Camouflage Implants	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Triple-Strength Myomer Implants	PE	N/A (N/A)	0.14* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Triple-Core Processor Implant	PE, E	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	*	Y	Exp
Vehicular Direct Neural Interface	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	-1	Y	Exp
Buffered VONI	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	-1	Y	Exp
Prototype Direct Neural Interface	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	-2	Y	Exp
Explosive Suicide Implant	AE	N/A (N/A)	0.57* (N/A)	* (N/A)	N/A	N/A	N/A	Exp
Prosthetic Leg MASC	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Prosthetic Limb, Enhanced	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Limb, Improved Enhanced	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Limb, Extraneous	PE	N/A (N/A)	* (N/A)	0/0/0/0* (N/A)	N/A	0	N	Exp
Prosthetic Tail, Enhanced	PE	N/A (N/A)	0.21* (N/A)	0/0/0/0* (N/A)	N/A	+2	N	Exp
Prosthetic Glider Wings	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Prosthetic Powered Flight Wings	PE	N/A (N/A)	0 (N/A)	N/A (N/A)	N/A	N/A	N/A	Exp
Weapons of Mass Destruction								
Chemical Weapon (Class I)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class II)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class III)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class IV)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Biological Weapon (Class IV)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Chemical Weapon (Class V)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp



ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space \$\$											
						M	P	CV	SV	F	SC	DS	JS	WS	SS	MS	
Superheavy 'Mech Actuators	IS	D/X-F-F	2940 / NA	2 x Standard Cost	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Musculature	IS	E/X-F-F	2940 / NA	12,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Standard I.S.	IS	E/X-X-F	3076 / NA	4,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Endo-Comp. I.S.	IS	E/X-X-F	3135 / NA	6,400xTT	*	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Endo-Steel I.S.	IS	E/X-X-F	3076 / NA	16,000xTT	*	7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Industrial I.S.	IS	D/X-F-F	2940 / NA	3,000xTT	*	0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy 'Mech Gyro	IS	D/X-F-F	2940 / NA	500,000xIT	ER÷50*	2*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Thermobaric Weapons																	
Fuel-Air Bomb (Small)	IS/Clan	C/E-F-E-E	PS / PS	18,000	0.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Bomb (Large)	IS/Clan	C/E-F-E-E	PS / PS	35,000	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Missile (Arrow IV, IS)	IS	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Missile (Arrow IV, Clan)	Clan	C/X-E-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Thumper)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Sniper)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Long Tom)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Thumper Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Sniper Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Fuel-Air Shell (Long Tom Cannon)	IS/Clan	C/E-F-E-E	PS / PS	x3	x1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Tripod 'Mech Components																	
Tripod 'Mech Cockpit	IS	F/F-F-X-F	2602 / NA	400,000	4*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Superheavy Tripod 'Mech Cockpit	IS	E/X-F-X-F	2940 / NA	500,000	5*	5*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Tripod 'Mech Structure	IS	E/E-F-X-E	2602 / NA	5Cx1.2	5Tx1.1*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Warrior Augmentations																	
Belter Infantry Package	IS	C/E-D-D	2570 / NA	200,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Belter Fighter Pilot Package	IS	C/D-D-E	2570 / NA	25,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Belter Vacuum-Resistance Package	IS	C/C-C-C	2570 / NA	20,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Enhanced Imaging Implants	Clan	F/X-X-D	NA / 3040	1,500,000	*	*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Artificial Pain Shunt	IS/Clan	C/F-F-F	ES / ES	500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Communications Implant	IS/Clan	E/E-F-D	2600 / 2600	8,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Boosted Communications Implant	IS	E/X-X-D	3060 / NA	8,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sensory Implants (IR/EM/Audio)	IS/Clan	E/E-F-C	2610 / 2610	650,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sensory Implants (Laser/Telescopic)	IS/Clan	E/D-E-C	2610 / 2610	600,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Multi-Modal Sensory Implants	IS	E/X-X-D	3055 / NA	900,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Enhanced M-M Sensory Implants	IS	E/X-X-E	3060 / NA	1,600,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Filtration Implants	IS/Clan	C/A-A-A	2580 / 2580	60,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Gas Effuser Implant, Pheromone	IS	E/X-X-F	3060 / NA	40,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Gas Effuser Implant, Toxin	IS	F/X-X-F	3060 / NA	10,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dermal Armor Implants	IS	E/X-E-E	2950 / NA	1,500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dermal Camouflage Implants	IS	F/X-X-F	3065 / NA	1,100,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Triple-Strength Myomer Implants	IS	F/X-X-E	3060 / NA	2,500,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Triple-Core Processor Implant	IS	E/X-X-F	3068 / NA	3,000,000	*	NA	NA	*	NA	NA	NA	NA	NA	NA	NA	NA	
Vehicular Direct Neural Interface	IS	F/X-X-E	3055 / NA	1,400,000	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	
Buffered VDNI	IS	F/X-X-F	3065 / NA	2,000,000	*	*	*	*	*	*	NA	NA	NA	NA	NA	NA	
Prototype Direct Neural Interface	IS	F/X-X-F	3052P / NA	2,500,000	*	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Explosive Suicide Implant	IS/Clan	C/B-B-B	PS / PS	250	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Leg MASC	IS	E/X-X-F	3065 / NA	255,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Limb, Enhanced	IS/Clan	E/F-F-E	ES / ES	100,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Limb, Improved Enhanced	IS/Clan	E/F-F-F	2650 / 2650	202,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Limb, Extraneous	IS	E/X-X-F	3068 / NA	400,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Tail, Enhanced	IS	E/X-X-F	3068 / NA	60,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Glider Wings	IS	E/X-X-E	3069 / NA	90,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Prosthetic Powered Flight Wings	IS	F/X-X-F	3070 / NA	120,000	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Weapons of Mass Destruction																	
Chemical Weapon (Class I)	IS/Clan	A/C-C-C	PS / PS	1K	†	†	†	†	†	†	†	†	†	†	†	†	
Chemical Weapon (Class II)	IS/Clan	B/C-C-C	PS / PS	10K	†	†	†	†	†	†	†	†	†	†	†	†	
Chemical Weapon (Class III)	IS/Clan	B/C-D-C	PS / ES	250K	†	†	†	†	†	†	†	†	†	†	†	†	
Chemical Weapon (Class IV)	IS/Clan	C/D-D-D	ES / ES	1M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Biological Weapon (Class IV)	IS/Clan	C/D-D-D	ES / ES	10M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chemical Weapon (Class V)	IS/Clan	C/E-F-F	ES / ES	† / 5M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

INDEX

RECORD SHEETS

ADDITIONAL ALTERNATE ERA WEAPONS AND EQUIPMENT

Weapon/Item	Type S	Heat Std (Aero)	Damage Std (Aero)	Range Min/Sht/Med/Lng (Aero)	Ammo (per Ton)	To-Hit Modifier	TC Comp	Rules Level
Biological Weapon (Class V)	CW, AE	N/A (N/A)	*	* (N/A)	*	0	N/A	Exp
Nuclear Weapon (Custom Tactical)	NW, AE	* (*)	*	As Launcher	*	0	N/A	Exp
Nuclear Weapon (Custom Strategic)	NW, AE	* (*)	*	As Launcher	*	0	N/A	Exp
Nuclear Weapon (Type Ia)	NW, AE	N/A (N/A)	*	2 boards (N/A)	0S	0	N/A	Exp
Nuclear Weapon (Type Ib [Arrow IV])	NW, AE	** (**)	*	8 boards (N/A)	1	0	N/A	Exp
Nuclear Weapon (Type Ib [Long Tom])	NW, AE	** (**)	*	30 boards (N/A)	1	0	N/A	Exp
Nuclear Weapon (Type II)	NW, AE	** (**)	*	20 boards (Medium)	0S	0	N/A	Exp
Nuclear Weapon (Type III [Launcher])	NW, AE	N/A (N/A)	*	10,000 boards (N/A)	40 t/Msl	0	N/A	Exp
Nuclear Weapon (Type III [C-Missile])	NW, AE	** (**)	*	N/A (Extreme)	40 t/Msl	0	N/A	Exp
Nuclear Weapon (Type IV [Launcher])	NW, AE	N/A (N/A)	*	20,000 boards (N/A)	50 t/Msl	0	N/A	Exp
Nuclear Weapon (Type IV [C-Missile])	NW, AE	** (**)	*	N/A (Extreme)	50 t/Msl	0	N/A	Exp
Nuclear Weapon (Elias)	NW, AE	N/A (N/A)	*	—/—/—/0 (N/A)	0.005	−2	N/A	Exp
Nuclear Weapon (AMW)	NW, AE	** (**)	*	N/A (Extreme)	30 t/Msl	0	N/A	Exp

*See Item rules

Weapon/Item	Tech Base	Tech Rating	Latest Intro Date (IS / Clan)	Item / Ammo Cost (C-bills)	Weight (Tons)	Space \$\$												
						M	P	CV	SV	F	SC	DS	JS	WS	SS	MS		
Biological Weapon (Class V)	IS/Clan	C/E-F-F	ES / ES	† / 50M	*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Custom Tactical)	IS	C/F-F-F	PS / NA	† / [1M/Kiloton]	*	*	NA	*	*	*	*	*	*	*	*	*	*	*
Nuclear Weapon (Custom Strategic)	IS	C/F-F-F	PS / NA	† / [10M/Megaton]	*	*	NA	*	*	*	*	*	*	*	*	*	*	*
Nuclear Weapon (Type Ia)	IS	E/F-F-F	2412 / NA	1M / 500K	3*	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Type Ib [Arrow IV])	IS	E/F-F-F	2480 / NA	† / 500K	† / 1	†	NA	†	†	†	†	†	NA	NA	NA	NA	†	†
Nuclear Weapon (Type Ib [Long Tom])	IS	E/F-F-F	2595 / NA	† / 500K	† / 1	†	NA	†	†	†	†	†	NA	NA	NA	NA	†	†
Nuclear Weapon (Type II)	IS	E/F-F-F	2200 / NA	† / 1M	† / 5	NA	NA	NA	NA	†	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (Type III [Launcher])	IS	E/F-F-F	2300 / NA	250K / 15M	160 / [1/40]	NA	NA	NA	15	NA	NA	1	NA	NA	NA	1	NA	1
Nuclear Weapon (Type III [C-Missile])	IS	E/F-F-F	2300 / NA	† / 15M	† / [1/40]	NA	NA	NA	†	NA	†	†	†	†	†	†	†	†
Nuclear Weapon (Type IV [Launcher])	IS	E/F-F-F	2220 / NA	500K / 40M	210 / [1/50]	NA	NA	NA	20	NA	NA	1	NA	NA	NA	1	NA	1
Nuclear Weapon (Type IV [C-Missile])	IS	E/F-F-F	2220 / NA	† / 40M	† / [1/50]	NA	NA	NA	†	NA	†	†	†	†	†	†	†	†
Nuclear Weapon (Elias)	IS	E/F-F-F	ES / NA	NA / 10K	0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nuclear Weapon (AMW)	IS	E/F-F-F	2790 / NA	† / 100M	† / [1/30]	NA	NA	NA	NA	NA	†	†	†	†	†	†	†	†

*See Item rules

**Heat and Range values for special munitions are the same as their firing weapon unless otherwise specified.

†As per the weapon launcher used (See item rules). If no launcher required, no cost is applied.

Cost and Weight Formula Notes: “AC” = Normal Actuator Cost; “SC” = Total Structure Cost; “WSC” = Total cost of the unit’s Weapons, Equipment, and Internal Structure; “ST” = Normal Structure Tonnage; “TT” = Total Tonnage; “ER” = Engine Rating; “C” = Desired Capacity (in tons); “FC” = Final Unit Cost

Notes:

Intro Date ending in P indicates item only existed as prototype form, and never achieved widespread manufacture.

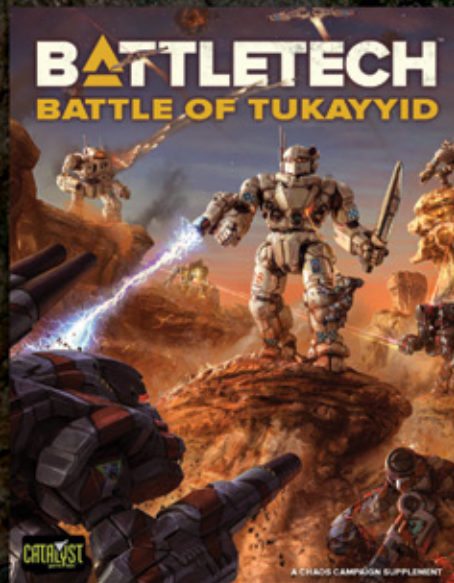
New Weapon Class codes: NW = Nuclear Weapon; CW = Chemical/Biological Weapon

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• A •

Advanced armor table, 82
 Advanced BattleMech, 29
 Advanced Clan equipment
 battle value, 183
 BattleForce, 192
 Advanced game play, 58
 Advanced pilot interfaces, 62-68
 battle value, 183
 BattleForce, 192-93
 Advanced prototype systems
 battle value, 183-84
 BattleForce, 192-193
 Advanced prototype weapons, 192
 Advanced robotic transport system (ARTS), 141, 182, 203
 Advanced rules, 6-7
 Aerospace operations RIC decision tree, 144
 bingo targets, 147
 boarding, 145
 collision, 145
 crippled unit, 145-54
 hibernation, 147
 minimal threat, 146
 support, 145
 swarm, 145
 target acquired, 146
 target engagement, 146
 target locked, 145
 target at range, 146
 Age of Star League, 12
 alternate units, equipment, 13
 factions in, 12
 special equipment, 13
 technology base, 12
 units in, 12
 Age of War, 8, 11
 advanced prototype systems, 54-67
 alternate units, equipment, 11
 Clan technology base and, 11
 equipment, 11, 189
 factions in, 11, 12
 general advanced prototype rules, 64
 special equipment, 11-12
 unit types in, 11
 AirMech, 108
 acceleration, deceleration, 103
 attacker modifiers table, 106
 crashing, 107
 cruise/flank, 102
 evading, 103
 gaining elevation, 102
 ram, 106
 heat phase, 107
 hovering, 102
 landing, 103
 ram, 106
 sideslipping, 107-08
 skidding, 108
 stacking, 103
 turn modes, 103
 Alamo nuclear weapon, 169
Alpha Strike: Commander's Edition, 7
 Alternate Era
 equipment tables, 28
 weapons, equipment, battle value table, 189-91

Amaris, Stefan, 9
 Ammunition
 primitive aerospace fighter, 119
 primitive DropShip, 122
 primitive jumpships, 127
 primitive BattleMech, 118
 primitive small craft construction, 120
 robotic systems, 131
 Anti-missile systems, 29
 Anti-penetrative ablation (ABA) armor, 80
 rules, 80-81
 Anti-TSM "Green Smoke" missile, 98
 rules, 98
 Ares Conventions, 11
 Armor, 29-31
 LAM prohibited, 108
 primitive units, 115
 RetroTech, 116
 Armored component systems, 31
 Arrow IV/Arrow-P, 64
 rules, 64
 Artemis IV FCS/Artemis P, 64-65
 rules, 65
 Artificial pain shunt, 71-72
 rules, 72
 Asset Management Weapon (AMW), 170-171
 Augmented warriors, 68-76, 179
 all-or-none modifications, 68
 battle value, 184-85
 BattleForce, 193-194
 BattleForce conversions, 193-195
 cost modifications, 68
 faction/era restrictions, 68
 Autocannons, 32
 Autonomous tactical analysis computer (ATAC), 139-40, 182, 203, 207
 fighter squadrons, 140
 modifier table, 139
 Availability rating, 27

• B •

Ballistic-reinforced armor, 81, 207
 BattleForce, 195
 rules, 81
 Battle armor
 IMP missile attack, 61
 infantry inside its armor, 77
 tech, 45-46
 weapons, 46-47
 Battle values, 58, 183-91
 BattleForce, 7, 58
 alternate era weapons, equipment, 210-18
 chemical weapons, 205-06
 conversion, rules, 192-208
 drone system, 201
 DropShuttle Bays, 199
 Land-Air BattleMechs, 198-9
 Machina Domini, 199
 modular space stations, 199
 nuclear weapons, 204-05
 primitive prototype equipment, weapons, 199
 primitive units, 199-200
 prototype specialty munitions, 200
 QuadVees, 200-1
 RetroTech, 199-200

robotic systems, 201-03
 space station K-F adapter, 198
 special unit abilities, 207-08
 superheavy 'Mechs, 203-04
 thermobaric weapons, 204
 tripod 'Mechs, 204
 Word of Blake super-jump drive, 206
 BattleMech(s)
 heat phase, 107
 IMP missiles attack, 60
 interface cockpit, 110
 melee weapons, 32
 neural interface unit, 110
 structural components, 42
 BattleMech Age, 11
 BattleMech HarJel. *See* HarJel
BattleTech, 08
 pre-history, 11
 Beagle Active Probe, 65
 rules, 65
 Belter augmentations, 68
 BattleForce, 194
 fighter pilot, 68-69
 infantry, 68
 rules, 68
 vacuum-resistance, 69
 Bimodal Land-Air BattleMech, 207
 Biological weapon(s), 172-76
 acquisition, 172
 BattleForce, 207
 classes, 174
 data, 172-73
 decontamination, 173-74
 delivery, 173
 indirect delivery, 173
 protective gear, 173
 rules, 174
 table, 172
 Black May nerve gas, 21
 Bomb bays, 104, 108
 critical hit table, 105
 ordnance table, 105
 repairs, 105
 Bombs, 104

• C •

C3 networks/systems, 32
 Cameron, Ian, 9
 Cameron, Richard, 9
 Capellan Confederation, 10
 Capital(s)
 weapons, 33
 CASE/CASE-P, 33, 65
 Caspar II advanced smart robotic control system, 137-38, 182, 202
 equipment table, 139
 Castle(s) Brian, 12, 13
 Centurion weapon system (Star League), 13, 78-79, 179
 battle value, 185
 BattleForce, 195
 rules, 79
 Chemical weapon(s), 172-76
 acquisition, 172
 BattleForce, 207-08
 classes, 174
 data, 172-73
 delivery, 173
 protective gear, 173
 resistance modifiers, 206
 construction rules, 174
 decontamination, 173-74
 indirect delivery, 173
 table, 172
 Civil War Era, 8, 10
 alternate units, equipment, 20-21
 factions, 20
 special equipment, 21
 technology base, 20
 units, 20
 Clan
 cybernetic augmentations, 71
 enhanced imaging neural implant, 69
 ER PPC capacitor, BattleForce, 197
 founding years, 9
 founding years factions, 16, 17
 golden years, 9
 golden years factions, 16, 17
 homeworlds, 10
 invasion equipment, 190
 Machina Domini interface, 110
 Technology base, 11
 Clan Eras, 17
 alternate units, equipment, 17
 factions, 17
 special equipment, 17
 technology base, 17
 units, 17
 Clan Ghost Bear, 10
 Clan Invasion Era, 8, 9-10, 18
 alternate units, equipment, 18
 downgrades, 18-19
 factions, 18, 19
 special equipment, 19
 technology base, 18
 units, 18
 upgrades, 19
 Clan Post-Reaving Era, 11, 24
 alternate units, equipment, 24
 factions, 24, 25
 special equipment, 24
 technology base, 24
 units, 24
 Clan Smoke Jaguar, 10
 Class I chemical/biological weapons, 174
 Class II chemical/biological weapons, 174
 Class III chemical/biological weapons, 174-75
 Class IV chemical/biological toxins, 175-76
 Class V chemical/biological toxins, 176
 Cockpit(s)
 critical hits, 110
 LAM prohibited, 108
 primitive, 116
 RetroTech, 116
 systems, 33-36
 Collisions, 108
 Common dates, missing, 28
 Common items, 27
 Communications
 impact, 207
 ComStar, 10, 13
 Schism, 10
 Construction options, 44-45
 Control systems
 primitives, 116



RetroTechs, 116

Conventional infantry
explosive suicide implants, 77
IMP missile attack, 56
tech, 47
weapons, 47-52

Cooling systems, 36

Crashes, 107

Custom nuclear weapons, 171

Cybernetic augmentations, 70-75
all-or-none modifications, 70
artificial pain shunt, 71
BattleForce, 194
concentration, 71
electromagnetic pulses, 70-71
fatigue effects, 70
healing, maintenance, 70
limits table, 71
morale effects, 70
rules, 70-71
skill, loyalty, 71

Cybernetic boosted communications
implants, 72
rules, 72

Cybernetic communications implants, 72
rules, 72

Cybernetic filtration implants, 73
rules, 73

Cybernetic gas effuser
pheromone, 73-74
toxin, 74

Cybernetic multi-modal sensory
implants, 73
Enhanced, 73
rules, 73

Cybernetic myomer implants
dermal armor, 74
dermal camouflage armor, 74-75
triple strength, 75

Cybernetic sensory implants, 72
rules, 72

Cybernetic triple-core processor implant, 75
rules, 75-76

Cybernetic vehicular direct neural interface, 76

Cybernetics, 22

• D •

Damage,
interrupt circuit, 62

Dark Age Era, 8, 10, 22-23, 59
armor modifiers table, 185
BattleForce, 195
Clan post-reaving, 11
equipment, 79-85, 190
late, 10
Republic Age, 10
RISC equipment, 85-90, 185
weapons, BattleForce, 195

Davy Crocket nuclear weapons, 168-69

Dead-fire missiles, 200

Deep Periphery, 11, 22
RetroTech, 24

Defensive pods, 34

Direct neural control system, 207
BattleForce, 192

Direct neural interface cockpit
notification, 62

rules, 62

Direct Tactical Analysis Control (DTAC)
system, 140-41, 182, 203
modifier table, 141

Dismounted personnel inside transport
bay, explosive suicide implants, 77

Docking collars, 125
primitives, 116
RetroTechs, 116

Domini, Manei, 22

Double heat sinks, 65, 196
rules, 65

Dragon's Breath multi-missile launch
system, 142-43, 203, 207

Drones, 34, 129-30, 181, 190
battle values, 187
BattleForce, 201-3
fire-control network, 140, 141

DropShip(s)
docking operations, 115
IMP missiles attack, 61

DropShuttle Bays, 113
BattleForce, 199
rules, 113

• E •

Early Clan equipment, 189

Early Clan improved systems
battle values, 186
BattleForce, 197
equipment, 89-90
weapons, BattleForce, 197

Early Clan prototype systems, 91-93
battle values, 186
BattleForce, 197
rules, 91
weapons, BattleForce, 197

Early Succession Wars, 13
alternate units, equipment, 13
downgrades, 13-14
factions, 13, 16
special equipment, 14
technology base, 13
units, 13

ECM/ECCM
IMP missiles attack, 61

Ejection, 110
escape systems, 34

Electric discharge ProtoMech (EDP)
armor, 58
BattleForce, 192
rules, 59

Electronic interference, 131-32
effects table, 132

Electronic warfare, 34-35, 131, 140, 141

Elias nuclear weapon, 168

Endo Steel, 97
rules, 97

Endo Steel structure (ES-P), 65
rules, 65

Engines, 38
LAM prohibited, 108
primitives, 118
RetroTechs, 116

Enhanced imaging neural implant, 19,
21, 69

Enhanced prosthetic equipment table,
78

Equipment,
primitives, 116
restrictions, 11
RetroTechs, 116
units, costs and availability, 58

ER lasers, 91, 97
rules, 91, 97

Era, general expansions rules, 11

Escorpión Imperio, 24

Estimated introductions, 27

Evolving tech, 27-28

Excess heat, bomb bays and, 104

Exoskeletons, 12

Expanded ProtoMech(s), 186
attack rules, 93
battle values, 186
BattleForce, 197
chassis restrictions, 94
construction rules, 94
control systems, 95
critical hits, 94
engine rating, mobility formulas, 95, 96
firing arcs, 93
hit locations, 93
Jump Jets, 95, 96
location restrictions table, 95
maximum weight, 94
movement rules, 93
physical attacks, 94
structure, armor table, 94-95
Wars of Reaving, 92-96
weight, space limits, 94

Experimental damage interrupt circuit, 19

Explosive suicide implants, 87 rules, 87

Extended Jump Jet (XJJ) System, 59
BattleForce, 192

Extinctions, 28

Extra-large weapons, LAM prohibited,
108

Extralight Fusion Engine (XL-P), 65
rules, 66

• F •

Federated Commonwealth, 9, 20
Alliance, 18
breakup, 9-10
Civil War, 10

Federated Suns, 9, 12

Ferro-Fibrous Armor (FF-P), 66, 97
rules, 64, 97

Fighter(s)
heat phase, 107
hit location table, 106
IMP missile attack, 61
pilots in cockpits, 77

Filtration implant, 208

Fire control systems, 35

Firing arcs table, 106

Flamers, 35

Fluid guns, 35

Fuel-air munitions, 159-60
table, 160

Fusillade launcher, 49
BattleForce, 192
rules, 59

• G •

Gauss rifle(s), 35, 66, 07

rules, 66, 97

Generic nuclear critical hit table, 171

Generic nuclear weapons, 171
formulas, 171

Glider ProtoMech(s), 59, 93, 207
BattleForce, 197
crash-landing, 94
ground movement, 93
landing movement, 93
WIGE movement, 93

Great Houses, 9, 10

Grenade launchers, 40

Ground operations RIC decision tree, 148
ground unit missions, 148-49
preferred range bracket suggestions
table, 149
robot unit movements, 149-50
tiered, 148

Ground unit(s)
hostile target selection tree, 152
missions, 148-149
movements, 150

Ground-based robotic unit
missions, 150-51
movements, 149-50

Guardian ECM (ECM-P), 66

Gyros
LAM prohibited, 108
primitives, 106
RetroTechs, 106

• H •

Harjel repair system, 82, 207
BattleForce, 195
rules, 82-83

Heat sinks, 36

Heat-dissipating armor, 81
BattleForce, 195

Heavy weapons ammunition, 53-56

Helm Data Core, 9

Helm Memory Core, 14, 14

Homeworld Clans, 10

Hostile environments, 110

House Cameron, 12

House Kurita, 10

House Liao, 10

Hovering, 102

Hull
breaches, 110

• I •

Impact-resistant armor, 81, 208
BattleForce, 195
rules, 82

Improved Advanced Tactical Missile
(IATM) launchers, 59, 207
BattleForce, 192
rules, 60

Improved and enhanced PPCs, 89
rules, 90

Improved autocannon, 90

Improved gauss rifle, 90

Improved lasers, 89

Improved magnetic pulse (IMP) missiles, 61

Improved standard missile launchers, 90

Industrial equipment, 36

Infantry
armor, 30-31

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

STRATEGIC
BATTLEFORCE

ABSTRACT
COMBAT
SYSTEM

CONVERSION
RULES

INNER SPHERE
AT WAR

INDEX

RECORD SHEETS

physical attacks, 105
tech, 47
weapons, 47-52
Inner Sphere, 8, 9, 10, 12
cybernetic augmentations, 71
Inner Sphere ProtoMech interface, 96
battle values, 186
BattleForce, 197
rules, 96
Inner Sphere Recovered Prototypes
(Late Succession Wars), 15, 96-9
battle values, 186
BattleForce, 197-8
rules, 96
Internal structure
LAM prohibited, 108
primitives, 116
RetroTechs, 116
Interstellar Operations, 7
Invader Clans, 10

• J •

Jihad Era, 8, 10, 11, 21-22, 49
alternate units, equipment, 22
equipment, 190
factions, 21, 22
period, 11
special equipment, 22
technology base, 22
units, 22
Jump Drive charging, 115
Jump Jets
primitives, 116
RetroTechs, 116
Jump sail, 115, 123-22
JumpShips
IMP missiles attack, 61

• K •

Kearny-Fuchida
boom, 113
drive integrity, 123
jump capability, 123
Kerensky, Aleksandr, 9
Nicholas, 9
Key of terms, 28, 57

• L •

Land-Air BattleMechs (LAMs),
11, 14, 22, 99-109, 190, 207
airborne conversion, 101
AirMech movement, 102
battle values, 186
BattleForce, 198-99
bimodal, 100
bomb bays, 105, 108
chassis restrictions, requirements, 108
combat rules, 104-5
construction, 108-9
conversion, 100, 102, 108
critical hit table, 104
engines, 108
fighter hit location table, 106
fighter mode, 101-2, 105
firing arcs table, 106
fuel, 108
general rules, 100
ground conversion, 101

heat phase, 107
minimum jumping, 108
mode, 105
movement, 102
pilot skills, 100
prohibited technologies, 108-9
skill table, 100
space conversion, 102
standard, 100
standard damage, critical hits, 101
structural integrity, 108
Large spacecraft systems, 36-37
Laser pulse module, 87
Lasers, 37-38
Late Dark Age, factions, 25
Late Succession Wars, 11, 14-15
alternate units, equipment, 14
downgrades, 14-15
equipment, 189
factions in, 14, 16
pre-existing damage, 15
special equipment, 15
technology base, 14
units, 14
upgrades, 15
LB 10-X autocannon, 66, 97
rules, 66, 97
LB-X autocannon, 91
Listen-kill missiles/munitions, 99, 198
rules, 99
Lyran Alliance, 18

• M •

Machina Domini Interface, 110, 180
battle values, 187
BattleForce, 199
rules, 110
Machine guns, 38
Mackie, 11
Magnetic clamp system, 60, 208
BattleForce, 192
rule, 60
Master Unit List (MUL), 11
Mech/Vehicle/Fighter engines, 36
Mechanized infantry, 105
MechWarrior(s)
cockpits, 77
damage, 110
skills, 110
Mine
dispensing/clearing systems, 38
Miscellaneous systems, 39
Missile launchers, 40
Missing data, 28
Missing prototype rules, 28
Mixed Technologies, 19, 106
Mobile army surgical hospital, 208
Mobile field base, 208
Mobile structure(s)
IMP missiles attack, 61
Modular space stations, 111
battle values, 187
BattleForce, 199
rules, 111
Modular space storage stations, 180-81
Mortars, 40
M-series drones, 129-30

• N •

NARC missile beacon, 66-67
rules, 67
Naval C3, 208
Neurohelmet(s), 13, 62-63
degradation, 63
Nova Composite Electronic Warfare
System (CEWS), 60, 208
BattleForce, 192
rules, 60
Nuclear weapon(s), 163
alternative environments table, 167
BattleForce, 204-05
custom (generic), 171
detonation resolution, 164-66
high altitude, 166-67
low altitude, 168
rules, 163-64
space, 166
secondary effects table, 166
special conditions, 187-88
standard weaponry, 168-71
standard weaponry table, 164

• P •

Pacemaker nuclear weapon, 170
Patchwork armor, 82
Periphery, 9, 12
Phansigars, Thuggee, 22
Phoenix Hawk
battle value calculation, 186
building, 109
Physical attacks, 106
Pilot interfaces, advanced, 62-64
Piloting
skill checks, 110
skill modifiers, 104
Plasma weapons, 40
Post-reaving, 11
PPCs, 40
Pre-K-F boom docking collar, 113-14
rules, 114
Primitive aerospace fighter, 115, 119
armor, 119
chassis, 119
engine and control systems, 119
heat sinks, 119
record sheet, 119
targeting systems, 115
weapons, ammunition, equipment,
119
Primitive BattleMech(s), 114
armor, 118
chassis design, 117
cockpits, 114, 117
construction, 116-17
control systems installation, 117
critical hits, 114
engine installation, 117
gyroscope addition, 117
heat sinks and, 117-18
internal structure tonnage, 117
jump capability, 117
record sheet, 118
special physical enhancements, 117
technology base, 117
weapons, ammunition, equipment,
118

weight choice, 117
Primitive combat vehicles, 114-15, 116
Primitive components, LAM prohibited,
108
Primitive conventional fighters,
114-15, 118-19
Primitive DropShip, 120-21
armor, 122
chassis, 121
engine, controls, 121-22
engine/controls weight table, 121
heat sinks, 122
heat sinks table, 122
maximum weight limit table, 121
record sheet, 122
weapons, ammunition, equipment, 122
Primitive IndustrialMech, 117, 118
Primitive jump sail weight table, 124
Primitive jumpship(s)
armor, 124-25
chassis, 122-23
engine/controls, 123
engine/controls weight table, 123
heat sinks, 124
heat sinks table, 124
maximum weight table, 128
record sheet, 125
weapons, ammunition, equipment, 125
Primitive Kearny-Fuchida drive formula, 124
Primitive large aerospace craft, 115
Primitive prototype DropShip
equipment, 112-13
Primitive prototype equipment, 111-22, 181
battle values, 187
BattleForce, 199
dates for basic weapons, 112
rules, 112
Primitive prototype Jump Jets, 114
Primitive prototype JumpShip equip-
ment, 112-13
Primitive prototype weapons,
BattleForce, 199
Primitive small craft, 115, 203
armor, 120
chassis, 119-20
engine, control systems, 120
engine/controls weight table, 120
heat sinks, 120
record sheet, 120
weapons, ammunition, equipment, 120
Primitive targeting systems, 114-15
Primitive units, 114, 181, 187
battle values, 187
BattleForce, 199-200
restricted technologies, 115-16
rules, 114-115
Primitive vs. modern, 115
Production
dates, missing, 28
faction, 27
Prosthetic augmentations, 70
Prosthetic leg MASC, 77, 208
rules, 78
Prosthetic limbs, improved enhanced,
78, 185
Prosthetic tail, enhanced, 78
Prosthetic wings, glider, 78
Prosthetic wings, powered flight, 76



ProtoMech, 29
 armor, 30
 battle values, 186
 IMP missiles, 61
 Quad melee weapon system, 61, 192
 Quads, 92, 93
 units, 22
 Word of Blake Super Jump Drive, 180
 Prototype
 faction, 27
 missing rules, 28
 Prototype Artemis IV, BattleForce, 193
 Prototype Beagle active probe, BattleForce, 193
 Prototype CASE, BattleForce, 193
 Prototype direct neural interface, 77
 Prototype double heat sinks (freezers), BattleForce, 193, 196
 Prototype DropShip K-F boom, 113
 Prototype Endo Steel Structure, BattleForce, 193, 196
 Prototype extralight fusion engine, BattleForce, 193
 Prototype ferro-fibrous armor, BattleForce, 193, 196
 Prototype Guardian ECM, BattleForce, 193
 Prototype Narc missile beacon, BattleForce, 193
 Prototype remote sensor dispenser, BattleForce, 193
 Prototype specialty missiles, 125-26
 battle values, 187
 Prototype specialty munitions, 181
 BattleForce, 200
 Prototype TAG, BattleForce, 193
 Prototype triple-strength myomer, BattleForce, 198
 Pulse lasers, 67, 97
 rules, 67, 97

• Q •
 QuadVee(s), 24, 127-28, 181, 191, 208
 battle values, 187
 BattleForce, 200-1
 combat phases, 127-28
 construction rules, 128
 conversion, 127
 movement phases, 127
 pilot damage, 128
 piloting/gunnery skills, 127

• R •
 Radical heat sinks, 83, 208
 BattleForce, 196
 failure table, 83
 rules, 83
 Random assignment tables, 11
 Reaving Clans, 11
 Recovered prototype weapons, BattleForce, 198
 Recovered Star League technologies, 15, 96-9
 Recovery, 27
 Re-engineered lasers, 83, 298
 BattleForce, 196
 Remote drone command console, 84
 BattleForce, 196
 Remote sensors, 67
 Remote-operated drones, 201

Republic Age, 10, 22
 alternate units, equipment, 24
 factions, 23, 25
 special equipment, 24
 technology base, 23
 units, 23
 Republic of the Sphere, 10
 RetroTech units, 22, 24, 124, 181, 191
 battle values, 187
 BattleForce, 199-0
 compared to modern support vehicles, 118, 119
 construction, 116
 rules, 114-15
 Reunification War, 9
 Rifles, 32
 Rim Worlds Republic, 9
 RISC advanced point defense system, 85, 209
 BattleForce, 196
 rules, 85-86
 RISC emergency coolant system, 86, 208
 BattleForce, 197
 failure table, 86,
 rules, 86
 RISC equipment, 179
 battle value, 185
 BattleForce, 195
 RISC heat sink override kit, 86
 BattleForce, 197
 rules, 86-87
 RISC hyper laser, 87
 RISC laser pulse module, BattleForce, 197
 RISC repeating TSEMP, 88
 RISC super-cooled myomer, 88
 BattleForce, 196
 RISC viral jammers, 88, 208
 BattleForce, 197
 rules, 89-90
 Robotic aerospace fighters, 130-31
 Robotic BattleMechs, 130
 Robotic boarding activities, 132
 Robotic combat vehicles, 130
 Robotic conventional fighters, 130
 Robotic drone(s), 201-2, 208
 Robotic fighter squadrons, 132-33
 Robotic independent command rules, 143-44
 Robotic IndustrialMechs, 130
 Robotic initiative, 130
 Robotic JumpShips, 131
 Robotic non-combat units, 131
 Robotic small craft, 130-31
 Robotic space stations, 131
 Robotic support vehicles, 130
 Robotic systems, 34, 128-29, 130, 181, 190
 battle values, 187
 BattleForce, 201-3
 control units, 133-34
 electronic warfare, interference, 131-32
 heat, 131
 human controls, 133
 hyperspace travel, 133
 movement, terrain restrictions, 130
 pilot/crew damage, 131
 shutdown, 133
 special conditions, 132
 special equipment, 133

weapons, ammunition, equipment, 131
 Robotic unit base marine points table, 132
 Robotic WarShips, 131
 Rocket launchers, 67
 Running, 102

• S •
 Santa Ana nuclear weapon, 169-70
 Second Star League, 9, 10, 18, 20, 22
 Secondary nuclear effects table, 206
 Shielded aerospace smart robotic control system, 136-37, 182, 202
 Shoot and sit missiles, 200
 Sideslipping, 107-08
 Skidding, 108
 Small craft, IMP missiles attack, 61
 Smart robotic control system, 11, 134-36, 181, 202
 table, 136
 Space Station K-F adapter
 BattleForce, 198
 rules, 99
 Space Stations, IMP missiles attack, 61
 Special munitions: anti-TSM "Green Smoke" missiles, 98
 Special pilot abilities, 110
 Specialty munitions
 anti-TSM munitions, 198
 BattleForce, 198
 dead-fire missiles, 125-26
 improved inferno warhead missiles, 61, 192
 improved magnetic pulse (IMP) missiles, 61, 192
 listen-kill missiles, 99, 198
 retro-streak missiles, 126
 shoot-and-sit missiles, 125
 Sprayers, 35
 St. Ives Compact, 10
 St. Ives War, 21
 Star League Defense Force, 9
 advanced neurohelmet, 62-63
 Star League Era, 8, 9
 Age of War, 8, 11
 Star League in Exile, 9
 Star League Space Defense System (SDS)
 Caspar drone control system, 136-37, 182, 203, 208
 drones, 129
 Jammer, 142, 203, 208
 self-destruct system, 141-42, 182, 203
 Steiner-Davion alliance, 14
 Stone, Devlin, 10
 Strategic Operations, 7, 11, 27
 Streak SRM, 91
 rules, 91-92
 Structural components, 42-43
 Sub-eras, 8
 Succession Wars Era, 8-10, 13-14
 Clan sub-era, 9
 downgrades table, 13, 14, 15
 early, 9
 late, 9
 Suicide charges
 inside aerospace units, 77
 inside other units, 77
 inside structures, 77
 Superheavy BattleMechs, 22, 153, 177, 177, 191

armor, 156-57
 battle values, 187-88
 BattleForce, 203-04
 chassis, 154-55
 different levels tables, 154
 engines, control systems, 156
 engine type battle value modifier table, 188
 heat sinks, 156
 rules, 153-55
 structure table, 155
 weapons, equipment, 157
 Superheavy IndustrialMechs, 15
 Super-Jump Drive, 22, 177
 Support vehicles, 115

• T •
 Tactical Operations (2 volumes), 6, 7, 11, 13, 17, 27
 Target Acquisition Gear (TAG) 67
 rules, 67
 Targeting, 35
 Taser, 43
 Tech Base, 26
 Tech Rating, 26-27
 TechManual, 6, 11, 27
 Terran Alliance, Age of War, 8
 Terran Hegemony, 11, 12, 13
 Age of War, 8
 Thermobaric weapons, 159-60, 183, 191
 battle value, 188
 BattleForce, 204
 Tight-Stream Electromagnetic Pulse (TSEMP) weapons, 43, 84, 208
 BattleForce, 196
 effects table, 84
 rules, 84-85
 weapons, 43, 84
 Tilde (~), 27
 Time of War, A, 7, 70
 Total Warfare, 6, 7, 19
 Transport
 bays, quarters, seating, 43
 launching/recovery systems, 43
 Transport RIC decision tree
 navigating, 167
 overriding orders, 167
 targeting, 167
 Trinity Alliance, 10
 Triple-core processor, 208
 Triple-strength implants, 208
 Triple-strength myomer, 97
 Tripod 'Mechs, 13, 157-59, 183, 191
 battle value, 188
 BattleForce, 204-05
 cockpit, 159
 internal structures, 159
 record sheet, 159
 rules, 158-59
 weapons, equipment, 159
 Turrets, 44
 Type Ia/Davy Crockett (nuclear weapon), 168
 Type Ib/Davy Crockett-M (nuclear weapon), 168-169
 Type II/Alamo (nuclear weapon), 169
 Type III/Santa Ana (nuclear weapon), 169-170

INTRODUCTION

ALTERNATE ERAS

ALTERNATE ERAS:
UNITS AND
EQUIPMENT

ALTERNATE ERAS:
COST AND
AVAILABILITY

STRATEGIC
BATTLEFORCE

ABSTRACT
COMBAT
SYSTEM

CONVERSION
RULES

INNER SPHERE
AT WAR

INDEX

RECORD SHEETS

Type IV/Pacemaker (nuclear weapon), 170

• U •

Ultra autocannon, 92, 98
Ultraheavy Main Gun Mounts, 93
Ultraheavy ProtoMech(s), 94
 ejection system, 94
Unintentional charring, 108
Unit,
 restrictions, 11
Universal Technology Advancement
 Table, 11, 13, 14, 29-57

• V •

Vehicle
 crew inside their vehicle, 77
 IMP missiles attack, 61
Vehicular Motive Systems, 29
Virtual reality piloting pad, 63, 208
 BattleForce, 192
 rules, 63-64

• W •

Walking, 102
Warrior augmentation, 52, 193
Wars of Reaving, 10, 21-22, 24
 advanced equipment, 58-61
 equipment, 190
WarShip(s),
 IMP missiles attack, 61
Weapons
 generic nuclear, 171
 primitive aerospace fighter, 119
 primitive BattleMech, 118
 primitive DropShip, 122
 primitive jumpships, 125
 primitive small craft construction, 120
 primitives, 116
 RetroTechs, 116
 robotic systems, 131
 standard nuclear, 168-71
 superheavy 'Mechs, 157
Weapons of mass destruction, 14, 22, 57,
 160, 183
 battle value, 188

 general acquisition table, 161
 general modifier table, 161
 general rules, 160, 162
 use consequences table, 162
Word of Blake, 10, 21
 Dragon's Breath multi-missile
 launch system, 142-43
 Protectorate, 10, 22
 SDS network, 130
Word of Blake Super Jump Drive, 177-78
 advanced Clan equipment, 178
 advanced pilot interfaces, 178-79
 advanced prototype systems, 179
 augmented warriors, 179
 battle value, 188
 BattleForce, 206
 Centurion weapon system, 179
 Dark Age equipment, 179
 early Clan improved equipment, 179
 early Clan prototype systems, 179
 expanded ProtoMechs, 179-80
 Inner Sphere ProtoMech interface, 180

Inner Sphere recovered prototypes, 180
Land-Air BattleMechs, 180
Machina Domini interface, 180
modification, 183
modular space stations, 180-83
primitive prototype equipment, 183
primitive units, 183
prototype specialty munitions, 183
QuadVees, 183
RetroTech, 183
RISC equipment, 179
robotic, drone systems, 181-82
rules, 177-78
superheavy 'Mechs, 182
thermobaric weapons, 183
tripod 'Mechs, 183
weapons of mass destruction, 183

• Z •

Zellbrigen, 9



SUPERHEAVY THREE-LEGGED 'MECH RECORD SHEET

Head ()

P. 12

STAR LEAGUE ERA FACTIONS LIST

Age of War Sub-Era (2300-2570)	
Capellan Confederation	2367-2570
Capellan Hegemony/Commonality	2270-2366
Tikonov Union/Tikonov Grand Union*	2177-2366
Sarna Supremacy	2175-2366
St. Ives Mercantile Association	2245-2366
Sian Commonwealth	ca. 2260-2366
Duchy of Liao	2315-2366
Draconis Combine	2319-2570
Alliance of Galedon	2302-2319
Azami Caliphate	ca. 2450-2516
Principality of Rasalhague	2260-2510
Federated Suns	2317-2570
Marlette Association	2278-2324
Muskegon Coalition	2163-2317
United Hindu Collective	ca. 2240-2540
Free Worlds League	2271-2570
Marik Republic	2238-2271
Federation of Oriente	2241-2271
Regulan Principality	2243-2271
Stewart Confederation	2259-2271
Lyran Commonwealth	2341-2570
Protectorate of Donegal	2313-2341
Federation of Skye	2299-2341
Tamar Pact	2235-2341
Terran Hegemony	2315-2570
Terran Alliance	2086-2315
Rim Worlds Republic	2250-2570
Taurian Concordat	2335-2570
Magistracy of Canopus	2530-2570
Outworlds Alliance	2413-2570
Age of the Star League Sub-Era (2571-2781)	
The Star League	2570-2780
Capellan Confederation	2367-2781
Draconis Combine	2319-2781
Federated Suns	2317-2781
Free Worlds League	2271-2781
Lyran Commonwealth	2340-2781
Terran Hegemony	2315-2767
Amaris Empire	2767-2779
Rim Worlds Republic	2250-2769
Taurian Concordat	2335-2781
Magistracy of Canopus	2530-2781
Outworlds Alliance	2413-2781

*The Tikonov Grand Union includes the Chisholm Protectorate (2265-2335) and Chesterton Trade Federation (2193-2357)

P. 15

SUCCESSION WARS ERA DOWNGRADES TABLE

Base TN to avoid downgrade: 7	
Condition	Modifier
<i>Scenario Date</i>	
2820-2850	-2
2851-2950	-4
2951-3034	-6
3035-3045	-4
After 3045	-2
<i>Force Affiliation</i>	
Major I.S. Power	+0
Minor I.S. Power	-1
Major Periphery Power	-1
Minor Periphery Power	-2
Mercenary/Pirate	-2
<i>Force Skill Rating</i>	
Elite	+2
Veteran	+1
Green	-1

SUCCESSION WARS ERA FACTIONS LIST

Early Succession Wars Sub-Era (2781-2900)	
Capellan Confederation	2367-2900
Draconis Combine	2319-2900
Federated Suns	2317-2900
Free Worlds League	2271-2900
Lyrans Commonwealth	2340-2900
ComStar	2788-2900
Taurian Concordat	2335-2900
Magistracy of Canopus	2530-2900
Outworlds Alliance	2413-2900
Oberon Confederation	2775-2795
Circinus Federation	2785-2900
Hanseatic League*	2891-2900
Castilian Principalities*	2392-2900
Umayyad Caliphate*	2830-2900
Late Succession Wars Sub-Era (2901-3049)	
Capellan Confederation	2367-3049
Draconis Combine	2319-3049
Federated Commonwealth	3028-3049
Federated Suns	2317-3049
Lyrans Commonwealth	2340-3049
Free Worlds League	2271-3049
ComStar	2788-3049
Taurian Concordat	2335-3049
Magistracy of Canopus	2530-3049
Outworlds Alliance	2413-3049
Oberon Confederation (New)	3012-3049
Circinus Federation	2785-3049
Tortuga Dominions	ca. 2785-3049
Hanseatic League*	2891-3049
Castilian Principalities*	2392-3049
Umayyad Caliphate*	2830-3049
Marian Hegemony	2920-3049
Greater Valkyrate	3028-3049
<i>Morgraine's Valkyrate</i>	3021-3028
<i>Butte Hold</i>	3018-3028
Illyrian Palatinate	ca. 2350-3049
Lothian League	2815-3049
Rim Collection	3048-3049
Tikonov Free Republic †	3029-3031
St. Ives Compact †	3029-3049
Duchy of Andurien‡	3030-3040
Free Rasalhague Republic§	3034-3049

*Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Succession Wars era.
†Separated from Capellan Confederation; allied with Federated Commonwealth
‡Separated from Free Worlds League; allied with Magistracy of Canopus
§Separated from Draconis Combine; independent state

Clan Founding Years Sub-Era (2800-2840)	
The Clans	2807-2840
<i>Clan Blood Spirit</i>	2807-2840
<i>Clan Burrock</i>	2807-2840
<i>Clan Cloud Cobra</i>	2807-2840
<i>Clan Coyote</i>	2807-2840
<i>Clan Fire Mandrill</i>	2807-2840
<i>Clan Ghost Bear</i>	2807-2840
<i>Clan Goliath Scorpion</i>	2807-2840
<i>Clan Hell's Horses</i>	2807-2840
<i>Clan Ice Hellion</i>	2807-2840
<i>Clan Jade Falcon</i>	2807-2840
<i>Clan Mongoose</i>	2807-2840
<i>Clan Nova Cat</i>	2807-2840
<i>Clan Sea Fox</i>	2807-2840
<i>Clan Smoke Jaguar</i>	2807-2840
<i>Clan Snow Raven</i>	2807-2840
<i>Clan Star Adder</i>	2807-2840
<i>Clan Steel Viper</i>	2807-2840
<i>Clan Widowmaker </i>	2807-2834
<i>Clan Wolf</i>	2807-2840
<i>Clan Wolverine </i>	2807-2823
The Star League-in-Exile¶	2786-2801
Clan Golden Years Sub-Era (2841-3049)	
The Clans	2807-3049
<i>Clan Blood Spirit</i>	2807-3049
<i>Clan Burrock</i>	2807-3049
<i>Clan Cloud Cobra</i>	2807-3049
<i>Clan Coyote</i>	2807-3049
<i>Clan Fire Mandrill</i>	2807-3049
<i>Clan Ghost Bear</i>	2807-3049
<i>Clan Goliath Scorpion</i>	2807-3049
<i>Clan Hell's Horses</i>	2807-3049
<i>Clan Ice Hellion</i>	2807-3049
<i>Clan Jade Falcon</i>	2807-3049
<i>Clan Mongoose#</i>	2807-2868
<i>Clan Nova Cat</i>	2807-3049
<i>Clan Sea Fox/Diamond Shark**</i>	2807-3049
<i>Clan Smoke Jaguar</i>	2807-3049
<i>Clan Snow Raven</i>	2807-3049
<i>Clan Star Adder</i>	2807-3049
<i>Clan Steel Viper</i>	2807-3049
<i>Clan Wolf</i>	2807-3049

||Clan Wolverine was destroyed in 2823; Clan Widowmaker was absorbed by Clan Wolf in 2834
¶After 2801, the Star League-in-Exile collapsed into various warring factions; conquered by Clans in 2815
#Clan Mongoose was absorbed by Clan Smoke Jaguar in 2868
**Clan Sea Fox became Diamond Shark in 2985

P. 19

CLAN INVASION ERA FACTIONS LIST

Clan Invasion Era	
Capellan Confederation	2367-3061
Draconis Combine	2319-3061
Federated Commonwealth	3028-3057
Federated Suns	3057-3061
Lyran Alliance*	3057-3061
Free Worlds League	2271-3061
ComStar	2788-3061
Word of Blake†	3052-3061
Taurian Concordat	2335-3061
Magistracy of Canopus	2530-3061
Outworlds Alliance	2413-3061
Circinus Federation	2785-3061
Hanseatic League‡	2891-3061
Castilian Principalities‡	2392-3061
Umayyad Caliphate‡	2830-3061
Marian Hegemony	2920-3061
Lothian League	2815-3055
Illyrian Palatinate	ca. 2350-3061
Rim Collection	3048-3061
St. Ives Compact	3029-3061
Free Rasalhague Republic	3034-3061
Second Star League§	3058-3061
The Clans	2807-3061
<i>Clan Blood Spirit</i>	2807-3061
<i>Clan Burrock </i>	2807-3059
<i>Clan Cloud Cobra</i>	2807-3061
<i>Clan Coyote</i>	2807-3061
<i>Clan Diamond Shark</i>	2807-3061
<i>Clan Fire Mandrill</i>	2807-3061
<i>Clan Goliath Scorpion</i>	2807-3061
<i>Clan Hell's Horses</i>	2807-3061
<i>Clan Ice Hellion</i>	2807-3061
<i>Clan Jade Falcon</i>	2807-3061
<i>Clan Smoke Jaguar </i>	2807-3060
<i>Clan Snow Raven</i>	2807-3061
<i>Clan Star Adder</i>	2807-3061
<i>Clan Steel Viper</i>	2807-3061
<i>Clan Wolf</i>	2807-3061
<i>Clan Nova Cat¶</i>	2807-3061
<i>Clan Wolf (in-Exile)¶</i>	3057-3061
Ghost Bear Dominion	3060-3061
<i>Clan Ghost Bear</i>	2807-3061

*Separated from Federated Commonwealth; Lyran Alliance is the renamed Lyran Commonwealth

†Separated from ComStar in 3052; allied with Free Worlds League, Capellan Confederation, and Taurian Concordat

‡Deep Periphery states; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

§The founding members of the Second Star League were the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, and the St. Ives Compact. Clan Wolf (in-Exile) joined the Second Star League in 3058; Clan Nova Cat joined in 3060.

||Clan Burrock was absorbed into Clan Star Adder in 3059; Clan Smoke Jaguar was destroyed in 3060

¶Clan Wolf (in-Exile) broke off in 3057; Clan Nova Cat was abjured in 3060; both joined the Second Star League

P. 20

CIVIL WAR ERA FACTIONS LIST

Civil War Era	
Capellan Confederation	2367-3067
St. Ives Compact	3029-3063
Draconis Combine	2319-3067
Federated Suns	2317-3067
Free Worlds League	2271-3067
Lyran Alliance	3057-3067
ComStar	2788-3067
Word of Blake Protectorate	3066-3067
Word of Blake	3052-3067
Taurian Concordat	2335-3067
Calderon Protectorate	3066-3067
Magistracy of Canopus	2530-3067
Fronc Reaches	3066-3067
Outworlds Alliance	2413-3067
Circinus Federation	2785-3067
Hanseatic League*	2891-3067
Castilian Principalities*	2392-3067
Umayyad Caliphate*	2830-3067
Marian Hegemony	2920-3067
<i>Illyrian Palatinate</i>	ca. 2350-3063
Rim Collection	3048-3067
Free Rasalhague Republic †	3034-3067
Second Star League‡	3058-3067
The Clans	2807-3067
<i>Clan Blood Spirit</i>	2807-3067
<i>Clan Cloud Cobra</i>	2807-3067
<i>Clan Coyote</i>	2807-3067
<i>Clan Diamond Shark</i>	2807-3067
<i>Clan Fire Mandrill</i>	2807-3067
<i>Clan Goliath Scorpion</i>	2807-3067
<i>Clan Hell's Horses</i>	2807-3067
<i>Clan Ice Hellion</i>	2807-3067
<i>Clan Jade Falcon</i>	2807-3067
<i>Clan Snow Raven</i>	2807-3067
<i>Clan Star Adder</i>	2807-3067
<i>Clan Steel Viper</i>	2807-3067
<i>Clan Wolf</i>	2807-3067
Ghost Bear Dominion	3060-3067
<i>Clan Nova Cat</i>	2807-3067
<i>Clan Wolf (in-Exile)</i>	3057-3067

*Deep Periphery States; these realms remained isolated from the Inner Sphere throughout the Clan Invasion era

†Allied with ComStar

‡The Second Star League included the Capellan Confederation, Draconis Combine, Federated Suns, Free Worlds League, Lyran Alliance, ComStar, the Free Rasalhague Republic, Clan Nova Cat, Clan Wolf (in-Exile), and the St. Ives Compact. The Taurian Concordat and Word of Blake Protectorate joined as secondary members in 3064.

JIHAD ERA FACTIONS LIST

Jihad Era			
Capellan Confederation	2367-3085	The Homeworld Clans ¶	2807-3085
Draconis Combine	2319-3085	Clan Blood Spirit ¶	2807-3085
Federated Suns	2317-3085	Clan Cloud Cobra ¶	2807-3085
Malagrotta Cooperative*	3073-3079	Clan Coyote ¶	2807-3085
Filtvelt Coalition*	3072-3085	Clan Fire Mandrill ¶	2807-3073
Free Worlds League	2271-3079	Clan Ice Hellion ¶	2807-3074
Duchy of Andurient†	3079-3085	Clan Star Adder ¶	2807-3085
Duchy of Orientet‡	3079-3085	Clan Steel Viper ¶	2807-3075
Duchy of Tamarind-Abbey‡	3071-3085	Clan Stone Lion ¶	3075-3085
Marik-Stewart Commonwealth‡	3082-3085	Escorpión Imperio ¶	3080-3085
Rim Commonality‡	3075-3085	Clan Goliath Scorpion ¶	2807-3085
Other League worldst	3079-3085	Castilian Principalities ¶	2392-3080
Lyran Commonwealth/Alliance‡	3057-3085	Umayyad Caliphate ¶	2830-3080
ComStar	2788-3085	The Council of Six Clans	3075-3085
Republic of the Sphere	3081-3085	Clan Diamond Shark	2807-3085
Word of Blake Protectorate	3066-3078	Clan Hell's Horses	2807-3085
Word of Blake	3052-3081	Clan Jade Falcon	2807-3085
Taurian Concordat	2335-3085	Clan Wolf	2807-3085
Calderon Protectorate	3066-3085	Ghost Bear Dominion	3060-3067
Magistracy of Canopus	2530-3085	Raven Alliance	3083-3085
Fronc Reaches	3066-3085	Clan Snow Raven	2807-3083
Circinus Federation	2785-3081	Outworlds Alliance	2413-3083
Hanseatic League§	2891-3085	Abjured Clans	
Marian Hegemony	2920-3085	Clan Nova Cat	2807-3085
Rim Collection	3048-3085	Clan Wolf (in-Exile)	3057-3085
Free Rasalhague Republic	3034-3085		
Niops Association	ca. 2760-3085		
Fiefdom of Randis	2988-3085		

*Separated from Federated Suns (Malagrotta reclaimed in 3079); Filtvelt allied with Federated Suns
†Separated from Free Worlds League; Duchy of Tamarind-Abbey renamed from Duchy of Tamarind in 3078
‡The Lyran Alliance renamed itself to Lyran Commonwealth in 3084.
§Deep Periphery states; these realms remained largely isolated from the Inner Sphere throughout the Jihad era
||Allied with ComStar until 3071; from 3070 and onward, allied with Ghost Bear Dominion.
¶Homeworld/Deep Periphery states; these realms are isolated from the Inner Sphere after the Jihad era; Of the Homeworld Clans, Blood Spirit and Steel Viper were annihilated, while the remnants of Ice Hellion were absorbed into Clan Goliath Scorpion; Clan Stone Lion formed from remnants of the Hell's Horses Clan left in the Homeworlds.

DARK AGE ERA FACTIONS LIST

The Republic Age (3086-3130)	
Capellan Confederation	2367-3130
Draconis Combine	2319-3130
Federated Suns	2317-3130
Lyran Commonwealth	2341-3130
Republic of the Sphere	3081-3130
ComStar	2788-3130
Regulan Fiefs	3086-3130
Duchy of Andurien	3079-3130
Duchy of Tamarind-Abbey	3071-3130
Marik-Stewart Commonwealth	3082-3130
Oriente Protectorate	3086-3130
Rim Commonality	3075-3130
Taurian Concordat	2335-3130
Magistracy of Canopus	2530-3130
Niops Association	ca. 2760-3130
Marian Hegemony	2920-3130
Lothian League*	3087-3130
Fiefdom of Randis	2988-3130
Rim Collection	3048-3130
Calderon Protectorate	3066-3130
Fronc Reaches	3066-3130
Filtvelt Coalition†	3072-3130
The Council of Six Clans	3075-3130
<i>Clan Sea Fox/Diamond Shark‡</i>	2807-3130
<i>Clan Hell's Horses</i>	2807-3130
<i>Clan Jade Falcon</i>	2807-3130
<i>Clan Wolf</i>	2807-3130
Rasalhague Dominion	3103-3130
Ghost Bear Dominion	3060-3103
<i>Free Rasalhague Republic</i>	3034-3103
Raven Alliance	3083-3130
Abjured Clans	
Clan Nova Cat	2807-3130
Clan Wolf (in-Exile)	3057-3130

*Broke from Marian Hegemony in 3087

†Allied with Federated Suns

‡Clan Diamond Shark renamed itself to Clan Sea Fox in 3100

§Homeworld/Deep Periphery states: these realms remained isolated from the Inner Sphere after the Jihad era, and their form—if any—at this point remains unknown

Late Dark Age Sub-Era (3131-3150)	
Capellan Confederation	2367-3150
Draconis Combine	2319-3150
Federated Suns	2317-3150
Free Worlds League (New)	2271-3150
<i>Clan Protectorate</i>	3138-3139
<i>Duchy of Tamarind-Abbey</i>	3071-3139
<i>Marik-Stewart Commonwealth</i>	3082-3138
<i>Oriente Protectorate</i>	3086-3139
<i>Rim Commonality</i>	3075-3139
Lyran Commonwealth	2341-3150
Republic of the Sphere	3081-3150
ComStar	2788-3150
Regulan Fiefs	3086-3150
Duchy of Andurien	3079-3150
Taurian Concordat	2335-3150
Magistracy of Canopus	2530-3150
Niops Association	ca. 2760-3150
Marian Hegemony	2920-3150
Fiefdom of Randis	2988-3150
Rim Collection	3048-3150
Calderon Protectorate	3066-3150
Fronc Reaches	3066-3150
Filtvelt Coalition†	3072-3150
Lothian League	3087-3150
The Council of Six Clans	3075-3150
<i>Clan Hell's Horses</i>	2807-3150
<i>Clan Jade Falcon</i>	2807-3150
<i>Clan Sea Fox</i>	2807-3150
<i>Wolf Empire</i>	3143-3150
<i>Clan Wolf</i>	2807-3150
Rasalhague Dominion	3103-3150
Raven Alliance	3083-3150
Abjured Clans	
Clan Nova Cat	2807-3143
Clan Wolf (in-Exile)	3057-3150
Clan Post-Reaving Era (3086-3150)	
The Homeworld Clans§	2807-3150
<i>Clan Cloud Cobra§</i>	2807-3150
<i>Clan Coyote§</i>	2807-3150
<i>Clan Star Adder§</i>	2807-3150
<i>Clan Stone Lion§</i>	3075-3150
Escorpión Imperio§	3080-3150
Hanseatic League§	2891-3150

ADVANCED ARMOR TABLE

P. 82

Advanced Armor Type	Points per Ton	BM	IM*	Space		CF	AF	Construction Notes
				CV	SV*			
Anti-Penetrative Ablation	12	6	6	1	1	1	1	Fighter Slots: 1 (aft)
Ballistic-Reinforced	12	10	10	1	1	2	2	Fighter Slots: 1 (per wing)
Heat-Dissipating	10	6	6	N/A	N/A	N/A	N/A	None
Impact-Resistant	14	10	10	N/A	N/A	N/A	N/A	None

*Support Vehicles must have the Armored Chassis Mod and a Minimum Chassis Tech rating of D to install Advanced Armor; IndustrialMechs may only mount these armor types under Experimental Mixed-Tech rules.

PATCHWORK ARMOR ADDENDUM

P. 82

Armor Type	Slots per Location*	Tons per Point
Anti-Penetrative Ablation	1 / 1	0.0833
Ballistic-Reinforced	2 / 1	0.0833
Heat-Dissipating	1 / N/A	0.1000
Impact Resistant	2 / N/A	0.0714

*Number left of slash applies to 'Mechs and support vehicles; number right of slash applies to fighters and combat vehicles.

CENTURION WEAPON SYSTEM
RANGE TABLE

P. 80

Target is...	Range (Min/Sht/Med/Long)
Susceptible to CWS	0/6/12/18
Resistant to CWS	0/1/2/3

TSEMP EFFECTS TABLE

P. 84

Target Unit	No Effect (2D6 roll)*	Interference (2D6 roll)*	Shutdown (2D6 roll)*
BattleMech	2-6	7-8	9+
IndustrialMech	2-5	6-7	8+
ProtoMech	2-5	6-8	9+
Battle Armor**	2-5	6-7	8+
Combat Vehicles	2-5	6-7	8+
Support Vehicles	2-4	5-6	7+
Aerospace Fighter/Small Craft	2-6	7-8	9+
Conventional Fighter	2-5	6-7	8+
Target Mass: 100+ tons	-2 to roll	-2 to roll	-2 to roll
Target Mass: 200+ tons	N/A	N/A	N/A
Mobile Structure	N/A	N/A	N/A
Conventional Infantry	N/A	N/A	N/A

*Apply a -2 to the roll result if the target is powered by a Steam engine (-1 for ICE engines)

**For simplicity, a TSEMP attack against battle armor affects the entire squad equally

RADICAL
HEAT SINK
FAILURE TABLE

P. 83

Number of Turns Used*	Avoid Failure On
0	2
1	3
2	5
3	7
4	10
5	11
6+	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 2).

EMERGENCY
COOLANT
SYSTEM
FAILURE TABLE

P. 86

Number of Turns Used*	Avoid Failure On
1	3+
2	5+
3	7+
4	10+
5	Auto-Fail

*Consecutive turns only; each turn not used reduces the failure avoidance check by 1 level (to a minimum roll of 3).

EXPANDED PROTOMECH TORSO WEAPON CRITICAL HIT TABLE

P. 94

1D6 Roll	Weapon Critical Hits			
	Standard (Biped)	Standard (Quad)	Ultra (Biped)*	Ultra (Quad)
1	Torso Weapon A	Torso Weapon A	Torso Weapon A	Torso Weapon A
2	Torso Weapon A	Torso Weapon B	Torso Weapon A	Torso Weapon B
3	Torso Weapon B	Torso Weapon C	Torso Weapon B	Torso Weapon C
4	Torso Weapon B	Torso Weapon D	Torso Weapon B	Torso Weapon D
5	No Effect	No Effect	Torso Weapon C	Torso Weapon E
6	No Effect	No Effect	Torso Weapon C	Torso Weapon F

*Includes Glider ProtoMechs.

LAM SKILL TABLE

P. 100

Configuration and Movement Mode	Piloting	Gunnery
Aerospace Fighter	Aerospace	Aerospace
AirMech Expending BattleMech MP	BattleMech	BattleMech
AirMech Expending AirMech MP	Aerospace	BattleMech
BattleMech	BattleMech	BattleMech

AIRMECH ATTACKER MODIFIERS TABLE

P. 106

Attacker Movement Mode	Modifier
Walking	+1
Running	+2
AirMech Cruise	+3
AirMech Flank	+4

LAM CRITICAL HIT TABLE

P. 104

Critical Hit	BattleMech Mode	AirMech Mode	Fighter Mode
Avionics			
First hit	No Effect	+1 Piloting Modifier	+1 Piloting Modifier
Second hit	No Effect	+2 Piloting Modifier	+2 Piloting Modifier
Third hit	No Effect	+5 Piloting Modifier	+5 Piloting Modifier
Cockpit	Pilot Killed	Pilot Killed	Pilot Killed
Engine			
First hit	+5 Heat per turn	+5 Heat per turn	+2 Heat per turn
Second hit	+10 Heat per turn	+10 Heat per turn	+4 Heat per turn
Third hit††	Engine Destroyed	Engine Destroyed	Engine Destroyed
Jump Jets	−1 Jump MP (each hit)	−3 AirMech Cruise MP* (each hit)	−1 Safe Thrust* (each hit)
Landing Gear			
First hit	No Effect	No Effect	+1 Piloting to Land
Second hit	No Effect	No Effect	+2 Piloting to Land
Third hit	No Effect	No Effect	+5 Piloting to Land
Gyro			
First hit	+3 Piloting Modifier	+3 Piloting Modifier	+3 Piloting Modifier
Second hit	Gyro Destroyed‡	Gyro Destroyed‡	+6 Piloting Modifier
Sensors			
First hit	+2 To-Hit	+2 To-Hit	+2 To-Hit
Second hit	Weapon attacks impossible, regardless of current movement mode		
Arm Actuators			
Shoulder	+4 To-Hit†	+4 To-Hit†	+4 To-Hit†
Upper Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Lower Arm	+1 To-Hit†	+1 To-Hit†	+1 To-Hit†
Hand	+1 to Punch	+1 to Punch	No Effect
Leg Actuators			
Hip	Half Walk MP* +2 Piloting Modifier	+2 Piloting to Land	No Effect
Upper Leg	−1 Walk MP**, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Lower Leg	−1 Walk MP*, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Foot	−1 Walk MP*, +1 Piloting Modifier	+1 Piloting to Land	No Effect
Other Equipment	Per normal rules	Per normal rules	Per normal rules

*Recalculate AirMech Flank and Maximum Thrust MPs normally (x 1.5). Always round up.

**Recalculate Run MP normally (x 1.5). Always round up.

†Affects weapons in that arm only

††The third engine hit destroys the engine and the LAM shuts down, which may result in a no-thrust landing attempt (see p. 86, TW).

‡In BattleMech and AirMech Modes, the LAM will automatically fall and may not stand

Gyro Note: The first critical hit to the gyro disables the LAM's ability to convert between modes, regardless of the current movement mode. (If the LAM has a heavy-duty gyro, treat the first hit as a +1 Piloting Skill modifier instead, and the LAM may still convert between modes. The effects for the first hit on this table, including the loss of conversion capability, will thus occur with the second hit against such gyros. A third hit to a heavy-duty gyro destroys the gyro.)

Actuators Note: Critical hits to any arm actuator other than the hand will disable the LAM's ability to convert to or from BattleMech mode. Critical hits to any leg actuator other than the foot will disable the LAM's ability to convert to or from Fighter mode.

LAM FIGHTER HIT LOCATION TABLE

P. 106

2D6 Roll	Nose	Aft	Side	Above/Below
2	Center Torso	Center Torso§	Head	Right Torso
3	Right Torso	Right Torso§	Arm‡	Arm†
4	Right Arm	Right Torso§	Center Torso	Arm†
5	Right Arm	Right Arm	Center Torso	Leg†
6	Right Torso	Right Leg	Torso‡	Right Torso
7	Center Torso*	Leg†*	Arm‡	Center Torso
8	Left Torso	Left Leg	Torso‡	Left Torso
9	Left Arm	Left Arm	Leg‡*	Leg†
10	Left Arm	Left Torso§	Leg‡	Arm†
11	Left torso	Left Torso§	Arm‡	Arm†
12	Center Torso	Center Torso§	Leg‡	Left Torso

*Control roll required if the damage exceeds the LAM's Damage Threshold

†Roll 1D6: 1–3 Right, 4–6 Left

§Roll 1D6: 1–4 Apply Damage to Front Torso, 5–6 Apply Damage to Rear Torso

‡Hits the corresponding arm, leg, or torso, e.g. attack from left side hits left arm, left torso, or left leg

LAM FIGHTER FIRING ARCS TABLE

P. 106

BattleMech Location	Fighter Firing Arc
Head	Nose
Center Torso	Nose
Center Torso (Rear)	Aft
Left Torso	Left Wing
Left Torso (Rear)	Left Wing (Aft)
Right Torso	Right Wing
Right Torso (Rear)	Right Wing (Aft)
Left Arm	Left Wing
Right Arm	Right Wing
Left Leg	Aft
Right Leg	Aft

LAM BOMB BAY ORDNANCE TABLE

P. 105

Bomb Type	Description
Air-to-Air Arrow	20-point air-to-air missile (see p. 169, <i>TO:AUE</i>)
Anti-Ship Missile	30-point anti-ship missile (see p. 170, <i>TO:AUE</i>)
Anti-ship EW Missile	Capital-scale electronic-warfare missile (see p. 170, <i>TO:AUE</i>)
Arrow IV Missile	20-point air-to-ground missile, homing or unguided (see pp. 170-171, <i>TO:AUE</i>)
Cluster	5-point-per-hex air-to-ground cluster bomb (see pp. 249-250, <i>TW</i>)
Fuel	Provides 40 additional fuel points
High Explosive	10-point standard air-to-ground bomb (see pp. 249-250, <i>TW</i>)
Inferno	Incendiary air-to-ground bomb, generates 10 heat or damage (see p. 171, <i>TO:AUE</i>)
Laser Guided	10-point TAG-guidable air-to-ground bomb (see pp. 249-250, <i>TW</i>)
Light Air-to-Air Missile	6-point air-to-air missile (see p. 171, <i>TO:AUE</i>)
Rocket Launcher	Provides single-shot Rocket Launcher 10 to unit
TAG	Provides TAG weapon to unit (see p. 250, <i>TW</i>)
Thunder	Delivers 20-point standard minefield to target area (see p. 172, <i>TO:AUE</i>)
Thunder Active	Delivers 20-point active minefield to target area (see p. 172, <i>TO:AUE</i>)
Thunder Vibrabomb	Delivers 20-point vibrabomb minefield to target area (see p. 172, <i>TO:AUE</i>)
Torpedo	10-point air-to-water bomb (see p. 360, 172, <i>TO:AUE</i>)

LAM BOMB BAY CRITICAL HIT TABLE

P. 105

Bomb Type	Critical Hit Effect
Air-to-Air Arrow	Explodes for 20 points of damage
Anti-Ship Missile	Explodes for 30 points of damage
Anti-ship EW Missile	Explodes for 5 points of damage
Arrow IV Missile	Explodes for 20 points of damage
Cluster	Explodes for 5 points of damage
Fuel	Explodes on 2D6 roll 10+; 1 point of damage per point of fuel remaining
High Explosive	Explodes for 10 points of damage
Inferno	LAM adds 10 heat points in the current turn
Laser Guided	Explodes for 10 points of damage
Light Air-to-Air Missile	Explodes for 6 points of damage
Rocket Launcher	Explodes for 10 points of damage
TAG	Destroys TAG
Thunder	Explodes for 20 points of damage
Thunder Active	Explodes for 20 points of damage
Thunder Vibrabomb	Explodes for 20 points of damage
Torpedo	Explodes for 10 points of damage

PROTOTYPE DATES FOR BASIC WEAPONS TABLE

P. 112

Weapon System	Prototype	Production
Machine Gun	N/A*	Pre-Spaceflight*
Flamer (Standard)	N/A*	Early Spaceflight*
Flamer (Vehicle)	N/A*	Pre-Spaceflight*
LRMs (All)	2295	2300
SRMs (All)	2365	2370
Torpedo Launchers (LRT/SRT)	2370	2380
Autocannon/2	2290	2300
Autocannon/5	2240	2250
Autocannon/10	2443	2460
Autocannon/20	2490	2500
Small Laser	2290	2300
Medium Laser	2290	2300
Large Laser	2306	2310
PPC	2439	2460
Thumper Artillery	N/A*	Pre-Spaceflight*
Sniper Artillery	N/A*	Pre-Spaceflight*
Long Tom Artillery	2445	2500

*These items were perfected to modern standards prior to interstellar space travel and thus have no Prototype phase.

FUEL-AIR MUNITIONS TABLE

P. 160

Fuel-Air Munition Type*	Damage Type	Damage Values (Radius)
Fuel-Air Bomb (Small)	AE	20/10/5 (Radius: 2)
Fuel-Air Bomb (Large)	AE	30/20/10/5 (Radius: 3)
Fuel-Air Missile (Arrow IV)*	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Thumper, Thumper Cannon)	AE	10/5 (Radius: 1)
Fuel-Air Shell (Sniper, Sniper Cannon)	AE	20/10/5 (Radius: 2)
Fuel-Air Shell (Long Tom, Long Tom Cannon)	AE	30/20/10/5 (Radius: 3)

*All values are identical for Clan and Inner Sphere versions

DIFFERENT LEVELS TABLES (SUPERHEAVY 'MECHS)

P. 154

Target is:	Allowed Physical Attack (Hit Location Table Used)
Standing Superheavy 'Mech 1 level higher	Charge, Punch, Club, Physical Weapon (All on Kick Table)
Standing Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Standing Superheavy 'Mech 2 levels lower	Charge, Kick, Club, Physical Weapon (All on Punch Table)
Prone Superheavy 'Mech 1 level higher	Punch, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 1 level lower	Charge, Punch, Kick, Club, Physical Weapon (Use Default Tables)
Prone Superheavy 'Mech 2 levels lower	None

GENERAL WMD ACQUISITION TABLE

Weapon Type	Base TN	C-bills (Warhead)	C-bills (Launcher)
<i>Nuclear Weapons</i>			
Custom Tactical	14 + (1 per 5 Kt Yield)*	1,000,000 x Kt Yield*	As Launcher
Custom Strategic	16 + (1 per 5 Mt Yield)*	10,000,000 x Mt Yield*	As Launcher
Type Ia "Davy Crockett-I"	15	500,000	1,000,000
Type Ib "Davy Crockett-M"	15	500,000	As Launcher
Type II "Alamo"	16	1,000,000	As Launcher
Type III "Santa Ana"	18	15,000,000	250,000
Type IV "Peacemaker"	19	40,000,000	500,000
Elias	14	10,000	N/A
AMW**	17	100,000,000	As Launcher
<i>Chemical Weapons</i>			
Class I (Non-Lethal)†	4	1,000 (per ton)	As Launcher
Class II	9	10,000 (per ton)	As Launcher
Class III	14	250,000 (per ton)	As Launcher
Class IV	16	1,000,000	As Launcher
Class V	18	5,000,000	As Launcher
<i>Biological Weapons</i>			
Class IV	16	5,000,000	As Launcher
Class V	18	50,000,000	As Launcher

*Round up; Nuclear yield values are in Kilotons (Kt) or Megatons (Mt) as appropriate

**Unavailable before 2790

†Multiply the number of available weapons of this class by 2D6 after making the availability roll

GENERAL WMD ACQUISITION MODIFIER TABLE

Condition	Modifier	Condition	Modifier
Force Ratings		ComStar	+0
Experience: Elite	-2	Free Worlds League	+1
Experience: Regular	+1	Capellan Confederation	+2
Experience: Green	+3	Lyran Commonwealth	+2
Loyalty: Fanatical	-2	Clans (All)	+4
Loyalty: Questionable	+4	Minor Power	+1
Equipment: A-B	-1	Independent (Non-Affiliated) World	+2
Equipment: D-F	+2	Era of Play	
Force Size		Before 2400	-1
Per full 'Mech regiment	-1 (max -3)	2401-2411	+0
Unit smaller than a regiment	+1	2412-2570	+2
Force Affiliation		2571-2765	-1
Original SLDF	-3	2766-2850	-2
Taurian Concordat/Calderon Protectorate	-3	2851-2865	+0
Other Periphery (Non-Taurian)	-2	2866-3067	+2
Word of Blake	-2	3068-3085	-1
Draconis Combine	-1	3086-3150	+2
Federated Suns	-1	Cost	
		Per each additional 1x cost spent	-2 (Max -6)

WMD USE CONSEQUENCES TABLE

Margin	Suggested Consequence
MoS 1+	No consequences
MoS 0	Slap on the Wrist. (Force suffers -1 Initiative for next 2 scenarios)
MoF 1-3	Morale Loss (Force suffers -MoF to Initiative for MoF x D6 scenarios)
MoF 4-7	Charges and Reprimands (Force reduced 1 step in Loyalty and/or Equipment Ratings)*
MoF 8-9	Severe Punishments (Force reduced 1 step in Loyalty, Equipment, and Experience Ratings)*
MoF 10+	Disbandment (Force is stricken from the rolls; all officers imprisoned or executed.)

*To minimum ratings (Questionable for Loyalty, F for Equipment, Green for Experience)

STANDARD NUCLEAR WEAPONRY TABLE

P. 164

Weapon (Nuclear Yield)	Base Impact Damage (Standard)	Capital Damage (Crit Chance)	Blast Radius* (Ground/Air)	Damage Reduction (Ground/Air)	Secondary Radius* (Ground/Air)	Height (Blast/Secondary)	Crater Depth
Elias (0.05 Kiloton)	10	0 (N/A)	9 / N/A	1 / N/A	18 / N/A	5 / 6	0
Type Ia (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type Ib (0.5 Kiloton)	100	1 (11+)	20 / N/A	5 / N/A	40 / N/A	6 / 8	0
Type II (5 Kilotons)	1,000	10 (10+)	43 / 58	23 / 18	85 / 114	8 / 9	1
Type III (50 Kilotons)	10,000	100 (9+)	92 / 123	109 / 81	184 / 246	9 / 10	3
Type IV (500 Kilotons)	100,000	1,000 (8+)	198 / 264	504 / 378	397 / 529	10 / 10	5
AMW (3,000 Kilotons)	600,000	6,000 (N/A)	361 / 481	1,664 / 1,278	721 / 961	Row 1‡ / Row 2‡	9

*In ground hexes (1 mapsheet = 17 ground hexes/1 Low-Altitude Map hex)

**Type Ib weapons are launched only by Long Tom or Arrow IV artillery units; use the base range as indicated by the launcher

†Range in aerospace game play (Type II uses Detailed Weapon Range as AC/10; Type III, Type IV, and AMW as indicated capital missile)

‡Effects extend into Row 1 or 2 on the High Altitude Map, as indicated

SECONDARY NUCLEAR EFFECTS TABLE

P. 166

Roll*	Results
2-4	Unit is Destroyed (crew/pilot/troopers all killed; engines shut down; all applicable unit types suffer 1D6 critical hits**)
5-6	Unarmored infantry outside buildings are killed; armored infantry/infantry within buildings suffer 50% casualties (round up); Conventional and support vehicles suffer two critical hits, plus one automatic Crew Killed critical hit; Mech and fighter units suffer two critical hits and must make a Shutdown Avoid Check at 10+ (Pilots of these machines suffer four hits).**
7-10	Unarmored infantry outside buildings suffer 50% casualties (round up); armored infantry and infantry within buildings suffer 25% casualties (round up); conventional and support vehicles suffer one critical hit, plus one automatic Crew Stunned critical hit; Mech and fighter units suffer one critical hit and must make a Shutdown Avoid Check at 6+ (Pilots of these machines suffer two hits).**
11+	Unit sustains no damage

*Add +2 to the roll for combat vehicles, Mechs, battle armor and aerospace craft, as well as an additional +2 for any unit within a hardened structure.

**Critical hits are resolved randomly, the locations determined for each by rolling on whichever side of the unit faces the Ground Zero Hex.

ALTERNATIVE ENVIRONMENTS TABLE

P. 167

Defending Unit is underwater and within the blast radius of...*	
(Nuclear Airburst)	Divide damage to submerged targets by their current depth x 10 (based on pre-blast depth levels)*
(Nuclear Ground Burst)	Divide Damage Degradation Rate by 2**
Nuclear Explosion is Subterranean...*	
(At/Within Max. Crater Depth)†	Use standard rules for ground-burst attack, centered over ground zero.
(Over 1x to 2x Max. Crater Depth)†	Treat blast as standard ground-burst attack, using only 10% of base damage at ground zero (damage degrades normally, centered over ground zero).
(Over 2x to 5x Max. Crater Depth)†	Treat area above the weapon's normal cratering area (radius of 2x crater depth, centered over ground zero) as a severe earthquake, imposing a +5 penalty on all rolls for the turn of detonation.
(Over 5x Max. Crater Depth)†	No effect.
Atmospheric Pressure‡	
Vacuum	Multiply Damage Degradation Rate by 10
Trace	Multiply Damage Degradation Rate by 3
Thin	Multiply Damage Degradation Rate by 1.5
Standard	Multiply Damage Degradation Rate by 1
High	Multiply Damage Degradation Rate by 0.67
Very High	Multiply Damage Degradation Rate by 0.5

*Units underwater and units subjected to the effect of subterranean explosions at deeper than 1x the weapon's maximum crater depth do not suffer secondary effects.

**Underwater units add 1 hex of distance from ground zero for each full 5 levels of depth. A "ground burst" is considered to be any nuclear attack that occurs at or near the water's surface.

†Crater depth for Type I weapons is considered 1.

‡Relative to Terrain standard; round up fractions.

BIOLOGICAL AND CHEMICAL WEAPONS TABLE

P. 172

Weapon Class	Effects Resistance TN (Partial / Full)*	Non-Weapon TN Modifier	Time to Effect	Persistence	Contamination	Stacking Effect
Class I	4 / 8	-3	Immediate	1D6 + 2 turns	3D6 + 6 turns	N
Class II	2 / 5	-2	Immediate	1D6 days	3D6 + 6 turns	N
Class III	4 / 6	+0	1D6 turns	4D6 days	2D6 + 3 turns	N
Class IV (Chemical)	4 / 8	+1	1D6 + 2 turns	1D6 days	2D6 days	+1x (max. +6x)
Class IV (Biological)	5 / 9	+1	1D6 + 2 hours	1D6 days	1D6 x 8 hours	+1x (max. +6x)
Class V	2 / 6	+2	2D6 x 12 hours	2D6 days	4D6 months	+3x (max. +12x)

*Apply the following TN modifiers for unit Skill rating: Green +1, Regular +0, Veteran -1, Elite -2.