

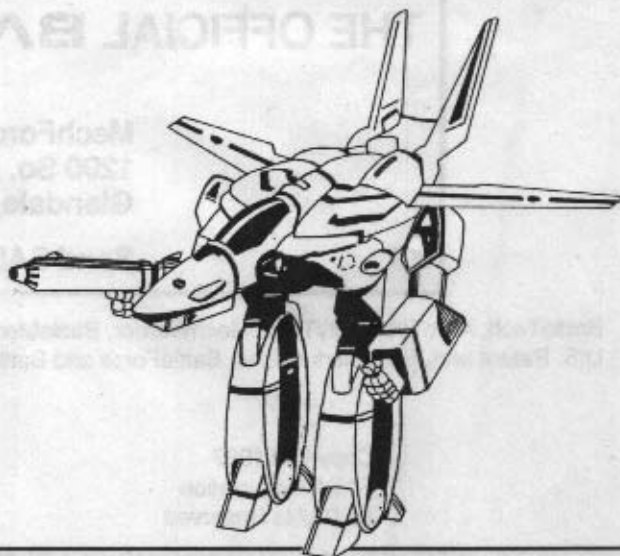
BATTLETECH[®] MANUAL



The Rules of Warfare

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THE BATTLETECH MANUAL

New Design and Development

Sam Lewis

Playtesting

Eric Fialkowgi
Richard Wheeler
Mike Dorrey
Scott McClure
Kathy McClure

Editorial Staff

Editor-in-Chief
L. Ross Babcock III
Senior Editor
Donna Ippolito
Editors
Todd Huettel
Robert Wells
Tara Gallagher

Production Staff

Art Director
Dana Knutson
Graphic Design
Jordan K. Weisman
Cover Art
Les Dorsheid
Illustration
Jeff Laubenstein
Dana Knutson
Todd Marsh
Dawn Wehrs
Tim Bradstreet

Typesetting and Layout

Jonathan Marcus

Pasteup

Todd Marsh
Dawn Wehrs

BattleTech

Design

Jordan K. Weisman

Design Assistance and

Chief Developer

L.R. "Butch" Leeper

Development

Forest G. Brown
Wm. John Wheeler
L. Ross Babcock III

Additional Development

Samuel B. Baker II
James R. Kellar

BattleMech Designs

Jordan K. Weisman
Forest G. Brown

AeroTech

Design

Jordan K. Weisman
L. Ross Babcock III

LAM's

Concept and Initial Design
Stuart Johnson

Writing

L. Ross Babcock III

CityTech

Design

Jordan K. Weisman
L. Ross Babcock III
Forest G. Brown

Writing

Rules

L. Ross Babcock III
Wm. John Wheeler

JOIN THE MECH-FORCE™ THE OFFICIAL BATTLETECH CLUB

Send to:

MechForce
1200 So. Brand Blvd
Glendale, California 91204

Send SASE for information

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FASA Corporation
P.O. Box 6930
Chicago, IL 60680

INTRODUCTION

The **BattleTech Manual** is a compilation and expansion of the rules for the BattleTech series of games: **BattleTech**, **CityTech**, and **AeroTech**. Considered the final version for these games, the included rules take precedence over any previous rules. This manual covers combat between 'Mechs, vehicles, and infantry platoons in the BattleTech universe. Players wishing rules for man-to-man combat or combat between battalion-sized units should refer to **MechWarrior** and **BattleForce** respectively.

Players familiar with the series should note that some rules from the series have been clarified or slightly modified in this manual. Additionally, there are new rules covering a wide variety of equipment, including VTOLs (helicopters), conventional aircraft, artillery, fortifications, minefields, naval vessels, and special weapons.

BattleTech and **CityTech** players should note that the construction rules regarding heat sinks have been modified. In addition, in the turn sequence, units take damage from Weapons Fire before making Physical Attacks. As Physical Attacks have been altered, players should read the appropriate section.

AeroTech players should consult the sections on LAMs and DropShips. LAM deployment has been expanded and corrected, and there are new rules for grounded DropShip combat.

MechWarrior players will notice that many of the rules in this book are similar to those in **MechWarrior**. When this book differs from **MechWarrior**, players may use either set of rules. For example, in this manual, off-board artillery fire is more complex than in **MechWarrior**. Players wishing more realism should use the rules in **The BattleTech Manual**, while players wishing a quick system should use **MechWarrior**.



INTRODUCTION

The BattleTech Manual is a collection of rules and information for the BattleTech series of games. BattleTech is a series of games published by FASA Corporation. The series includes the BattleTech Core Rules, the BattleTech Advanced Rules, and the BattleTech Sourcebook. The BattleTech Core Rules are the basic rules for the series. The BattleTech Advanced Rules are more detailed rules for the series. The BattleTech Sourcebook is a collection of information about the series.

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BATTLETECH™

A GAME OF ARMORED COMBAT



FASA
CORPORATION

COMPONENTS

BattleTech represents combat between BattleMechs, vehicles, and platoons of infantry. Below is a description of the various combat units found on the BattleTech battlefield, in addition to a description of the record sheets and maps needed to play the game.

COUNTERS

BATTLEMECHS

BattleMechs—the most powerful war machines ever built—dominate the battlefields of the Succession Wars. The huge, man-shaped vehicles are faster, more maneuverable, better-armored, and carry heavier weaponry than any other combat unit. Equipped with particle projector cannons, lasers, rapid-fire autocannons, and missiles, these behemoths pack enough firepower to flatten everything but another 'Mech. However, only the most technologically advanced planets can manufacture them, and few planets have any major technological base left. The Succession Wars have devastated the industry of the Inner Sphere, and 'Mech fatalities almost exceed the total output of new 'Mechs and spare parts. Battlefield salvage and Star League supply depots have become major objectives in the Succession Wars.

GROUND VEHICLES

Because many armies need to husband their 'Mech resources, the Successor States build large amounts of conventional vehicles to serve in small conflicts and garrisons.

Tracked

Utilizing caterpillar treads, these are vehicles normally called "tanks", a term whose meaning has been lost in antiquity. Commonly armed with turret-mounted heavy weapons, some of the heaviest tanks are capable of inflicting a great deal of damage on a 'Mech.

Wheeled

Faster than tracked vehicles, wheeled vehicles mount a fair amount of weaponry. However, they are much more restricted by terrain than tanks are, and so are normally used in open terrain and cities as convoy escorts or as fire support vehicles for dismounted infantry.

Hovercraft

Hovercraft are designed for speed, which protects them better than their weak armor and light armament does. Hovercraft are more expensive to build and are technologically superior to tracked or wheeled vehicles. However, their ability to close with the enemy rapidly and deliver a respectable barrage of fire makes them highly valued units.

VTOLs

Fast and deadly, the VTOLs deployed during the Succession Wars have the highest pilot mortality rate of any combat vehicle. The term VTOL is used for a variety of vertical takeoff and landing vehicles whose primary mission is to support ground battle. These types include conventional rotary-wing craft (helicopters), X-wing "stopped rotors" craft (craft with rotors that, once airborne, lock and serve as wings), and tilt-rotor aircraft (where the engine mountings rotate in a 90 degree arc). Because of the high torque, VTOL rotors cannot be heavily armored. This results in a vehicle whose primary component cannot absorb much combat damage. A rotor hit will destroy a VTOL more often than not.

NAVAL VESSELS

For sea superiority missions, Conventional and AeroSpace Fighters have assumed the duties of large naval vessels. However, small vessels for counterinsurgency and defense of underwater command posts have been retained.

Conventional Naval Vessels

These are the cheapest, best-protected, and best-armed of the naval vessels. Using a conventional, rounded-hull shape, these vessels lack the speed necessary to close with an elusive enemy quickly.

Hydrofoil

Speed and punching power is the hallmark of the hydrofoils, which use wings that lift the hull out of the water. These vessels often patrol guerrilla-infested river deltas and coast lines.

Submarines

Although submarines have shrunk in size from the 20th-century norm, they still reign supreme in the oceans. These are the only vehicles that can defeat an equivalent weight 'Mech, but only underwater. Expensive and specialized, these vessels are normally deployed to protect underwater installations.

INFANTRY

Foot

With 28 combat soldiers, foot infantry platoons have no transportation, are lightly armed, and are incapable of standing up to even the lightest 'Mech. Foot infantry are used for population control, garrisons, and counterinsurgency operations. While relatively expensive to raise, they are cheap to maintain, and most planets are capable of recruiting and arming thousands of foot infantry.

Motorized

Equipped with a variety of light vehicles, motorized infantry platoons can pack more fire power than foot infantry. However, like foot infantry, these troops are normally no match for 'Mechs. In addition to foot infantry duties, these troops act as forward observers and reconnaissance units.

Jump

The 21 men in these platoons are all equipped with jump packs. While in open, flat terrain, jump units are as mobile as motorized infantry troops and in dense or rough terrain, jump-capable troops are the most mobile around. Using their jump capabilities, these troops can close quickly and assault enemy units, which can be devastating to both the defender and the attacker.



RECORD SHEETS

BATTLEMECH
RECORD SHEET

Use the BattleMech Record Sheet to keep track of the damage taken by a 'Mech during combat. The different sections of the Record Sheet are discussed below.

The large diagram at the top of the page is the Armor Diagram. It shows the arrangement of the armor plating on the 'Mech. As weapon hits destroy armor, check off the circles. Included are diagrams for armor on the front and back of the 'Mech, the Internal Structure Diagram, and the Damage Transfer Diagram. The Internal Structure Diagram shows the divisions of the 'Mech's internal structure. Like the circles on the Armor Diagram, these circles are used to keep track of battle damage to the 'Mech's internal structure. The Damage Transfer Diagram shows where damage will be taken or transferred when a part of the 'Mech has been destroyed.

Located in the upper right corner, 'Mech Data lists all the 'Mech's important statistics, including the type of 'Mech, tonnage, movement allowances, weapons inventory, as well as an ammunition record chart and heat sink check-off list.

Appearing under 'Mech Data, Warrior Data lists the name, skills, and condition of the MechWarrior piloting the 'Mech.

Located in the lower left half of the Record Sheet, the Critical Hit Table shows the physical location of all of the 'Mech's critical equipment, weapons, and ammunition. These tables determine the location of any critical hits and show the effects when part of the 'Mech is destroyed.

Use the Heat Scale, a column of numbered boxes, to keep track of the internal heat build-up in a 'Mech. As heat builds up, check these boxes from low to high. When enough heat builds up, the comments beside the boxes tell how the heat affects 'Mech operation.

VEHICLE RECORD
SHEET

Use the Vehicle Record Sheet to keep track of the damage done to a vehicle during combat. Although there is a different record sheet for VTOLs, naval, and ground vehicles, they all share common factors. The different sections of the basic Vehicle Record Sheet are discussed below.

The large diagram on the right side of the page is the Armor Diagram, which shows the arrangement of the armor plating and internal structure on the vehicle. As hits destroy armor, the player checks the circles. When all the circles in one area have been checked, mark damage on the internal structure (the shaded areas of the Armor Diagram).

BATTLEMECH RECORD SHEET

The diagram shows a BattleMech with various armor plating areas labeled: HEAD, NECK, TORSO, UPPER ARM, LOWER ARM, UPPER LEG, LOWER LEG, and FEET. It also includes a section for 'MECH DATA' with fields for Name, Type, Tonnage, Movement, and Weapons. Below this is a 'WARRIOR DATA' section for the pilot's name and skills. The bottom section is the 'CRITICAL HIT TABLE' with columns for Hit Location, Hit Type, and Hit Effect.

VEHICLE RECORD SHEET

The diagram shows a vehicle with various armor plating areas labeled: FRONT, SIDE, REAR, TOP, and BOTTOM. It also includes a section for 'VEHICLE DATA' with fields for Name, Type, Tonnage, Movement, and Weapons. Below this is a 'WARRIOR DATA' section for the pilot's name and skills. The bottom section is the 'CRITICAL HIT TABLE' with columns for Hit Location, Hit Type, and Hit Effect.

Located on the left side of the Record Sheet, the Vehicle Data section lists all the vehicle's important statistics, including tonnage, movement allowances, and weapon inventory. The pilot's *Piloting Skill* and *Gunnery Skill* are also shown here.

Only VTOLs and submarines use the Altitude/Depth Chart, as only these vehicles may move vertically as well as horizontally. To reflect this, the player must keep track of the VTOL's altitude or the submarine's depth, which should be necessary only at the end of movement. The VTOL's current altitude may not be less than the level of the terrain that the VTOL is over. The current depth of a submarine may not be either greater than 0 or greater than the depth of the water hex where the submarine is.

INSTALLATION
RECORD SHEET

Most buildings do not use a record sheet; damage is recorded directly on the building counter. However, players may wish to design major installations and gun emplacements with weapons and turrets. The status of the building and its weapons systems is kept on the Installation Record Sheet. Located on the right side of the sheet, the Armor Diagram shows the building's armor factor (or CF) and the turret's armor. As the CF or turret armor is reduced, check off the circles. Note that buildings have no internal structure.

The installation Data Section on the left side of the sheet lists the installation's important statistics.

INSTALLATION RECORD SHEET

The diagram shows a building with various armor plating areas labeled: FRONT, SIDE, REAR, TOP, and BOTTOM. It also includes a section for 'INSTALLATION DATA' with fields for Name, Type, Tonnage, Movement, and Weapons. Below this is a 'WARRIOR DATA' section for the pilot's name and skills. The bottom section is the 'CRITICAL HIT TABLE' with columns for Hit Location, Hit Type, and Hit Effect.

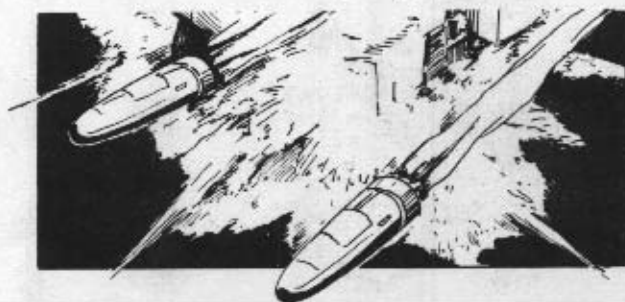
INFANTRY RECORD FORM

The diagram shows a platoon with various armor plating areas labeled: FRONT, SIDE, REAR, TOP, and BOTTOM. It also includes a section for 'INFANTRY DATA' with fields for Name, Type, Tonnage, Movement, and Weapons. Below this is a 'WARRIOR DATA' section for the pilot's name and skills. The bottom section is the 'CRITICAL HIT TABLE' with columns for Hit Location, Hit Type, and Hit Effect.

INFANTRY RECORD FORM

The Infantry Record Form is made up of 4 rows. The top row is used to record the number of men in the unit. As damage is taken, these boxes are checked off, reflecting the casualties the platoon has taken. The next three rows show the damage that a unit does if it hits a target. The damage depends on the number of men in the platoon and the type of weapons the platoon has. Thus, a full-strength rifle platoon will do 7 points of damage each time it hits, while an 11-man laser platoon will do 6.

Also included on the record sheet is a Base To-Hit Numbers Table for each of the various weapon types.



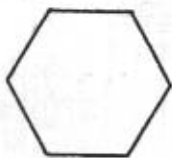
MAPSHEETS

The two 22-by-17-inch BattleTech Mapsheets contain grids of six-sided areas called hexes, which are used to regulate movement and combat. Hex maps make movement more realistic because they provide six possible movement directions instead of the four possible with square grids. Each hex on the mapsheet represents an area of ground 30 meters (roughly 100 feet) across, and each turn represents ten seconds of real time.

The forests, rivers, hills, buildings, and rough areas on the BattleTech Mapsheet represent a typical mixture of the terrain found on planets. Below are the symbols used for each terrain type.

CLEAR GROUND

These hexes are typical fields, meadows, and other grasslands. The ground is firm and may be gently rolling, but its elevation does not change significantly from one side of the hex to the other. Clear terrain is considered to be at an elevation of 0.



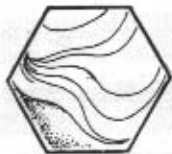
ROUGH GROUND

This is typical broken terrain, rocky and jumbled. Though it is firm, it is more difficult to cross than open ground. Generally encountered next to cliffs and bluffs, rough ground may be formed as a result of some types of combat damage.



HILLS

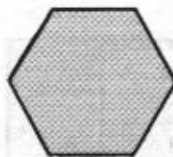
This terrain is significantly higher than the surrounding terrain. The light lines show slopes, which are more difficult to cross than open ground because of the elevation changes.



Elevation Levels for each hill is given on the mapsheet. Elevation 1 is six meters high (waist-high to a 'Mech), so that a 'Mech standing behind it may be partially hidden, while a vehicle is totally hidden. Elevation 2 is about the same height as a 'Mech, or about twelve meters tall. A 'Mech standing behind it is totally hidden. Elevation 3 is 18 meters tall, or one and one-half times the height of a 'Mech.

WATER

This terrain is covered by water, either in the form of streams, rivers, swamps, ponds, or lakes. There are five levels of water, depending on the depth. Depth 0 water is ankle-deep on a 'Mech, or very shallow. It is found in easily crossed terrain, such as streams, swamps, or shallow ponds. About waist-high to a 'Mech, Depth 1 water is six meters deep, or one level below ground level. Found in rivers, ponds, and along lake shores, Depth 1 water is more difficult to cross than shallow water or open ground. Depth 2 water is twelve meters deep, enough to barely cover a 'Mech, and much more difficult to cross than shallow water or open ground. Depth 3 water is 18 meters deep, while Depth 4 water is 24 meters deep; both are sufficiently deep to submerge a 'Mech totally.



LIGHT BUILDINGS

Light Buildings are generally small wooden structures, such as residential homes, through which most 'Mechs can walk with little or no trouble. No 'Mech can land on or climb up any Light Building, as the structure is not strong enough to bear a 'Mech's weight. Light Buildings add their elevation level to the elevation of the terrain that they are in.



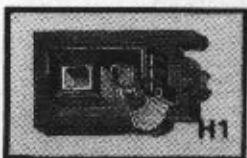
MEDIUM BUILDINGS

Constructed from stone and heavy wood, Medium Buildings are light industrial structures that are more substantial than Light Buildings. Because these buildings are constructed with heavier materials, they can take more damage than Light Buildings before being reduced to rubble. 'Mechs weighing up to 40 tons can land on or climb up Medium Buildings. Medium Buildings can be any height and add their elevation level to the elevation of the terrain that they are in.



HEAVY BUILDINGS

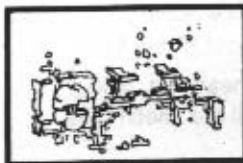
Usually part of industrial complexes, Heavy Buildings are constructed of reinforced concrete and are built to bear heavy loads. All but the heaviest 'Mechs can land on or climb upon them. Heavy Buildings can be any height and add their elevation level to the elevation of the terrain that they are in.



HARDENED BUILDINGS

Hardened Buildings have been strengthened to withstand damage. Of all of the building classes, these hardened structures can bear the most weight and take the most damage before being reduced to rubble. Hardened Buildings can be any height and add their elevation level to the elevation of the terrain that they are in.



RUBBLE

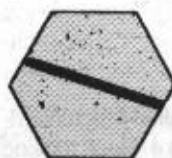
Rubble is the remnants of buildings when 'Mechs are finished with them. Weapons fire, fire damage, and physical damage inflicted by 'Mechs can reduce any building to rubble. Rubble is more difficult to move through and offers limited protection from weapons fire. Rubble has no elevation level.

LIGHT WOODS

This open or elevated terrain is covered with sparse trees twelve meters high. A 'Mech has more trouble crossing this terrain than crossing open ground. Unless the woods are very large, it is possible to see through them. Found on either low ground, bluffs, or cliffs, Light Woods add two elevation levels to the terrain's elevation level.

HEAVY WOODS

This open or elevated terrain is thickly covered with twelve-meter-tall trees. Movement is very difficult through these areas. Heavy Woods may be on low ground, bluffs, or cliffs, and most of the time there are Light Woods nearby. Heavy Woods are so dense that seeing through them is nearly impossible. Heavy Woods add two elevation levels to the terrain's elevation level.

PAVEMENT AND ROADS

Composed of either asphalt, cement, or even cobblestone, a paved hex has a fairly smooth and very hard surface. This normally includes roads, sidewalks, and landing fields. Traveling along roads negates the movement effects of terrain and woods and increases the speed of ground vehicles. Running 'Mechs and vehicles moving at flank speed may skid on pavement.

BRIDGES

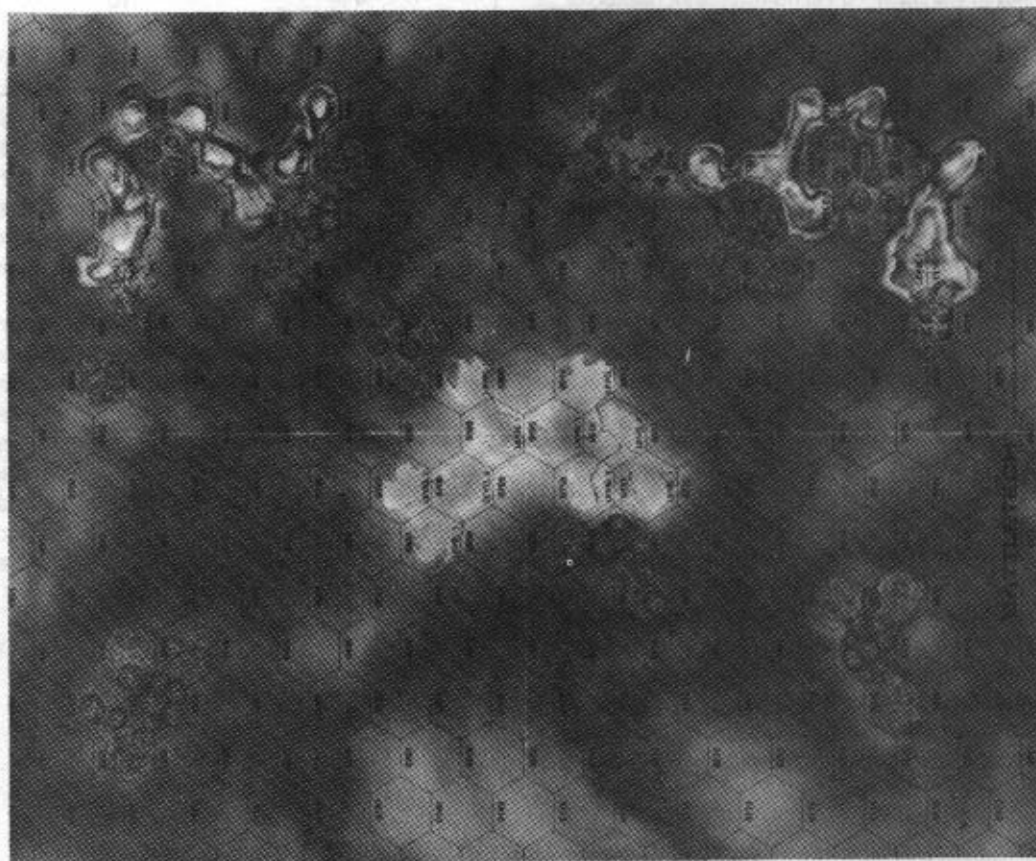
Water hexes may be spanned by a bridge. Units moving along a road may use the bridge and ignore the terrain restrictions and movement penalties of the water hex. However, the bridge may not be strong enough to support the weight of the crossing unit, in which case it will collapse.

DICE

The game uses two six-sided dice: one red and one white. During the game, the players may be instructed to roll one die (1D6) or both (2D6).

GAME SET-UP

Lay out the BattleTech Mapsheets on a table or on the floor in a way agreeable to all players. This includes setting up any number of buildings of any height or type. Next, fill out Record Sheets for each unit involved in the battle.



PLAYING THE GAME

MECHWARRIORS

The soldiers who pilot BattleMechs are called MechWarriors. Their skills play an important role in keeping a 'Mech moving and fighting effectively in combat. If its MechWarrior is killed or seriously injured, a 'Mech is knocked out of action even though the actual damage to the 'Mech may be light.

MECHWARRIOR SKILLS

Two skills are important to a MechWarrior in combat: *Piloting* and *Gunnery*. Average MechWarriors have a *Piloting* Skill Level of 5 and a *Gunnery* Skill Level of 4.

Piloting Skill helps determine the outcome when a MechWarrior attempts to avoid falling and minimizes damage when a BattleMech does fall down (as discussed in the **Falling** section of **Movement**). *Gunnery* Skill helps determine the success of a shot with the 'Mech's weaponry (as discussed in the **To-Hit Modifiers** section of **Combat**).

Piloting Skill Rolls

Resolve *Piloting* Skill Rolls by adding the indicated modifiers to the pilot's *Piloting* Skill Level (normally 5). The resulting number is the *Piloting* Skill Roll Target number. Then, the player rolls 2D6.

If the roll is equal to or greater than the Modified *Piloting* Skill Level, the action was successful, and no adverse effect occurs. If the roll is less than the modified *Piloting* Skill Level, then the indicated effect takes place.

Gunnery Skill Modifier

For every *Gunnery* Skill Level above or below 4, the *Gunnery* Skill modifier to the Base To-Hit number is increased or decreased by 1. The lower the *Gunnery* Skill Level, the lower the Modified To-Hit Number.

Varying Skill Levels

As an optional rule, the players could roll randomly for the *Piloting* and *Gunnery* skill of every MechWarrior at the beginning of the game. This will produce an interesting mixture of green and seasoned MechWarriors. Using the table below, roll 1D6 twice to determine the MechWarrior's *Piloting* and *Gunnery* skills.

MECHWARRIOR SKILLS TABLE

Die Roll	<i>Piloting</i> Skill	<i>Gunnery</i> Skill
1	6	4
2	6	4
3	5	4
4	5	4
5	4	3
6	4	3

Skill Improvement

Players may keep their MechWarriors to use in future games or in **BattleTech** campaign games (assuming that the warrior survives the battle). If they want to do this, the players should keep track of the number of enemy 'Mechs killed by each surviving MechWarrior. For every four 'Mechs he kills, the MechWarrior can reduce his *Gunnery* Skill or *Piloting* Skill by one.

DAMAGING A MECHWARRIOR

A MechWarrior takes damage from any head hits, falling, internal ammo explosions, and heat build-up if the 'Mech's life support system is damaged.

The MechWarrior takes 1 point of damage whenever his 'Mech's head is hit, even if the hit does not penetrate its armor.

If his BattleMech falls down, the MechWarrior must roll 2D6. If his roll is less than his *Piloting* Skill, he takes 1 point of damage.

An internal ammo explosion causes 2 points of damage to the MechWarrior, due to the electric shock he receives through his neurohelmet.

A life support system critical hit causes 1 point of damage to the MechWarrior for every turn that its internal heat is 15 or more on the Heat Scale. Every turn that a 'Mech's heat is above 25, the MechWarrior takes 2 points of damage.

A MechWarrior can take 6 points of damage before dying, but it is possible that he will be knocked unconscious before taking that much damage. Every time a MechWarrior is hurt, the player must roll 2D6 greater than the Consciousness Number that relates to the amount of damage taken to see if the MechWarrior remains conscious.

MECHWARRIOR CONSCIOUSNESS TABLE

Total Damage	Consciousness Number (2D6)
1	3
2	5
3	7
4	10
5	11
6	Dead

If the roll is less than the Consciousness Number, the MechWarrior is knocked unconscious, and the BattleMech cannot move or fire. During the End Phase of the turn after the MechWarrior lost consciousness, the player rolls again. If the roll is successful, the MechWarrior has regained consciousness and does not have to roll again unless he is hit again.

For example, in game turn 3, a medium laser hits an Archer's head. Although the laser does not penetrate the head's protective armor, the Archer's pilot takes 1 damage point. He had already taken 2 damage points, and so now has a total of 3 points of damage. The player consults the MechWarrior Consciousness Table and rolls a 6, failing his roll. The Archer will not be able to move or fire during game turn 4. In the End Phase of that game turn, the player rolls again. If he rolls a 7 or more on 2D6, the MechWarrior regains consciousness, and his BattleMech will be able to move and fire during game turn 5.

SEQUENCE OF PLAY

BattleTech is played in turns. During each game turn, the players follow this sequence.

INITIATIVE PHASE

1. One player from each side rolls 2D6 to determine his team's initiative. The team with the higher roll has the initiative throughout the turn.

MOVEMENT PHASE

2. The team that lost the initiative moves one unit.

3. The team that won the initiative moves one unit. Movement alternates until the players have moved all the units they want. However, the team that won the initiative moves one of its units last. Although movement should alternate, one side may have to move more than one unit during its move, so that each side ends movement at roughly the same time.

For example, Team A has three 'Mechs and Team B has five 'Mechs. If Team A wins the initiative, movement should follow this sequence:

Team B moves one 'Mech

Team A moves one 'Mech

Team B moves two 'Mechs

Team A moves one 'Mech

Team B moves two 'Mechs

Team A moves one 'Mech

If Team B won the initiative, movement may follow this sequence:

Team A moves one 'Mech

Team B moves two 'Mechs

Team A moves one 'Mech

Team B moves two 'Mechs

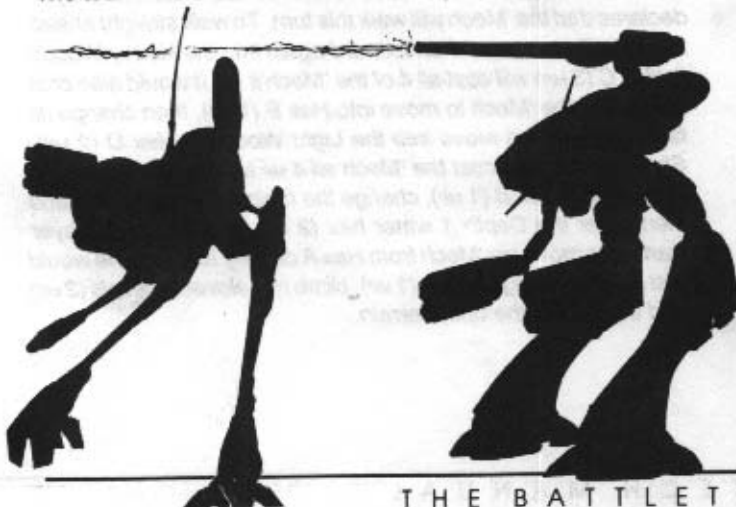
Team A moves one 'Mech

Team B moves one 'Mech

REACTION PHASE

4. If the players choose to react to their opponents' movement, the team that won the initiative twists the torso of one of its 'Mechs one hexside either way or rotates the turret on one of its vehicles.

5. The team that lost the initiative twists the torso of one of its 'Mechs one hexside either way or rotates the turret on one of its vehicles in reaction to opposing movement. Reaction twists alternate until all 'Mechs and vehicles have reacted, if desired. The team that lost the initiative twists last.



WEAPON ATTACK PHASE

6. The team that lost the initiative chooses one of their units to declare fire. The player controlling that unit declares any attacks he plans to make with that unit's weaponry.

7. The team that won the initiative chooses one of its units to declare fire. The player controlling that unit declares any attacks he plans to make with that unit's weaponry. Both teams alternate declaring fire until all fire has been declared. The team that won the initiative declares the last attack.

8. Weapons fire is resolved one unit at a time. As all combat is considered simultaneous, the order of resolution does not matter. Note that players should resolve all the weapon attacks by one unit before beginning those of any other unit.

9. Players determine damage from weapons attacks. Damage is recorded as attacks are resolved, but it does not affect the unit until ALL weapons attacks have been resolved. At that point, all damage takes effect immediately.

PHYSICAL ATTACK PHASE

10. Repeat Steps 6 through 9 for all physical attacks. Damage from these attacks take effect before the next phase.

HEAT PHASE

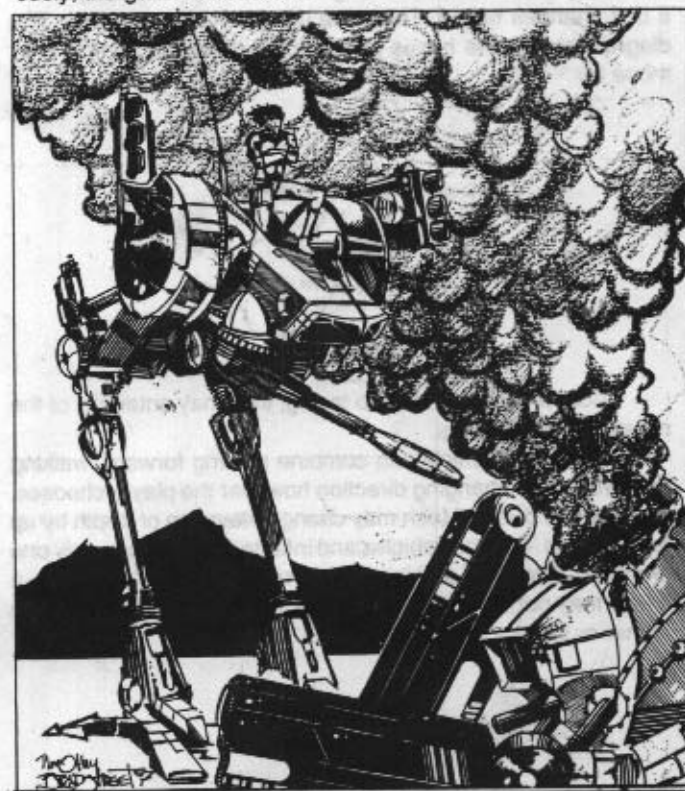
11. Players adjust their units' Heat Scales to reflect any heat built up or lost during the game turn. At this time, any temporary or permanent damage caused by excessive internal heat is resolved.

END PHASE

12. Players with wounded MechWarriors roll to see if consciousness is regained.

13. Players roll to see if any fires on the mapsheet will spread to other hexes.

14. Steps 1 through 13 are repeated until only one team's BattleMechs are left. The team with the last surviving unit is the winner. If the last units from each team are destroyed simultaneously, the game is a draw.



MOVEMENT

BattleTech units change their position on the mapsheet by using one of many types of movement. During the Movement Phase of each game turn, each player must choose the one form of movement that his unit will employ during that turn. When it is his turn to move, the player must announce what kind of movement he is making and how many movement points he has to spend. Within the limitations of the rules, how a unit moves is always the player's choice.

MOVEMENT COSTS

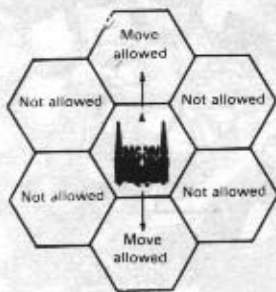
It costs a minimum of 1 Movement Point (or MP) for a unit to move one hex. Refer to the Terrain Effects Chart to determine the cost to enter a specific kind of terrain. Some terrain is restricted for vehicles, and others require a *Piloting Skill Roll* for the MechWarrior. Check the appropriate section in the rules for these restrictions.

A unit must have sufficient MP left to pay the cost of entering the new hex. The only exception is that a unit can always move forward one hex, no matter what the terrain cost, as long as that is the only hex the unit enters that turn and the terrain does not forbid the specific unit from entering (this movement would be considered a run for combat modifications). In addition, a unit can always turn one hexside.

A fallen 'Mech must expend 2 MP to attempt to stand up. A fallen 'Mech may attempt to stand up only during the Movement Phase, but may make as many attempts as it wishes as long as it has sufficient MP.

Many vehicles are forbidden to enter certain types of terrain. Check the **Vehicles** section for a detailed list of these movement restrictions.

While moving, a 'Mech or vehicle can move forward into a hex it is facing or may move backwards into a hex directly behind it. It cannot move into any other hex unless it first changes facing. To change facing, the unit turns until it is in front of or behind the hex that it wants to enter, costing 1 MP for every hexside by which a unit changes facing. Then, the unit may enter the hex. The diagram shows the hexes into which a 'Mech or vehicle may move.



Because infantry have no facing, they may enter any of the six surrounding hexes.

A 'Mech or vehicle can combine moving forward, walking backward, and changing direction however the player chooses. In a single move, a 'Mech may change elevation or depth by up to two levels. Ground vehicles and infantry may change only one elevation level in a single move. Unless jumping or falling, a 'Mech may not enter a hex if that hex is three or more elevations higher or lower.

TERRAIN EFFECTS CHART

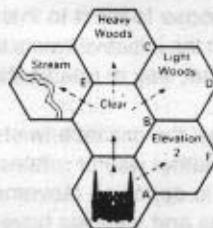
Terrain Type/Activity	Cost Per Hex	Prohibited Units
Clear	1 MP	Naval
Road/Bridge	1 MP***	Naval
Light Woods	2 MP	Wheeled, Hover, Naval
Heavy Woods	3 MP	Ground, Naval
Water		
Depth 0	1 MP	Naval
Depth 1	2 MP*	Infantry, Ground****
Depth 2+	4 MP*	Infantry, Ground****
Elevation Change	1 MP/level for Mechs, VTOL, Subs 2 MP/level for Infantry, Ground	
Rough	2 MP	Wheeled
Rubble	2 MP*	Wheeled
Light Building	2 MP**	Naval
Medium Building	3 MP**	Naval
Heavy Building	4 MP**	Naval
Hardened Building	5 MP**	Naval
Other Activities		
Facing Chance	1 MP/hexside	
Dropping to the Ground	1 MP	
Standing Up	2 MP*	

* *Piloting Skill Roll* required to prevent falling

** *Piloting Skill Roll* required to prevent damage from building

*** If traveling along road; otherwise cost of underlying terrain.

**** Hovercraft may enter all water hexes.



In the diagram, the 'Mech in Hex A has 4 MP. The player declares that the 'Mech will walk this turn. To walk straight ahead into Hex B (1 MP) and then forward again into the Heavy Woods in Hex C (3 MP) will cost all 4 of the 'Mech's MP. It would also cost all 4 MP for the 'Mech to move into Hex B (1 MP), then change its facing (1 MP) and move into the Light Woods in Hex D (2 MP). Similarly, it would cost the 'Mech all 4 MP to move into Hex E—forward into Hex B (1 MP), change the facing one hex (1 MP), and then enter the Depth 1 water hex (2 MP). Finally, if the player wanted to move his 'Mech from Hex A directly to Hex F, he would first have to change facing (1 MP), climb two elevation levels (2 MP), and then enter the open terrain.

MOVEMENT CHOICES

Standing Still

The unit stays in the hex in which it started the turn. It does not move at all, not even to change its facing. Standing still generates no heat, gives no penalty to weapons fire, and the unit may be fired on with no target movement penalties. There is no movement cost for standing still.

Walking/Cruising

If the unit decides to walk (or, for a vehicle, cruise) it may expend MP up to its Walking, or Cruising, MP rating. Walking creates 1 point of heat for 'Mechs, which makes it harder for a 'Mech to fire all its weapons.

A unit that is walking or cruising receives a small penalty to its To-Hit Number when firing weapons; also, as a moving target, a walking unit is less likely to be hit. These combat effects are shown on the appropriate To-Hit modification tables and are explained in more detail in the **Combat** section.

Running/Flank Speed

When running (flank speed for vehicles), a unit can move further than it can by walking. The player may expend up to his unit's Running MP each turn. Running units pay the same costs for face changing and entering terrain as do walking units. However, the unit cannot move backward while running, and it cannot enter water hexes of Depth 1 or deeper.

Running creates more heat for a BattleMech than walking (2 heat points per turn), which further reduces the number of weapons that may be fired. Running, or moving at flank speed, also makes firing weapons more difficult, but usually makes the unit a more difficult target, too. These effects are detailed in the **Combat** section. In addition, a 'Mech running or a ground vehicle moving at flank speed on a paved surface may skid (see **Skidding**).

Jumping

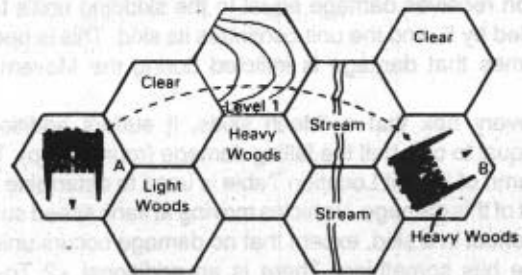
Not all 'Mechs can jump. Those that can may move into any hex that is within its jump range. The terrain type does not matter, nor does the 'Mech's original facing. The 'Mech will land facing whatever direction the player chooses.

A 'Mech cannot have Jump MP greater than Walking MP (except after taking damage). Neither can a 'Mech jump higher, in levels, than its jump rating. Jumping creates a lot of heat—it costs 1 heat point for every hex jumped, with a minimum cost of 3 heat points. That is, even if a 'Mech jumped only one hex, it would build up 3 heat points for that turn. Jumping also makes firing weapons harder, and a jumping 'Mech is a more difficult target than a running or walking 'Mech. These effects are detailed in the **Combat** section.

When a 'Mech jumps, it can move one hex in any direction for every Jump MP it has. It can jump over and into any hex, regardless of terrain type or elevation difference (within the 'Mech's elevation restriction cited above).

Because it requires the firing of jump jets, jumping may not be combined with any other movement type.

The diagram below shows a 'Mech in Hex A with 4 MP of Jump. The 'Mech jumps to Hex B four hexes away. As the 'Mech is using jump movement, it spends only 1 MP for every hex it jumps over and for the hex in which it lands, ignoring all other terrain costs. After the 'Mech lands, the player can face it in any direction that he chooses at no extra cost. If the player had decided to walk or run to Hex B, he would have had to spend 13 MP.



FACING

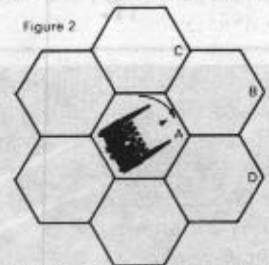
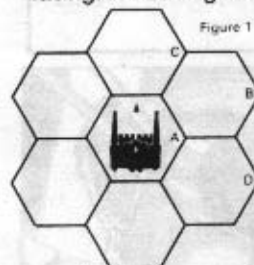
Every hex on the map has six edges, called hexsides. In **BattleTech**, every unit on the board must be oriented to face one of those six hexsides. The 'Mech is considered to be facing the way its feet are pointing, and a vehicle is considered to be facing in the direction of its front side. A unit's facing affects both its movement and its combat, and can only be changed during the Movement Phase.

Units with ambiguous facings can be realigned to one of the two hexsides by the opposing player.

Infantry units have no facing.

Facing Change

It costs 1 MP for every hexside by which a unit changes its facing. A 180 degree spin would cost a 'Mech or vehicle 3 MP.



In the diagram above, a player wants to move his 'Mech from Hex A into Hex B. The 'Mech, however, is currently facing Hex C, and so cannot legally move to Hex B. If the player changes his facing, as shown in figure 2, the 'Mech can legally move into Hex B. This face change cost 1 MP.

If the player wants to move the 'Mech into Hex D, the 'Mech would have to make a two-hexside face change, costing 2 MP.

SKIDDING

When running on a paved surface or road, there is a chance that a 'Mech or other vehicle can slip, fall, or lose control. A 'Mech that runs or a ground vehicle that moves at flank speed after a facing change must make a *Piloting Skill Roll* modified by the table below. If the roll is equal to or exceeds the modified *Piloting Skill Level*, there is no effect. If the roll is less than the modified *Piloting Skill Level*, the 'Mech will fall, suffering normal falling damage, and skid.

A 'Mech or ground vehicle will skid for the number of hexes it has moved in the original direction of travel. If an obstacle (any terrain that is higher than the terrain the unit is currently in) is in the way, the unit crashes into it, and the normal charge rules take effect, using the distance that the unit moved before the skid for damage calculations. If the unit skids into a building, the building takes charge damage. If the unit skids into an infantry platoon, that platoon receives damage equal to the skidding unit's tonnage divided by 5, and the unit continues its skid. This is one of the few times that damage is inflicted during the Movement Phase.

For every hex that a 'Mech skids, it suffers additional damage equal to one-half the falling damage (rounded up). The Front Column of the Hit Location Table is used to determine the placement of this damage. Vehicles moving at flank speed suffer the same effect in a skid, except that no damage occurs unless the vehicle hits something. There is an additional +2 To-Hit Modifier to all weapons fire and physical attacks attempted during a skid turn.

There is no *Piloting Skill Roll* required for a simple facing change during a run. However, the MechWarrior should make a *Piloting Skill Roll* when running into a new hex after the facing change.

SKID PILOTING SKILL ROLL MODIFIERS

Hexes Moved	Skill Roll Modifier
0-2	-1
3-4	0
5-7	+1
8-10	+2
11+	+4

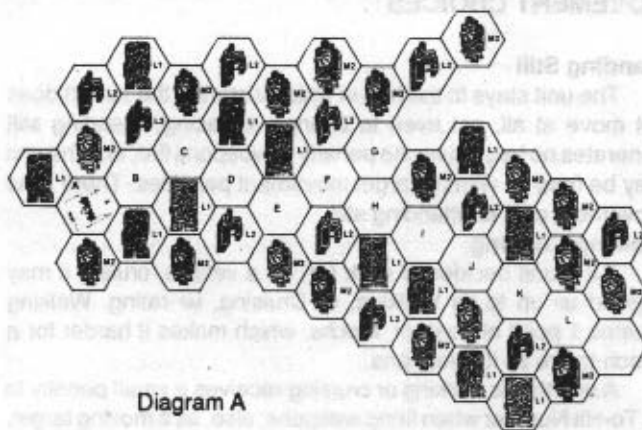
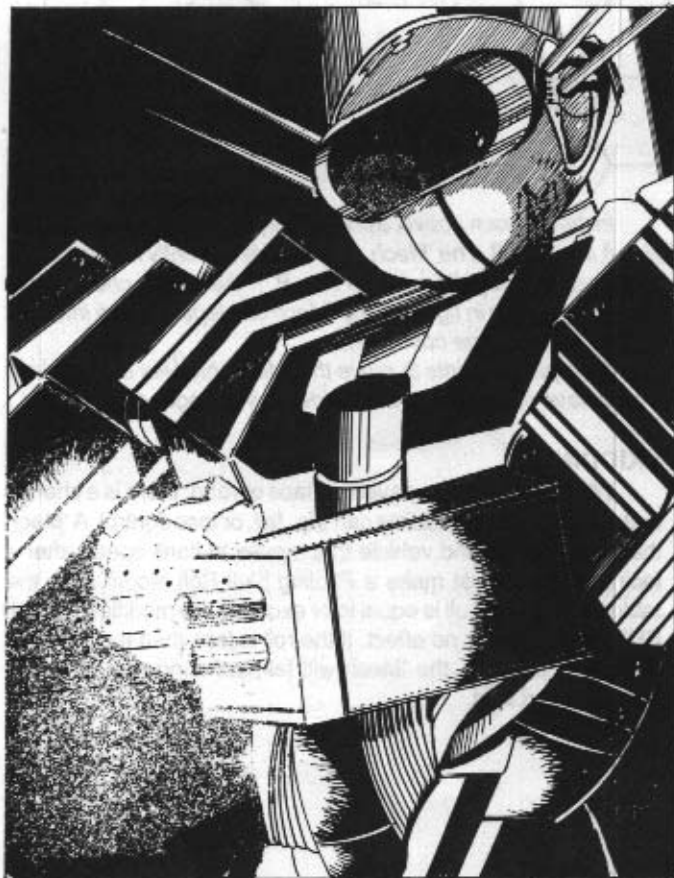


Diagram A

In this example, the Phoenix Hawk in Hex A wants to end its turn in Hex G. To do so requires an expenditure of 9 MP, a run for this 'Mech. The 'Mech runs to Hex C and makes a facing change towards Hex D. No *Piloting Skill Roll* is required. When the 'Mech moves to Hex D, a *Piloting Skill Roll* is required because the 'Mech has run after making a facing change. The 'Mech has moved three hexes, and so there is no roll modifier. The player rolls a 10, and the 'Mech may continue moving to Hex E, where it makes another facing change toward Hex F. To move into Hex F requires another *Piloting Skill Roll*. This time, the roll is modified by 1, as the 'Mech has moved 5 hexes, making the modified *Piloting Skill* a 6 (5+1). The player rolls a 5, a failure, and his 'Mech will skid down the F-L hexrow. If there are no obstructions, the skid will be five hexes long. The Phoenix Hawk will suffer 5 points of falling damage (45 tons divided by 10 = 4.5, rounded up to 5) and 3 points of damage per hex of the skid (half of the falling damage, rounded up) for a total of 20 (5+15). Needless to say, the Phoenix Hawk should have jumped.

DROPPING TO THE GROUND

In combat, a player may choose to have his 'Mech drop to the ground. Usually, he will do this at the end of his movement either to hide or to make attacks against him more difficult.

This action creates no additional heat, causes no falling damage, and costs 1 MP.

STANDING UP

The player may choose to have a 'Mech regain its feet after falling or dropping to the ground. Every attempt to stand up creates 1 heat point and costs 2 MP. Standing up requires a successful *Piloting Skill Roll*. If the attempt is not successful, the player may try another roll, as long as there are MP available. Once the 'Mech has stood up, it may face in any direction.

STACKING

In **BattleTech**, only one 'Mech can occupy a hex. During the Movement Phase, a 'Mech cannot move through hexes occupied by other operational 'Mechs. Vehicles and infantry are allowed to have two units per hex. These units can be combined in any way, and one vehicle or infantry unit can stack with a 'Mech.

Units can be overstacked in the same building if they are on different levels.

ROAD/BRIDGE MOVEMENT

Road/Pavement Movement

All units traveling along roads pay only 1 MP per hex regardless of the hex's actual terrain. A unit is considered to be traveling along a road if it moves from a road hex to another road hex.

In addition, hover, tracked, and wheeled vehicles may receive a Road Bonus of moving one additional hex. To gain this bonus, the unit must begin its turn on a Road Hex and continue to travel along the road for its entire Movement Phase.

Units may move through prohibited terrain while traveling along the road, but they must enter the prohibited terrain/road hex from a road hex. In addition, they must remain on the road while traveling through the terrain.

Bridge Movement

Roads that cross a water hex are considered to be spanned by a bridge. Bridges are classified as Light, Medium or Heavy (as buildings are) and have equivalent Construction Factors (CF). Only infantry units and vehicles that weight 15 tons or less may use Light Bridges. Medium Bridges can support units up to 40 tons, while Heavy Bridges can support units up to 90 tons. Units that exceed these weights cannot use road movement in the bridged hex. An overweight unit can declare that it is using the bridge and causing it to collapse. The unit must take normal falling damage from the collapse of the bridge.

For combat purposes, the bridge can be attacked like a building. If its CF is reduced to 0, the bridge is considered to have collapsed.

PILOTING SKILL ROLLS

Whenever certain events occur during the game, the player must make a *Piloting Skill Roll* to determine if the 'Mech can avoid a fall. Vehicle Pilots make *Piloting Skill Rolls* only to avoid skids and when taking damage from entering buildings.

The *Piloting Skill Roll Table* lists the events that require a player to make a *Piloting Skill Roll* for his 'Mech. When one of these events occurs, the player adds the indicated modifiers to his MechWarrior's *Piloting Skill Level* (normally 5). The resulting number is the *Modified Piloting Skill Level*. Then, the player rolls 2D6. If the roll is greater than or equal to the *Modified Piloting Skill Level*, the action was successful—either the 'Mech did not fall or it got back to its feet. If the roll is less than the *modified Piloting Skill Level*, either the 'Mech falls down or it cannot regain its feet.



PILOTING SKILL ROLL TABLE

BattleMech's Situation	Modifier
<i>Physical Attacks On 'Mech</i>	
'Mech kicked	None
'Mech pushed	None
'Mech charged	+2
<i>Damage to 'Mech</i>	
'Mech takes 20 damage points in one turn	+1
'Mech reactor shut down	+3
Per leg/foot actuator destroyed	+1
Per hip critical hit (2 max)	+2
'Mech's gyro hit	+3
Leg hit	None
Leg destroyed	+5
<i>Unit's Actions</i>	
'Mech missed kick	None
'Mech charging/Death from above	+2
'Mech entered Depth 1 water	-1
'Mech entered Depth 2 water	None
'Mech entering Depth 3+ water	+1
'Mech trying to stand up	None
MechWarrior trying to avoid falling damage	+1/level fallen
'Mech entering rubble	None
Unit entering/leaving Light Building	None
Unit entering/leaving Medium Building	+1
Unit entering/leaving Heavy Building	+2
Unit entering/leaving Hardened Building	+5

FALLING

When a 'Mech falls down, it inflicts damage on itself and possibly on the MechWarrior inside. The amount of damage the 'Mech receives depends on its weight and how far it falls. Whether or not a MechWarrior is wounded depends on his *Piloting Skill Level*.

Determining Location After a Fall

To determine the location of the 'Mech after a fall, the players must use their judgement and the following guidelines to create a reasonable outcome. The action that created the fall will determine the location after a fall.

In general, when a fall occurs due to terrain (moving through deep water, for example), the 'Mech will fall into the lower of the two hexes. If the location of this hex is not clear, determine it randomly. If a fall occurs because of weapons fire (20 points of damage in a turn) or any other cause, the 'Mech will fall into the hex that it currently occupies.

To help determine the location of the fallen 'Mech, consult the Facing After A Fall Table.

If a 'Mech falls into a hex containing another 'Mech, the second 'Mech may take damage depending on how the first 'Mech fell. If the 'Mech fell from a hex two or more elevations higher than the landing hex, then use the *Accidental Falls From Above* rules. If the 'Mech fell from a hex that was less than two elevations higher, use the *Domino Effect* rules found in the **Physical Attacks** section. If a 'Mech falls in a hex occupied by infantry or a vehicle, the 'Mech will hit the ground and not the non-'Mech unit.

Determining Elevation Levels Fallen

To find the number of elevation levels fallen, subtract the terrain elevation level of the hex into which the 'Mech falls from the terrain elevation level of the hex in which it began its fall. If the 'Mech was on top of a building, the beginning elevation is equal to the elevation level of the building plus the elevation level of the terrain. If this number is negative (the 'Mech fell uphill because of a roll on the Facing Table), treat the result as 0.

Facing After A Fall

When a 'Mech falls, its facing may change. This facing change is important because it also determines the Hit Location Table used when allocating damage from the fall.

To determine the 'Mech's facing after the fall, roll 1D6 and compare the result to the Facing After A Fall Table. When determining damage location, use the table indicated.

FACING AFTER A FALL TABLE

Die Roll(1D6)	New Facing	Damage Location
1	Same Direction (on face)	Front
2	1 Hexside Right	Right Side
3	2 Hexsides Right	Right Side
4	Opposite Direction (on back)	Back
5	2 Hexsides Left	Left Side
6	1 Hexside Left	Left Side

Falling Damage to A 'Mech

A 'Mech will always take damage from a fall. The damage taken by a falling 'Mech is equal to 1 point for every ten tons that the 'Mech weighs (rounded up) times 1 plus the number of elevations that the 'Mech fell. If the 'Mech falls into a water hex, treat the water hex as a Level 0 hex and cut the resulting damage in half (rounded up).

Divide the damage into 5-point groups, and determine the hit location for each group. Use the appropriate Damage Location from the Facing After A Fall Table.

If the fall occurs during the Movement Phase, resolve the damage at that time. If the fall occurs during the Combat Phase of the turn, the results of the fall occur simultaneously with all other combat damage results.

For example, an Archer in an Elevation 1 hex is trying to get to its feet during the Movement Phase. The MechWarrior fails his Piloting Skill Roll, and the 'Mech falls down into the same hex. The 'Mech fell from a Level 1 to a Level 1 hex (the same one), and so has fallen 0 elevations. The player rolls a 1 on the Facing After A Fall Table and finds that the 'Mech landed on its face, and so takes damage on its front side. The Archer suffers 7 damage points (70 tons divided by 10 = 7; the number of levels fallen plus 1 = 1; 7 times 1 = 7). These seven points are divided into one group of 5 and one group of 2, and then their location is rolled on the Front Column of the Hit Location Chart.

Falling Damage to the MechWarrior

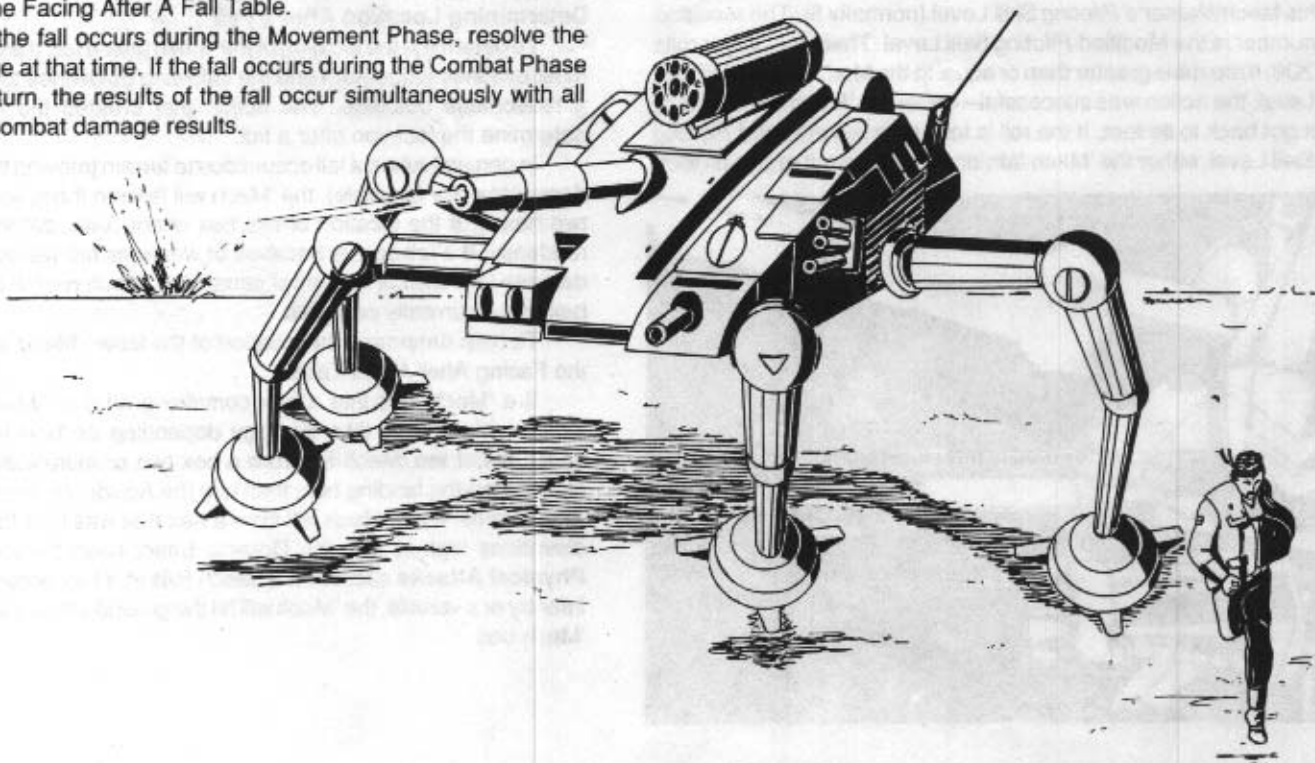
Determine whether or not a MechWarrior takes damage after his 'Mech falls. A Piloting Skill Roll is made after every fall, adding one to the Piloting Skill Level for every level fallen. If the player rolls his modified Piloting Skill or greater, then the MechWarrior has avoided taking any damage. If the roll is not successful, then the MechWarrior takes 1 damage point.

TORSO AND TURRET TWISTS

After all movement has been done, the players can twist the torsos of their BattleMechs or rotate the turrets of any turret-equipped vehicles. Torso-twisting uses reverse initiative, with the team that won the initiative twisting or rotating one unit before the other team twists one of its units. This sequence minimizes the effects of the initiative roll.

A BattleMech can twist its torso one hex to the left or right of the direction that its feet are pointing. This new alignment is not kept during the next turn, and for movement purposes, the 'Mech is still considered to be facing the original direction. A BattleMech that has twisted its torso has a modified firing arc as described in the **Combat** section.

Vehicles with turrets may align these turrets to any hexside. A vehicle that has rotated its turret has a modified firing arc as described in the **Combat** section.



COMBAT

After completing the Movement Phase of the turn, the players begin to engage in combat. There are two forms of combat: Weapons Attacks and Physical Attacks. Weapons Attacks are attacks using the unit's armaments, such as missiles, lasers, and autocannons. In Physical Attacks, the 'Mechs use their weight to inflict damage on targets.

In **BattleTech**, Weapons and Physical Attacks inflict damage on the outer armor covering every 'Mech and vehicle. When all of the armor points in a location are gone, any remaining damage affects the internal structure of the unit. Every attack that penetrates the armor of a unit has a chance to be a critical hit that will knock out a major weapons or motive system or even destroy the unit itself.

Infantry units have no armor, and so successful attacks reduce the number of men in each platoon, rather than reducing armor points. Special combat rules for vehicles, infantry, and artillery are found in their respective sections of this manual.

During the Weapons Fire Phase, players use the armaments of their units to inflict damage on targets. For one unit to fire at another, it must have a clear line-of-sight to the target, and the target must be within the range and firing arc of the weapons that player wishes to use. The likelihood of a shot hitting a target is then calculated based on the range, movement of the target and firer, intervening terrain, and other factors.

Players fire each weapon individually and can fire as many or as few of their weapons as they wish, within the restrictions given below.

If a weapon hits a target, the damage location is determined and the damage is recorded on the appropriate record sheet.

LINE-OF-SIGHT

When a player wishes to fire on a unit, he must first discover whether or not his unit can see its intended target. Various terrain features can fully or partially block a unit's line-of-sight to a target, thus making a shot impossible or more difficult.

Check the line-of-sight by laying a straightedge (a ruler or a sheet of paper) from the center of the attacker's hex to the center of the target's hex. Any hex that the straightedge crosses is in the line-of-sight. If the straightedge passes directly between two hexes, the defender chooses through which hex the line-of-sight passes. The players then look for blocking terrain that is higher than the highest of the two units. Units are assumed to be at an elevation level equal to the elevation level of their hex (the height of a woods hex has no influence over the unit's elevation) plus the elevation level of the building (if the unit is on top of a building). Blocking terrain is equal to the elevation level of the terrain plus the height of any buildings or woods in the hex.

Heavy and Light Woods do not block the line-of-sight entirely, though they do add two elevation levels to the elevation level of the underlying terrain. It is possible to shoot into and through wood hexes, although they modify the To-Hit Number. Elevation differences affect line-of-sight more dramatically, as tall buildings and terrain features can block line-of-sight completely.

Other units never block line-of-sight.

Once the players have discovered blocking terrain, they should check the cases below to discover its effect on line-of-sight.

Intervening Terrain Elevation of One Level Difference

A terrain feature that is one elevation level higher than the highest of the two units has no effect on line-of-sight if the two units are both 'Mechs. If the target 'Mech is in a hex directly behind the intervening terrain, then that elevation provides Partial Cover. A shot is still possible at the partly concealed target, but there is a modifier to the To-Hit Number and a restriction on which parts of the 'Mech may be hit (see the **Partial Cover** section).

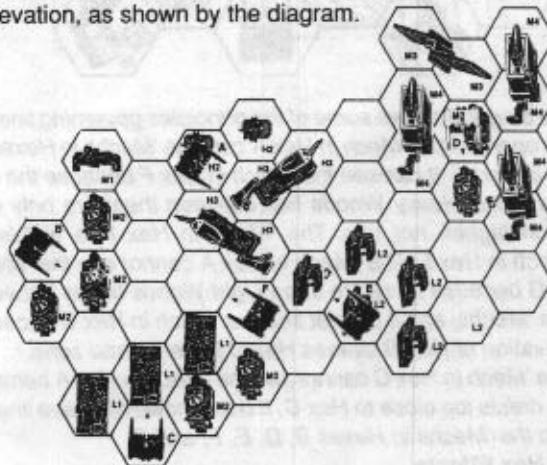
If one of the units involved is a vehicle or infantry, then line-of-sight is blocked.

Intervening Terrain Elevation of Two or More Levels Difference

A terrain feature that is two elevations higher than the highest of the two units will always block line-of-sight.

Terrain Elevation Dead Zones

The dead zone behind or below the peak of an elevated area may also block line-of-sight. Only terrain elevation levels, buildings, or a combination of the two (not woods) can create dead zones. If the attacker is shooting upwards at more than one hex range, the line-of-sight will be blocked if the hex next to the attacker is as high as the hex occupied by the target. If the attacker is shooting downwards at more than one hex range, the line-of-sight will be blocked if the target is directly behind a hex as high or higher than the attacker's hex. The number of hexes protected by the dead zone depends on the height of the elevation, as shown by the diagram.

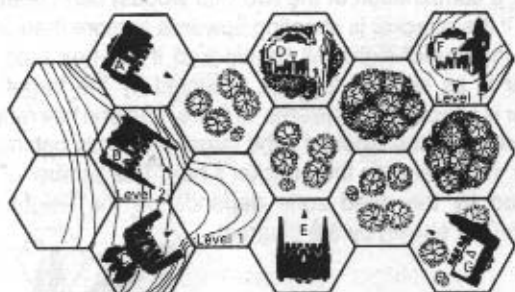


The 'Mech in Hex A can see and be seen by the 'Mechs in Hexes C and E. It cannot see the 'Mech in Hex F because the Level 3 Buildings create a dead zone. Also, it cannot see the 'Mech in Hex D because the latter 'Mech is behind two levels of elevation, which block line-of-sight completely. Hex B is also a dead zone. The 'Mech in Hex A has Partial Cover from Hexes C and E, as it is surrounded by buildings that are one elevation level higher than the elevation of the building that it is standing on. The 'Mech in Hex B cannot see any other 'Mech, as it is surrounded by Elevation 2 hexes. The 'Mech in Hex C can see only the 'Mech in Hex A, as the Level 2 Buildings block its line-of-sight in other directions.

Intervening Woods Hexes

Three or more hexes of intervening Light Woods between units block line-of-sight if the hexes are at an Elevation one level higher than the higher unit (for infantry and vehicles) or two levels higher than the higher unit (for 'Mechs). Remember that woods, both light and heavy, add two levels to the elevation of the hex they occupy. Note that the three hexes must be intervening; i.e., not occupied by either unit. One or two intervening Light Woods hexes of the elevations listed above affect the To-Hit Number (see the **To-Hit Modifiers** section).

If line-of-sight passes through two Heavy Woods hexes, each on an Elevation one level higher than the highest unit (for infantry and vehicles) or on an Elevation two levels higher than the highest unit (for 'Mechs), then line-of-sight is blocked. This does not include the terrain of the hex occupied by either unit. For purposes of line-of-sight, a Heavy Woods hex counts as two Light Woods hexes. In other words, a Heavy Woods hex and a Light Woods hex count as three Light Wood hexes and therefore block line-of-sight.



The diagram shows some of the principles governing line-of-sight in operation. A 'Mech in Hex A can see 'Mechs in Hexes B, D, and E, and F. It can see the 'Mech in Hex F because the one Light and one Heavy Woods hex between them are only one Elevation higher, not two. The 'Mech in Hex F is visible to the 'Mech in Hex E. The 'Mech in Hex A cannot see the 'Mech in Hex G because there are three Light Woods hexes between the two 'Mechs, and it cannot see the 'Mech in Hex C because the elevation of Hex B causes Hex C to be a dead zone.

The 'Mech in Hex C cannot see the 'Mech in Hex A because the hill crests too close to Hex C. It does, however, have line-of-sight to the 'Mechs in Hexes B, D, E, F, and G.

Water Hex Effects

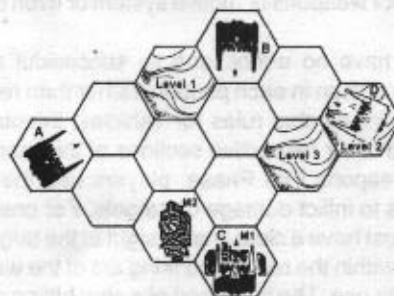
Water hexes have elevations levels called depths that are 0 or below. Treat the depth number as a negative when figuring the elevation differences between two units.

A 'Mech standing in a Depth 1 water hex is partially concealed, receiving a Partial Cover modifier to the To-Hit Number, and only part of the 'Mech is considered a legitimate target. A water hex of Depth 2 or deeper completely blocks line-of-sight to and from a 'Mech standing in it. See **Underwater Combat** for exceptions.

Hovercraft and conventional naval vessels in water hexes of Depth 1 or greater are considered to be at Depth 0 for line-of-sight purposes.

Partial Cover

Partial Cover makes a 'Mech harder to hit, but any shot that does hit is likely to hit more critical areas. Only a 'Mech can receive a Partial Cover benefit from terrain. To qualify for Partial Cover, a 'Mech must be adjacent to a hex that is one elevation level higher than his own hex, and that hex must be between him and the firing unit. This Level 1 elevation can be a hill, building, or combination of both. A Partial Cover To-Hit Modifier of +2 is given for 'Mechs in Depth 1 water (+3 plus -1 for being in water). A 'Mech cannot receive Partial Cover from Woods elevations. Partial Cover has no effect on line-of-sight, but provides a +3 To-Hit Modifier. Any damage inflicted on a partially concealed target is determined on the Punch Damage Location Table (see **To-Hit Modifiers** for further explanation).

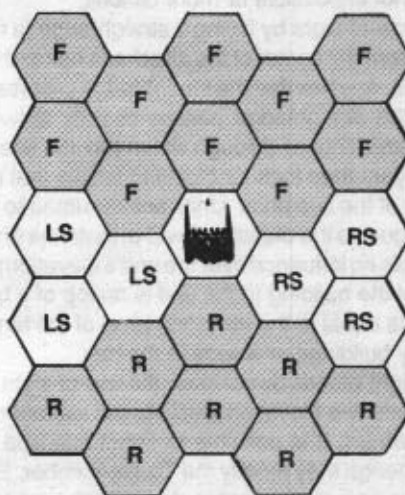


The 'Mechs in hexes B, C, and D have Partial Cover from the 'Mech in Hex A, as each has one level of elevation between themselves and the firing 'Mech in Hex A.

FIRING ARC

Once the player has determined that his unit can see the intended target, he must see which weapon's firing arc covers the target. Only those weapons that can be brought to bear on the target can fire at it.

The firing arcs of 'Mechs take advantage of the special nature of arm-mounted weapons. There are four firing arcs: front, rear, right, and left. The diagram shows all four of these arcs.



Weapons mounted in a 'Mech's forward torsos, legs, or head may fire only into the forward arc. Weapons mounted on the right arm or held in the right hand can fire into the forward arc or into the right side arc (abbreviated RS). Weapons mounted in the rear torso, legs, or head may fire only into the rear arc. Weapons mounted on the left arm may fire into the forward arc and left side arc (abbreviated LS).

A BattleMech with leg-mounted weapons may not fire through a hex that provides that 'Mech with Partial Cover.

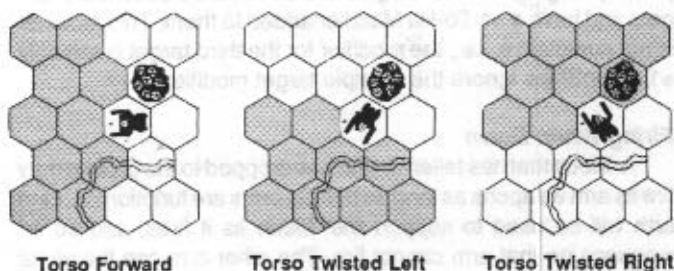
Vehicle weapons mounted in the front may fire only into the forward arc. Weapons mounted on the right side or left side may fire only into the right and left arcs, respectively. Rear-mounted weapons fire into the rear arc.

Infantry do not have any firing arc restrictions.

Rotating Firing Arcs

Each BattleMech can rotate its torso one hexside to the left or right, while keeping its feet pointed straight ahead. This means that the 'Mech can move in one direction, but fire in another. A 'Mech's firing arcs depend on which way its torso is turned, and only partly on which way its feet are pointing. However, the firing arcs of leg-mounted weapons are always aligned with the direction of the feet.

When the 'Mech's torso rotates, all firing arcs move too. The accompanying diagram shows this movement.



Turret-mounted weapons in vehicles can be pointed in any direction, as per the rules in the **Torso and Turret Twists** section, giving them a new arc oriented in the same manner as above.

FIRING WEAPONS

After a player has determined that a target is within the firing arc of his weapons and that there is a clear line-of-sight to the target, his unit may fire. The player counts the range to determine the Base To-Hit Number. *Gunnery* skill, terrain, movement, and other factors add To-Hit Modifiers to the Base To-Hit Number, resulting in the Modified To-Hit Number. The player then rolls 2D6 to see if he hit the target. If the die roll is equal to or greater than the Modified To-Hit Number, then the weapon has hit its target.

Base To-Hit Number

Once the player decides which weapons can and are going to fire, he needs to determine the Base To-Hit Number for each shot. The Base To-Hit Number depends solely on the range to the target.

Range is the distance between the attacking unit and its target. It is also the distance a weapon can fire. Determine range by counting the number of hexes from the firing unit to its target. Begin at the hex next to the attacker along the line-of-sight, following the shortest path to the target, and count the target's hex. The range has an effect on how easy or difficult it is to hit the target, with distant targets generally being harder to hit.

The ranges for all weapons are listed in the Weapons Table (in the back of this book). A weapon's maximum range is divided into thirds for its short, medium, and long ranges.

To find the Base To-Hit Number, first count the range between the attacking unit and its target, using the shortest path and counting the target's hex but not the attacker's hex. Next, consult the Weapons Table for the weapon being fired. (If the firing unit is infantry, use the Infantry Weapons Table.) Find that range in the weapon's row, and determine if the range is short, medium, long, or out of range. Terrain and movement will modify this Base To-Hit Number.

BASE TO-HIT NUMBERS TABLE

Range Group	Base To-Hit Number
Short	4
Medium	6
Long	8

Weapons may not fire at a target beyond long range.

To-Hit Modifiers

All applicable modifiers are cumulative.

Gunnery Skill Modifier

For every *Gunnery* Skill Level above or below 4, the Base To-Hit Number is increased or decreased by 1, respectively.

Minimum Range Modifier

Some weapons, like particle projector cannon, autocannons, and long range missiles, are designed for targeting at long ranges. When these weapons are used at very close range targets, they lose considerable effectiveness. The Weapons Table lists the ranges at which the weapon becomes less effective, and the minimum range modifier to the To-Hit Number will reflect this.

The minimum effective range given in the Weapons Table is the hex at which the To-Hit Number is modified by +1. For every hex closer, the modifier is increased by 1, so that some weapons are less effective at very close ranges than at maximum range.

A particle projector cannon has a minimum effective range of three hexes. If a Warhammer is firing at a Crusader three hexes away, it has a Minimum Range Modifier of +1. If, however, it is fired at a target only two hexes away, the modifier is +2. If the target is one hex away, the modifier is +3. This is shown in the diagram.



If the Warhammer in our previous example allows its target to get only two hexes away, its To-Hit Number will be modified because the target is within its minimum effective range. The Base To-Hit Number is 4 because the target is at short range, and the Minimum Range Modifier is +2. This makes the Modified To-Hit Number a 6, the same as if the target were at medium range!

Movement Modifiers

In **BattleTech**, movement of attacking units and their targets modify the To-Hit Number by the values found in the Modifiers To Fire Table. If the target has jumped, add the jump modifier to the modifier for the number of hexes moved modifier.

During the Movement Phase, the attacking Warhammer from the previous example walked (+1 modifier), and the target moved a total of 4 hexes (+1 modifier). As a result, the movement modifier is +2. This modifier is added to the Base To-Hit Number. This means that the Warhammer can fire his PPC at the Crusader, which is two hexes away, with a Modified To-Hit Number of 8 (4+2+2).

Terrain Modifiers

Terrain also affects the probability of a successful shot. It is not impossible to shoot through Light and Heavy Woods, but successful shots become more difficult the more woods hexes are between the attacker and the target. Water makes a 'Mech easier or harder to hit, depending on which 'Mech is in the water hex. Partial cover also gives a Terrain Modifier. Buildings have no effect on the Base To-Hit Number, but they do greatly affect the damage results. These effects are covered in more detail in the **Buildings** section. All normal cases are covered in the following descriptions.

Light Woods

The Terrain Modifier is +1 for Light Woods at an elevation one level higher than the higher unit (for infantry and vehicles) or two levels higher (for 'Mechs) between the attacker and its target. Remember that woods, both light and heavy, add two levels to the elevation of the hex they occupy. There is an additional Terrain Modifier of +1 if the target occupies a Light Woods hex. As many as two Light Woods hexes may be fired through, as per the LOS rules, as long as a valid To-Hit Number can be obtained.

Heavy Woods

The Terrain Modifier is +2 for Heavy Woods on an Elevation 1 hex (for infantry and vehicles) or on an Elevation 2 hex (for 'Mechs) between the attacker and its target. If there is more than one Heavy Woods hex between the attacker and its target, line-of-sight is blocked. There is an additional Terrain Modifier of +2 if the target occupies a Heavy Woods hex.

Water

There is a Terrain Modifier of +1 if the attacker is in a water hex of Depth 1, and a Terrain Modifier of -1 if the target is in a water hex of Depth 1. Because a 'Mech also receives Partial Cover for being in a Depth 1 water hex, it would have a total Terrain Modifier of +2 (-1 + 3).

Water of Depth 0 has no effect on the Base To-Hit Number.

Combat cannot occur between a 'Mech that is in Depth 2 or deeper water and other units. See **Underwater Combat** for exceptions.

Hovercraft and naval vessels ignore the +1 modifier for the attacker and the -1 modifier as a target, and do not receive Partial Cover if on a water hex of Depth 1 or deeper. Hovercraft and conventional naval vessels are considered to be at Depth 0 regardless of the actual depth of the water hex.

Partial Cover

There is a Terrain Modifier of +3 if the target 'Mech is partially concealed, as discussed in the **Line-of-Sight** Section. Remember that a 'Mech in Depth 1 water receives a total Terrain Modifier of +2; -1 for being in water, and +3 for being partially concealed.

Multiple Targets

A player may have his 'Mech or vehicle engage more than one target in a turn, allocating the different weapons systems to fire at different targets. Infantry may engage only one target per turn.

For a 'Mech or vehicle to fire at more than one target, the multiple targets must fall in a 120 degree arc drawn from the firing unit. Any targets within this arc can be engaged by the appropriate weapons system. One of the targets is designated as the primary target. All other targets are considered secondary targets and have a +1 To-Hit Modifier added to them. This modifier is not cumulative; i.e., the modifier for the third target is still only +1. DropShips ignore the multiple target modifier.

Firing When Down

A 'Mech that has fallen or that has dropped to the ground may fire its arm weapons as long as both its arms are functioning. One arm will be used to support the 'Mech as it fires, and so its weapons on that arm cannot fire. The other arm can fire all its mounted weapons, and the 'Mech can fire any other weapon mounted elsewhere on its torso. The To-Hit Modifier is +2.

Firing at Prone Targets

A fallen 'Mech is an easier target at close range and a more difficult target at medium and long ranges. A Weapons or Physical Attack made against a prone 'Mech from an adjacent hex has a -2 To-Hit Modifier. All other attacks have a +1 To-Hit Modifier.

The only Physical Attack allowed against a prone 'Mech is a kick. Determine damage from a successful kick on the regular Hit Location Table, not on the Kick Location Table.

Firing at Immobile Targets

Sometimes, the player will wish to have his unit fire at an immobile target, such as a building, woods hex, or a 'Mech that has shut down. These targets have a -4 modifier to the Base To-Hit Number.

Heat and Damage Modifiers

Combat damage and heat buildup modify a 'Mech's Base To-Hit Number. These effects are discussed in the **Heat** and **'Mech Critical Hit** sections of the rules and are summarized on the Critical Hit Effects Table and the Heat Scale.



MODIFIERS TO FIRE TABLE

Gunnery Skill	+1 per attacker's <i>Gunnery</i> Skill Level over 4 -1 per attacker's <i>Gunnery</i> Skill Level less than 4
Minimum Range	+1 at minimum range plus an additional +1 per hex less than minimum range
Light Woods	+1 per Intervening Hex +1 if target is in Light Woods hex
Heavy Woods	+2 per Intervening Hex +2 if target is in Heavy Woods hex
Water	
Level 1	+2 (-1 for Level 1 Water plus +3 Partial Cover modifier), and use Punch Hit Location Table for damage +1 if firing 'Mech in Water hex
Level 2	'Mechs cannot fire into or out of hex
Partial Cover	+3 (use Punch Hit Location Table for damage)
Firing when down	+2
Firing at prone target	-2 from adjacent hex, +1 from all others
Firing at second target	+1
Firing at immobile target	-4
Attacker Movement Modifiers	
Movement Type	To-Hit Modifier
Stationary	None
Walked	+1
Ran/Flank Speed	+2
Jumped	+3
Target Movement Modifiers	
Moved 0-2 Hexes	None
Moved 3-4 Hexes	+1
Moved 5-6 Hexes	+2
Moved 7-9 Hexes	+3
Moved 10+ Hexes	+4
Jumped	+1

Modified To-Hit Number

The Modified To-Hit Number is equal to the Base To-Hit Number plus all modifiers discussed above. If the resulting number is greater than 12, the shot is an automatic miss. If a player finds that his intended shot would result in an automatic miss, the attack is not carried out. No heat build-up occurs, and no ammo is expended. The weapon can be used to attack another target.

In this example, the Warhammer wants to fire its particle projector cannon at a Phoenix Hawk two hexes away (+2 Minimum Range Modifier), with two hexes of Heavy Woods giving the Crusader cover (+4 Terrain Modifier). The Warhammer walked (+1 Movement Modifier), and the Phoenix Hawk jumped (+1 Movement Modifier) six hexes (+2 Movement Modifier). This makes the Modified To-Hit Number 14 (4 + 2 + 4 + 1 + 1 + 2 = 14), which makes the shot an automatic miss.

To-Hit Roll

Make the To-Hit Roll with 2D6. If the number rolled is equal to or greater than the Modified To-Hit Number, the shot is successful.

Missile Hits

When a successful missile launcher attack is made, the damage depends on how many fired missiles actually reach the target.

The Modified To-Hit Number is calculated and the To-Hit roll made just as with other weapons, but the combat procedure has one extra step. If a missile launcher attack hits its target, the attacking player must then roll 2D6 and consult the table below to find out how many missiles hit.

First, find the Number of Missiles Fired on the top row of the table. Cross-reference this number with the die roll. The resulting number is the number of missiles that actually hit the target.

MISSILE HIT TABLE

Die Roll	Number of Missiles Fired						
	2	4	5	6	10	15	20
2	1	1	1	2	3	5	6
3	1	2	2	2	3	5	6
4	1	2	2	3	4	6	9
5	1	2	3	3	6	9	12
6	1	2	3	4	6	9	12
7	1	3	3	4	6	9	12
8	2	3	3	4	6	9	12
9	2	3	4	5	8	12	16
10	2	3	4	5	8	12	16
11	2	4	5	6	10	15	20
12	2	4	5	6	10	15	20

An Archer fires its 20-pack long-range missile launcher and hits its target. The attack was successful, so the attacking player must now determine how many of his 20 missiles actually hit the target. He rolls an 8, cross-references this result with the 20 missiles fired, and discovers that 12 missiles reach their target. If he had rolled a 2, only 6 missiles would have hit the target.

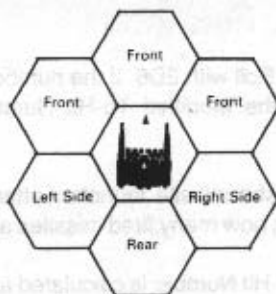
HIT LOCATION

Attack Direction

When an attack hits a 'Mech or vehicle, it hits either the front, back, left, or right side of the target, and the attacking player must determine what part of the target his weapon or missiles hit. Hits on infantry and buildings do not have to make this determination, and when resolving hits on these targets, players should go directly to the **Determining Damage** section. Detailed explanations for damage allocations to infantry and buildings are found in their respective sections.

Lay a straightedge from the center of the attacker's hex to the center of the target's hex. Find the hexside crossed by the straightedge on the diagram below to find where the unit takes the hit. If the straightedge crosses the joint between two sides, the defender chooses which side is affected.

The position, or facing, of the 'Mech's feet determines which side of the 'Mech is hit. The alignment of a vehicle's front side determines the side that a vehicle is hit.



Determining Hit Location

To determine the exact location of the hit, the attacker should roll 2D6 and consult the appropriate column of the 'Mech Hit Location Table or Vehicle Hit Location Table for each weapon that hits and for each short-range missile that hits. Long-range missile hits are a special case, and the attacker should roll once for every five missiles that hit the target. If the number of missiles that hit a target cannot be evenly divided into groups of five, the attacker should make as many groups of five as he can, and roll once for those left over.

'MECH HIT LOCATION TABLE

Die Roll	Left Side	Front/Back	Right Side
2	Left Torso (critical)	Center Torso (critical)	Right Torso (critical)
3	Left Leg	Right Arm	Right Leg
4	Left Arm	Right Arm	Right Arm
5	Left Arm	Right Leg	Right Arm
6	Left Leg	Right Torso	Right Leg
7	Left Torso	Center Torso	Right Torso
8	Center Torso	Left Torso	Center Torso
9	Right Torso	Left Leg	Left Torso
10	Right Arm	Left Arm	Left Arm
11	Right Leg	Left Arm	Left Leg
12	Head	Head	Head

Vehicle Location Tables are found in the **Vehicles** section.

The Archer hits its target with its medium laser. The straight-edge shows that the attack is being made against the target's left side. The attacking player rolls to determine hit location, and gets an 8. Consulting the column for left-side hits, he determines that his medium laser hits the target's front center torso.

DETERMINING DAMAGE

Damage Value

The Weapons Table (located at the end of this book) lists the damage inflicted by every weapon. Missiles do the same amount of damage for each missile at any range, but the number of missiles that hit determines how much damage a missile attack does. For each missile that hits, long-range missiles have a Damage Value of 1, and short-range missiles a Damage Value of 2.

Recording Damage

Every time a location is hit, the player of the target 'Mech or vehicle finds the appropriate hit location shown in the Armor Diagram, then crosses off one circle on the Armor Diagram at the appropriate location for every point of damage given. When all the Armor Value circles at that location have been crossed off, the damage is transferred to the internal structure of the 'Mech or vehicle, and the appropriate number of circles are crossed off on the Internal Structure Diagram. When a hit strikes an unarmored location, cross off one circle in the Internal Structure Diagram to show each point of damage taken. When all the Internal Structure circles in a given location have been crossed off, that part has been destroyed, and all its functions are lost. Destroyed sections lose any weapons and heat sinks located there.

Hits on infantry are marked off on the Infantry Record Form with each point of damage resulting in one Infantry box checked off. Infantry hit while in clear terrain or on pavement receive twice the normal damage.

Damage to a building is subtracted from the building's current Construction Factor, and the resulting number becomes the building's new current Construction Factor.

Buildings also reduce the damage done to 'Mechs and vehicles inside them. The damage is reduced by a factor equal to the building's current CF divided by 10, rounded down (see **Buildings**).

A particle projector cannon (Damage Value 10), a large laser (Damage Value 8), and two groups of five long-range missile (Damage Value of 1 per missile hit, or 5 points per group) have hit a Warhammer's left arm. Up to this point, the 'Mech has lost none of its arm's Armor Value of 20. The cannon hit reduces the Armor Value by 10, and so ten circles are crossed off. The laser hit knocks off an Armor Value of 8, and 8 more circles are crossed off, leaving two circles. The first group of missiles then finishes off the last two Armor Value circles left, and 3 points of damage get through.

These 3 points reduce the Internal Structure Value, and so three circles are crossed off the Internal Structure Diagram, leaving only eight circles of the original eleven. The last group of missiles reduces the Internal Structure by another 5 points, and five more circles are crossed off the Internal Structure Diagram, leaving three. If the Warhammer's left arm takes a hit with a Damage Value of 3 or more, it will be completely destroyed, and all the weapons mounted there lost.

Transferring Damage

Unlike a vehicle, BattleMechs can survive the destruction of a body section. If a section has been destroyed and that section is hit again, that damage is passed to the outer armor of the next logical part. Ammunition explosion damage is transferred to the internal structure of the next logical part. Damage to a missing arm or leg is transferred to the torso on the same side (left leg damage is transferred to left torso, left torso damage is transferred to center torso, and so on). Damage to a side torso goes to the center torso.

CRITICAL HITS

Every time the internal structure of a BattleMech or vehicle is damaged, either by weapon attacks, physical attacks, or by ammo explosions from excess heat, there is a chance for a critical hit. A critical hit does very serious damage to the unit, causing it to fail in many different ways.

The location of the damage determines the exact nature of the critical hit. Each part of a 'Mech's body has a different set of possible critical hits. Furthermore, each different 'Mech type has different possible critical hits, depending on the array of weapons and other equipment it carries. The Critical Hit Tables for each BattleMech type are given on the Record Sheet for that type. The general Critical Hit Table for all BattleMechs is given on the blank Record Sheet. The Critical Hit Tables for vehicles are found in the **Vehicles** section of this manual.

Determining Critical Hits

When an attack damages a BattleMech's or vehicle's internal structure, the attacker determines if a critical hit has occurred. He rolls 2D6, and if his roll is equal to or greater than 8, he has scored a critical hit. The higher the roll, the more serious the damage, as shown in the Critical Hits Effects Table.

CRITICAL HIT EFFECTS TABLE

Die Roll	Effect
2-7	No Critical Hit
8-9	Roll 1 Critical Hit Location
10-11	Roll 2 Critical Hit Locations
12	Limb Blown Off or Roll 3 Critical Hit Locations

When an attacker inflicts a critical hit, the defending player should consult the Critical Hit Table on his Record Sheet for the appropriate location (if the target is a BattleMech) or should check the appropriate Vehicle Critical Hit Table in the **Vehicles** section. The defender then rolls dice for each critical hit location and consults the appropriate table to find out exactly what damage the critical hit inflicted. If he rolls a number for which there is no component or rolls a component that has already taken a critical hit, the player should roll again. If all the components in the section have already taken critical hits, the critical hit transfers to the interior of the next logical location according to the damage transference rules.

Head or Leg Hits

If the critical hit is inflicted on the 'Mech's head or legs, roll 1D6. Find the appropriate number on the Critical Hit Table for the body part hit, and read the damage effect.

Torso or Arm Hits

If the critical hit is on the torso or arms of the 'Mech, roll 1D6 twice.

The first roll tells whether the result will be one of the 11-16 group or one of the 21-26 group. A 1, 2, or 3 on the first roll means that the result will be in the 11-16 group; a 4, 5, or 6 on the second roll means that the results will be in the 21-26 group. For example, if a 2 were rolled, the effect would be either 11, 12, 13, 14, 15, or 16.

The second roll will tell exactly which effect resulted. Tack this result onto the first result. This will create a number ranging from 11-16 or from 21-26. For example, if the first roll tells that the effect is in the 21-26 group, and the second roll was a 3, the effect is number 23.

Critical Hit Effects on BattleMechs

This section describes what effect each type of critical hit gives.

Head Critical Hits

Life Support

The BattleMech's life support system keeps its pilot, the MechWarrior, alive in its own internal heat, on airless worlds, and in hostile atmospheres. In **BattleTech**, the life support system's main function is protecting the pilot from heat generated by its fusion reactor, movement, and weapons systems.

Any critical hit knocks this system out permanently, and the MechWarrior takes one point of damage every turn that the BattleMech's internal Heat Scale ranges from 15-25. The MechWarrior takes 2 points of damage for every turn that the Heat Scale is above 25.

Cockpit

A critical hit to the cockpit destroys it, kills the MechWarrior, and puts the BattleMech out of commission for the game.

Sensors

A critical hit to the BattleMech's sensors adds a +2 modifier to the To-Hit Number every time the 'Mech shoots. A second sensors hit makes it impossible for the 'Mech to fire any of its weapons.

Head Blown Off

This hit kills the MechWarrior and puts the BattleMech out of commission for the rest of the game. This occurs on a roll of 12 on the Critical Hit Effects Table.

Leg Critical Hits

Hip

A hip critical hit freezes the affected leg in a straight position. The BattleMech's MP allowance is cut in half, rounded up. The 'Mech has a +2 modifier for a successful *Piloting Skill* Roll and must make a modified *Piloting Skill* Roll every turn that it runs. If both legs receive critical hits, the 'Mech is immobilized and the MechWarrior adds another +2 modifier to *Piloting Skill* Rolls.

Actuator

A critical hit destroys the muscle (actuator) in the upper leg, lower leg, or foot. The 'Mech's movement point allowance is reduced by 1, and it will add a modifier of +1 to any *Piloting Skill* Roll.

Leg Blown Off

When a 'Mech's leg is blown off, it can no longer stand upright. This occurs on a roll of 12 on the Critical Hit Effects Table. The 'Mech falls and takes normal falling damage. See **Leg Destruction** below.

Center Torso Critical Hits

Engine

BattleMech engines have 3 points of shielding. Each critical hit destroys 1 point of shielding. As shielding points are destroyed, the amount of heat escaping from the 'Mech's fusion drive increases.

The first hit increases the 'Mech's heat build-up by 5 points a turn. The second results in 10 points of added heat, and the third destroys the engine, thus destroying the BattleMech. Record these hits by marking off the engine boxes in the Critical Hit Table section on the Record Sheet.

Gyro

The BattleMech's gyro is one of the most sensitive pieces of onboard machinery. The gyro keeps the 'Mech upright and able to move, and can take only two critical hits.

After the first gyro hit, the 'Mech must make a *Piloting Skill Roll* every time it runs or jumps, and any *Piloting Skill Roll* it makes is modified by +3. The second gyro hit destroys the gyro. If the 'Mech's gyro is destroyed, it cannot move and, if forced to make *Piloting Skill Roll*, the 'Mech automatically falls down. Record these hits by marking off the Gyro boxes in the Critical Hit Table section on the Record Sheet.

Left/Right Arm Critical Hits

Shoulder

A critical hit freezes the shoulder joint. All attacks from weapons mounted on the arm on that side have a +4 modifier to the To-Hit Number. After a shoulder hit, all other weapons fire modifiers from arm critical hits are ignored and the total To-Hit Modifier for weapons and actions with the damaged shoulder is +4.

Arm Actuator

A critical hit destroys the muscle in the 'Mech's upper or lower arm. This hit adds a modifier of +1 to the To-Hit Number for weapons firing from that arm.

These effects are cumulative. In other words, if both the upper and lower arm actuators are destroyed, the To-Hit Number for weapons fire would be modified by +2.

Hand Actuator

A critical hit destroys the muscles controlling the BattleMech's wrist and hand. The 'Mech cannot pick up anything and cannot fire hand-held weapons.

Arm Blown Off

A critical hit blows off the arm, including all weapons. This occurs on a roll of 12 on the Critical Hit Effects Table.

Weapons Critical Hits

Weapons systems are delicate, and so a critical hit will destroy a weapon. Each specific weapons system often occupies more than one space on the Critical Hit Table, but the weapon is destroyed the first time that it is hit. Additional critical hits to a specific weapon have no further effect. For example, a particle projector cannon mounted on a 'Mech's arm fills three critical hit spaces. However, the cannon is destroyed the first time it is hit. Hits to already damaged critical hit spaces are re-rolled.

Jump Jet Exhaust Port Critical Hits

When a jump jet exhaust port takes a critical hit, it becomes impossible for that jump jet to deliver thrust through it. This means that the 'Mech cannot jump as far as formerly. The jump jet is not damaged itself, for it is deeply protected from weapons fire. The control system senses the damage to the exhaust port and shuts down the engine that uses that port. For each exhaust port hit, reduce the number of jump MP by 1.

Heat Sink Critical Hits

Every time a heat sink is hit, the BattleMech's ability to get rid of heat is reduced by 1 point per turn. Only heat sinks that are on the 'Mech's Critical Hit Table may be hit. Unallocated heat sinks are integral parts of the fusion plant and can only be destroyed when the engine is totally destroyed.

An undamaged Warhammer has 18 heat sinks, eight of which are allocated to the Critical Hit Table. Therefore the Warhammer can get rid of 18 heat points each turn. After three critical heat sink hits, it would be able to get rid of only 15 points of heat per turn. After all eight allocated hit sinks have been hit, the Warhammer will be able to get rid of only 10 heat points per turn.

Ammo Critical Hits

If a critical hit destroys the ammo, it explodes. The MechWarrior will automatically take 2 damage points through his neuro-impulse helmet from the exploding electronic systems. The BattleMech takes additional damage to its internal structure.

When the ammo in a hit location explodes, all the ammo in that location explodes. If the player has not stated which ammo is in which hit location, assume that the ammo that will do the most damage is the ammo hit. The damage value of all remaining ammo is totalled and applied to the Internal Structure Diagram. Any excess damage is transferred to the Internal Structure of the next section.

A critical hit on the ammo explodes only the ammo located in the appropriate critical hit location. It also explodes with a force equal to the ammo's damage value times the shots remaining. Missile ammo explodes with a force equal to the number of missiles remaining times their damage value. One full ton of MG ammo explodes with a force of 400 points (2 times 200), while one full ton of SRM 2 ammo will explode with a force of 200 points (2 times 2 times 50).

Obviously, it is a good idea to spread the ammo around the 'Mech's torso, arms, and legs, so that a single ammo hit does not destroy all the 'Mech's ammunition and do devastating damage.

LEG DESTRUCTION

When a 'Mech has lost one leg, either through a critical hit or the destruction of the leg's Internal Structure, the 'Mech falls down. In the next turn, the 'Mech may try to get up on its one remaining leg. There is a +5 modifier to the *Piloting Skill Roll* plus any other modifiers for damage. If the 'Mech does regain its feet (or foot), it has a movement allowance of 1 (by hopping). Any *Piloting Skill Roll* made thereafter has the +5 modifier applied to it.

DESTROYING A UNIT

'Mechs

A 'Mech is considered destroyed and out of the game if the MechWarrior pilot dies, the cockpit is destroyed, the head is destroyed, the center torso is destroyed, or if the 'Mech suffers three engine hits.

Vehicles

Vehicles are destroyed and out of the game when all of the Internal Structure circles in one section are marked off or when the Critical Hit Table indicates that the vehicle is destroyed.

Infantry

Infantry platoons are destroyed when all the manpower blocks have been marked off of the Infantry Record Form.

AMMUNITION EXPENDITURES

Missile launchers, machine guns, and autocannons possess limited amounts of ammunition. The Record Sheet for each BattleMech should indicate the number of times a given weapon can fire before it is out of ammunition. The player should keep a tally on the Record Sheet, making a check mark every time the weapon is fired. When the number of check marks equals the amount of ammo carried, the weapon is out of ammunition and cannot be fired for the rest of the game.

AIMED SHOTS

All weapons but missile launchers may take aimed shots at a shut-down 'Mech, vehicle, or building. When firing on an immobile unit, the attacking player can choose any target area and receives the standard -4 To-Hit Modifier for firing at immobile targets. If he hits, the player rolls again; on a 6, 7, or 8, his shot hits the designated location. If not, the player rolls normally on the appropriate Hit Location Table.

Do not use this procedure if the attacker is aiming at the BattleMech's head. In that case, add 3 to the Base To-Hit Number. If the shot hits, the player rolls 2D6 and hits the head on an 8 or more. If he fails this die roll, he rolls normally on the Hit Location Table, ignoring all leg hits. It is permissible for a missed aimed shot still to hit the intended location when rolling on the Hit Location Table.

PHYSICAL ATTACKS

There are five different forms of physical attack: punching, kicking, pushing, charging, and Death From Above. Vehicles may only charge (ram). To make a physical attack, the unit must be adjacent to its target and the target must be within the appropriate firing arc, normally the forward arc (see **Charging** and **Death From Above** for exceptions). Each type of physical attack has a different Base To-Hit Number, which is modified by terrain, movement of both the attacking unit and its target, and by the damage that the attacker has taken in its arms and legs. The To-Hit Roll is made against the Modified To-Hit Number, just as with weapons fire. Damage location is determined by special tables, but it is recorded just as for weapons fire.

In many cases, damage is calculated by dividing the tonnage of the attacking 'Mech by some number. In these cases, fractions are rounded up.

Normally, physical attacks may occur only if a unit attacks the target unit on the same elevation. See **VTOL** and **Submarine** rules for exceptions.

Punching

A BattleMech can either punch or fire its arm weapons in a turn. A 'Mech does not need hands to punch. A BattleMech may punch with either one or both arms, but the 'Mech may not fire any weapons from the arm or arms that will do the punching. The 'Mech's shoulder must have taken no critical hits, and any arm actuator damaged makes success more difficult. All punch attacks must be made against targets in the 'Mech's forward arc or front side (including left and right). If the target is in the Right or Left arc, then only the right or left arm may punch. If the target is in the forward arc then both arms may punch.

The Base To-Hit Number for a punch is 4, which is modified by movement and terrain just as in weapons fire; +2 for each arm actuator destroyed, and +1 if the hand actuator has been destroyed.

Make a To-Hit Roll for each fist punching. The punch from each fist has a Damage Value of 1 for every 10 tons (or fraction of 10 tons) that the attacker weighs. The damage is cut in half for each arm actuator damaged, with the effects being cumulative (rounded up). For 'Mech targets, damage location is determined for each separate punch by rolling 1D6 and consulting the table below.

Unless prone or fallen down, a 'Mech may not punch ground vehicles, conventional naval vessels, and infantry. Resolve punch attacks against these units on the Front Side column of their Hit Location Tables. Punches against VTOLs and submarines are covered in the **Vehicles** section.

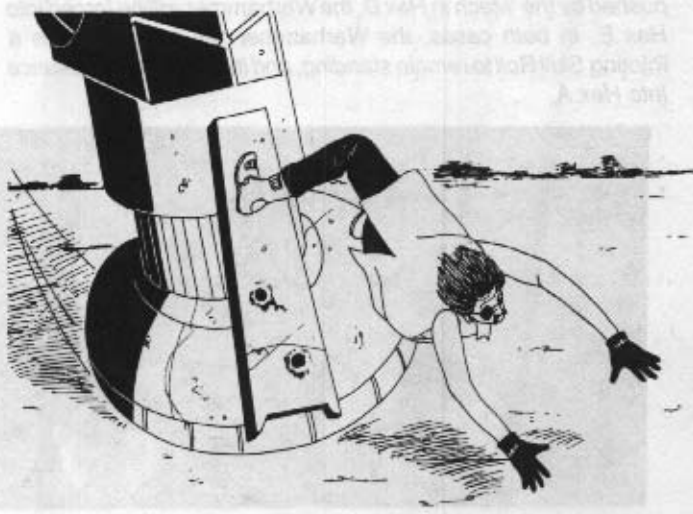
'MECH PUNCH HIT LOCATION TABLE

Die Roll (1D6)	Left Side	Front/Back	Right Side
1	Left Torso	Left Arm	Right Torso
2	Left Torso	Left Torso	Right Torso
3	Center Torso	Center Torso	Center Torso
4	Left Arm	Right Torso	Right Arm
5	Left Arm	Right Arm	Right Arm
6	Head	Head	Head

For example, an Archer with a damaged upper arm actuator punches a Warhammer on the right side with one fist. The damaged actuator gives a To-Hit modifier of +2 and cuts the normal damage in half. The punch To-Hit Number is 6. The Archer weighs 70 tons, and so its punch has a normal Damage Value of 7 (70 divided by 10 = 7), but this is reduced to 4 because of the damaged actuator. The attacking player rolls a 3, which is the target's center torso. The player with the Warhammer records the Damage Value of 4 by crossing four circles off his Record Sheet on the Armor Diagram.

Kicking

Only one of a BattleMech's legs can kick per turn. No weapons mounted on that leg can fire in the turn it kicks, and both hips must be undamaged. The 'Mech's target must be in the forward arc. The 'Mech may kick or stomp vehicles if the 'Mech and vehicle are in the same hex, along with making kicks against adjacent vehicles. Kicks against VTOLs and Submarines are covered in their rules sections.



A forward kick into the hex in front of the 'Mech has a Base To-Hit Number of 3. The Base To-Hit Number must be modified by movement and terrain, just as with weapons fire. Kicks have a Damage Value of 1 for every 5 tons that the attacking Battle-Mech weighs (a *Warhammer's* kick would inflict 14 damage points!). For each leg actuator damaged, this Damage Value is cut in half, with the effects being cumulative (rounded up). Determine damage location by rolling 1D6 and consulting the table below.

A 'Mech that has been successfully kicked must make a *Piloting Skill Roll*. A 'Mech that missed a kick must make a *Piloting Skill Roll*.

A kick is the only type of physical attack allowed against a prone or fallen 'Mech (another prone or fallen 'Mech may punch the first 'Mech). All normal To-Hit Modifiers are used, including the -2 for attacks against prone 'Mechs from adjacent hexes. Damage location is determined using the normal Hit Location Table, not the Kick Hit Location Table.

Vehicles and infantry may be kicked, but there is a +3 modifier for infantry (as they tend to scurry around when 'Mechs get too close). The side on which a vehicle takes damage is determined randomly when the 'Mech is making an attack in the same hex.

'MECH KICK HIT LOCATION TABLE

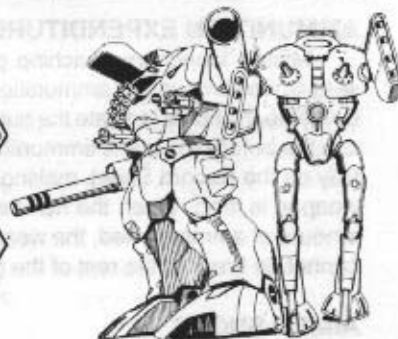
Die Roll (1D6)	Left Side	Front/Back	Right Side
1-3	Left Leg	Right Leg	Right Leg
4-6	Left Leg	Left Leg	Right Leg

Pushing

A 'Mech uses both arms to push its target. No arm-mounted weapons can be fired in the turn that a 'Mech makes a push attack. Push attacks can be made against targets in the forward arc only.

The Base To-Hit Number for a push is 4. This is modified by movement, terrain, and +2 for each shoulder actuator damaged. A successful push does not automatically do damage to the target; instead, it moves the defending 'Mech into an adjacent hex in the direction that the attacker is pushing. At the same time, the defender must make a *Piloting Skill Roll*. If the push is successful, the attacking 'Mech advances into the hex formerly occupied by its target. Vehicles and infantry may not be pushed.

In the drawing, if the Warhammer in Hex A is pushed from Hex B, it will be moved into Hex C. If, on the other hand, it is pushed by the 'Mech in Hex D, the Warhammer will be forced into Hex E. In both cases, the Warhammer will have to make a Piloting Skill Roll to remain standing, and its attacker will advance into Hex A.



Charging

All 'Mechs and vehicles may charge. In order for a 'Mech to charge, both legs must be functioning. The charging unit can make no other fire or physical attacks. The Base To-Hit Number for a charge is 5 plus any movement modifiers. If the charge hits, the defender is moved just as if it had been pushed, and the attacker advances into its hex. If the unit misses the attack, it will end up in either the front-right or front-left hex of the target; the choice is the attacker's. Ground vehicles and infantry may not be charged. Rules for charges against VTOLs and submarines are covered in their rules sections.

Charges must be declared during the Movement Phase, but, like all other physical attacks, they are resolved during the Physical Attack Phase. This sequence means that the charging unit can only attack units that have finished their movement.

The charging unit must spend *MP* to enter the target hex, whether or not the charge is successful. If a unit does not have enough movement points left over from its Movement Phase to enter the target hex, it may not charge. Additionally, if the target hex is restricted terrain for the unit, the unit may not charge.

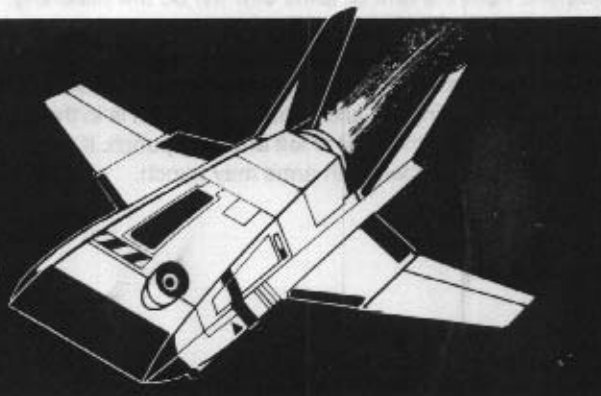
Piloting Skill Modifier

Whenever one 'Mech charges another, compare the MechWarriors' *Piloting Skill Levels*. The difference between the two skill levels is the *Piloting skill modifier*. If the defending MechWarrior's skill level is lower, add the modifier to the To-Hit Number; if the attacker's *Piloting Skill* is lower, subtract the modifier from the To-Hit Number.

Damage

Both units take damage from the collision. The defender takes one point of damage for every 10 tons that the charging unit weighs, and this damage is multiplied by the number of hexes moved by the attacker that turn. The charging unit takes 1 point of damage for every 10 tons the target weighs. Round any fractions up.

Damage caused by charges is divided into as many groups of 5 damage points as possible. The attacking player then rolls once on the appropriate Hit Location Table for each group.



If a unit charges a target that is in a building, the building and the charging unit absorb damage as mentioned above. Also, the charging pilot must make a *Piloting Skill Roll* with a +3 modifier in addition to the Building modifier to avoid taking damage from entering the building. The target unit must also make the same roll if its displacement causes it to cross walls.

For example, an Archer moves four hexes and charges another 'Mech. If the charge hits, the defender will take 28 points of damage; 7 for the Archer's tonnage multiplied by 4 for the number of hexes it moved.

Falls

After any successful charge, both the attacker and the defender must make *Piloting Skill Rolls* with +2 modifiers. Failure means that the 'Mech fell in the hex that it is currently in and takes additional damage due to the fall.

Clubs

Whenever a 'Mech has one of its legs or arms blown off, the limb is left lying in the hex where the 'Mech took the damage. Any other 'Mech that ends its movement in that hex at a later time can pick up the arm or leg and use it as a giant club. A 'Mech must forego making weapons and physical attacks during the turn that it picks up a club.

Other objects may also be used as a club. If the 'Mech is in a woods hex, it may uproot a tree and use it as a club. Uprooted trees may be used for only *one* successful club attack. Girders from rubble Medium, Heavy, or Hardened Building may also be used as clubs. The player must roll 2D6 during the Attack Phase to search rubble for a suitable girder. A roll of 7+ is needed to find a girder in a rubble Medium Building, a 6+ is needed for a rubble Heavy Building, and a 5+ is needed for a rubble Hardened Building.

To attack another unit with a club, the 'Mech's shoulders and hand actuators must be working, and no arm-mounted weapons may be fired in the turn. The target must be in the forward firing arc.

Using both hands, a club attack has a Base To-Hit Number of 4. Normal To-Hit modifiers for terrain and movement are also applied.

If any of the 'Mechs upper or lower arm actuators have been destroyed, use the punch modifiers listed. A 'Mech making an attack with a club does 1 point of damage for every 5 tons that it weighs.

Clubs may be used against any type of unit, but infantry have an additional +3 To-Hit Modifier. See the **Submarine** and **VTOL** sections for special rules about club attacks.

Death From Above

BattleMechs can charge while jumping, a physical attack that is very damaging to both attacking 'Mech and target. In effect, the charging 'Mech crashes into the target from three elevation levels above, using its feet and weight to inflict damage to the target's upper torso, arms, and head. In return, the charging 'Mech is certain to take damage to its legs, which are not designed for the enormous stresses from this attack. Finally, both 'Mechs are almost certain to fall.

Although this type of charge does potentially less damage than a regular charge, the damage is concentrated on the upper part of the target 'Mech. The chance for a head hit is one in six, very high indeed! Death From Above attacks may also be made against vehicles and infantry. Hits against vehicles are resolved on the Front Side Location. A successful Death From Above attack on a VTOL automatically hits the rotor. Infantry targets have an additional +3 To-Hit modifier.

Base To-Hit Number

The Base To-Hit Number for this attack is 5, just as for a normal charge. This number must be modified for movement (i.e., the jumping movement of the attacker and the normal movement of the target), but not for terrain. If the hit is successful, both 'Mechs take damage as determined below. If the attack missed, the charging 'Mech crashes into the ground as discussed below.

Damage to Target

Determine the damage by dividing the weight of the attacking 'Mech by 10 and multiplying by 3. This means that a *Spider* with a weight of 30 tons gives 9 points of damage, all to the upper part of the target!

This damage is given as though it were a series of 5-point punches. Split up the total damage into as many 5 point groups as possible. Determine the hexside hit as though the attack has been from the charging 'Mech's starting hex. Then, determine the hit location of each 5-point group by rolling 1D6 and consulting the Punch Hit Location Table for each group. Record damage as usual.

Vehicle targets take damage to their frontside.

Damage to Attacker

The damage from a successful attack is determined as though the attacker had fallen one elevation level, and it is given only to the legs. To find the total damage received, divide the attacker's weight by 10. Split this into 5-point groups, and roll damage location on the Kick Hit Location Table for each group using the Front Side column.

Falls

After a successful attack, both 'Mechs might fall. The Mech-Warriors must make *Piloting Skill Rolls*; the target has a modifier of +2, and the attacker has a modifier of +4.

After an unsuccessful attack, the attacker automatically falls. Damage is determined as though it had fallen two elevation levels. Divide the weight by 10, multiply by 2, divide the total into 5-point groups, and determine hit location as though the 'Mech had landed on its back.

Location after Attack

If the Death from Above attack is successful and the target is a 'Mech, the target is pushed one hex in the direction opposite of the attack. The attacker lands in the target's original hex. If the attack fails, the target must move one hex (his choice) to avoid damage from the attacker. The attacker lands in the target's original hex.

If the target is a vehicle or infantry, then both units remain in the hex.

Physical Attacks by Prone 'Mechs

Physical attacks by prone 'Mechs are impossible, except for punches against vehicles and punches and the Thrash Attack against infantry.

When a downed 'Mech and an infantry unit are in the same hex, the 'Mech may execute a Thrash Attack. This consists of wildly waving the arms and legs in hopes of making contact with the unprotected infantry. The attack can be made only in clear terrain and is automatically successful. The damage inflicted to the infantry is equal to the 'Mech's tonnage divided by 3. This is the only attack allowed to the 'Mech in the turn. The MechWarrior must make a *Piloting Skill Roll* to prevent damage to the 'Mech; if the skill roll fails, the 'Mech suffers normal falling damage.

Accidental Falls from Above

When a 'Mech falls two levels or more into a hex occupied by another 'Mech, make a To-Hit Roll with a Base To-Hit Number of 7. When a 'Mech on the same level accidentally falls into the hex occupied by another, treat it as a domino effect, discussed below. No rolls are made if the 'Mech falls into a hex occupied by an infantry or vehicle unit.

Falling 'Mech Hits Target

If the To-Hit Roll is successful, treat the fall as a Death From Above attack. If the unit fallen on is a 'Mech, it takes damage to its upper body.

Determine the amount of damage given to the target unit by dividing the weight of the falling 'Mech by 10. Break the damage into 5-point groups as above, and determine damage on the Punch Hit Location Table. Damage to the falling 'Mech is determined as usual for a fall, with the 'Mech falling onto its back.

Falling 'Mech Misses Target

If the To-Hit Roll is not successful, the falling 'Mech lands in an adjacent hex (determine which one seems reasonable), and takes the usual damage from falling. The 'Mech missed by the fall suffers no consequences.

The Domino Effect

If a 'Mech accidentally falls into or is pushed into a hex occupied by another, the latter 'Mech is forced out of the hex in the same direction. It must also make a *Piloting Skill Roll* to avoid falling down. This domino effect will continue as long as there are 'Mechs adjacent to one another in the direction of the push.

When a domino-effect push is directed against a 'Mech's side, however, the 'Mech can avoid the push by moving one hex directly forward or back. If the player makes a successful *Piloting Skill Roll* for that 'Mech, the domino effect chain is broken.



HEAT BUILD-UP

Internal heat build-up is one of the most severe problems facing any 'Mech in combat. The 'Mech builds up heat whenever it moves or fires its weapons. Every 'Mech can get rid of heat through its heat sinks or by positioning itself in water.

Even so, a high rate of activity usually produces more heat than the 'Mech can dissipate. It is possible for a 'Mech to overheat and continue to function, but there is a price to pay. As a 'Mech's internal heat increases, its movement slows down and its weapons fire becomes less accurate. If its internal heat reaches too high a level, the ammunition that the 'Mech carries may explode. The 'Mech's fusion reactor may even shut down, causing the 'Mech to become inactive until the heat is reduced below a certain point.

Vehicles do not generate heat in the same manner as 'Mechs. A vehicle needs enough heat sinks to fire all its energy weapons at once. Because of its relatively more open (and flimsy) structure, a vehicle can automatically shed heat built up from movement or firing non-energy weapons.

HEAT POINTS

The internal heat of a BattleMech is indicated by the number of heat points it has built up. The greater the number of heat points, the greater the internal heat. The player keeps track of the heat points built up by his 'Mech on the Record Sheet in the string of boxes called the Heat Scale. The Heat Scale runs from 1 to 30 heat points. As the BattleMech's internal heat reaches various levels on the Heat Scale, the 'Mech will suffer the corresponding adverse effects listed on the scale.

BUILDING UP HEAT

Different activities build up heat at different rates. A good MechWarrior will balance the tactical value of a certain activity against the heat that it will add to his 'Mech. The Heat Point Table gives the number of heat points built up by various activities and damage. It also shows the number of heat points that a 'Mech can get rid of through its heat sinks and by occupying a water hex.

HEAT POINT TABLE

Activity	Heat Points
Walking	+1 per turn
Running	+2 per turn
Jumping	+1 per hex (minimum of 3 per turn)
Trying to Stand	+1 per attempt
Weapons Fire	As per Weapons Table
Heat Sink	-1 per operational heat sink -1 additional per heat sink under water (6 Maximum)
1st Engine Hit	+5 per turn
2nd Engine Hit	+10 per turn
Fire	
Walking Through	+2 per hex
Standing In	+5 per turn

Note that jumping uses more heat than walking or running, even if the 'Mech is moved only one hex, because the jump jets add a minimum of 3 points when they are fired up. The heat cost for jumping depends on the length of the jump. The farther the jump, the longer the jump jets are used, and the more heat they create. To find out the number of heat points used in a jump, count the hexes moved. If this is three or fewer, the heat point cost will be 3 points. If it is four or greater, it will be the number of hexes jumped.

RECORDING HEAT BUILD-UP

During the Heat Phase of every game turn, each player adds up the heat points built up by his BattleMech. He subtracts the heat given off by his 'Mech's heat sinks and, if his 'Mech occupies a water hex, any additional dissipation. The resulting number can be positive or negative. This number is added to the Heat Scale on the BattleMech's Record Sheet. If the number was negative, the Heat Scale should be adjusted downwards; if positive, upwards. The Heat Scale cannot go below 0 or above 30. It is a good idea to use a pencil on the Heat Scale because the heat will go up and down many times during the game.

EFFECTS OF HEAT

The effects of increased heat cause the BattleMech to function less efficiently. It will move more slowly, fire less accurately, and be in danger of exploding or even shutting down. Some of these effects are permanent and cannot be removed, but some will be removed when the internal heat goes down.

Movement Effects

Subtract the number given from the 'Mech's movement point allowance. If the effect is Move -1, subtract 1 from the 'Mech's walking MP allowance as long as the heat is at or above this point on the Heat Scale. Remember that the Running MP is 1.5 times the current Walking MP, and so if the Walking MP is reduced, the new Running MP will be equal to 1.5 times the current Walking MP (rounded up).

This effect is not cumulative with any other heat-caused MP lost. When a 'Mech's heat build-up reaches 5 on the Heat Scale, its MP allowance is reduced by 1. When the heat builds up to 10 on the Heat Scale, its MP is reduced by 2, not 1+2.

When the heat build-up is reduced below the point at which the effect occurs, the effect is removed. If the heat build-up on the Heat Scale is high enough that a similar effect has already been passed, the lesser effect is still in force. Thus, if the heat drops below 10 on the Heat Scale, the -2 MP effect is removed, but the -1 MP effect is still in force until the heat drops below 5.

Weapons Attack Effects

Add the number given to the BattleMech's Base To-Hit Number. If the effect is Fire +1, add 1 to all Base To-Hit numbers as long as the heat is at or above this point on the scale. Treat this effect like the movement effect; it is not cumulative and it may be removed by reducing the heat build-up.

Shutdown

When heat levels get high enough, the 'Mech shuts down its fusion reactor automatically as a safety procedure. Until the MechWarrior restarts the reactor, the 'Mech may not move or fire, and acts as an immobile target.

The MechWarrior may be able to avoid this effect if he can override the fusion reactor's safety shutdown procedure, as indicated by the Avoid Number listed with the effect. The player rolls 2D6. If the roll is equal to or greater than the Avoid Number (4+, 6+, etc.), the effect is avoided for the turn. Each turn that the heat level is at or above this level, the player should make the Avoid Number roll to prevent shutdown.

If the 'Mech shuts down, it remains motionless and cannot build up any heat by its own actions. Its heat sinks will still work, however, and so it will dissipate its heat. Every turn it is motionless, the heat will drop, and the player has a chance of restarting the reactor. If the player rolls 2D6 equal to or greater than the Avoid Number, he can restart the reactor. When the heat drops below 14 on the Heat Scale, the reactor will restart automatically.

A shutdown 'Mech can be a target for aimed shots.

Ammunition Effects

For every turn after the Ammo Explosion threshold is reached (19, 23, and 28 heat points) and the heat continues to build up, the most destructive ammo rack for a non-energy weapon explodes! An ammo rack is defined as one turn's worth of shots. Thus, a rack of machine gun ammo has a value of 2, A/C 10's value is 10, an LRM 15 has a value of 15, and an SRM 6 has a value of 12. The ammo will explode in the following sequence: LRM 20 or AC/20, LRM 15, SRM 6, LRM 10 or AC/10, SRM 4, AC/5, SRM 2, and finally AC/2 or MG ammo. When there are two equivalent racks, the 'Mech pilot can choose which ammo will explode.

All the appropriate ammo type explodes at a force equal to the ammo's damage value times the shots remaining. In the case of missiles, the ammo explodes with a force equal to the number of missiles remaining times their damage value. Thus, one ton of AC/10 ammo will explode with a force of 100. A full ton of LRM 20s will explode with a force of 120 (20 times 6 times 1). The internal structure takes all the damage, which is transferred as normal to the internal structure of the next logical section.

The explosion may be avoided by pure luck, as indicated by the Avoid Number. To see if an explosion is avoided, the player rolls 2D6. If the die roll is equal to or greater than the Avoid Number, there will be no explosion.

If the MechWarrior reduces the heat in the next turn, the ammunition is safe as long as the heat stays below 19. There will be a chance for an explosion every turn that the heat remains at or above the trigger point.

MechWarrior Effects

If the life support systems have suffered a critical hit, the MechWarrior receives 1 point of damage for every turn that the 'Mech's internal heat is 15 or more. Heat above 25 causes 2 points of damage to the MechWarrior.

A Warhammer starts a game turn with a 4 on its Heat Scale. During the turn, it fires both its PPCs and walks (total of 21 heat points generated). The 'Mech has 16 of its heat sinks left. They dissipate 16 of the 21 heat points, leaving 5. During the Heat Phase, these 5 points are added to the 4 already on the Heat Scale, bringing the total to 9. In the next turn, the 'Mech will have its walking MP reduced by 1 and has a Base To-Hit Number 1 greater than normal.

If the 'Mech performs the same actions in the next turn, 5 more heat points will be added to the heat scale, bringing the total to 14. The player must roll a 4 or more on 2D6 to avoid having his 'Mech's fusion reactor shutdown. Even if he avoids the shutdown, the Warhammer's MP allowance will be reduced by 2 until its heat drops below 10 on the Heat Scale, and its weapons will fire with a +2 modifier to its Base To-Hit Number until the heat falls below 13.

BUILDINGS

BattleMechs evolved out of the need for a highly-mobile weapons platform that could be dropped from space, perform extended operations with a minimum of supplies, and still be able to carry enough firepower to win the planned objective. The current design can perform all of these missions easily, especially when moving through open terrain.

However, just as cities and urban areas caused problems for ancient armored vehicles, cities cause problems for 'Mechs. Long, narrow streets with buildings blocking line-of-sight and providing enemy hiding places and limited protection from weapons fire necessitates changes in tactics and operations. Even infantry have a chance to do real damage to 'Mechs before getting creamed themselves.

BUILDING TYPES

There are four types of buildings in **BattleTech**: light, medium, heavy, and hardened. They are rated according to their differences in construction to show the damage they can withstand, the protection they afford, and the weight they can bear. Buildings are described by two numbers: the Construction Factor and Elevation.

Elevation is treated exactly as in the regular rules, with each level of the building being equal to six meters in height.

The Construction Factor (CF) is the number of points of damage the building can take before being reduced to rubble. It is also the number of tons a building can support without collapsing. No matter what the building's current CF, its type never changes. A damaged Heavy Building with a current CF of 15 is still a Heavy Building.

MOVEMENT EFFECTS

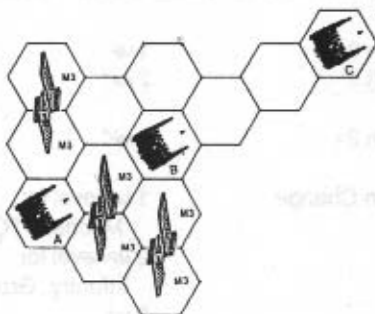
'Mechs can move into or onto buildings. Ground vehicles can move only into buildings, and VTOLs may never attempt to enter a building. If the current CF of a building is equal to or greater than the tonnage of the 'Mech, then that 'Mech can climb up or jump to the top of the building. If the current CF is less than the 'Mech's tonnage, the 'Mech will fall, taking falling damage according to how high he was when he began the fall.

Every time a 'Mech or vehicle moves into a building (i.e., crosses through a wall), the MechWarrior or Driver must make a *Piloting Skill Roll* modified by the building's movement modifier and by the type of building. If the *Piloting Skill Roll* is successful, the 'Mech takes no damage. If the roll fails, the 'Mech or vehicle's front side takes damage equal to the building's current CF divided by 10.

A *Piloting Skill Roll* must also be made when leaving a building and when moving from hex to hex inside larger buildings. Whenever a 'Mech or vehicle moves through a building wall, the building will suffer damage equal to the unit tonnage divided by 10.

BUILDINGS MOVEMENT & FIRE STARTING MODIFIER TABLE

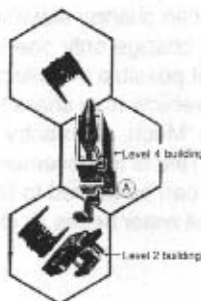
Type	CF	MP	Piloting Skill Modifier	Fire Starting Modifier
Light	0-15	2	0	0
Medium	16-40	3	+1	+1
Heavy	41-90	4	+2	+2
Hardened	91+	5	+5	+3



In this example, a 70-ton Archer wants to move through a medium building to fire at units on the other side. The Archer runs one hex to get adjacent to the building and then spends 3 MP to enter the hex containing the building. After crossing one wall, the MechWarrior must make a Piloting Skill Roll. Because this is a Medium Building, there is a +1 skill roll modifier. Further, because the Archer moved only two hexes, there is no movement modifier, as shown by the Buildings Movement Modifiers Table. The Archer rolled a 10 and passed the roll. The 'Mech suffers no damage, but the building suffers 7 points (the Archer's 70 tons divided by 10). The Archer must make a second Piloting Skill Roll in order to leave the building hex. The modifiers are the same. This time, a 3 is rolled, less than the 6 needed to pass through the wall with no damage. The Archer suffers 3 points of damage to its front (the current CF, 33, divided by 10, rounded down), and the building suffers a further 7 points of damage, reducing the current CF to 26. The Archer can now move out of the building and spend its remaining 2 MP.

Ground vehicles can enter only the ground level elevation of a building. If the building is Level 2 or less or if the 'Mech has a jump capability equal to or greater than the height of the building, then a 'Mech may get onto the building's roof through normal expenditure of MP as per the movement rules. A 'Mech or infantry may enter a building at an elevation different from ground level only if it enters the building from an equivalent elevation from a surrounding hex. It costs infantry 1 MP to enter a building and 1 MP to change levels within a building.

Normal stacking limitations are in effect at each elevation in a building.



For example, a Stinger is adjacent to the Level 4 Building in Hex A. The Stinger may attempt to enter the building at ground level or it may jump up to the roof. The Wasp on the roof of the adjacent Level 2 building may jump or climb to the roof, or it may enter the building in Hex A on the second level.

COMBAT EFFECTS

For every point of damage that a building takes as a result of combat, fire, or movement, the building loses one construction factor. When the CF of a building hex is reduced to 0, that hex becomes rubble.

There is a -4 To-Hit Modifier when firing directly at a building. Shots aimed at buildings from adjacent hexes always hit, as do all physical attacks. All missiles from missile attacks from an adjacent hex will hit.

When a unit fires at a vehicle or 'Mech that is inside a building, there is no modification to the To-Hit Number, but the damage done to the target is affected. The building absorbs an amount of damage equal to the current CF divided by 10 before any damage actually hits the 'Mech or vehicle. This damage is deducted for each separate attacker. If five 'Mechs were going to shoot the same target in a building, each would have to deduct the damage absorbed by the building. Only after all weapons fire is completed is the CF corrected.

For example, a Marauder and a Rifleman have hit a Hunchback which is inside of a Heavy Building with a current CF of 82. The Rifleman's damage to the Hunchback is reduced by 8 because of the protection of the building. The Marauder's damage to the Hunchback is also reduced by 8. The building's new CF will be 66 ($82 - 8 - 8 = 66$).

Fire directed at infantry inside a building is a special case. When the firing unit is outside or at different levels within the same building, the firing must be directed at the building itself, and damage is passed along to the infantry. A detailed description of this procedure is found in the **Infantry** section. If the firing unit is inside the building and at the same level, normal weapons and physical attack procedures are used with no modification for the terrain.

If the building receives enough damage in one turn to cause it to collapse, any unit inside will suffer damage equal to the current CF (the CF at the beginning of the current phase) divided by 10, multiplied by the number of levels of building above the affected unit. Infantry suffer three times the normal damage caused by a collapsing building.

A 'Mech that was on an upper floor or roof of a collapsing building also suffers the normal falling damage, in addition to the above damage, according to the number of levels fallen.

It is possible for many units to be in the same hex if they are on different levels of the same building. In this case, follow normal To-Hit procedures with the following additions. The difference in levels is the range. If the building occupies more than one hex, these hexes are also counted when figuring range. Finally, a +3 To-Hit modifier for Partial Cover is added because all of the target might not be visible. There are no minimum range modifiers used in this case. If a shot hits an enemy 'Mech, use the Special Hit Location Tables below. Otherwise, use the rear side location. Remember that both units get the protection of the building. None of these modifiers are used when firing at units occupying the same level of a building.

SPECIAL HIT LOCATION TABLES

Shot From Above Table	
Die Roll (1D6)	Hit Location
1	Left Arm
2	Front/Rear Left Torso
3	Front/Rear Center Torso
4	Front/Rear Right Torso
5	Right Arm
6	Head

Shot from Below Table	
Die Roll (1D6)	Hit Location
1	Left Leg
2	Left Leg
3	Front/Rear Left Torso
4	Front/Rear Right Torso
5	Right Leg
6	Right Leg

DAMAGE TO BUILDINGS

Shots that miss their target still do damage to the building normally.

Buildings are represented on the map by full-color counters. On one side is a picture of the intact building, labeled according to the type and number-coded for elevation. When a building suffers damage, simply subtract the damage from the current CF and write the resulting number on the counter. When the cumulative damage exceeds the CF, flip the counter over to the rubble side. The hex is now rubble for the rest of the game.

Buildings are placed on the BattleTech Mapsheet in any fashion determined by the players. The layout can range from a simple, orderly plan with straight streets to a confused arrangement with no real streets but with varying spaces between buildings.

VEHICLES

BattleMechs reign supreme on the battlefield, but armored vehicles have won a place in combat. Although usually not able to pack as much punch as a 'Mech, they are cheaper to build and have an almost even fighting chance in situations where a 'Mech's capabilities are limited. Cities and urban areas are one such setting.

There are three types of vehicles: ground, VTOL, and naval. Ground vehicles cover wheeled and tracked vehicles and hovercraft; VTOLs are primarily rotary-wing craft but also include tilt-rotor aircraft and other vertical takeoff and landing aircraft; naval vessels are classified into surface vessels such as conventional naval vessels, hydrofoils, and submarines. Each vehicle has its own advantages and disadvantages, as described below.

MOVEMENT

Vehicles change their position on the mapsheet by using one of many types of movement or movement actions. The different types of movement available to a vehicle cannot be mixed in one game turn.

TERRAIN EFFECTS CHART

Terrain Type/Activity	Cost Per Hex	Prohibited Units
Clear	1 MP	Naval
Road/Bridge	1 MP***	Naval
Light Woods	2 MP	Wheeled, Hover, Naval
Heavy Woods	3 MP	Ground, Naval
Water		
Depth 0	1 MP	Naval
Depth 1	2 MP*	Infantry, Ground****
Depth 2+	4 MP*	Infantry, Ground****
Elevation Change	1 MP/level for Mechs, VTOL, Subs 2 MP/level for Infantry, Ground	
Rough	2 MP	Wheeled
Rubble	2 MP*	Wheeled
Light Building	2 MP**	Naval
Medium Building	3 MP**	Naval
Heavy Building	4 MP**	Naval
Hardened Building	5 MP**	Naval
Other Activities		
Facing Chance	1 MP/hexside	
Dropping to the Ground	1 MP	
Standing Up	2 MP	

* Piloting Skill Roll required to prevent falling

** Piloting Skill Roll required to prevent damage from building

*** If traveling along road; otherwise cost of underlying terrain.

**** Hovercraft may enter all water hexes.

MOVEMENT ACTIONS TABLE

Standing Still	MP cost same as for 'Mech's
Cruise	Cruising Speed = 'Mech's walking speed
Flank Speed	Flank Speed = 'Mech's running speed

Ground Vehicle Movement

Ground vehicles are limited in the types of terrain that they can cross. See the Terrain Effects Chart above for a list of these limitations.

Ground vehicles can change elevation levels at a cost of 2 MP per level and may change only one level per hex traveled. Level changes are not possible in buildings.

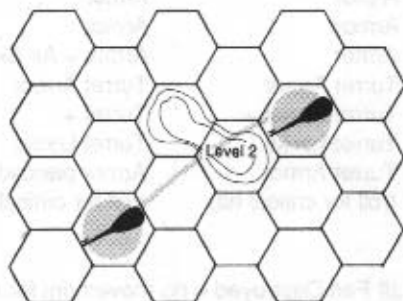
A single ground vehicle may share the same hex with one other playing piece: a 'Mech, an infantry unit, or other vehicle.

A ground vehicle reacts to movement by turning its turret, if it has one. The turret can be moved to face any hexside.

Hovercraft treat all water hexes as clear Elevation 0 terrain.

VTOL Movement

VTOL movement is a bit different from the movement of 'Mechs and other vehicles. Like vehicles, the VTOL may move at either Cruise or Flank Speed during its Movement Phase, and it pays 1 MP for each facing change and 1 MP for every new hex that it enters, regardless of the terrain type. Moreover, VTOLs move vertically as well as horizontally on the map board. It costs a VTOL 1 MP per elevation that it ascends or descends during its Movement Phase. A VTOL can move any number of elevations up and down in a single hex, as long as its combined MP expenditure does not exceed its total movement allowance. To move or change facing, the VTOL must be at an elevation that is one higher than its hex's level. A VTOL that begins or ends its movement at an elevation equal to the terrain's elevation is considered to have landed. VTOLs may land only in clear, paved, or building hexes (on the roof).



A VTOL starts its movement landed behind an Elevation 2 hill. The player decides that he wants to move the VTOL to the other side of the hill, three hexes away. It costs 3 MP to rise in the starting hex (to reach an elevation higher than the hill), 3 MP to move to the new hex, and 3 MP to land again. The total is 9 MP.

Crashing

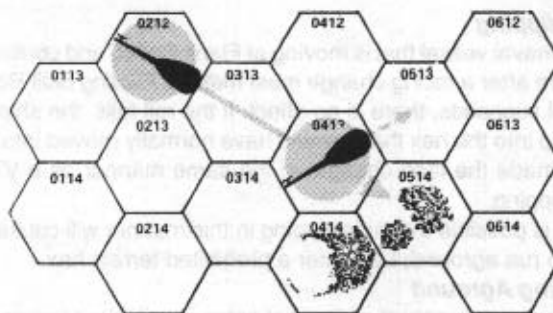
During movement, VTOLs that enter a hex at the same elevation as the hex's terrain are assumed to have crashed. Taken on the front of the VTOL, the damage is equal to the number of hexes that the VTOL has moved times ten percent of the VTOL's tonnage, fractions rounded up. Damage caused by crashing is divided into as many groups of 5 damage points as possible. The player then rolls once on the Front/Back table for each group. If the VTOL can still function after taking the crashing damage and the crash hex contains terrain that it can normally land in, the VTOL is considered to have landed in the hex and can move normally in the next turn. The VTOL may not engage in combat in the turn that it crashes. For purposes of crashing, all woods hexes are assumed to be Elevation Two terrain.

Sideslipping

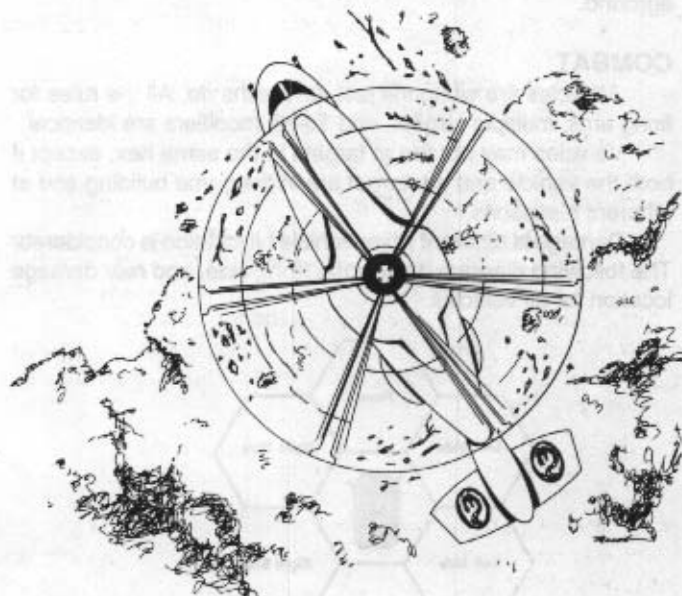
A VTOL moving at Flank Speed that continues to move after a facing change must make a *Piloting Skill Roll*. If the roll succeeds, then there is no effect. If the roll fails, the VTOL will sideslip into the hex that it would have normally moved into if it had not made the face change. A *Piloting Skill Roll* is not necessary if the VTOL does not move after it changes its facing.

After making the skill roll, the player may not change the elevation of the VTOL before it enters the new hex. Therefore, it is possible for a VTOL to sideslip into terrain that causes it to crash.

A VTOL may move normally after a slideslip, if it has not crashed.



A VTOL at Elevation 1 and in Hex 0212 declares that it will move at Flank Speed. The VTOL then moves two hexes to Hex 0413 without changing elevation. Once in 0413, the VTOL changes facing and then declares that it will move into 0513. The player makes a *Piloting Skill Roll*. The roll fails, and the VTOL sideslips into Hex 0514. Because the terrain is Light Woods (Elevation 2 for crash purposes) and the VTOL is at Elevation 1, the VTOL crashes into the hex. If the VTOL had climbed to Elevation 3 before moving to Hex 0513, then it would still have had to make the skill roll, but failing the roll would not have caused the VTOL to crash.



Naval Movement

Surface Vessel Movement

Surface naval vessels may move only on water hexes of Depth 1 or deeper. It costs 1 MP per hex entered regardless of depth. For line-of-sight purposes, the surface vessel is considered to be at an elevation of 0 at all times.

Submarine Movement

Like VTOLs, submarines move vertically as well as horizontally. Regardless of the depth, a submarine expends only 1 MP for each water hex that it enters. It costs a submarine 1 MP per depth that it ascends or descends during its Movement Phase. A submarine can move any number of elevations up and down in a single water hex, as long as its combined MP expenditure does not exceed its total movement allowance. A submarine may neither descend to a depth greater than the depth of its hex nor ascend above the surface of the water. To move or change facing, the submarine must be at a depth that is one elevation level higher than the water's depth. The player should record the submarine's depth at the end of its movement.

Sideslipping

A naval vessel that is moving at Flank Speed and continues to move after a facing change must make a *Piloting Skill Roll*. If the roll succeeds, there is no effect. If the roll fails, the ship will sideslip into the hex that it would have normally moved into had it not made the face change, in the same manner as a VTOL sideslipping.

It is possible that sideslipping in this manner will cause the ship to run aground; i.e., enter a prohibited terrain hex.

Running Aground

During movement, ships that enter a prohibited terrain hex have run aground. The damage is taken on the front of the ship and is equal to the number of hexes that the ship has moved times 10 percent of the ship's tonnage, fractions rounded up. Damage caused by crashing is divided into as many groups of 5 damage points as possible. The attacking player then rolls once on the Front/Back table for each group.

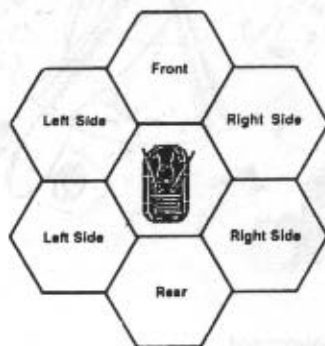
If the ship can still function after taking this damage, it can attempt to work itself free during the next Movement Phase. If the grounded ship makes a successful *Piloting Skill Roll*, the ship is considered to have freed itself and may move normally the next turn. A ship may not engage in combat in the turn that it runs aground.

COMBAT

Vehicles fire weapons just as 'Mechs do. All the rules for firing arcs, multiple targets, and To-Hit modifiers are identical.

Vehicles may not fire at targets in the same hex, except if both the vehicle and the target are in the same building and at different elevations.

Damage is different when vehicle hit location is considered. The following diagram depicts the front, side, and rear damage location for all vehicles.



Once a vehicle has been hit, use the appropriate Vehicle Hit Location Table to determine just what was hit. Other results may apply as noted on the table.

A vehicle can be destroyed by a critical hit result or by eliminating all the internal structure boxes in one location. Damage is taken the same way as with a 'Mech, with damage points first being marked off against armor and then internal structure.

Ground Vehicle Combat

GROUND VEHICLE HIT LOCATION TABLE

Die Roll (2D6)	Front/Back	Side
2	Armor pierced (roll for critical hit)	Armor pierced (roll for critical hit)
3	Armor + Track/Axle/ Lift Fan Destroyed	Armor + Track/ Axle/Lift Fan Destroyed
4	Armor + Drive/Wheel/ Air Skirt Hit (-1 MP)	Armor + Drive/Wheel/ Air Skirt Destroyed
5	Armor + Air Skirt Hit (-1 MP)	Armor + Drive/Wheel/ Air Skirt Destroyed
6	Armor	Armor
7	Armor	Armor
8	Armor	Armor
9	Armor	Armor + Air Skirt (-1 MP)
10	Turret Armor	Turret Armor
11	Turret Armor + Turret Locks	Turret + Turret Locks
12	Turret Armor (roll for critical hit)	Armor pierced (roll for critical hit)

Notes:

Track/Axle/Lift Fan Destroyed = no movement for rest of game.

Turret Locks = Turret locks in current position and cannot be moved for the rest of the game.

(If there is no turret, then all turret hits become normal armor hits.)

GROUND VEHICLE CRITICAL HIT TABLE

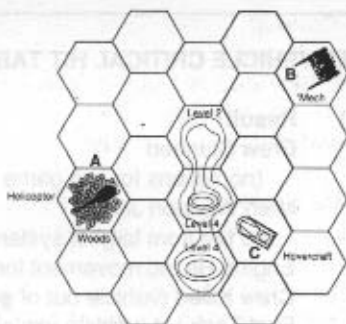
Die Roll (1D6)	Result
1	Crew Stunned (no actions for two game turns)
2	Main Weapon Jams (no fire from largest system for one turn)
3	Engine Hit (no movement for rest of game)
4	Crew Killed (vehicle out of game)
5	Fuel Tank Hit (vehicle explodes)
6	Ammo/Plant hit (vehicle explodes)

VTOL Combat

VTOLs never receive terrain modifier benefits for hexes that they occupy. Therefore, a VTOL's only possible terrain modifier is for fire that passes through a Light or Heavy Woods hex.

VTOLs that expend any MP in a turn are considered to have jumped for Attacker and Target Movement modifier purposes.

VTOLs in flight are at least one elevation above the surrounding terrain. For line-of-sight purposes, the VTOL is at an elevation equal to its current altitude.



The VTOL in the illustration above is at Elevation 3, one level higher than the woods below. The Mech in Hex B can see and be seen by the VTOL. The Hovercraft in Hex C does not have a line-of-sight to the VTOL because of the intervening Elevation 4 hill.

VTOLs may not fire at targets in the same hex.

Once a VTOL has been hit, use the VTOL Location Table to determine where it was hit. Other results may apply as noted on the table.

A VTOL can be destroyed by a critical hit result or by eliminating all of the internal structure boxes in one location. Damage is taken the same way as with a Mech, with damage points first being marked off against armor and then against internal structure.

VTOL HIT LOCATION TABLE

Die Roll (2D6)	Front/Back	Side
2	Rotor Destroyed (roll for critical hit)	Rotor Destroyed (roll for critical hit)
3	Rotor Destroyed	Rotor Destroyed
4	Rotor (-1 MP)	Rotor (-1 MP)
5	Rotor (-1 MP)	Rotor (-1 MP)
6	Armor	Armor
7	Armor	Armor
8	Armor	Armor
9	Armor	Main Weapon Destroyed
10	Rotor (-1 MP)	Rotor (-1 MP)
11	Rotor (-1 MP)	Rotor (-1 MP)
12	Rotor (-1 MP) (roll for critical hit)	Rotor (-1 MP) (roll for critical hit)

VTOL CRITICAL HIT TABLE

Die Roll (1D6)	Result
1	Cockpit Hit, Crew Killed (if landed, VTOL out of action; if flying, VTOL crashes)
2	Main Weapon Jams (no fire from largest system for one turn)
3	Engine Hit (if landed, VTOL may not move for rest of game; if flying over clear, paved, rough, or building terrain, make <i>Piloting</i> Skill Roll to avoid crash; if flying over other terrain, VTOL crashes. If roll successful, VTOL lands in hex. No further movement is allowed.)
4	Cockpit Hit, Crew Killed (if landed, VTOL out of action; if flying, VTOL crashes)
5	Fuel Tank Hit (VTOL explodes)
6	Ammo/Plant hit (VTOL explodes)

If any of a VTOL's internal structure, other than the rotor is destroyed by a crash, the VTOL has exploded. If the VTOL is driven by an ICE, then the hex of the crash will be on fire regardless of the terrain (fuel floats on water and causes a burning slick). If the hex is a woods hex, the hex is considered to have caught fire; use the fire rules as normal. Other terrain will burn for only the next turn and then go out; there is no chance of this fire spreading.

A burning fuel slick in a water hex will affect a Mech in that hex if the hex is Depth 1 or Depth 0. Surface naval vessels occupying a water hex with a burning fuel slick are destroyed as per the normal fire rules. A submarine occupying a water hex with a burning fuel slick is destroyed only if it is at Depth 1 or 0.

Rotor Destruction

If a VTOL's rotor is destroyed while the VTOL is flying, it will crash into the hex that it is currently in. Figure damage in the same manner as falling, with the VTOL's current elevation minus the level of the terrain in the hex being the distance the VTOL fell. Treat all water hexes as Elevation 0.

Physical Attacks against VTOLs

Vehicles may ram only landed VTOLs. Mechs may make normal physical attacks against VTOLs while landed, but, unlike normal physical attacks, a Mech may also physically attack VTOLs that are flying at elevations above the level of the Mech. Use the chart below to discover what type of attacks are allowed.

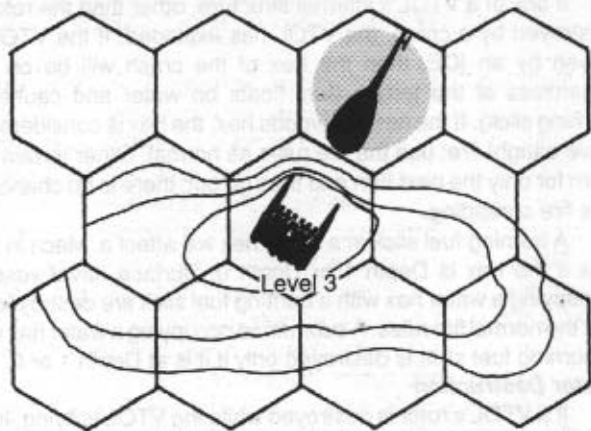
PHYSICAL ATTACKS AGAINST VTOLs TABLE

Elevation Difference between Mech and VTOL	Type of Physical Attack Allowed
-1 or less	None
0	All except Punch
1	All except Kick
2	All except Kick
3	Club and Death From Above only
4+	None

Calculate the elevation difference by subtracting the elevation of the terrain that the Mech is in from the sum of the current elevation of the VTOL. In a charge, the elevation of difference is equal to the VTOL's elevation.

A successful physical attack by a Mech automatically destroys the VTOL's rotor. Rams from vehicles are resolved normally.





A 'Mech is on an elevation 3 hill facing a VTOL that is at Elevation 2 and in a hex with terrain of Elevation 0. The elevation difference between the 'Mech and the VTOL is -1 (2 - 3). The 'Mech may not attack the VTOL. If the VTOL were at an Elevation of 3, then the elevation difference would have been 0, and the 'Mech would have been able to make any physical attack except a punch.

Naval Vessel Combat

NAVAL VEHICLE HIT LOCATION TABLE

Die Roll (2D6)	Front/Back	Side
2	Armor pierced (roll for critical hit)	Armor pierced (roll for critical hit)
3	Armor + engine room/foils Destroyed	Armor + engine room/foils Destroyed
4	Armor + engine room/foils Damaged	Armor + engine room/foils Damaged
5	Armor + Foils (-1 MP)	Armor + engine room/foils Damaged
6	Armor	Armor
7	Armor	Armor
8	Armor	Armor
9	Armor	Armor + Foils (-1 MP)
10	Turret Armor	Turret Armor
11	Turret Armor + Turret Locks	Turret Armor + Turret Locks
12	Turret Armor (roll for critical hit)	Armor pierced (roll for critical hit)

Notes:

Engine room/foils Destroyed = no movement for rest of game
engine room/foils Damaged = -1 MP

Turret Locks = Turret locks in current position and cannot be moved for rest of the game

(If there is no turret, then all turret hits become normal armor hits, except that critical hits remain critical hits.)

NAVAL VEHICLE CRITICAL HIT TABLE

Die Roll (1D6)	Result
1	Crew Stunned (no actions for two game turns)
2	Main Weapon Jams (no fire from largest system for one turn)
3	Engine Hit (no movement for rest of game)
4	Crew Killed (vehicle out of game)
5	Fuel Tank Hit (vehicle explodes)
6	Ammo/Plant hit (vehicle explodes)

Rules for underwater combat with submarines are found in **Optional Rules**.

INFANTRY

While 'Mechs and vehicles are expensive and supplies are limited, there is almost no limit to the number of infantry who, willingly or unwillingly, are thrown into battle. Infantry units do not usually last long fighting 'Mechs, but they can sometimes inflict just enough damage to turn the tide of battle.

There are three types of infantry: foot, motorized, and jump. Foot and motorized units are 28-man platoons, and jump units are 21-man platoons.

INFANTRY UNITS TABLE

Type	MP	Men	Maximum Damage
Foot Infantry			
Rifles	1	28	7
Machineguns	1	28	10
Flamers	1	28	10
Portable Laser	1	28	14
SRMs	1	28	14
Motorized Infantry			
Rifles	3	28	7
Machineguns	3	28	10
Flamers	3	28	10
Portable Lasers	2	28	14
SRMs	2	28	14
Jump Infantry			
Rifles	3	21	6
Machineguns	3	21	7
Flamers	3	21	7
Portable Lasers	2	21	11
SRMs	2	21	11

MOVEMENT

Infantry have no facing and can move in any direction unless blocked by terrain. Infantry must pay the same movement point costs as other units. Infantry may not move into Depth 1 or deeper water and may only climb 1 elevation level per hex. Jump infantry move as per the jump rules for 'Mechs.

In cities, it costs infantry only 1 MP to enter or leave buildings. Infantry units may also climb up interior stairs of buildings to reach different elevation levels by spending 1 MP per elevation level. An infantry platoon counts as one unit for stacking purposes.

COMBAT

Infantry fire and to-hit procedures are the same as for 'Mechs and vehicles. The only difference is that infantry units have a 360-degree arc of fire, and the range of their weapons is severely limited. Following is a table of infantry weapons and their Base To-Hit Numbers by range.

TO-HIT NUMBERS OF INFANTRY WEAPONS

Weapon Type	Range in Hexes						
	0	1	2	3	4	5	6
Rifle	2	4	6	—	—	—	—
MG	2	4	6	8	—	—	—
Flamer	3	4	6	—	—	—	—
Laser	2	4	6	8	—	—	—
SRM	3	4	4	6	6	8	8

Infantry damage is allocated to the target in 5-point groups, similar to the way 'Mech charge damage is figured.

Infantry units use all the same movement and terrain modifiers as 'Mechs and vehicles when calculating the To-Hit Number.

Infantry units take damage in the normal manner except when they are in the open; i.e., in a hex that gives no positive To-Hit modification. In that case, double all damage done to the unit.

Because buildings block line-of-sight, no direct fire at infantry inside a building is allowed. Because infantry are not armored, damage done to buildings is passed on to infantry units according to the table below.

INFANTRY/BUILDING DAMAGE TABLE

Building Type	Damage Suffered By Infantry Unit
Light	3/4 of damage is passed on to unit
Medium	1/2 of damage is passed on to unit
Heavy	1/4 of damage is passed on to unit
Hardened	No damage is passed on to unit

This table is used only when damage is intentionally done to the building; either from shots, physical attacks, or from a 'Mech walking into or out of a building with infantry in it. No unit can fire directly at an infantry unit that is in a building. In such cases, all shots must be made against the building.

If a 'Mech is adjacent to an infantry unit in a building, all attacks, weapons fire, and physical attacks must be directed against the building. If the 'Mech is in the same hex as an infantry unit and in a building, it may attack that infantry unit. The 'Mech may fire at the building in the the same hex, or the 'Mech may make a direct physical attack against the infantry in the building.

Infantry may fire at units in the same hex. All damage done in such an attack will hit the front side of the target.

Recording Damage

The Infantry Record Form consists of six blocks showing the manpower and firepower of each of six platoons. Also included is the firing chart for infantry units. During game set up, a block is devoted to each platoon present. Mark off the rows of the block not in use. As damage is taken, the columns are marked off, one for each damage point suffered.



OPTIONAL RULES

The following rules expand and add more flavor to a **BattleTech** game. Before the start of a game, the players should go through all these rules and agree on which ones they will and will not use.

CLEARING WOODS

Heavy weapons fire can reduce woods from heavy to light or can clear the hex altogether, but this may start a fire in the hex or make the hex rough terrain for movement purposes. Although the 'Mechs have awesome firepower, they do not have enough to alter a rough hex or a clear hex. Small lasers, machine guns, AC/2, AC/5, and SRM 2s cannot be used to clear woods.

When a player wants his 'Mech to clear a woods hex, he announces the target hex during the Combat Phase and then attacks the hex. The To-Hit Number is modified by range and -4 for a stationary target. If the attack is a success, the woods hex is converted.

TERRAIN CONVERSION CHART

Former Terrain	New Terrain
Clear	Clear
Rough	Rough
Heavy Woods	Light Woods
Light Woods	Rough

FIRE

ACCIDENTAL FIRES

If a 'Mech attempts to clear a woods hex, he may start the woods on fire accidentally. To see if this occurs, the player must roll 2D6. If the roll is less than 6, the woods have been set alight.

If a weapons attack against a unit in a woods hex misses and the weapon can be used to start fires or convert terrain, the attacking player must roll 2D6 to see whether or not his attack has accidentally set a fire or changed the terrain in the target's hex. If the die roll is a 2 or 3, the hex is set on fire, and if the roll is an 11 or 12, the woods is cleared. A building may not be unintentionally set on fire or cleared.

INTENTIONAL FIRES

Many of the weapons carried by 'Mechs can be used to start fires in woods hexes. These fires can spread from hex to hex, and they produce heat in 'Mechs that move through or stay in them. Different types of weapons start fires differently.

Flamers

Flamer attacks on a woods hex subtract 4 from their Base To-Hit Number. If the flamer hits, the woods hex automatically is set on fire.

Energy Weapons

Energy weapons fire with the Base To-Hit Number modified by -4. If the energy weapon hits, roll 2D6. If the roll is equal to or greater than 7, the woods hex is set on fire. Small lasers can not be used to start fires.

Missile Launchers

Missile fire modifies the Base To-Hit Number by -4. If the missiles hit, roll 2D6. If the roll is equal to or greater than 9, the missiles set the hex on fire. Two pack short-range missile launchers (and missile-armed infantry) cannot set woods on fire.

Infernos

Units equipped with Infernos may fire at a woods hex, subtracting 4 from the Base To-Hit Number. If the inferno hits, the woods hex is automatically set on fire.

Other Weapons

No other weapons can be used to set woods on fire.

SPREADING FIRES

If fires are started on the mapsheet, they will spread from hex to hex in the direction of the wind. Fires can spread into woods, building, or clear hexes, but they cannot spread into rough or water hexes.

Determining Wind Direction

At the beginning of the game, declare one side of a hex to be Direction 1, numbering the remaining hexsides 2 through 6 clockwise. Roll 1D6. The wind will blow in the direction shown on the die for the entire game.

Determining Spread

During the End Phase of every game turn, the players check to see if the fires currently on the map spread to new hexes. Roll 2D6 for each hex directly downwind of and adjacent to a fire hex. If the roll is equal to or greater than a 7, the fire will spread into that hex. Also, roll 2D6 for each of the two hexes on either side of that hex. If the roll is equal to or greater than 9, the fire will spread into that hex as well.



EFFECTS OF FIRE ON UNITS

During the Heat Phase, a 'Mech that ends its Movement Phase in a fire hex will take an additional 5 heat points and a 'Mech that has moved out of a fire hex will take 2 heat points. A 'Mech whose hex is ignited during the Combat Phase of a turn will not be affected by heat build-up until the next turn, when it accumulates 2 heat points if it moves out of the hex and 5 heat points if it stays in the hex.

Any other unit that ends its Movement Phase in a fire hex (and is at the same elevation) or moves through a fire hex at the same elevation is destroyed unless the controlling player rolls an 8 or better on 2D6.

SMOKE

A fire spreads smoke for three hexes downwind of the fire hex. All attacks from or into smoke hexes are more difficult to make, with a +2 To-Hit modifier. Smoke blocks line-of-sight and is considered to add one level of elevation to the underlying terrain.

FIRE IN THE CITY

Fire in the city is extremely nasty. Luckily, it is more difficult to start them there. When a building takes aimed weapons fire, there is a chance of it burning. Roll 2D6 and consult the following table.

STARTING FIRES TABLE	
Weapon Type	Die Roll To Start Fire
Flamer/Inferno	4+
Energy Weapons	7+
Missiles	9+
Modifiers to Fire Roll	
Light Building	0
Medium Building	+1
Heavy Building	+2
Hardened Building	+3
Spreading Fires in the City	
Hex Downwind	7+
Hex Left or Right of Downwind	9+
Crossing Street	+3 per hex of street

Buildings take a long time to burn. For each turn that a building is on fire, it loses 2 CF. If a 'Mech moves through a burning building, it takes normal fire heat build-up as well as normal damage.

LIMITED INTELLIGENCE

Allow each side to hide a limited number of units on the mapsheet secretly before the scenario starts. These units will remain hidden until they fire or move. Advanced players may also allow these hidden units to move secretly if no enemy unit is in sight.

HIDDEN MOVEMENT

Cities are very confining places, where it is easy to lose sight of enemy units as they turn corners or jump over buildings. Players may wish to simulate these conditions by having a player serve as gamemaster to judge who can actually see whom. Use two identical mapsheets, one for each player. Players move their own units normally, and the gamemaster tells each player secretly which enemy units have been sighted during each turn. That way, 'Mechs can follow each other without being seen, damaged 'Mechs can try to leave the battle scene, 'Mechs can hide in buildings and try for point-blank shots, and many other new battle tactics can be used. An audience will enjoy seeing how close enemy 'Mechs come to each other without the players being aware of it.

Advanced players may wish to devise other systems to simulate hidden movement. Dummy counters and movement plotting are just two ways it can be done.

Point-Blank Shots From Hidden Units

If a unit moves past, or through, a hidden unit, the hidden unit may fire a point-blank shot. This can be done only if the unit was placed in a building as part of the initial game set-up and has not moved or fired. Any or all the unit's weapons can fire, and the range must be one or less hexes. The Base To-Hit Number is not modified for movement, terrain, or range, and it should be 4 for all shots. No physical attacks are allowed. Any damage takes effect immediately, during the Movement Phase. The results of this damage might affect actions for the rest of the turn. A unit making a point-blank shot may perform no other action during that turn.

BASEMENTS

Most buildings have basements. If a heavy 'Mech walked through a light building and crashed through the floor, the resulting damage could be quite severe. On the other hand, a 'Mech might be able to use a basement to gain the advantages of Partial Cover. Use the Effects of Basements Table to determine the various effects connected with basements.

Any vehicle that falls through a basement is trapped there for the rest of the game. It may fire only at targets in adjacent hexes, unless the target is elevated. If the target is elevated, the range increases one hex for each level of elevation above the firing unit. In other words, a target two hexes away must be at least one level higher than the firing unit. Similarly, the vehicle can be shot at only by units that it can hit. The vehicle takes normal falling damage when it falls into a basement. Use the Front/Rear column of the Vehicle Damage Location Table.

A 'Mech that falls through a basement suffers normal falling damage. If it stands up in a basement, it has Partial Cover.

The effects on the following table occur only if the 'Mech's tonnage is greater than the current CF of the building.

EFFECTS OF BASEMENTS TABLE	
Die Roll (2D6)	Effect
2	Double Basement: The 'Mech has fallen 2 levels with all damage going to the legs (use Kick Table, Front/Rear side).
3	Basement: The 'Mech has fallen 1 level with all damage going to the legs (use Kick Table, Front/Rear side).
4	Basement: The 'Mech has fallen 1 level with all damage allocated to the Front/Rear side.
5	No Basement
6	No Basement
7	No Basement
8	No Basement
9	Small Basement: Protects infantry from damage, but traps them if the building is destroyed while they are there. There is no effect for 'Mechs. Vehicles that fall in will not be able to get out.
10	Basement: The 'Mech has fallen 1 level with all damage allocated to the Front/Rear side.
11	Basement: The 'Mech has fallen 1 level headfirst (use Punch Table, Front/Rear side)
12	Double Basement: The 'Mech has fallen 2 levels headfirst (use the Punch Table, Front/Rear side).

GUN EMPLACEMENTS AND IMPROVED POSITIONS

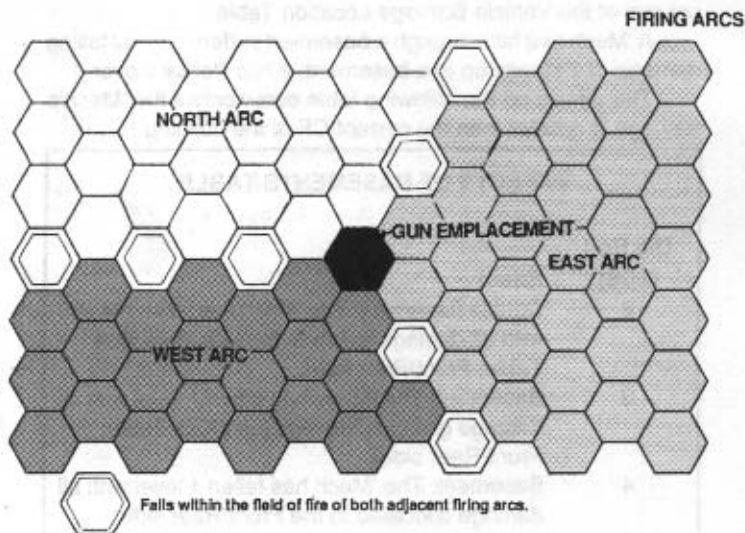
IMPROVED POSITIONS

Given enough time, a defending unit is capable of improving the natural defensive value of the surrounding terrain. At the player's discretion, units that start on the mapsheet may begin the game in improved positions. These field fortifications act as a Light Building with a CF of 15 and are considered permanent terrain features. However, these positions neither affect line-of-sight or movement in any manner, nor do they add any elevation to the underlying terrain. The terrain modifiers for the underlying hex are applied to the units that are in an improved position. At the discretion of the players, units that start in improved positions may use the hidden unit rules.

GUN EMPLACEMENTS

Any type of gun can be housed in a gun emplacement, which is treated as a building with a CF. The building can be any type or be specially designed as per the building construction rules. Within the limitations of the construction rules, any number of weapon systems may be placed in an emplacement. Weapons may be placed in a turret that gives them a 360 degree traverse and firing arc. Turrets have an armor point value that is separate from the CF of the emplacement itself.

Alternately, the weapons may be mounted with a fixed firing arc. There are three arcs, North, East and West, and they are illustrated below.



The North Arc is always oriented toward the north of the mapsheet.

In combat, a gun emplacement is treated as a building of the appropriate CF. However, when fired upon, the gun emplacement uses the following damage table.

GUN EMPLACEMENT DAMAGE TABLE

Die Roll (2D6)	Effect
2	Critical Hit: All Weapons Destroyed
3	Turret Hit and Frozen (or normal damage)
4	Turret Hit (or normal damage)
5	Turret Hit (or normal damage)
6	Building takes damage
7	Building takes damage
8	Building takes damage
9	Turret Hit (or normal damage)
10	Turret Hit (or normal damage)
11	Turret Hit and Frozen (or normal damage)
12	Crew Killed, Weapons Intact

When firing at a gun emplacement, all other rules for firing at buildings are in effect, including To-Hit modifiers and fire damage.

Note that the turret of a gun emplacement has separate armor points from the main building. If the turret takes more damage than it has armor points, the turret and its weapons are destroyed but the remaining weapons in the emplacement can continue to function until the building is rubble.

CARGO AND TROOP CARRIERS

CARGO CARRIERS

While creating a 'Mech or vehicle, a player may devote tonnage to cargo space. This tonnage is considered enclosed and protected by the armor of the vehicle. The vehicle may carry any cargo weighing up to this tonnage without any penalty.

A vehicle or 'Mech may also carry unprotected cargo (in slings, strapped to the top, in light-weight containers, and so on) equal to its tonnage. A vehicle carrying an external cargo weighing from 0 tons to one-quarter its weight loses either 3 MP of its cruising and flank speed or one-half its cruising and flank speed, whichever is less. Loads weighing from one-quarter its weight to full tonnage reduce the vehicle's cruising and flank speeds by one-half.

Any successful attacks on a vehicle that is carrying unprotected cargo also strike the cargo. If the cargo is infantry, the weapon does four times its damage rating. If the cargo is a vehicle or 'Mech, assume that the cargo is facing the same direction as the carrying vehicle. Roll for location and damage as normal. Other cargo is destroyed at a rate equal to one ton per point of damage.

During his movement, the player may expend 1 MP and dump all his cargo. If the hauling vehicle is at ground level, the dropped cargo is just left in the same hex as the vehicle. If the hauling vehicle is flying above ground level, the cargo suffers normal falling damage and lands in the same hex as the hauling vehicle. If the hauling vehicle is operating on the low-altitude map (see **AeroTech**), then all the cargo is destroyed. Jump-capable cargo suffers no damage from falling.

INFANTRY CARRIERS

A platoon of foot infantry takes up three tons of cargo space. A platoon of jump infantry takes up four tons of cargo space. Motorized infantry take up six tons of cargo space.

To mount a vehicle, a platoon must start its Movement Phase in the hex with the vehicle. A platoon may dismount a vehicle only at the end of that vehicle's Movement Phase. It costs the vehicle 1 MP to mount or dismount a platoon. A platoon may mount and dismount a vehicle in the same phase as long as the vehicle has sufficient MP. Infantry may not engage in combat or move during the same turn that has dismounted.

'MECH LIFTING CAPABILITIES

In some situations, a 'Mech may have to lift a piece of equipment and carry it off the battlefield. Only 'Mechs with hands may pick up an object. To pick up an object, a 'Mech must end its Movement Phase in the same hex as the object and may make no weapons or physical attacks. A 'Mech can pick up objects that weigh up to ten percent of its tonnage. While the 'Mech is carrying the object, it cannot fire any arm- or torso-mounted weapons, punch, or use a club; it may charge and kick. In addition, the 'Mech suffers the limitations described in the **Cargo Carriers** section.



NIGHT COMBAT

The lack of light makes it more difficult for 'Mechs and other combat units to target and hit an opposing unit. If combat takes place at night, add an automatic +2 to all Base To-Hit Numbers.

Units equipped with searchlights (*Warhammers* and *Rifle-men*) may elect to turn their searchlights on or off during the Movement Phase. The searchlight-equipped unit will illuminate itself and any unit up to 30 hexes away that is in its line-of-sight and forward firing arc. Attacks against illuminated units disregard the +2 modifier.

When a searchlight-equipped 'Mech is hit in any torso and when a searchlight-equipped vehicle is hit in the front or sides, roll 2D6. On a roll of 7+, the searchlight is destroyed.

ARTILLERY

While setting up a battle, the players may wish for one or both sides to have off-board indirect artillery. In this case, they should use the following new sequence of play.

Initiative Phase
 Targeting Phase
 Movement Phase
 Reaction Phase
 Attack Phase
 Off-board Artillery Fire
 Weapons Fire
 Physical Attacks
 Heat Phase
 End Phase

SET-UP

Prior to setting up units, the players should decide where the Off-Board Artillery is in respect to the BattleTech Mapsheet. Normally, Off-Board Artillery is set up behind where the friendly 'Mechs will set up. Therefore, if the friendly 'Mechs set up on the north side of the map, the Off-Board Artillery is considered to be north of the board. Siting the artillery is important because the location of artillery hits on units is determined by the direction from which the artillery is firing. For example, if the target 'Mech is facing north and the artillery is sited in the north, then use the Front Side Hit Location Table.

After determining the site location, players need to determine how far away the artillery piece is from the mapboard. The distance from the mapboard is expressed in units of 500 meters (the length of one BattleTech Mapsheet). An Off-Board Artillery piece may be sited at any distance away from the map up to its maximum range (see **Artillery Piece Table**). The further away an artillery piece is, the longer it takes for the shell to reach the target. Conversely, the closer the piece is, the greater the likelihood that enemy units can overrun the piece if its side loses the battle (see **Artillery Campaign Rules**). If the players cannot decide on a range, assume that the artillery is sited half its maximum range from the battlefield.

Before play, players using artillery pieces may select up to five hexes on the battlefield map. Artillery fire on these hexes will automatically hit the hex.



TARGETING

During the Targeting Phase, a player with Off-Board Artillery selects and records the map hex numbers that they wish their artillery to fire on. Off-Board Artillery fire is directed only at hexes, not individual targets. Each artillery piece that a player controls may be targeted separately. Note the turn that the artillery fired, the target hex, and the turn in which the shell will land. The turn that the shell will land is equal to the current turn plus the time in flight for the shell. The time in flight for any shell is on the table below.

SHELL TIME IN FLIGHT TABLE

Distance of Firing Piece From Battlefield (Map Sheets)	Time in Flight (Turns)
1-2	1
3-4	2
5-6	3
7-8	4
9-10	5
11-12	6
13-14	7
15-16	8
17-18	9
19-20	10

Artillery that is either far from the fighting or not pre-registered has little chance of doing much damage.

During the Off-Board Fire Phase, artillery rounds landing in that turn are revealed and their fire is resolved. Artillery fire may or may not land in the hex that it was designated to hit. If the target hex is being observed by the same friendly unit since the turn the piece fired, the player may attempt to adjust the artillery piece's subsequent shots at that hex. Artillery pieces that have fired on other target hexes during intervening turns may not adjust fire.

An artillery round has a Base To-Hit Number of 11. Apply the following modifiers.

ARTILLERY MODIFIER TABLE

For each point of the artillery piece gunner's <i>Gunnery Skill</i> less than 4	-1
For each point of the artillery piece gunner's <i>Gunnery Skill</i> greater than 4	+1
For every two points of the observing unit's <i>Gunnery Skill</i> less than 4 (rounded down)	-1
For every two points of the observer's <i>Gunnery Skill</i> greater than 4 (rounded down)	+1
Adjusting fire modifier for each subsequent round that the artillery piece fires at the same target hex (If the target hex is not in the line-of-sight of the same observing unit during any turn, this modifier may not be used.)	-1

If the roll is equal to or exceeds the modified To-Hit Number, the round has hit the target hex; otherwise, the shot scattered. To determine where the scattered shot lands, roll 2D6. The red die gives the direction of the scatter as per the scatter diagram, and the white die gives the number of hexes away from the target hex.

Once an artillery unit hits its intended target hex, it will be able to hit that hex automatically thereafter.



If they wish, players may use the artillery adjustment rules in **MechWarrior** instead of these rules.

DAMAGE

All units and structures in a hex that is hit by artillery are considered to have been hit. Resolve hit location according to the piece's orientation to the units in the hex; the piece is considered to be in the center hex of the map edge where it is sited. Calculate damage from the damage values listed below. Some pieces do damage to adjacent hexes also. All units in those hexes are also hit, and damage is calculated as above but using the adjacent hex damage value.

ARTILLERY PIECE TABLE

Type	Maximum Range	Target Hex Damage	Adjacent Hex Damage
Sniper	12	10	5
Long Tom	20	20	10
Thumper	14	5	2

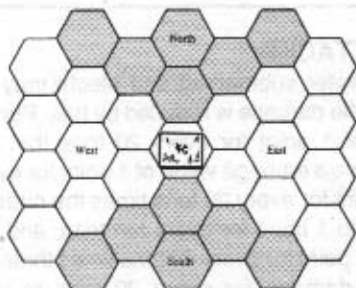


ARTILLERY CAMPAIGN RULES

The artillery train of any military force is a prime target for ground units, air strikes, and counter battery fire. If players wish, they may use the following rules to add more realism to using artillery in **BattleTech**.

AeroSpace Fighters

If the players are using AeroSpace or conventional Fighters and off-board artillery, the Fighters have the opportunity to strafe and bomb the artillery as well as the main battlefield. The battlefield map is considered to be in the center of the AeroTech Mapsheet. The controlling player then writes down the location of the off-board artillery by counting the number of hexes north/south and east/west that the battery is from the main battlefield. Once the artillery has fired, the owning player informs his opponent in which arc (North, South, East, or West) the piece is firing from but not its exact location.



The enemy Fighters may attempt to search for the artillery piece. Instead of firing weapons during the Combat Phase, a Fighter may declare that he is searching the ground in the hex below. If any artillery units are located in that hex, then they are spotted and may be attacked through strafing or dive bombing attacks any time thereafter.

Enemy artillery units within range may also attack spotted artillery pieces. Aircraft that do not make any attacks during the turn that the counter battery fire lands may serve as spotters. This type of fire is plotted and resolved normally.

When counter battery fire is made or enemy Fighters attack, the player owning the artillery may set the attacked artillery units on the map and resolve the attack normally. Alternatively, to speed things up, the players may resolve the attack in the following manner.

For strafing attacks, the Base To-Hit Number is 10, modified by the pilot's *Gunnery* skill. A hit has a damage value equal to the sum of the damage value of all the Fighters' forward-firing weapons. Only one artillery piece in the hex may be attacked. All damage is assumed to have hit the front of the artillery unit.

For dive-bombing attacks, the Base To-Hit Number is 8. The player must declare how many bombs he is dropping and must resolve each attack separately. Resolve attacks normally. Scattered bombs and misses do no damage, and only one hex may be attacked. All damage is assumed to have hit the front of the artillery unit.

When using this system, artillery units may not return fire against aircraft.

Counter battery fire has no effect until the target hex is hit. Resolve damage normally, which is assumed to have hit the front of each artillery unit.

Ground Unit Overruns

As part of the victory conditions for a game with Off-Board Artillery, the players should get points for exiting units off the map side where enemy artillery is located. Exited units would have a chance to close and destroy artillery units close to the battlefield before the artillery has a chance to withdraw. To see if the exited units close with an artillery unit, use the following chart. The attacking player must roll the Success Number or greater on 2D6 to overrun the artillery.

GROUND UNIT OVERRUN TABLE

Range of unit from battlefield (map sheets)	Success Number
1-2	6
3-4	7
5-6	8
7-8	9
9-10	10
11-12	11
13-14	12
15-16	13
17-18	14
19-20	15

Modifiers

Artillery unit spotted	-2
Current walking/cruising speed less than 4	+4
Current walking/cruising speed greater than 8	-2
Per unit less than 4 in the group	+1
Number of turns artillery has been declared withdrawn from battle before the group exited	+1

Exited units operate in groups of any number, and each group's overrun attempt is resolved separately. Roll for each hex that contains artillery units. The first successful roll means that the group has overrun all the artillery units in that hex. The artillery player may set up his units on a BattleTech mapsheet, and the group then enters from the appropriate map edge.

A player may wait until he has formed a group of sufficient size before he starts searching for artillery.

INDIRECT FIRE COMBAT

Units with LRMs or artillery units set up on the board may fire indirectly. Indirect fire allows a unit to fire its weapon at a target without having direct line-of-sight to the target. However, like off-board artillery fire, some friendly unit needs to have a direct line-of-sight to the target. Unlike off-board artillery fire, there is no time in flight, and the attack is resolved as if it were a normal weapons attack. The Base-To-Hit Number is based on the range between target and the firing unit and modified by normal movement and *Gunnery* Skill levels.

LRM indirect fire attacks only one unit in each target hex. The attacker designates the target unit prior to firing. Artillery fire attacks all units in each target hex.

UNDERWATER OPERATIONS

MOVEMENT

Only 'Mechs and submarines may move underwater and only if they are in Depth 2 or deeper water.

Submarines pay 1 MP for each water hex that they enter and 1 MP for each depth level that they change. 'Mech's underwater pay 4 MP and must make a *Piloting Skill Roll* using the appropriate modifiers for each Depth 2 or deeper water hex that it enters. Additionally, the 'Mech must pay elevation change MP for moving from one Depth to another according to the normal movement rules.

LINE-OF-SIGHT

Calculate line-of-sight normally, treating the depth numbers as negatives. Thus, a Depth Level of 1 is a -1 Elevation Level and is 2 elevations below an Elevation 1 Hill ($1 - (-1) = 2$). In underwater combat, if line-of-sight cannot be established between units, those units may not attack one another.

Units that are above the surface of the water or on land may not fire at underwater units. Conversely, units that are underwater may not fire at units that are above the surface of the water or on land. Units at Depth 0, on full land, or underwater may fire on 'Mechs or submarines at Depth 1, and vice versa. However, 'Mechs at Depth 1 may fire only leg-mounted weapons at underwater units. Underwater units firing at a 'Mech in Depth 1 water use the Kick Hit Location Table. Depth 0 or land units use the Punch Hit Location Table. The 'Mech is considered to be partially covered with a +2 To-Hit Modifier (+3 for Partial Cover and -1 for being in water).

WEAPONS ATTACKS

Lasers, PPCs, and Torpedoes are the only weapon systems that may be fired underwater.

Torpedoes are maritime versions of short-and-long-range missiles. Torpedo stats are the same as the stats of their land-based counterparts. However, only a unit that is in a water hex of Depth 1 or deeper may fire torpedoes, and its target must be in a water hex of Depth 1 or deeper. Furthermore, the line-of-sight must be traced through continuous water hexes of Depth 1 or deeper. Units equipped with Torpedo missile racks may not use normal missile ammunition, and missile racks may not use

torpedo ammunition. Lasers and PPCs may be fired underwater, but their range is greatly reduced. Use the following chart for the new ranges.

UNDERWATER WEAPON RANGES

Weapon	Minimum	Short	Medium	Long
Small Laser	0	1	2	N/A
Medium Laser	0	1-2	3-4	5-6
Large Laser	0	1-3	4-6	7-9
PPC	3	1-4	5-7	8-10
Base To-Hit				
Number	0	4	6	8

All targets that are underwater have the normal -1 To-Hit modifier.

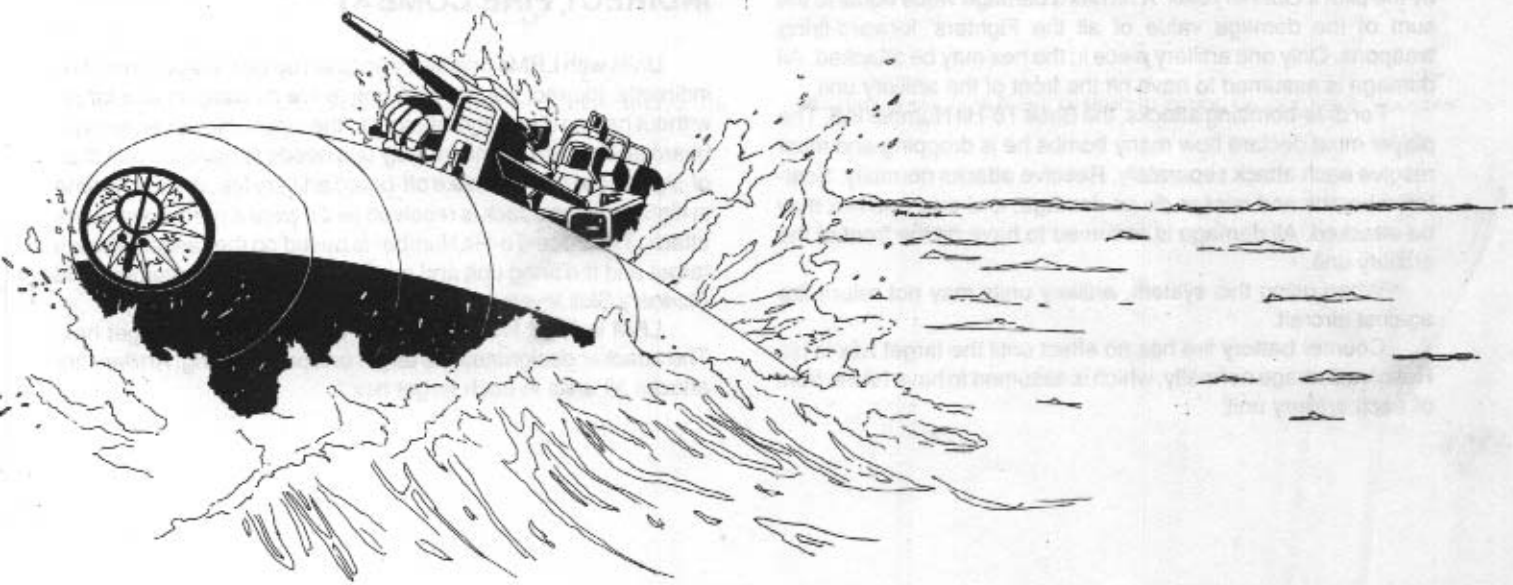
PHYSICAL ATTACKS

While underwater, submarines and 'Mechs may make Physical Attacks, but the damage is reduced by half. Punches have a damage value of 1 point for every 20 tons that the attacker weighs, kicks have a damage value of 1 point for every ten tons, charges do 1 point for every 20 tons times the number of hexes charged, clubs do 1 point for every ten tons, and Death From Above delivers 1 point for every 20 tons times three to the target and 1 point of damage for every 20 tons to the attacker. Submarines may only ram.

'Mechs may make physical attacks against submarines or surface naval vessels doing the above damage. Use the Physical Attacks Against VTOL Table to see what types of attacks are allowed.

HULL INTEGRITY

Whenever a unit that is underwater takes a hit, roll 2D6 to see if the unit's hull has been breached. If the result is 10 or greater, the damaged section has lost integrity and fills with water. For game purposes, treat that section as destroyed. Submarines with a flooded section are considered to have been sunk and destroyed. Damage is not transferred from a flooded section until that section's Internal Structure is destroyed. If all a section's armor is destroyed, that section is automatically considered flooded.



SPECIAL WEAPONS

FLAMERS

Under normal circumstances, a Flamer cannot do heat damage to a target. However, as an optional rule, players may choose to have a Flamer hit add 2 to the target's heat level for that turn, rather than doing two points of damage.

The Flamer given in **BattleTech** is an energy weapon that taps into the superheated plasma of its fusion reactor. Vehicle-mounted Flamers, resembling conventional flamethrowers, are also available. These versions are very inefficient compared to fusion-powered Flamers.

	Heat	Damage	Short	Medium	Long	Tons	Shot/ton
Vehicle Flamer (conventional)	3	2	1	2	3	5	20

INFERNOS

Infernos are special-purpose missiles designed to affect the heat level of enemy 'Mechs. Instead of impacting on the target, an Inferno round explodes in midair, dispersing a highly flammable fluid over the target area.

Any vehicle with an SRM 2-pack or SRM-equipped infantry can carry an Inferno 2-pack instead. The Inferno 2-pack is fired with the same hit probabilities as the SRM 2.

The heat levels of 'Mechs hit by an Inferno increase by 6 points. Because the fluid adheres to the 'Mech's outer armor, this effect lasts for three turns. Furthermore, the target hex is considered to be on fire for three turns, regardless of the terrain. Wood hexes and building hexes are considered to be automatically on fire, and are handled as per the Fire rules.

Heat build-up is different from that published in **MechWarrior**. The reduction results from the difference in scales between the two games. It is assumed that the 'Mech can occupy any of the seven **MechWarrior** hexes that a **BattleTech** hex contains. The 6 heat points is the average damage done to each of the **MechWarrior** hexes.

Only one missile hit is effective. Additional missiles hitting the same 'Mech or target hex only prolong the effect of the first hit.

If all players agree, 'Mech may carry Infernos instead of an SRM 2. However, if the 'Mech's heat level reaches 10, the player must roll a 4 or greater to avoid an Ammo Explosion for the Inferno. When the heat level reaches 14, the avoid number is 6. At level 19, roll for all Ammo Explosion levels, but add 4 to the avoid number of the Inferno Ammo Explosion. If the Infernos do explode, they add 30 points of heat to the 'Mech along with the damage normally received from an SRM 2 explosion.

MINES

There are three forms of mines: command-detonated mines, conventional mines, and Vibrabombs.

Command-Detonated Mines

At the start of play, the defending player designates a set number of hexes to be mined with command-detonated explosives. At any time during the turn sequence, the defending player may detonate any or all these mines. However, he may do so only if a defending unit has a valid line-of-sight to the mines.

The explosives do 10 points of damage to each unit occupying the hex and 4 points of damage to each unit in any adjacent hex. Affected units take the damage in the front, and the Kick Table should be used for 'Mechs. This attack is resolved and the damage takes effect before the turn sequence continues.

Command detonated fields may be exploded only once during a game.

Conventional Mines

At the start of play, the defending player designates a set number of hexes to be a conventional mine field. Whenever any unit enters the hex, it is automatically attacked. The attack is resolved and damage takes effect before the unit continues its movement.

Conventional mines do 6 points of damage to the front of the unit entering the hex. Use the Kick Table for 'Mechs. Unlike the other two kinds of minefields, the conventional field remains active and can make any

number of attacks throughout the game until cleared.

Vibrabombs

At the start of play, the defending player designates a set number of hexes to be planted with Vibrabombs. The Vibrabomb behaves like a conventional minefield with the following exceptions.

Only the unique and considerable vibrations created by an approaching 'Mech can set off a Vibrabomb. Because they are variable in sensitivity, Vibrabombs must be set for a specific mass when placed. Masses ten or more tons lighter than the setting will not detonate the field. Masses more than ten tons heavier will set off the mine at a distance—one hex for each ten full tons heavier. For example, if the bomb were set for 40 tons and a *Marauder* (75 tons) appeared three hexes away, the bomb would explode. A 20-ton *Wasp* walking through the hex containing the bomb would not set it off.

If a unit is in the same hex as an exploding Vibrabomb, its front suffers 10 points of damage. Use the Kick Table if the affected unit is a 'Mech.

A Vibrabomb will explode only once during a game.

Clearing Minefields

Because clearing minefields is a dangerous job, Infantry are usually allocated to do it. If an enemy infantry unit ends its movement in a mined hex, that player must be informed, even if the field has not been detonated.

An infantry unit that has spent one full turn in a mined hex may clear the field instead of attacking during the Combat Phase. If the player rolls a 10 or better on 2D6, then the infantry have successfully cleared the field. A roll of 5 or less means that the minefield has exploded, and the infantry take normal damage. Conventional fields are still active after an accidental detonation, while the other fields are considered cleared.

Alternately, artillery fire may clear the minefield. However, the player must first announce that his artillery is intending to clear the minefield. When the artillery hits the hex, the player should roll 2D6. On a 5 or better, the minefield is cleared.

SMOKE ROUNDS

Instead of conventional rounds, artillery units may fire smoke rounds. When a smoke round hits, the target hex is smoked, and, if the artillery unit normally does damage to adjacent hexes, those hexes are smoked also. Attacks into or out of a smoked hex receive a +2 To-Hit modifier. Smoke increases its hex's elevation level by one and blocks line-of-sight.

Smoke from artillery rounds is dispersed three turns after it lands.

EJECTION

When the MechWarrior must leave his 'Mech in a hurry, he can use his cockpit ejection system. Once the system is activated, explosive bolts blow away the cockpit canopy, and the pilot is rocketed away from the now-disabled 'Mech. The ejecting MechWarrior will land in the hex immediately behind the 'Mech (some 'Mechs eject their pilots forward instead). Some 'Mechs are equipped with sensors and will automatically eject a MechWarrior whose ammo is exploding. However, because it is possible for a 'Mech to survive an ammo explosion, many MechWarriors disable this feature.

During the Movement Phase, a player can have the MechWarrior eject instead of moving. If operational, the auto-eject function will eject the pilot at the end of the Combat Phase.

Ejection can be dangerous, and the pilot may suffer damage upon landing. A successful *Piloting Skill Roll* is required to prevent damage. Modify the skill roll by the following circumstances.

MECHWARRIOR LANDING MODIFIERS

Landing Terrain

Clear	-2
Water	-1
Rough	0
Rubble	0
Light Woods	+2
Heavy Woods	+3
Per Level of Building	+1

Situation

'Mech Prone	+5
(ejection impossible if on back)	
Pilot Unconscious	+3
Per 'Mech Head Hit	+1
Automatic firing	+1

If the roll fails, the pilot takes 1 point of damage and must make a consciousness roll.

A conscious pilot may move at the rate of 1 MP per turn as an infantry unit. In addition, he may be fired at as if he were an infantry unit, though with a +2 To-Hit modifier. If the pilot ends his Movement Phase with any non-Mech unit (friendly or enemy), the pilot is considered to have been picked up. Pilots picked up by friendly units that survive the battle or those who manage to move off the board have survived the battle and can be used again in future games. Captured pilots may be ransomed if the players wish.

REPAIRING 'MECHS

After each battle in an extended campaign, MechWarriors will normally have an opportunity to repair some portion of the damage their 'Mechs have sustained. The extent of the repair immediately following a battle depends on several factors, including the availability of repair materials in the lance's or company's supplies, the relative difficulty of the repair attempted, and the time that the unit can devote to the repair.

MATERIAL AVAILABILITY

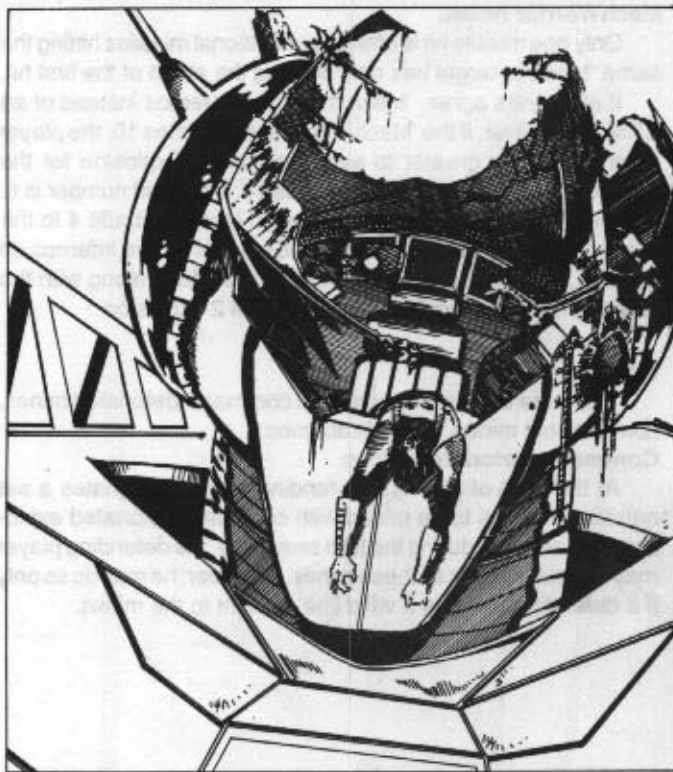
During the creation of 'Mech units, players may acquire stockpiles of 'Mech replacement parts. Over time, units will deplete these stores in making repairs and may supplement them with booty from raids, parts scavenged from defeated enemy 'Mechs, supplies received as wage or payment, or through the rare cash purchase from House stockpiles. Generally, a 'Mech unit can make repairs only when it has the necessary spare parts, but highly skilled repairmen may be able to surmount even this formidable obstacle.

REPAIR DIFFICULTY

Repair rolls for a damaged area may be attempted only once per Time Required period. A failed repair roll leaves the 'Mech in the same condition as it was prior to the attempt. Thus, if a 'Mech with an engine critical hit fails its repair roll, the 'Mech could still operate, but would continue to generate 5 points of heat per turn, and would have only 2 points of shielding left.

To determine the total amount of time required to repair a 'Mech, simply add up the time requirements for each repair needed (note that if there are three 'Mech sections that need armor restoration or two separate engine critical hits, an equal amount of time will be required for each). Players and gamemasters should remember that a repair takes the same amount of time whether it succeeds or not.

Roll 2D6 on the following table to determine if the part has been completely or partially repaired.



REPAIR DIFFICULTY TABLE

Damage	Completely Repaired	Partially Repaired	Effect of Partial Repair	Time Required (Minutes)
Body Segment Destroyed	11+	—	—	240
Body Segment Blown Off	9+	—	—	180
Internal Structure Damage	6+	—	—	90
Critical Hit/Life Support	7+	—	—	120
Critical Hit/Sensors	8+	5-7	+1 To-Hit	150
Critical Hit/Engine	7+	4-6	+3 Heat/Turn	300
Critical Hit/Gyros	9+	6-8	+2 to <i>Piloting Level</i>	240
Other Critical Hits	5+	—	—	120
<i>Damaged Weapons</i>				
1 Critical Location hit	5+	4-5	Must be replaced	100
2 Critical Locations hit	6+	3-5	Must be replaced	150
3 Critical Locations hit	8+	2-5	Must be replaced	200
4+ Critical Locations hit	10+	2-10	Must be replaced	250
Armor Damaged	6+	3-5	1D6 armor lost permanently	30
Ammo Reload	3+	—	—	15
Heat Sink	7+	4-6	1/2 Effect	120

ANTI-'MECH INFANTRY

Some mercenary units (notably the Gray Death Legion) have been training infantry in anti-'Mech tactics. The infantry is trained to close with a 'Mech, plant satchel charges in strategic locations on the legs where, hopefully, the explosion cripples the 'Mech. This dangerous tactic requires highly skilled and dedicated troops, but it can turn the tide of battle quickly.

Anti-Mech infantry platoons that start a Combat Phase in the same hex as a 'Mech may attack the 'Mech using anti-'Mech tactics rather than normal weapons. The infantry unit's Base To-Hit Number is modified normally by movement and terrain. If using the Point-Blank Shot rule, the 'Mech must be in the same hex and the To-Hit Number is *not* modified by movement or terrain.

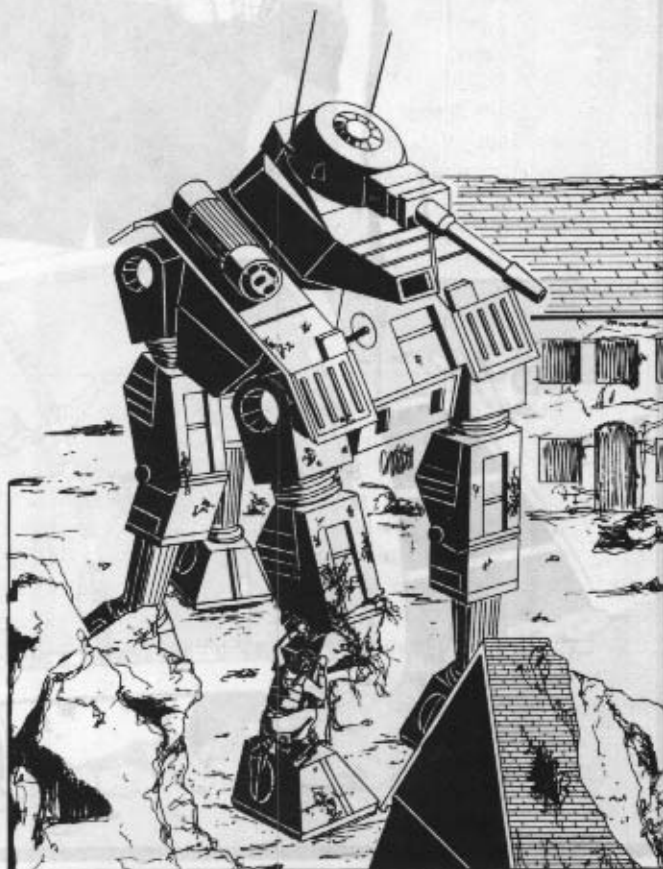
The Base To-Hit Number depends on how many men are left in the unit. The more men, the greater the chance of success. Use the table below to determine the Base To-Hit Number.

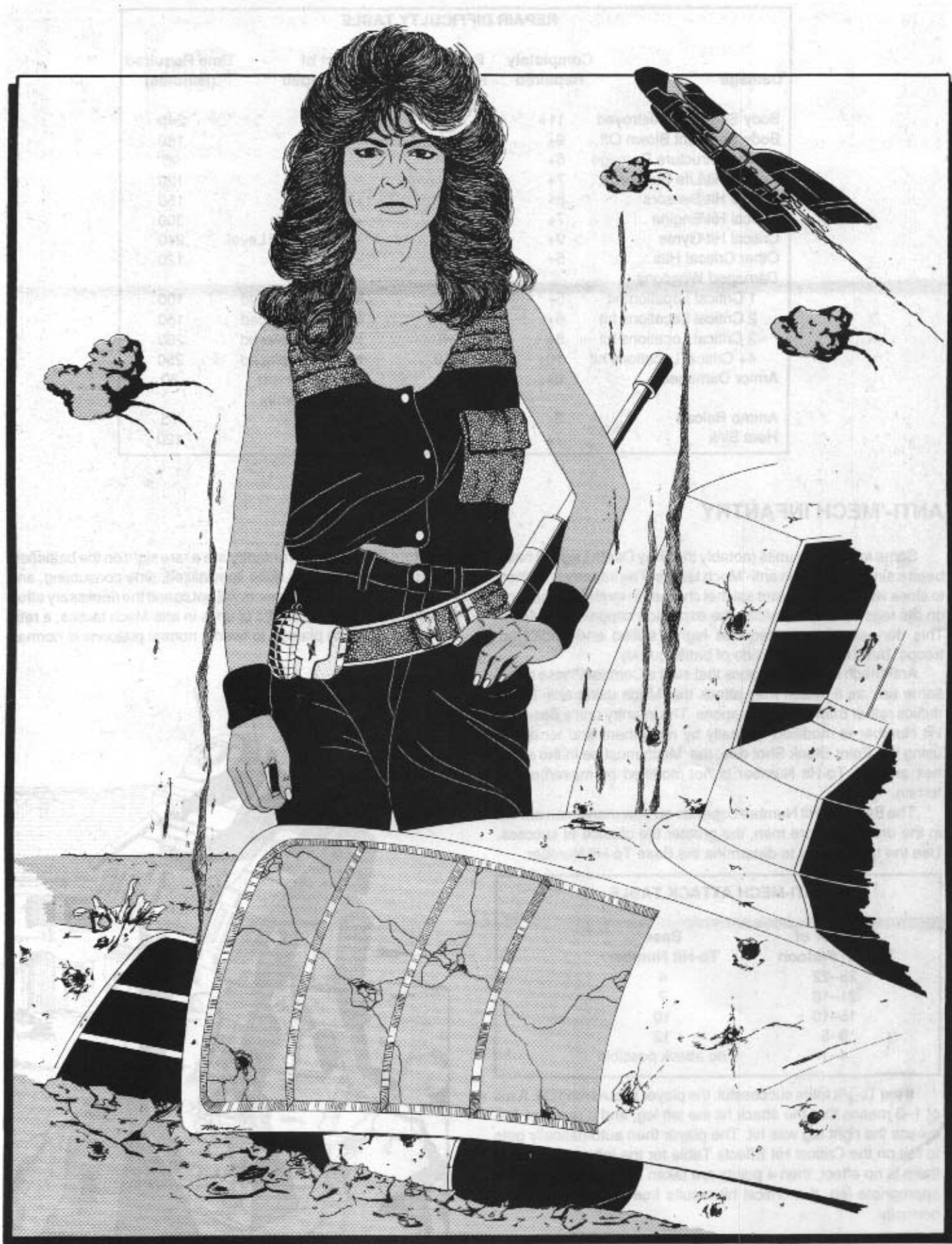
ANTI-MECH ATTACK TABLE

Number of Men in Platoon	Base To-Hit Number
28-22	4
21-16	7
15-10	10
9-5	12
4-1	no attack possible

If the To-Hit roll is successful, the player should roll 1D6. A roll of 1-3 means that the attack hit the left leg, and a result of 4-6 means the right leg was hit. The player then automatically gets to roll on the Critical Hit Effects Table for the left or right leg. If there is no effect, then 4 points are taken from the armor of the appropriate leg. If a critical hit results from the roll, resolve it normally.

Note that anti-'Mech infantry are a rare sight on the battlefield because the training is quite specialized, time consuming, and expensive. Most governments will not spend the necessary effort to train more than a handful of units in anti-Mech tactics; a ratio of one anti-'Mech platoon to twenty normal platoons is normal.





AEROTECH™

THE BATTLETECH GAME OF FIGHTER COMBAT



COMPONENTS

AeroTech represents combat between single AeroSpace Fighters, conventional atmospheric Fighters, and DropShips. Below is a description of the various combat units from the **AeroTech** battlefield, along with a description of the record sheets and maps needed to play the game.

COUNTERS

AEROSPACE FIGHTERS

AeroSpace Fighters are space-borne analogs of 'Mechs. Heavily armored and equipped with weapons every bit as deadly as a 'Mech's, these craft are equally at home in either interplanetary space or the atmosphere of a planet. A single AeroSpace Fighter, using its speed and massive firepower, has turned many proud 'Mech lances into smoking wreckage.

CONVENTIONAL FIGHTERS

Conventional Fighters see limited use in the Successor States. Confined to the lower atmosphere of a planet and requiring extensive modifications to allow them to operate on planets for which they were not built, prop and jet-turbine aircraft are used almost exclusively as garrison forces or support for "low-intensity" warfare ('Mechs are high-intensity equipment). When properly deployed, however, a force of Conventional aircraft can seriously disrupt a 'Mech drop or chew up an AeroSpace Fighter lance. Additionally, conventional recon aircraft provide a planetary commander with the information necessary to commit scarce 'Mech forces at critical locations on the battlefield.

DROPSHIPS

DropShips are the large, heavily-armed craft that transport combat units from the system jump points to their target planets. Once in close orbit around its target, a DropShip can enter the atmosphere, launch Fighters, or drop 'Mechs onto the planet.

LAMS

Short for Land-Air-'Mech, the LAM can change its form to become an AeroSpace Fighter, a BattleMech, or a hybrid of the two. While not as powerful on a ton-per-ton basis as their specialized cousins, LAMs bring unmatched mobility and flexibility to the battlefield commander.

RECORD SHEETS

The Fighter Record Sheet shown in the diagram is used to keep track of the condition of both types of Fighters during the game. DropShips have their own Record Sheet specifically designed for each type. LAMs use the 'Mech Record Sheet. The different sections of the Fighter Record Sheet are discussed below.

The large diagram at the top right corner of the page is the Armor Diagram, which shows the arrangement of the armor plating on the Fighter. As weapon hits destroy the armor, the circles are checked off.

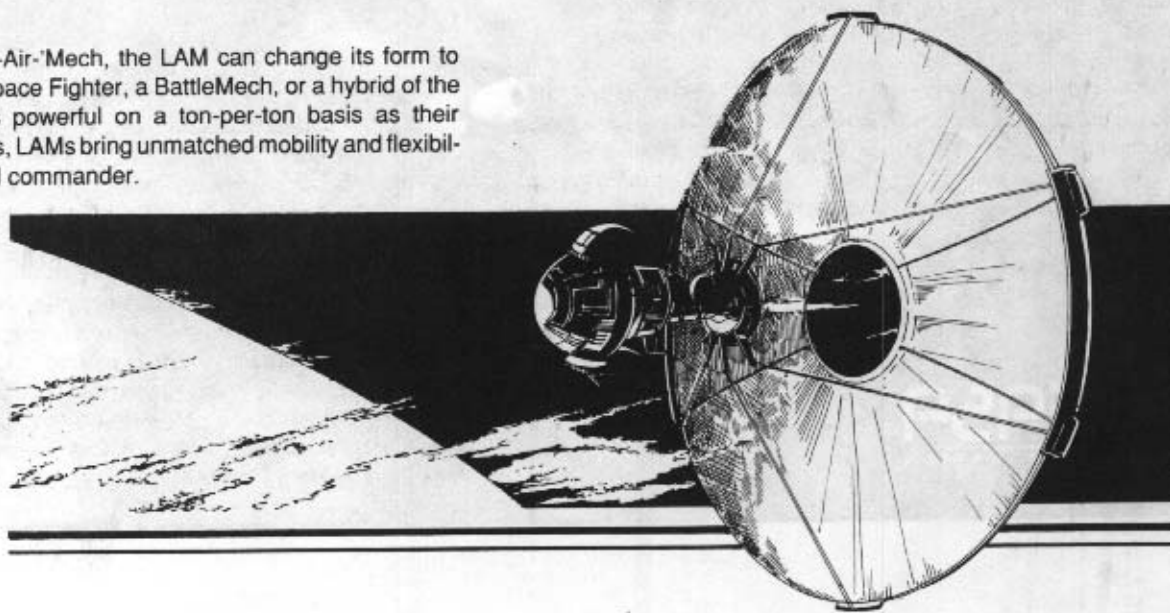
Located in the upper left corner, the Fighter Data section of the Record Sheet lists all the Fighter's important statistics, including its type, tonnage, structural integrity, and thrust ratings. Also included is a heat sink check-off list.

Pilot Data appears below Fighter Data and lists the name, skills, and condition of the Fighter pilot.

Use the Velocity Record to keep track of the Fighter's velocity as it changes from one game turn to the next. The columns represent the Fighter's beginning velocity, the number of thrust points spent during a turn, the Fighter's ending velocity, and the amount of fuel remaining. Depending on the Pilot's actions during the game turn, these numbers may or may not change. Any movement restrictions should be noted next to the turn number during which the restriction will be in effect.

A column of numbered boxes, the Heat Scale is used to keep track of the internal heat build-up in each Fighter. As heat builds up, check these boxes off from low to high. The comments beside the boxes describe the effect that the heat level has on the Fighter's operation. Only AeroSpace Fighters use this Heat Scale. Because of their flimsy structure, Conventional Fighters can dissipate their excess heat caused by weapon firing.

Equipment Data contains four sections showing where weapons and ammunition can be stored on a Fighter, and the locations also tell which firing arc each weapon covers. When a weapon is destroyed or when all its armor has been checked off in one location, the affected area or weapon is simply crossed off and can no longer be used.



AeroTech
Space Fighter Record Sheet

NAME: _____
 CREW: _____
 CREW TYPE: _____
 CREW SKILL: _____
 CREW QUAL: _____
 CREW TYPE: _____
 CREW QUAL: _____
 CREW TYPE: _____
 CREW QUAL: _____

HEAT SCALE

HEAT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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LEONARD CLASS REPORT

NAME: _____
 CREW: _____
 CREW TYPE: _____
 CREW SKILL: _____
 CREW QUAL: _____
 CREW TYPE: _____
 CREW QUAL: _____
 CREW TYPE: _____
 CREW QUAL: _____

HEAT SCALE

HEAT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
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TERRAIN

The few types of terrain that exist in the air or in space are explained below.



Open Space

These empty hexes are open space. They do not affect on anything.



Atmosphere

Most planets have some sort of atmosphere. Atmospheric hexes make weapons fire more difficult, and movement within atmosphere is much different from movement in space. Entering an atmospheric hex from space is a difficult operation that requires a *Piloting Skill Roll*.

Gravitational Effect Hexes

These hexes show the effects of gravity on the movement of AeroSpace craft and contain either a gray arrow or a blue arrow. A craft ending its turn on a gray arrow hex may be pulled towards the planet by gravity. A craft moving through or ending its turn on a blue arrow hex may be pulled and turned toward the planet.



Planets

Planet and moon hexes are the only type of terrain that will block line-of-sight and weapons fire. To land on a planetary hex requires several skill rolls. If care is not taken during landing, the meeting with the earth/air interface can be fatal.



MAPSHEET

The AeroTech Mapsheet is a grid of six-sided areas called hexes. These hexes are used to regulate movement and combat, with Fighters and DropShips moving from hex to hex. Hex maps help make movement more realistic because they provide six possible movement directions instead of the four possible with square grids.

Each hex on the space side of the mapsheet is roughly 6,500 kilometers across (about 4,000 miles), and each turn represents one minute.

The reverse side is used for low-altitude Fighter combat. Each hex on that side is roughly 500 meters across (about three-tenths of a mile) or about the same as one BattleTech Mapsheet. Each turn at this scale lasts ten seconds.

DICE

AeroTech uses two standard, six-sided dice. During the game, sometimes only one die is rolled (1D6), and sometimes both are (2D6), either one at a time or both together.

GAME SET-UP

To start the game, lay out the Space Mapsheet on a table or some other surface that offers all players easy access. Next, fill out Fighter Record Sheets for each Fighter involved in the battle. The players can use the statistics for the various Fighter types described in **AeroTech** or the **Technical Readout: 3025**, or they can create their own designs using the system found in the **Construction** chapter.

Once the players have chosen sides, they must determine the objectives for their team. These may range from driving off an enemy landing force to landing a number of 'Mechs or DropShips on a certain planetary hex. Having decided their objectives, each group of players places its units on the mapsheet and notes beginning velocities. Then they follow the sequence of play until one side or the other meets its objectives and is declared the winner.

PLAYING THE GAME

PILOTS

The human soldiers who control AeroSpace Fighters, Conventional Fighters, and DropShips are called Pilots. Their skills play an important role in keeping a craft moving and fighting. If its Pilot is killed or seriously injured, a craft will be knocked out of commission, even though actual damage to the craft may be light.

PILOT SKILLS

Two skills are important to a Pilot in combat: *Piloting* and *Gunnery*. Average Pilots have a *Piloting* Skill Level of 5 and a *Gunnery* Skill Level of 6.

Piloting Skill helps determine the outcome when a Pilot attempts to push the design features of his craft, such as when entering the atmosphere. *Gunnery* Skill helps determine how easy or difficult it is to make a successful shot with the craft's weaponry. These two skills are discussed in detail in the **Movement** and **Combat** sections.

Piloting Skill Rolls

Piloting Skill Rolls are resolved in the same manner as in **BattleTech**. The player adds the indicated modifiers to his pilot's *Piloting* Skill Level (normally 5). The resulting number is the *Piloting* Skill Roll Target number. Then the player rolls 2D6.

If the roll is equal to or greater than the Modified *Piloting* Skill Level, the action was successful, and no adverse effect occurs. If the roll is less than the modified *Piloting* Skill Level, then the indicated effect takes place.

Gunnery Skill Modifier

The *Gunnery* Skill modifier is calculated the same way as in **BattleTech**. For every *Gunnery* Skill Level above or below 6, the *Gunnery* Skill modifier to the Base To-Hit Number is increased or decreased by 1. The lower the *Gunnery* Skill Level, the lower the Modified To-Hit Number.

Varying Skill Levels

As an optional rule, the players could roll randomly at the beginning of the game for the *Piloting* and *Gunnery* skills of every Pilot. This will produce an interesting mixture of green and seasoned Pilots. Roll D6 twice for the Pilot's *Piloting* and *Gunnery* skills, and compare the results to the table below.

PILOT SKILLS TABLE

Die Roll	<i>Piloting</i> Skill	<i>Gunnery</i> Skill
1	6	7
2	6	6
3	5	6
4	5	6
5	4	6
6	4	5

Skill Improvement

Players may want to use the Pilots they created in future games or campaigns, assuming that the Pilot survives the current battle. To do this, the players should keep track of the number of enemy craft destroyed by each surviving Pilot. For every five craft he kills, the Pilot can improve his *Piloting* skill or, for every ten craft he kills, his *Gunnery* skill. Once the player decides to improve *Gunnery* skill, the next ten kills must go toward improving that skill. Pilots cannot trade *Piloting* skill points for *Gunnery* skill points. Whether he chooses *Piloting* or *Gunnery*, the player improves the skill by subtracting 1 from the current skill level.

DAMAGING A PILOT

There are four ways of damaging an AeroSpace Fighter Pilot: cockpit hits, high thrust maneuvers, internal ammunition explosions, and heat. (Only cockpit hits and high-thrust maneuvers can damage Conventional Fighter Pilots.) A Pilot can take 6 points of damage before dying, but it is very possible he will be knocked unconscious long before taking that much damage. Every time the pilot is damaged, the player must roll 2D6 and consult the Consciousness Table to see if the Pilot remains conscious.

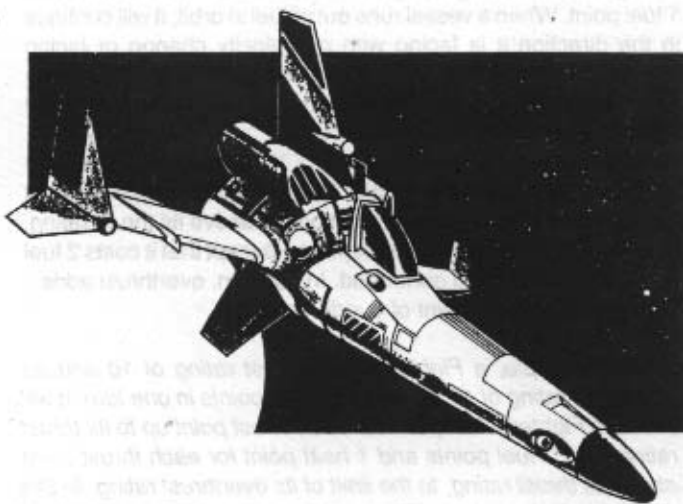
AEROSPACE CONSCIOUSNESS TABLE

Total Damage	Consciousness Number
0	3
1	3
2	5
3	7
4	10
5	11
6	Dead

If the die roll is equal to or greater than the Consciousness Number, the pilot remains conscious. If the roll is less than the Consciousness Number, the pilot is knocked unconscious, his craft cannot thrust or fire, and it will drift at its current velocity. The pilot must remain unconscious for one complete turn. During the End Phase of the turn after he lost consciousness, the Pilot rolls again. If this roll is successful, the Pilot regains consciousness and does not have to roll on the Consciousness Table unless he is hit again.

Cockpit Hit Damage

The Pilot takes 1 point of damage whenever the cockpit of his AeroSpace or Conventional Fighter is hit. If the hit penetrates the cockpit armor, the pilot is automatically killed. DropShips take damage to the bridge rather than the cockpit. See the **Combat** section for effects of a bridge hit.



High-Thrust Maneuver Damage

Whenever the pilot applies thrust that exceeds his craft's structural integrity, he must make two *Piloting Skill* Rolls: one for Structural Integrity Loss and one for Pilot Blackout. The roll for structural integrity is explained in the **Movement** section. The Pilot Blackout roll is based on *Piloting Skill* Level and the following table:

BLACKOUT TABLE		
Thrust Spent	Pilot Condition Damage points taken	Piloting Modifier
1		-7
2		-6
3		-5
4		-4
5		-3
6		-2
7	0	-1
8	1	0
9	2	+1
10		+2
11	3	+3
12		+4
13	4	+5
14		+6
15	5	+7

As shown on the table, the Pilot's Skill Level is modified by both the thrust of the maneuver and the Pilot's condition.

If the Blackout Roll fails, the pilot is unconscious. Consciousness can be regained in the normal way. If the Pilot has not taken any damage, then there is no further effect. However, if the pilot has taken hits he must immediately roll against his current Consciousness Number. If the roll succeeds, then the Pilot can try to regain consciousness in the normal manner. If the roll fails, the pilot suffers another hit and must try to regain consciousness at this new number.

A Pilot may attempt to regain consciousness from a blackout during the End Phase of the current turn. However, a Pilot who is unconscious from damage may not attempt to recover until the End Phase of the next turn.

Ammunition Explosion Damage

An internal ammunition explosion gives the AeroSpace and DropShip Pilot 1 point of damage due to physical and electrical shocks. Ammunition explosions do not affect Conventional Fighter Pilots.

Excess Heat Damage

When heat builds up in an AeroSpace craft, it can affect the Pilot. The trigger points and avoid rolls are noted on the Heat Scale of the Fighter Record Sheet. If an avoid roll fails, the pilot takes 1 point of damage and must make the normal roll against the Consciousness Table.

For example, a healthy pilot makes a 13 thrust maneuver in one hex during his movement. This exceeds his craft's current structural integrity and so requires a *Piloting Skill* Roll. His *Blackout Roll* is figured as follows: (*Piloting Skill* Level of 5 + *Thrust* Modifier of +5 + *Pilot Condition* Modifier of -1 = 9). To prevent blackout, the Pilot must roll a 9 or better on 2D6. Failure results in blackout, which lasts until the End Phase of the current game turn, when he can attempt a *Consciousness* Roll.

SEQUENCE OF PLAY

INITIATIVE PHASE

1. One player from each side rolls 2D6 to determine his team's initiative. The team with the higher roll has the initiative throughout the turn.

MOVEMENT PHASE

2. The team that lost the initiative chooses one craft and moves it first.

3. The team that won the initiative moves one craft, and movement alternates until all craft have been moved. The team that won the initiative moves one of its craft last. Each side must move its DropShips before moving any other craft. Although movement should alternate, at times one side may have to move more than one craft during its move so that each side ends movement at roughly the same time. Neither side should move a large number of pieces at one time because of numerical differences in the teams.

ATTACK PHASE

4. The team that lost the initiative chooses a craft that will declare fire first. The player controlling that craft declares any attacks he plans to make using his craft's weaponry.

5. The team that won the initiative chooses a craft that will declare fire next. The player controlling that craft declares his attacks. Players alternate declaring targets until all fire has been declared. The team that won the initiative declares the last attack.

6. Weapons fire is resolved one craft at a time. As all combat is considered simultaneous, the order of firing does not matter. Note that all the weapons attacks by one craft should be resolved before those of any other craft are resolved.

7. Damage from weapons attacks takes effect. Record damage as attacks are resolved, but the damage does not affect the craft until after ALL weapons attacks have been resolved. At that point, all damage takes effect immediately.

HEAT PHASE

8. Players adjust the Heat Scales of their AeroSpace Fighters to reflect any heat built up or lost during the game turn. Any temporary or permanent damage caused by excessive internal heat occurs at this time.

END PHASE

9. Players whose Pilots were wounded or unconscious this turn now roll to see if consciousness is regained or maintained.

10. Players roll to see if any temporary movement or fire restrictions can be removed. Restrictions that began in this turn cannot be removed until the next turn.

The above steps are repeated until only one team's craft are left. The team with the last surviving craft is the winner. If the last craft from each team is destroyed simultaneously, the game is a tie. Meeting the objective of a scenario may also end the game.

MOVEMENT

In space, there is no friction to slow down a craft. An AeroSpace Fighter or DropShip will travel in a straight line with no change in velocity unless some outside force acts on the craft. Gravity and thrust are the two most important forces that affect the movement of AeroSpace Fighters and DropShips.

Craft change their position on the Space Mapsheet by using two different types of movement: normal thrust and overthrust. The only difference between these two types of movement is the number of thrust points available in that turn and the cost of those points. However, a craft's velocity is limited only by the size of the playing area. A craft must always move the number of hexes equal to its velocity. If forced off the mapsheet, the craft is out of the game. Care must be taken when travelling at high velocities because of the high thrust cost for turns.

FACING

Every hex on the map has six edges, called hexsides. In **AeroTech**, every Fighter and DropShip must face one of these six hexsides. The ship's facing is considered to be toward the direction its bow or nose is pointing. Affecting both its movement and its combat, a Fighter's facing can be changed only during the Movement Phase.

TYPES OF MOVEMENT

Each vessel is rated in three important categories: thrust, overthrust and Structural Integrity (SI). These ratings determine the maneuverability of any Fighter or DropShip.

Thrust

Thrust is used to make vector changes or turns. The velocity of the vessel (i.e., the number of hexes it will move in one turn) determines the amount of thrust needed to make a 60-degree, or one-hexside, facing change. It costs much more to make a facing change when moving at high velocities. Each thrust point costs 1 fuel point. When a vessel runs out of fuel in orbit, it will continue in the direction it is facing with no velocity change or facing change allowed. The effects of running out of fuel while in the lower atmosphere is described in the **Movement At Low Altitude** section.

Overthrust

Normally 1.5 times the thrust rating (rounded up), overthrust is the Fighter's ability to get thrust points above its thrust rating. Overthrust points are like thrust points, except that it costs 2 fuel points per thrust point generated. In addition, overthrust adds 1 heat point for every point of overthrust used.

For example, a Fighter with a thrust rating of 10 and an overthrust rating of 15 spends 13 thrust points in one turn. It will cost this Fighter 1 fuel point for each thrust point up to its thrust rating, and 2 fuel points and 1 heat point for each thrust point above its thrust rating, to the limit of its overthrust rating. In this case, the total cost to the Fighter will be 16 fuel points and 3 heat points.

Structural Integrity

Initially, the Structural Integrity (SI) of a vessel is equal to its thrust rating or its tonnage divided by 10 (rounded down), whichever is greater. The SI rating is a measure of how much stress and strain the craft can take when maneuvering. It is also a measure of the craft's condition. When a vessel's SI is reduced to 0, the craft breaks up; however, the wreckage may continue to drift in space.

Whenever a Pilot attempts a maneuver or series of maneuvers requiring thrust points higher than his craft's SI rating, he must make a *Piloting Skill Roll*, which is modified by the number of thrust points exceeding the current SI Rating. If the roll fails, the craft loses one SI point, and completes the maneuver. In space, this *Piloting Skill Roll* is made only when the required number of thrust points are spent in one hex. Any thrust spent in acceleration or deceleration is also included. A second *Piloting Skill Roll* is required to see if the pilot blacks out. This procedure is explained in the **High-Thrust Maneuver Damage** section of the **Pilots** section.

For example, a Fighter with an SI of 10 and a current velocity of 10 makes two turns (8 thrust points) and then accelerates 5 (5 thrust points) all in the same hex for a total of 13 thrust points. This exceeds his current SI. The Piloting Skill Roll required is 8 (Piloting Skill Level 5 + 3, the difference in thrust and current SI, = 8). The Pilot must roll 8 or greater on 2D6 to avoid losing 1 SI point.

STACKING

While in the air, any number of friendly or enemy 'Mech cocoons, Fighters, and DropShips may stack together.

VELOCITY

Actual movement in space is simply a matter of checking the craft's initial velocity to see how many hexes must be moved and how much thrust it costs to change facing by one hexside. Thrust points may also be spent in increasing or decreasing velocity. Any acceleration or deceleration must be done as either the very first part of movement or the very last. The craft may accelerate or decelerate only once per turn and may not split any velocity change between the first and last part of the craft's movement. In addition, no craft may turn in place; all must move at least one hex forward before spending any thrust on maneuvers. This includes ships with 0 velocity, which must accelerate at least to a velocity of 1 before spending thrust to change facing.

If a craft accelerates or decelerates at the beginning of its turn, its velocity for the whole turn is the new number. If a craft accelerates or decelerates at the end of its turn, only its ending velocity changes. It cannot move more or less than its beginning velocity. A Fighter's velocity can never drop below 0, and thrust spent on changing a Fighter's velocity can never be used to change its facing or heading. A craft may change its velocity by as much as its current overthrust rating.

A Fighter with a thrust rating of 5, overthrust rating of 9, and a current velocity of 7 needs to make three turns in order to fire at an enemy DropShip. Checking the Thrust Point Cost Table, the Pilot finds that he needs 12 thrust points to make the required turn at his current velocity. His Fighter is not capable of making this series of maneuvers. However, by decelerating to 5, the cost per turn drops to 2 thrust points, thus making the maneuver possible. (2 decelerations + (3 x 2 thrust per turn) = 8 thrust points).

THRUST POINT COST TABLE

Velocity	Thrust Point Cost Per Hexside Facing Change
0	Not Allowed
1-5	2
6-10	4
11-15	6
16-20	8
21-25	10
26-30	12

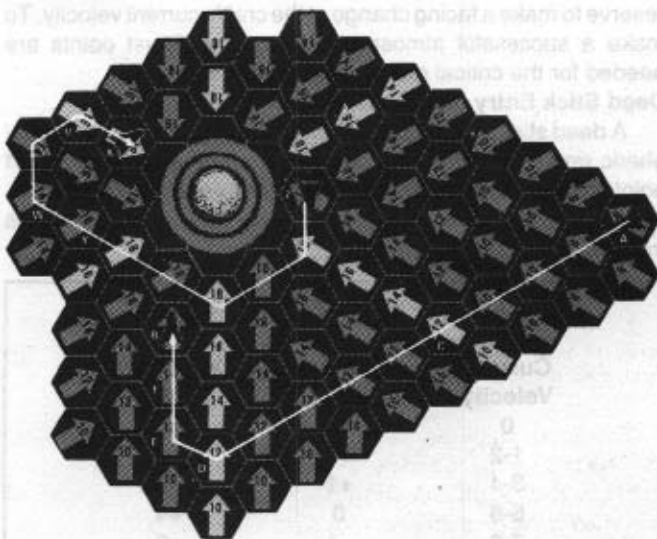
GRAVITY

Movement and maneuvers in space would be very easy and basic except for the effects of gravity. Planets and moons exert varying gravitational forces at various distances, as noted by the arrows on the Space Mapsheet. The arrows force changes in facing and other movement dislocations that Pilots must either counteract or take advantage of.

Gravity Arrows

There are two types of gravity arrows: blue and grey. Grey arrows affect only those craft that end their movement in a grey arrow hex. If a craft ends its movement in a grey arrow hex and its ending velocity is equal to or less than the number of the arrow, the craft is displaced one hex in the direction of the arrow. There is no facing change. However, if the craft's ending velocity is greater than the number of the arrow, there is no effect.

Blue arrows have the same effect as grey arrows, with one addition. Whenever a craft enters a blue arrow hex and its velocity is equal to or less than the number of the arrow, it must make a forced facing change in the direction of the planet or moon. If the craft is already pointing directly at the planet or moon, there is no facing change. Thrust points may be spent in the normal manner for facing changes to counteract this gravitational effect.



For example, a Fighter with an initial velocity of 10 wishes to move from Hex A to Hex B. The Pilot moves four hexes to Hex C, where he must make a facing change because his velocity is 12 or less. As this would face him straight at the planet, the Pilot spends 4 thrust points to override the forced change. He continues straight to Hex D, where another facing change is required. This time, the Pilot goes with gravity and turns toward Hex E, spending his tenth hex of velocity to move to Hex E. If the Pilot ended his turn here, gravity would pull him one hex toward the planet to Hex F, as grey arrow hexes only affect craft that end their movement in them. To get to Hex B, the Fighter must make another facing change in Hex E, accelerating from a velocity of 10 to a velocity of 11. This allows movement into Hex F, where gravity will pull the Fighter to Hex B. During this turn, the Fighter spent 13 thrust points and increased its velocity to 11.

The Fighter in Hex Z has an initial velocity of 7 and wishes to move to Hex X. The Pilot cannot simply move around the 18-arrow ring and stop in Hex X, as gravity would pull him into the atmosphere and force a dead-stick entry. To end movement in Hex X, the Fighter must spend thrust points in Hex Y to counter the forced gravity turn, make another turn in Hex W, and accelerate to a velocity of 8 to move to Hex V, where gravity will force a facing change and pull the Fighter to Hex X.

ENTERING THE ATMOSPHERE

Most inhabited planets have an extensive atmosphere. The boundary between open space and the atmosphere is critical to all spacecraft, and intentional or unintentional movement across this boundary requires a *Piloting Skill Roll*. There are two ways to enter the atmosphere: powered flight or dead stick entry.

Powered Flight Entry

Powered flight is the safest way to enter the atmosphere. To make a powered flight entry, a craft must allocate enough thrust points to make a facing change at its current velocity and enter the atmospheric ring of hexes. This can be done by moving directly into the ring (where a facing change in the 18 arrow ring qualifies as the required thrust maneuver) or by being pulled by gravity into the atmospheric ring, with enough thrust points in reserve to make a facing change at the craft's current velocity. To make a successful atmospheric entry, the thrust points are needed for the critical reentry attitude adjustments.

Dead Stick Entry

A dead stick entry occurs whenever a ship enters the atmospheric ring and cannot or does not spend the required thrust points to make the reentry attitude adjustments. In either case, a *Piloting Skill Roll* is still required, with velocity modifications from the following table.

ATMOSPHERIC ENTRY TABLE

Current Velocity	Powered Entry	Dead Stick Entry
0	+3	+10
1-2	+2	+8
3-4	+1	+6
5-6	0	+4
7-8	+1	+2
9-10	+2	+4
11-12	+3	+6
13-14	+4	+8
15-16	+5	+10
17-18	+6	+12
19-20	+7	+14

If any of the following conditions apply, add the noted modifiers when figuring the dead stick entry *Piloting Skill Roll*. In all of these cases, use the Dead Stick Entry column.

Pilot unconscious or blacked out	+6
Plant shutdown	+4
No thrust points available because of damage	+4
No thrust points available because of restriction	+4
Craft out of fuel	+4
Craft suffering random movement	+3
Craft's controls are locked	+2
Craft suffering a turn restriction	+1

AeroSpace Fighters with one or both wings destroyed (no armor points left) may not enter the atmosphere. Any Fighter that does so is automatically destroyed. A Fighter with no nose adds an additional +2 modifier for all *Piloting Skill Rolls* required in the atmosphere. This includes entry, movement restriction recovery, and landing. In addition, all movement rates in the atmosphere are halved.

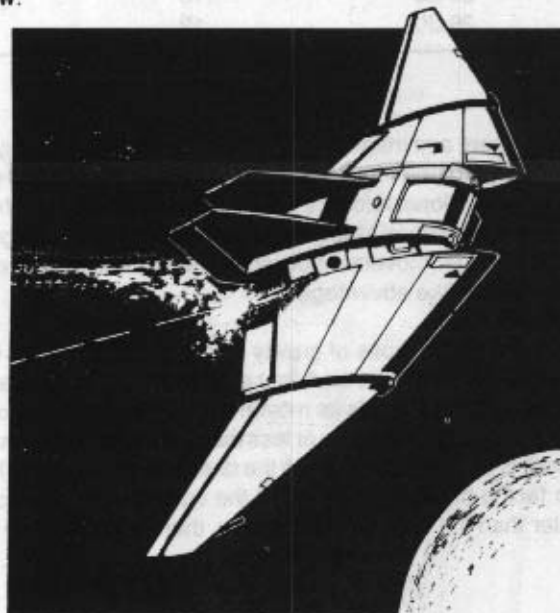
The numbers in the Powered Entry and Dead Stick Entry columns are modifiers to the *Piloting Skill Roll*. If the skill roll is successful, then the craft successfully enters the atmosphere and builds up a small amount of heat equal to 10 minus the difference between the die roll and the Skill Roll Target. In addition, the craft may change its facing to any direction desired. If the skill roll fails, consult the Failed Atmospheric Entry Table below.

FAILED ATMOSPHERIC ENTRY TABLE

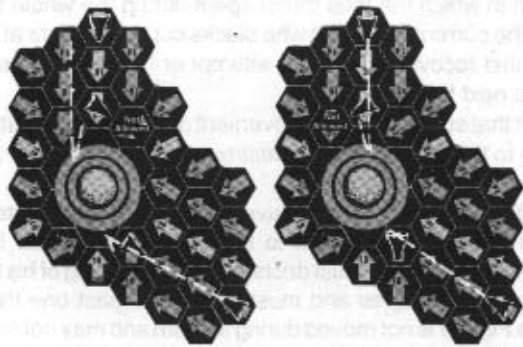
Difference between Skill Roll Target and Actual Number Rolled	Result
1	Entry Successful. Take 5 points of damage on the front table, and add 15 heat points.
2	Entry Successful. Take 10 points of damage on the front table, and add 20 heat points.
3	Entry Successful. Take 15 points of damage on the front table, and add 25 heat points.
4	Bounced off atmosphere. Take 5 points of damage directly to the fuselage, and add 10 heat points.
5	Bounced off atmosphere. Take 10 points of damage directly to the fuselage, add 12 heat points.
6	Bounced off atmosphere. Take 15 points of damage directly to the fuselage, and add 14 heat points.
7	Bounced off atmosphere. Lose 1 SI point, 10 points of fuselage, and add 16 heat points.
8	Bounced off atmosphere. Lose 2 SI points, 10 points of fuselage, and add 18 heat points.
9	Bounced off atmosphere. Lose 3 SI points, 10 points of fuselage, and add 20 heat points.
10+	Craft burns up in reentry.

A craft that has bounced off the atmosphere will end its movement in the space hex occupied before attempting entry. The craft should be facing away from the planet, and its velocity will be 0.

Entering the atmosphere is the only time that a craft does not have to move as many hexes as its current velocity. Upon entering, the movement rules change completely, as noted below.



Failed Atmospheric Entry Facing Examples



A Fighter with a velocity of 15 decides to enter the atmosphere. The Pilot wisely chooses to make a powered entry and spends 6 thrust points to do so. He must make a Piloting Skill Roll with a Powered Entry Modifier of +5. That means he needs a roll of 10 or greater to enter the atmosphere successfully. If he rolled an 11, he would end his move in the first atmospheric hex entered. His velocity would be 0, and he would have generated 9 heat points (10 – the difference between the actual die roll (11) and the target 10). If he rolls less than 10, he failed to enter the atmosphere and must check the Failed Atmospheric Entry Table.

To get the result from this table, simply subtract the die roll from the target; in this case, $10 - 5 = 5$. The 5 result means that entry failed, and the Fighter ends his movement in the last all-space hex of his intended movement. His facing must be away from the planet, and his velocity is 0. The Fighter suffers 10 points of fuselage damage and generates 12 heat points.

Movement At High Altitude

Once a craft enters the atmosphere, it has three choices: it can return to space, remain at high altitude, or move to low altitude. To return to space, simply turn the craft toward space and begin normal movement with an initial velocity of 1. To remain at high altitude, the craft must spend 1 thrust point and will remain in the same hex. Movement to other atmospheric ring hexes costs 2 thrust points per hex. Craft at high altitude are vulnerable to fire from any other craft in space. Facing changes do not cost thrust points at high altitude.

Movement to low altitude is simply a matter of dropping to ground level. Having entered the ground environment, the craft cannot be affected by any craft in space or at high altitude. It takes one a turn to move from high altitude to low altitude. During that turn, there can be neither attacks against the descending craft nor attacks by descending craft. Once at low altitude, the craft can fight other craft in the air, strafe ground targets, dive-bomb ground targets, or land.

A craft suffering random movement at high altitude will end its turn facing in a random direction. Use the Dive-Bomb Scatter Table on page 68 to determine the new facing. A craft that spends no thrust to maintain its position automatically descends to low altitude.

Movement At Low Altitude

Although there is little or no friction to affect the velocity of a craft in space, friction and drag play a large part in movement in the atmosphere. At low altitude, a Fighter must spend 1 thrust point per hex moved. A free one-hexside facing change is allowed according to the table below. Based on velocity, the Low Altitude Turn Table simply says that a craft has a tighter turning arc when moving slower. This also means that it may not make any turns without travelling the required number of hexes. This restriction applies only to normal one-hexside turns and not to special maneuvers.

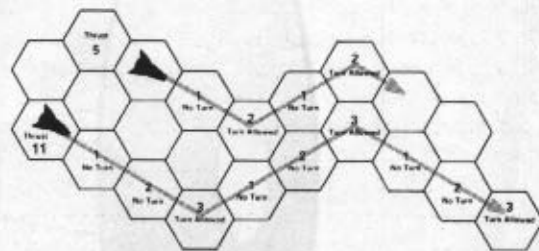
Because conventional aircraft use the atmosphere to operate their engines, they may move only on the Low Altitude Map. However, they are more maneuverable than their AeroSpace counterparts, and so use a modified Turning Table and Special Maneuver Table and may employ special maneuvers not available to AeroSpace Fighters.

If a DropShip enters the Low Altitude map, it must land the next turn or return to high altitude—it may neither fire nor move horizontally.

LOW ALTITUDE TURN TABLE

Velocity	Minimum Number of Hexes of Straight Movement Turn	
	AeroSpace Fighters	Conventional Aircraft
1-3	1	1
4-6	2	1
7-10	3	2
11-15	4	3
16+	5	4

For example, an AeroSpace Fighter with a velocity of 5 must move two hexes before making a turn, but that turn will be free. A Conventional Fighter with a velocity of 11 must move three hexes before turning.



A craft that moves 0 or runs out of fuel hexes must try to land.
Special Maneuvers

In addition to free turns, the atmosphere makes several acrobatic maneuvers possible. The following diagrams show these maneuvers and their thrust cost. They can be attempted at any time during a Fighter's movement. Certain maneuvers require a Piloting Skill Roll, which is modified by the difficulty. A successful skill roll results in the Fighter moving as shown by the solid lines in the diagram, and a failed roll results in the movement indicated by the dotted lines.

In addition to the AeroSpace Special Maneuvers, conventional aircraft may choose Special Maneuvers 12 thru 14, and STOL-rated aircraft may also use Special Maneuver 15.

SPECIAL MANEUVERS TABLE

Maneuver	Thrust Required		Skill Roll Modifier
	AeroSpace Fighter	Conventional Fighter	
1	4	3	+2
2	4	3	+2
3	3	2	+1
4	3	2	+1
5	3	2	+1
6	4	3	+2
7	4	3	+2
8	3	2	+2
9	3	2	+2
10	2	1	0
11	2	1	0
12	NA	4	+1
13	NA	4	+1
14	NA	3	+1
15(STOL)	NA	4	+1

See diagrams on page 59 for actual maneuvers and failure results.

There are many more different forces acting on a craft in the atmosphere. Therefore, players must make SI rolls for every game turn in which the total thrust spent during the whole turn exceeds the *current* SI. A Pilot who blacks out during flight at low altitude must recover on his first attempt or his craft will crash during the next turn.

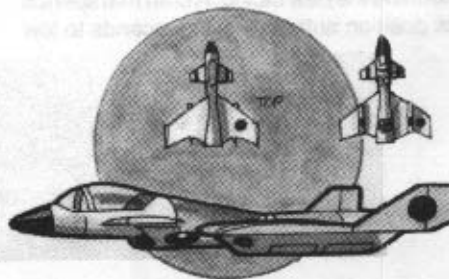
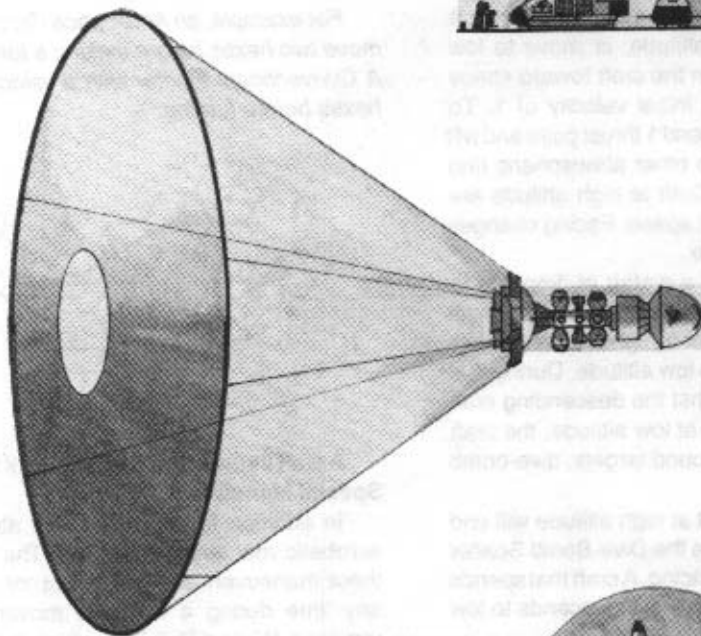
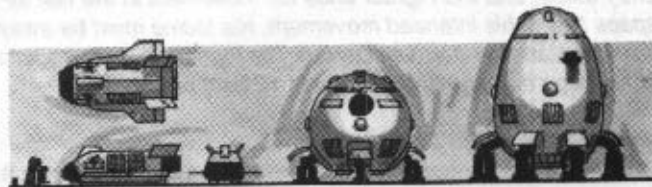
A craft that suffers random movement damage at low altitude will crash to the ground and be destroyed.

Movement To High Altitudes

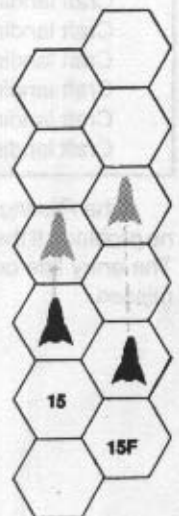
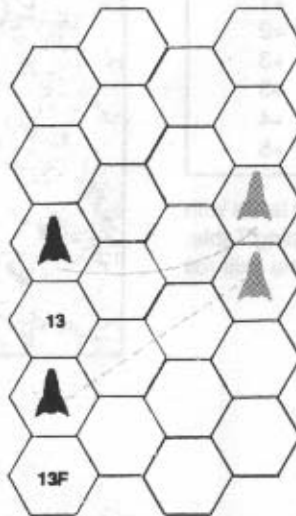
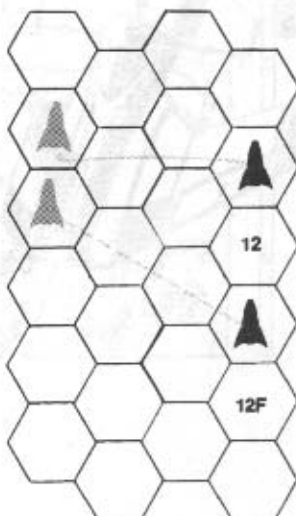
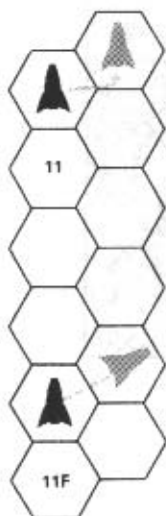
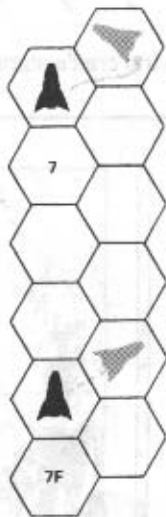
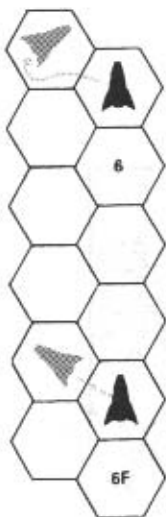
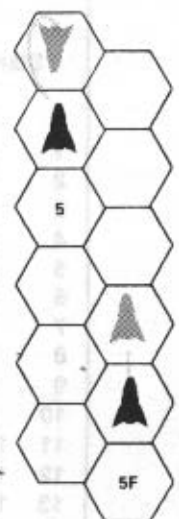
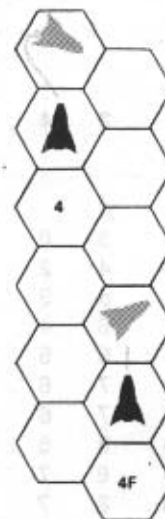
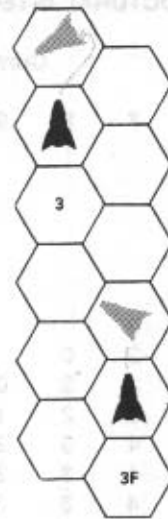
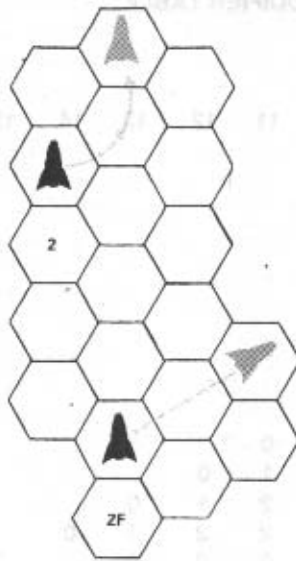
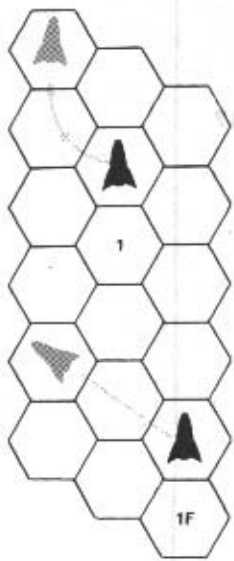
In addition to the above maneuvers, an AeroSpace Fighter or DropShip may elect to return to high altitude from the Low Altitude Map. The player must declare at the beginning of his turn that the craft is doing so and must expend at least one thrust point. The Fighter is not moved during the turn and may not make any attacks that turn (it is considered to be pointing directly upwards, though it does retain its current facing for combat purposes). However, enemy Fighters may attack it normally. At the end of the turn, remove the Fighter from the Low Altitude Map and place it on a high altitude hex.

Landing

Several things must occur for a craft to land. It must first enter the atmosphere and end one turn at high altitude. Then, it spends one turn travelling to low altitude. The craft must spend one complete turn at low altitude (note that this turn lasts only ten seconds and not one minute, as a high altitude turn). Finally, the Fighter must be moving only one hex and make a successful *Piloting Skill Roll* to land. The *Piloting Skill Roll* is modified by adding several factors, as noted in the following tables:



SPECIAL MANEUVERS



STRUCTURAL INTEGRITY MODIFIER TABLE

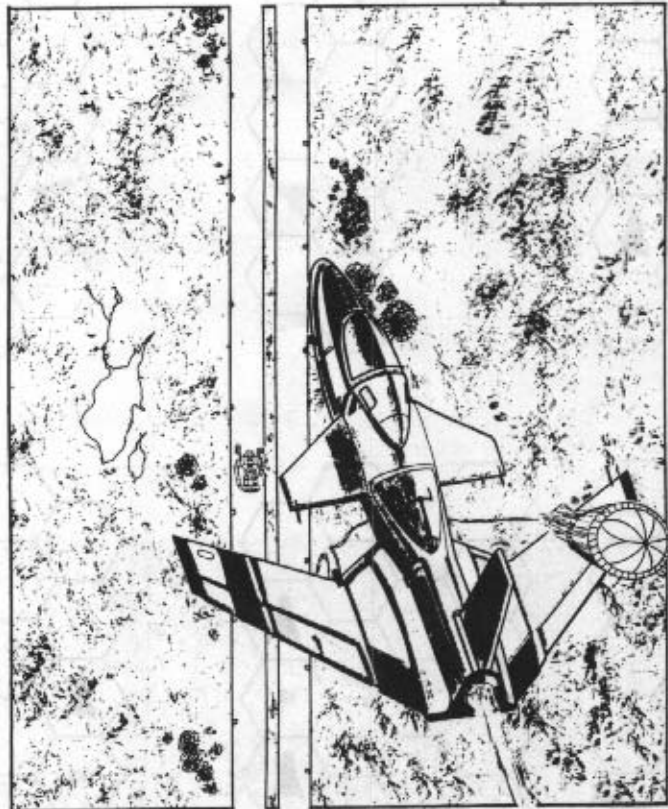
Starting SI		Current SI															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	0																
2	5	0															
3	7	3	0														
4	8	5	3	0													
5	8	6	4	2	0												
6	8	7	5	3	2	0											
7	9	7	6	4	3	2	0										
8	9	8	6	5	4	3	2	0									
9	9	8	7	6	5	4	3	2	0								
10	9	8	7	6	5	4	3	2	1	0							
11	10	9	8	6	6	5	4	3	2	1	0						
12	10	9	8	7	6	5	4	3	2	2	1	0					
13	10	9	8	7	6	5	4	3	3	2	2	1	0				
14	11	10	9	7	7	6	5	4	3	2	2	2	1	0			
15	11	10	9	8	7	6	5	4	3	3	2	2	1	1	0		
16	11	10	9	8	7	6	5	4	4	3	3	2	2	1	1	0	
17	12	11	10	9	8	7	6	5	4	3	3	3	2	2	1	1	0

To find the SI modifier to the landing *Piloting Skill* Roll, simply cross-reference the craft's starting and current Structural Integrity values and read off the number.

LANDING MODIFIERS TABLE

Effect	Modifier
Craft Condition Modifiers	
Craft under movement restriction	+4
If craft's nose armor is destroyed	+2
If craft has lost 1/2 thrust capability	+2
If no thrust is available	+4
If no thrust is available on <i>Union</i> or <i>Overlord</i> DropShips	+8
Terrain Modifiers	
Craft landing in manned, friendly airfield	-2
Craft landing in unmanned, friendly airfield	-1
Craft landing on road or other paved surface	0
Craft landing on unfriendly airfield	+1
Craft landing in open, clear hex	+2
Craft landing in water hex	+3
Craft landing in elevated hex	+3
Craft landing in light woods	+4
Craft landing in heavy woods	+5

If the *Piloting Skill* Roll is successful, then the craft lands with no problem. If the skill roll fails, consult the Failed Landing Table. The entry line on the table is the amount by which the skill roll missed.



FAILED LANDING TABLE

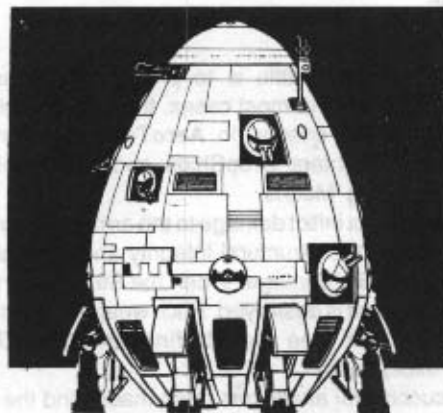
Difference between
Piloting Skill Roll
Target and Actual
Skill Roll

Effect

- | | |
|---|---|
| 1 | Nose landing gear collapses. Take 10 damage points on the front table. |
| 2 | Landing gear crushes. Take 10 damage points on the front table and 10 damage points on the wing. One door destroyed on DropShip.** |
| 3 | Landing gear crushed. Take 20 damage points on the front table and 15 damage points in one wing. Two doors destroyed on DropShip.** |
| 4 | Crash. Pilot escapes with no damage. If DropShip, all 'Mech are undamaged, but will take 1D6+6 turns to get out. |
| 5 | Crash. Pilot takes 1 hit. If DropShip, roll 2D6 for each 'Mech. If result is a 2, 3, 11, or 12, the 'Mech is destroyed. 'Mech exit time: 1D6 + 6 turns. |
| 6 | Crash. Pilot takes 3 hits. If DropShip, roll 2D6 for each 'Mech. If result is a 2-4 or 10-12, the 'Mech is destroyed. 'Mech exit time as above. |
| 7 | Crash. Pilot takes 4 hits. If DropShip, roll 2D6 for each 'Mech. If result is a 2-5 or 9-12, the 'Mech is destroyed. 'Mech exit time as above. |
| 8 | Crash. Craft explodes on impact. No survivors. |

Crash: The craft is destroyed.

** For Union or Overlord Class DropShips, apply damage to aft tables instead of front tables.



If the landing terrain is not known, use the following table.

RANDOM LANDING TERRAIN TABLE

Die Roll (2D6)	Terrain Type
2-3	Heavy Woods
4-5	Light Woods
6	Elevated Terrain
7	Water
8	Open terrain
9-10	Road or other concrete surface
11	Unmanned airfield
12	Manned airfield

There is a +4 modifier to this table if the planet is the home of the craft.

For example, a Fighter with an initial SI of 10 and a current SI of 7 wants to land immediately. The best spot is a clear field. After spending one turn in low altitude, the Pilot can attempt the landing. The Piloting Skill Roll required is 5 + the SI modifier of 3 + a terrain modifier of 2 = 10. If a 10 or better is rolled, the Fighter lands successfully. If, for example, he rolled a 6, the player would have to consult the Failed Landing Table. The entry line equals the target number (10) minus the actual die roll (6), in this case, a 4. The table says that the Pilot crashed and completely destroyed his Fighter during the landing, but that he escaped unharmed.



COMBAT

The object of any battle is to prevent the enemy from obtaining his objective. In most cases, this is accomplished by trying to destroy the enemy. In **AeroTech**, the combatants usually consist of Fighters, DropShips, and sometimes ground targets and dropping Mechs.

Weapons attacks inflict damage to the armor of a craft. When the armor is gone, the Structural Integrity and internal components of the craft take damage. When the Structural Integrity is reduced to 0, the craft is destroyed. Each weapon can attack only one target in a turn (see the **Strafing** and **Dive Bombing** sections for exceptions).

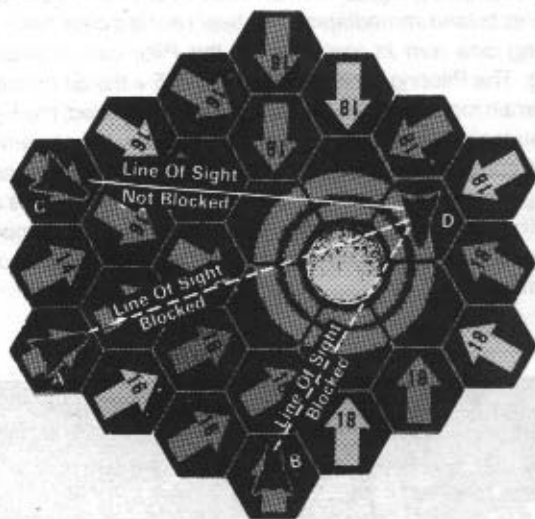
Once a successful attack has been made, find the damage location and record the damage.

The combat rules describe the assortment of energy weapons, ballistic weapons, and missile launchers available to an **AeroTech** craft. Every weapon has its own short, medium, and long range, its own damage effects, and its own heat generation rating. In addition, the craft has limited ammunition available for its missile launchers and ballistic weapons. The characteristics of each weapon are listed in the Weapons Table located in the back of this book.

LINE-OF-SIGHT

Line-of-sight rules are simple because there are only three types of terrain, open space, lower atmosphere, and planets and moons. Only planets and moons block line-of-sight. Fighters and DropShips do not.

Whenever an imaginary line drawn from the center of the attacker's hex to the center of the target's hex intersects or touches a planet or moon hex, line-of-sight is blocked and no weapons fire is allowed.



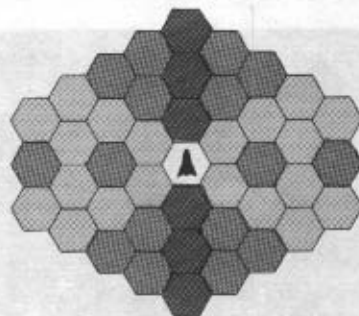
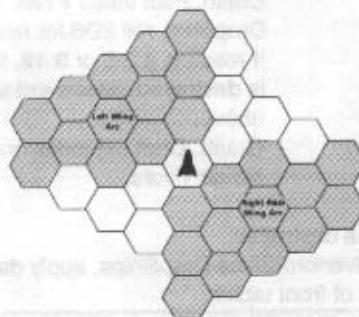
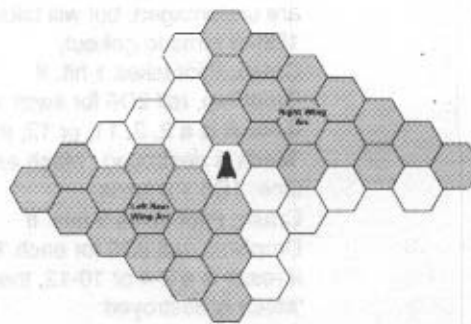
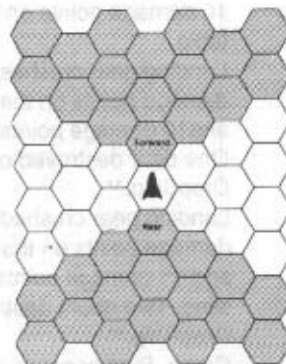
For example, if a Fighter in Hex A wanted to fire at a target in Hex D, a line-of-sight check would have to be made. In this case, the imaginary line drawn from the center of Hex A to the center of Hex D clearly intersects the planet, and line-of-sight is blocked.

The line-of-sight for the Fighter in Hex B firing at the target in Hex D is also blocked as the imaginary line touches the planet hex.

The Fighter in Hex C has a clear line-of-sight as the imaginary line comes very close to the planet hex but does not intersect, run along, or touch it.

FIRING ARCS

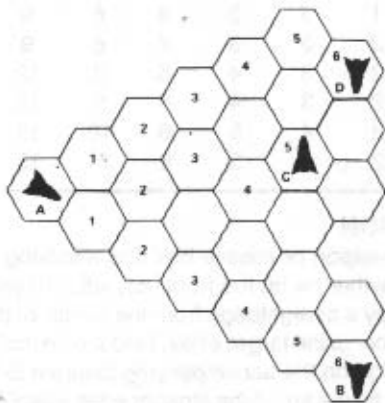
There are six basic firing arcs, as shown in the following diagram. Only DropShips have rear right and rear left firing arcs. Because all weapons are rigidly mounted, they can fire only at targets in their designated firing arcs.



RANGE

Range is the distance between the attacking craft and its target. It is also the distance a weapon can fire. Determine range by counting the number of hexes from the firing craft to its target, including the target's hex. Begin at the hex next to the attacker along the line-of-sight and follow the shortest path to the target. The range has an effect on how easy or difficult it is to hit the target, with distant targets generally being harder to hit.

The ranges for all weapons are listed in the Weapons Table. A weapon's maximum range is divided into thirds for its short, medium, and long ranges.



The range from the attacker in Hex A to the target in Hexes B and D is 6, and to the target in Hex C is 5.

TO-HIT PROCEDURES

Firing can begin after a player has determined that a target is within range and that there is a clear line-of-sight.

The first step is to determine the Base To-Hit Number of the craft's weaponry, which is determined by range. For each weapon he intends to fire, the player must count the range and consult the Weapons Table at the end of this book. If the target is concealed by atmospheric hexes or the attacker's craft has been damaged, the Base To-Hit Number increases to become the Modified To-Hit Number. The player then rolls 2D6 to see if he hit the target. If the result is greater than the Modified To-Hit Number, then the weapon has hit its target.

Base-To-Hit Number

The Base To-Hit Number for all weapons depends on the range. To find the Base To-Hit Number, first count the range between the attacking craft and its target, using the shortest path and counting the target's hex but not the attacker's hex. Next, consult the Weapons Table for the weapons being fired. Find the range in the row of numbers for the weapon, and determine if the range is short, medium, long, or out of range. Then, consult the Base To-Hit Table to find the Base To-Hit Number.

The Base To-Hit Number is higher in **AeroTech** than in other **BattleTech** games. This is because the targets are often thousands of kilometers away, requiring the use of more sophisticated fire-control computers.

BASE TO-HIT TABLE

Range	Base To-Hit Number
Short	6
Medium	8
Long	10

To-Hit Modifiers

All applicable modifiers are cumulative.

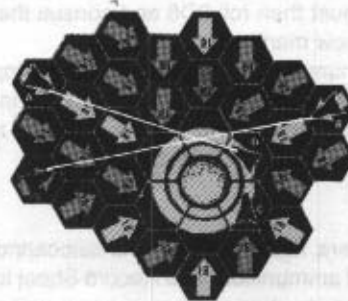
Gunnery Skill Modifiers

The Base To-Hit Number is modified by the Pilot's *Gunnery Skill*. For every *Gunnery Skill* Level above or below 6, the Base To-Hit Number is increased or decreased by 1. The lower the *Gunnery Skill* Level, the lower the Modified To-Hit Number.

Atmospheric Modifiers

Whenever a craft must fire into, out of, or through the atmosphere, the Pilot must take into account atmospheric effects. If a craft is in an atmospheric hex and is firing at a target in space (a non-atmospheric hex), there is a +2 To-Hit Modifier. If a craft in space is firing at a target in the atmosphere (at high altitude), there is also a +2 To-Hit Modifier. If the line-of-sight from attacker to target passes through atmospheric hexes, there is a +1 To-Hit Modifier for each atmospheric hex, not including any atmospheric hex occupied by either the target or the attacker. This hex adds the regular +2 To-Hit Modifier for firing into or out of the atmosphere. Craft in the atmosphere at high altitude or in space cannot hit craft in the atmosphere at low altitude.

There is no atmospheric modifier if both attacker and target are in the atmosphere, either at high or low altitude.



In this example, the Fighter in Hex D would have a +2 To-Hit Modifier when firing at Hex B. This is because it is firing out of an atmospheric hex. A Fighter in Hex B would have the same modifier if firing at Hex D. If the Fighter in Hex D fired at Hex A, the To-Hit Modifier would be +3 (+2 because it is firing out of an atmospheric hex and +1 for each atmospheric hex fired through). Combat between Hex C and Hex D would have no atmospheric modifier because both are in the atmosphere at high altitude.

Combat between Hexes B and E would have a To-Hit Modifier of +2 (+1 for each atmospheric hex crossed by the line-of-sight).

Ground Attack Modifiers

There is a -3 To-Hit Modifier for all Fighter and DropShip attacks made on a Fighter that is strafing or dive bombing a ground unit in the turn.

Multiple Targets

Very rarely will a single target be in the firing arc or field of fire of all three forward arcs. More often, there will be several targets in a variety of firing arcs. It is up to the Pilot to decide which weapons to fire at which targets. Although he may fire at more than one target in a single turn, hitting any target but the primary is more difficult. There is a +1 To-Hit Modifier for any shot at a second or third target during one game turn. This modifier is not cumulative; i.e., the modifier for the third target is still only +1. DropShips ignore the multiple target modifier.

Heat and Damage Modifiers

Combat damage and heat build-up can modify a craft's Base To-Hit Number. These effects are discussed in the **Heat** and **Damage** sections of the rules.

Modified To-Hit Number

The Modified To-Hit Number is the Base To-Hit Number plus all modifiers for *Gunnery* skill, atmospheric interface, and any heat or other effects on the craft's condition. If the Modified To-Hit Number is 13 or greater, the shot is an automatic miss.

The To-Hit Roll is made with 2D6. If the number rolled is equal to or greater than the Modified To-Hit number, the shot is successful.

Missile Hits

When a missile launcher attack is successful, the damage depends on exactly how many of the fired missiles actually reach the target. During the Succession Wars, missile guidance technology for tactical combat is extremely primitive and not at all dependable.

Calculate the Modified To-Hit Number and make the To-Hit roll just as for other weapons, but the missile combat procedure has one extra step. If a missile launcher attack hits its target, the attacking player must then roll 2D6 and consult the Missile Hit Table to find out how many missiles hit.

First, find the number of missiles fired on the top row of the table. Run a finger down this vertical column until it intersects the horizontal row corresponding to the die roll. The result is the number of missiles that actually hit the target.

AMMUNITION

Missile launchers, machine guns, and autocannons possess limited amounts of ammunition. The Record Sheet for each craft should indicate the number of times a given weapon can fire before it is out of ammunition. The player keeps a tally on the Fighter Record Sheet, making a check every time the weapon is fired. When the number of check marks equals the amount of ammunition carried, the weapon is out of ammunition and may not be used for the rest of the game.

MISSILE HIT TABLE

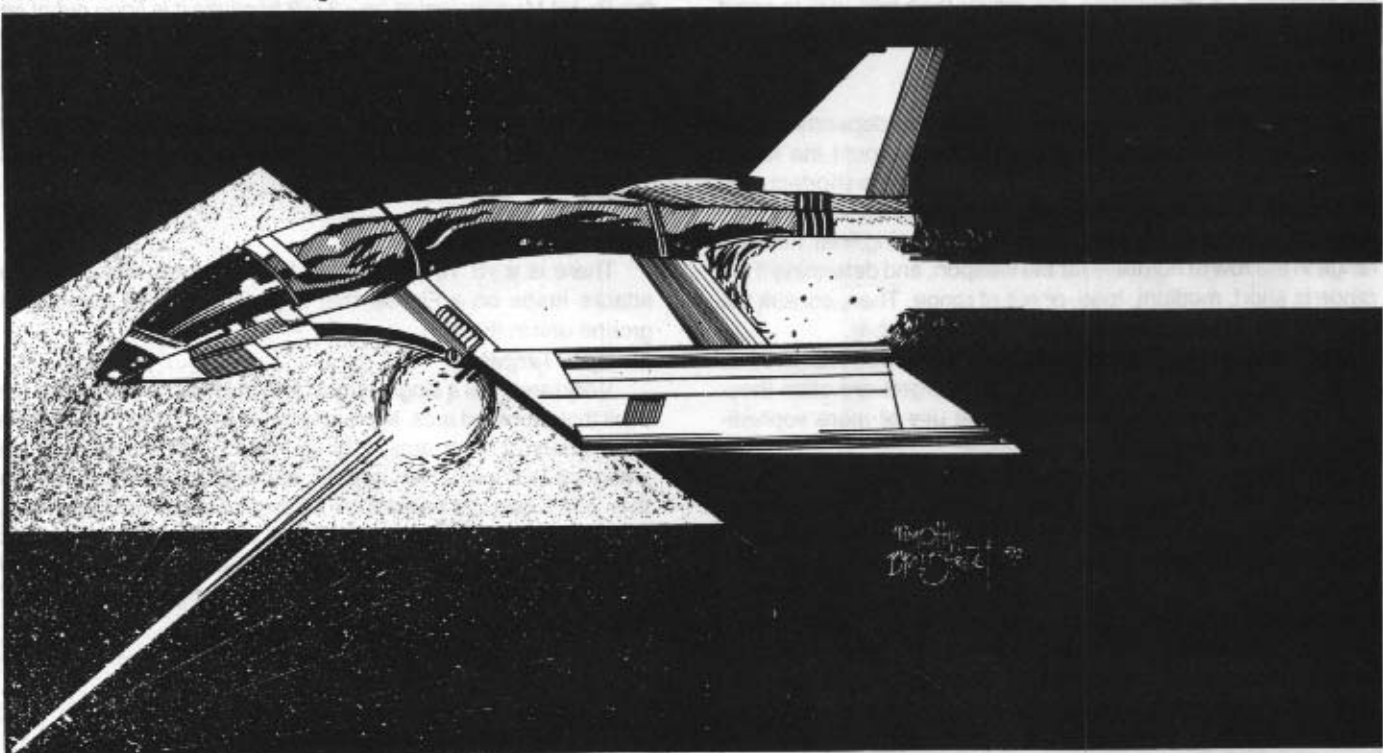
Die Roll (2D6)	Number of Missiles Fired						
	2	4	5	6	10	15	20
2	1	1	1	2	3	5	6
3	1	2	2	2	3	5	6
4	1	2	2	3	4	6	9
5	1	2	3	3	6	9	12
6	1	2	3	4	6	9	12
7	1	3	3	4	6	9	12
8	2	3	3	4	6	9	12
9	2	3	4	5	8	12	16
10	2	3	4	5	8	12	16
11	2	4	5	6	10	15	20
12	2	4	5	6	10	15	20

HIT LOCATION

When a weapon or missile hits, the attacking player must determine whether he hit the front, aft, left, or right side of the target. First, lay a straightedge from the center of the attacker's hex to the center of the target's hex. Find the hexside crossed by the straightedge on the accompanying diagram to find the side of the craft hit by the fire. If the straight edge exactly crossed the joint between two sides, the defender chooses which side is hit by the attack.

Determining Hit Location

To determine the exact location of the hit, the attacker should roll 2D6 and consult the appropriate column of the Hit Location Table for each weapon that hits and for each short-range missile that hits. Long-range missile hits, however, are a special case, and the attacker should roll once for every five missiles that hit the target. If the number of missiles that hit a defending craft cannot be evenly divided into groups of five, the attacker should make as many groups of five as he can, and roll once for those left over.



HIT LOCATION TABLE

Die Roll (2D6)	Front	Aft	Left/Right Side
2	Cockpit/Bridge	Engine/Control	Cockpit/Critical
3	Nose/Weapon out	Fuselage/Control	Wing/Weapon Out
4	Fuselage	Fuselage/Heat Sink	Engine/Heat Sink
5	Right Wing	Right Wing	Fuselage/Bomb
6	Nose	Engine	Wing
7	Nose	Fuselage/Heat Sink	Fuselage/Door
8	Nose	Engine	Wing
9	Left Wing	Left Wing	Nose
10	Fuselage/Bomb	Fuselage/Heat Sink	Engine/Heat Sink
11	Nose/Weapon Out	Fuselage/Control	Wing/Weapon Out
12	Cockpit/Bridge	Engine/Critical	Engine/Critical

Table Explanations:

Mark damage off the designated location. Extra effects are noted below.

/Bomb: The heaviest bomb carried by the Fighter is destroyed. The movement penalty is still in effect. If no bombs are carried, then there is no effect.

/Bridge: Affects DropShips only. Roll on the Bridge Hit Table. Mark damage for DropShips against the Nose.

/Critical: Roll on the Engine Critical Hit Table.

/Control: Affects Fighters only. Roll on the Control Surface Hit Table and take the resulting movement restriction.

/Weapon-Out: The craft loses 1 weapon from the damage location. If no weapon remains, then there is no effect. The defending player chooses the weapon to be destroyed.

/Heat Sink: The craft loses 1 heat sink.

/Door: Affects DropShips only. Roll 1D6; on a result of 1 or 2, a door has been damaged, and no 'Mech may leave by that door until groundside repairs are completed. This damage subtracts one from the number of 'Mechs that may be dropped in one turn.

CONTROL SURFACE HIT TABLE

Die Roll	Effect
2	Random movement. Velocity increases by current thrust rating.
3	Random movement. Velocity increases by thrust spent in current turn.
4	No left turns.
5	Random movement. Velocity increases by thrust spent in current turn.
6	No left turns.
7	Controls lock. Straight movement only.
8	No right turns.
9	Random movement. Velocity increases by thrust spent in current turn.
10	No right turns.
11	Random movement. Velocity increased by thrust spent in current turn.
12	Random movement. Velocity increases by current thrust rating.

Control surface hits occur at the beginning of the next turn and last until cancelled by a successful *Piloting Skill* Roll made during the End Phase.

If a Random Movement result is rolled for a craft at low altitude, the craft automatically crashes and is destroyed.

RANDOM MOVEMENT TABLE

Die Roll	Effect
2	Hard left
3	Soft left
4	Hard left
5	Soft left
6	Straight
7	Straight
8	Straight
9	Soft right
10	Hard right
11	Soft right
12	Hard right

Hard: forward one hex, 120-degree or 2-hexside turn
Soft: forward one hex, 60-degree or 1-hexside turn

Structural Integrity rolls must be made for random movement if the maneuver or combination of the maneuver and thrust exceed the SI of the craft. Even though the Pilot applied no thrust for the random turn, use the maneuver's thrust rating at the current velocity when making the SI roll.

ENGINE CRITICAL HIT TABLE

Die Roll	Effect
2	Engine Destroyed. Craft moves straight at current velocity if in space.
3	Lose one-half current thrust permanently. Control surface hit.
4	Lose one-third current thrust permanently. Control surface hit.
5	Lose one-fourth current thrust permanently.
6	-15 fuel points.
7	-10 fuel points.
8	-15 fuel points.
9	+5 heat points per turn.
10	+5 heat points per turn, control surface hit.
11	+10 heat points per turn, control surface hit.
12	Engine Explodes. Craft destroyed.

Thrust point losses are rounded up and must always be at least 1 point. When an engine can no longer produce thrust, the craft must move straight at its current velocity if in space or must immediately land in random terrain if at high or low altitude. No weapons may fire.

BRIDGE CRITICAL HIT TABLE

Die Roll	Effect
2	Bridge Destroyed. Craft continues moving straight at current velocity if in space, crashes if at high or low altitude.
3	Control Surface Hit. Roll on Control Surface Hit Table. The result is permanent.
4	Control Surface Hit and +1 To-Hit Modifier.*
5	Control Surface Hit and +1 To-Hit Modifier.*
6	+2 To-Hit Modifier.*
7	+1 To-Hit Modifier.*
8	+2 To-Hit Modifier.*
9	Control Surface Hit and +1 To-Hit Modifier.*
10	Control Surface Hit and +1 To-Hit Modifier.*
11	Control Surface Hit. Roll on Control Surface Hit Table. The result is permanent.
12	Bridge Destroyed. Craft continues moving straight at current velocity if in space, crashes if in high or low altitude.

*These results last until a successful *Piloting Skill* Roll is made.

Damage Value

Every weapon gives the damage listed in the Weapons Table. Missiles do the same amount of damage for each missile at any range, but the number of missiles that hit determines that total damage done. Long-range missiles have a Damage Value of 1, and short-range missiles a Damage Value of 2 for each missile in the group.

Recording Damage

Every time his craft is hit, the player locates the appropriate hit location shown in the armor diagram and crosses off one armor circle for every point of damage given. When all the armor circles at that location have been crossed off, the damage is transferred to the fuselage, and the appropriate number of circles are crossed off there.

Transferring Damage

When all the armor protecting a part of a craft is gone, that part is completely destroyed. The next hit located in the destroyed location will be transferred to the fuselage at two times the normal amount. Thus, if a craft's wing armor is gone and that damage location suffers a 10-point hit, the player must mark 20 points of damage off the fuselage armor. When all the fuselage armor is destroyed, damage is transferred directly to the craft's Structural Integrity.

When the Engine Armor is completely destroyed, every additional hit is marked off the fuselage at double the damage and, for each weapon that hits, the firer rolls on the Engine Critical Damage Table.

Destroying Fighters and DropShips

When all the armor protecting one section of a craft is gone, that part is completely destroyed. In addition, all weapons and ammunition located there are lost, and the Structural Integrity of the craft has been severely weakened. For each location that has lost all its armor, subtract 2 from the SI.

There are several ways to destroy a Fighter or DropShip. The easiest way is to kill the Pilot by penetrating the cockpit armor or by destroying the bridge of a DropShip. The long way is the reduce the Structural Integrity to 0. The intermediate ways are through the Damage Table result of Engine Explodes or destroying the wings of a Fighter while the craft is in the lower atmosphere. Any craft with 0 SI that does not explode will drift at its current velocity until it leaves the board, hits a planet or moon, or tries to enter the atmosphere.

DROPSHIP COMBAT

DropShips carry enormous amounts of firepower and enough heat sinks to use them. Although purists can keep track of weapons individually, for quicker play, players should use the following system.

The abstract system reduces all DropShip weapons to a set of 10-point fire factors. In combat, the DropShip simply shoots as many fire factors as desired, resolving each 10-point shot individually. Any shot that hits will do 10 damage points to one hit location and build up 7 points of heat. The DropShip's statistics give the firing arcs for each fire factor. The range for DropShip fire factors are as follows:

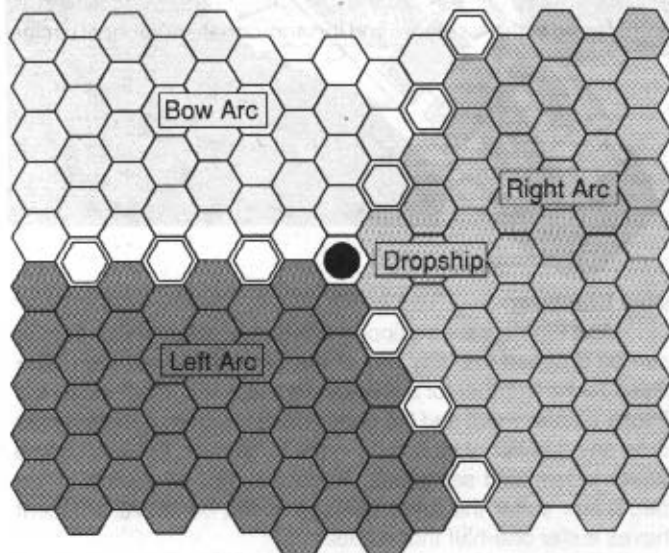
DROPSHIP FIRE FACTOR RANGES

Short	1-6 hexes
Medium	7-12 hexes
Long	13-18 hexes

Each Weapon Out damage result destroys one fire factor.

Each DropShip carries enough fuel to travel from the jump point to the target planet, engage in combat, and return to the jump point, and many carry extra fuel for the Fighters.

DropShips that have landed on the surface of a planet may use their weapons to engage ground targets. For targeting and line-of-sight purposes, a grounded DropShip is a Level 4 building and may block line-of-sight. For combat purposes, all the DropShip's weapons are considered to be mounted at Level 4 (i.e., if the ship can see the target, all weapons in the firing arc can shoot at it). A grounded DropShip uses the following firing arcs. Aft-mounted weapons cannot be used.



When firing at a grounded DropShip, use the Left/Right Side column of the Hit Location Table. Remember that because the DropShip is treated as a building for targeting purposes, the firing unit receives a -4 To-Hit Modifier on its To-Hit roll. DropShips take damage normally.

GROUND TARGETS

When a Fighter is at low altitude in the atmosphere, he may attack other low altitude craft or ground targets, but never both in the same turn. Each hex on the low-altitude map is roughly equivalent to a 22 x 27 inch BattleTech Mapsheet. To attack a ground hex, a Fighter must move straight for two hexes immediately prior to ending his movement in a **BattleTech** map hex. To hit ground targets, weapons must have a maximum range of at least 4. There are two types of ground attacks: strafing and dive bombing. DropShips may not strafe or dive bomb ground targets.

Strafing

When a Fighter ends its movement on a battlefield hex, he may announce a strafing attack during the Combat Phase. This is the only attack he may make during the turn. After all ground forces have completed their movement, the Fighter chooses a three-hex-wide row of hexes as his strafe row. This set of hex rows must run parallel to the Fighter's direction of atmospheric flight. The strafing craft's forward-firing energy weapons attack every ground target within the strafing row (friend and foe). Forward-firing ballistic and missile weapons are targeted at individual units. The Base To-Hit Number is 8 modified only by the Pilot's *Gunnery* skill, the condition of the strafing craft, BattleTech target movement modifiers, and target terrain modifiers. However, there are no Partial Cover benefits.

All the strafing craft's forward-firing energy weapons with ranges greater than 4 are grouped together to determine its energy strafing factor, which is the amount of damage done to each target hit. This damage is divided into groups of five and rolled against the appropriate column of the Strafing Damage Table, if the target is a 'Mech, or the appropriate Vehicle Damage Table.

The attacking Fighter may also target one unit in the strafe row for each of the craft's forward-firing non-energy weapons with a range greater than 4. The selection of the attacked unit or units is up to the attacking player.

A ground target can be any 'Mech, vehicle, infantry unit, or building. Units inside buildings are protected from direct fire during a strafing attack, but the building can be attacked. Units hidden inside the building will suffer the consequences of that attack as per the building rules.

As can be seen, strafing is a very powerful ground attack and will help decide the outcome of any ground battle. It is up to defending Fighters to prevent such attacks.

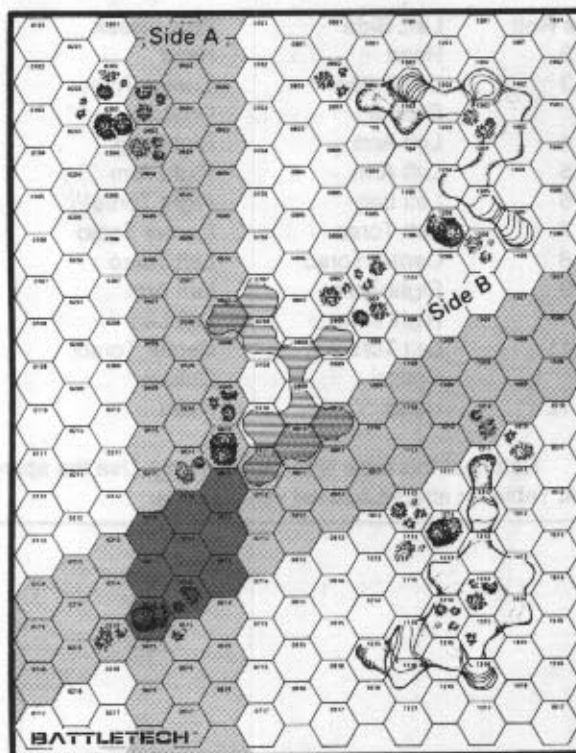


Diagram for example on pg. 68

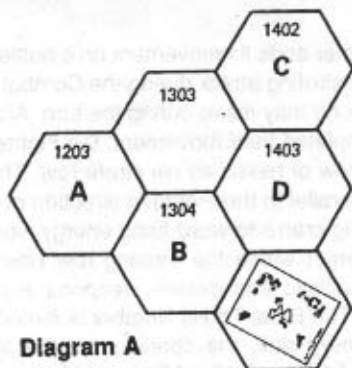
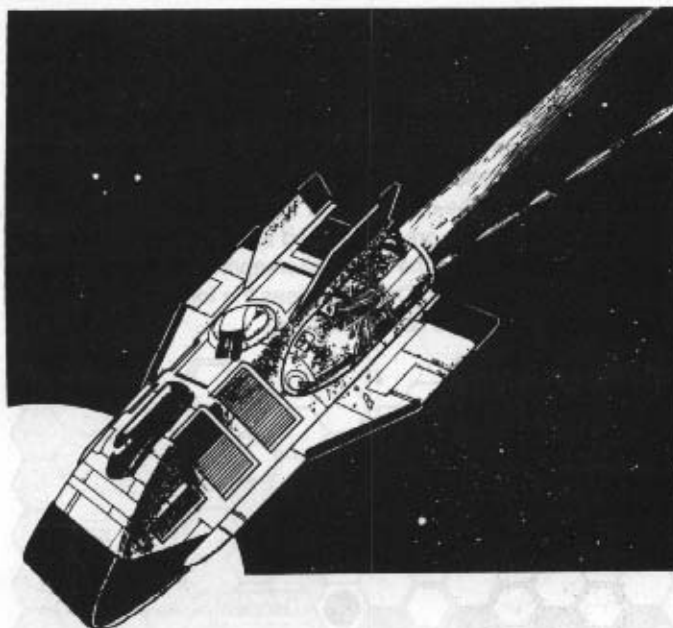


Diagram A

In this example, Diagram A shows the orientation of the BattleTech Mapsheet in relation to the Low Altitude Mapsheet. A Fighter approaching the BattleTech Mapsheet hex along the A-B hex row would be able to choose any three-hex-wide row of hexes on Side A of the BattleTech Mapsheet. One such strafing row has been shaded. Every target, be it 'Mech, vehicle, building, or infantry unit in the shaded area is a target for the energy strafing attack. The player can also allocate his non-energy forward-firing weapons selectively to attack any target in that row.

A Fighter approaching the BattleTech Mapsheet hex along the C-D hex row will pick its strafing row from Side B. An example has been shaded.



Dive Bombing

Most Fighters are equipped with bomb racks, whose bombs can be dropped into any hex of the ground combat area. The Base To-Hit Number for a dive-bomb attack is 6, modified by the Pilot's *Gunnery* skill and the condition of his craft. A Fighter may drop any number of its bombs in the target hex, but each bomb attack is resolved separately. If a bomb hits, all objects in the target hex suffer the rated damage of the bomb. All adjacent hexes suffer one-half that number.

STRAFING DAMAGE TABLE

'Mech Targets

Die Roll	Left Side	Front/Back	Right Side
2	Head	Head	Head
3	Left Torso/ Critical	Center Torso/ Critical	Right Torso/ Critical
4	Left Arm	Right Leg	Right Arm
5	Left Arm	Right Arm	Right Arm
6	Left Leg	Right Torso	Right Leg
7	Left Torso	Center Torso	Right Torso
8	Center Torso	Left Torso	Center Torso
9	Right Torso	Left Arm	Left Torso
10	Right Arm	Left Leg	Left Arm
11	Left Torso/ Critical	Center Torso/ Critical	Right Torso/ Critical
12	Head	Head	Head

Note that this table is for 'Mechs only. Use the appropriate Vehicle Hit Table for attacks against vehicle units.

The total damage is divided into groups of 10 and allocated normally against the target's front side. Bomb damage affects all targets in the damage area, including 'Mechs, vehicles, infantry, buildings, and units inside buildings.

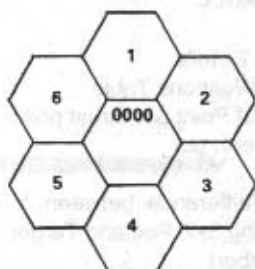
When a dive-bomb attack misses, the bomb must hit the ground somewhere. The Scatter Table is used to find this location. The bomb will explode and do damage normally in the scattered hex.

A Fighter may dive bomb only one target hex per turn, but can continue to make as many dive-bomb attacks in a game as it likes, as long as it still has bombs to drop and conforms to the other **AeroTech** rules.

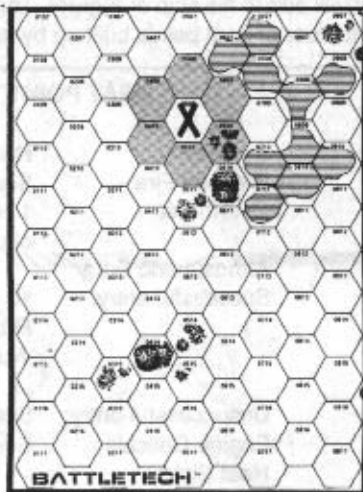
SCATTER TABLE

Die Roll	Effect
2	Bomb jams on rack. Will not drop for rest of game.
3	5 hexes off target
4	4 hexes off target
5	3 hexes off target
6	2 hexes off target
7	1 hex off target
8	2 hexes off target
9	3 hexes off target
10	4 hexes off target
11	5 hexes off target
12	Bomb jams on rack. No remaining bomb will drop for rest of game.

To determine the direction of the miss, roll 1D6 and consult the following diagram.



Scatter Diagram



The diagram shows the area of effect of a dive-bombing attack. Hex X marks the impact hex, or the hex that the AeroSpace Pilot originally aims for. If the attack is successful, all objects in the impact hex will take damage equal to the full rating of the bomb. Objects in all adjacent hexes (shaded here) will suffer damage equal to one-half the rating of the dropped bomb. If the dive-bomb attack misses, the scatter table is used to find a new impact hex.

To determine the location of the scattered impact hex, roll 2D6 and refer to the Scatter Table. This usually tells how many hexes away the impact hex will be. Next, roll 1D6 and refer to the Scatter Diagram. This shows the direction of the impact hex.

For example, a dive bomb attack on hex 0509 missed. The player rolls a 9 on the Scatter Diagram. The location of the new impact hex would be 0512, and all targets, friend and foe, will be affected by the bomb.

Thrust Loss

When Fighters carry heavy bomb loads, they lose maneuverability. This means that as long as a bomb is attached to the Fighter, the Fighter will lose thrust according to the following chart.

THRUST LOSS TABLE	
Bomb Rating	Thrust Points Lost
10	0.2
20	0.4
40	0.8
60	1.2
80	1.6
100	2.0

Bomb loads can be mixed and matched as the players desire. When calculating the current loss to bomb weight, round all fractions up. A Fighter may load as many bombs as desired as long as one full thrust point remains.

For example, a Fighter with a thrust rating of 10 chooses to carry three 100-, two 40-, and one 20-damage point bombs. The total thrust lost with this full load would be 8 thrust points; $(3 \times 2 \text{ for the 100 pointers}) + (2 \times .8 \text{ for the 40 pointers}) + (1 \times .4 \text{ for the 20 pointer}) = 8 \text{ thrust points}$. That means the Fighter would have a thrust rating of 2 and an overthrust rating of 3 with the full load. When the first 100-point bomb is dropped, the thrust rises to 4. The thrust rating will continue to rise as the payload is dropped.

Fighters can drop as many bombs as desired at any time during their turn. If more than one bomb is dropped during a bomb attack, separate To-Hit rolls must be made for each individual bomb. Each bomb so dropped must have the same target hex.

Inferno Bombs

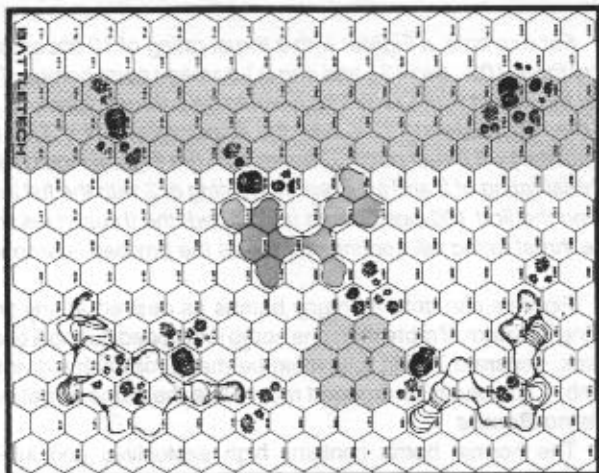
The normal bomb contains high explosives and inflicts damage as above. Another type of bomb, the inferno bomb, does no explosive damage but automatically starts fires and creates heat. Except for their damage effects, these super-napalm bombs are similar to 10-point bombs. They raise the heat levels of all objects in the impact hex by 10 heat points, automatically starting a fire and destroying vehicles and infantry in that hex. Objects in adjacent hexes have their heat levels raised by 5 heat points, and a fire starts on a 2D6 roll of 6 or greater. Adjacent vehicles and infantry are destroyed unless they make an Avoid Roll of 8 or greater. Any 'Mech in the affected area has been splattered with a burning gel. Unless the 'Mech can immerse itself in water of Depth 1+, the heat effects will last for three turns.

Return Fire

A Fighter that makes a ground attack is also vulnerable to fire from ground units, as are Fighters that fly over enemy-occupied hexes. Any unit on the BattleTech Mapsheet may fire at a craft that ends its turn over the BattleTech Mapsheet. This Fighter does not have to have made a ground attack that turn. The Base To-Hit Number is 10, regardless of the weapon fired, modified by the MechWarrior's or vehicle pilot's Gunnery skill and the attacker's movement. VTOLs and LAMs in flight have an additional -1 To-Hit Modifier. There is also a -4 To-Hit Modifier if the attacker is in the Fighter's strafing row or is in the Fighter's dive-bomb target area. A unit that fires at a Fighter may not make an attack against any other unit. Any weapon with a range of 6 or more may fire. Determine the Hit Location for the Fighter on the Damage From Ground Fire Table. Damage is then allocated in the appropriate column of the normal damage table. All fire from an individual unit will hit the Fighter in the same area (front, right side, rear, and so forth).

DAMAGE FROM GROUND FIRE TABLE		
Die Roll	Left/Right Side Attack	Strafing/Target Area Attack
1	Front Side	Front Side
2	Front Side	Front Side
3	Left/Right Side	Front Side
4	Left/Right Side	Left Side
5	Left/Right Side	Right Side
6	Rear	Rear

When an AeroSpace Fighter makes a ground attack, it becomes vulnerable to attack from other Fighters. There is a -3 To-Hit Modifier for all Fighter attacks against a Fighter who is attacking a ground target.



In this example, a Fighter is strafing the shaded row of hexes. Any ground unit occupying a shaded hex and firing at the Fighter receives the -4 To-Hit Modifier. Any unit outside of the shaded hex rows firing at the Fighter does not receive any such modification.

The same is true for dive-bomb attacks. Any ground unit in the affected area (shown shaded here), will receive the -4 To-Hit Modifier, and all others will not.

HEAT

Like BattleMechs, AeroSpace Fighters and DropShips have problems with heat. In space, radiation is the only way to dissipate heat generated by the craft's electronics, weapons fire, and overthrust. To help eliminate heat, all AeroSpace Fighters and DropShips are fitted with extensive arrays of heat sinks.

Even so, a high rate of activity usually produces more heat than the craft can safely dissipate. As a craft's internal heat increases, its movement can become erratic and its weapons fire less accurate. If its internal heat reaches too high a level, ammunition carried by the Fighter may explode. Its fusion reactor may shut down, causing the craft to drift in space until the heat level is reduced. The Pilot may even suffer damage.

HEAT POINTS

The number of heat points built up by an AeroSpace Fighter or DropShip craft determines its internal heat. The greater the number of heat points, the greater the internal heat. The player keeps track of heat-point build-up on the Fighter Record Sheet, marking off boxes in the column labelled "Heat Scale". The Heat Scale runs from 0 to 30. As a craft's internal heat reaches various points on the Heat Scale, it will suffer the adverse effects described on the scale.

Conventional aircraft do not incur heat build-up. However, these aircraft need sufficient heat sinks to fire all their energy weapons simultaneously. If, due to combat damage, a conventional aircraft has fewer heat sinks than necessary to operate all its functioning energy weapons, the player must "turn off" enough weapons to comply with the heat sink rule. Turned-off weapon systems will not be available for combat for the rest of the game.

HEAT BUILD-UP

Different activities build up heat at different rates. A good Pilot will balance the tactical value of a certain activity against the heat it will add to his ship or Fighter. The Heat Point Table gives the number of heat points built up by various activities.

HEAT POINT TABLE

Activity	Heat Points
Weapon Fire	See Weapons Table
Overthrust	1 Heat Point per thrust point of overthrust
Atmospheric Entry	
Successful entry:	10 - (difference between Piloting Skill Roll and Target Number)
Unsuccessful entry:	See Failed Entry Table
Engine Criticals	See Engine Critical Hit Table
Heat Sinks	-1 Heat Point per operational heat sink

RECORDING HEAT BUILD-UP

During the Heat Phase near the end of every game turn, each player adds up the heat points that his AeroSpace Fighter or DropShip built up. He then subtracts the heat dissipated by his craft's heat sinks. Any remaining heat points are added to the Heat Scale on the Fighter Record Sheet. If, however, the craft dissipated more heat than it built up for the turn, the difference is subtracted from its Heat Scale. It is a good idea to use a pencil on the Heat Scale because the heat will go up and down many times during the game.

EFFECTS OF HEAT

As a result of internal heat, the craft functions less efficiently. It moves erratically, fires less accurately, and is in danger of exploding its ammunition or even of shutting down. Some of these effects will be removed when the internal heat goes down, while other effects may be avoided. All heat effects are explained below.

Movement Effects

High heat levels cause the craft's navigation and piloting computers to overheat and malfunction. Because of this malfunction, the craft will move randomly until the Pilot either causes the heat to drop or makes a successful Avoid Roll. A more severe malfunction will cause random movement and will freeze the thrust controls, preventing any deceleration to decrease the effect of the random movement.

The Avoid Number indicates how to avoid the malfunction. In any turn where the heat level remains above the trigger point, the player must roll 2D6 to determine if he has avoided the computer malfunction. If the die roll is equal to or greater than the Avoid Number (6+, 8+, or 10+), the craft's piloting computers function normally.

If the heat level remains at or above the trigger point during the next turn, the Pilot must make another Avoid Roll.

Weapons Attack Effects

Add the number given to the Base To-Hit Number. If the effect is +2 Fire Modifier, add 2 to the Base To-Hit Number as long as the heat is at or above this point on the scale. The effect is not cumulative and is removed when the heat point level drops below the number that triggered the effect.

Engine Shutdown

At excessively high temperatures, the magnetic jar containing the fusion reaction becomes unstable and may explode. As a safety device, the fusion reactor shuts down automatically. Until the Pilot restarts the reactor, the craft may not create any thrust or fire any weapons.

The Pilot may be able to avoid shutdown by overriding the fusion reactor's safety shutdown procedure, as indicated by the Avoid Number given with the heat effect. The player rolls 2D6. If the roll is equal to or greater than the Avoid Number, shutdown is avoided until the next turn or until the heat level drops below the trigger point. If the heat level remains at or above the trigger point during the next turn, the Pilot must make another Avoid Roll.

As the heat level rises, the Avoid Number also rises, making it more difficult to avoid a reactor shutdown.

If a craft shuts down in space, it will drift at its current velocity and direction. If the craft is at high or low altitude, it must immediately land in random terrain. Although it is no longer generating any heat, the craft's heat sinks are still working to dissipate its built-up heat. The heat will drop every turn that the reactor remains shut down, giving the Pilot a chance to restart the reactor. He rolls 2D6. If his roll is equal to or greater than the Avoid Number (which gets lower as the heat drops), the Pilot can restart the reactor. When the heat drops below 14 on the Heat Scale, the reactor restarts automatically.

If a shut down Fighter enters the atmosphere, it is in big trouble. There is a +4 modifier to the Atmospheric Entry Roll, which is made on the Dead Stick Entry column.

Ammunition Explosion

Ammunition explosion is handled in the same manner as in **BattleTech**. For every turn after reaching this point, the most destructive ammunition rack for a non-energy weapon explodes. The Damage Value determines which ammunition rack is destroyed first. A machine gun ammunition rack has a Damage Value of 2, and an AC/5's rack has a Damage Value of 5. A short-range missile pack has a Damage Value of 2 per missile on the rack, and a long-range missile pack has a Damage Value 1 per missile on the rack. When the ammunition explodes, all of one type goes up at the same time. If a Fighter carries one ton of LRM-20 ammunition and it explodes, the craft's fuselage takes 120 damage points (20 damage points x 6 shots or charges per ton = 120 damage points).

The Pilot may avoid this effect by pure luck, as indicated by the Avoid Number. To determine whether the ammunition explosion is avoided in a turn when the heat level is above the trigger point, the player rolls 2D6. If the die roll is equal to or greater than the Avoid Number (4+, 6+, etc.), no explosion occurs.

Pilot Damage

For every turn that the heat level is at or above this trigger point, the Pilot must successfully make an Avoid Roll on 2D6 or will suffer one point of damage. This heat effect remains in effect as long as the heat remains above the trigger point.

If the Pilot does suffer damage, he must then make a Consciousness Roll and suffer any consequences.

THE HEAT SCALE

Heat Points	Effect
00	No effect
01	No effect
02	No effect
03	No effect
04	No effect
05	Random Movement, avoid on 5+
06	No additional effect
07	No additional effect
08	+1 To-Hit modifier
09	No additional effect
10	Random Movement, avoid on 6+
11	No additional effect
12	No additional effect
13	+2 To-Hit Modifier
14	Shutdown, avoid on 4+
15	Random Movement, No Thrust, avoid on 6+
16	No additional effect
17	+3 To-Hit Modifier
18	Shutdown, avoid on 6+
19	Ammunition Explosion, avoid on 4+
20	Random Movement, No Thrust avoid on 8+
21	Pilot Damage, avoid on 6+
22	Shutdown, avoid on 8+
23	Ammunition Explosion, avoid on 6+
24	+4 To-Hit Modifier
25	Random Movement, No Thrust, avoid on 10+
26	Shutdown, avoid on 10+
27	Pilot Damage, avoid on 9+
28	Ammunition Explosion, avoid on 8+
29	No additional effect
30	Automatic Shutdown

AEROSPACE FIGHTER LAUNCH AND 'MECH DROPS

FIGHTER LAUNCHING

A DropShip can eject AeroSpace Fighters in space at any time, but it requires special equipment to unload a Fighter after the DropShip has landed. All Fighter launch operations are normally done in space, as no Fighter ejection operation is possible when the DropShip is in a planet's atmosphere.

Fighters are launched during the Movement Phase. To launch a Fighter, a DropShip must be in space and have spent no thrust during its movement. As part of the normal alternating movement sequence, the player announces that the DropShip has launched a Fighter. The Fighter counter is placed in either front hexes of the DropShip and may be moved normally at an initial velocity of 0. A DropShip may launch as many Fighters in one turn as its number of functioning Fighter doors.

FIGHTER RECOVERY

To recover a Fighter, the DropShip and Fighter must end movement in the same hex, with the same velocity and direction. During the next turn, the Fighter Pilot must make a *Piloting Skill Roll* with the following modifications.

RECOVERY MODIFICATION TABLE

Fighter Condition	Modifier
Craft under movement restriction	+3
Craft has lost 1/2 thrust ability	+2
Craft has lost all thrust ability	+4
DropShip Condition	
Same as above.	

If either the Fighter or DropShip is suffering random movement, recovery is not possible. A DropShip must have a functioning door to attempt recovery. If the *Piloting Skill Roll* fails, consult the Failed Recovery Table.

FAILED RECOVERY TABLE

Difference Between Target Number and Actual Roll

	Effect
1	Recovery successful. Fighter takes 10 damage points on front table.
2	Recovery successful. Fighter takes 15 damage points on front table. DropShip takes 10 damage points on side table.
3	Recovery successful. Fighter takes 20 damage points on front table. DropShip takes 15 damage points on side table, and Fighter will not be able to launch during rest of game.
4	Recovery fails. Fighter nose destroyed. DropShip takes 25 points of damage to side.
5	Recovery fails. Fighter suffers 25 points of damage to nose and 15 points to side.
6	Recovery fails. Fighter jammed in door, will take $6 + 1D6$ turns to free, Fighter suffers 30 points to side. No atmospheric entry possible until Fighter is removed.
7+	Recovery fails. Fighter damages DropShip door beyond repair. DropShip may not enter atmosphere until repairs are completed. Completion time: $6 + 2D6$ turns. Fighter destroyed. DropShip takes 35 points to side.

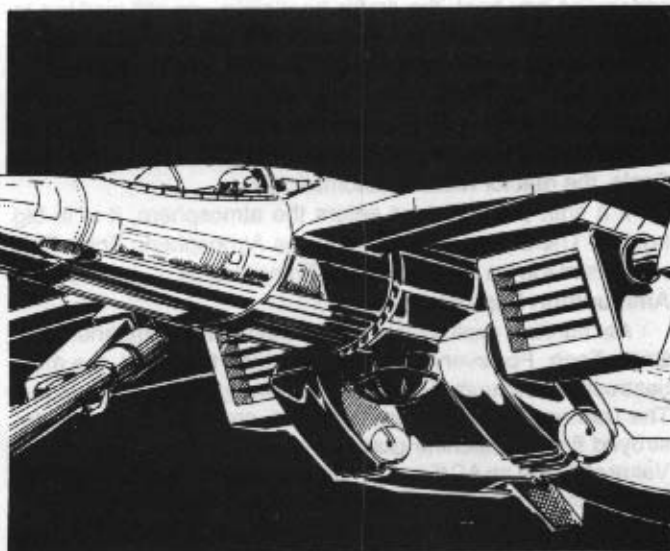
Acceleration and deceleration are the very first or very last parts of movement.

If a craft's engine is destroyed, no energy weapons may be fired and only one load of ballistic weapons may be fired.

If a DropShip's bridge is destroyed, the DropShip may spend no thrust and may not fire its weapons, but it may still eject Fighters and 'Mechs. Any such ejections take place as the last part of movement. Fighters launched in this manner may not move or fire until the next turn.

FIGHTER REFUELING

To refuel in space, a Fighter must match velocity and direction with a friendly DropShip, and both craft must end their movement in the same hex. During the next turn, neither craft may spend any thrust or fire weapons. The Pilot of the Fighter must make a successful *Piloting Skill Roll*. If the roll succeeds, the Fighter is completely refueled and may move normally the next turn. If the roll fails, refueling operations are not yet complete. The Pilot must wait another turn and then make another skill roll, but refueling is not finished until the roll is successful.



'MECH DROPS

A 'Mech can leave a DropShip at three points: in space, at high altitude, or on the ground after the DropShip has landed.

To drop 'Mechs accurately, a DropShip must remain stationary over the drop site for two full turns (not including the turn during which the DropShip first moved into the drop hex). At high altitude, the player can maintain station by spending 1 thrust point. In space, the DropShip must face away from the planet, and then spend thrust to offset the pull of gravity. At the end of the Movement Phase of the second stationary turn, the ship may eject as many 'Mechs as it has functioning doors.

If for some reason the DropShip cannot remain stationary over the drop hex, any dropped 'Mechs will automatically scatter. Use the Dive Bomb Scatter Table to determine how many low altitude hexes away the scattered 'Mechs will fall from their intended location.

For example, a Union Class DropShip is on a mission to the Kurita planet New Wessex. It has passed through the Fighter battle and is setting up for the 'Mech drop. On game turn 5, the DropShip ends its turn in the drop hex. The craft must stay in that hex during turns 6 and 7. At the end of the Movement Phase of turn 7, the DropShip may eject as many 'Mechs as it has functioning doors. If the DropShip stays stationary during turn 8, another load of 'Mechs may be dropped. During the stationary turns, the DropShip may fire any or all its weapons but may not move or change its facing.

Movement of Dropped 'Mechs to Surface

A 'Mech takes one turn to move from its DropShip's space hex to the high altitude map and one full turn to move from the high altitude map to the low altitude map. The 'Mech then spends one turn on the low altitude map; and in the following turn can land on a BattleTech Mapsheet. No other movement is possible.

After being dropped at the end of the Movement Phase of turn 7, the 'Mech remains in the drop hex until the end of turn 8's Movement Phase, when it moves to the appropriate high altitude hex. At the end of turn 9's Movement Phase, the 'Mech moves to the center hex of the low altitude map. It remains there until the end of turn 11's Movement Phase, when it can land on the drop target BattleTech Mapsheet.

Attacks Against Dropping 'Mechs

'Mechs ejecting out of DropShips are enclosed in a cocoon that serves as a heat shield and, once shed in the lower atmosphere, confuses enemy detection equipment. Because of this cocoon, dropping 'Mechs may not engage in any attacks against Fighters or DropShips. However, the dropping 'Mechs are now fair targets for Fighters and enemy DropShips.

To-Hit rolls by Fighters and DropShips are made as per normal AeroTech attacks, but damage is resolved as per the BattleTech rules, with the Attack Direction being determined as if the 'Mech counter's head were the front side of the 'Mech.

Landing

After a 'Mech has dropped to the surface of the planet, its MechWarrior must make several Piloting Skill Rolls. The first is to see if the MechWarrior can control his drop. Failure of this modified roll may result in the 'Mech's destruction when it hits the ground. When landing, a 'Mech must make a Piloting Skill Roll modified by any damage suffered during the drop and by the terrain where it intends to land. Consult the 'Mech Drop Modifiers Table below.

'MECH DROP MODIFIERS TABLE

Effect	Modifier
Automatic Modifier	+2
Per 10 points of damage suffered during descent	+1
Per Gyro Critical	+4
Per Head Hit	+2

If the roll fails, consult the following table for effects and modifiers to the Landing Roll.

FAILED DESCENT ROLL TABLE

Difference between Target Number and Actual Roll	Effect
1	Scatter
2	Scatter
3	Scatter, +1 to Landing Roll
4	Scatter, +2 to Landing Roll
5	Scatter, +3 to Landing Roll
6	Scatter, +4 to Landing Roll
7+	'Mech splatters into the ground and is completely destroyed. No parts may be scavenged.

Landing Roll Modifiers

Effect	Modifier
Per leg/foot actuator destroyed	+1
'Mech's Gyro Hit	+4
Per Hip Critical Hit	+2
Per Head Hit	+2
Landing Hex Terrain Modifier	
Light Woods	+1
Heavy Woods	+2
Rubble	+2
Rough	+2
Water Depth 1+	+2
Elevated Hex	+1

If both skill rolls are successful, the 'Mech lands successfully with no damage. If the first roll fails, the MechWarrior must check the Failed Descent Roll Table for damage, scatter, and a modifier to the second roll.

LANDING FAILURE TABLE

Difference between Target Number and Die Roll	Effect
1	Level 1 fall
2	Level 1 fall
3	Level 2 fall
4	Level 3 fall
5	Level 4 fall
6	Level 5 fall
7	Level 6 fall
8+	'Mech destroyed

This falling damage uses the normal Damage Location Table. Scattered 'Mechs use the Dive Bomb Scatter Table to determine final landing location. 'Mechs land at the end of a ground combat Movement Phase. During the turn that they land, the 'Mech may not fire, but functions normally thereafter.

LAND-AIR 'MECHS (LAMs)

Land-Air 'Mechs, or LAMs, are jacks-of-all-trades and masters of none. In the middle of a battle, these fighting machines can change their configuration to that of a 'Mech, a Fighter, or a hybrid mode with some advantages of both. LAMs served as highly mobile recon and light strike units for the Star League's armies. Never produced in great numbers, even fewer are manufactured and assembled now. The standard configurations are variations of the basic *Wasp*, *Stinger*, and *Phoenix Hawk* designs. Although lightly armored, these highly mobile 'Mechs are equipped with enough firepower that opposing forces cannot simply ignore them.

CONVERSION TIME

It takes one full turn for a LAM to convert from one mode to another. They may engage in normal movement and make attacks during this turn, but with modifications listed below.

CONVERSION RESTRICTION TABLE

Conversion Type	Movement Restriction	Combat Restriction
'Mech to Air'Mech Air'Mech to 'Mech	1/2 normal movement	+3 To-Hit Modifier
Air 'Mech to Fighter Fighter to Air'Mech	Normal Air'Mech movement	Not Allowed

'MECH MODE

While in 'Mech mode, the LAM is treated as a normal 'Mech for combat and movement purposes. A LAM's capabilities are that of the 'Mech upon which its design is based. In other words, if the LAM is based on the *Stinger*, its statistics and capabilities will be that of a *Stinger* when the LAM is in 'Mech mode.

AIR'MECH MODE

Movement

When on the ground, an Air'Mech moves as a regular 'Mech, but with reduced movement rates. Its walking and running rates are one-third normal 'Mech rates (rounded up). Multiply the jump movement rate by 3. Most important, an Air'Mech builds up no heat during jump or flight.

Air'Mechs that jump or fly in a turn must also contend with launching and landing. Each costs 2 MP. Landing after a jump or a flight also requires a normal *Piloting Skill Roll*, but there is a -4 modifier due to the Air'Mech's legs. Any damage to the legs that would affect a regular 'Mech's *Piloting Skill Roll* will also affect an Air'Mech's landing roll.

With the above modifications, a jump for an Air'Mech is the same as a jump for a 'Mech.

An Air'Mech does not have to land at the end of its turn. It can continue to fly at its jump rate for as long as it is capable of flight. If flying, the LAM must move forward at least six hexes during any turn spent in flight. The LAM now moves as a VTOL with all of the attendant movement and elevation rules (it flies one level higher than the terrain below.)

Combat

When on the ground, an Air'Mech fires as a normal 'Mech with all appropriate modifiers. When flying, the LAM is treated as a jumping 'Mech both for Target and Attacker To-Hit Modifiers. When firing at an Air'Mech on the ground, consider it a normal target. When it is flying, it has a -1 To-Hit Modifier on attacks against ground-attacking Fighters.

Damage

When a LAM converts into an Air'Mech, some of its hit locations change, and the effects of some damage become more critical. The critical hits listed on the Critical Hits Conversion Table below will prevent any mode conversion.

When a LAM changes from 'Mech mode to Air'Mech mode, it deploys its wings. These have armor values equal to one-half the total armor value of their respective side torsos (front and back). When an Air'Mech is hit by weapons fire, use the regular 'Mech Hit Location Table, except that right and left torso hits become right and left wing hits. When all wing armor is gone, damage passes to the respective torso area. When the wing armor is destroyed, the wing is destroyed, and the Air'Mech can no longer fly, but it may jump at its normal range. If the wing is destroyed while in flight, the LAM falls as if from Level 4. In addition, the Air'Mech will skid one-half the distance moved during the turn of the fall. The Air'Mech will suffer one-half normal falling damage for each hex of the skid, and any

obstacle is considered to have been charged by the skidding Air'Mech. (see the **Skidding** and **Charging** sections in **BattleTech**).

Damage to all other locations of an Air'Mech is as for a normal 'Mech.

CRITICAL HIT CONVERSION LIMITATION TABLE

Critical Location	Conversion Disallowed
Gyro	'Mech to Air'Mech and Air'Mech to 'Mech
Shoulder	Air'Mech to Fighter
Upper Arm Actuator	Air'Mech to Fighter
Hip	'Mech to Air'Mech and Air'Mech to 'Mech
Upper Leg Actuator	No conversions allowed
Lower Leg Actuator	No conversions allowed

FIGHTER MODE

An Air'Mech can convert into an AeroSpace Fighter. The conversion takes one turn, and can be done in flight. During the conversion turn, no weapons fire is allowed, and the MP allowance is the same as normal Air'Mech movement.

Movement

A LAM Fighter acts in all respects like a standard AeroSpace Fighter. Its thrust and overthrust ratings are equal to its walk and run capabilities. It has 30 points of fuel at the beginning of the game.

Combat

A LAM Fighter's combat capabilities are equal to its 'Mech stats. When in flight, the LAM's heat sinks become extremely efficient. This is mostly due to the large amount of air passing over the heat sink surfaces. This phenomenon allows all energy weapons to fire at greatly extended range, but building up only the normal amount of heat.

Arm weapons become wing weapons, leg-mounted weapons now fire aft, and all torso weapons now fire forward.

Damage

The following table shows the damage locations and their 'Mech equivalents.

DAMAGE LOCATIONS	
Fighter Location	LAM 'Mech Location
Cockpit	Head
Nose	Arms
Wings	Side Torso
Fuselage	Center Torso
Engine	Legs

When the LAM's armor is penetrated, damage passes to the internal structure. When the center torso's internal structure is destroyed, the LAM, in whatever mode, is destroyed.

A LAM's SI is equal to one less its tonnage divided by 10 minus 1 ([Tonnage/10] -1) or its thrust rating, whichever is greater.

Every LAM has 30 points of fuel. This fuel is expended only when the LAM is in Fighter mode.

LAMs may not carry bombs.

OPTIONAL RULES

ABSTRACT 'MECH LANDING SYSTEM

Some players may not want to spend a large amount of time determining the exact location and condition of dropped 'Mechs. A quicker abstract system is given below as an alternative.

For each 10 points of damage suffered by the 'Mech during descent, roll damage effects on the following table.

ABSTRACT DAMAGE TABLE	
Die Roll	Damage Effect
2	+3 Gyro critical
3	+2 Miscellaneous critical
4	+1
5	+1
6	+1
7	+1
8	+1
9	+1
10	+1
11	+2 Miscellaneous critical.
12	Head Hit 'Mech destroyed.

These results are modifiers to a descent *Piloting Skill Roll*, which has a base of 5. If the roll fails, the 'Mech is destroyed. If the roll succeeds, consult the following table to determine in what type of terrain the 'Mech will land.

ABSTRACT LANDING TERRAIN	
Die Roll	Terrain Type
1	Clear
2	Clear
3	Clear
4	Rough
5	Light Woods
6	Heavy Woods

Make the 'Mech Landing Roll with modifiers from the Landing Modifier Table. If the roll succeeds, the 'Mech lands safely. If the roll fails, the 'Mech is destroyed.

FUEL AND WITHDRAWAL FROM THE LOWER ATMOSPHERE

A Fighter's fuel points are its combat reserve when operating in the lower atmosphere. Once these points have been used up, the craft is expending the fuel it needs to return to its home base and thus increases the probability that it will be forced to crash land somewhere. To simulate this effect, the player can use the following rules.

A Fighter may continue to fight on the Lower Atmosphere Map even if it has expended all its fuel points. It may operate only at a maximum thrust equal to half of its normal cruising thrust.

Once the craft has exited the map, roll to determine whether or not the craft has reached its airfield, and then roll to see if it successfully landed.

To see if the craft reaches its landing field, the player makes a modified *Piloting Skill Roll*. There is a +1 modifier for each turn the craft remained beyond the turn it ran out of fuel points. A successful roll means that the craft reached its landing field. A unsuccessful roll means that the craft must put down somewhere other than its normal landing field.

A craft that reached its normal landing zone (either by a successful *Piloting Skill Roll* or by exiting the map with thrust points left over) may land in that terrain as normal.

A craft that has failed to reach its normal landing zone must make an emergency landing somewhere else. The craft will have no thrust available, and other craft conditions, terrain modifiers, and SI will modify the landing roll. To determine the terrain type, use the Random Landing Terrain Table.

TAILING

A Fighter that has positioned itself on the tail of its opponent has a tremendous advantage. In game terms, a Fighter tailing an enemy Fighter always wins the initiative over its opponent (i.e., it will move after the tailed plane moves). Most combat maneuvering is done to achieve a tailing position.

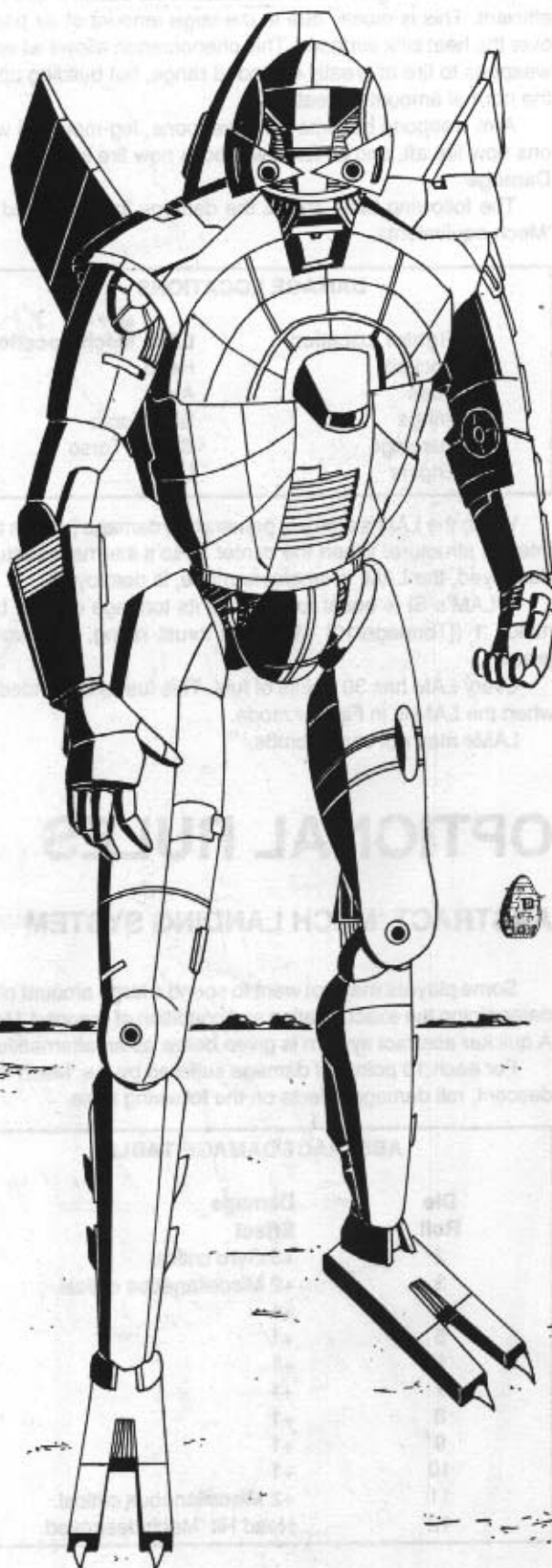
A Fighter is considered to be tailing an enemy Fighter, when the enemy craft is in the friendly Fighter's forward firing arc and the friendly Fighter is in the rear firing arc of the enemy craft.

When there are more than two craft fighting, it is possible for a chain of them to be tailing each other. By following the chain from front to back, the players should be able to determine the movement sequence of all Fighters. However, it is possible for a chain to close in on itself; i.e., A is tailing B, who is tailing C, who is tailing D, who is tailing A. In this case, the players make a normal initiative roll. The winning player decides where the head of the chain starts.

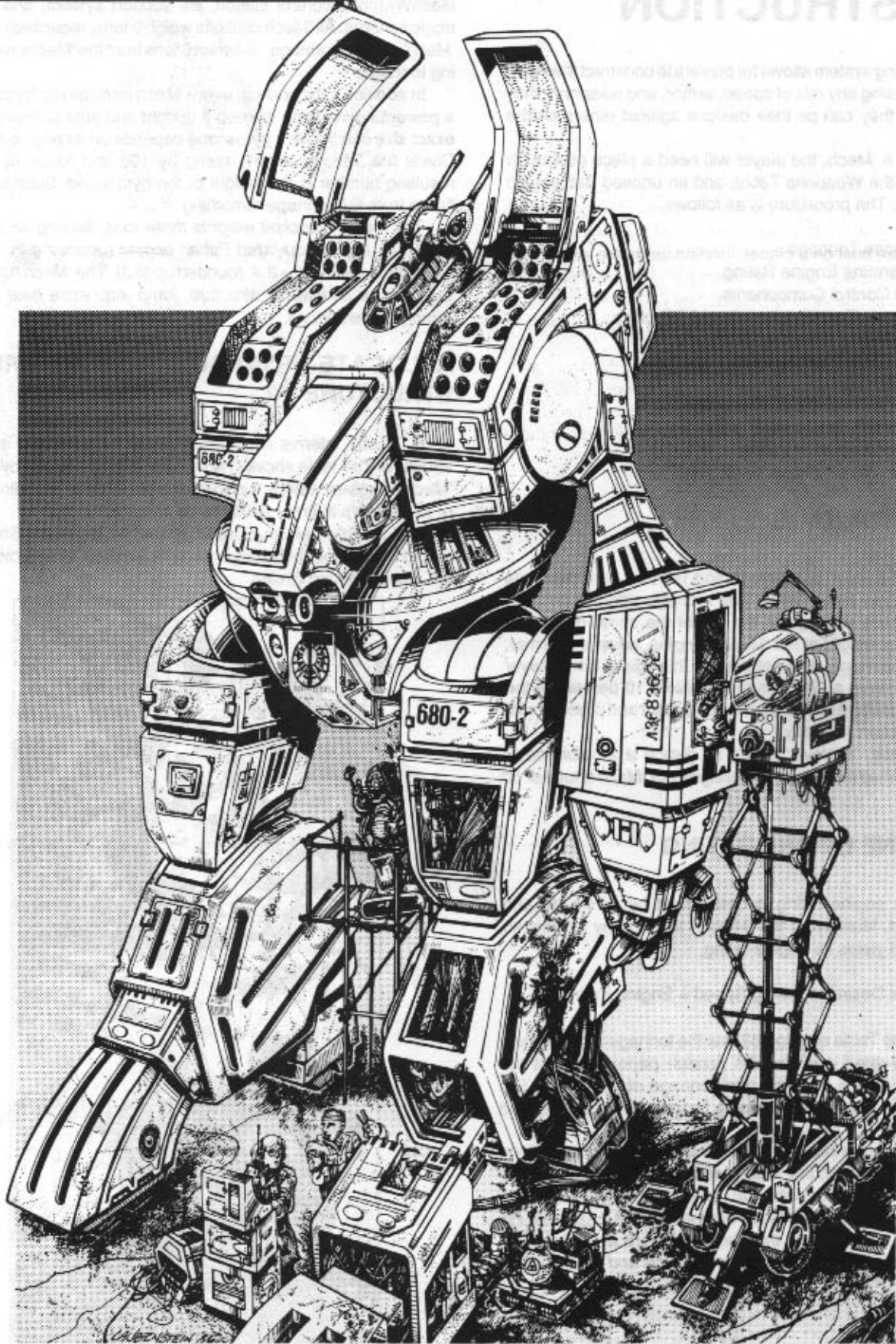
LANDING FIELDS

Paved landing fields make it a lot easier for DropShips to land and take off. DropShips and their plasma drives weigh so much that they often dig huge craters when landing in open terrain. Taking off out of a crater is a complicated and often dangerous job, which is why all civilized planets have landing fields. Usually the first structure built on a planet, landing fields are always the first structure attacked. Dropped 'Mechs and AeroSpace Fighters make capturing landing fields their first priority, so that afterwards, other DropShips can let their 'Mechs out on the landing fields.

The landing field consists of a very large expanse of reinforced concrete with gun positions, control towers, and AeroSpace Fighter hangars; all are hardened structures. The troops' barracks and the vehicle garages are heavy buildings. If there are hangars for the DropShips, they are light buildings.



CONSTRUCTION



BATTLEMECH CONSTRUCTION

The following system allows for players to construct their own BattleMechs using any mix of speed, armor, and weaponry they desire. Then, they can pit their designs against others on the battlefield.

To design a 'Mech, the player will need a piece of scratch paper, a pen, the Weapons Table, and an unused BattleMech Record Sheet. The procedure is as follows.

1. Choose Tonnage
2. Determine Engine Rating
3. Add Control Components
4. Allocate Tonnage for Internal Structure
5. Determine Jump Capability
6. Add Extra Heat Sinks
7. Add Armor
8. Add Weapons and Ammunition
9. Complete Equipment Tables
10. Allocate Armor Values
11. Complete Record Sheet

CHOOSE TONNAGE

BattleMechs weigh between 10 and 100 tons (in increments of 5 tons). Within these limits, any tonnage may be chosen. Record the 'Mech tonnage at the top of the sheet of scratch paper. The total weight of the 'Mech's engine, weapons, armor, and other components may not exceed this figure. If the player wishes to construct a LAM, he must devote 10 percent of the 'Mech's total tonnage to conversion equipment and proceed with Mech construction normally.

For example, a player wants to design a medium-sized BattleMech called the Merlin. He assigns the 'Mech a total of 60 tons.

DETERMINE ENGINE RATING

A 'Mech's engine rating is determined by its weight and desired speed. Multiplying the 'Mech's tonnage by its desired walking speed yields its engine rating.

$$\text{Tonnage} \times \text{Desired Walking Speed} = \text{Engine Rating}$$

The Engine Table on page 88 lists the tonnage requirements for 10-to 400-rated engines. On scratch paper, subtract the weight of the engine from the total tonnage of the 'Mech. The remaining tonnage will be available for other components and systems.

The player gives his 60-ton Merlin a Movement Point allowance of 4. As the result, the 'Mech needs a 240-ton-rated engine ($60 \text{ tons} \times 4 \text{ MP} = 240$). Looking at the Engine Table, the player finds that a 240-ton-rated Pitban engine weighs 11.5 tons. He subtracts this number from the Merlin's 60 tons available. This leaves 48.5 tons for armor, weapons, controls and other components.

ADD CONTROL COMPONENTS

Every 'Mech must have a cockpit containing the MechWarrior's control station, life support system, and electronic sensors. All 'Mech cockpits weigh 3 tons, regardless of the 'Mech's overall tonnage. Subtract 3 tons from the 'Mechs remaining tonnage.

In addition to its cockpit, every 'Mech must be equipped with a powerful gyroscope to keep it upright and able to move. The exact size of a 'Mech's gyroscope depends on its engine rating. Divide the 'Mech's engine rating by 100 and round up. The resulting number is the weight of the gyroscope. Subtract this figure from the tonnage remaining.

The Merlin's cockpit weighs three tons, leaving 45.5 tons available. Its 240-ton-rated Pitban engine requires a three-ton gyroscope ($240/100 = 2.4$, rounded up to 3). The 'Mech has 42.5 tons left for its internal structure, jump jets, extra heat sinks, armor, and weapons.

ALLOCATE TONNAGE FOR INTERNAL STRUCTURE

A 'Mech's internal structure takes up 10 percent of its total structure. The table shows the number of tons needed by every 'Mech of a given weight. It also shows the number and allocation of the 'Mech's internal structure circles.

Use the Internal Structure Diagram on the Record Sheet to record the number of boxes in each hit location, simply blocking out any unneeded circles.



INTERNAL STRUCTURE TABLE

Total Tonnage	Tons Required	Internal Structure Boxes			
		Center Torso	Left/ Right Torso	Each Arm	Each Leg
10	1	4	3	1	2
15	1.5	5	4	2	3
20	2.0	6	5	3	4
25	2.5	8	6	4	6
30	3.0	10	7	5	7
35	3.5	11	8	6	8
40	4.0	12	10	6	10
45	4.5	14	11	7	11
50	5.0	16	12	8	12
55	5.5	18	13	9	13
60	6.0	20	14	10	14
65	6.5	21	15	10	15
70	7.0	22	15	11	15
75	7.5	23	16	12	16
80	8.0	25	17	13	17
85	8.5	27	18	14	18
90	9.0	29	19	15	19
95	9.5	30	20	16	20
100	10.0	31	21	17	21

The Merlin weighs a total of 60 tons. The Internal Structure Table shows that the 'Mech's internal structure takes up six tons, leaving 36.5 tons available. The table also shows that the internal structure of the Merlin's center torso has 20 circles, both the right and the left torso have 14 circles apiece, the arms have 10 circles each, and both the legs have 14 circles.

DETERMINE JUMP CAPACITY

BattleMechs may be equipped with jump jets in their legs or on their backs to allow jump movement. The weight of the jump jets depends on the weight of the 'Mech and the jump movement desired. The following table gives these costs.

'Mech Tonnage	Jump Jet Weight
05-55	.5 tons/Jump Movement Point
60-85	1.0 tons/Jump Movement Point
90-100	2.0 tons/Jump Movement Point

Subtract the total weight of the 'Mech's jump jets from the remaining tonnage.

Allocate space on the Equipment Charts for jump jet exhaust ports for the legs or torsos.

The player gives the Merlin a jump movement point allowance of 4, requiring 4.0 tons for jump jets. (4 MP x 1.0 tons/MP + 4 tons.) The 'Mech has 32.5 tons left.

ADD EXTRA HIT SINKS

Heat sinks dissipate the heat produced by movement and weapons fire. Every 'Mech's engine includes ten heat sinks more than it needs to get rid of the heat generated by the engine itself. Therefore, any undamaged 'Mech can automatically dissipate 10 points of heat per turn. Because most 'Mechs need to get rid of more heat, players may acquire extra heat sinks at the cost of one ton per heat sink.

The player decides that he wants the Merlin to be able to dissipate up to 18 points of heat per turn. The Merlin automatically gets ten heat sinks with its 240-ton-rated Pitban engine, and so the player gets another eight heat sinks, weighing a total of eight tons.

ADD ARMOR

Armor helps protect the 'Mech's internal structure and critical components. An Armor Value of 16 weighs one ton. Determine the total number of armor points the 'Mech will carry. These points will be allocated among the 'Mech's hit location areas at a later stage of the design process. Armor can be added only in half- or one-ton lots.

The player decides to allocate ten tons of the Merlin's remaining tonnage to armor. As a result, the 'Mech carries an Armor Value of 160 (10 tons x 16 points/ton + 160 points). The Merlin has 14.5 tons of space left for its weapons and extra ammunition.

ADD WEAPONS AND AMMUNITION

Every weapon placed on a 'Mech weighs a certain amount, as listed on the Weapons Table (located in the back of the book). Select the weapons that the newly designed 'Mech will carry. At least one ton of ammo must be purchased for each missile launcher or ballistic weapon ammunition (except for MG ammo, which may be purchased in half-ton lots). This purchase will provide a varying number of shots, depending on the launcher or weapon.

The Merlin carries a particle projector cannon (7 tons), two medium lasers (1 ton apiece), one flamer (1 ton), a machine gun (.5 tons), and one 5-pack, long-range-missile launcher (2 tons). In addition, one ton is set aside for 24 missile reloads and one ton is reserve for machine gun ammunition (200 shots). After its weapons are added, the Merlin has zero tons remaining for extra equipment.

COMPLETE RECORD SHEET

The Record Sheet contains Equipment Tables for every part of the 'Mech's body. These hit tables are already partially filled in. Allocate the 'Mech's additional heat sinks, jump jets, and weapons to different parts of its body, and place them on the Equipment Table for that location. Certain weapons take up more than one critical space on the chart.

Only a portion of the ten heat sinks that come with the engine have to be allocated to critical hit locations. The number that does not have to be allocated is equal to the 'Mech's engine rating divided by 25, rounded down. These heat sinks are assumed to be an integral part of the engine and are destroyed only if the engine is destroyed.

The number of blank spaces remaining on the table for a given location acts as a limit on the number of weapons and heat sinks that may be placed there. Many weapons take up more than one space, as shown on the Weapons Table. For example, the center torso has two spaces left empty on the Equipment Table, but a PPC takes up 3 spaces. Therefore, the PPC cannot be placed in the 'Mech's center torso.

The 'Mech's Upper, Lower, or Hand Actuators may be removed to increase the number of critical hit locations in the arms. Removal of some or all of these components reduces the 'Mech's ability to punch to varying degrees. A 'Mech must have upper and lower arm actuators in order to punch.

The Merlin's particle projector cannon is placed on its right torso, one of its medium lasers occupies its right arm, and the other occupies its left. The Merlin's 5-pack long-range missile launcher goes to its right torso, while the 'Mech's machine gun and flamer occupy the left torso. Of the 18 heat sinks, 9 are not displayed and 9 must be allocated to critical hit locations. Only one of the 'Mech's 10 free sinks must be allocated to critical hit locations.

ALLOCATE ARMOR

Divide the total Armor Value carried by the 'Mech among the eleven different locations shown on the 'Mech Record Armor Diagram. The exact Armor Value used to protect a given area is left to the player's discretion, but the Armor Value may not be more than twice the number of internal structure boxes in that location. For example, if a 'Mech has ten circles in its left arm, then an Armor Value of no more than 20 is allowed in the left arm. The only exception is that all 'Mechs can have an Armor Value of up to 9 on their heads.

It is important to notice that the center, left, and right torso areas are divided into sections for front and rear armor. The armor allocated to a front section cannot be allocated again to the rear area, and vice versa.

Use the Armor Diagram on the Record Sheet to indicate the Armor Value carried on each part of the 'Mech's body. To use the schematic, simply block out any unneeded circles.

COMPLETE RECORD SHEET

Fill out the record sheet by recording the 'Mech's tonnage and movement point allowances.

VEHICLE CONSTRUCTION

The following system allows players to construct their own vehicles using any mix of speed, armor, and weaponry they desire. Then, they can pit their designs against others on the battlefield.

To design a vehicle, the player will need scratch paper, a pen, the Weapons Table, and an unused Vehicle Record Sheet. The procedure is as follows.

1. Choose Tonnage
2. Determine Engine Rating
3. Add Control Components
4. Add Lift Equipment/Rotors/Diving Equipment
5. Allocate Tonnage for Internal Structure
6. Add Armor
7. Add Weapons and Ammunition
8. Allocate Armor Values
9. Complete the Record Sheet

CHOOSE TONNAGE

Vehicle weight is limited by type according to the Vehicle Table below. Within these limits, the player may choose any tonnage. Record the vehicle tonnage at the top of the scratch paper. The total weight of the vehicle's engine, weapons, armor, and other components may not exceed this figure.

VEHICLE TABLE

Ground Vehicles

Tracked

Maximum Tonnage	100 tons
Suspension Factor	0
Terrain Restrictions	No Heavy Woods or Water Hexes

Wheeled

Maximum Tonnage	80 tons
Suspension Factor	0
Terrain Restrictions	No Rough, Light or Heavy Woods, or Water Hexes.

Hovercraft

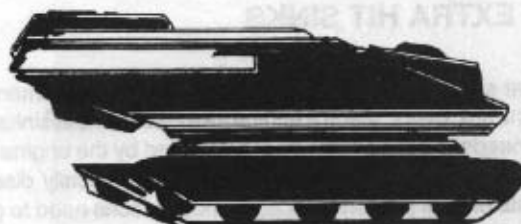
Maximum Tonnage	50 tons
Suspension Factor	

Tons	SF
01-10	40
11-20	85
21-30	130
31-40	175
41-50	235

Terrain Restrictions No Light Woods or Heavy Woods

Lift Equipment 1 ton for every 10 tons of craft

Minimum Engine Weight 20% of total Vehicle Weight



Naval Vehicles

Hydrofoils

Maximum Tonnage 100 tons

Suspension Factor

Tons	SF
01-10	60
11-20	105
21-30	150
31-40	195
41-50	255
51-60	300
61-70	345
71-80	390
81-90	435
91-100	480

Terrain Restrictions

Water hexes of
Depth 1 or deeper
only

Lift equipment

10% of hydrofoil
tonnage**Conventional Naval Craft and Submarines**

Maximum Tonnage 300 tons

Suspension Factor 30

Terrain Restrictions

Water hexes of
Depth 1 or deeper
onlySubmarine Diving Equipment 10% of submarine
tonnage**VTOL**

Maximum Tonnage 30

Lift Factor

Tons	Lift Factor
01-10	50
11-20	95
21-30	140

DETERMINE ENGINE RATING

A vehicle's weight, desired speed, and suspension or lift/diving factor determines its engine rating. Multiply the vehicle's tonnage by its desired cruising speed, and then subtract the lift factor from this total to yield its engine rating. The Suspension-Factors for various tonnages are given in the Vehicle Table.

(Tonnage x Desired Cruising Speed) - Suspension Factor =
Engine Rating

Vehicles may use either a fusion or internal combustion engine. Internal combustion engines weigh twice as much as an identically rated fusion engine, but they are cheaper and more readily available. Also, vehicles with fusion engines must add extra shielding and transmission equipment. The weight of this equipment is equal to one-half the weight of the fusion plant itself. (See the Engine Table on page 88).

ADD CONTROL COMPONENTS

Every vehicle must have a cockpit along with the controls necessary to pilot the craft. These components take up five percent of the vehicle's total tonnage.

ADD ROTORS/LIFT/DIVING EQUIPMENT

Hovercraft, hydrofoils, VTOLs, and submarines all use special equipment that give them their unique movement abilities. This special equipment weighs ten percent of the vehicle's total tonnage.

ALLOCATE TONNAGE FOR INTERNAL STRUCTURE

Ten percent of every vehicle's total structure is taken up by its internal structure. Each of the five damage locations receives one internal structure circle for every ten tons of the vehicle's tonnage, rounded up.

ADD ARMOR

Armor helps protect the vehicle's internal structure. An armor value of 16 weighs one ton, the same as on a 'Mech. Determine the total number of armor points the vehicle will carry. These points will be allocated among the vehicle's hit location areas at a later stage of the design process. Armor can be added in only half- or one-ton lots. A VTOL's rotor may have only 2 points of armor added to it.

ADD WEAPONS AND AMMUNITION

Every weapon placed on a vehicle weighs a certain amount as listed on the Weapons Table. Select the weapons that the newly designed vehicle will carry. At least one ton of ammo must be purchased for each missile launcher or ballistic weapon ammunition (except for MG ammo, which may be purchased in half-ton lots). This purchase will provide a varying number of shots, depending on the launcher or weapon.

Energy weapons may require extra equipment, depending on the type of engine system installed. The number of heat sinks should be equal to the number of heat points that all the desired energy weapons would generate in one turn. Remember that all fusion plants have ten heat sinks built into them. Internal combustion engine vehicles also require power amplifiers at a ratio of one ton per ten tons of energy weapons.

Most vehicles will mount some or all of their weapons in turrets. Any number of weapons can be mounted in one turret. Turrets weigh 10% of the tonnage of the weapons mounted in them. If a weapon is not mounted in a turret, it will have a fixed field of fire in the direction it is mounted.

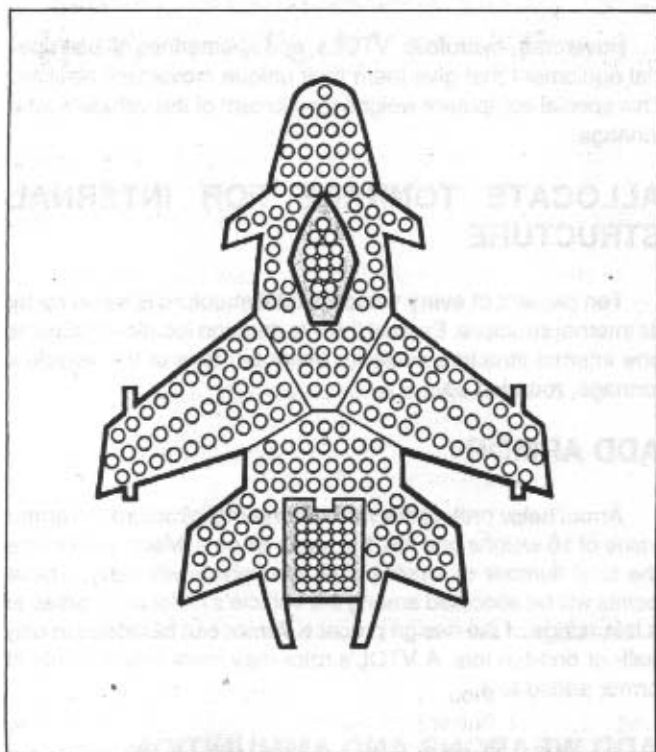
Unlike other vehicles, VTOLs may not mount turrets.

ALLOCATE ARMOR

Divide the total Armor Value carried by the vehicle among the five different locations shown on the Vehicle Record Sheet. The player may not allocate more than 2 points of armor to the rotor location of a VTOL. The exact Armor Value used to protect the other locations is left to the player's discretion.

COMPLETE RECORD SHEET

Fill in the remaining information on the record sheet.



FIGHTER CONSTRUCTION

The following system allows players to construct their own AeroSpace or Conventional Fighters using any mix of speed, armor, and weaponry they desire. Then, they can pit their designs against others on the battlefield.

To design a Fighter, the player will need a piece of scratch paper, a pen, the Weapons Table, and an unused Fighter Record Sheet. The procedure is as follows.

1. Choose Tonnage.
2. Determine Engine Rating
3. Determine Fuel Capacity
4. Add Cockpit (AeroSpace Fighters Only)
5. Add Control Components (Conventional Aircraft only)
6. Add Armor
7. Add Weapons and Ammunition
8. Add Heat Sinks
9. Allocate Armor Values
10. Complete Record Sheet

CHOOSE TONNAGE

Conventional Fighter weight is limited to 50 tons, while AeroSpace Fighters may weigh up to 100 tons. Within these limits, a player may choose any tonnage. Record the Fighter tonnage at the top of the sheet of scratch paper. The total weight of the engine, weapons, armor, and other components may not

exceed this figure.

DETERMINE ENGINE RATING

An AeroSpace Fighter's engine rating is equal to its tonnage times its desired thrust minus two.

$$\text{Tonnage} \times (\text{Thrust} - 2) = \text{Engine Rating}$$

A conventional aircraft's engine rating is determined by its weight and desired speed. Multiply the aircraft's tonnage by its desired thrust to yield its engine rating.

AeroSpace Fighters use only fusion engines from the Engine Table.

Conventional aircraft may use either a fusion or turbine engine. Turbine engines weigh twice as much as an identically rated fusion engine, but they are cheaper and more readily available. Also, Fighters with fusion engines must add extra shielding. The weight of this equipment is equal to one-half the weight of the fusion plant itself. (See Engine Table on page 88.)

DETERMINE FUEL CAPACITY

Conventional Fighters must carry fuel to maneuver whether or not they are fusion- or turbine-powered. In an AeroSpace Fighter, one ton of fuel generates 15 thrust points. Conventional Fighters receive 30 thrust points per ton of fuel carried.

ADD COCKPIT (AeroTech Fighters only)

All AeroSpace Fighters must have a cockpit and controls. Weighing three tons, this equipment provides 10 points of armor protection for the cockpit.

ADD CONTROL COMPONENTS (Conventional Aircraft Only)

Every conventional craft must have the instruments and controls necessary to fly the craft in combat. These components take up ten percent of the craft's total tonnage.

ADD ARMOR

Armor helps protect the aircraft's Structural Integrity. An Armor Value of 16 weighs one ton, the same as on a 'Mech. Determine the total number of armor points the Fighter will carry. A Conventional Fighter may carry a maximum of 1 point of armor per ton of Fighter. AeroSpace Fighters have no such restriction. The armor points will be allocated among the aircraft's hit location areas at a later stage of the design process. Armor can only be added in half or one ton lots.

ADD WEAPONS AND AMMUNITION

Every weapon placed on a Fighter weighs a certain amount as listed on the Weapons Table (on page 87). Select the weapons that the newly designed Fighter will carry. At least one ton of ammo must be purchased for each missile launcher or ballistic weapon (except for MG ammo, which may be purchased in half-ton lots). This purchase will provide a varying number of shots, depending on the launcher or weapon.

ADD HEAT SINKS

An AeroSpace Fighter needs heat sinks to dissipate heat produced by overthrust, weapons fire, and atmospheric entry. Every fusion engine system includes heat sinks. Therefore, every undamaged AeroSpace Fighter can automatically dissipate 10 heat points per turn. However, because most Fighters need to be able to dissipate more heat, extra heat sinks can be added at the cost of one ton per heat sink.

Conventional Fighters, like vehicles, do not need to dissipate heat in the same manner as an AeroSpace Fighter. However, a Conventional Fighter's energy weapons may require extra equipment, depending on the type of engine system installed. The number of heat sinks should be equal to the number of heat points that all the desired energy weapons would generate in one turn. Remember that all fusion plants have ten heat sinks built into them. Turbine engine Fighters also require power amplifiers at ratio of one ton per ten tons of energy weapons.

ALLOCATE ARMOR

Divide the Fighter's total Armor Value among the five different locations shown on the Fighter Record Sheet. The exact Armor Value used to protect the other locations is left to the player's discretion.

COMPLETE RECORD SHEET

Fill in the remaining information on the Record Sheet. Remember that AeroSpace Fighters start with 10 free armor points in the cockpit section. The Equipment Table on the sheet shows the four parts of the Fighter's structure that can mount weapons. Each area can mount up to six weapons and/or ammunition storage locations. The rear location can mount only two tons of aft-firing weapons.



GUN EMPLACEMENT AND BUILDING CONSTRUCTION

Rather than using the standard construction values for buildings, players may wish to design and construct their own buildings or gun emplacements. Use these building construction rules only for important installations.

In order to design a building, the player will need a piece of scratch paper, a pen, the Weapons Table, and the Engine Table. The procedure is as follows.

1. Choose Construction Factor
2. Choose Number of Levels
3. Choose Number of Hexes
4. Determine Internal Structure/Tonnage
5. Determine Armor Tonnage
6. Allocate Weapons and Ammunition
7. Add Power Plant
8. Complete Record Sheet

CHOOSE CONSTRUCTION FACTOR

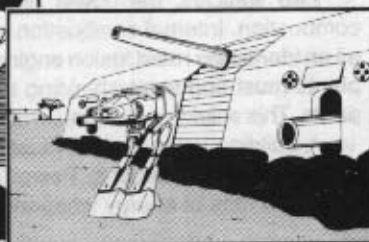
The player should choose a Construction Factor between 1 and 150. The Building Movement and Fire Starting Modifier Table on page 31 will give the classification for the building based on this value. The Construction Factor determines the weight of excess equipment that can be allocated to the building. For every Construction Factor, the building can support one ton of equipment. The total weight of internal tonnage, weapons, armor, and other components may not exceed this figure.

CHOOSE NUMBER OF LEVELS

The player must choose the height of the building, which can be between 1 and 4 Levels inclusive. If the player wishes, one of the levels can be the building's basement. Thus, a building with three levels and a basement would have an elevation of 2, while the same building with no basement would have an elevation of 3. The number of levels in a building does affect the tonnage that must be allocated to the building's internal structure.

CHOOSE NUMBER OF HEXES

Next, the player must choose the area that the building occupies, which can be between 1 to 3 hexes inclusive. The number of hexes that a building occupies affects the tonnage that must be allocated to the building's internal structure.



INSIDE GUN IMPLACEMENT

DETERMINE INTERNAL STRUCTURE TONNAGE

A building's internal structure tonnage is the weight of the materials necessary to support the walls, floors, and other equipment. Multiply the number of levels by the number of hexes by the Construction Factor, and divide by ten to yield the internal structure tonnage.

$$\text{Tonnage} = (\text{Levels} \times \text{Hexes} \times \text{CF}) / 10 = \text{Internal Structure Tonnage}$$

Subtract the internal structure tonnage from the building's total tonnage.

DETERMINE ARMOR TONNAGE

The armor tonnage is based on the weight of the walls and the amount of armor that the player allocates to the building's turret, if it has one. The weight of the walls is equal to the Construction Factor divided by three, rounded up. The player can allocate armor to a turret in one- or half-ton units, with each ton allocated giving the turret 16 points of armor. The sum of these two numbers is the amount of building tonnage allocated to Armor.

ALLOCATE WEAPONS AND AMMUNITION

Every weapon installed into a building weighs a certain amount as noted in the Weapons Table (see page 87). For every missile or ballistic weapon's system at least one ton of ammunition must also be added. However, for every MG system, the player may add only a half ton of ammunition.

Energy weapons require heat sinks to operate. The number of heat sinks should be equal to the number of heat points that the weapons would generate if all were fired in one turn.

Some or all of the weapons can be mounted in a turret. Turret-mounted weapons can rotate in a 360 degree arc as per the **Vehicles** section.

Any number of weapons can be mounted in one turret. A turret weighs one ton for every ten tons of weapons mounted. If a weapon is not mounted in a turret, it will have a fixed field of fire in the direction that is mounted.

ADD POWER PLANT

If a building has a turret and/or energy weapons, a power plant must operate those systems. The rating of the necessary power plant is equal to the tonnage of energy weapons, rounded up to the nearest rating factor. Use the Engine Table on page 88. The minimum rating for a power plant is 10.

Like vehicles, the power plant may be fusion or internal combustion. Internal combustion engines weigh twice as much as an identically rated fusion engine. Buildings with fusion power plants must add extra shielding to protect the building's occupants. This shielding is equal to half the weight of the fusion plant.

A building using an ICE must also add power amplifiers to operate energy weapons. Power amplifiers weigh one ton for every ten tons of energy weapons.

COMPLETE RECORD SHEET

The player should fill out the remaining pieces of information shown on the Installation Record Sheet.

COMMON COSTS

Players using **MechWarrior** and designing their own 'Mechs, Vehicles, and buildings may use the tables below to calculate the value of their units in C-Bills.

BATTLEMECH COST

The cost in C-Bills for a custom-designed 'Mech is the sum of the cost of all components according to the formulas listed below. All tonnages are that of the 'Mech, except for gyros, heat sinks, and armor, for which the individual component weight is used.

'MECH COST CHART

Part Formula/Cost (C-Bills)

Cockpit	200,000
Life Support	50,000
Sensors	Tonnage x 2,000
Musculature	Tonnage x 2,000
Skeleton	Tonnage x 400
Arm Actuators	
Upper	Tonnage x 100
Lower	Tonnage x 50
Hand	Tonnage x 80
Leg Actuators	
Upper	Tonnage x 150
Lower	Tonnage x 80
Foot	Tonnage x 120
Engine	[5000 x Rating x Tonnage] / 75
Gyro	300,000 per tons of Gyros
Jump Jets	1/2 Tons x (number of Jet) ² x 200
Heat Sinks	2,000 per each over 10
Armor	10,000 x Tons of Armor
Weapons	per Weapons Price List
LAM Conversion	(Weapons cost + Structure Cost) x .75
Final 'Mech Cost Multiplier	[Structure + Weapons + LAM Cost] [1 + (Tonnage/100)]

AEROSPACE FIGHTER COST

The cost in C-Bills for a custom-designed AeroSpace Fighter is the sum of the cost of all components according to the formulas listed below. All tonnages are that of the Fighter, except for heat sinks and armor, for which the individual component weight is used. Structural costs are based on the Fighter's Structural Integrity.

AEROSPACE FIGHTER COST CHART

Part	Formula/Cost (C-Bills)
Cockpit	200,000
Life Support	50,000
Sensors	Tonnage x 2000
Structural	SI Tons x 50,000
Engine	[5,000 x Rating x Tonnage]/75
Heat Sinks	2,000 per each over 10
Armor	10,000 x Tons of Armor
Weapons	per Weapons Price List
Final AeroSpace	[Structure + Weapons Cost]
Fighter Cost	[1 + (Tonnage/200)]
Multiplier	

CONVENTIONAL AIRCRAFT COST

The cost in C-Bills for a custom-designed conventional aircraft is the sum of the cost of all components according to the formulas listed below. All tonnages are that of the aircraft, except for heat sinks, avionics, and armor, for which the individual component weight is used. Structural costs are based on the Fighter's Structural Integrity.

CONVENTIONAL AIRCRAFT COST CHART

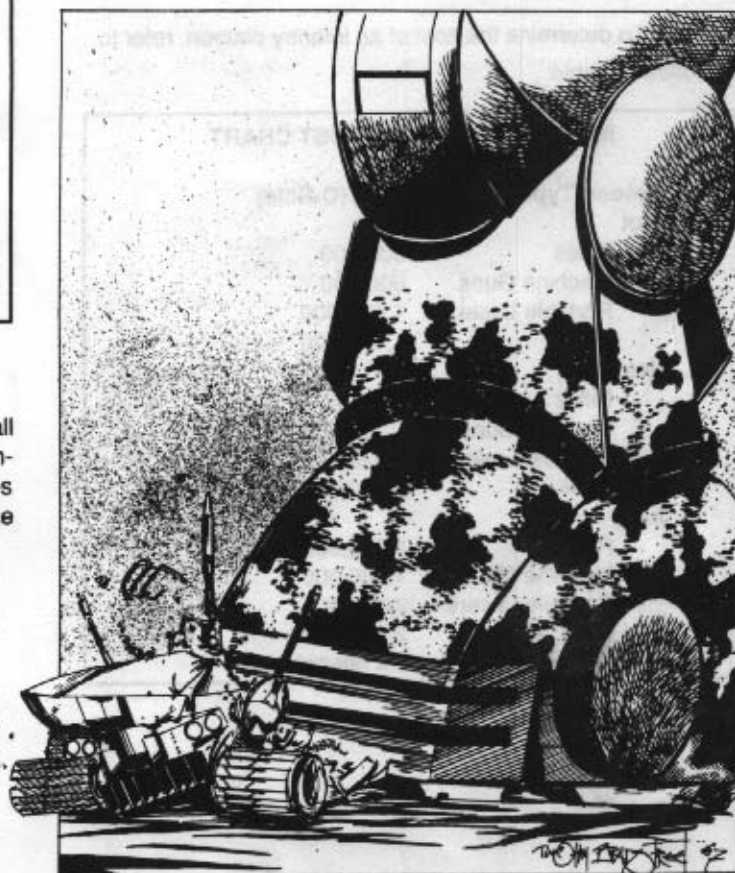
Part	Formula/Cost (C-Bills)
Control Components	Tonnage x 4,000
Structural Integrity	SI Tonnage x 4,000
Engine	
Fusion	[5,000 x Rating x Tons]/75
Ice	[1,250 x Rating x Tons]/75
Heat Sinks	2,000 per each over 10, if Fusion 2,000 each, if ICE
Armor	10,000 x Tons of Armor
Weapons	per Weapons Price List
Final Conventional	[Structure + Weapons Cost]
Aircraft Cost	[1 + (Tonnage/200)]
Multiplier	

VEHICLE COST

For the cost of a custom-designed vehicle, add the cost of all components together according to the formulas below. All tonnages are that for the component itself, except for the engines and the final cost multiplier, for which the vehicle's total tonnage is used.

VEHICLE COST CHART

Part	Formula/Cost (C-Bills)
Engine	
Fusion	(Vehicle Tonnage x 5,000 x Rating)/75
ICE	(Vehicle Tonnage x 1,250 x Rating)/75
Control	10,000 x Control Tonnage
Robotic Control	20,000 x Robotic Tonnage
Internal Structure	10,000 x IS Tonnage
Armor	10,000 x Armor Tonnage
Heat Sinks	2,000 per each over 10, if Fusion 2,000 each, if ICE
Power Amplifiers	20,000 x Amp Tonnage
Turret	5,000 x Turret Tonnage
Lift/Dive Equipment	20,000 x Equipment Tonnage
Rotors	40,000 x Rotor Tonnage
Weapons per Weapons Price List	
Cost Multipliers	
Tracked	1 + [Tons/100]
Wheeled	1 + [Tons/200]
Hover	1 + [Tons/50]
VTOL	1 + [Tons/30]
Conventional Naval	1 + [Tons/200]
Hydrofoil	1 + [Tons/75]
Submarine	1 + [Tons/50]



INSTALLATION COST

To determine the cost of a custom-designed installation, add the cost of all components together according to the formulas below. All tonnages are that for the component itself, except for the power plant and the final cost multiplier, for which the building's Construction Factor is used.

INSTALLATION COST CHART

Part	Formula/Cost (C-Bill)
Internal Structure	Internal Structure Tonnage x 10,000
Engine	
Fusion	$[5,000 \times \text{Rating} \times \text{CF}] / 75$
Ice	$[1,250 \times \text{Rating} \times \text{CF}] / 75$
Heat Sinks	2,000 per each over 10, if Fusion 2,000 each, if ICE
Armor	$10,000 \times \text{Total Armor Tonnage}(\text{CF} + \text{Turret armor})$
Turret	$5,000 \times \text{Turret Tonnage}$
Power Amps	$20,000 \times \text{Amp Tonnage}$
Weapons	per Weapons Price List
Final Installation Cost Multiplier	$[\text{Structure} + \text{Weapons Cost}] [1 + (\text{Tonnage}/150)]$

WEAPONS PRICE LIST

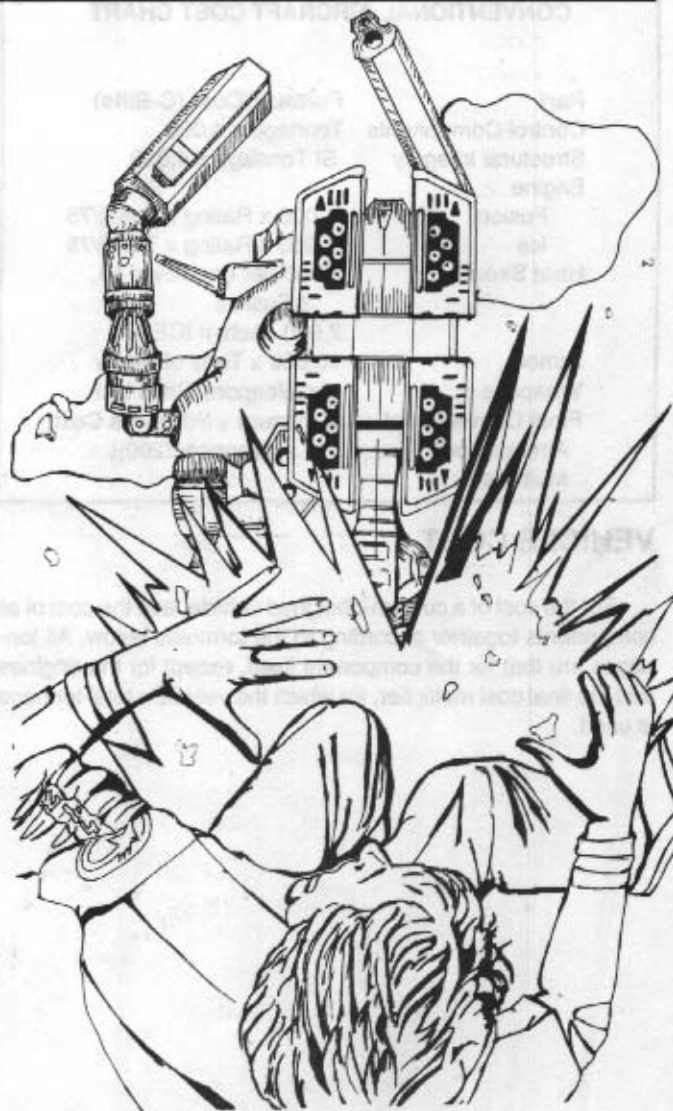
Type	Cost	Reloads
Small Laser	11,250	—
Medium Laser	40,000	—
Large Laser	100,000	—
PPC	200,000	—
AC/2	75,000	1,000/ton
AC/5	125,000	4,500/ton
AC/10	200,000	6,000/ton
AC/20	300,000	10,000/ton
MG	5,000	1,000/ton
Flamer	7,500	—
LRM-5	30,000	30,000/ton
LRM-10	100,000	30,000/ton
LRM-15	175,000	30,000/ton
LRM-20	250,000	30,000/ton
SRM-2	10,000	27,000/ton
SRM-2(w/Infernos)	13,500	13,500/ton
SRM-4	60,000	27,000/ton
SRM-6	80,000	27,000/ton
Long Tom	450,000	10,000/ton
Sniper	300,000	6,000/ton
Thumper	187,500	4,500/ton

INFANTRY COST

To determine the cost of an infantry platoon, refer to the following table.

INFANTRY PLATOON COST CHART

Platoon Type	Cost (C-Bills)
Foot	
Rifles	600,000
Machine Guns	800,000
Portable Lasers	1,200,000
SRM	1,400,000
Motorized	
Rifles	960,000
Machine Guns	1,280,000
Portable Lasers	1,920,000
SRM	2,240,000
Jump	
Rifles	1,200,000
Machine Guns	1,600,000
Portable Lasers	2,400,000
SRM	2,800,000
Anti-Mech Training	5 x normal cost



WEAPONS TABLE

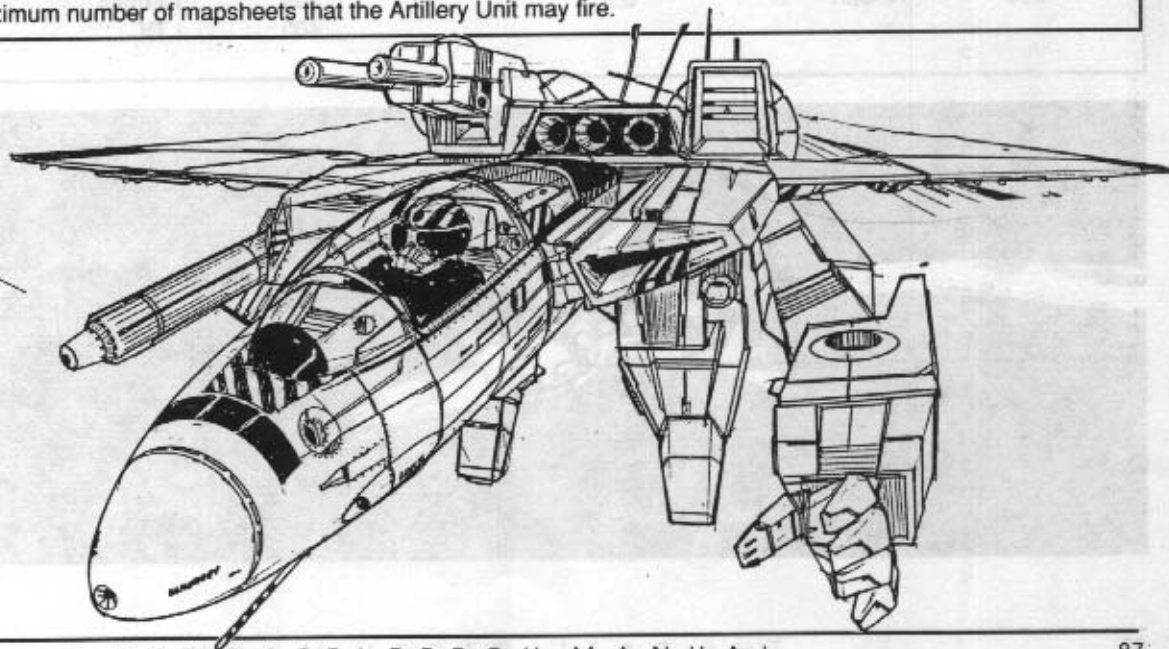
Type	Heat	Damage	Minimum	Short	Range Medium	Long	Tons	Shots/ Ton	Critical Hit/ Location
Energy Weapons									
Small Laser	1	3	—	1	2	3	.5	—	1
Medium Laser	3	5	—	1-3	4-6	7-9	1	—	1
Large Laser	8	8	—	1-5	6-10	11-15	5	—	2
PPC	10	10	3	1-6	7-12	13-18	7	—	3
Flamer	3	2	—	1	2	3	1	—	1
Ballistic Weapons									
Auto Cannon/2	1	2	4	1-8	9-16	17-24	6	45	1
Auto Cannon/5	1	5	3	1-6	7-12	13-18	8	20	4
Auto Cannon/10	3	10	—	1-5	6-10	11-15	12	10	7
Auto Cannon/20	7	20	—	1-3	4-6	7-9	14	5	10
Machine Gun	0	2	—	1	2	3	.5	200	1
Missile Weapons									
Long-Range Missiles									
5-pack	2	*	6	1-7	8-14	15-21	2	24	1
10-pack	4	*	6	1-7	8-14	15-21	5	12	2
15-pack	5	*	6	1-7	8-14	15-21	7	8	2
20-pack	6	*	6	1-7	8-14	15-21	10	6	5
Short-Range Missiles									
2-pack	2	*	—	1-3	4-6	7-9	1	50	1
4-pack	3	*	—	1-3	4-6	7-9	2	25	1
6-pack	4	*	—	1-3	4-6	7-9	3	15	2
Artillery Weapons#									
					Max Range				
Long Tom	20	20/10	Artillery		20		30	5	30
Sniper	10	10/5	Artillery		12		20	10	20
Thumper	6	5/2	Artillery		14		15	20	15

* LRM missiles do 1 point of damage per missile that hits

* SRM missiles do 2 points of damage per missile that hits

Artillery weapon damage is expressed as damage to target hex/damage to adjunct hex

Range is the maximum number of mapsheets that the Artillery Unit may fire.

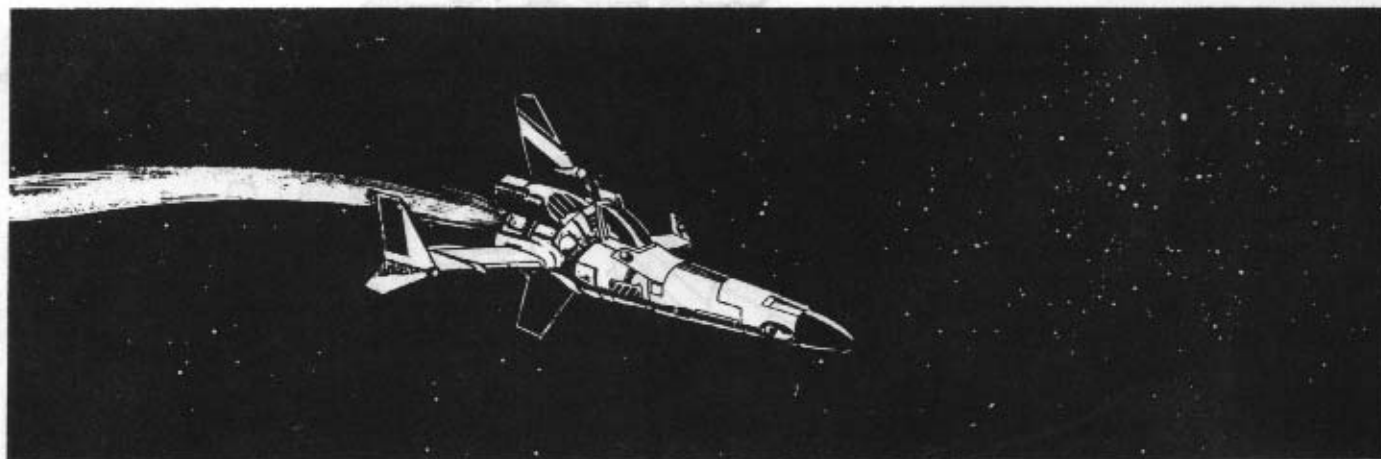


ENGINE TABLE

Rating	Manufacturer	Tonnage
10	Omni	0.5
15	GM	0.5
20	Pitban	0.5
25	Omni	0.5
30	Nissan	1.0
35	VOX	1.0
40	GM	1.0
45	GM	1.0
50	DAV	1.5
55	VOX	1.5
60	Leenex	1.5
65	Nissan	2.0
70	Omni	2.0
75	GM	2.0
80	VOX	2.5
85	DAV	2.5
90	DAV	3.0
95	Nissan	3.0
100	Hermes	3.0
105	DAV	3.5
110	GM	3.5
115	GM	4.0
120	GM	4.0
125	Vlar	4.0
130	Magna	4.5
135	Hermes	4.5
140	Leenex	5.0
145	Omni	5.0
150	GM	5.5
155	GM	5.5
160	LTV	6.0
165	VOX	6.0
170	DAV	6.0
175	Omni	7.0
180	GM	7.0
185	GM	7.5
190	DAV	7.5
195	Nissan	8.0
200	Nissan	8.5

ENGINE TABLE

Rating	Manufacturer	Tonnage
205	Vlar	8.5
210	GM	9.0
215	Core Tek	9.5
220	DAV	10.0
225	VOX	10.0
230	Leenex	10.5
235	GM	11.0
240	Pitban	11.5
245	Magna	12.0
250	Magna	12.5
255	Strand	13.0
260	Magna	13.5
265	Vlar	14.0
270	GM	14.5
275	Core Tek	15.5
280	Vox	16.0
285	Pitban	16.5
290	Omni	17.5
295	GM	18.0
300	Vlar	19.0
305	GM	19.5
310	Magna	20.5
315	GM	21.5
320	Pitban	22.5
325	VOX	23.5
330	VOX	24.5
335	Leenex	25.5
340	VOX	27.0
345	Vlar	28.5
350	Magna	29.5
355	LTV	31.5
360	Hermes	33.0
365	Hermes	34.5
370	Magna	36.5
375	GM	38.5
380	GM	41.0
385	LTV	43.5
390	Magna	46.0
395	Hermes	49.0
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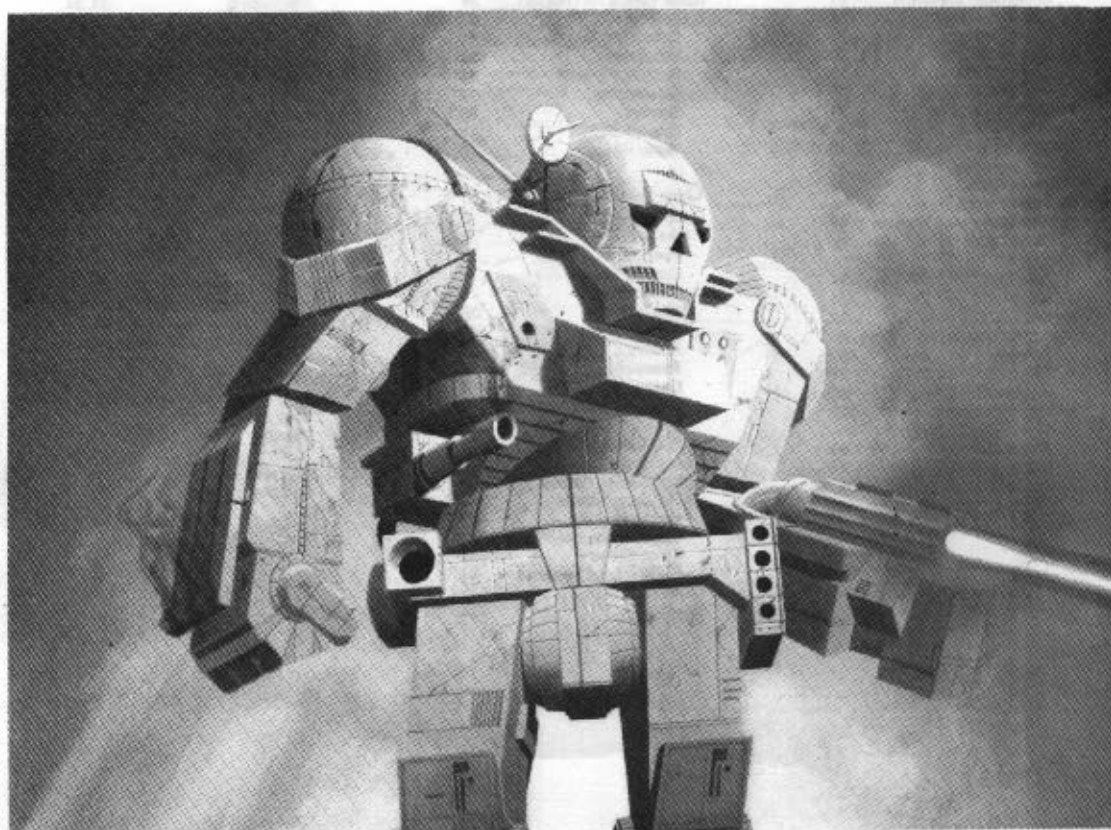
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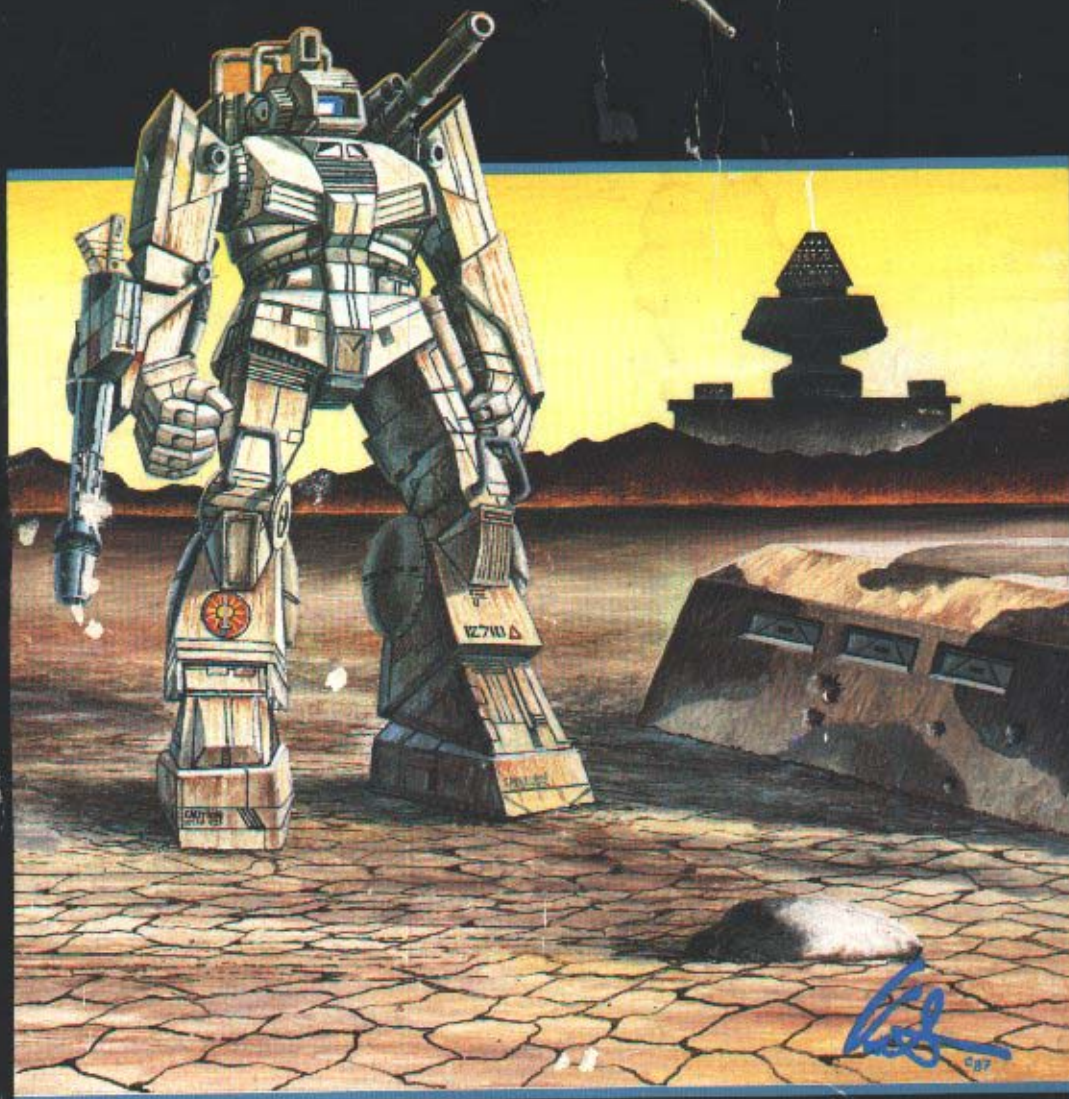
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As dawn broke over the battlefield . . .

The helicopters roared over the hill, skimming the tops of friendly 'Mech antennae. AeroSpace Fighters carrying heavy bomb loads hunted for the enemy airbase. At 1500 hours, the main 'Mech force moved out. The motorized infantry had pulled out about three hours earlier, and the tanks, both tracked and hover, had left an hour ago. At 2000 hours the hydrofoil assault force skirted the enemy's rear echelon and called for support from the artillery fire base. The battle was joined.

Now all the rules for every type of tactical combat in the **BattleTech** universe are in one place. The **BattleTech Manual** contains reorganized combat rules from **BattleTech**, **CityTech**, **AeroTech**, and **MechWarrior**.

Sections contain new rules for using:

- Helicopters
- Naval Vessels
- Conventional Aircraft
- Artillery
- DropShips on the battlefield
- Anti-'Mech Infantry
- And much more . . .

In addition, this book presents complete generation rules for **all** vehicles, from BattleMechs to submarines.



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