

CLASSIC BATTLETECH

OPTICAL MODE



F I E L D M A N U A L

INTRODUCTION

Welcome to Field Ops -- a fan-produced e-book supplement for Classic BattleTech. The material you see laid out before you was first written in 1993/94 and was distributed at the time through a slightly less sophisticated paper method. After another successful e-book offering and the re-emergence of CBT with the publishing of TRO 3067 et al, I thought it was time for a proper resurrection. A bit of polish, adding a few new pieces, throwing out some old or outdated ones (read: officially-published versions of those rules), a book theme to tie it together, et voila!

Within the following pages one will find variant rules, new weapons and new construction options, all designed to bring one up to date to the latest battlefield conditions within the Inner Sphere and beyond into the Clan Homeworlds. It is meant as a supplement to the existing set of rules and expansions, an addition of material to enhance game play.

For the most part, these rules and equipment can be used piecemeal at will; that is, one does not depend on the other in order to function correctly. Mix and match as desired (but do consider using them all, of course). At the end of each set of rules or equipment is a footnote which describes the thrust and particulars behind them, as well as anything to watch out for. I can't promise everything has been playtested, but there shouldn't be anything truly unbalancing here.

I hope you enjoy and get good use out of the material in this e-book. Please feel free to stop by my website and/or email me any comments and feedback you may have.

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<http://www.madcoyote.com/kannik/rpg.html>

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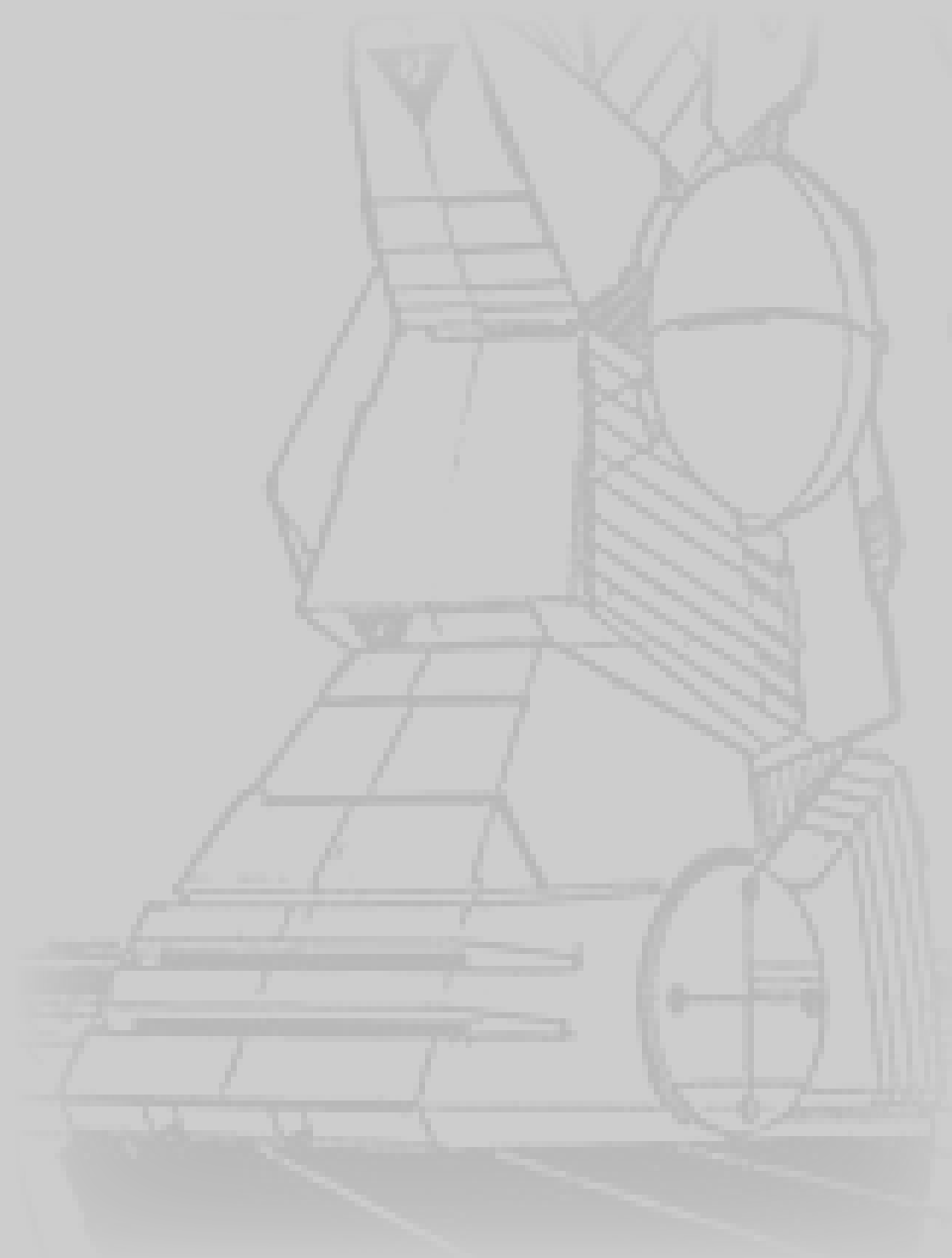
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CHAPTER 1: RULES OF WARFARE



The conventions of the battlefield are forever evolving. New ideas and new strategies keep tactics from ever being predictable or stale. War never ceases to be in flux. Rules change. So it is as well within the confines of the Inner Sphere and BattleTech. Just as tactics evolve, so do the rules.

TERRAIN

The BattleTech universe is a vast one, containing many worlds with an equally diverse set of environments. With the constant state of conflict, any world can become a battleground, at any time. As proven countless times in countless wars, the weather can often be one's greatest ally – or enemy.

Complete Terrain Table provided at back of book.

The expanded Terrain Table provides an extended set of terrain options along with unifying all terrain effects (to combat, heat, piloting and LOS) into one location. Each movement mode possesses its own set of terrain costs and associated piloting roll checks. The exception is VTOLs, who suffer no terrain costs or modifiers, except for elevation changes and Light/Heavy winds (+2/+4, respectively). VTOLs do, however, still suffer penalties for firing through terrain as appropriate.

Amphibious vehicles use the movement column as appropriate for their current operating mode.

Apply all rules on this expanded table as appropriate from the BattleTech Rules and/or Max Tech/etc.



This table was created for a threefold reason: help differentiate between movement types (and give advantages to some vs others), cover more terrain types (obviously) and unify all terrain information from its disparate locations into one. A bit of care was taken to keep it unified with other Terrain Tables already published, as possible.

Most of the new/modified terrain costs are pretty self-explanatory.

Heat effects were changed from above 50 to above 30 as it seemed more appropriate, though the low end of the scale seems a plausible candidate for adjustment upward.

LOS values in brackets represents the maximum range a unit can see effectively under those conditions. For the most part, these are beyond the range of any weapon and can be ignored for gameplay (but are included for completeness). They are also based not so much on reality but on the BTech range idea.

A base cooling factor was added to water, which is above and beyond the normal heat-sink dissipation. Rain and snow reduces the mech's heat with a bit of wetness across all heat sinks and weaponry. Even when no heat sinks are installed in a mech's legs, there will still be coolant loops for the myomers and other associated joints located there, not to mention splash-up that will invariably occur as the mech manoeuvres through the water.

NEW TERRAIN TYPES

Cultivated

Farming land, a mix of fields that have been worked (tilled over, etc) and growing crops. No differentiation is made as per the type of crop (low as strawberries or high as corn) for ease of use.

Brush

Mostly open ground dotted with bushes and low-height trees. Rises 1 level above underlying terrain.

Sparse Woods

Forest or woodland with mostly small trees that are well-spaced (far apart from one another) and little undergrowth. Due to the spacing of the trees it is more easily passable than light or heavy woods. Rises 2 levels above underlying terrain.

Light Woods

Denser, medium-diameter trees. Rises 2 levels.

Heavy Woods

Dense, large-diameter trees. Rises 2 levels.

Ultra-Heavy Woods

Massive trees akin to redwood forests on ancient earth. Rises 3 levels.

(Light, Heavy, Ultra-Heavy) Jungle

As Light, Heavy and Ultra-Heavy woods, except with significant undergrowth (be it smaller trees, bushes, vines, or other flora) that makes movement very difficult.

Sand

Ocean of sand, as per beach or desert.

Mud

Water-soaked loose dirt that makes movement difficult. For example, cultivated land during a thunderstorm.

Bog/Swamp

Level 0 water with much plant growth and a soft, very muddy bottom.

Heavy Rubble

Huge chunks of demolished buildings, scrapyard with vehicles piled atop each other, etc.

Rapids

River body with many rocks that cause the water to churn and makes walking dangerous underfoot.

Choppy

Small whitecaps, usually found across large bodies of water.

Turbulent

Very large waves, or water travelling in many directions such as near a shore.

AVOIDANCE VALUE

A Battlemech is much more than just a vehicle. While a beginner-controlled mech will move rather stiffly through the use of the gross-motor control units, as the operator gains more skill and begins to impart finer control via the use of the neurohelmet, a Battlemech can achieve fluidity that one would not expect of such large machines. In combat, this smoothness of piloting allows an adept mechwarrior to maneuver their unit across the battlefield in ways that present a lesser target for their opponents. Be it moving more humanistically in a crouched walk, ducking and weaving or hiding behind obstacles along the way, this skill of control is an asset towards battlefield survivability.

A pilot's Avoidance Value is the reflection of this ability. As a pilot gains in levels, their avoidance value increases, making it more difficult for opposing pilots to target their mechs. The avoidance value is generated as follows:

AVOIDANCE VALUE GENERATION								
3 - ½ Piloting Score								
Skill	7	6	5	4	3	2	1	0
Avoid	-1	0	0	1	1	2	2	3

Thus, the average Inner Sphere pilot will have a rating of +0; no modifier to the opponent's targeting roll. As the pilot gains skill (and their Piloting Target Number drops), their Avoidance Value will go up.



Note that as Clan pilots generally have a piloting skill one better than their Inner Sphere counterparts, this makes Clan mechs even tougher as they will automatically be harder to hit.

Similarly, experienced pilots vs greener pilots will be that much deadlier as the more experienced group will have the double bonus of higher gunnery and an avoidance bonus. However, against equally experienced pilots, it will keep the playing field more level, for increases in gunnery are now partially kept in check by the bonus provided by the avoidance value.

Hull-Down is a tactic that dates back to the advent of the modern tank; including it in these rules has the double effect of providing a counterpoint to the Mech's Avoidance Value, keeping the two combatant types 'balanced' in their abilities. The hit location table is based off that in the Tac Handbook, which provides vehicles with a 'fighting chance' regular hit location table.

Example: A player rolls his stats for his Inner Sphere pilot. Through the luck of the dice, he rolls a piloting skill of 4, and a gunnery of 4. With a pilot skill of 4, the pilot receives an avoidance value of $(3-4)/2 = 1$. Whenever an enemy fires upon this mech, they will add 1 to their target number.

VTOLs and Fighters (Aerospace or Atmosphere) also gain an avoidance bonus from pilot skill. Apply as above.

Ground vehicles do not possess the same nimbleness as Mechs and do not gain an avoidance value. They may, however, go hull-down; see *Hull Down*, next page.

HULL DOWN

Hull-down refers to a classic battlefield position where only the turret of an armoured vehicle is exposed to enemy fire, the hull itself being protected by a natural or man-made obstacle such as a ridge or a low wall. This drastically reduces the chances of being hit while not impeding the attacker's own fire. For vehicles, who do not have the agility that a BattleMech possesses, going hull-down is an effective tactic to improve their chances of survival on the battlefield.

Terrain on a battlefield is always more varied than what can be shown effectively on a map. Even on clear terrain there are small swales, debris and other bits that can be used for protection. The difficulty comes in finding such areas, and in positioning the vehicle effectively to make use of the protection. Worse, such shelter is unidirectional – it only affects incoming fire from one direction.

Vehicles may attempt to make use of a hull-down position by declaring their intention to do so during the Movement Phase. The vehicle must have entered the hex in which they wish to find a firing position, and they must also declare the desired direction of protection (as diagrammed on the Hull-Down Table). Each 2 MP spent grants one roll on the Hull-Down Table below; success indicates a suitable hull-down position has been found, and the vehicle may end their movement in the hex in a hull-down position.

Incoming fire that passes through the designated protected arc rolls on the Hull-Down Hit Location Table if the strike is successful. While the turret remains exposed, the obstacle will often absorb the incoming fire (with the occasional blow-through). Incoming fire from any other arc is not affected and rolls on the Vehicle Hit Location Table (from the Tac Handbook) normally.

While outgoing fire from the protected vehicle's turret is not influenced in any way, any weapons mounted in the vehicle's tracing a path to the target through the hull-down protection are blocked and cannot fire.

Emplacements are permanent and fabricated hull-down positions. Emplacements have the advantage of being of a known location (requiring no piloting roll to find and only 1 MP to occupy) and can also be built to provide protection on multiple sides. Emplacement locations are detailed in the scenario.

HULL DOWN TABLE

Terrain	Check	Direction
Paved	N/A	
Road	N/A	
Clear	+3	
Rough/Broken	+0	
Brush	+2	
Sparse Woods	+0	
Lt Woods	-1	
Sand	+1	
Cultivated	+2	
Light Rubble	-2	
Urban	-1	
Level Change	*	

* A vehicle can always find a hull-down position in the same hex as a level change; they must still spend 2 MPs to set up position.

HULL DOWN HIT LOCATION TABLE

	Front/Rear	Side
2	Front/Rear (Critical)	Side (Critical)
3	Front/Rear	Side
4	No Damage	No Damage
5	No Damage	No Damage
6	No Damage	No Damage
7	No Damage	No Damage
8	No Damage	No Damage
9	No Damage	No Damage
10	Turret **	Turret **
11	Turret **	Turret **
12	Turret (Critical) **	Turret (Critical) **

** If the vehicle has two turrets and is hit from the rear, apply damage to the rear turret; if hit from the side, apply damage to the turret closest to line of fire.

MOVEMENT MODES

Sprinting/OverSpeed

Units moving at overspeed cover more ground, but are unstable and also suffer great penalties to hit, if able to fire at all. All units moving at overspeed can move up to double their cruising MPs in a turn; this effect is cumulative with MASC, units using both in a turn can move up to 2.5 times their walking MPs. The unit suffers a +2 penalty to all regular piloting rolls it must make during the turn. Furthermore, the unit must make a piloting roll (with no penalty, however) for every hex it enters that wouldn't normally require a piloting roll. Failure of such rolls are handled as normal. Sprinting generates 3 heat points per turn.

Only Vehicles and Aero/Mechs with gunners may fire if the unit is sprinting, at a +3 penalty. Single Pilot mechs may not fire that turn.

Varying Speed

A unit varying its speed is constantly speeding up and slowing down to throw off the targeting of its opponent. The unit may only move its Walking MPs, but generates the heat as if it were running and suffers the worse running To Hit penalty. Opposing units, however, suffer an additional +1 penalty to hit the unit, in addition to the penalty due to the number of hexes moved.

Steady

Used in conjunction with any of the standard movement modes (walking, running, jumping), a unit that is steadying has forgone any efforts to avoid enemy fire, instead striving forward and concentrating on aiming their own weapons. This gains the mech a -1 bonus to hit for all its attacks. Opponents also receive a -1 bonus to strike the bracing unit, and in addition, the bracing unit loses all Avoidance Value bonuses for the turn.

Evading

The opposite of a steady, a unit that is evading is making every attempt to get out of the way of incoming fire. Combined with any movement mode (except for sprinting), this takes the full attention of the pilot and hence a single pilot Mech or Aerospace fighter cannot fire during the turn. Vehicles and gunners in Aero/Mechs may fire with an extra +2 penalty (atop the movement mode penalty) to hit. In return, the unit doubles its Avoidance Value for the turn (minimum bonus of 1).

A pilot may not Steady and Evade in the same turn.



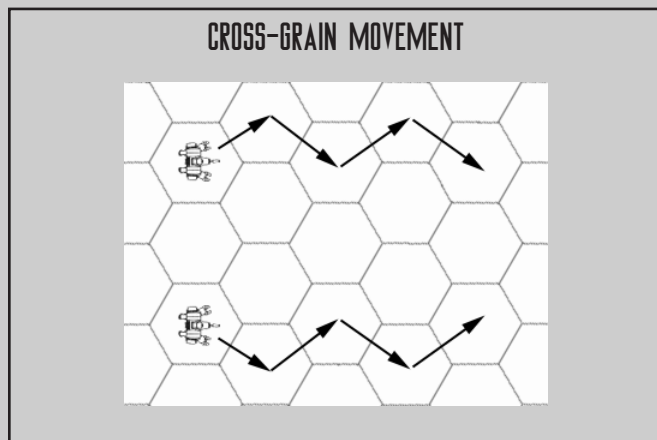
Sprinting and Evading are older ideas of mine and are a bit different than those presented in Max Tech/Tac Handbook. Varying Speed and Steady just add extra options, with inspiration from various sources.

CROSS-GRAIN MOVEMENT

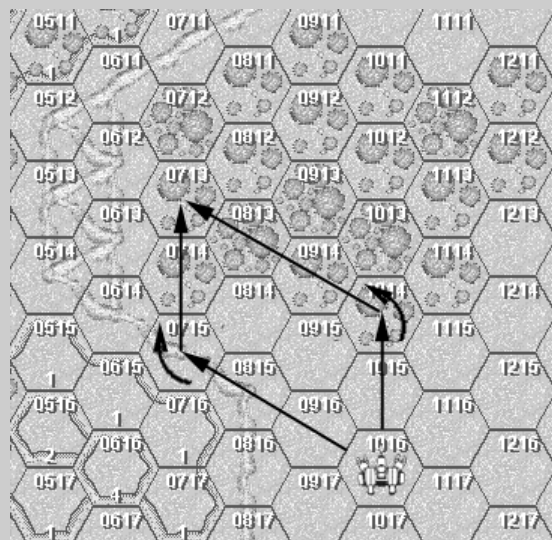
Every hex on the map has six edges, called a hexside, and six points, called a hexpoint. Every BattleMech must be aligned to either a hexside or a hexpoint. A Mech is considered to be heading in the direction its feet are pointing; a vehicle is considered to be heading in the direction of its front side. A Mech may torso-twist to any hexside/point up to 60° away from its heading. Vehicles may face their turrets in any direction they choose. Infantry have no facing.

Cross-Grain Movement occurs when a mech is facing and travels along hex-points. Turning from hex-side to hex-point (and from hex-point to hex-side) costs ½MP. Any leftover fractions at the end of a turn are lost. To move forward, the Mech must move in a zig-zag pattern, so it always remains “in” a hex. The movement must alternate sides, IE if the ‘Mech just zigged right, it must now zag left. Quads may zag twice to one side using a Lateral Shift, spending the extra MP. There is no change in the cost to enter a hex.

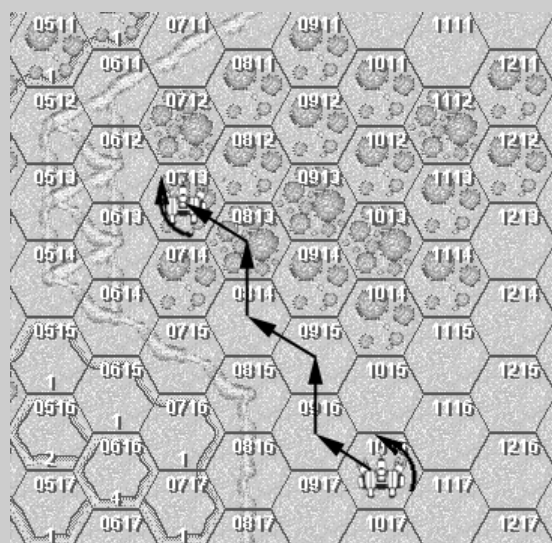
All other movement rules remain the same.



Example: On the river valley map a Mech in hex 1016 facing hex 1015 wishes to move to hex 0713 and face hex 0612. Using standard rules, the mech would move to hex 1015, into heavy woods hex 1014, turn to hex 0914, move into heavy woods hexes 0914, 0813 & 0713. Total cost: 14 MPs. Still using standard rules, the Mech could turn to hex 0916, move into hex 0916, then move into the river hexes 0815, 0715, turn to hex 0714, move into heavy woods hexes 0714, 0713, then turn to face 0612. Total cost: again 14 MPs.



Using cross-grain movement, Mech turns to hexpoint between hex 1025 and 0916, then moves into hexes 0916, 0915, 0814, then through heavy woods hexes 0813 and 0713, then turns to hex 0612. Total cost: 10 MPs. A saving of 4 MPs.



Cross-Grain movement is present in many other games, ported here for BattleTech.

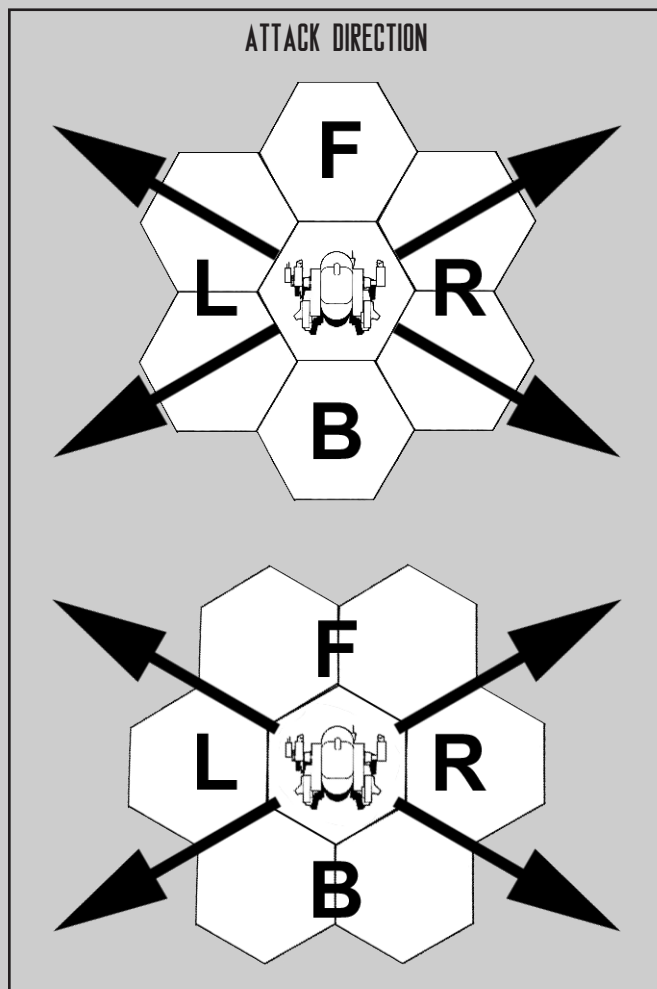
ATTACK DIRECTION AND HIT LOCATION

Incoming fire strikes a BattleMech based upon the direction of the attack and the facing of the target. Whenever a weapon connects, trace the LOS from the centre of the attacker's hex to the centre of the defender's hex and compare the hexside crossed to the **Attack Direction** diagram to find the side of the unit hit by the fire.

Once the attack direction has been determined, the attacker rolls 3d6 on the appropriate **Hit Location** table to determine final contact point, with the defending player applying damage accordingly.

If the attack direction lands right along an intersection, the determination of which table should be used shall be made by either mutual consent of what makes sense, or by defender's choice.

Remember that hit location is determined by heading, and is never affected by torso twists.



HIT LOCATION TABLE

ROLL	LEFT	FRONT / BACK	RIGHT
3	LT	RT	RT
4	LT	RT	RT
5	LA	CT	RA
6	HEAD	HEAD	HEAD
7	CT	CT	CT
8	CT	RA	CT
9	LL	RL	RL
10	LT	RT	RT
11	LT	LT	RT
12	LA	LL	RA
13	RT	LA	LT
14	RA	CT	LA
15	RL	CT	LL
16	CRIT	CRIT	CRIT
17	RL	LT	LL
18	RL	LT	LL

▲ Using 3d6 vs 2d6 allows for a hit location chart that provides more accurate hit distribution (ie, how often each body part should be hit for its size). Note that the chance to hit the head has increased slightly, up to 4.63% from 2.78%; however, the critical chance remains the same at 2.78%.

For punches and kicks, continue to use the standard Punch/Kick Hit Location tables.

MISSILE STRIKES

Missiles on the modern battlefield are different than those of old. ECM, battlefield conditions, weight and the general technology capabilities of modern armies have made simpler, lower-tech battlerockets with minimal guidance the norm. Gang fired towards their target, they saturate an area in hopes some (or all) will connect. To reflect this, these tables below provide for a less granular spread than those in the regular game of Battletech, along with allowing better simulation of area saturation.

For each missile launcher fired at a target, after the to hit roll has been made, roll on the Missile Hit table to determine the number of missiles that connect. Subtract the target number from the to-hit roll: if this number is positive, add the result to the roll; if this number is negative, multiply by 2 and subtract from the roll. As well, each +1 bonus for equipment results in a +1 bonus to the roll.

Thus, the normal to hit roll no longer determines whether the missiles hit or not, just how well they were aimed by the pilot. Because these missiles are barrage fired the regular to hit roll should not determine a strict hit/miss result. Better rolls will mean better missile grouping, worst rolls will quickly ensure few weapon hits, but it is never an all-or-nothing proposition (except with Streaks).

Note that these tables do not apply to Streak SRM systems.

Example: An intrepid mechwarrior fires his LRM 20 at long range towards his advancing foe. After all modifiers, he needs an 11 to hit. He fires, and rolls an 8. This counts as a -6 modifier. Fortunately, his mech is equipped with an Artemis system, so the final modifier is only -4. Rolling on the table, he rolls a 6. After the modifier, the final result is a 2; checking the chart, that means 2 missiles hit.

MISSILE HIT TABLE

Die Roll	Number of Missiles in Flight											
	2	3	4	5	6	9	10	12	15	20	30	40
2	1	1	1	1	1	1	1	1	2	2	2	2
3	1	1	1	1	2	2	2	2	3	4	3	4
4	1	1	2	2	2	3	3	3	5	6	6	8
5	1	2	2	2	3	4	4	4	7	8	9	12
6	1	2	2	3	3	5	5	6	9	10	12	16
7	1	2	3	3	4	6	6	8	11	12	15	20
8	2	2	3	3	4	6	7	9	11	14	18	24
9	2	2	3	4	5	7	8	10	13	16	21	28
10	2	3	3	4	5	8	9	11	13	18	24	32
11	2	3	4	5	6	9	10	12	15	20	27	36
12	2	3	4	5	6	9	10	12	15	20	30	40

A little later, the warrior fires again, but now he's at medium range. This time, he is in a very good position, and requires but a 6 to hit. He rolls an 11, which with the Artemis is a modifier of +7. Rolling on the table, he gets a 6, modified to 13, which means all 20 missiles hit.

▲ This rule seems to be the perennial favourite amongst those who have used any of these variant rules. The original writing used a d100 table and provided for an even smoother progression, however, sticking with d6s in the context of Battletech seems more prudent. Bonus wise, this creates rules that match the missile types in Battletech perfectly; for more massive, 'real world' missiles (though without countermeasures, etc), use Thunderbolts.

CRITICAL HITS - AMMUNITION

Ammunition explosions are the most feared type of damage a Battlemech can take, often knocking them out of the fight. Even if the damage done doesn't immediately render the Mech useless, the damage to the mechwarrior can be equally debilitating. It is no wonder much time and energy has been spent in creating new ways of protecting against such occurrences, such as with CASE.

Whenever a critical hit strikes a location carrying ammunition, all the ammunition of the same type in that location explodes. Thus, in a location containing 2 tons LRM and ton of AC ammunition, if the LRM ammunition was hit then the entire remainder of the 2 tons LRM ammunition would explode, with damage applied as below.

Calculate the total Damage Value of the exploding ammunition type and divide the value by three. If a volatile weapon was hit, use the damage value is listed in the weapon's description. Apply this amount of damage to the Internal Structure of the location containing the ammo.

Torso locations mounting CASE apply the excess damage to the rear armour, then vent any remaining damage without further harm. Limbs with CASE are destroyed, but no further damage is done.

If the explosion occurs in a torso location not protected by CASE, apply $\frac{1}{2}$ of the remaining damage to the adjacent torso location(s). Side torso explosions also apply $\frac{1}{3}$ of the remaining damage to the external armour of the adjacent arm.

For arm locations not protected by CASE, apply $\frac{1}{3}$ of the remaining damage to the external armour of the adjacent leg and side torso. Legs without CASE apply $\frac{1}{3}$ of the remaining damage to the external armour of the adjacent leg.

Each location that takes damage from the explosion must roll on the Critical Hit table, applying a +3 modifier for the original location, and +1 for all others. This may cause subsequent ammunition explosions.

In all ammo explosions, the unfortunate MechWarrior takes 2 Points of Damage (unless protected by equipment) through his Neurohelmet due to electric feedback from electric systems exploding and overloading. One point of damage is done for each weapon exploding.

CRITICAL HITS - COCKPIT

A critical hit to a cockpit location destroys that location, killing the MechWarrior located there.

In mechs with two warriors, the other Mechwarrior, be it the pilot or gunner/RIO/GIB, is still alive and able to function. However, the cockpit has been breached and the mech is counted as no longer having any life support, which may have impact if the Mech is operating on a hostile world.

CRITICAL HITS - SIDE TORSO W/ XL

One of the major disadvantages to an XL engine is the critical spaces it occupies in the side torsos of a mech. A destruction of the torso through the loss of Internal Structure would cause an Inner Sphere mech to be quite out of commission. As an optional rule, in order to increase the hardness of such mechs, the loss of a torso through internal structure results in a 2-point engine hit (1 point if a Clan Mech). Note that this is irregardless of how many engine hits already taken, whether in the now-destroyed side torso or not, and count towards the max 3 hits an engine may take.

▲ Ammunition explosions in the Master Rules seem oddly powerful, given the force of the blast is being directed omnidirectionally and without the appropriate firing mechanism and velocity. Furthermore, transferring damage somehow loses none of its potency, again despite omnidirectionality and, in the case of limbs, minor attachment. While it is unlikely these rules will save the affected body part, they may save adjacent ones.

Cockpit-wise, this just clarifies what should occur in double-cockpit mechs. XL damage was just a variant sometimes used that, admittedly, reduces the liability of an XL just a smiggen, but truth be told, at that stage, the Mech is pretty much gone at any rate. It gives the opportunity for one or two last hurrahs.

PHYSICAL ATTACKS

The base to hit numbers for physical attacks should be determined by the Piloting Target Number of the pilot to better reflect their skill.

PHYSICAL ATTACKS

Base To-Hit: Piloting Skill

Punch	No Penalty
Kick	+1 Penalty
Hatchet/Claws	No Penalty
Sword	-1 Bonus
Mace	+2 Penalty
DFA	Special
Charge	Special

CHARGING DAMAGE

Both units take damage from the collision. The defender takes 1 point of damage per 10 tons of the charging unit, multiplied by the number of hexes moved by the attacker during the Movement Phase, including the defender's hex. The charging unit takes one point of damage per 10 tons of the defending unit, multiplied by half (rounded up) the number of hexes moved by the charger.

MELEE AND DIFFERENT ELEVATIONS

Punching, Clubbing, Kicking and Charging may only be done if the two units are within 1 elevation level of each other. There is no modifier to any of the standard procedures, including the use of to-hit tables.



Physical attacks based on piloting skills was first introduced in Solaris VII.

Charging damage was reduced for the attacking unit to better reflect their 'preparedness' to receive the impact and direct the energy into the opponent mech.

When making physical attacks, the mechs are toe-to-toe. Even on a hill there would not be enough elevation difference between them to warrant a kick striking the head (punch table).

The fact it was easier to accidentally fall on a target than it was to perform a DFA was... wrong.

PARRYING

When two machines, each weighing several tens of tons, go toe-to-toe, the results can be spectacular. While physical attacks are more rare on the open battlefield, in the arena they are not only commonplace, they elicit great cheers from the crowds. Pilots of this circuit quickly learn how to better defend themselves from such attacks.

A mech may attempt to parry a punch or melee weapon attack in place of one or both of its punch opportunities for the turn. Both mechs roll to hit each other as normal punch/melee attacks, and determine their Margin of Success by subtracting their roll from their required target number). If the attacker has the higher margin of success, the attack proceeds as normal; if the defender rolls a higher margin of success, they have parried the attack. A successful parry inflicts ½ damage on the parrying arm only .

A mech may also attempt to parry with a hatchet. A mech successfully parrying with a hatchet or sword takes no damage at all.

ACCIDENTAL FALLS FROM ABOVE

The Base To-Hit Number versus another Mech is 9; versus a vehicle it is 10.

WEAPON RANGES

As the target gets further away, it gets harder to hit. May your aim be true.

Use the maximum range listed on the standard BattleTech weapons table (the last number in the Long Range column) to determine the weapon's Base Range. This is used with the chart to determine the new range brackets.

For weapons with base ranges less than 5 (where several range bands have duplicate numbers) use the following to determine which range modifier to apply: If the target stays equal to or below the listed value range for the entire movement turn, use the more advantageous Modifier; else use the higher Modifier.

WEAPON RANGES & MODIFIERS

Base Range	Modifier								
	+0	+1	+2	+3	+4	+5	+6	+7	+8
3	1	1	2	2	3	4	4	5	5
4	1	2	2	3	4	5	6	6	7
5	1	2	3	4	5	6	7	8	9
6	1	2	4	5	6	7	8	10	11
7	1	2-3	4	5-6	7	8	9-10	11	12-13
8	1-2	3	4-5	6	7-8	9-10	10-11	12-13	14
9	1-2	3-4	5	6-7	8-9	10-11	12-13	14	15-16
10	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18
11	1-2	3-4	5-7	8-9	10-11	12-13	14-15	16-18	19-20
12	1-2	3-5	6-7	8-10	11-12	13-14	15-17	18-19	20-22
13	1-3	4-5	6-8	9-10	11-13	14-16	17-18	19-21	22-23
14	1-3	4-6	7-8	9-11	12-14	15-17	18-20	21-22	23-25
15	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27
16	1-3	4-6	7-10	11-13	14-16	17-19	20-22	23-26	27-29
17	1-3	4-7	8-10	11-14	15-17	18-20	21-24	25-27	28-31
18	1-4	5-7	8-11	12-14	15-18	19-22	23-25	26-29	30-32
19	1-4	5-8	9-11	12-15	16-19	20-23	24-27	28-30	31-34
20	1-4	5-8	9-12	13-16	17-20	21-24	25-28	29-32	33-36
21	1-4	5-8	9-13	14-17	18-21	22-25	26-29	30-34	35-38
22	1-4	5-9	10-13	14-18	19-22	23-26	27-31	32-35	36-40
23	1-5	6-9	10-14	15-18	19-23	24-28	29-32	33-37	38-41
24	1-5	6-10	11-14	15-19	20-24	25-29	30-34	35-38	39-43
25	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
26	1-5	6-10	11-16	17-21	22-26	27-31	32-36	37-42	43-47
27	1-5	6-11	12-16	17-22	23-27	28-32	33-38	39-43	44-49
28	1-6	7-11	12-17	18-22	23-28	29-34	35-39	40-45	46-50
29	1-6	7-12	13-17	18-23	24-29	30-35	36-41	42-46	47-52
30	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48	49-54

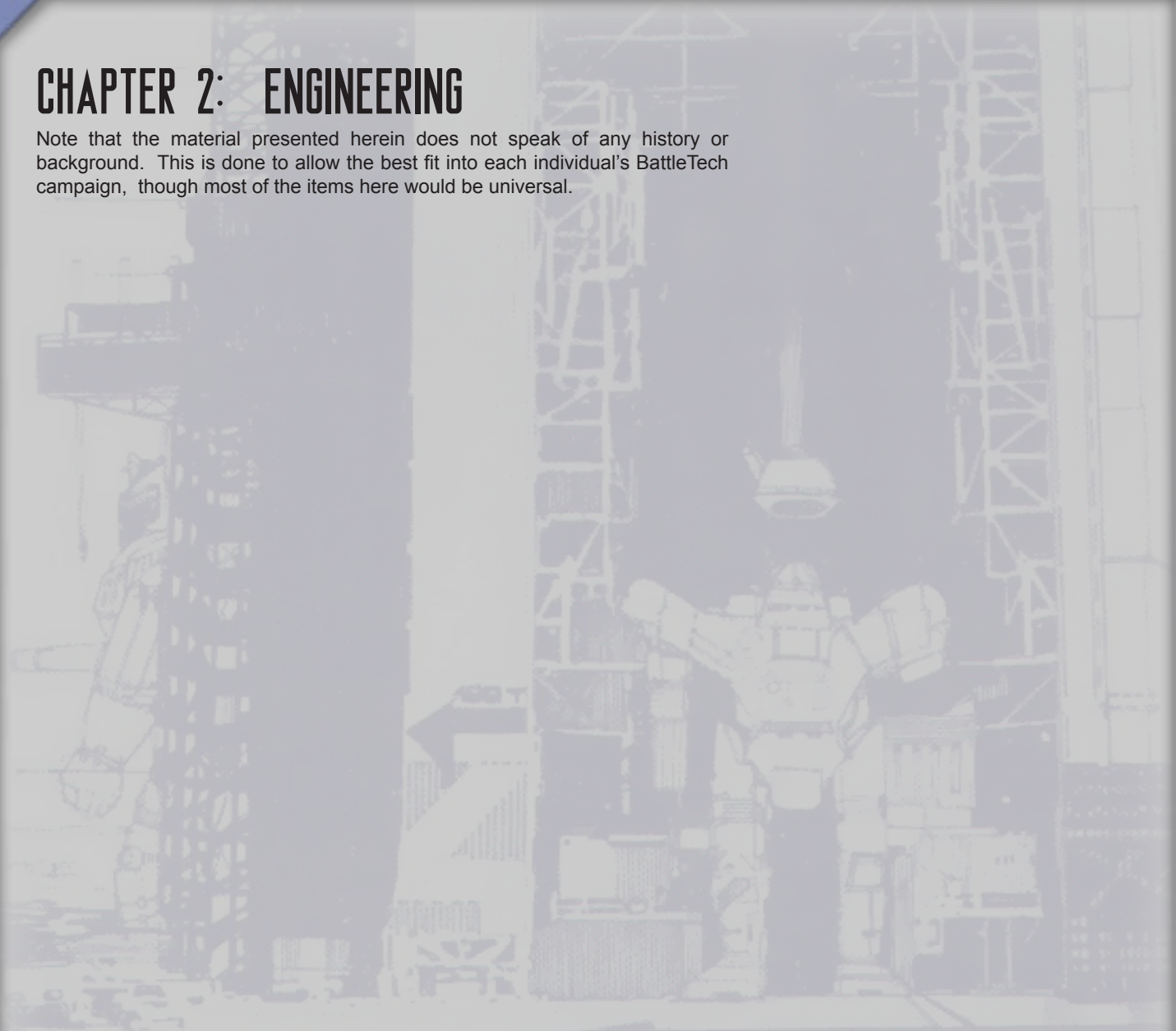
▲ Ranges in BattleTech are interesting, in that for the most part they are simply a division of the max range and the difficulty increases linearly (+2, +4 at bracket 2 and bracket 3, which is 1/3 and 2/3 Max, respectively). These alternate Weapon Ranges aim to smooth out the jump in the range penalty.

Rather than simply splitting the range bands in half, thus making it equate to "more difficult or as difficult), the BTEch max (Base) range was re-worked to give a smooth +1 to +8 spread that evens out the same, more difficult and less difficult (than the base rules) results.

Note that some weapons do not exactly follow the 1/3|2/3 progression, instead bringing on Long Range early. If this remains a desire/concern, then adjust the above table on a per-weapon basis to make it match.

CHAPTER 2: ENGINEERING

Note that the material presented herein does not speak of any history or background. This is done to allow the best fit into each individual's BattleTech campaign, though most of the items here would be universal.



Designing teams never rest. Though old now by centuries, new twists on the concept of the BattleMech continue to arise every day. Pushing the limits of design philosophies, these new ideas and technologies vie to tip the scales in their favour towards victory. Engineers may not be the most flamboyant or visible, but their own brand of internal tactics are just as important as the warrior who rides them into battle.

CONSTRUCTION: ARM ACTUATORS

Being anthropomorphic vehicles, almost all Battlemechs have arms of some sort (the major exception being quads, of course). However, there are a plethora of arm shapes and options, each offering differing values of functionality. Choosing which arm configuration is right for a mech is often a design skill in its own.

ARM ACTUATORS	
Shoulder	Shoulder
Upper	Elbow
Lower	Wrist
Hand	Hand

Taking these actuators in combinations, there are five ways an arm can be constructed. Note that each arm can be constructed differently on a mech, they need not be identical.

Case 1 (Locust, Jenner, Rifleman, Catapult)

The Mech is built with no Upper, Lower or Hand actuators. This Mech may arm-flip and fire into the rear arc with no penalty, but the shoulder joint is generally constructed so it may not fire into the side arcs with its weapons. Obviously, only the standard +4 penalty can apply should the shoulder be hit. Such a Mech is generally incapable of punching; however, some Mechs (such as the Rifleman) are able to swat with its long-barreled weapons. Swatting does $\frac{1}{2}$ standard punching damage, and suffers the penalty for the missing Upper and Lower actuators, for a total penalty of a +4 modifier.

Case 2 (Warhammer, Victor, Wolfhound)

The 'Mech is built without Lower or Hand actuators. This results in the lower 'arm' being the weapon itself. As per the standard rules, this Mech may arm-flip and fire into the rear arc with no penalty (though this can be overruled by the illustration). Should the Upper actuator be hit in combat, apply a +2 to hit, or +4 (total) if the shoulder is hit. For physical attacks, the lack of a hand and a lower arm actuator means that the Mech will always punch at a +3 penalty, and should the upper actuator be hit, the Mech suffers a +5 penalty and does only half damage.

Case 3A (Marauder, Cataphract, TimberWolf)

The 'Mech is built with ball-jointed weapons pods. With their great flexibility, the Mech may arm-flip with no penalty. Apply a +1 to ranged attacks if the Upper or Lower actuator is hit, +2 if both, and +4, total, if the Shoulder is hit. Physical attacks begin with a +1 penalty and suffer +2 for one actuator hit, +4 for both.

Case 3B (Dervish)

The weapon itself is like a hand. Due to the more humanoid-nature of the arm, the Mech cannot fire the weapon into the rear arc (though may attempt to fire over the shoulder, see case 5). Otherwise, handle as case 3A, above.

Case 4 (Thug)

The 'Mech is built with a Hand actuator, but no Lower arm actuator. This is very rare, but it can happen; essentially having a hand with no wrist (glued to the side of the weapon, as it were). Weapons fire follows the rules for case 5 below, while physical attacks follow the rules as if there was no Hand, Case 2, above.



These arm actuator rules are meant to clear up the ambiguity in the standard ruleset..

Case 5A (Atlas, etc)

The arm possesses all actuators, and the weapons are mounted in the lower arm. Most arm-mounted weapons in Mechs are mounted this way. This mech cannot arm-flip; assess a +4 penalty should it try to shoot backwards over its shoulders. No penalty to weapon fire is incurred if the hand or lower actuators are hit, but apply +2 if the Upper actuator is hit or +4 (total) if the shoulder is hit. For physical attacks, +1 for the hand actuator, +2 for the lower or upper actuator, +4 total if both hit, and no physical attacks if the shoulder is hit (as per standard BattleTech rules, no physical attacks are ever allowed when the shoulder is hit).

Case 5B (Panther, Shadow Hawk)

The difference between 5B and 5A lies in the length of the arm-mounted weapons. With longer weapon barrels that extend past their hand, Case 5B Mechs have a much more difficult time punching, and thus follow Case 2. Otherwise, they behave exactly like Case 5A.

Case 6 (Battlemaster, Wolverine)

The Mech has a hand-held weapon. While this provides many advantages, for rear-attacks it can only fire over its shoulder as per Case 5 above. Additionally, if the hand actuator is hit, the weapon falls, and may be damaged (follow "Handgun" rules presented elsewhere). For damage affecting ranged attacks, see case 3A above, while physical attacks are handled as in case 5A (a 'normal' fisted mech). Note that for obvious reasons the Mech cannot punch while holding its weapon.

Case 7 (Zeus)

This is an addition to any of the previous cases that do not possess a hand actuator. A Mech may be built with a 'weighted core' (colloquially known as a 'bashing thing') that improves the Mech's hand to hand capability. This core could indeed be a heavy solid core, a set of blades or a chopping zone. The effect is to remove the penalty for the missing hand actuator, in effect, giving a -1 bonus to the Cases listed above.



...if at the (serious) risk of being overly detailed.

CONSTRUCTION: QUADS

Quad mechs are unusual and specialized beasts. While the control systems are harder for a pilot to get used to, especially the neurohelmet interface, once mastered, their stability and extra mobility can prove to be a great asset on the battlefield. Due to their unique construction, Quads present rather unique options for construction, as well as in combat.

Only changes to the Quad rules as presented in the Master Rulebook will be noted.

Due to their style of construction, a quad presents a much smaller target when in a hull-down position, or in partial cover. Opponents receive an extra +1 penalty to hit a quad in partial cover.

Quads may mount a turret if desired (the most notable example being the Goliath). A turret on a quad possesses the same internal structure value as would a mech of that size and can be as armoured as such. 12 critical slots are available, and no slots need to be dedicated to actuators of any kind. Unlike a vehicle, Mechs have standard weights to mount a turret: 0 tons for mechs 10-20 tons, ½ ton for mechs 25-70 tons, 1 ton for mechs 75 tons and up. Instead of torso-twisting (which a quad obviously cannot do), the player instead points the turret in any direction, the same as for a vehicle. If any of the torso locations on a quad are indicated on the Hit Location Table, roll 1d6. On a roll of 1, the turret was hit instead. If the turret takes a ever takes critical hit or a hit to its internal structure, roll 2d6. On a 2-4, the turret is frozen in its current position.



Each ruleset Quads get less and less of the shaft. These two final points push them over the top into the realm of 'right and sensible', with advantages befitting of their form.

The whole 'pick a side torso and make it a turret' never sat well in logic-fulness. It was decided to make the turret a standard-weighting affair with spaces, rather than the free-form weight/space like a vehicle, in order to better fit within the standard Mech construction metaphor. (All mechs have certain size arms, etc)

The new armour values is more appropriate with values that make more sense. Even with the new armour placement, the side torsos still have it rough, as though they now can have the same front armour as a leg, they are hit more often than a leg.

CONSTRUCTION: ARMOUR PLACEMENT

A BattleMech's torso is its most heavily armoured section, for within contains their heart. However, under the standard BattleTech rules, legs on a Mech are often more heavily armoured than the front of a side torso location, as few wish to leave their rear torsos undefended.

To rectify this situation, allow each of the 3 torso regions to allocate 2 times their internal structure value on their front, and ¾ their internal structure value on the back, rather than 2 times the internal structure value total, front and back.

To allow for this increase in overall armour protection, and not invalidate existing designs (nor force new designs to allocate more weight to armour), Mechs should receive 18 points of armour per ton.

CONSTRUCTION: HAND CARRIED WEAPONS

As anthropomorphic machines, BattleMechs have sometimes been given similar tools to those of man, carrying them in their large armoured fists. Both tools of hand-to-hand combat and handguns have been adapted into these large-scale methods of destruction. The benefits of hand-carried weapons are numerous. As they can be carried in either hand they have a wider field of fire and can be transferred from a damaged limb to an intact one. Weapons can be traded or replaced easily during or in between combats. But the disadvantages are also numerous and thus keep hand-held weapons from being the norm. Quite obviously, they are more fragile and more easily damaged, both by incoming weapons fire as well as being dropped. Furthermore, the hand-weapon interface can be tricky to get to engage (power and targeting links) and are very prone to crud-infestation due to battlefield and general filth conditions.

Weapons placed in hand-held mounts (called handguns from this point on) may be of either a sword/mace/hatchet type or of a ranged-weapon variety; the two types may not be mixed. While handguns require no internal space on the arm critical chart, the weapon weight still applies to total weight of the Mech. A handgun may hold up to a maximum of 6 critical spaces worth of weapons and heat sinks, or up to 7 spaces if but one weapon (and only the one weapon) is being built into the gun. This allows for 100-tonner hatchets, among other things. Ammunition is stored separately in the gun and requires none of the 6(7) slots. Weapons that require ammo must, however, have the ammo stored in the handgun, not in the arm or torso. Handgun slots may never be filled for Endo Steel or Ferro Fibrous armour.

Before the game, the player must specify which arm is using the handgun. If they do not, assume the right arm. At any time during a movement phase, the player may announce they are switching the handgun gun from one hand to the other. To retrieve a gun from the ground requires 3 MP.

The weapon can only be used by a specific make of 'Mech. (IE only another Battlemaster-1G can use a Battlemaster-1G's PPC) It is up to the Referee or mutual

Player consent whether a 'Mech can use two weapons in either hand. Either way, continual use would provide too much a strain on the engine and targeting computer.

A non-melee weapon may be used by any Mech for a single clubbing attack, which automatically destroys the weapon if successful.

The handgun is automatically considered armoured. Whenever the arm is hit, roll 1d6; on a 1, the weapon is hit rather than the arm. Roll 2d6 on the critical hit chart, adding 2 to the roll, as well as an extra +1 for each hit over the second. If a critical is called for, and the gun uses ammo, roll 1d6.

On a 1-4, the weapon(s) is/are hit, follow the critical hit procedure as normal, allocating the six critical slots in the gun as needed. As usual, one hit to a weapon destroys it. If there are two weapons in the gun, the other still operates even if the other is destroyed.

On a 5-6 the ammo is hit. The ammo explodes, destroying the gun in the process. Divide ammo damage potential (as per normal ammo explosion rules) and divide by 15, rounding off. Apply the resulting once to the armour of the applicable arm, leg, and side torso. CASE cannot be built into the gun.

If the hand actuator is hit, the weapon automatically falls to the ground. As well, If the arm takes 10+ damage in a turn, or if the carrying arm is hit by a physical attack, the pilot must make a piloting roll (no modifier) or drop the gun.

If the 'Mech ever falls onto on its front, back or the side the gun is on, the pilot must make an additional piloting roll (+1 for falling on the front, +0 for landing on the rear, and +2 if he lands on the side). If this piloting check fails, the weapon takes damage.

If the handgun is dropped or fallen onto, roll 2d6 and follow the above critical damage procedure, except ammo cannot not explode, though all remaining ammo is rendered useless.



While a bit complex, these rules add good flavour to the otherwise 'same old' that handgun weapons have under the standard rules. No spaces taken in return for chances to drop and damage...

CONSTRUCTION: DUAL COCKPITS

While most Mechs can accommodate a passenger in a pinch, they are built as single-pilot affairs. There are some mechs however, particularly the larger ones, that allow for a second active crewmember in the cockpit. While some are set up to be a commander's command post, most are more simple pilot-gunner configurations.

The gunner/co-pilot (also known colloquially as the Guy In Back, or GIB) can perform several functions during a battle:

- The gunner may fire any chest-, turret and/or head-mounted weapons. As the gunner can concentrate solely on gunnery (and not piloting as well), all weapon attacks from the co-pilot will be at a -1 to hit bonus. Note that in no case does this give any weapon the ability to fire twice per turn – it may be controlled by the pilot or co-pilot, not both.
- If the pilot is evading fire, the co-pilot can fire the weapons at a +2 (plus movement) to hit penalty.
- If the pilot is sprinting, the co-pilot may fire available weapons, with a +3 penalty to hit.
- The co-pilot can fire weapons while the pilot is making a physical attack, or charging, or death from above.
- The co-pilot can reconfigure a TIC without the pilot losing a turn.
- The co-pilot can fire at a different target than the pilot, thereby avoiding the +1 penalty normally associated with firing on two targets.
- Either the pilot or the co-pilot may direct indirect fire or TAG an opponent, leaving the other the ability to fire other weapons.

If the pilot is incapacitated, the co-pilot may assume full control of the mech, however, all piloting rolls are done at a +2 penalty due to the pared-down nature of the controls. As well, the -1 bonus to hit no longer applies.

A dual-cockpit adds 1.5 tons and 1 critical space to the regular cockpit weight and size.

For field commanders, see the information on Command Consoles in Maximum Tech.



The Battlemaster is the classic 2-person mech. Using the Handgun rules and the Integrated Heat Sink rule allows for the 1.5 tons necessary for the extra cockpit weight.

CONSTRUCTION: BATTLE TURRETS

A weapon is of no use if it cannot point in the direction of the target. Coverage of fire can cause an engineer to spend hours carefully designing Battlemech components and firing assemblies to give weapons as wide a field of fire as possible. Additionally, few mechs carry rear-firing weapons. Both of these concerns have caused the evolution of small battle-turrets, mounted on the shoulders or the centre torso of a mech. While they cannot carry large or heavy-recoil weapons, they nonetheless add effectiveness and flexibility to the weapon load of a mech.

Battle turrets come in 1, 2 or 3 space sizes; regardless of their size they each weigh a ½ ton. Battle turrets are considered part of the body location they occupy, and are fully armoured by that location's armour. No space is gained or lost by installing a battle turret, and weapons in a battle turret list their critical slots in the normal slots for the location. Only energy weapons, missiles, machine guns, AMS and flamers can be mounted in a battle turret.

On a biped mech, a 1 or 2 space battle turrets may be mounted on one or each shoulder (left/right torso), and/or a 1, 2 or 3 space battle turret mounted atop the centre torso. Shoulder turrets have a firing arc of 300 degrees, while the torso turret may fire a full 360 degrees.

A quad may mount a 1, 2 or 3 space battle turret on the underside of the centre torso, gaining a 360-degree arc of fire as well as firing straight down. Another 1, 2 or 3 space battle turret may be mounted to the top of the centre torso if no regular (full size) turret is mounted; or this turret may be mounted atop the regular turret. In either case, this turret receives a 360-degree arc of fire. Finally, a quad may mount a 1 or 2 space turret in either/both side torsos. These weapons gain a firing arc equivalent to the arm arcs of a biped mech (front and side or rear and side).

BATTLE TURRET ARCS

Mounted:

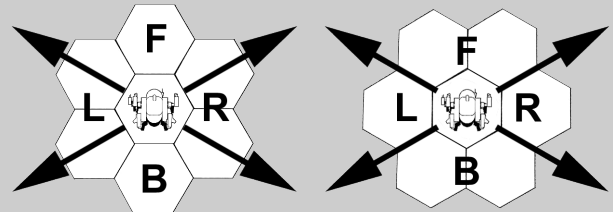
Biped, LT
Biped, RT
Biped, CT

May fire into:

F, L, B
F, R, B
F, L, B, R

Quad, LT
Quad, RT
Quad, CT, U
Quad, CT, T
Quad, Turret, T

F, L
F, R
F, L, B, R, Down
F, L, B, R
F, L, B, R



Mechs with battle turrets: Cerebrus and Battlehawk(ok, its the AMS which has a turret arc, but stil its an example), Wolverine (180 degree limited, and don't make it the head), Savage Coyote could almost have one (but its on the arms, which they shouldn't be).

CONSTRUCTION: INTEGRATED HEAT SINKS

The newfound power of energy weapons have brought with them a large problem, that of exacerbating the already tricky situation of waste heat dissipation. This is especially true on refits, where double heat sinks cannot be used to stave off shutdown. However, even regular heatsinks can have their efficiency boosted when they are integrated and dedicated to individual weapons.

When building a mech, a heat sink (either a single or double) can be installed as an integral part of a weapon. When placed in this way, the sink dissipates an extra point of heat each turn (2 points for a HS, 3 for a DHS). However, the sink can only remove heat from the weapon into which it is installed. If the weapon is destroyed, the heat sink is useless, though the reverse is not true.

The integrated heat sink must be placed in the same location as the weapon. Note that in no circumstances may the ten free heat sinks received with the engine be used in this fashion. In all other aspects, the heat sink functions normally. The easiest way to keep track of this change is to subtract the integral heat sinks from the heat the weapon does, and use that value every time the weapon is fired.

This idea is most useful in smaller mechs, with a single, high heat weapon.

Example: A lighter mech is being built with single heat sinks (to save cost) and an ERPPC. The designer decides to add three heat sinks to his design, placing two of them directly in the ERPPC. For record keeping, every time the ERPPC is fired, it generates 11 points of heat, which are easily dissipated by the 11 standard heat sinks.

CONSTRUCTION: MISCELLANEOUS

All ammunition may be bought in ½ ton lots, not only MG ammo. A ½ ton lot of ammo takes 1 critical space.

Weapons of the same type that weigh ½ or ¼ ton may be combined into one critical slot. However, both weapons are destroyed on a successful critical hit to that slot.

Round up Gyro requirements to the nearest ½ ton.

For some odd reason, an SRM6 gets shafted by 15 shots (15x6=90) vs SRM2 and SRM4 (25x4=100). LRMs do not follow this pattern (6x20=120, 24x5=120), so logically neither should SRMs. SRM6s should receive 16 shots per ton, not 15.

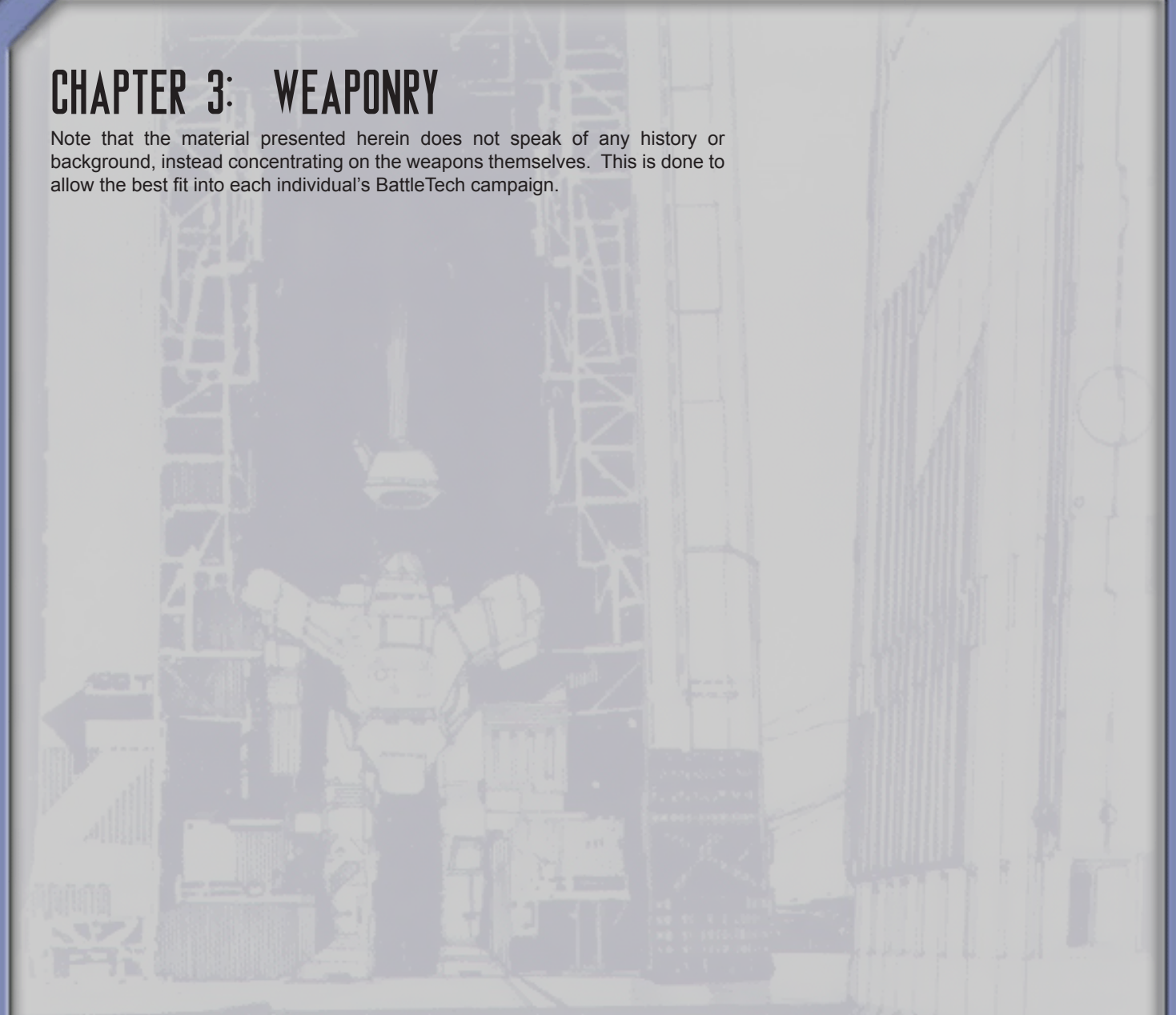


Integrated heat sinks do allow for specialized designs and might be an item that is abused by unscrupulous players...

The miscellaneous construction items are mainly extrapolations. (I've never understood the SRM6 disappearing missiles).

CHAPTER 3: WEAPONRY

Note that the material presented herein does not speak of any history or background, instead concentrating on the weapons themselves. This is done to allow the best fit into each individual's BattleTech campaign.



One can defeat an opponent in many ways. But the foundation always remains the ability to damage them and remove their capacity to fight. War drives technology, and technology in turn drives war. New ways to hurt adversarial units are the most common and the first to see the light of the battlefield. Sometimes even altering the face of warfare forever.

WEAPONRY: GAUSS CANNONS

The gauss rifle has proven itself to be a remarkable weapon on the battlefield. Easily the champion of ballistic weapons, the gauss rifle possesses an excellent range, great armour penetration and as a bonus, generates little heat. Once the original model was in full production and all the kinks worked out, it was only natural for engineers to begin creating different damage-classed gauss rifles much like autocannons, to open them up to a greater variety of mechs.

Discharge damage (during critical hits) for each class of GC is equal to their damage rating.

WEAPONRY: ULTRA GAUSS CANNONS

For slug-throwing weapons, there are two ways to increase damage potential: increase the kinetic energy of the projectile (through speed and mass) or increase the rate of fire. While the latter is relatively easy for chemically-propelled autocannons, it proves to be much more difficult for gauss rifles. While the ammunition feed is greatly simplified (moving a single slug of metal), the limitation lies with the huge energy requirements for the weapon, which draws an enormous amount of power from the fusion reactor to recharge itself, a process which takes some time. It is not possible to draw enough power to fire shots off in rapid succession.

To work around this problem, engineers added a second set of capacitors to a standard gauss rifle. These capacitors can be charged over time and used to quickly discharge 2 rounds at a target. When the next lull in firing occurs, the bank automatically recharges for another double blast.

'Ultra' Gauss Rifles (so-called for lack of a better name) may fire twice per round when the second bank of capacitors is charged. Roll separately for each hit. Due to the immense recoil of the weapon, the second shot suffers a +2 penalty to hit. The weapon also generates twice its normal heat for the turn. The extra bank of capacitors may only recharge themselves on a turn where the UGC does not fire; a mechwarrrior can fire the UGC in a single shot mode as often as they like. If the UGC suffers a critical hit when both capacitors are charged, double the normal discharge damage is incurred on the internal structure. Otherwise, a UGC operates in the same manner as a GC.

	Heat	Damage	Min	Short	Med	Long	Tons	Crit	Ammo
Gauss Rifle									
GC 5	1	5	-	9	18	27	8.5	3	26
GC 8	1	8	-	8	17	25	12	5	16
GC 10	1	10	-	8	16	24	13.5	6	12
GC 15	1	15	-	7	15	22	15	7	8
GC 20	2	20	-	6	14	20	17	8	6
Ultra' Gauss									
UGC 5	1*	5*	-	9	18	27	10.5	4	26
UGC 8	1*	8*	-	8	17	25	13	6	16
UGC 10	1*	10*	-	8	16	24	15	7	12
UGC 15	1*	15*	-	7	15	22	17	8	8
UGC 20	2*	20*	-	6	14	20	19.5	9	6
Clan Gauss Rifle									
GC 5	1	5	-	9	18	27	7	2	26
GC 8	1	8	-	8	17	25	9.5	4	16
GC 10	1	10	-	8	16	24	11	5	12
GC 15	1	15	-	7	15	22	12	6	8
GC 20	2	20	-	6	14	20	13.5	7	6
Clan 'Ultra' Gauss									
UGC 5	1*	5*	-	9	18	27	7.5	3	26
UGC 8	1*	8*	-	8	17	25	11	5	16
UGC 10	1*	10*	-	8	16	24	12.5	6	12
UGC 15	1*	15*	-	7	15	22	14	7	8
UGC 20	2*	20*	-	6	14	20	16	8	6



The extra Gauss Rifles classes are simply extrapolations of the current classes, listed in the same manner as ACs. (Note that the uber-heavy Gauss Rifle is a special case and not accounted for here)

'Ultra' Gauss rifles are another extrapolation, a logical way to increase their rate of fire w/o making them into machine gun gauss devices. They are powerful, however, and adding the 'Jam on a Roll of 2' option similar to an Ultra AC can be used if desired.

WEAPONRY: PPC/ERPPCS

Particle Projection Cannons and their Extended Range counterparts have a unique target-effect profile, not to mention the visual effect of an artificial lightning bolt streaking across the battlefield. Like all energy weapons, (ER)PPCs scale well to create a range of weapons with different power outputs. Take delivery today.

WEAPONRY: FUSION CANNON

The Fusion Cannon is a development of the PPC that fires with a unique principal:

From the description of the Manticore Tank (TRO 3026):

Unlike other particle cannons, the Parti-Kill does not use an energy collection capacitor or similar chamber. Instead, it uses a series of magnetic collection bottles that gather their energy straight from the fusion reactor. These energies are then channelled through a larger magnetic bottle and released from the cannon. This fires an energy "shell" that loses cohesion and disintegrates at 540 metres. The Parti-Kill's bolts are unstable at ranges under 90 meters.

The advantage of this method of collection is a weapon that while having the same performance characteristics generates far less heat, due to the direct collection of a natural by-product of the fusion reaction. As the eternal bane of all energy weapons is their excessive heat build-up, this is a very welcome development. Care must be taken with the Fusion Cannon, however, for should the magnetic bottle holding the plasma before release be disrupted, it would release its contents quite explosively causing severe damage to the carrying vehicle.

Fusion Cannons operate as do PPCs, save their heat profile. If a fusion cannon suffers a critical hit they inflict Internal Structure damage equal to their damage rating, in the same manner as the discharge from a damaged Gauss Rifle.

WEAPONRY: VARIABLE RANGE PPC

Recently developed by NAIS, the Variable PPC is a major leap forward in Inner Sphere PPC technology. A PPC is a very simple energy weapon, being essentially a magnetically constricted pathway down which high-energy electrons are fired. With no focussing lenses needed nor any moving parts, the weapon's beam profile can easily be adjusted. The VPPC allows the pilot of a mech to do just that, adjusting the PPC to fire in a standard or, with the addition of extra power and beam focussing, in an extended range mode. Thus a pilot to can gain the advantage of extra range when needed, then scale down when that range isn't needed, avoiding the unnecessary supplemental heat build-up.

Before firing, the player announces whether the PPC is firing as a standard or ER PPC, with heat and range determined by the choice. It takes no time to switch modes. A VRPPC cost 2½ times as much as a regular ERPPC.

WEAPONRY: MULTIPLE FREQUENCY LASER

Lasers work by injecting a large amount of energy onto a very small area, essentially superheating and vapourising the armour to burn a hole into the vehicle. This very principal, however, works against them for the very material they are vapourising acts to diffuse the incoming beam and scatter the energy harmlessly. To combat this, Clan engineers have developed a laser that utilizes multiple, overlapping beams of different frequencies. By rapidly cycling through different power levels to each frequency the beam is able to better diffuse the vapour as well as differing frequencies can penetrate better (or worse) through the obscuration. While the system possesses a shorter range and requires a much more complex and heavy system, the extra damage potential is often well received by mechwarriors who mount them for extra punch.

Multiple Frequency Lasers (MFSL, MFML, MFLL) possess the same characteristics in damage, heat, range, weight and space as do Heavy Lasers from the Master Rulebook.

	Heat	Damage	Min	Short	Med	Long	Tons	Crit	Ammo
Particle Cannons									
Light PPC	5	5	2	5	10	15	3	2	-
PPC	10	10	3	6	12	18	7	3	-
Heavy PPC	15	15	4	7	14	21	11	4	-
ER Particle Cannons									
Light ERPPC	8	5	-	6	12	19	3	2	-
ERPPC	15	10	-	7	14	23	7	3	-
Heavy ERPPC	23	15	-	8	16	27	11	4	-
Vari Particle Cannons									
VRPPC	*	*	*	*	*	*	7	4	-
Clan Particle Cannons									
Very Light ERPPC	5	5	-	5	10	15	1	1	-
Light ERPPC	10	10	-	6	12	19	2.5	1	-
ERPPC	15	15	-	7	14	23	6	2	-
Heavy ERPPC	20	20	-	8	16	27	9.5	3	-
Fusion Cannons									
Light FC	3	5	2	5	10	15	4.5	3	-
Medium FC	5	10	3	6	12	18	9	4	-
Heavy FC	8	15	4	7	14	21	14	5	-
Clan Fusion Cannons									
Very Light FC	2	5	2	4	8	12			
Light FC	4	10	3	5	10	15	2.5	1	-
Medium FC	6	15	4	6	12	18	6	2	-
Heavy FC	8	20	5	7	14	21	9.5	3	-
Clan ER Fusion Cannons									
Very Light ERFC	3	5	2	5	10	15	2.5	1	-
Light ERFC	5	10	3	6	12	19	4.5	2	-
Medium ERFC	8	15	4	7	14	23	8	3	-
Heavy ERFC	10	20	5	8	16	27	12	4	-



The extra PPC/ERPPC classes are simply extrapolations of the current classes, listed in the same manner as Lasers. The VRPPC is a nifty addition based on the way PPCs work and a balanced new weapon.

Fusion Cannons are an example of taking fluff text and running with it. Note that it is not necessarily a balanced weapon – even with its greater weight when one takes into account heat sinks needed vs a standard PPC, one can come out ahead with a FC. While this is partially balanced by the explosive factor, use with caution.

MFLs are simply different fluff text to go with Heavy Lasers, rather than just ‘bigger and hotter’ (and they matched the stats I had given to MFLs long ago).

WEAPONRY: AUTOCANNONS

Weaponry Industries are always looking for new markets, and new niches. Thus they often develop new classes of existing weapons to fill gaps in the market. The AC/8 and AC/15 are two such weapons.

WEAPONRY: LB-X AUTOCANNONS

The rediscovery of the LB 10-X autocannon from the Grey Death Memory Core was a boon to the weapon's programs of the Inner Sphere. Now that the technology has matured once more, it was only a matter of time before this technology was applied across all classes of autocannons.

WEAPONRY: LONG RANGE AUTOCANNONS

New autocannon technologies, either rediscovered from the Star League or gleaned off salvaged Clan equipment, have provided Inner Sphere weapon technologists with a plethora of information on how to lighten and stabilize autocannons, as well as provide new barrel and shell technologies to improve range. Most of these technologies were applied to the LBX series of autocannons, as well as to the Ultra models to prevent them from becoming too unwieldy. However, Yeffters Weapons Industries chose to apply the technologies in a different direction. Using composites they managed to reduce the bulk and lighten the basic components of the standard autocannon, then applied the savings to increased stabilization, recoil compensators and improved barrels, thereby increasing the range with some significance.

In all other aspects, LRACs behave as standard ACs.

WEAPONRY: CANNONS

Battlemech-mounted ballistic weaponry have evolved to suit the platform. Autocannons are lower-calibre, rapid-firing affairs that throw volumes of dual-purpose projectiles at their target. With shorter barrels and lower (impulse, not cumulative) recoils, they can be successfully mounted on the walking machines of war. Vehicles, on the other hand, are not hampered by these necessities, and thus can dispense with the limitations autocannons provide. While restrained, development on full-blown cannons has not stopped during the years of the mech's supremacy.

Cannons are large bore affairs, firing specialized armour-defeating shells with great accuracy. The smaller classes begin around 50mm in size, and run up to 200mm for the largest cannons. Due to their high recoil, only tracked and naval vehicles can carry them. Wheeled vehicles may mount up to Class 10 with no penalty; Class 15 and Class 20 cannons force a piloting roll if the vehicle is in motion at a +2 penalty; failure causes a skid and possible crash.

As an optional (and powerful) rule, quads may also carry Cannons.

	Heat	Damage	Min	Short	Med	Long	Tons	Crit	Ammo
Autocannons									
AC/8	2	8	1	5	9	16	10	6	12
AC/15	5	15	-	4	8	12	13	8	7
LB-X Autocannons									
LB-2X	1	2	4	9	18	27	5.5	4	45
LB-5X	1	5	3	7	14	21	7.5	5	20
LB-8X	1	8	1	6	13	19	9.5	6	12
LB-10X	2	10	-	6	12	18	11	6	10
LB-15X	4	15	-	5	10	15	12	8	7
LB-20X	6	20	-	4	8	12	13	10	5
Long Range Autocannons									
LRAC/2	1	2	5	10	20	30	6	1	45
LRAC/5	1	5	4	8	15	22	8	4	20
LRAC/8	2	8	2	7	15	21	10	6	12
LRAC/10	3	10	1	7	14	20	12	7	10
LRAC/15	5	15	-	6	12	17	13	8	7
LRAC/20	7	20	-	4	9	13	14	10	5
Clan LB-X Autocannons									
LB-8X	2	8	1	7	13	20	9	4	12
LB-15X	5	15	-	5	10	15	11	6	7
Clan Ultra Autocannons									
UAC/8	1	8	-	7	14	21	9	4	13
UAC/15	4	15	-	5	10	15	11	7	7
Cannons									
C/2	1	2	6	10	20	30	6	1	45
C/5	1	5	6	10	19	29	8	4	20
C/8	1	8	5	9	19	28	10	6	12
C/10	2	10	5	9	18	27	12	7	10
C/15	4	15	4	8	17	25	13	8	7
C/20	6	20	4	8	16	24	14	10	5
Clan Cannons									
C/2	1	2	6	10	20	30	5	1	45
C/5	1	5	6	10	19	29	7	3	20
C/8	1	8	5	9	19	28	9	5	12
C/10	2	10	5	9	18	27	10	6	10
C/15	4	15	4	8	17	25	11	7	7
C/20	6	20	4	8	16	24	12	9	5

▲ AC/8 and AC/13 are extrapolations. LB-Xs differ from the stats presented in the Master Rules—those oddly do not follow the 'lighter and smaller' pattern of the LB-10X and as written in the 3050 fluff; these ones do. Long Range ACs is another development that takes certain developments and applies them laterally. Additionally, one can usually easily drop in an LR version during retrofits.... LRACs may seem light compared to HVACs, but IMHO they are more logical in progression. As an option, one can allow LRACs to use the special ammo (AP, etc) that normally can only be used in vanilla ACs.

Cannons are the tank guns of the future, giving vehicles some nasty bite and helping to equalize them. Rheinmetall is back! While they fire a single shot, their use rules-wise is the same as ACs. While describing ACs as low-calibre contradicts much fluff text (which call them over 200mm at times), it fits the mech concept better, and allows for cannons.

WEAPONRY: STREAK LRM

One of the greatest advancement in the modern use of battlefield missiles was the development of the Streak missile system. With this system, missile accuracy was assured, allowing not only for a more damaging weapon system but also increasing ammunition conservation dramatically. For the Clans, with their long supply lines (to the homeworlds) and their unaccustomedness to long, protracted battles, this ammunition efficiency was of a special boon.

Hoping to transfer these capabilities to all their missile systems, Clan engineers got to work on creating a Streak LRM system. They soon discovered that the requirements to make every missile autonomously tracking proved to be very prohibitive in terms of cost, complexity and system weight. Instead, they resurrected a technology from the days of the Star League and combined it with their existing Streak technology to create a hybrid that was acceptable for both goals of efficiency and effectiveness.

Unlike Streak SRM systems, only one missile in a Streak LRM is fully self-guiding. Slightly larger than a standard missile, the nose of the missile contains a highly advanced IR-based imaging system very similar to that found in the SSRM systems, capable of locking onto a target and directing itself to impact. This guided missile also carries a broadcasting beacon in its electronic suite, and it is this beacon that the rest of the missile flight uses for guidance by utilizing Follow-the-Leader technology. As the 'Prime' missile (as it is known) is guided, the following missiles have a greater chance of striking their target with improved grouping. Additionally, as with all streak systems, if the Prime does not have a solid lock, it will not fire – thereby guaranteeing improved ammunition usage.

Streak LRM systems (SLRM) should be handled much in the same way as SSRMs, except that a successful lock-on roll does not indicate that every missile strikes its target. Instead, roll on the Missile Hit chart and add a +2 bonus to account for their improved grouping through the use of FTL technology. If the initial lock-on roll fails, no missiles are fired, and no heat is generated.

SLRM systems are adversely affected by ECM systems. If the target is protected by an ECM system, subtract 2 from the Missile Hit roll (total of -2, not +2-2 for 0) as the missiles become confused and fly about trying to find the beacon once again. SLRMs cannot perform Indirect Fire.

WEAPONRY: SRM10/SSRM10

When bigger is better...

	Heat	Damage	Min	Short	Med	Long	Tons	Crit	Ammo
Clan Streak LRM									
SRLM 5	2	1/m	4	8	16	24	2	1	24
SLRM 10	4	1/m	4	8	16	24	3.5	2	12
SLRM 15	5	1/m	4	8	16	24	4.5	3	8
SLRM 20	6	1/m	4	8	16	24	6	5	6
SRM									
SRM 10	5	2/m	-	3	6	9	5	3	10
Streak SRM									
SSRM10	5	2/m	-	3	6	9	7.5	3	10
Clan SRM									
SRM 10	5	2/m	-	3	6	9	2.5	2	10
Clan Streak SRM									
SSRM10	5	2/m	-	4	8	12	5	3	10



This is an earlier Streak LRM system I created before the TacBook/MaxTech came out. Personally, I prefer it, being a flavourful difference, and making a bit more technological sense. Both can be used, however, as they do not overlap in weight and capabilities.

SRM10s are just an extrapolation for those wanting the big guns. Missile systems are totally linear in their weight/space, etc, so this is easy.

WEAPONRY: MISSILE SYSTEMS

Missile systems have become the ubiquitous system of just about every modern battlemech design. Capable of either rounding-out a weapons compliment or, with large numbers, forming the offensive mainstay, these light, simple and cheap missiles prove their worth in every conflict. It comes as no surprise that weapon manufacturers over the years have created a cornucopia of different configurations. Be it range, damage capacity or simply the number of missiles fired at one time, within this matrix of options any battlemech designer can find exactly the arrangement they need.

While SRMs and LRMs are the most well-known missile systems, there exists the possibility for all manners of missiles. To use the following system to build these missile launchers, select a damage class (1, 2 or 3 points per missile) and a range bracket (9 to 24 hexes) for the missiles. The tables to the right give the various statistics for the launcher on a per-missile basis; to build the launcher, multiply the launcher size (2, 4, 6, 10, etc) by these values (rounding off, half ton for weight). Missiles per ton is also given; to determine the number of shots per ton divide this number by the size of the launcher (round down).

To conform to the standard BT rules, 1-point missiles apply damage in 5 point groups, whereas 2- and 3-point missile groups do their damage individually. As an option, one can assign 1-point missiles individually as well, however, to prevent them from becoming a crit-monster (a role played by the LB-X autocannons), apply a -1 modifier to any Crit Table rolls on mech sections that still possess armour.

WEAPONRY: MEDIUM RANGE MISSILES

Example 1: To build a real MRM system (not the dead-fire simplified version found in Max Tech): Damage 1, Range 15. Thus, weight will be .375 tons per missile, .1875 crits per missile, there are 160 missiles per ton and the launcher will generate (.25 heat points per missile)+1. The results for a 4, 6, 10, 15 and 20 launcher are found on the following page.

WEAPONRY: HEAVY LRMS

Example 2: Building a Heavy LRM system (HLRM) we chose a 2 point, 21 hex range missile. Weight is .75 tons per missile, .375 crits per missile, (.44 heat per missile)+1, and we receive 60 missiles per ton. The final results for a 2, 4, 6, 10, 15 and 20 shot system are found on the next page.

	Heat	Damage	Min	Short	Med	Long	Tons	Crit	Ammo
Medium Range Missile									
MRM 4	2	1/m	2	5	10	15	1.5	1	40
MRM 6	3	1/m	2	5	10	15	2.5	1	26
MRM 10	4	1/m	2	5	10	15	4	2	16
MRM 15	5	1/m	2	5	10	15	5.5	3	10
MRM 20	6	1/m	2	5	10	15	7.5	4	8
Heavy LRM									
HLRM 2	2	2/m	6	7	14	21	1.5	1	30
HLRM 4	3	2/m	6	7	14	21	3	2	15
HLRM 6	4	2/m	6	7	14	21	4.5	2	10
HLRM 10	5	2/m	6	7	14	21	7.5	4	6
HLRM 15	8	2/m	6	7	14	21	11.5	6	4
HLRM 20	10	2/m	6	7	14	21	15	8	3

MISSILE SYSTEMS

RANGE BRACKETS

	Min	Short	Med	Long
Range 9		3	6	9
Range 12		4	8	12
Range 15	2	5	10	15
Range 18	4	6	12	18
Range 21	6	7	14	21
Range 24	7	8	16	24

WEIGHT

Damage	Range					
	9	12	15	18	21	24
1	0.250	0.3125	0.375	0.4375	0.500	0.5625
2	0.500	0.5625	0.625	0.6875	0.750	0.8125
3	0.850	0.9125	0.975	1.0375	1.100	1.1625

MISSILES PER TON

Damage	Range					
	9	12	15	18	21	24
1	200	180	160	140	120	100
2	100	90	80	70	60	50
3	40	36	32	28	24	20

CRITICAL SPACES

Damage	Range					
	9	12	15	18	21	24
1	0.15	0.16875	0.1875	0.20625	0.225	0.24375
2	0.25	0.28125	0.3125	0.34375	0.375	0.40625
3	0.45	0.50625	0.5625	0.61875	0.675	0.73125

HEAT GENERATED

Damage	
1	.25
2	.44
3	.78

Heat =
(Missiles X Value) + 1



Missile systems in Battletech are remarkably linear in their progression and composition, and this made it a rather simple affair to extrapolate the values above. Build away!

Even if this system gets too insane for most play, the MRM and HLRM systems add a mix of missile systems neatly into the existing ones without going overboard. Remember that Clan versions weight half as much and take one less crit.

WEAPONRY: THUNDERBOLT MISSILES

The large missiles of yesteryear had all but disappeared in modern warfare. Slow to start but powerful, streaking across the battlefield with semi-autonomy, they fell victim to the advanced ECM of the day. Their construction complexity sealed their fate, and they were replaced with the simpler batterocket systems of the modern Mech. Until recently that is, for they have begun to make a comeback. With countermeasures a thing of the past, and their inherent flexibility a bonus, they have found themselves a niche in the world of mech combat.

Thunderbolt systems are purchased differently than regular SRM, MRM and LRM systems. There are three components to the TB system: the missile rack/pod, the control unit, and the missiles themselves. Rack size will determine how many missiles (of a certain) can be carried, while the control unit dictates what missiles can be fired. One control unit is required per missile rack, and only one rack may be installed per Mech location.

To place a TB system in a mech, simply choose the number of rack space desired and determine the tonnage and space required. Once this has been placed onto the chassis, install the control system of choice (for maximum missile class). The control system must be placed in the same location as the missile rack.

The missiles come in 4 damage classes, with 2 range brackets each. Before combat, the Mech pilot may outfit their missile racks with whatever combination of missiles they desire, so long as the total number of Missile Space Points (MSPs) does not exceed the capacity of the Missile Rack and that the Missile Class does not exceed the capability of the Control Unit.

In combat, TBs are fired much like any other direct-fire Mech weapon. A Thunderbolt is not fully armed until after its minimum range; any successful hit in the minimum range band deals only half damage. AMS systems may attempt to shoot down an incoming TB, however, they must inflict at least 4 points of damage (4+ the roll on the AMS roll) to knock the TB out of the action

Example 1: Constructing the 15-shot TB launcher that rides on the TimberWolf's sides:

$15 \times 5 \text{pt Missiles} = 15 \times 1 = 15 \text{ spaces.}$

$15/3 = 5 \times \frac{1}{2} = 2.5 \text{ tons.}$

$15/12 = 1\frac{1}{4} = 2 \text{ crits.}$

$5 \text{ pt Control} = 1 \text{ ton, } 0 \text{ crits.}$

FINAL SYSTEM: 3.5 tons, 2 crits.

Example 2: Construct very large missile system to compare to MTTB:

$6 \times 20 \text{pt Missiles} = 6 \times 12 = 72 \text{ spaces.}$

$72/3 = 24 \times \frac{1}{2} = 12 \text{ tons.}$

$72/12 = 6 = 6 \text{ spaces.}$

$20 \text{pt Control} = 4 \text{ tons, } 2 \text{ crits.}$

FINAL SYSTEM = 16 tons, 8 crits.

	Heat	Damage	Min	Short	Med	Long	MSP
Thunderbolt Missiles							
TB 5	3	5	5	6	12	18	1
TB 10	5	10	5	6	12	18	3
TB 15	7	15	5	6	12	18	6
TB 20	8	20	5	6	12	18	12
TB 5L	4	5	7	8	15	22	4/3
TB 10L	6	10	7	8	15	22	4
TB 15L	8	15	7	8	15	22	8
TB 20L	9	20	7	8	15	22	16

MISSILE RACKS

Inner Sphere

Clan

½ Ton per 3 Spaces

½ Ton per 4 Spaces

1 Crit per 12 Spaces

1 Crit per 15 Spaces

Round Spaces Up to Nearest Full Crit

CONTROL UNITS

Max Missile Type

Weight

Crits

5	1	0
10	2	1
15	3	1
20	4	2

▲ As is likely obvious, this is a re-working of the TB systems presented in Max Tech (herein referred to as MTTBs), with an effort to make the TBs more like true-to-life big missiles, and not another AC-like launcher with ammo. A full-on missile system with flares, chaff, guidance types, etc, was avoided to keep complexity down, which has the downside of making even this modified TB system somewhat bland and acting much like all the other weapons in BattleTech.

Weights, Crits and MSPs were determined using the values from Max Tech. However, if one compares a MTTB with one ton ammo to the TB values, one will find TBs weigh less. Conversely, an MTTB with 2 tons ammo will generally weigh less than a TB system -- such is the nature of not using the norm of gun+ammo.

One other thing to note is that TBs, even MTTBs, can weigh much, much less than an AC for a similar damage class (and more range). Though with Ultra ACs it likely redresses the balance.



TERRAIN TABLE	Mech		Tread		Wheeled		Hover		Infantry		Naval		LOS	To Hit	Heat
	MPs	Pilot	MPs	Pilot	MPs	Pilot	MPs	Pilot	MPs	Pilot	MPs	Pilot			
Activity															
Facing Change	1	-	1	-	1	-	1	-	0	-	1	-	-	-	-
Lateral Shift ^A	2	-	N/A	-	N/A	-	2	-	N/A	-	N/A	-	-	-	-
Drop to Ground	1	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	-	-	-
Standing Up	2	+0*	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	-	-	+1
Solid Terrain															
Clear	1	-	1	-	1	-	1	-	1	-	N/A	-	(330)	-	-
Rough/Broken	2	-	2	-	N/A	-	3	-	1	-	N/A	-	-	-	-
Paved	1	+0 ²	1	+0 ²	1	+0 ²	1	-	1	-	N/A	-	-	-	-
Road ^B	1	+0 ²	1	+0 ²	1	+0 ²	1	-	1	-	N/A	-	-	-	-
Brush	1	-	2	-	2	-	N/A	-	2	-	N/A	-	-	+1iv	-
Sparse Woods	1	-	2	-	3	-	N/A	-	1	-	N/A	-	5	+½	-
Light Woods	2	-	4	-	N/A	-	N/A	-	2	-	N/A	-	3	+1	-
Heavy Woods	3	-	N/A	-	N/A	-	N/A	-	3	-	N/A	-	2	+2	-
UltraHeavy Woods	N/A	+2*	N/A	-	N/A	-	N/A	-	4	-	N/A	-	1	+3	-
Light Jungle	3	+1*	N/A	-	N/A	-	N/A	-	3	-	N/A	-	2	+1/2i	-
Heavy Jungle	4	+2*	N/A	-	N/A	-	N/A	-	4	-	N/A	-	1	+2/3i	-
UltraHeavy Jungle	N/A	+3*	N/A	-	N/A	-	N/A	-	5	-	N/A	-	1	+3/4i	-
Solid Terrain Mods															
Cultivated	+0	-	+0	-	+1	-	+2	-	+0	-	N/A	-	-	-	-
Sand ^C	+1	+1 ²	+0	-	+1	+1 ²	+0	-	+1	-	N/A	-	-	-	-
Mud	+0	+1 ²	+1	+1	+1	+1 ²	+0	-	+1	-	N/A	-	-	-	-
Swamp/Bog ^C	+1	+1 ¹	+2	+1 ¹	+1	+1 ¹	+0	-	+2	-	N/A	-	-	-	-
Light Snow	+0	-	+0	-	+0	-	+1	+1	+1	-	N/A	-	-	-	-
Deep Snow	+1	+1 ¹	+1	+1	+1	+1	+2	+2	+2	-	N/A	-	-	-	-
Ice ^C	+1	+4 ²	+1	+4 ²	+1	+4 ²	+0	-	+1	-	N/A	-	-	-	++
Light Rubble	+1	+0* ²	+2	+0* ²	N/A	-	N/A	-	+1	-	N/A	-	-	-	-
Heavy Rubble	+2	+1* ²	N/A	-	N/A	-	N/A	-	+2	-	N/A	-	-	-	-
Level Change															
1 Level	+1	-	+2	-	+2	-	+2	-	+2	-	+1 ⁴	-	-	-	-
2 Levels	+2	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	-	-	-
3+ Levels	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	-	-	-
Hydrographic Terrain															
River ^B	1	-	1	-	1	-	1	-	2	-	N/A	-	-	-	-
Water - LVL 0	1	-	1	-	1	-	1	-	2	-	N/A	-	-	-	-
Water - LVL 1	2	-1*	N/A	-	N/A	-	1	-	N/A	-	1	-	-	+1 +2	-1++
Water - LVL 2	4	+0*	N/A	-	N/A	-	1	-	N/A	-	1	-	Y ⁶	W	-2++
Water - LVL 3+	4	+1*	N/A	-	N/A	-	1	-	N/A	-	1	-	Y ⁶	W	-2++
Hydro Terrain Mods															
Rapids ^C	+1	-	+1	-	+1	+1	+0	-	+1	-	N/A	-	-	-	-
Choppy	+1	+1	N/A	-	N/A	-	+0	-	N/A	N/A	+1	+1	-	+1 -	-
Turbulent	+2	+2	N/A	-	N/A	-	+0	-	N/A	N/A	+2	+2	-	+2 -	-
Weather Mods															
Night - No Moon	-	-	-	-	-	-	-	-	-	-	-	-	(60)	+2	-
Night - Full Moon / Dusk	-	-	-	-	-	-	-	-	-	-	-	-	(180)	+1	-
Light Rain	-	-	-	-	-	-	-	-	-	-	-	-	(100)	-	-1
Heavy Rain	-	+1	-	+1	-	+1	-	+1	+1	-	-	-	(60)	+1	-2
Light Hail	-	+1	-	+1	-	+1	-	+1	+1	-	-	+1	(120)	+1/2m	-
Heavy Hail	-	+2	-	+2	-	+2	-	+2	N/A ⁵	-	-	+2	(80)	+1/3m	-
Light Fog/Duststorm	-	+0 ³	-	-	-	-	-	-	-	-	-	-	(40)	+1/2e	-
Heavy Fog	-	+0 ³	-	-	-	-	-	-	-	-	-	-	(20)	+2/3e	-
Smoke / Sandstorm	-	+0 ³	-	-	-	-	-	-	-5	-	-	-	1	+2	-
Light Snowfall	-	+1	-	+1	-	+1	-	+1	-	-	-	-	(80)	-	-1
Heavy Snowfall	-	+2	-	+2	-	+2	-	+2	+1	-	-	-	(40)	+1	-2
Moderate Wind	-	+1	-	+0	-	+0	-	+2	+2	-	-	+1	-	+1m	-
Heavy Wind	-	+2	-	+1	-	+1	-	+3	N/A ⁵	-	-	+2	-	+1b/2m	-1
Temp Above 30°C	-	-	-	-	-	-	-	-	+1 ⁵	-	-	-	-	-	+1/10
Temp Below 30°C	-	-	-	-	-	-	-	-	+1 ⁵	-	-	-	-	-	-1/10

TERRAIN TABLE NOTES

Terrain Type/Activity

- A Available only to Quad, VTOL and Hover Units.
- B Only if travelling along the road or river, otherwise cost of underlying terrain.
- C Unit may ignore extra MP cost if desired, but must make a piloting roll to avoid falling/crash.

MPs/Piloting Modifier

- * Indicates a piloting roll must be made, with all appropriate modifiers, each time a hex of said terrain type is entered.
- 1 Piloting roll required (with full modifiers) or Mech/Vehicle may become stuck. See Special Rules section of BT rules.
- 2 Must roll to avoid slipping, see BT rules.
- 3 Poor visibility. Units jumping into woods hexes must make piloting rolls to avoid falling from one level. See below.
- 4 Submarines only.
- 5 Infantry are unable to fight effectively in these conditions without special training or equipment.
- 6 Only if both units are below water.

Block LOS?

- (n) Maximum Sight Range
- N Number of Hexes to block LOS, not including target hex.

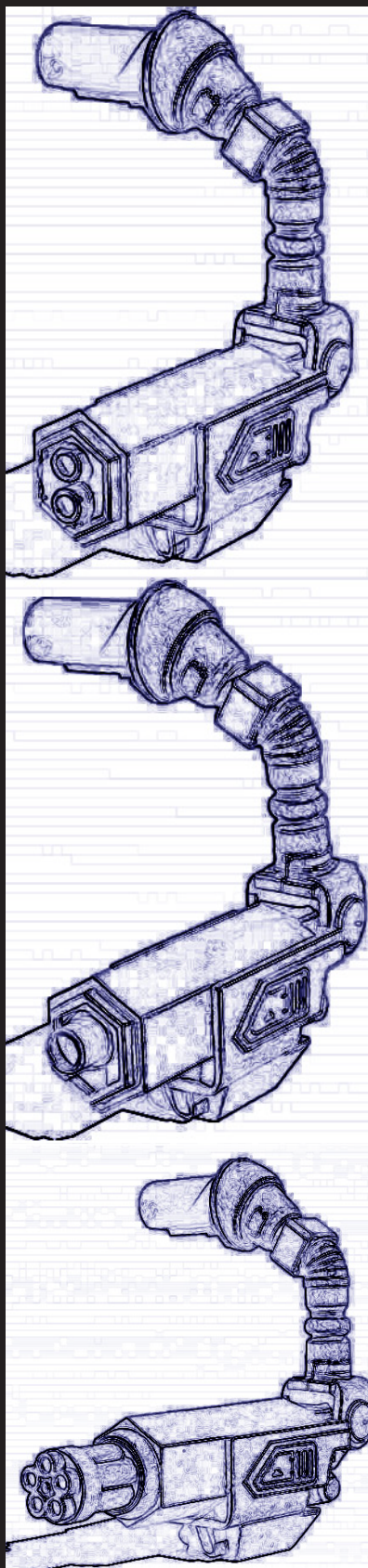
To-Hit Modifier

- x|x Attacker|Defender
- W See Water Rules, BT rules.
- i vs Infantry
- v vs Vehicles
- b for Ballistic Weapons (Gauss, AC, Missiles, etc)
- e for Energy Weapons (Lasers, PPCs, etc)
- m for Missile Weapons

Heat Modifier

- x Number of Heat Points subtracted per turn.
- + One heat subtracted if mech has at least one operational leg-mounted heat sink.
- ++ One heat subtracted per heat sink below water; two heat per double heat sink below water; max 6 heat subtracted, total.
- +/10 +1 heat at 30°C, +2 at 40°C, +3 at 50°C, etc.
- /10 -1 heat at -30°C, -2 at -40°C, -3 at -50°C, etc.

CLASSIC BATTLETECH



“Roger that, Quinn 3. Moving to Intercept.” His 75 ton battle machine thrumming beneath him, Pilot Dimitri maneuvered to bring his weapons to bear. Scanning his sensors, he smiled as he recognized his enemy’s profile. Nothing he couldn’t handle. “This is Quinn 6, enga....what the heck was THAT?” With a thunderous noise, his mech ‘Mech wrenched around from a savage weapon impact. His damage monitor glared an angry crimson; his support lance was still moving towards his area. “Screw this.” Forfeiting any desire to return fire, with as much grace as his ‘Mech could muster he shirked his way towards the woods, biding time until reinforcements arrived...

BattleTech®: Field Manual is a fan-produced eBook, filled with the latest on warfare in the 31st Century. New game rules, new construction items and a plethora of new weapon technologies describe the latest battlefield conditions in the Inner Sphere. Provided to update the field commander, this book should never be far from your side.

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