CONVERTING HEAT

Only units that track heat follow this step. For units that do not track heat, round their damage subtotals up to the nearest tenth place (e.g., 0.401 becomes 0.5). These are referred to as the unit's heat-modified damages, even though the unit does not track heat. Such units then skip directly to *Determine Final Damage Values* on the next page.

For units that track heat ('Mechs, aerospace fighters, Small Craft, DropShips, JumpShips, satellite support vehicles, space stations and WarShips), the unit's damage values may be adjusted based on the heat their weapons and equipment generate in a *BattleTech* turn versus how much of that waste heat they can dissipate. Units that possess more firepower than their heat sinks can handle will find their maximum potential damage reduced as a result, but may also receive an Overheat Value that can be used to deliver more punch as needed.

Heat Output

To begin, find the unit's maximum heat output. This is the heat generated by firing all weapons, as well as the special-case heat rules described further below.

'Mech units must also add the maximum heat generation possible for their most heat-intensive movement mode. This added movement heat is +2 if the unit is a BattleMech that lacks jump jets, or +1 per 2 inches of jumping Move if the unit is a BattleMech or IndustrialMech that has jump jets (to a minimum of +3 heat for such jumping units). None of the other heat-tracking units covered by these rules (including non-jumping IndustrialMechs) add heat for their movement actions.

The following additional special-case rules apply to heat output calculations.

Anti-Missile Systems: Add 1 point to the unit's heat output for every Anti-Missile System, 5 points for every Clan-made Laser Anti-Missile System, and 7 points for every Inner Sphere Laser Anti-Missile System the unit possesses.

Rear-Firing Weapons: Do not include heat for weapons that face into the unit's rear unless the unit's type is capable of delivering attacks into multiple firing arcs (such as a DropShip, space station, or WarShip). If the unit's front-firing weapons output less heat than its rear-firing weapons, count the heat for its rear-firing weapons *instead* of the heat for its front-firing weapons.

Rocket Launchers and One-Shot (OS) Missiles: Do not include the heat generated by rocket launcher weapons or one-shot missile launchers of any type.

Stealth Systems: If the unit features stealth armor, the Null-Signature System, or the Void-Signature System, add 10 points to its heat output. If the unit features the Chameleon Light Polarization Shield, add 6 points to its heat output.

XXL Engine: A BattleMech or IndustrialMech unit with an XXL engine ignores the regular movement heat calculations. Instead, it has a movement heat of 6 if it does not mount jump jets, or 2 per 2 inches of jumping Move if it does (to a minimum of +6 heat for such jumping units).

Improved Jump Jets: A unit with improved jump jets reduces its jumping movement heat by half, rounding up (to a minimum of +3 heat for jumping). The movement heat for a BattleMech with both improved jump jets and an XXL engine is +1 per 2 inches of jumping Move, to a minimum of +3 heat.

Heat Dissipation

Next, determine the unit's heat dissipation rate by adding up all of the heat modifiers shown in the Heat Dissipation Table. The heat modifiers for heat sinks and coolant pods are applied for each sink or pod the unit mounts, while the heat modifiers for other equipment like the partial wing, radical heat sink system, and RISC emergency coolant system apply only once. For example, a unit with 10 double heat sinks and a coolant pod would have a heat dissipation rate of –21 ([10 double heat sinks x –2] –1 [coolant pod] = –21).

If the unit's heat dissipation rate is equal to or greater than its total heat output – 4, simply round each damage subtotal up to the nearest tenth place (e.g., 0.901 becomes 1). The result is each bracket's heat-modified damage. Proceed to *Determine Final Damage Values* on the next page.

Heat Dissipation Table

Equipment	Heat Modifier
Heat Sink, Standard or Compact	–1*
Heat Sink, Double or Laser	–2*
Coolant Pod	–1**
Partial Wing	–3
Radical Heat Sink System (RHS)	–1
RISC Emergency Coolant System (ECS)	–1

*Multiply this by the number of heat sinks the unit has
**Multiply this by the number of coolant pods the unit has

Heat-Modified Damage and Overheat

If the unit's heat dissipation rate is less than its total heat output – 4, the overall damage the unit can reliably deliver may be reduced.

First, take the unit's Medium range damage subtotal. Round it up to the nearest whole number.

Second, take that same damage subtotal and, instead of rounding it, run the heat-modified damage formula on it:

Heat-Modified Damage Formula

Heat-modified damage = (Damage subtotal × total heat dissipation) ÷ (maximum heat output – 4)

The heat-modified damage result is rounded up to the nearest tenth place. The heat-modified damage is then finalized by rounding up (for base damage values) or rounding normal (for special ability damage values) to the nearest whole number (see Determine Final Damage Values below).

If the unit is a 'Mech or aerospace fighter, the amount the unit's Medium-range damage was dropped by becomes the unit's Overheat (OV) value (if the 'Mech or aerospace fighter cannot deliver damage at Medium range, use its Short-range values instead). If this difference is more than 4 points, the unit receives an Overheat Value of 4.

For 'Mechs and aerospace fighters, then move to *Heat-Modified Damage—Long* directly below. Otherwise, calculate the heat-modified Long-range value as normal.

Once this is done, repeat the heat-modified damage process with the unit's Short-range damage to find the unit's heat-modified Short-range damage.

For units that possess the ability to fire multiple weapon attacks in the same arc (e.g. WarShips and DropShips with standard weapons, capital or sub-capital weapons, and capital missiles), the heat-modified damage must be computed separately by weapon class.

All units must use the heat-modified rounding (rounding up to the nearest tenth) even if they are a unit that doesn't track heat (vehicle, infantry, etc.) or are a 'Mech or aerospace fighter with enough heat sinks to handle all its heat output.

Heat-Modified Damage—Long

If the unit is a 'Mech or aerospace fighter and can deliver damage at Long range (or better), the unit may receive the OVL (Overheat Long) special ability.

To determine if this is the case, first calculate the unit's Long-range damage subtotal and round it up to the nearest whole number.

Second, calculate the unit's Long-range heat output. This is done as normal, except that the heat from any weapon with no Long-range damage value is not included.

Third, calculate the unit's heat-modified Long-range damage, using the normal formula, but with the above heat output value. Round the result up to the nearest tenth, then round up again to the nearest whole number.

Compare the two Long-range damage values. If the heat-modified Long-range damage is lower than the rounded Long-range damage subtotal by at least 1 point, the unit receives the OVL special ability (see p. 116).

Note: the above calculation is used solely to check if the unit qualifies for the OVL special ability. If it does qualify, the unit's actual Long-range damage is calculated using the exact same procedure and unit heat output as for the Short- and Medium-range brackets (including heat generated by weapons that cannot reach Long range).

If the unit does not qualify for OVL, then simply take its unmodified Long-range damage subtotal, round it up to the nearest tenth, and proceed to *Determine Final Damage Values*.

If you have a 'Mech with a long-range damage subtotal of 4.5, producing 50 heat at Long range, and with a heat dissipation value of 40, this is how you would check to see if it had OVL and then determine its long-range damage value.

Step 1 involves rounding the unit's Long-range damage subtotal up to the nearest whole number. 4.5 rounds up to 5.

Step 2 requires you to total up all sources of heat (walking, stealth armor, etc.) except for weapons that don't have a Long range damage value. For our 'Mech, this is 50 weapon heat, plus 2 more for running (52 heat total).

Step 3 requires us to calculate the unit's heat-modified Long range damage value. (4.5 x 40) / (50+2-4) = 3.75. Rounded up to the nearest tenth gives us 3.8. The final heat-modified Long Range damage value of 3.8 is then rounded up to the nearest whole number, 4.

We then compare our two values. The final heat-modified value (Step 3) is at least 1 lower than the final non-modified value (Step 1). As such, the unit gains the OVL special ability.

As for its actual Long range damage, this is calculated by in the same way you calculated the 'Mech's short and medium range damage values. If the 'Mech makes a total of 53 heat from all sources, then its heat-modified Long-range damage value would be (4.5 x 40 / 53+2-4) = 3.52, rounded up to the nearest tenth of 3.6.

This example continues below.

DETERMINE FINAL DAMAGE VALUES

For standard and sub-capital weapons (including sub-capital missiles), round the unit's heat-modified damage up to the next whole number to find the unit's final damage values at each range bracket.

Capital Weapons: Capital weapons and capital missiles are each added together and recorded separately by group (one for capital non-missile weapons, and another for capital missiles). Round the heat-modified sums for each of these weapon classes up to the next whole number.

Minimal Damage: As noted under the general conversion rules for weapons (see p. 99), any weapon bracket that delivers more than 0 points of damage, but less than 0.5 damage (after heat-modification and before final damage value rounding), receives a Minimal Damage value (0*) at that range bracket.

Special Ability Damage: For determining the final damage value for special abilities (such as AC, FLK, IF, LRM and SRM damage), round the sum of these abilities' heat-modified damage values normally to the nearest whole number (not up to the nearest whole number) for each range bracket.

To determine the 'Mech's final damage value, round its heat-adjusted Long-range damage value up to the nearest whole number. With a heat-adjusted Long-range damage value of 3.6, the 'Mech's final Long-range damage value is rounded up to the nearest whole number: 4.

The 'Mech has a Long-range damage value of 4, and the OVL special ability.