
Chapter 0: Mecha d20 — System Reference Document v1.0

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Chapter 1: Introduction

"Mecha" is the term used by Japanese animators and fans to refer to the mechanical designs that appear in Japanese animation, or anime. A mecha can be a giant robot, a suit of powered armour, or a vehicle of some other sort, such as a spaceship, tank, submarine, or motorcycle.

Mecha d20 provides a means of describing all manner of mecha in game terms, and offers simple, playable systems for using them in adventures. Although its primary focus is on anime-style giant robots and powered armour, Mecha d20 can be used to create everything from sports cars to sky galleons.

Mecha Pilot Character Class

The character is a military Mecha Pilot in a modern military or paramilitary force. He or she might be a member of the armed forces, a SWAT team, or even a freelance mercenary, and could operate a giant robot, jet fighter, helicopter, or tank ... or a machine that transforms into each. Most Mecha Pilots consider themselves elite compared to infantry soldiers, patrol cops, or other "ground pounders."

Adventures

Mecha Pilots may fight for glory, honour, or even loot, but most are reluctant warriors, battling because they feel they have no choice. The enemy is coming, and they are all that can protect their loved ones, their comrades, their country, or their world. Sometimes that war has already been lost ... and now they seek revenge.

Characteristics

Some Mecha Pilots are chivalrous, hot blooded, and confident, but most know war is not a game, whether the foe are criminal gangs, terrorists, or the armed forces of rival powers. They may ponder over whether to climb into the cockpit again — or even consider deserting — but when they actually get on the battlefield, they fight to win, using their superior firepower to reap lesser adversaries like wheat before a scythe as they smash their way toward their opposite numbers. The most famous Mecha Pilots — like fighter aces of the past — are renowned for situational awareness, the always

preternatural "sixth sense" of keeping track of everything in the confusion of battle that lets them fight many foes at once.

Background

Some mecha are operated by steely-eyed professionals who graduated from a military academy, others by scarred veterans of a hundred battles, and a great many by angst-ridden 14-year-olds who've barely read the manual. In short, a Mecha Pilot can come from any class, race, or background.

Other Classes

The ranks of Mecha Pilots also include many characters of other classes. In particular, many groups will include Fighters, both as ordinary soldiers and as Mecha Pilots, and Bards are also surprisingly common, often in their modern-day incarnation as idol singers. Classes from Anime d20 that work especially well in a mecha campaign include Sentai Members (often a team of heroes will each have their own mecha, which can combine into one giant machine), Gun Bunnies (who sometimes acquire powered armour mecha suits for heavy-duty combat), Students (who tend to find themselves piloting mecha even if they aren't ready for the job), and, of course, Giant Robots (if one or more of mecha themselves are intelligent). Adventurers, rather than Mecha Pilots, can be a good all-around class to represent the other crew members in a starship or similar large vessel. Most importantly, Mecha Pilots tend to associate with Tech Geniuses, the engineers and inventors who build, maintain, and modify the mecha.

Hit Dice and Ability Scores

The Mecha Pilot uses d8 Hit Dice.

Class Skills

The Mecha Pilot's Anime d20 class Skills are Computer Use (Int), Demolitions (Int), Drive (Dex or Int), Knowledge (Electronics, Law, Mechanics, Military Sciences, Police Sciences, Strategy) (Int), Navigate (Int), Pilot (Dex or Int), Repair (Dex), and Spot (Wis).

Skill Points at 1st Level: (4 + Int Modifier) x 4

Skill Points at Each Additional Level: 4 + Int modifier

growing in power as he or she grows in heroic stature. It is up to the GM whether or not to let the new or upgraded mecha be designed by the player.

Table 1-1: Mecha Pilot Level Progression

Level	Attack Bonus	Ref	Will	Fort	Special
1	+0	+2	+0	+0	Mecha (+400 Mecha Points), Mecha Pilot Feat Package, Personal Gear
2	+1	+3	+0	+0	Heightened Awareness (+2)
3	+2	+3	+1	+1	Aura of Command (1 person)
4	+3	+4	+1	+1	Mecha (+400 Mecha Points)
5	+3	+4	+1	+1	Bonus Feat, Organisational Ties
6	+4	+5	+2	+2	Aura of Command (2 people)
7	+5	+5	+2	+2	Bonus Feat
8	+6/+1	+6	+2	+2	Mecha (+400 Mecha Points)
9	+6/+1	+6	+3	+3	Aura of Command (10 people)
10	+7/+2	+7	+3	+3	Organisational Ties
11	+8/+3	+7	+3	+3	Heightened Awareness (+4)
12	+9/+4	+8	+4	+4	Mecha (+400 Mecha Points), Aura of Command (50 people)
13	+9/+4	+8	+4	+4	Bonus Feat
14	+10/+5	+9	+4	+4	Organisational Ties
15	+11/+6/+1	+9	+5	+5	Aura of Command (200 people)
16	+12/+7/+2	+10	+5	+5	Mecha (+400 Mecha Points)
17	+12/+7/+2	+10	+5	+5	Bonus Feat
18	+13/+8/+3	+11	+6	+6	Organisational Ties
19	+14/+9/+4	+11	+6	+6	Bonus Feat
20	+15/+10/+5	+12	+6	+6	Mecha (+400 Mecha Points)

Class Features

All of the following are class features of the Mecha Pilot:

Mecha Pilot Feat Package

The Mecha Pilot gains these Bonus Feats at 1st Level: Mecha Weapon Proficiency [one type], Personal Firearms Proficiency, and [Mecha] Operation.

Personal Gear

A 1st Level Mecha Pilot possesses a basic set of equipment. Typically, this is a flight suit or space suit and a sidearm.

Mecha

At 1st Level, the character receives an appropriate mecha constructed from 400 Mecha Points. Every 4 Levels, the Mecha Pilot either makes significant upgrades to his or her mecha, or receives a more powerful replacement mecha; the Mecha Point total increases by 400 Points for each upgrade. This should be justified by in-game events. It could represent his or her organisation providing a better prototype machine, or new parts. If the mecha is magically bonded to the pilot, it may represent it

Heightened Awareness

At Level 2, the character gains a +2 bonus to any awareness (Spot, Listen, etc.) checks that he or she makes. This bonus increases to +4 at 11th Level.

Aura of Command

The Mecha Pilot possesses a natural knack for leadership that grows as his or her confidence increases. The pilot can inspire allies or subordinates into following him or her into dangerous situations they might otherwise avoid or never consider undertaking. The number of people he or she can directly inspire at any given time is shown in parenthesis on the progression table. For example, a 6th Level character can directly inspire 2 people. Aura of Command's effects should be role-played, but one practical benefit allows the leader to add his or her Will save bonus (if higher) to his or her subordinates in any situation where they must make a Will save to avoid fear or panic. Few leaders have an Aura of Command sufficient to inspire their entire force at once. They usually concentrate on key individuals (such as immediate subordinates) and hope the actions of these people will encourage others to follow them.

Bonus Feat

The character may select a bonus Feat. This Feat may be any of the Mecha Feats or a Giant Robot Fighting Feat.

Organisational Ties

Most Mecha Pilots belong to some form of organisation, such as a military force. At Level 5, the character is trusted by the organisation and can rely on it for occasional support and favours (such as the support given to a military officer, experienced sergeant, or police detective). At Level 10, the character has respected status and considerable tactical responsibility in an organisation (such as a fighter squadron leader or company commander). At Level 14, he or she may have operational responsibility and will often assist in or make strategic decisions (such as an army colonel or the captain of an important warship). At Level 18, the pilot has reached senior rank in the organisation (such as the rank of a military general). For those characters who avoid responsibility, organisational ties may represent increased reputation and value to the organisation, and the willingness of the organisation to cut them slack in exchange for their support.

Mecha Commander Character Class

The Mecha Commander is a tactician and operational strategist. He or she may command from a ship's bridge, an underground secret base, a flying fortress above the clouds, or at the head of a squadron of giant robots. He or she need not be a Mecha Pilot. Some work their way up through the ranks and "lead from the front" while others may be chosen for their strategic ability or force of will.

Requirements

To qualify, the character must fulfil all the following criteria: Aura of Command: 1+ ranks. Organisational Ties (in a military or paramilitary force): 1+ ranks. Knowledge (Strategy or Military Science): total 3 or more ranks.

Hit Dice and Ability Scores

The Mecha Commander uses d8 Hit Dice.

Class Skills

The Mecha Commander's Anime d20 class Skills are Bluff (Cha), Diplomacy (Cha), Gather Information (Cha), Hide (Wis), Intimidate (Cha), Knowledge (Geography, Military Science, Strategy) (Int), and Sense Motive (Wis).

Skill Points at 1st Level: (6 + Int Modifier) x 4

Skill Points at Each Additional Level: 6 + Int modifier

Class Features

Bonus Feat

The character may select a bonus Feat. This Feat may be any of the Mecha Feats or a Giant Robot Fighting Feat.

Tactical Advice

As an attack action, the Mecha Commander can offer tactical advice to all occupants of a single mecha (it can include his or her own mecha's crew, but not his or her own self). The mecha's location

Table 1-2: Mecha Commander Level Progression

Level	Attack Bonus	Ref	Will	Fort	Special
1st	+0	+0	+2	+2	Bonus Feat, Tactical Advice 1/day
2nd	+1	+0	+3	+3	Battle Plan gives +1 Initiative; Handle Recruits
3rd	+2	+1	+3	+3	Bonus Feat
4th	+3	+1	+4	+4	Tactical Advice 2/day
5th	+3	+1	+4	+4	Battle Plan gives +2 Initiative
6th	+4	+2	+5	+5	Bonus Feat
7th	+5	+2	+5	+5	Tactical Advice 3/day
8th	+6/+1	+3	+5	+5	Battle Plan gives +3 Initiative
9th	+6/+1	+3	+6	+6	Bonus Feat, Saint Crispin's Day
10th	+7/+2	+4	+7	+7	Tactical Advice 4/day

must be precisely known, and they must be in voice or communication range. This advice provides either a competence bonus on attack rolls, on Spot (or Computer Use) and Hide checks, or a dodge bonus to Defence, at the commander's option. The bonus equals the higher of his or her Wisdom or Intelligence bonus (minimum +1). Its duration, in rounds, equals the number of ranks he or she has in the Knowledge (Strategy) Skill. The Commander can delay activation of the bonus, however, until a specific event described by the commander is observed by the ally (such as, "the enemy attacks" or "you advance into the town"), provided that is within the same day. The commander may use the

Tactical Advice ability no more times daily than shown on the class progression table.

Handle Recruits

At 2nd Level, a Mecha Commander can transform recruits (often teenagers ranging from 12-17 year olds) into motivated warriors. The Mecha Commander must spend at least 3 hours a day on the trainee group over the prior week to have any influence. A DC 15 check is required; add the commander's Charisma bonus and +1 every two class Levels. If the check succeeds, the commander can motivate them to fight and obey his or her orders when necessary, as if they were professional soldiers. If it fails, they will continue to act like ordinary teenagers: get scared, act like spoiled brats, run away, etc. New checks may be required whenever something happens that might break their morale — they are ordered to kill someone they know, see a friend die, become homesick, etc. The DC depends on the situation; the GM may wish to use the guidelines in the Handle Animal Skill.

Battle Plan

If the character takes at least (11 minus the Mecha Commander's Class Level) minutes to formulate and describe a battle plan to his or her allies in advance of actual combat, and they follow it in regard to their pre-battle disposition (marching order, formation, etc.), it grants an Initiative bonus to all members of the group, including the character him or herself. The bonus is +1 at 2nd Level and an additional +1 every three Levels. The bonus becomes a penalty, however, if the battle plan is revealed to the enemy (by treachery, mind-reading, etc.). In order to formulate a battle plan, the commander must know the exact number of his or her allies, their equipment, and the location and terrain of the battle. If this changes (perhaps he or she makes the plan too early), the bonus is lost. The character gains an additional +1 bonus if he or she has accurate intelligence on the enemy's capabilities or plans; it is up to the GM whether or not this bonus should be applied. A group of allies can only benefit from one battle plan at any one time. The time required to formulate a battle plan assumes the character is planning for a small force of platoon size or less — a half dozen mecha, or

under 50 combatants. Planning a larger battle may take proportionately longer, at the GM's option.

Saint Crispin's Day

At 9th Level, a Mecha Commander gains the ability to, once per game session, deliver an inspiring speech that provides major benefits to allies who listen to it. The speech takes one minute (10 rounds) and gives the same effect as a Hope, Rage, or Hate Emotion spell (see PHB, Spells), although it is not a spell. The commander decides which spell effect to apply. The speech affects only those individuals within the leader's Aura of Command; others may be inspired, but gain no game benefit. The effects last for a number of minutes equal to 10 times his or her Charisma bonus (minimum 10 minutes).

Skills and Mecha

The following Skill is of special use when operating mecha.

Computer Use

When using Mecha d20, GMs should add the following specialisations to the Computer Use skill: Sensors, Camouflage Gear, and Electronic Counter Measures. These specialisations reflect the specific computer technology found on most military vehicles. Computer Use is used in place of Spot Checks when using vehicle sensors (other than Optics, which uses the Spot Skill).

Drive (or Pilot)

Relevant Ability: Intelligence or Dexterity

Specialisation: Drive: Big Rig (large trucks), Car, Motorcycle, Small Truck (vans, pick-ups), Tank, etc. Pilot: Heavy Airplane, Helicopter, Jet Fighter, Light Airplane, Spacecraft

The ability to operate a powered vehicle. Skill checks are only necessary in difficult situations such as performing vehicular stunts, avoiding hazards, etc. The Pilot skill is used for air/space vehicles.

Check

Routine tasks, such as ordinary driving, do not require a Skill check. Make a check only when some unusual circumstance exists (such as

inclement weather or an icy surface), or when the character is driving during a dramatic situation (the character is being chased or attacked, for example, or is trying to reach a destination in a limited amount of time). When driving, the character can attempt simple manoeuvres or stunts.

Try Again?

Most driving/piloting checks have consequences for failure that make trying again impossible.

Special

A character can take 10 when driving/piloting (if not in combat or otherwise threatened or distracted), but cannot take 20. There is no penalty for operating a general-purpose vehicle. Other, specialised types of vehicles require the corresponding [Mecha] Operation Feat, or the character takes a -4 penalty on Drive checks.

Time

A Drive check is a move action.

Feats and Mecha

Most Feats can be used from a mecha without any problem. For example, a character with the Far Shot Feat can apply that to a mecha's weapons, while one with Alertness gets the same bonus when using a mecha's sensors. You could even use Brew Potion inside a mecha, provided it had a lab.

Exceptions to this are Feats that require a near-human level of physical co-ordination or agility, such as Cleave or Whirlwind Attack. These require a mecha with limbs (a giant robot or suit) to use, and may require a special prerequisite Feat — see Giant Robot Fighting.

Feats and Anime d20

Anime d20 includes several Attributes that can replace standard Feats. Mecha d20 includes specific Feats for use by GMs running other d20 games, however.

Mecha Feats

The following additional Feats are used in Mecha d20.

Giant Robot Dodge

You are especially adept at defensive manoeuvres while operating a giant robot. Select a size of giant robot (such as gargantuan or colossal). You are adept at dodging attacks while piloting that size of mecha. Your ability only applies to giant robot-class mecha, not to suits or vehicles.

Prerequisite: Dex 13+, Driving or Pilot 3+ Ranks

Benefit: When piloting a mecha, you may designate an opponent of any sort (mecha, character, etc.) and receive a +1 dodge bonus to Defence against attacks from that foe. You may select a new opponent to dodge on any action.

Giant Robot Fighting

You are proficient in the fine control of a giant humanoid fighting machine. If you are piloting a mecha suit, or a giant robot that has the same general limb configuration as your own body (if a human, that means two arms and two legs), you may use certain Feats with it.

Prerequisite: Giant Robot Dodge, Driving or Pilot 6+ Ranks

Benefit: If you know any of the Feats detailed in the Giant Robot Fighting Feats Table (below), you may apply them to your mecha as if it was the character. Moreover, those Feats that require a Strength prerequisite may be learned even if you lack sufficient Strength, but only used when you are piloting your giant robot (provided your robot has sufficient Strength). If you later increase your Strength, you can use them on your own.

Normal: You may not use the Feats below while in a giant robot if you lack this Feat. You may not use them at all while in a vehicle. You are not restricted from using them while in a suit.

Table 1-3: Giant Robot Fighting Feats

Ambidexterity	Blind-Fight	Cleave
Dodge	Expertise	Great Cleave
Improved Critical	Improved Disarm	Improved Initiative
Improved Trip	Improved Two-Weapon Fighting	Mobility
Power Attack	Quick Draw	Shot on the Run
Spring Attack	Sunder	Two-Weapon Fighting

Whirlwind Attack

Special: The Endurance, Run, and Stunning Fist Feats cannot be used by a giant robot. Bull Rush, Improved Bull Rush, and Improved Unarmed Strike Feats are unneeded, since mecha attacks do not count as "unarmed."

Armour Proficiency (Mecha Suit)

The character is proficient with mecha suits that are worn rather than driven, such as powered armour.

Prerequisite: None

Benefit: The armour check penalty applies only to Balance, Climb, Escape Artist, Hide, Jump, Move Silently, Pick Pocket, and Tumble checks.

Normal: A character without this Feat wearing a mecha suit suffers its armour check penalty on attack rolls and on Dex- or Str-based Skill checks.

Special: The character can don or remove a mecha suit that has a Start-Up Time Defect in half the normal time.

Electronic Warfare

The character is an expert at using sensors

Prerequisite: Int 11+; Computer Use Skill 2+ Ranks

Benefit: The character can perform Computer Use checks with mecha sensors (such as radar) without penalty.

Normal: Characters without this Feat make Computer Use checks using mecha sensors at -4 penalty.

Special: If the character takes a full action to monitor a sensor, he or she gets a +2 bonus on Computer Use checks with it.

Mechamorphosis

The character is an expert at using mecha with exotic mechanical metamorphosis abilities.

Prerequisite: Dex 13+

Benefit: If operating a transforming or combining mecha, the character can transform or combine using a move action. The character may apply his or her Dex bonus to Defence when transforming or combining.

Normal: Characters without this Feat must take a full action to transform or combine, and are flat-footed on the round that they do so.

Special: In the case of a combining mecha, all characters must have this Feat to gain the bonus.

(Mecha) Operation

This is several different Feats, sometimes known as Aircraft Operation, Spacecraft Operation, Surface Vehicle Operation, etc. Select a GM-defined class, such as heavy aircraft, helicopters, jet fighters, spacecraft, starships, heavy wheeled, powerboat, sailboat, ship, submarine, tracked, giant robot, etc. The character is proficient at operating that class of mecha.

Prerequisite: Pilot Skill 4+ Ranks for air or spacecraft; Drive Skill 4+ Ranks for surface craft.

Benefit: The character takes no penalty on Drive or Pilot checks or attack rolls made when operating a craft of the selected class.

Normal: Characters without this Feat take a -4 penalty on Pilot or Drive checks made to operate a mecha (giant robot or vehicle), and on attacks made with its weapons. Exception: there is no penalty when a character with appropriate Skill operates a simple general-purpose vehicle, such as a light propeller aircraft (if he has Pilot) or an automobile or van (if he has Drive).

Special: The character can gain this Feat multiple times. Each time the character takes the Feat, the character selects a different class of mecha.

Mecha Weapon Proficiency

The character is proficient with a specific type of ranged weapons used by mecha — Artillery (indirect fire weapons such as Howitzers), Gunnery (heavy machine guns, tank guns and other vehicle-mounted direct-fire weapons), or Launchers (rocket and missile launchers).

Prerequisite: None

Benefit: The character makes attack rolls with the weapon normally.

Normal: A character who uses a weapon without being proficient with it takes a -4 penalty on attack rolls.

Special: A character can gain this Feat multiple times. Each time a character takes the Feat, he or she selects a different weapon group.

Personal Firearms Proficiency

Benefit: The character can fire any personal firearm without penalty.

Normal: Characters without this Feat take a -4 penalty on attack rolls made with personal firearms.

Vehicle Dodge

Prerequisite: Dex 13+, Drive or Pilot Skill 6+ Ranks

Benefit: When piloting or driving a vehicle (not a giant robot or suit), during the character's action, the character designates an opposing vehicle or a single opponent. The character's vehicle and everyone aboard it receive a +1 dodge bonus to Defence against attacks from that vehicle or opponent. The character can select a new vehicle or opponent on any action.

Normal: Characters operating mecha suits use the ordinary Dodge Feat instead. Characters operating giant robots may use the Dodge Feat if they have the Giant Robot Fighting Feat.

Chapter 2: Mecha Design

This chapter provides rules for creating mecha of all sorts, from oared galleys and Gnomish war machines to cars, main battle tanks, airplanes, submarines, powered armour ... and giant robots.

Mecha d20 is an effects-based system. Start with a general concept for a giant robot, suit, or vehicle, and use these rules to translate it into game mechanics. The system is concerned with what a mecha does, not the nuts-and-bolts details of what technology is or isn't available in a particular setting. That is up to the GM.

There is no need to keep track of weight, money, power, volume, or other considerations of that nature. Instead, an abstract "Mecha Point" game mechanic rates relative capability of the mecha design. The section Mecha Point Equivalent explains how to translate Mecha Points into other units, such as experience levels, gold pieces, dollars, or wealth checks.

Metric and Imperial Systems

Since some d20 System games use Imperial measurements and some use metric, Mecha d20 uses both. Most values are given in both Imperial and Metric equivalents; both are rounded appropriately for simplicity.

What is a Mecha?

In Japan, "mecha" is used to refer to the various mechanical designs created for an anime series, from ordinary cars and motorbikes to robots and starships. Big piloted robots are just called "robots," although most anime series adopt their own term for them, like "mobile suits," "armoured troopers" or "arm slaves."

In the west, "mecha" is sometimes used in the Japanese sense, and sometimes to refer to piloted robots.

Science vs. Magic, Reality vs. Fantasy

Although some of the text that follows for the mecha creation rules uses modern, scientific terminology, players and GMs should not feel constrained by this. The rules herein are intended to allow total freedom in mecha creation, be it ultra-realistic military vehicles, sea galleons from

the age of piracy, super-science starships of epic space opera, or magical mecha in a fantasy setting. The most important thing one should keep in mind while looking at the mecha creation rules are the rules themselves. If one wants to have Explosive Reactive Armour on his or her sea galleon, the player should not feel restricted against doing so by the fact that such high-tech armour did not exist in the age of pirates. The Explosive Reactive Armour could represent additional layers of armour on the ship's hull which provides protection against attacks in a similar game mechanical fashion as the ERA rules despite the fact that the real-world effect is different. Never let the text constrain your imagination.

In Mecha d20, a "mecha" is any vehicle, suit, construct, or giant robot built with Mecha Points.

The word mecha is both singular and plural, just like "samurai" or "ninja."

Mecha Points

Each mecha design will cost a certain number of Mecha Points depending on its statistics and qualities. Mecha Points are an abstract representation of the qualitative value of the mecha. A character gains a number of Mecha Points depending on his or her access to resources as well as the character's importance in organisations — see Starting Mecha Points, below.

Starting Mecha Points

The information below provides examples of Mecha Point power levels. The equivalent Ranks of the Own a Big Mecha Attributes from Anime d20 are also indicated.

Street/Soldier Level or Personal Gear — 200 Mecha Points

This will buy the kind of vehicles and mecha one would expect in a game about street-level operatives, like bounty hunters or gangsters. A bullet-proof hotrod, for example. It is also suitable for a team of modern soldiers. Thus, a crew of four player-characters could pool their Mecha Points and buy an M1 Abrams tank.

Agent Level or Own a Big Mecha Level 1 — 400 Mecha Points

This will buy the kind of gear that super agents or cyberpunk anime heroes have. Personal powered suits, for example, or a "do anything" spy car.

Mecha Troopers Level or Own a Big Mecha Level 2 — 800 Mecha Points

This will buy a one-man mecha roughly as powerful as a modern-day battle tank or jet fighter. A group of characters who pool their Mecha Points could buy a small fighting ship or space cruiser. Many giant robot anime shows have mecha at this power level.

Super Mecha Level or Own a Big Mecha Level 3 or 4 — 1,200 to 1,600 Mecha Points

This will buy a mecha that is far beyond any modern day fighting machine. This is the standard power level for mecha in giant robot shows where the heroes' mecha are far tougher than the typical "grunt" mecha (usually built on 800 Points) they face.

Guardians Level or Own a Big Mecha Level 5 or 6 — 2,000 to 2,400 Mecha Points

This will buy a mecha that is potentially world-shaking in its power. Campaigns similar to anime series where the characters are a small group of teenagers who are the only beings preventing the destruction of Earth will often start with mecha at that this level.

Mecha Stat Block

Like creatures, mecha have a number of statistics. After a mecha is designed, record it using this format:

Type: Whether the mecha is a suit, giant robot, or vehicle.

Class: The general category of mecha, like "sailing ship" or "main battle tank." This is up to the designer to specify; the classes are not defined by the rules. This determines what Skills or Feats are needed to operate the mecha.

Size: The mecha's size, which may range from fine to colossal. Most mecha designed to carry human-sized passengers will be medium-sized or larger. List the longest dimension and mass in parenthesis, for example: "Colossal (70' tall, 100 tons)."

Hit Points: The mecha's Hit Points, for example "200 HP."

Occupants: The number of medium-sized occupants the mecha transports. If the mecha has both crew and passengers it will have two entries separated by a slash. The second is passengers.

Cargo: The cargo the mecha can carry. This will specify either (lbs. or kg).

Armour: The mecha's damage reduction.

Defence: The mecha's defence, factoring in the values from Armour (if any) and size. (The value listed in brackets is for use with Anime d20's rules for Armour Class)

Strength: The mecha's strength ability. This is only listed for giant robots and suits, not for vehicles.

Land Speed (or Air Speed, etc.): The mecha's top speed in the specified environment, in mph or kph, with the combat speed (usually in feet, metres, or squares) noted in parenthesis. Follow underwater speed with the depth it can dive and an air speed entry with the ceiling (for example, Ceiling: 12,000'). If space flight, list thrust in G (for example, 3 G) and if realistic space flight, also G-grounds and a parenthetical delta-V. If the mecha is a suit, or has FTL, a multiplier is given instead of an actual speed, such as land speed x2.

Handling: The mecha's Initiative and Manoeuvre modifiers. List Initiative first, then Manoeuvre, separated by a slash. Some d20 System games use a single Handling modifier instead of two statistics. If so, list it with (handling) in parenthesis to prevent confusion.

Special Abilities: The other capabilities possessed by the mecha, such as sensors or an ejection seat. Special abilities are listed one at a time in alphabetical order. If a special ability requires an additional notation (or example, the range of a sensor), list it in parenthesis.

Exotic Abilities: Any exotic abilities possessed by the mecha, along with their any parenthetical notes regarding their capabilities. Exotic abilities include Force Field, Merging, Summonable, and Transformation. If an exotic ability has an additional notation, list it in parenthesis.

Defects: List any overall flaws the mecha possesses, such as being Flammable or a Hangar Queen. Defects are listed one at a time in alphabetical order (for example, Defects: Flammable; Hangar Queen; Windows). If the Defect has an additional note, list it in parenthesis — for example, Reduced Endurance (3 days).

Weaponry: The names of the weapons built into or carried by the mecha. Each weapon that is designed will be given its own stat block.

Required Feats or Skills: Any Feats or Skills required to operate the mecha, such as Pilot. Note (Feat) or (Skill) in parenthesis afterward if it is unclear whether a Feat or Skill is being referenced.

Cost: The total Mecha Point cost of the mecha. If desired, a conversion to dollars, credits, gold pieces, or other Points may be listed in parenthesis. For example, "Cost: 100 Mecha Points (20,000 gp)."

Mecha that can transform or merge may have multiple stat blocks.

Optionally list the individual Mecha Point costs (positive or negative) after each entry, for ease of modification, or, if a player, to help the GM check your totals. If so, use the abbreviation MP for Mecha Points and list the cost in brackets after the entry — for example, Hit Points: 10 HP [20 MP].

Designing a Mecha and its Mecha Point Cost

Mecha design is a multi-step process, much like character creation. It is up to the GM whether players can design their own mecha or whether they must select them from existing designs.

If the GM allows players to design their own mecha, he or she should specify how many Mecha Points are available. The GM may decide that only Mecha Pilots and Mecha Commanders can own mecha. Additionally, the GM must indicate whether any particular abilities are required or forbidden, or if the mecha must follow a particular theme. For example, "each character must have a personal medium-size mecha suit" or "all mecha must be submarines" or "everyone should have a gargantuan or colossal giant robot that can travel in space." The GM may ask players to revise their mecha designs to fit the game setting.

Design a mecha by selecting various characteristics, such as Hit Points, Armour, occupancy, or special abilities or weapons. Each has a Mecha Point cost; sometimes this is positive, sometimes negative.

Add all the costs together to find the Total Mecha Point Cost. This is the number of Mecha Points that it costs to start with this mecha, or the total used in any Mecha Point Equivalence formula.

There is no cost for a mecha's Type or Size, since the advantages and disadvantages tend to balance.

Concept

Decide on the basic concept of the mecha and how many Mecha Points you will spend on it. Here are some possible concepts:

Aircraft

These could be airplanes, helicopters, wind-powered sky-boats, or swift anti-gravity flyers.

Armoured Fighting Vehicles (AFV)

Conventional battle tanks, troop-carrying APCs, or tiny mini-tanks for city fighting.

Piloted Giant Robot

The classic humanoid battle machine with Operator riding inside the cockpit.

Monsters

GMs can also use the mecha rules to design giant-monsters-that-ate-Tokyo.

Organic Mecha

These living machines can be anything from a powered suit to a battleship.

Powered Armour

A form-fitting suit of strength-amplifying armour.

Spaceship

Small scoutships, sleek starfighters, rusty tramp freighters, or giant battleships and carriers.

Super-Car

It looks like a car but it may be bulletproof, drive underwater, or even fly.

Transforming Mecha

A motorcycle that turns into powered armour, for example, or a big humanoid robot that becomes a fighter plane.

Watercraft

How about a sleek and deadly submarine, a powerful battleship, a stately galleon, or a fast hydrofoil?

Mecha Point Equivalence

Many d20 System games use different mechanisms to represent the value of equipment and gadgets, from gold pieces to various unique Point systems. If using Mecha d20 with another d20 System game, the GM may desire to retain their existing system. Here are a few guidelines for converting Mecha Points into other systems:

Mecha Points in Anime d20

Each Level of the Own a Big Mecha attribute in Anime d20 gives 400 Mecha Points with which to build a mecha. Characters can pool their Mecha Points to create larger mecha, but should not usually be allowed to combine Mecha Points with non-player characters.

Each "major" item of Personal Gear in Anime d20 can be used to buy a mecha worth up to 100 Mecha Points, or to add additional Mecha Points to an existing mecha (through custom upgrades, etc.) or build a mecha of intermediate value.

The GM may vary the threshold to better balance mecha against other elements of the game.

Mecha Points as US Dollars

An approximate dollar value in modern US dollars can be found using this conversion:

Dollar Value = Mecha Points x Mecha Points x \$2

Also, multiply the cost by 1 to 5 if the mecha was built for a government agency or the military, by 5 if it can travel in space or underwater, and by 10 if it is a custom-built machine or experimental prototype. All increases are cumulative; a mecha built for the military (x2 cost), that flies in space, and is a prototype, is $2 \times 5 \times 10 = 100 \times$ cost.

Mecha Points as Interstellar Credits

In some science fiction settings, the cost in credits, or whatever other monetary unit is in use, will be roughly the same as the cost in dollars. This means that a space fighter or giant robot will cost millions of credits. For this conversion, just use the US dollar price.

In other settings, big robots and spacecraft are pretty cheap — any scoundrel can own a star freighter and any mercenary aristocrat can have a giant robot — the relative cost is more like a big semi-truck or a light plane. If so, the GM may wish to use this formula instead:

Interstellar Credits = Mecha Points x 200 credits

Apply the same cost multipliers detailed for US dollars

Mecha Points as Gold Pieces

In fantasy settings the GM may wish to price mecha in comparison to things like full plate armour or galleys, or compare their value to that of magic items or constructs such as golems. This cost scheme gives a price in gold pieces. It assumes that very powerful mecha are rare, and intended to give a reasonable price for sailing ships and other vehicles that are also built using this system:

Gold Pieces = Mecha Points x Mecha Points x 2 gp

Double the cost if the GM feels the mecha requires technology more advanced than the campaign setting, or magic.

For example, a boat built with 10 Mecha Points will end up costing 200 gp, while a medium-sized galley built with 100 Mecha Points will cost 20,000 gp. A potent magical steam-powered mecha built on 400 Mecha Points — capable of arm wrestling an iron golem or taking on a young dragon — costs 640,000 gp.

Mecha Points and Character Level

GMs of some d20 System games may prefer to assign a specific requisition Level to each mecha; characters must be of that Level or greater to be assigned to it.

To find a mecha's Level, use a calculator. Take the square root of its Mecha Point cost, then divide the result by 4, rounding fractions up. That is the Level

equivalent. Thus, a mecha that cost 400 Mecha Points would have a Level equivalent of 5, since the square root of 400, is 20, which when divided by 4 is 5.

This can also be used for games that typically assign characters equipment, requisition, or gadget Point per Level. GMs may vary the divisor to make mecha easier or harder to come by.

This Level equivalent can also be used as a mecha's Challenge Rating/Effective Character Level.

Mecha Points and Purchase Difficulty Class

Some d20 System games have characters roll to determine if they can acquire equipment, based on a wealth ability score or other attribute. A suggested Purchase DC for mecha is:

(Square root of Mecha Point Cost) + 15, rounded to nearest whole number.

Add +4 to DC if mecha was built for a government agency or the military, +7 to DC if it can fly or travel in space, and +10 DC if it is a custom-built machine or experimental prototype. All increases are cumulative; a mecha built for the military, that flies, and is a prototype, is +1 plus +7 plus +10 = +21 DC.

For example, if a main battle tank may cost 700 Mecha Points. The square root of 700 is 26.45, rounded to 26. The DC is 41, but since it is military hardware, it would be DC 46.

Design Checklist

Once the concept has been established, follow this procedure to design the mecha:

1. Choose Mecha Type.
2. Choose Size.
3. Choose Hit Points.
4. Choose Occupants and Cargo.
5. Choose Armour.
6. [Optional]: Choose Defence modifier. Calculate Defence.
7. Choose Strength, (if a giant robot or suit).
8. Choose Speed.
9. Choose Handling.
10. Choose Special Abilities.
11. Choose Exotic Abilities.
12. Choose Defects.
13. Design Weapons.
14. Add up all Mecha Point costs. This gives the actual cost.
15. Determine what Skills or Feats are needed to control the mecha.
16. Record the mecha's statistics, and give it a cool name, description, and background.

Step 1: Choose Mecha Type

There are three broad types of mecha. Decide which to create: a Suit, a Giant Robot, or a Vehicle.

Suit

A form-fitting suit of armour, worn rather than driven. This includes exoskeletons and powered armour suits that are no more than 1.5 times as large as the wearer. A suit has no room for extra gear: the Operator must wear tight or no clothes, no armour (except for ultra-tech skintight armour), and bring no extra equipment.

Giant Robot

A giant robot is a piloted humanoid or animal-shaped vehicle that is larger than its Operator and has creature-like agility and/or manipulatory ability,

via means of limbs and/or a flexible body and jaw. A giant robot could be anything from a humanoid fighting machine to a mechanical sea monster. If it stays on the ground, and moves at less than High Speed (750'/round), a giant robot has the advantage that it moves like a character or creature — there is no need to use the vehicle movement rules when it goes into combat.

Vehicle

A vehicle is a piloted mecha that is notably larger than its pilot and not classed as a giant robot. Vehicles include everything from ordinary wagons and cars to pirate galleons and space battleships. A machine with a simple bulldozer blade or tow arm is still considered a vehicle rather than a giant robot, since it lacks any flexibility of movement. Since vehicles do not acquire Strength, they are cheaper than giant robots.

Step 2: Choose Size

Decide how big the mecha is. The appropriate sizes for mecha are: fine, diminutive, tiny, small, medium, large, huge, gargantuan, or colossal.

There are two restrictions on size:

If creating a mecha suit, it must be the same size as the intended wearer. A suit for a human is medium size; a suit worn by a colossal dragon will also be colossal.

If creating a vehicle or giant robot, it must be at least one category larger than the largest being it is intended to carry. Thus, a giant robot or vehicle big enough for a human to ride inside must be at least large.

Many giant robots or vehicles will be more than one size category larger than their intended occupants. Exception: If the occupant will ride on it, like a bike or surf board, it can be up to two sizes smaller.

Specify its dimensions (tall) or (long). Most vehicles are long; suits and giant robots tend to be tall if humanoid, or long otherwise. Specify the mecha's longest dimension (height if tall, length if long) and empty weight, choosing from within the available ranges given on the Size and Weight chart.

The modifier is the size modifier of the mecha.

A good way to estimate weight for very large mecha: weight in tons = (longest dimension x longest dimension x longest dimension) divided by 1,000.

Some examples of common mecha sizes:

Medium size: Powered armour, motorbike, dinghy.

Large: A small car, speedboat, van, limousine, or light airplane. An 8-16' (2.5-5 m) giant robot.

Huge: A large car, small armoured personnel carrier (APC), a truck, WWII-era fighter. A 16-32' (5-10 m) giant robot.

Gargantuan: A large AFV or truck, a medium aircraft, railway car or locomotive, tramp freighter. A 32-64' (10-20 m)+ giant robot.

Colossal: Anything larger, from the size of a jumbo jet to a giant starship. A 64' (20 m)+ giant robot.

Table 2-1: Size and Weight Chart

Size	Example	Modifier	Dimensions	Empty Weight
Fine	Micro-machine	+8	up to 1" (3 cm)	up to 1/2 lb.
Diminutive	Small toy	+4	1-6" (3-15 cm)	1/4 to 10 lbs.
Tiny	RC toy	+2	6"-1' (15-30 cm)	5 to 50 lbs.
Small	Police RC robot	+1	1-4' (.3-1.2 m)	25 to 250 lbs.
Medium	Motorcycle	+0	4-8' (1.2-2.5 m)	100 lbs. to 1 ton
Large	Small car	-1	8-16' (2.5-5 m)	1/2 to 4 tons
Huge	Luxury car	-2	16-32' (5-10 m)	2 to 40 tons
Gargantuan	Heavy tank	-4	32-64' (10-20 m)	10 to 400 tons
Colossal	Jumbo jet	-8	64'+ (20 m+)	50+ tons

Step 3: Choose Hit Points (HP)

Hit Points measure the damage a mecha can sustain before being knocked out of action. The "base" column lists the default values.

The examples are for Hit Points using the same scale as d20 Modern, and are well balanced against modern weapons. HP vary widely in different d20 System games, however — assign whatever HP value best fits your own game setting. For other examples of Hit Points, see the sample mecha designs.

The overlap between size categories is intentional, since a smaller mecha might be tougher than a larger one if made from especially durable materials. Hit Points on the lower end of the scale are appropriate to mecha that are smaller or more

lightly built within a category; larger or heavier mecha have more HP.

Mecha Point Cost: Base Hit Points are 0 if medium size or smaller, 10 if large, 20 if huge, 40 if gargantuan, 100 if colossal. Each extra HP beyond base HP costs 2 Mecha Points.

Table 2-2: Mecha Hit Point Examples

Sizes	Base	Range	Examples
Tiny	0 HP	1-10 HP	RC Toy (3 HP)
Small	0 HP	1-15 HP	Bomb Squad Robot (15 HP)
Medium	0 HP	1-25 HP	Motor Scooter (15 HP)
Large	10 HP	10-40 HP	Compact Car (30 HP)
Huge	20 HP	20-50 HP	Armoured Carrier (48 HP)
Gargantuan	40 HP	40-120 HP	Main Battle Tank (64 HP)
Colossal	100 HP	100+ HP	Destroyer Warship (150 HP)

Step 4: Choose Occupants and Cargo

A mecha suit's occupancy is a single person whose size is the same as that of the suit. Thus, if the suit is medium size, it is usable with a medium-sized occupant. A suit has no cargo capacity.

Occupants

For vehicles and giant robots, decide how many medium-sized occupants are carried. An occupant may be a crew member or passenger, usually seated but sometimes standing. The maximum is 1 if small, 2 occupants if medium, 4 if large, 10 if huge, 20 if gargantuan; if a colossal mecha, the only limit is the optional realism consideration detailed under Maximum Loads.

There are two types of occupants for a giant robot or vehicle:

Operators are crew members who can use the mecha's systems in action: pilots, gunners, battery commanders, as well as equipment operators who main crucial systems such as sensors or communications. Many mecha have only one Operator, the pilot or driver; others have several. In a large naval vessel or starship, these are usually the bridge crew and gunners. Mecha that require many people simply to keep it operational have the Service Crew Defect.

Passengers are everyone else. This includes passengers, but also maintenance and service crew, such as cooks, medics, engineers, sailors, troops, battery weapon loaders, and even off-duty

ops crew for smaller mecha carried aboard. Not all mecha have passengers.

Decide on how many Operators and how many passengers are carried.

Mecha Point Cost: 10 per Operator; 4 per passenger. Exception: If mecha is colossal and has 25+ passengers aboard, their cost decreases: 26-50 passengers cost 100 Points, 51-100 passengers are 150 Points, 101-200 cost 200 Points, 201-400 cost 250 Points, etc., at +50 Points per doubling of capacity.

Cargo

A mecha may devote space to cargo. This can be either an internal cargo hold or trunk, or an external cargo bed, or even underwing pylons. Some or all of a mecha's cargo may be designated as liquid tankage or hangar space if desired; there is no extra cost for this, but it cannot easily be used for much else. Not all mecha have cargo spaces.

Mecha Point Cost: 1 per 200 lbs. (100 kg), or 10 per ton (or tonne). Exception: If mecha is colossal and has 10+ tons (or tonnes) of cargo aboard, cost is reduced: 10-20 tons cost 100 Points, 21-40 tons cost 150 Points, 41-80 tons cost 200 Points, 81-160 tons cost 250 Points, etc., at +50 Points per doubling of capacity.

Maximum Loads

For realism's sake, total weight of occupants and cargo in a giant robot or vehicle should rarely exceed half the mecha's weight. Treat occupants (including seats, etc.) as 400 lbs. (200 kg), that is, 5 occupants to a ton (or tonne).

Step 5: Choose Armour

Mecha are tougher than people. Assign the mecha a Armour value (also called damage reduction). This is a value from 1 to 30, which is subtracted from any damage inflicted to the mecha's Hit Points.

The chart below gives sample Armour values for real-world vehicles. These are suggestions and not meant to constrain designs — different d20 System games can have different values for similar vehicles.

Another way to select an Armour value is to decide what sort of weapon the mecha can routinely ignore and assign it sufficient Armour to stop the average damage of that attack. For example, if a 0.50-caliber machine gun inflicts 2d12 damage (an average of 6.5 points per d12) and the mecha should stop most 0.50-cal. bullets, a Armour of 13+ is required.

If the GM permits players to build their own mecha, he or she may choose to restrict them to a certain range of Armour values to ensure they are balanced against likely opposition. There is nothing wrong with the characters (or their foes) being tough, but they should not be utterly invulnerable.

Mecha Point Cost: 5 per Point of Armour. Also, heavy Armour will increase the cost of speed.

Table 2-3: Mecha Armour Examples

Vehicular Example	Typical Armour
Rubber raft, rowboat	0-2
Motorcycle, oared galley	2-5
Automobile, light aircraft	4-6
Large sailing ship, jet airplane	4-8
Pick-up truck, jeep	5-7
Semi-truck, cargo steamship	5-9
Attack helicopter	7-10
Armoured car or limousine	10-11
Typical "powered armour" suit	10-14
Armoured Personnel Carrier	9-15
Infantry Fighting Vehicle	13-16
Medium tank (WWII era)	12-18
Battleship (WWII era)	18-20
Main battle tank (modern era)	18-25
Powerful giant battle robot	15-30

Step 6: Choose Defence (Optional)

Mecha d20 assumes mecha Armour does not also grant a defence bonus; this is consistent with most of the vehicle designs of d20 Modern.

Not all d20 System games make that assumption, however.

A mecha's Armour can also provide an equipment bonus to Defence. Choose a Defence value for the Armour from +1 to +10. This defence bonus depends more on the shape and material of Armour than its thickness. Some examples:

+1 to +3 if ordinary materials such as wood, synthetics, or light metal.

+4 to +6 if paramilitary armour, partial armour, or steel plate. A car with bullet-proof panels, an aircraft with armour over the engine and cockpit, or the tough steel hull of a modern ship.

+6 to +10 if military armour such as composite laminates, sloped steel, battleship armour, etc.

Force Shields: A defence bonus can also represent a force shield that deflects rather than absorbs damage, or a combination of armour and a force shield.

Mecha Point Cost: 5 Points per +1 to defence up to Def +5; for defence 6+, cost is (defence x defence). Thus, Def +8 would cost (8 x 8 = 64) 64 Mecha Points.

Defence (Def)

Determine the mecha's actual Defence (Def) number using this formula: 10 + defence bonus (if any) + size modifier. For players using Anime d20, the Defence value is equal to a 1d20 roll + defence bonus (if any) + size modifier. The size modifier is +8 if fine, +4 if diminutive, +2 if tiny, +1 if small, 0 if medium, -1 if large, -2 if huge, -4 if gargantuan or -8 if colossal.

This Def can be increased by the pilot's Dex bonus and any class abilities or Feats that increase mecha Def.

Step 7: Choose Strength

A mecha suit's Strength modifier is an equipment bonus to its wearer's Strength score.

A giant robot's Strength ability score replaces its wearer's Strength score when operating the mecha.

A vehicle does not have a Strength score, since it cannot lift or manipulate objects.

If the mecha is a suit or giant robot, select its strength from within the range shown on the Strength Range Chart for its chosen Size.

If a giant robot, record the Str ability modifier in parenthesis after the Str value. It is equal to (ability x 1/2) -5 (round fractions down). Thus, Str 50 gives a +20 bonus — Str 50 (+20).

Mecha Point Cost: For giant robots, this is (Str-10) x 3 Points. Thus, a giant robot with Str 40 would pay (40-10) x 3 = 90 Points. For suits, this is 3 per +1 Str. Thus, a suit with a Str +10 pays 30 Points.

Table 2-4: Mecha Strength Range Chart

Sizes	Giant Robot	Suit bonus
Fine	Str 1	Str +0
Diminutive	Str 1-3	Str +0
Tiny	Str 1-10	Str +0
Small	Str 5-15	Str +0 to +5
Medium	Str 10-25	Str +0 to +15
Large	Str 15-35	Str +5 to +25
Huge	Str 20-50	Str +10 to +40
Gargantuan	Str 30-75	Str +20 to +65
Colossal	Str 40-100	Str +30 to +90

Step 8: Choose Speed

There are seven types of speed: Land, Air, Water, Underwater, Burrowing, Faster-than-Light (FTL), and Space. A mecha can have ratings for some or all of them.

A mecha's speed (except for space or FTL) is measured in miles per hour (or kph). See also Combat Speeds for Mecha, below.

Use these rules to determine vehicle or giant robot speed. Special rules apply to mecha suits. If designing a mecha suit, refer to Mecha Suit Movement.

Combat Speed for Mecha

It is also important to calculate the combat speed of the mecha. This is its speed when moving during six-second combat rounds. Various d20 System games use different values for combat speeds. Use whichever suit the GM's game:

Mph to Feet: Multiply mph by 8.8 to get speed in feet per round.

Mph to Yards: Multiply mph by 2.93 to get speed in yards per round.

Mph to Squares (5'): Multiply mph by 1.76 to get squares per round.

Mph to Squares (50'): Multiply mph by 0.176 to get speed in 50' "chase squares" per round.

Kph to Metres: Multiply kph by 1.67 to get speed in metres per round.

Kph to Squares (1.5 m): Multiply kph by 1.1 to get speed in

1.5 m (5') squares per round.

Kph to Squares (15 m): Multiply kph by 0.11 to get speed in 15 m (50') "chase squares" per round.

Round off to the nearest 5', 1.5 m or yard, or square.

Mecha d20's examples usually use feet, since it is the standard used in the PHB.

Land Speed

Land speed is the maximum speed the mecha can move on solid ground. A mecha will have a land speed statistic if it is capable of sustained movement and manoeuvre on the ground. This usually means it has legs, wheels, tracks, or a combination, or perhaps even a snake-like body.

Land speed is unnecessary if the mecha, such as a helicopter or a boat, cannot move on land or only does so as a short takeoff or landing (for example, an airplane).

Select the land speed in mph (or kph). Then calculate its combat speed. Exception: Suits use special rules; see Mecha Suit Movement. Some examples of land speeds:

10 mph (16 kph) is typical of bulldozers or lumbering steam-powered mecha.

30-50 mph (48-80 kph) is a good speed for a giant robot or a modern tank.

100 mph (160 kph) is a typical top speed for an ordinary car, while a sports car or racing bike could do 150-175 mph (240-280 kph).

750 mph (1,200 kph) is just above Mach 1, the speed of sound. A rocket-powered car travelling at about that speed holds the current world land speed record.

Mecha Point Cost: 1 per 10 mph (16 kph) of land speed x Armour ; treat Armour 4 or less as 5.

Example: A super car has land speed 700 mph and Armour 6. It costs $700 \div 10 \times 6 = 420$ Mecha Points.

Burrowing Speed

A mecha given a burrowing speed can move earth and/or tunnel underground. Top speed assumes the mecha is going through sand or packed earth. Tunnelling through solid rock is 1/10 speed. The tunnel it leaves behind can be either permanent or collapse after it – specify which when the mecha is created. Select burrowing speed in mph (or kph), then calculate combat speed.

Mecha Point Cost: 1 if fine, 2 if diminutive, 3 if tiny, 5 if small, 10 if medium, 20 if large, 30 if huge, 40 if gargantuan or 50 if colossal size per 2 mph (3 kph) of burrowing speed.

Water (and Underwater) Speed

This is the maximum speed the mecha can move in or under water. Select the mecha's water speed in mph (or kph), and then calculate its combat speed. If the mecha can move underwater, select an underwater speed and a surface speed that is the same or higher than the underwater speed.

Suits use special rules; see Mecha Suit Movement. Some examples of water speeds:

5 mph (8 kph) is typical of slower sailing craft or row boats.

10 mph (16 kph) is typical of faster sailing craft, galleys, mini subs, or amphibians.

25-35 mph (40-56 kph) is typical of modern ocean-going ships.

50 mph (90 kph) is typical of speed boats and hydrofoils.

318 mph (511 kph) is roughly the world water speed record for a jet-powered speed boat.

If the mecha can dive and travel underwater, select its maximum dive depth, in feet or metres. Historically, the first 19th-century submarines could dive no deeper than 50' (15 m). By World War II, subs reached 600' (200 m); today's nuclear subs dive to 1,000-1,500' (300-500 m). Specialised research/salvage craft can dive much more deeply — 36,000' is a world record.

Mecha Point Cost: 1 per 5 mph (8 kph) per point of mecha Armour; if Armour is 4 or less, treat as 5. Double cost for underwater movement. If the mecha can travel underwater but has a faster surface speed, buy the underwater speed, and pay normal cost for each extra 5 mph (8 kph) over the underwater speed.

Each 10' (3 m) of diving depth x the Armour of the vehicle costs 1 Mecha Point, or 2 Points if the mecha is of colossal size. Example: a gargantuan mecha with Armour 10 gains 100' (10' of diving depth x a Armour of 10) per Mecha Point. Thus, it can dive 30,000' for 300 Mecha Points.

Ceiling and Air Speed

Some mecha can fly through the air. If the mecha can fly, decide how: wings and jets or propellers, rotors, rockets, anti-gravity, flapping wings, hot air, magic, etc. Then select air speed and ceiling.

Select the mecha's flight ceiling in feet (or metres). This is the highest altitude it can reach. The base ceiling is 500' (150 m), suitable for a jet pack-equipped robot or suit. A higher ceiling can be selected; typical ceilings are 7,500-15,000' (1,500-5,000 m) for helicopters, 10,000-40,000' (3,000-12,000 m) for propeller aircraft, and 30,000'-80,000' (10,000-24,000 m) for jets.

Choose the air speed that the mecha can attain. For very fast mecha such as fighter jets, it is more cost-effective to give the mecha an air speed only 1/2 whatever their absolute maximum speed will be, then take the Booster special ability. This represents use of afterburners. Most balloons should take a low speed and the Wind Powered Defect.

Select the mecha's air speed in mph (or kph), and then calculate its combat speed. If the mecha lacks any propulsion system (such as a flying building or tethered balloon) pay only for its ceiling. Suits use special rules; see Mecha Suit Movement, below.

Examples of air speeds:

20 mph (30 kph) is a good balloon speed.

55 mph (90 kph) is the maximum horizontal speed of a peregrine falcon, the fastest bird.

150 mph (240 kph) is typical of fast helicopters or light propeller aircraft.

400 mph (640 kph) is a fast late WWII propeller-engine fighter airplane.

550 mph (880 kph) is a typical civilian jet (or a ground attack fighter).

750 mph (1,200 kph) is roughly the speed of sound; it's typical of a jet fighter without afterburners.

1,500 mph (2,400 kph) is typical of a fast interceptor like the F-15 Eagle, using afterburners.

2,200 mph (3,520 kph) is the fastest jet aircraft, the SR-71 Blackbird.

17,000 mph (27,400 kph) is the speed required to reach orbit, and 25,000 mph (40,000 kph) is Earth's escape velocity, enough to escape its gravity into deep space.

Mecha Point Cost: 10 for a ceiling of up to 500' (150 m); for a higher ceiling, +1 per 1,000' (300 m). Each 10 mph (16 kph) of air speed costs 1 per point of mecha Armour; if Armour is 4 or less, treat as Armour 5.

Mecha Suit Movement

Unlike a giant robot or vehicle, a suit's movement is based on the capabilities of its wearer. For example, a human's suit will let the wearer walk, a dragon's suit will let him walk and fly, and a mermaid's will let her swim.

Sometimes the suit's weight will slow the wearer down, but mecha suits often (but not always) include a powered assist that allows the wearer to run faster and jump greater distances.

Select the suit's speed multiplier. This can be $\times 2/3$, $\times 1$, $\times 1.5$, $\times 2$, or $\times 3$.

If the wearer is capable of multiple movement types, select the multiple for each movement type (paying Mecha Points separately). For example, a dragon will select ground and air movement for its suit.

The speed multiplier will be applied to the suit wearer's normal speed to determine his or her speed when using the suit. Thus, a human's normal speed is 30' (10 m), so in a suit with a $\times 1.5$ multiplier he would move at 45' (15 m)' per turn. A speed multiplier of $\times 2/3$ means the suit has no power assist, slowing the wearer to $2/3$ his or her speed, much like a normal suit of medium or heavy armour does.

Mecha Point Cost: This is $2 \times$ speed multiplier \times mecha's Armour (but treat Armour 4 or less as 5). For example, if the speed multiplier was $\times 1.5$ and Armour was 10, it would cost ($2 \times 1.5 \times 10$) 30 Mecha Points.

A suit may also buy air, water, or space (but not land) movement if its wearer does not normally possess that capability. For example, a human's suit could buy air speed and manoeuvrability, representing a jet pack or mechanical wings. Use

the rules for giant robots to determine the Point cost of this movement.

Space Flight

The mecha can propel itself in space. There are four ways to travel around in space: Realistic Space Flight, Dramatic Space Flight, Space Sails, and Faster-Than-Light (FTL).

The GM may rule that some of these methods are not available in a game. For example, a "hard science fiction" setting only Realistic Space Flight or Space Sails may be available. On the other hand, a space opera setting might use Dramatic Space Flight and FTL Drive.

Realistic Space Flight

The space drive blasts out mass (often heated or energised) to produce thrust. It is limited by the amount of reaction mass carried aboard. Depending on the technology, the reaction mass could be anything from rocket fuel to alchemical powder. Many science fiction spacecraft are fusion drives, using water or hydrogen.

- **Thrust**

This is how fast the spacecraft can increase its velocity or change its course — both are the same thing. It is measured in gravities, or G: a thrust of 1 G is an acceleration equal to Earth's gravity, roughly 32' or 9.8 m per second per second. In game terms, it can be assumed — with a great deal of abstraction — that each G of thrust lets the mecha increase or decrease its current velocity by about 1,000'/round.

- **G-Rounds**

This is a measure of how long the mecha can accelerate before using up its onboard reaction mass (once this happens it can just coast). A mecha uses up 1 G-Round each time it uses 1 G of thrust for one round. If it accelerated at 2 G (assuming it can) for five rounds, it would use up 10 G-Rounds; if it accelerated at 0.1 G for 1,000 rounds, it would use up 100 G-Rounds, and so on.

- **Delta-V**

For the realism-inclined, delta-V is a measure of the top speed a mecha can build up to before it runs out of reaction mass and must coast. Most mecha,

when travelling, will only accelerate to a velocity no more than half their delta-V to ensure they have sufficient reaction mass to decelerate again (since deceleration is an application of reverse-thrust). $\Delta V = G\text{-Rounds} \times 125 \text{ mph (200 kph)}$; thrust does not figure into this. If a mecha has a thrust of at least 2 G and a ΔV of about 20,000 mph (32,000 kph) or more, however, it has enough thrust to lift off from Earth and boost itself into orbit (25,000 mph (40,000 kph) is escape velocity).

Note that exhausting all a mecha's onboard reaction mass isn't the same as running out of power or life support — a mecha with a reaction engine can still function perfectly normally if it's out of reaction mass; it just can't accelerate or decelerate in space.

Select the mecha's thrust in G (this may be a fraction) and its G-rounds (usually a multiple of acceleration). Most short-range "space fighter" type mecha should have a number of G-rounds equal to at least 10 x their acceleration. Long-range spaceships should have enough G-rounds to give them a ΔV of 1,000 or more, which usually means accepting a lower acceleration.

Mecha Point Cost: Cost (per drive) is $\text{Thrust (in G)} \times \text{G-Rounds} \times \text{Armour} \times 0.1$. If Armour is 4 or less, treat as 5. For example, if a gargantuan space fighter with Armour 10 has 3 G thrust and 100 G-rounds (ΔV 12,500 mph), the Mecha Point cost is $(3 \times 100 \times 10 \times 0.1)$ 300.

Dramatic Space Flight

The mecha can accelerate constantly for as long as it has power — it ignores mundane considerations like reaction mass, so the top speed is limited only by its endurance (see Defects) or any physics-based considerations the GM wishes to impose, like the speed of light. Sure, that defies the laws of physics, but if 60' tall giant robots exist, who is going to care?

Select an acceleration in G: each G lets the mecha increase its speed by 1,000' per round (thus, 0.1 G would allow 100', while 6 G would allow 6,000'). If it stops accelerating, it will continue moving at its listed speed. It can decelerate instead of accelerating, reducing its speed by its thrust rating (thus, -100' for 0.1 G or -6,000' for 6G).

Mecha Point Cost: The cost is $(1 + \text{thrust in G})$ times Armour times 10. Treat thrust under 1/20 G as 1/20 G, and Armour under 4 as 5.

Note: in some universes, all spacecraft may accelerate much faster. If appropriate, the GM can modify this; replace "thrust in G" with "in 10s of G," "in hundreds of G," or another appropriate value for the campaign setting.

Space Sails

Space is not empty — it is awash with a sea of energy. Stars, such as our own Sun, emit both light and a powerful "solar wind" of high-energy particles such as protons. Enormous sails — often many tens or even hundreds of kilometres across — can be constructed to allow spacecraft to catch the stellar winds (though the sails can certainly be much smaller depending on the campaign setting).

Use the rules for Dramatic Space Flight, above, but usually with thrust ratings well below 1 G, clumsy space manoeuvrability, and the Wind Powered Defect. A realistic light sail or magnetic sail that catches solar photons or protons has a thrust of well below 1/10 G, but a magical ether sail may be much more effective.

Space sails may have their acceleration increase dramatically if their thrust can be boosted by an appropriate outside source, for example, a giant laser cannon beaming energy into a light sail, a solar storm, etc.

FTL Drive

This allows a mecha that is already in space to travel between the stars at faster-than-light (FTL) speeds. Some stardrives let a mecha fly at impossible speeds, while others side-step normal space by travelling through some kind of hyperspace or instantly jumping from point to point.

Some FTL drives are only good for interstellar trips, and require ordinary reaction drives, space sails, or dramatic drives as well. For example, the FTL drive may not function close to a planet's gravity, thus requiring the first few tens of thousands of miles to be made using a conventional drive. Alternatively, it might only connect certain natural or artificial "jump points" or "wormholes" that must first be reached.

Many FTL drives have no manoeuvrability at all: the navigator programs in a course, and the spacecraft flies in a straight line (either through normal space or some form of hyperspace), or ducks out of space together and reappears at the destination, either instantly, or after a set time has elapsed. Others let the mecha manoeuvre freely, but at many times the speed of light. Note that if this capability exists and is not limited as described above, it will render conventional space flight obsolete and let FTL-equipped vessels fly rings around ordinary craft.

The GM should decide exactly how each FTL drive works, whether a trip is instant, or takes hours, weeks, or months, and if it has a maximum range or other limits. There may be problems that prevent a ship instantly escaping, such as engines that take a long time to recharge or those that exhaust their fuel between trips. Navigation could be tricky, requiring a Navigate check to avoid being lost in space or ending up some place unintended (perhaps with a DC based on distance in light years). In some campaigns, only large spaceships have the room to mount a Stardrive. If so, the GM may require a minimum ship size as a prerequisite.

The GM should assign a base interstellar speed (or distance, for instant jumps) in light years, or parsecs, such as 1 light year/day or 1 parsec/week. This is the speed of the slowest starship. FTL speed is expressed as a multiplier to that speed, for example, FTL x3 means it can travel 3x as fast as the slowest spacecraft. The GM may wish to set a maximum multiplier, for example, x6 or x10. The GM may only allow one FTL speed. If jump involves going through a jump gate or wormhole to whatever point connects it, for instance, then it is reasonable to assume that all ships travel to that point at the same pace.

Mecha Point Cost: 20 x Armour per multiple of standard interstellar speed; if Armour is 4 or less, treat as 5. If it can manoeuvre in FTL space, multiply the cost by 5. If it "breaks the rules" (jumps without a wormhole when other ships require one, etc.) apply a x1 to x10 cost multiplier depending on how much of an advantage this gives with the campaign.

Step 9: Choose Handling

Handling qualities are represented by two values: Initiative and Manoeuvre. Each is chosen separately.

Manoeuvre and initiative values only apply to giant robots and vehicles. Mecha suits do not have them.

Manoeuvre

This adds to checks made to manoeuvre the mecha. It is based on how agile and quick to accelerate or turn the mecha is.

The Manoeuvre statistic starts at +8 if fine, +4 if diminutive, +2 if tiny, +1 if small, 0 if medium, -1 if large, -2 if huge, -4 if gargantuan, or -8 if colossal. Most vehicles possess this base value. Agile mecha like giant robots or motor bikes usually add +1 to +4 points – for example, a typical motorcycle might have a +3 manoeuvre, a car might have a +0, while a large tank has -4. Manoeuvre should not go above +10 or below -10.

Mecha Point Cost: 0 Points for the base value given above. Each +1 over this size-derived base value costs 5. Each -1 below this starting value gives back the same Points.

Initiative

This adds to initiative checks. It is usually based on a vehicle's mass and momentum, and thus is normally a negative number equal to the size modifier: +8 if fine, +4 if diminutive, +2 if tiny, +1 if small, 0 if medium, -1 if large, -2 if huge, -4 if gargantuan, or -8 if colossal.

Initiative is rarely increased above the starting value, but an increase could be justified for one that (for example) flew using anti-grav technology or was fast to accelerate. It should not go above or below +/-10.

Mecha Point Cost: If increased or decreased, use the same cost calculation method as Manoeuvre.

Conversion Notes: Handling

Many d20 System games use a single Handling statistic for vehicles instead of a split Manoeuvre and Initiative statistic. Handling differs in that it is often a broader range (for example, +15 to -15) and generally takes into account speed – a fast jet aircraft will have a much higher Handling value.

Some typical values might: supersonic jet: +10, ordinary car: +0, slow sailing ship: -10. If the GM chooses to use a Handling statistic instead of Initiative and Manoeuvre, use the cost of Manoeuvre, above.

Step 10: Choose Special Abilities

These are innate gadgets and other capabilities that a mecha may possess. They are all optional — no mecha is required to have any of the special abilities described in this section.

Accessories

These are additional features for the mecha, which provide useful but mundane non-combat-related advantages.

Examples of Accessories include: airlock, burglar alarm, camera, cell phone, emergency lights and siren, loudspeaker, luxurious decor, personal computer, revolving license plate, stereo system, tow cable, or wet bar.

A mecha need not acquire accessories that are implied by its other capabilities (a mecha with Space Travel can be assumed to have appropriate navigational systems) or which are ubiquitous (like safety belts in a modern vehicle).

Mecha Point Cost: 1 per Accessory.

Booster

A Booster is any system that gives a mecha a temporary "kick" of speed. Types of Boosters include afterburners for aircraft, nitro-injection for cars, antimatter injection for starships, etc. Some giant robots have Boosters that represent various types of super-technology — "quantum flux engine," for example.

A Booster will only affect one type of movement (air, land, water, underwater, or space flight). A mecha can take different Boosters for different movement types, however.

Boosters provide an increase in speed for a short period of time (no more than one hour or 10% of the mecha's endurance, whichever is less). Exception: a space flight Booster adds additional G of thrust for a number of G-rounds, just like realistic space flight; G-rounds may not exceed 600.

Mecha Point Cost: Each 20 mph (32 kph) of air, land, or water Booster speed costs 1 per point of Armour (treat Armour of 4 or less as 5). For space flight (either realistic or dramatic), cost is the same as realistic space flight; just give the Booster a shorter number of G-rounds and a higher thrust.

Chobham Armour

The mecha has composite-laminate armour (often called Chobham Armour after its place of invention). This Armour type is particularly effective for defeating shaped-charge Armour-Penetrating attacks such as the high-explosive anti-tank (HEAT) warheads of most anti-tank missiles and light anti-tank rockets.

Chobham Armour doubles the mecha's Armour against Armour-Penetrating explosives (weapons that have both the blast and Armour-Penetrating qualities). This will also affect weapons from other d20 System books (for example, the M72 LAW rocket) that use shaped-charge or HEAT-type warheads.

Mecha Point Cost: +1 per point of Armour the mecha has.

Communications

Normally the pilot can still be heard from inside the mecha through some means (even if buried inside a 50' tall suit of armour). This basic speaker system does not cost any Points. Other possibilities include:

Long Range Radio

This is usually a high-frequency system that has a long range but is vulnerable to jamming and interception. Taking advantage of the ionosphere ability to mirror high-frequency signals, the high frequency (HF) band provides long-range communications (hundreds or thousands of miles) for low power. The down side is that these radio signals are easily intercepted by other long-range radios in range. In space or worlds (like the moon) that lack an ionosphere, range is the same as a tactical radio (see below).

Tactical Radio

This is a very high or ultra-high frequency communicator. It can be intercepted, but range is

limited to line of sight transmissions (unless using relay towers), about 1-10 miles/1-16 km in atmosphere (100 times that in space), which makes it much more secure beyond the immediate area.

Laser Com

This tight-beam communicator is nearly impossible to jam or intercept without physically imposing something in the way. It is limited to line of sight transmission and is vulnerable to atmospheric effects. Maximum range is usually limited to about 5 miles/8 km on the ground due to the horizon, but if there is a clear line of sight it is about 50 km/80 miles in atmosphere (1,000 times that in space).

Microwave Com

A microwave uplink is often used for communication with orbiting relay satellites or spaceships, or space-to-space communications. Treat as laser com, but double range in atmosphere. The beam is also wider: anyone in its path (or within a few degrees to either side) with a microwave com can eavesdrop.

Com Options

The following communication options can be added to the base communications types:

- **Interplanetary**

This system has much greater range, good for communications anywhere in a solar system. It is often used by spacecraft, etc. Apply this to long-range radio, microwave, or laser com systems.

- **Interstellar**

A faster-than-light communications system allows instantaneous communication over vast distances; it may not exist in some settings. Apply this option to a long range radio communicator for broadcast systems or "laser" or "microwave" for a directional signal. Range may be interstellar (usually no more than a few 100 light years, sometimes less), or galactic (anywhere in the galaxy).

- **Scanner**

If taken with a tactical or long-range radio, this option can scan multiple frequencies to eavesdrop on other transmissions in range. This requires a DC

10 Electronic Warfare check when used against a long range radio or DC 20 when used against a tactical radio.

- **Secure**

The communicator is frequency-agile, uses unusual parts of the spectrum, and/or is encrypted, making it very hard to jam or intercept. Electronic Warfare checks made against the system have their DCs increased by 3 per level (+3 at level 1, +6 at level 2, etc.).

Mecha Point Cost: 2 per system (10 if telepathic). Scanner adds 1 Point and Secure adds 2 Points (per system per level). Interplanetary is +10, interstellar is +50, galactic is +70 (per system).

Countermeasures

- **Ladar Warning Receiver (LWR)**

LWR warns the crew if the mecha is being tracked by a Laser Designator or High-Res Laser Radar (Ladar).

- **Radar Warning Receiver (RWR)**

RWR warns the crew if mecha is being locked onto by a radar, or being tracked by an active radar-homing missile.

- **Electronic Emission Sensor (EES)**

This sensor will detect and precisely locate any operating radar within twice the radar's range (non-global radars only if they are pointing at the mecha), or half range if High-Res Radar. It also functions like a Radar Warning Receiver.

Mecha Point Cost: 2 per RWR or LWR; 10 for EES.

Ejection Seat

This rocket-powered escape system allows the crew to eject from a damaged mecha. It is possible that not all crew will be equipped with them. They are not usable in mecha suits.

As a free action, the character sitting in an ejector seat may eject at any time. Any canopy or rooftop is blasted clear by explosive bolts, and the seat launched at least 100' (30 m) into the air by a rocket motor. If the user ejected in an atmosphere, on the next round, the rocket motor stops and a parachute unfolds, carrying the occupant down to

Earth. The ejectee may make a Pilot Skill check (DC 20) to guide the parachute to a specific place within 300' (100 m) of the mech. If the occupant has no Pilot Skill, or fails, the GM randomly determines where he or she lands. Make a Reflex save (DC 10, or DC 15 if landing in woods, mountain, or urban areas; +5 DC if dropping from orbit) to avoid falling damage.

Usually, ejection seats are controlled by the person seated in them, but some vehicles (for example, spy cars) may have seats that are controlled by the driver or another crewman. These may omit a parachute.

Mecha Point Cost: 3 per ejection seat.

Electromagnetic Armour

The mecha's Armour can generate a powerful electromagnetic field, disrupting the particle jet produced by Armour-Penetrating blast attacks such as shaped-charge warheads (see Chobham Armour for a definition of these weapons). This triples the mecha's Armour against such attacks.

Electromagnetic Armour also has some effect against ballistic weapons that have the Armour-Penetrating quality: add +1 additional Armour against such attacks.

The activation of the armour produces a transient electromagnetic pulse — this may be easily detected by some sensors.

This may not be combined with Explosive Reactive Armour or Chobham Armour.

Mecha Point Cost: +2 per point of Armour the mecha has.

Electronic Counter-Measures (ECM)

The mecha is equipped with an electronic countermeasures jamming suite. ECM can be any of the following sub-types: Radar Jammer (jams radar sensors), Radio Jammer (affects communications), Defensive Jammer (jams missile homing systems).

Assign each category of ECM system an equipment bonus from +1 to +9; this may vary by category. This is used when determining the DC and/or Defence of electronic warfare attempts.

Radar Jammer

This adds to the DC of any attempt to spot a target with radar, and adds to the mecha's Defence against attempts to lock on with a radar homing or semi-active radar homing missile. This DC increase is reduced by 1 for every 500' (150 m) from the jammer; in space, it is reduced by 1 for every 5,000' (1.5 km) distant. The jamming area will be detected, but not the mecha itself. It has no effect on Laser Radar.

Radio Jammer

All radio signals are jammed within 1,000 (300 m) x bonus, or 10 times that area in space. At an extra cost, it may also jam FTL radio.

Defensive Jammer

This adds a circumstance bonus to the mecha's Defence against an attack or lock-on attempt made by any infrared-homing missile.

Mecha Point Cost: 3 per +1 for Radar or Defensive Jammer, 2 per +1 for Radio Jammer (+20 if jams FTL radio).

Environmental Systems

• Climate Control

The mecha has Climate Controls that allow the crew to be comfortable in a wide variety of temperatures (such as arctic to sweltering jungle). Beyond that, the mecha needs Life Support.

• Nuclear-Biological-Chemical (NBC) Filter

The mecha can filter gasses, radioactive fallout, dust, and germs from external air, protecting its mechanisms and pilot much as if they had an environmental suit and gas mask. Includes Climate Control.

• Life Support

The mecha can operate in space, at high altitudes, underwater, or on a world without a breathable oxygen atmosphere. Any occupants have their own oxygen supply (lasts as long as the mecha operates). An NBC Filter is not needed, since the environment is completely air tight. Includes Climate Control.

Mecha Point Cost: For Climate Control: 1 if medium or smaller, 2 if large, 3 if huge, 4 if gargantuan, 5 if

colossal. Twice the cost for NBC filters and four times the cost for life support.

Explosive Reactive Armour (ERA)

The mecha's Armour is protected by a layer of explosive tiles in metal trays. If hit by an Armour-Penetrating blast attack (see Chobham Armour) such as a shaped-charge warhead, one of the ERA tiles will detonate. This slams the metal plate covering it into the path of the particle jet produced by the warhead, disrupting it and effectively negating the Armour-Penetrating quality of the attack.

Reactive Armour works on a roll of 1+ on 1d20. Each time it successfully detonates, however, add 1 to the DC, as the mecha gradually becomes vulnerable through the depletion of its Armour. Thus, the second time, it works on a 2+, and so on. When the Reactive Armour detonates, anyone within 10' (3 m) radius will take 1d10 damage as per an attack with the blast quality. This includes the mecha; as a result, Reactive Armour is rarely used on mecha with a Armour rating under 10. It takes about six hours to replace a set of Reactive Armour.

Mecha Point Cost: 8 MP

Extra Arms (Giant Robot only)

A giant robot is assumed to have two arms, but it could have more (for example, a robot octopus).

Mecha Point Cost: Each extra arm costs 1 per 2 points of Strength the mecha possesses (round down). For example, a mecha with Str 20 and three extra arms (a total of five arms) would pay 30 Mecha Points.

Firing Ports

The mecha has one or more firing ports sufficient to let passengers fire out of the mecha with their own ranged weapons. The firing ports provide 9/10 cover (equivalent to arrow slits).

Mecha Point Cost: +1 per firing port

Hangar (Giant Robot or Vehicle only)

Any portion of a mecha's cargo capacity can be designated as a hangar bay for storage of other (smaller) mecha. For example, if the mecha has a 200-ton cargo capacity, it might designate that

150-tons are devoted to its hangar bay. Use common sense in determining the maximum number of mecha that can fit in a bay of the specified capacity, based on their described size and mass.

Mecha can also be carried as ordinary cargo, but cannot be effectively launched into battle, refuelled, etc. while in the cargo bay. It takes several rounds (or possibly much longer) to unload carried mecha.

Mecha Point Cost: The hangar cost is equal to the largest size of mecha that can fit through the bay's opening: 1 if fine, 3 if diminutive, 5 if tiny, 10 if small, 15 if medium, 20 if large, 25 if huge, 30 if gargantuan, or 100 if colossal.

Headlights or Searchlight

The mecha has either headlights equivalent to those of a modern automobile, allowing it to drive at night (range 500'/150 m), or a longer-ranged search light (5,000'/1,500 m).

Mecha Point Cost: 1 Point for headlights, 2 for searchlight.

Jumping

The mecha can make very high unaided vertical jumps, but not actually fly. It may use jets, powerful leg muscles, etc. Assign the mecha a jump multiplier from x2 to x10.

Mecha Point Cost: Jump multiplier x.25 (round up) if tiny or smaller, x.5 (round up) if small, x1 if medium size, x2 if large, x3 if huge, x4 if gargantuan, or x5 if colossal.

Laser Designator

A laser designator projects a modulated laser beam that is used to mark targets for laser-guided munitions. Range increment is 500' (150 m); it can reach out to 10 range increments. It cannot designate through smoke.

Mecha Point Cost: 2 per 500' (150 m) of range increment.

Launch Catapult

This system uses steam or an electromagnetic massdriver to accelerate aircraft or other mecha, boosting them to top speed. This allows flyers to

take off in a much shorter distance. If launching into battle, the catapult also provides a +1 initiative bonus on the first round of combat. In space combat, it adds 5,000'/1,500 m of speed on the first round.

Mecha Point Cost: This is determined by the size of the catapult, which sets the maximum size of mecha that can be launched: 1 (small or smaller), 2 (medium), 4 (large), 8 (huge), 16 (gargantuan), 32 (colossal).

Navigation Aids

Appropriate basic navigation is free in most cases. Superior navigation capabilities are also available. Modifiers are not cumulative. Having accurate positional data is very useful for accurate indirect fire.

Basic Navigation

Maps, compass, lodestones, etc. +2 equipment bonus to Navigate checks.

Inertial Navigation System (INS)

A gyroscopic system that provides a +3 equipment bonus on Navigate checks.

Global Positioning System (GPS)

An advanced radio beacon system that uses a network of orbiting satellites with very accurate clocks to locate the mecha's position anywhere in the world. +4 equipment bonus on Navigate checks, but requires the existence of a friendly satellite network (or some other system, depending on the campaign setting) — no bonus if such a network is unavailable.

Mecha Point Cost: 1 for basic navigation, 2 for INS, 2 for GPS.

Reflective Coating

The mecha's Armour is optimised to reflect laser beams. The mecha gets an extra defence bonus against any attack defined as inflicting laser-type damage. The reflective coating does make the mecha easy to spot visually or detect by radar, however — the same defence bonus is also applied to rolls to spot or locate it.

Mecha Point Cost: 2 per +1 defence bonus vs. lasers, to a maximum of +10.

Parachute or Re-entry Shield

The mecha has a parachute that that can be deployed (move action) to allow the mecha to "soft land" if air-dropped.

Re-entry Shield: The mecha also has a re-entry capsule or shield that allows the mecha to drop from orbit into a planetary atmosphere and land safely via parachute or flying

Make a Reflex save (DC 10, or DC 15 if landing in woods, mountain, or urban areas; +5 DC if dropping from orbit) to avoid falling damage.

Mecha Point Cost: 1 if tiny or smaller, 2 if small, 3 if medium, 4 if large, 5 if huge, 6 if gargantuan, 10 if colossal. x2 cost for re-entry shield.

Rooms (Vehicle Only)

Colossal vehicles may have specialised internal rooms. These reduce occupancy as indicated.

Kitchen

Meals may be prepared aboard the mecha, providing room for two cooks to work (buy multiple kitchens for larger facilities). Counts as 3 occupants. 1 MP

Conference Room

Meetings are held in this room. Counts as a number of occupants equal to its capacity. 1 MP

Science Lab

This fully-equipped science lab gives a +2 Equipment bonus to any relevant scientific Skill check. Two scientists can work at a time; for larger facilities, buy multiple labs. Counts as 5 occupants. 5 MP

Sick Bay

A fully-equipped sick bay has surgical and diagnostic features and allows 2 people to be treated at a time. For hospital facilities, buy multiple sick bays. Counts as 5 occupants. 5 MP

Workshop

This fully-equipped machine shop includes a variety of specialised tools and spare parts. It grants a +3 equipment bonus on Repair checks for mechanical or, if technology allows, electronic, devices and lets character to make Craft (mechanical), (electronic),

or (structural) checks without penalty. Counts as 5 occupants. 5 MP

Remote Control

The mecha has some form of control mechanism that enables it to be operated by remote control. A remote control mecha is sometimes called a drone or remotely piloted vehicle (RPV).

Basic Remote Control

The mecha is controlled from outside the mecha by the owner, who will use a radio (or other) control system. Doing so requires the Operator's full attention: he or she cannot do anything else, just as if actually inside the mecha piloting it. This also means the Operator can only run one mecha at once. It uses the Operator's stats as if he or she was aboard it. The control system must be specified as located in another mecha, a base, or a Hand-Held unit. The GM should decide what limitations (range, susceptibility to ECM, etc.) it has.

Advanced Remote Control

As Basic Remote Control, but the mecha requires less supervision: the Operator can also do other things at the same time (including operating his or her own mecha, or controlling more than one advanced remote control mecha). If he or she divides his concentration in this way, the character suffers a cumulative -2 penalty on all actions for each mecha being remotely controlling.

If the mecha has a crew requirement, a team equal in size to that requirement must be used to control it.

Mecha Point Cost: 5 for Basic Remote Control, 10 for Advanced Remote Control.

Sensors

Mecha may be equipped with various instruments and electronics to enhance their ability to detect objects at a distance.

Sensors are usually used to make Computer Use Skill checks to spot targets. Instead of the normal penalty of -1 per 10' (3 m), the penalty is -2 per 1,000' times the range in miles (or -1 per 100 m times the range in km). Thus, a radar with a range of 10 miles allows Computer Use checks to be

made at a penalty of only -2 per (1,000' times 10) 10,000'. The maximum range is 10 increments.

Sensors noted as useful for targeting can be used when aiming attacks or navigating in the dark, bad weather, etc.; this negates the effects of darkness or concealment through which the sensor can see. Not all sensors are useful for targeting.

Infrared, Meta-Scanner, and Radar Sensors detect targets in a single direction — usually in a cone-shaped direction. A sensor can be specified as "global" (seeing in all directions) for double cost. Seismic and magnetic sensors are unaffected by solid objects and can "see" over the horizon; other sensors cannot scan through solid objects nor over the horizon. Sensors include:

Infrared (IR)

The mecha has infrared sensors like modern main battle tanks or attack helicopters. These give its crew the ability to see in the dark (in monochrome) as if it were day; this is effectively Darkvision, except that the range is much greater. Infrared cannot see through solid objects. It can pick out heat shapes, see through ordinary darkness, smoke or fog, and detect people hiding in trees or bushes. It is useless underwater, but very effective in space. In space, range is 100 times greater. The sensor cannot see over the horizon. It can target opponents.

Optics

These are telescopes or electro-optical TV cameras. Unlike other sensors, they do not provide any ability to see through concealment, but simply increase the range at which objects can be visually spotted. Low-light optics are also available; these provide limited night vision capabilities (halving penalties for darkness only) but cannot see through smoke, vegetation, etc. They can be used for targeting.

Radar

The mecha bounces radio waves off objects and analyses the reflections to determine the range and direction of targets. Radar lets the crew detect objects at long distances, but does not resolve colour or fine detail: it only gives the approximate size, range, and course of the object detected. Radar is an active sensor, so it can be jammed or detected. This is effectively Blindsight except that it

does not work underwater, but does work in vacuum. It can see through darkness, fog, smoke, and vegetation; ignore concealment modifiers. In space, multiply range by 10. Radar can target opponents.

Radar, High-Resolution or Ladar

The mecha has either an advanced high-resolution radar or laser-based radar sensor that provides a detailed visual image of the target's surface. It won't reveal colour, but will show texture and detail. Otherwise, treat as Radar, above.

Meta-Scanner (MS)

The mecha has sensors like a science fiction starship, or perhaps uses magic. It can work like a High-Res Radar or Infrared Sensor or it can be set to detect life forms, metals, chemicals, or radiation sources. Meta-Scanners are often vulnerable to particular weather conditions, stellar storms, radiation from local ore, and anything else the GM believes could interfere with them. They cannot scan through Force Fields, and their scanning radiation can be picked up by other Meta-Scanners at the same range, so another vessel will also always know when they're being scanned. In space, multiply range by 100 due to the absence of atmospheric interference. It can target opponents.

Sonar

The mecha has sonar sensors, similar to that used by a submarine or dolphin for detecting objects underwater. It may use passive sonar to "listen" for moving or noisy objects ("propeller noise at 6 o'clock — sounds like a Typhoon-class boat") or use active sonar to resolve the object's exact range and shape, or detect objects that aren't making noise, search the sea floor for wrecks, etc. If active sonar is used, passive sonar on other mecha can detect it at longer distances: add the range of the active sonar to their passive sonar detection range. Sonar does not work in space, and gets only 1% of its normal range if used in air. Active sonar can target opponents.

Seismic

This sensor can detect large moving objects by the vibration they produce in the ground. They are less precise than other sensors (-8 on rolls to spot

targets) and cannot be used for targeting. Seismic sensors ignore concealment or intervening objects, but cannot detect stationary things (unless they produce vibrations, such as jumping up and down, drilling, etc.). Both the mecha and the object must be on the ground. Seismic sensors can provide an approximate size of the target (medium, large, etc.) but no actual information as to its shape or nature. They can detect large explosions and earthquakes at many times their base range. A seismic sensor is "global" automatically. It gains +5 to spot burrowing targets.

Magnetic

These sensors detect ferrous metal objects or objects with powerful magnetic fields, such as electromagnetic railguns or fusion power plants. They are less precise than other sensors (-8 to scan) and cannot be used for targeting. Like seismic sensors, they only give approximate mass, direction, and distance only, but can be unaffected by concealment or intervening objects. One of their main advantages is that they are unaffected by water.

Mecha Point Cost: 1.5 per mile (1 per km) of range if optics; 3 per mile (2 per km) of range if Low-Light Optics, Radar or Sonar; 5 per mile (3 per km) if Infrared or High-Res Radar/Laser; 8 per mile (5 per km) if Meta-Scanner; 10 per mile (6 per km) if Seismic or Magnetic Sensor. Global Sensors are x2 cost; Seismic or Magnetic are Global at no extra cost.

Shield

A shield is a Hand-Held barrier that mecha can interpose to absorb damage from attacks. A mecha requires at least one arm in order to use a shield; if the mecha only has one arm, it can't use a Hand-Held weapon and a shield at the same time.

A mecha Operator must have Shield Proficiency and the Giant Robot Fighting Feat to use a shield without suffering a -2 armour check penalty on all attack rolls, and all Dex- or Str-based Skill checks.

A shield may give a defence bonus of up to +5. Decide on the defence bonus and record it, for example, +5 shield.

Mecha Point Cost: Cost is 3 per +1 defence up to def +3; after that, it is defence bonus x defence bonus.

Anime d20 Shield Rules

Anime d20 players should use the following versions of Shield.

A shield is a Hand-Held barrier that mecha can interpose to absorb damage from attacks. A mecha requires at least one arm in order to use a shield; if the mecha only has one arm, it can't use a Hand-Held weapon and a shield at the same time.

A mecha operator must make a successful Block Defence. If successful, the shield's Armour rating provides protection from the attack.

Mecha Point Cost: Cost is 3 per 1 point of Armour. This additional Armour does not factor into the costs of other abilities (such as land speed, Wall-Crawling, etc.).

Stabilisation Gear

The mecha's ranged weapons are gyro-stabilised. They can be fired when moving without penalty, even if the gunner lacks special Feats. Exception: Weapons with the Static quality can still only be fired when the mecha is stationary.

Mecha Point Cost: 10 Mecha Points.

Stealth

The mecha is designed to be harder to detect via sensors, utilising shapes, materials, or electronics to foil radar and other sensors. Stealth imposes a penalty to any checks to spot the mecha using non-visual sensors.

Stealth must be bought individually for Radar, Infrared, Sonar, Seismic, or Meta-Scan Sensors.

Mecha Point Cost: Stealth costs 1 if tiny or smaller, 2 if small, 3 if medium, 4 if large, 5 if huge, 6 if gargantuan or 10 if a colossal size mecha, per +1 DC on attempts to detect the mecha, per sensor class.

Targeting Bonus

A mecha may have a targeting bonus as a result of a built-in ballistic computer or sighting system.

A targeting bonus must be bought individually for each weapon. Targeting bonus usually ranges from +1 (superior sights) to +5 (the most advanced targeting laser and radar coupled to a ballistic computer).

Mecha Point Cost: 5 Points per +1.

Wall-Crawling

The mecha can use spikes, adhesive pads, or some other means to climb walls and ceilings as if it were an insect. The mecha must have a land speed to use this ability. It gets +8 on all Climb checks, and may take 10 while climbing, even if threatened or distracted.

Mecha Point Cost: 2 per point of Armour (treat Armour 4 or less as 5).

Step 11: Choose Exotic Abilities

Some mecha have exotic abilities that are the product of advanced superscience or even magic. The GM may forbid some or all Exotic abilities, especially if the game is intended to have a more "realistic" tone.

Artificial Intelligence (A.I.)

The mecha is possessed of artificial intelligence of some sort.

Limited A.I.

The mecha can operate on its own, but has no self-initiative. It can be given orders or programmed with directives, but obeys in a slavish, unimaginative fashion. The mecha has no emotions or desires. In short, it behaves much like a golem or other Construct, and can even be considered one.

A mecha with limited A.I. will have Dexterity, Wisdom, and Charisma abilities, but its Charisma cannot exceed 1.

Full A.I.

The mecha is capable of exercising (or at least simulating) self-initiative and creativity, but remains loyal to the character that owns it (unless it has the Hidden Program or Purpose Defect). A mecha with full A.I. has Dexterity, Intelligence, Wisdom, and Charisma abilities.

Mecha Point Cost:
The Mecha Point cost is equal to the sum of the mecha's ability scores multiplied by 5. These scores may not exceed 18 without GM permission; the GM may wish to roll them randomly.

Size Adjustment:
Smaller mecha tend

to be more agile than larger mecha. After determining the Mecha Point cost of the mecha's ability scores, adjust the mecha's Dexterity value based on its size category. The mecha does not pay (or earn) Mecha Points for this adjusted value.

Anime d20 Attribute

The mecha possesses one of the Attributes in the table below from Anime d20.

Mecha Point Cost: 40 Mecha Points per Anime d20 Character Point.

Table 2-6: Appropriate Anime d20 Attributes

Combination Attack	Mind Control	Swarm
Computer Scanning	Mind Shield	Telekinesis
Contamination	Personal Gear	Telepathy
Elasticity	Projection	Teleport
Environmental Control	Sensory Block	Unique Attribute
Immunity	Size Change	
Insubstantial	Special Defence	
Massive Damage	Special Movement	

Invisibility

The mecha can blend into the background using advanced technology to make itself virtually invisible. It is possible to attack while invisible, but moving through snow, rain, water, footprints, vegetation, etc. may reveal the mecha's approximate position.

Use the normal rules for Invisibility from the Special Abilities section of the DMG.

"Cloaking" devices are often vulnerable to damage, since they're on the surface of the mecha. If the mecha loses more than half its Hit Points, its cloaking device will stop working.

Table 2-5: A.I. Dexterity

Adjustment due to Size

Size	A.I. Dexterity Modifier
Fine	+8
Diminutive	+4
Tiny	+2
Small	+1
Medium	+0
Large	-1
Huge	-2
Gargantuan	-4
Colossal	-8

Mecha Point Cost: 10 if fine, 25 if diminutive, 50 if tiny, 100 if small, 150 if medium, 200 if large, 250 if huge, 300 if gargantuan, or 500 if colossal size. Add 10% to cost per sensor type (Radar, IR, etc.) it works against in addition to vision and optics.

Force Field

Some mecha possess Force Fields. A Force Field is different from Armour in that it can be battered down by a sufficiently powerful attack.

A Force Field can be up or down. When down it does not stop any damage. When up, it is often invisible (GM's option), but Meta-Scanners and possibly other sensors can usually detect it and "shields up" may be construed as hostile in some quarters. Force Field status must be set at the start of the mecha Operator's actions for the round and cannot be changed until their turn to act in the next round.

A Force Field provides extra Hit Points that absorb damage if the mecha is hit. Decide how many HP the field has. This must be at least 3 if tiny, 5 if small, 10 HP if medium size, 20 if large, 30 if huge, 40 if gargantuan or 50 if colossal.

Damage is first applied to the Force Field, before Armour is subtracted.

A Force Field can quickly recover if undisturbed. The field recovers 1 HP per round if a medium size mecha or smaller, 2 HP if large, 3 HP if huge, 4 HP if gargantuan or 5 HP if colossal. The field may not recover HP in any round it took damage, whether it is "up" or not.

Limited Duration Force Field

Some Force Fields can operate only for a brief time before running out of power or burning out. If the field is "up" for more than a minute (10 rounds) it has a 1 in 6 chance each round after that of burning out or running out of power. This disables it until repaired or recharged (GM's option).

Limited Protection Force Field

Some Force Fields only protect against certain damage types. If the field can only protect against a single type of energy (for example, lasers, fire, etc.) or vs. fast-moving projectiles (ballistic damage type) it will be cheaper.

Mecha Point Cost: 3 per HP the Force Field possesses, or 2 per HP if the Force Field is either limited duration or gives limited protection, or 1 per HP if both.

Merging

Merging allows several mecha to combine into a single bigger mecha.

Design the merged mecha. Three additional criteria apply to it:

The combined mecha must be able to carry all crew and passengers of the mecha that merged.

Its Hit Points must always equal the combined Hit Points of all the mecha that made it up.

Its size must be equal to or greater than the size of the mecha that made it up. Design the mecha so its size is appropriate to the number of mecha that merge into it and the HP requirement.

Decide which one of the crew pilots the mecha. Other crew members may fire individual weapons (if the mecha has more than one) or run other equipment — who operates what should be specified when the mecha is designed.

The mecha cannot merge if any component mecha are reduced to 0 or fewer HP. If damaged mecha merge together, some damage carries over: the Hit Points of the combined mecha is based on their total remaining Hit Points.

If a merged mecha separates, divide the current (damaged) HP of the combined mecha by its original undamaged HP and multiply this by each mecha's undamaged HPs to find their uncombined Hit Points remaining. Mecha damaged before merging retain the damage after merging, naturally.

Mecha Point Cost: Merging costs each mecha a number of Points equal to the Point value of the mecha they combine to form divided by (5 times the number of mecha forming it). The mecha they form must be assigned a Point total.

Example: Four mecha can combine to form a 1,000 Point mecha. It will cost each one of them 1,000 Points divided by 20 (5 x 4 mecha) — or 50 extra Points to have the capability to transform into that mecha.

Note: GMs may wish to limit the Point values of the larger mecha to avoid abuse of the system.

Mind-Interface System

The mecha has a system that links the pilot's nervous system with its controls, enhancing its handling. When activated, a mind interface system provides an equipment bonus to manoeuvre, initiative, melee attack rolls, and to Reflex saves.

This provides a +3 bonus if the mecha is a suit, +2 if a giant robot, or +1 if a vehicle.

There is a dark side, however. If the mecha takes damage, the feedback through the interface may shock the user. If the mecha is badly damaged (loses half or more of its HPs from a single attack) or is disabled by cumulative damage the Operator must make a Fortitude save (DC 15) or be stunned for 1d6 rounds.

Mecha Point Cost: 10 Mecha Points.

Self-Repair or Regeneration

The mecha is capable of healing itself. This can represent a self-healing bio-mechanical creature, an auto-repair system, or a good repair crew. A mecha cannot heal or regenerate if it is destroyed. Each period (see below) the mecha will heal 1 HP. A mecha cannot have both Self-Repair and Regeneration.

Self-Repair

The mecha can heal Hit Points every day of rest.

Regeneration

The mecha can regenerate Hit Points every round, whether resting or not. Hit Points that are part of a Force Field do not benefit from Regeneration or Self-Repair.

Mecha Point Cost: 1 per 5 HP if self-repair; 1 per HP if Regeneration.

Spell-like Ability

The mecha, either through super-science or via truly magical means, has the ability to generate an effect similar to a spell. The GM must approve all spell-like abilities that are assigned to a mecha as they must fit within the parameters of his or her campaign setting. If a spell's effects depend on the

caster's Level, treat it as if cast by a character of the mecha's ECL.

Mecha Point Cost: The cost of a spell-like ability is equal to the spell Level (treat zero Level spells as Level 1) cubed times the number of times per day the ability can be used: Spell Level x Spell Level x Spell Level x Number of times usable per day

Example: A mecha is assigned a spell-like ability: Prismatic Wall (1 per day). Prismatic Wall is an 8th Level spell and thus costs (8 cubed times 1 per day) 512 Mecha Points. If the mecha's final ECL was 12, the ability would generate a wall 48 feet wide by 24 feet high, as per the spell's description. Another mecha with spell-like ability: Hypnotism, a 1st Level spell, usable three times a day, would cost (1 cubed times 3) 3 Mecha Points.

Summonable

The mecha is linked to one special owner and can appear or disappear on command. Decide whether it normally appears beside the character or forms around him or her with the character inside. This special ability is quite powerful, since it lets one bring a mecha into situations where dragging one along is normally unacceptable, like school, an embassy ball, or jail. There are two versions of Summonable:

Summonable (Slow)

The mecha takes several rounds to summon (GM's option, or roll 2d6). The character can do nothing else — he or she may be concentrating, calling it, assembling it from smaller parts, etc.

Summonable (Fast)

The mecha takes only one round to summon.

Summoning Objects

Some summonable mecha have a special item that the character must have in order for the mecha to appear. The item may be the mecha in a more compact, but powerless shape, or a device that enables the mecha to be summoned from another dimension. Thus, a mecha can be prevented from appearing if the item is taken away. Typical summoning objects can include medallions or amulets, swords, items of clothing, bracers, rings,

cubes, eggs, or even suitcases (with the mecha folded up inside).

Mecha Point Cost: 1 fine, 5 diminutive, 10 tiny, 15 small, 30 for a medium mecha, 45 for a large mecha, 60 for a huge mecha, 75 for a gargantuan mecha, 90 for a colossal mecha. +15 cost for Summonable (Fast). If the mecha requires a summonable object, note this in parenthesis; the cost is -15 Points.

Super-Equipment

The mecha has some item of equipment not otherwise defined that possesses special abilities that could have a significant effect on game balance. Examples of special equipment would be a "transporter" device that allows the crew members to be teleported great distances, a built-in magical laboratory, or doomsday bomb that, if activated, could destroy a city or even an entire planet. It is up to the GM to specify the abilities of special equipment, and to establish appropriate limitations given the game's scope and setting.

Mecha Point Cost: This is up to the GM. Base it on how common the equipment is, how powerful it is relative to other systems, and how easily it is countered. For example, a space opera teleport chamber that followed conventions common to TV (range of about 10,000 miles, requires a radio beacon or similar device to "lock on to" when transporting someone back to the mecha, transports a half-dozen people at once, can't work through Force Fields, odd mineral concentrations, ion storms, etc.) might cost 1,000 MP if a rare advantage, or 200 MP if common enough that every ship has one.

Transformation

Certain mecha — often rare, expensive, or magical — have the ability to change shape.

Some mecha can mechanically alter their shape or function. It is also possible for mecha to change between giant robot, vehicle, and suit types. For example, one might shift from a giant humanoid to jet fighter.

Decide on the number of different forms the mecha has. Buy the most expensive single form.

Each extra form costs 1/5 what it would normally cost.

Each form must be big enough for any occupants or cargo that the previous form contained. Otherwise, conservation of size and mass is realistic, but is certainly not a requirement (mecha may use super-science technologies to shunt extra mass into a pocket dimension, or use magic, to get around such physical limits).

It takes a mecha one round (and a full action) to transform from one form to another during which time its crew cannot take other actions. To do so faster, see Mechamorphosis Feat.

If a mecha has three or more forms, the designer must name each form and specify a transform sequence. For example, if a mecha has a "walker," a "hybrid," and a "flyer" form, the sequence may be walker-hybrid-flyer." The mecha can turn from hybrid into walker or flyer, but not from flyer to walker (or vice versa). A mecha with three or more forms can ignore this limitation and perform non-sequential transformation for an extra Mecha Point.

Example of Transformation

A mecha that has two forms: Air and Land. Each form is designed independently. The Air form turns out to cost 500 Mecha Points, while the Land form costs only 400.

The mecha's cost is thus equal to the cost of the most expensive form — the Air form — at 500 Points plus 1/5 the cost of the other forms — in this case, the Land form at $400 \times 1/5 = 80$ Points. Total cost is thus $500 + 80 = 580$ Points.

One-Way Transformation

The mecha cannot transform back to a prior form without considerable work at the hands of mechanics or lab technicians (taking a few hours time). For example, the original mecha might include a rocket booster to help it get to space, then it would "transform" into its more agile form by ejecting the boosters. Another example is a robot that sheds its human-like skin and pops out various weapon pods.

If a transformation is one-way, it costs half as many Mecha Points (1/10 cost of each extra form).

Step 12: Choose Defects

These are Defects that affect the workings of the mecha. Defects reduce the Mecha Point Cost.

Mecha Defects cannot reduce the Mecha Point Cost of a mecha below 1 Point. If this happens, treat the mecha as costing 1 Mecha Point.

[Direction]-Optimised Armour

The Armour's full value protects against attacks from one direction (usually front-optimised). Attacks from other directions (for example, the side, rear, top, and bottom) are protected at 2/3 Armour (round down).

Explosive Reactive Armour can also be [direction]-optimised. If so, it only protects in the optimised direction.

Mecha Point Cost: -1 per point of Armour the mecha has. If taken for Explosive Reactive Armour, this is worth -2 Points.

Flammable

The mecha's structure and armour are made of wood or similar flammable material. Its Armour does not protect at all against fire, plasma, or other fire-based damage. Saves against fire are made at a -4 penalty. See Fires.

Mecha Point Cost: -1 per point of Armour.

Glider

Glider can be taken by a mecha that can fly and does not have the Hovercraft or Wind-Powered Defects. It means the mecha can only take off if launched from a fast-moving vehicle or high place, and can only gain speed by diving or gain altitude by riding thermals. Assume a glider has a glide ratio of about 60:1 if average manoeuvrability, 30:1 if poor manoeuvrability, or 20:1 if clumsy. A 60:1 glide ratio means (for example) that if dropped from a height of 1 mile, it could glide for 60 miles before landing. A pilot check (DC 10) can extend glide ratio by 10% for every point by which the check succeeded.

Mecha Point Cost: -2 per 10 mph (16 kph) of air speed.

Hangar Queen

The mecha requires extra careful maintenance to work properly. If this is not available, the GM should feel free to impose breakdowns of various systems whenever seems dramatically appropriate. If a mecha is transformable, this Mecha Defect is only allowed if each form possesses it.

The mecha spends much of its time in a garage, shop, port, etc. undergoing repairs. For every hour it was used, it should be given at least an hour of maintenance.

Mecha Point Cost: -10 MP

High Ground Pressure (HGP)

This Defect can only be taken if the mecha has a land speed. It means that the contact area of its wheels, legs, or tracks is slight compared to the mecha's weight. Consequently, it tends to sink into the ground. Most civilian cars and trucks possess this Defect while specialised all-terrain vehicles or dirt bikes do not have it. Most tanks do not have a high ground pressure due to the width of their tracks, but a "realistic" two-legged giant robot may have this problem unless it has very large feet.

The mecha will bog down in any swamp, deep snow, or mud (no movement). It moves at 1/2 speed when crossing sand, light snow, or soggy ground. This is cumulative with the penalties for Road Vehicle.

Mecha Point Cost: -1 per 10 mph (16 kph) of land speed.

Hovercraft

This Defect can only be taken if the mecha can fly. It means the mecha's ceiling is divided by 100, usually no more than 10' (3 m) above ground. Take this for hovercraft or wing-in-ground-effect vehicles.

Mecha Point Cost: -5 MP

Naked Operator

One or more of the important crew members must be naked to pilot or crew the mecha. This Defect occurs surprisingly often in anime. The naked crew member is usually floating in some sort of neural-interface tank, often with strategically placed electrodes or tubes connecting them to the mecha's life system. The disadvantage of this,

aside from embarrassment, is the time it takes to get dressed before exiting the mecha.

Mecha Point Cost: -5 if one Operator must be naked; if 2+ crew members, -10 if all must be naked.

Noisy or Very Noisy

The mecha is noisier than an ordinary person. Mecha whose only type of movement is Space Travel or Star Drive may not be noisy. A noisy mecha is also detected more easily by sonar or Listen checks. A noisy mecha can never attempt to Move Silently.

"Noisy" means the mecha is as noisy as an ordinary automotive engine. +10 on Listen or sonar checks to notice it; weapons with the Sonar Homing quality get a +4 to lock on and attack.

"Very Noisy" means the mecha is as noisy as an aircraft engine. +20 on Listen or sonar checks to notice it; weapons with the Sonar Homing quality get a +8 to lock on and to attack.

Mecha Point Cost: -5 if noisy, or -10 if very noisy.

One Hand/No Hand (Giant Robot only)

A giant robot is assumed to have two arms with hands, but it could have only one, or even none, instead having legs or no limbs at all. If it has one hand it cannot hold onto something at the same time it punches someone or uses a Hand-Held weapon.

Mecha Point Cost: -1 per 2 point of Strength the mecha possesses if one hand, or -1 per point of Strength if it has no hands.

Open

The mecha's Armour does not protect the crew or passengers, only the mecha itself. This is common for mecha like galleys, jeeps, motorbikes, open-cockpit biplanes, speedboats, or robot horses. The mecha provides 1/2 cover, or no cover if the mecha is the same size or smaller than the rider.

Mecha Point Cost: -2 per point of Armour the mecha has.

Poor Visibility

The mecha has very poor visibility, due to small or no windows and a lack of compensating sensors, or

other problems. The only way to get unrestricted vision is to actually stick one's head out a hatch or window (leaving one with only half cover, as per the Open Defect). Otherwise, attempts to spot something visually from inside are at -2 if looking directly forward and -4 if looking in any other direction.

This is common for tanks. Mecha with the Open Defect should never have this Defect.

Mecha Point Cost: -5 MP

Reduced Endurance

The default assumption is a mecha has an indefinite range — it can operate for months at a time, like a sailing ship or nuclear submarine, provided supplies of food and water are available. If the mecha must refuel or recharge before then (something that should take at least half an hour of effort) it has Reduced Endurance.

Select one of these operational periods: a few weeks, several days, a few days, several hours, a few hours, several minutes. In this context, "several" means 5-30; "a few" means 1-4.

Mecha Point Cost: -5 if a few weeks, -10 if several days, -15 if a few days, -20 if several hours, -25 if a few hours, -30 if several minutes.

Restricted Path

For one reason or another, the mecha cannot leave a narrowly restricted area. This may represent a robot that is programmed to follow a specific guard route, a railway train, cable car that cannot leave its track, or a towed trailer/carriage.

Another way to interpret this is a mecha that is attached to a generator by a power cable. The mecha can operate normally unless the cable is unplugged, then has only a few rounds reserve power (and an enemy mecha that grabs it might unplug it).

Decide if it is a long path (like a railway line) or a short path (like a tether or a building interior)

Mecha Point Cost: -1 fine, -3 diminutive, -5 tiny, -10 small, -15 if medium, -20 if large, -25 if huge, -30 if gargantuan, or -50 if colossal; x2 if a short path.

Road Vehicle (Vehicle Only)

Take this Defect for most wheeled vehicles. The mecha attains full land speed only on a smooth flat surface such as a paved road. Its land speed is cut in half in other circumstances, such as on a dirt road, off-road, etc.

Mecha Point Cost: -1 per 10 mph (16 kph) of land speed.

Service Crew

The mecha is large enough that it requires a crew of engineers, sailors, or other individuals to perform maintenance, man rigging, cook, etc. Their training and skills will depend on the technology of the mecha, and may range from carpenters to nuclear reactor engineers.

Service crew are in addition to any Operators (pilot, commander, equipment operators, or gunners). For weapon loaders, use the Crew-Served restriction instead. The mecha must have sufficient passenger occupancy to carry that many crew. If a mecha loses service crew it will not stop functioning (provided there is someone to pilot it), but it will not run smoothly.

For each 25% a mecha is undercrewed (round up), the GM can impose a -2 penalty on all mecha-related Skill checks rolls or pick a system (sensors, Force Fields, maintenance, a weapon) that has gone unmanned and thus cannot be used. A short, overworked crew is also more likely to make mistakes, leading to equipment breakdowns.

Mecha Point Cost: Depends on the Service Crew requirement: -2 if one crew member, -4 if two crew, -6 if 3-4 crew, -8 if 5-8 crew, -10 if 9-16 crew, -12 if 17-32 crew, -14 if 33-64 crew, and -16 if 65-128 crew, etc.

Stall Speed

This can only be taken by a mecha that has a ceiling and air speed. If the mecha has a stall speed, it must always fly faster than the stall speed to remain in controlled flight. If it does not, it will go out of control.

Ordinary airplanes will have a stall speed. Mecha that use flapping wings may have a low stall speed or none at all if they can hover like a hummingbird. Other types of flying mecha (vertical-takeoff aircraft

that use thrust vectoring, helicopters, antigravity flyers, hovercraft) will not have a stall speed.

A typical stall speed is about 10-25% of air speed. Decide on the speed in mph or kph, and also determine the combat stall speed (see Combat Speed).

Mecha Point Cost: -1 per 10 mph (16 kph) of stall speed x Armour. Treat Armour 0-4 as 5.

Start-Up Time

If the mecha is shut down, a character cannot just climb into it and blast off cold. For example, it might be a complicated powered armour suit that takes a few minutes to put on, a power plant that takes time to warm up, or a rocket that takes hours of preparation in order to be ready for launch. Start-Up Time should only be taken for mecha that have Reduced Endurance of a day or less, as the time is trivial if the mecha runs constantly.

Mecha Point Cost: -2 if 1 minute (10 rounds), -4 if 10 minutes, -8 if an hour, -16 if 4+ hours.

Volatile

Fuel, a boiler, or ammunition may explode if the mecha is disabled or destroyed. If the attack that disables or destroys the mecha dealt damage past its Armour equal to or greater than half its normal full Hit Points, the mecha will explode after 1d6 rounds. This explosion deals 1d6 damage per full 5 HP the mecha had when undamaged (minimum 2d6) to everyone within the mecha (Reflex save, DC 20, for half damage). Half that damage is inflicted to everyone and everything within a number of feet equal to the mecha's full Hit Points (or metres equal to one-third full HP) of the blast (Reflex save, DC 15, for half damage).

Mecha Point Cost: -1 per full 5 HP the mecha has.

Weak Point

Due to a flaw in the design, there is a weak point in the mecha. If an attacker knows where it is (this may require study of enemy wreckage, espionage, sensor scans, etc) an attack to that point is much more likely to cripple or destroy the mecha.

A critical hit strikes the weak point and ignores the mecha's Armour. If an attacker knows about the weak point, an attack made at a -8 penalty may

deliberately target the weak point and ignore the mecha's Armour.

Mecha Point Cost: -1 per point of Armour the mecha has.

Windows

The mecha has large windows (like a car or jet liner) or canopy which does not protect against attacks aimed through them. This may not be taken in conjunction with the Open Defect.

If a mecha's occupants are attacked, they can only claim three-quarters cover. Occupants that lean out of windows (for example, to shoot) will get only one-half cover. An attack can deliberately target a window at -4 to hit, ignoring the vehicle's Armour.

Mecha Point Cost: -1 per point of Armour the mecha has, if it has Armour 2+. Otherwise, none.

Wind-Powered (Vehicle-Only)

The mecha is a sailing craft, powered by the wind. Its top speed will never exceed the present velocity of the wind, and it cannot move against the wind (it can tack upwind, but cannot move directly against the direction from which the wind is blowing).

This is most appropriate for mecha with Water Speed, though wind-powered land or air vehicles are possible. It's usually inappropriate for mecha with top speeds over 30 mph (48 kph).

It can be used with Dramatic Drive for space sails; the exact effects depend on drive technology: for example, a light sail will have its acceleration decline with the square of distance from the sun (measured in multiples of Earth's average distance from the sun).

This cannot be taken in conjunction with the Glider Defect.

Mecha Point Cost: -1 if large or smaller, -2 if huge, -3 if gargantuan, -5 if colossal.

Step 13: Design Weapons

Mecha do not need to be armed, but may possess an array of impressive weapons.

A suit or giant robot's fists can inflict damage even if it has no weapons. Base damage is 1 if tiny, 1d2 if small, 1d4 if medium, 1d8 if large, 2d6 if huge, 2d8 if gargantuan, and 4d6 if colossal, plus

strength modifiers. More potent attacks — including bite or claw attacks — should be built using the mecha weapon creation rules.

If the mecha has multiple weapons, design each one individually. If the pilot can make multiple attacks, several weapons may be used each round. The same holds true for multiple crew aboard a mecha assigned as gunners. If you want one weapon to have multiple ammo choices, take the Alternate Ammo option.

In Mecha d20, a "weapon" does not necessarily mean a single gun or missile. A set of multiple missiles on rails or pods is best treated as a single weapon (with several shots). A ship-of-the-line's broadside of dozens of cannons facing in the same direction is best handled as 1-3 weapons with extra damage and qualities such as Volley.

Most mecha attacks inflict damage: refer to Damage, below, and assign the dice of damage. Some attacks do not deliver ordinary damage, but instead, have other effects: Flare, Nerve Gas, Riot Gas, Smoke, or Tangle.

Damage

Select the type and number of dice of damage inflicted, for example, 4d4 or 6d10. This determines the weapon's effectiveness and MP cost.

Critical

A weapon's normal critical threat rating is 20. This can be modified by assigning the Increased Threat quality.

Special Attacks

These are all ranged touch attacks. Assign each special attack a modifier (usually 1 to 20), which applies to DCs and determines the weapon cost.

Flare

If hit (or in the radius of a Blast-effect or Emanation-effect) the target may be blinded. Everyone looking in the direction of the flash when the attack strikes must make a Fortitude save with a DC of (15 plus the Flare modifier) or be blinded for 2d6 rounds.

Nerve Gas

If hit, this will kill individuals who fail a DC (15 plus the Nerve Gas modifier) Fortitude save. Anyone wearing a pressurised suit, or in a mecha with NBC filters or life support is unaffected. This must be combined with the Emanation quality.

Riot Gas

If hit, this requires individuals in the area of effect to make a Fortitude save against DC (15 plus the Riot Gas modifier) or be blinded and stunned for 2d6 rounds. Anyone using a gas mask, wearing a pressurised suit, or in a mecha with NBC filters or life support is unaffected. This must be combined with the Emanation quality.

Smoke

The attack produces an obscuring smoke cloud. Smoke gives a 50% concealment modifier, and is also treated as 3/4 cover vs. lasers. The smoke remains for a number of rounds equal to the Smoke modifier. If the attack is assigned the Emanation quality, the base duration doubles (or the area of effect may double, as per the normal Emanation rules).

Hot Smoke

As smoke, but affects infrared sensors.

Tangle

The attack projects a web or net. Treat as a Web spell except it requires an attack roll; if combined with Blast it will affect everyone in the area; if combined with Emanation, it is sticky, and will affect anyone who moves into the area as well. The DC to break free is (20 plus the Tangle modifier).

Type

Specify the type of damage that the attack inflicts. This is important because some mecha Armour or creatures may be resistant or immune to certain types of damage. Specify one of the following types:

Ballistic (bullets and other high-velocity projectiles), piercing (pointed thrusting or ranged weapons like spears, arrows, etc.), slashing (swords, whips, etc.), bludgeoning (clubs, fists, tails, etc.), energy (of a specific type: fire/plasma, laser, electrical, cold, sonic), or blast (explosions).

Rate of Fire

The default ranged weapon rate of fire is single shot (SS) — one shot per round. Weapons may have faster or slower rates of fire as a result of their chosen qualities or restrictions; record the abbreviation appropriate to the rate of fire: SS for single shot, S if semi-automatic, A if automatic, 1 if slow-firing.

Table 2-7: Damage Die Types and Ranges

Dice type	d2	d3	d4	d6	d8	d10	d12	d20	Special
Increment (feet)	10'	15'	20'	30'	40'	50'	60'	100'	50'
Increment (m)	3 m	5 m	7 m	9 m	12 m	15 m	20 m	30 m	10 m

Range Increment

A weapon's base range increment is 50' (15 m) for a special attack. If the attack inflicts damage though, the increment shown on the table for the weapon's die type is multiplied by the dice of damage to get the increment. For example, 2d8 has an increment of 40' x 2 (for two d8) = 80 feet.

The actual increment can be modified by taking weapon qualities or restrictions. Each level of Long Range may up to double range; each level of Short Range may up to halve it.

Example: A mecha has a 120mm tank gun with 10d12 damage; this gives a range increment of 60 x 10 = 600'. In the real world, a 120mm gun can reliably strike targets out to about 12,000'. This would suggest a range increment of about 1,200, since weapons can reach out to 10 x their range increment. Various Feats and devices, however, allow experienced gunners to multiply their range increment by 1.5 to 2, so 600' is quite reasonable for the tank gun.

Conversion Notes: Modifying Range Increments

Range increments in Mecha d20 are based on the assumption that a powerful attack will usually travel farther. They can be modified in flexible fashion by taking appropriate qualities and limitations.

Some d20 System games, however, have range increments that are unusually high or low across the board — perhaps as a game-balance device to balance them against melee or archaic weapons. If this seems like a good idea, the GM should apply a constant multiple to all range increments to suit

your own preferred d20 System game — for example, arbitrarily dividing or multiplying all range increments by 2, 4, 8, or 10.

Magazine

A weapon has an ammo capacity (magazine) of 17-30 shots before running out of projectiles or power. This may be modified via the Extra Ammo quality or the Low Ammo restriction.

Mecha Point Cost

If the attack delivers damage,

multiply the dice of damage by the cost shown for the chosen dice size (twice its average damage) on the Weapon Damage Cost Chart.

Example: A missile could inflict 5d6 damage (giving a 100' range increment). The cost of each d6 is 7 Points. The missile will cost 5 x 7 = 35 MP.

Table 2-8: Weapon Damage Cost Chart

Dice Type	Cost
d2	3
d3	4
d4	5
d6	7
d8	9
d10	11
d12	13
d20	21
Smoke	Modifier +10
Flare	(Modifier +10) x2
Hot Smoke	(Modifier +10) x2
Riot Gas	(Modifier +10) x2
Tangle	(Modifier +10) x2

If a special attack, the cost is equal to the (modifier + 10) multiplied by 1 if smoke, 2 if flare, hot smoke, riot gas, or tangle, and 3 if nerve gas. Thus a +5 nerve gas attack costs (10 + 5) x 3 = 45 Mecha Points.

Multiple Weapons on a Mecha

A single Operator on a mecha can only attack with a single weapon at a time, no matter how many are built into a mecha. Exception: If he or she has multiple attacks, and uses a full attack action, these extra attacks can be made with the same weapon (unless it has a Single Shot or Slow-Firing Rate of Fire) or they may use a different Alternate Weapon (or Ammo).

Alternate Weapons (or Ammo)

If the mecha's Operator has access to multiple different attacks, each secondary weapon costs

less. This is because he or she can only use one weapon per round. For 1/10 the original cost (minimum 1 Point), a mecha can be given another weapon that is of the same or lower Point cost than the mecha's first weapon. This can represent either a new weapon or the same one with alternate ammo.

Different Gunners

Weapons are normally designed to be used by the mecha pilot. If the mecha has multiple Operators, however, some may have their own weapons, allowing each to fire. If a weapon is in this category, note it as requiring a "different gunner" and pay for it at full cost. After it is acquired, additional alternate weapons may also be bought for that extra gunner, at the reduced cost given above. Note: Two characters may not fire the same weapon in a round, however, even if using multiple attacks.

Hand-Held Weapons

It is assumed that weapons are attached to the mecha, but they may, instead, be designated as Hand-Held. A Hand-Held weapon can be lost or grabbed by an enemy, and the mecha must have arms to hold it. Mecha can, however, swap Hand-Held weapons with other mecha. To do this both weapons must be the same size so that handgrips and such are compatible. Hand-held weapons can never be assigned to different gunners; they must be fired by the mecha pilot.

Multiple Attacks with Hand-Held Weapons

The wearer of a suit or pilot of a giant robot may use the normal rules for multiple attacks with two weapons if his or her mecha has a weapon in each hand.

Qualities and Restrictions

A weapon may have qualities or restrictions. A quality is something advantageous; a restriction is something limiting. This will affect the Mecha Point cost of the weapon.

If the weapon has no extra qualities, its cost is unmodified. If it has 1, "multiply" its cost by 1.5. If it has 2 or more, multiply the cost by the number of qualities. Thus, a weapon with 3 qualities costs three times as much.

If the weapon has no restrictions, use its cost as modified by the number of qualities. If it has 1, divide that cost by 1.5. If it has 2 or more, divide the cost by the number of restrictions. Thus, a weapon with 2 restrictions costs one-half as much.

Example: A weapon has an unmodified cost of 30 Mecha Points. If it has one quality and three restrictions. The cost is 30 times 1.5 (the quality) divided by 3 (three restrictions) = 15 Mecha Points.

If a cost is fractional, drop all fractions. Thus, 22.7 Mecha Points is rounded down to 22 Mecha Points.

Weapon Stat Blocks

Record weapons in the following formats:

Name: The weapon's name (player's choice). For example, "20mm railgun."

Damage: The dice of damage. For example, 6d10. If no damage, list the special effect and modifier. For example, Nerve Gas +5.

Critical: The critical threat range. This is "20" unless modified by the Increase Threat quality.

Type: The type of damage inflicted. For example, Ballistic, Piercing, Electricity, Laser, etc.

Increment: The range increment (as modified by qualities and restrictions). Use "-" if a melee weapon.

Rate of Fire: Record the rate of fire: SS if single shot, A if the Automatic qualifier, S if Semi-Automatic qualifier, 1 if Slow-Firing or thrown qualifiers. Use "-" if a melee weapon.

Magazine: List the weapon's ammunition capacity (as modified by qualities and restrictions). Use "-" if melee or unlimited shots.

Size: List the weapon's Size. For example, indicate if it is a melee or Hand-Held weapon.

Cost: List the Mecha Point cost, so that the weapon can be swapped out for other weapons if desired.

Notes: List any qualities or restrictions, either in full or via footnotes. List qualities first, separated by commas, then a semi-colon, then restrictions. If a quality or restriction is taken multiple times, use 2, 3, etc. to indicate this. Example: Armour-Penetrating, Long Range 2; Low Ammo 3.

If the weapon has variable ammo, each setting should have its own line.

Weapon Qualities

Some weapons have additional capabilities beyond simply inflicting damage. Qualities marked with an * can only be used with attacks that inflict dice of damage.

A few qualities are especially powerful, and hence count as two or even three qualities.

Armour-Penetrating (AP)*

This weapon is especially good at punching through heavy armour. It ignores the first 10 points of Armour or the target's Armour protects at half value (round down), whichever gives the best effect.

This quality often represents shaped-charge High Explosive Anti-Tank (HEAT) and Armour-Penetrating fin-stabilised discarding sabot (APFSDS) ammunition used by tank guns and missiles.

Armour-Penetrating can be taken multiple times: two levels ignore the first 20 points of Armour (or divide Armour by 3), three levels ignore the first 30 points (or divide by 4), and so on.

Automatic*

Automatic (A) weapons fire a burst or stream of shots as long as the trigger is held down (until they run out of ammunition). They can be set on auto-fire or be used with Feats that take advantage of automatic fire.

There are two ways to use auto-fire:

- **Area Auto-fire**

This affects an area and everyone in it, not a specific creature. The character sprays an 10' x 10' (3 m x 3 m) area, or strafes an area 20' (6 m) long and 5' (1.5 m) wide, and makes an attack roll vs. Defence 10. If it succeeds, every creature or mecha in the affected area must make a Reflex save (DC 15) or is hit by a single shot. Area auto-fire expends 10 shots; and can only be used if the weapon has 10+ shots left.

- **Burst Auto-fire**

This is fired at a specific target, and may expend from 2 to 5 shots (decide before firing). The target is attacked normally. Roll once to hit. A successful

attack means the target is hit once; for every 5 the attack succeeded by over the target's defence, it is hit by an additional shot, up to a maximum of the number of shots that were fired in the burst. Roll damage individually for each shot that hit; if the target has damage reduction or Armour, subtracting it separately from every shot's damage.

- **Multiple Assignments of Automatic**

Automatic can be taken twice. This emulates Gatling guns like the 20mm Vulcan or 7.62mm minigun or multiple linked machine guns. They can fire as above, or instead use Saturation Auto-fire or Extended Bursts. Saturation Auto-fire is treated as Area Auto-fire, but requires expending 50 shots, covers twice the area, and victims must make a DC 20 Reflex save. Extended Bursts may fire 10-50 per burst, at a +1 to hit per 10 shots.

Note: Many d20 System games with a modern or future setting have unique rules for automatic fire, or even require Feats to use certain types of automatic fire — the GM may resolve automatic fire with such rules instead.

Blast

The attack affects not only the target but also anyone adjacent, such as an explosive warhead or plasma blast. The radius of effect is 10' (3 m). Blast can be taken multiple times. Each time it is taken, double the radius of the blast. Thus, taking it 4 times gives an 80' (24 m) blast radius.

When a target is hit, everyone caught in the blast (other than the target directly hit) may make a Reflex save (mecha Operators roll for their mecha) against a DC of 15 to halve damage. The target of the attack, if hit, takes full damage — no Reflex save is allowed. Alternatively, an attacker may fire a Blast weapon at the ground next to a target (treat as Defence 10), rather than the target itself. This is a ranged touch attack. This can have a better chance of hitting, but has the disadvantage of always granting a Reflex save. This tactic is not possible against a flying or space target unless the attack has the Guided quality.

Use the rules for Grenadelike missiles (see the PHB) to determine the effect of a miss.

Burning*

This represents flaming liquid, acid, or similar weapons that deliver continuing damage. If the initial attack hits, the target takes continuous damage each round, for the next 5 rounds, or until somehow neutralised (GM call: it should depend on the type of attack). Armour or Force Fields do protect against the damage.

It can be taken multiple times; each extra time doubles the duration.

The first level of Burning counts as two qualities.

Concealed

A mecha's weapons are normally obvious, at least to someone who knows where to look for the gun barrel, missile port, or laser lens. Take this quality to install a disguised or retractable weapon in a craft that looks like it would be unarmed, such as an ordinary-appearing automobile.

It takes a move action to "pop up" a hidden weapon so that it can be used in battle.

Cone

A cone attack shoots away from the weapon in the direction he or she designates. A cone starts in a square adjacent to the mecha and widens out as it goes. A cone's width, at a given distance, equals its current range — a cone is 50' wide when 50' away from the attacking mecha. At its far end, a cone is as wide as the effect is long.

A cone attack's maximum range is 1 range increment; cone attacks have very short range.

A cone attack is not resolved as an ordinary attack. It automatically hits everything in the target area, but targets get a Reflex (DC 20) save. Success means they suffer half damage, failure means they take full damage. Cover will give a bonus to the Reflex save, and if the cover is sufficient (such as a slit trench, building, etc.) a success means the targets dove or moved behind the cover, and take no damage rather than half damage (GM discretion).

Cone counts as three qualities.

Emanation

Some attacks have an area like a blast, except that the effect continues to radiate from the point of

origin for multiple rounds. The effect is the same as Burning, above, lasting 5 turns, but affecting everyone who enters an area only for as long as they remain in it (unless also combined with burning).

The radius of effect is 5' (or 1.5 m). The quality can be taken additional times. Each time it is assigned to a weapon, double the radius or the duration (designer's choice).

The first level of Emanation counts as two qualities.

EMP*

The weapon's damage is an electromagnetic pulse that has no effect on living things but will do normal damage to any mecha with electrical or electromagnetic systems. This is a quality, not a restriction, since it allows safe use of anti-mecha weaponry in situations that would otherwise put bystanders at risk.

Extra Ammo

This increases the weapon's total shots from the default up to 50. It can be taken multiple times: twice gives up to 200 shots; three times is 1,000 shots.

Flexible*

This represents long, flexible, or extendible attacks like a whip, energy-lash, razor-ribbon, or similar weapon.

A flexible attack can be used like a giant whip to disarm or trip any opponents of equal or smaller size than the weapon's size; for example, a huge whip can trip or disarm opponents up to huge size. A character can make a trip attack with a flexible weapon by succeeding at a ranged touch attack. The character does not provoke an attack of opportunity when using a flexible weapon in this way.

A flexible weapon also gives a +2 bonus on an opposed attack roll when attempting to disarm an opponent (including the roll to keep from being disarmed if the character fails to disarm the opponent).

If this quality is chosen for a weapon, the Melee Weapon restriction must also be taken. A flexible weapon can reach out farther than normal,

however: 15' (5 m) for a medium weapon, doubled for each successive size class.

Guided

The weapon fires a projectile that homes in on its target. The weapon has its normal range (usually 10 increments). On the round the projectile is fired, the attacker must normally specify a target. Each round (on the attacker's initiative) the missile moves toward the target, closing a distance equal to its range increment, and making up to a 45-degree turn, climb or dive. When it reaches the target, an attack roll is made, with no range penalties to hit. Other rules depend on the guidance system used. Pick one of these systems:

- **Operator-Guided**

The weapon fires a missile that is steered toward the target by the attacker, transmitting commands via a wire or a tight-beam radio link. The attacker must take full actions each round to guide the projectile to the target. The attacker uses his or her own attack bonus; the guidance system negates range penalties, but has no other effect.

- **Laser-Guided**

The weapon fires a missile that homes in on reflected laser light. Launching the missile is an attack action. The missile will fly straight ahead. At any point in its flight, the attacker or an ally (who need not be in the mecha) must use an attack action each round to aim a Laser Designator on the target, which must be in front of the missile (if the missile has already flown past it, it will automatically miss). The missile closes on the target as long as a character continues to designate the target with a laser; if interrupted, the missile automatically misses. If the designating character is injured/distracted, a Concentrate Skill check is required to stay on target (as if casting a spell). When the missile reaches the target, the designating character makes the attack roll, at a +5 bonus.

- **Semi-Active Radar Homing (SARH)**

The weapon fires a missile that homes on radar reflections emitted by the mecha's own radar. The mecha must have a Radar, High-Res Radar, or Meta-Scanner. It must lock onto the target (this requires a ranged touch attack, using the Radar's

range increment); failure allows additional attempts. Once a lock-on is achieved, launching the missile is an attack action. Once fired, the Radar must continue to track the target or the missile will automatically miss, but no other character actions are required; if the Radar only faces forward, that means keeping the mecha pointed at the enemy. As long as it does so, the missile closes on the target. When the missile reaches the target, it attacks on its own, with a +8 attack bonus.

- **Infrared Homing (IRH)**

The weapon fires a missile that tracks the target's heat emissions. The attacker must lock onto the target. This is a ranged touch attack, using the weapon's range increment. If the lock on fails, it can be attempted again in future rounds. If it succeeds, the missile can be launched; this is an attack action. The missile will follow the target with no further intervention required. When it reaches the target, it attacks the target itself. An IRH missile has a +10 attack bonus. ECM or concealment effective against infrared will penalise the attack.

- **Radar Homing (ARH)**

The missile uses its own onboard radar. Treat as Infrared Homing, except that ECM or concealment effective against radar will penalise the attack.

- **Sonar Homing (SH)**

The missile — a torpedo — uses its own onboard sonar. It can only be fired at underwater targets. Treat as Infrared homing, except that ECM or concealment effective against sonar will penalise it.

- **Emission Homing (EH)**

The missile is an "anti-radiation" missile that homes in on the radiating emissions of an operational Radar, Radio, or Radar Jammer; the mecha should have a Radar Sensor to spot such targets. Treat as IRH, but it can only lock onto a target that is using a Radar, Radio, or Radar Jammer. If the target turns off the system before the missile can reach it, the missile will still home on the last known location (unless the target moves, it is in trouble).

- **Inertial Guided (IG) or Satellite Guided (SG)**

The attacker programs in a set of map co-ordinates and the missile homes in on that point. This is only

good for attacking stationary targets such as buildings. When the missile reaches its target, make an attack roll at +3 if using inertial guidance or at +5 if using satellite guidance. Satellite guidance is only effective if the mecha has access to a friendly GPS satellite system.

- **Other Homing**

The GM may allow players to create other specialised homing missiles, such as ones that home on magical emanations. Use the previous rules as a guideline.

An incoming missile can be targeted for attack. It has defence of 25. If hit, roll damage: 15+ points of damage disables or destroys it; otherwise it is unaffected.

Guided cannot be combined with Cone or Melee. It can be combined with Automatic, representing a salvo of missiles; when the missile makes its attack roll, it is treated as a Burst attack using as many missiles as were fired, minus any that were shot down. "Smart bombs" can be created simply by adding the Dropped and Short Range restrictions.

A weapon may take multiple guidance options by taking this quality multiple times. This makes it harder to jam the weapon, and gives it a second lock on or attack roll if the first fails. For example, many modern torpedoes are both sonar-homing and operator-guided.

The first level of Guided Missile (any type) counts as two qualities.

Hardpoint or Hand-held

A "Hardpoint" weapon is mounted on a hardpoint, pod, or pylon. It can be traded in a later mission for any weapon of the same size and same or lower Mecha Point value, subject to its availability. It takes about 10 minutes to remove and replace a Hardpoint weapon with another weapon. A character may buy "spare" weapons at 1/20th their Mecha Point value that are kept at base for replacement in this way, or may swap weapons with other mecha of similar size and type.

A "Hand-held" weapon is carried in the hand. It is treated as a hardpoint weapon except that it is vulnerable to being disarmed, lost, dropped, etc., but can be exchanged in only one round. A mecha

cannot have more Hand-Held weapons ready to use than it has hands.

Indirect Fire

The weapon can fire shots in a high ballistic arc, like a grenade launcher, ballistic missile, or Howitzer. This lets the gunner shoot at targets hidden behind buildings, hills, or other obstacles (or shoot over the horizon, if the range is long enough).

If it is used to make an indirect fire shot, the attacker must be able to see the target, or someone else must spot it and radio or otherwise communicate its position to the attacker. This will usually require a Computer Use check. In most cases, indirect fire involves using weapons with the Blast quality to attack an area. If a creature or mecha, rather than area of ground is attacked, it is treated as having full concealment (50% miss chance).

A weapon can fire indirectly at 10 times the usual number of increments (100 increments for most weapons). Note that the actual range increment is not increased: thus, Long Range fire will be rather inaccurate.

If the attack misses, an observer can note where the attack hit and send a correction (or the attacker can correct by his or her self, if the target is in sight). Each correction gives a +2 bonus to hit, only to cancel any range increment penalties. It takes a full action for a distant observer to transmit a correction via communicator.

A weapon with Indirect Fire quality can be used normally at no penalty. It cannot be Melee, Cone, or Stream.

Increased Threat

Most weapons have a threat of 20. This quality increases the threat range by 1 (for example, to 19-20). It can be taken multiple times, further increasing the threat range.

Invisible

Most weapons produce some visible muzzle flash or beam, revealing the position of the shooter. Take this quality for any weapon (except one with the Melee or Thrown weapon restriction) that has no visible flash or beam.

Long Range

This quality increases the range increment. Long Range can also be taken multiple times; each time it is taken, double the increment.

The base increment is suitable for machine guns, short range rockets, and light cannons. Taking one level of Long Range is good for tank guns and guided missiles. Taking two levels is good for long-range missiles and spacecraft weaponry.

A lower increase can be specified if the GM desires – for example, Long Range could also be used to multiply the increment by 1.1 to 1.99 rather than 2. This is useful if trying to duplicate a real weapon.

Muscle-Powered

This lets the mecha add its Str bonus to damage if this weapon is used as a one-handed Melee weapon, or 1.5 times Str bonus if used as a two-handed Melee weapon, or half Str bonus if the weapon is Thrown.

A Muscle-Powered weapon can make any number of attacks unless it has the Thrown weapon restriction (in which case it can make another attack only after the Thrown weapon is recovered...).

A weapon can only be Muscle-Powered if it has the Melee or Thrown Weapon restriction.

Semiautomatic

A semiautomatic (S) weapon fires one shot per attack (effectively acting as a single shot weapon). Some Feats, however, allow characters armed with semiautomatic weapons to fire shots in rapid successions, getting in more than one shot per attack.

Silent

Most weapons usable at range are usually noisy, making a loud bang! or zap! Take this quality for a weapon that does not have the Melee or Thrown restriction, or will be used only in space, which is very quiet or silent.

Stream

The effect of a Stream weapon is similar to a cone, except that the weapon's effect is narrow and linear (affecting everyone in a stream 5/1.5 m

wide). Otherwise, use the rules for Cone, including the reduction of the range, with the exception that a successful save always negates damage rather than halves it.

Stream counts as two qualities.

Stun

The attack only inflicts subdual damage.

Trap

This weapon lays a minefield, spikes, or some other similar device. The projectile "sits and waits" until someone triggers it. If someone walks into the target area, they get a Reflex Save (DC 15) to avoid it. Trap can be taken with the Melee restriction to simulate a booby trap placed by hand or released from the mecha. Without these weapon restrictions, it can be deployed at range – a successful ranged touch attack against a Defence of 10 means the Trap was fired into the correct area.

Unlimited Shots

The weapon does not run out of ammunition or power. It can fire indefinitely, usually drawing on the mecha's own power supply. This need not be taken if the weapon has Muscle-Powered. It usually cannot be taken in conjunction with Automatic, Guided Missile, or Volley.

Unlimited Shots counts as 4 qualities.

Volley

An attack with the Volley quality fires a large volley of poorly guided projectiles, such as a salvo of unguided rockets or a broadside of cannon balls from multiple guns. The attacker may fire a number of shots up to the weapon's entire magazine capacity. He or she does not add a Base Attack Bonus or Dexterity Bonus but does add +1 per projectile fired.

Table 2-9: Volley Hits per Attack

Attack Succeeded by	Number of Hits
0-4	1 hit
5-9	1d4 hits
10-14	1d8 hits
15+	1d12 hits

The maximum number of shots that can hit is the number fired. On a critical hit, rather than increasing damage, double the number of shots which hit (up to the maximum).

If firing against a group, the attacker determines how many shots to aim at each target. Separate attack rolls are made for each target. Determine how far the furthest two targets are from one another. The attacks are made as for volley fire against one target, but for each 10 m/30' or part thereof that separates the furthest two targets, all the attack rolls suffer a -1 penalty.

Weapon Restrictions

Few weapons do everything well, and many have various disadvantages. As with weapon qualities, a single restriction can only be taken once unless specifically permitted.

Assign the weapon one or more restrictions. If the weapon has none, its cost is unchanged. If it has 1, divide its cost by 1.5. If it has 2 or more, divide by the number of restrictions.

Some restrictions are especially onerous and so count as two or even three restrictions.

Crew-Served (Vehicle only)

The weapon requires two or more people to operate it — usually the gunner and one or more loaders.

This must be taken in conjunction with the Slow-Firing restriction; it can be taken multiple times. Each time, double the number of crew required to load the weapon; they must all perform full actions to do so. Thus, a cannon that requires a crew of 8 to operate is a x3 restriction.

Dropped

The weapon is a bomb, mine, etc. that must be dropped from a flying mecha that is approaching the target. Instead of the usual 10 range increments, the dropped weapon can reach a base 1 range increment per 1,000' (300 m) of the sum of altitude and speed of the releasing mecha. Bombs take a -4 instead of -2 penalty per range increment. This cannot be used with Cone, Stream, Melee, or Thrown.

Exposed (Vehicle only)

The gunner must be outside the mecha's Armour on the round the weapon fires (and stay exposed until his or her next action in the following round). An exposed character can be fired at with no

Armour protection. An example of this weapon restriction would be a machine gun mounted on a bracket atop a tank whose gunner must lean out the hatch to use. It cannot be taken if the mecha already has the Open Defect.

Fixed Arc of Fire

(Vehicle and Giant Robot only)

The weapon has a very limited arc of fire and must be aimed by pointing the mecha. For example, a set of fixed forward-firing guns on a fighter plane, or a ramming prow. The weapon can only be fired at targets in the specified arc which may require a successful Pilot Skill check (which can be opposed by the pilot of a target mecha).

Specify the arc of fire: Front (Fr), Rear (Re), Left (L), Right (R), or Top (T). Mecha that can fly or move underwater can also specify a Bottom (B) arc.

Less Ammo

The weapon is only good for a few rounds of firing, and then runs out of ammunition or power, or burns out. This restriction can be taken up to 5 times.

If the weapon is Slow-Firing, number of shots refers to the total ammunition aboard the mecha, not in the magazine.

Taking this restriction once means the weapon has 9-16 shots; twice limits it to 5-8 shots; three times to 3-4 shots; four times to 2 shots, five times to 1 shot.

Low Penetration*

The attack is easily defeated by Armour (examples include a shotgun blast or hollow-point bullet). Armour or Damage Reduction stops twice as much damage as usual. If the target's Armour grants an equipment defence bonus, it is doubled vs. the attack.

Melee

The weapon can only be used as a melee weapon. It can be used to attack or parry within the mecha's natural reach. Specify the weapon's size class (normally within one size of the mecha that will wield it) and whether it is bludgeoning, piercing, or slashing.

It is usual to take this restriction in conjunction with the Muscle-Powered quality.

Melee counts as two restrictions.

Only In (Specified Environment)

The attack or weapon can only target objects that are on or in a particular limited environment, for example, "only in water" (representing a torpedo) or "only in space" (representing a powerful weapon that requires a vacuum to work). The environment should not be one that is ubiquitous in the campaign (for example, "only in air" is not valid unless a lot of the game action will take place in airless environments). If the environment is very rare in the campaign, the GM may allow this to count as two restrictions.

Short Range

This restriction halves the range increment (round down). It can be taken twice if desired, to get 1/4 range. An even lower increment can be specified if the GM wants to duplicate a weapon in other d20 System books with a low increment, but there's usually no extra cost benefit.

Short range may not be taken if the weapon has Melee or Thrown restriction.

Slow-Firing

The weapon has a restriction that reduces its rate of fire, such as requiring a full action (to aim, charge, or load the weapon) before making each attack. Perhaps the attack generates heat that must be dissipated before it can again fire safely. Consequently, the weapon fires every other round. The weapon cannot be used to attack multiple times in a round, nor can a different character fire it on the round it is being loaded. This cannot be used with Semi-automatic or Automatic.

Record a rate of fire of 1.

This can be taken multiple times; each time it is taken, loading requires an extra round's full action.

Slow-Firing counts as two restrictions.

Space-Optimised

The weapon's energy is easily absorbed by air; its full range only applies in vacuum. In atmosphere, its base maximum range is 5 rather than 10

increments and it cannot penetrate thick smoke, fog, water, etc. This should only be taken by ranged weapons doing energy-type damage. It is a common restriction for laser and particle beams. It cannot be assigned to melee weapons.

Static

The weapon cannot be fired while the mecha is moving under its own power; perhaps it is too bulky, requires precise aim, or drains too much power, or maybe the mecha's fire control system is not advanced enough to compensate for movement. This does not prevent firing while drifting, coasting, etc.

This restriction is commonly taken for artillery-type weapons (especially in conjunction with Indirect Fire).

Thrown

This restriction means it is a thrown weapon. Once thrown, it is useless until retrieved. Specify the weapon's size class and whether it is bludgeoning, piercing, or slashing. The weapon's range increment is divided by 10 (if the base is 500', it will drop to 50'), and it can be thrown a maximum of 5 increments.

It may not be taken in conjunction with the Melee or Slow-Firing restriction. It is often taken in conjunction with the Muscle-Powered quality.

It may be taken with Automatic Fire (representing a handful of small thrown objects, for example).

Record a rate of fire of 1, reflecting the fact that the weapon must be reloaded or charged after each shot.

Thrown Weapon counts as two restrictions.

Unreliable

The attack tends to jam. Any time the player makes an attack and rolls a "natural" 1, the weapon failed to fire and jammed, over-heated, or otherwise malfunctioned. It will not work until repaired. Clearing a jammed weapon requires a full action and a successful Dex check against a DC of 10. Note: a character cannot attempt to clear a jammed weapon if he or she does not have the appropriate Weapon Proficiency Feat. If unsuccessful, the character can try again next

round. A natural "1" indicates the jam is severe and cannot be cleared without an hour's work and a successful Craft (Mechanical or Gunsmith) Skill check against a DC of 20.

Chapter 3: Mecha Combat

Mecha action should be fast, exciting, and fun, just like battles between humans, but on a larger and more dramatic scale. This chapter provides rules for the situations that can occur when characters are piloting giant robots, wearing power armour, or zipping about in vehicles.

The number one rule of mecha combat is to make battles as dynamic as possible. Before any fighting starts, the GM should set the scene. For example, a giant robot battle could take place "downtown" ... but it is more interesting if the GM takes a few moments to describe the nearby landmarks: mention the rows of office towers, the natural history museum, the subway station, city park, and the hospital down the block. This isn't just for atmosphere — it gives everyone tactical choices. Want to elude the enemy's flying mecha? Smash your way into the subway station and take the fight underground. A mecha is sniping with a long-range weapon? Have an enemy mecha take cover behind the hospital, forcing the hero to choose between risking innocents and charging into range of the villain's plasma whip. As a 60' robot strides down a busy street, people will scatter in terror, a city bus swerves off the road and crashes, victims cry for help. Maybe some player characters can drive the enemy off the streets and into the park to limit collateral damage, or stop to rescue civilians, or just get enraged and fight even harder to defeat their foes.

It's also important to personalise a battle. Faceless foes have their place, but players will have more fun if mecha pilots get a chance to get to know their enemies. Even total war can be interrupted by a few undercover operations or diplomatic missions to neutral powers, with the characters along as spies or military attaché, to give them a chance to meet the dashing enemy pilot at the embassy ball. Similarly, giant robot combat can be grimly realistic, but can also have the panache of medieval jousts or World War I dogfights, with the deadly enemy ace in her red-painted mecha, or the honourable foe willing to have his wingmen hang back to let him duel opponents one on one. There's no reason why opposing pilots cannot talk over the radio or by view screen as they trade laser blasts and plasma bolts, and this will let characters use Bluff and

Intimidate Skills as well as their attack bonuses. Even if the players are shy about chatting with the enemy, a battle can be made more memorable by giving the heroes some quirky non-player character partners or wingmen, such as an arrogant, showboating rival or a nervous, inexperienced rookie.

Running Big Battles

Some mecha adventures may climax with enormous battles. When dozens or hundreds of non-player character mecha are engaged on both sides, the GM should not feel compelled to resolve the action of every single soldier or machine. Nor is it necessary to resort to GM fiat. One useful technique is to have the course of the battle mirror the fortunes of the heroes. Suppose 300 mecha of the Orion Empire are attacking 100 mecha serving with the Earth Federation. The Earth forces include three characters and their best friend (a non-player character). As the Imperials outnumber Earth 3:1, have 10 enemy mecha attack the four heroes. If they win, assume their side wins, with the same proportion of casualties — if they are wiped out or flee, their side loses. As GM, it's possible to break a complex battle into multiple stages, with waves of extra reinforcements arriving on either side (200 allied mecha might be represented by two non-player characters joining the characters) or sudden opportunities for heroic actions ("through the explosions and burning wreckage, you see a clear route to the enemy command ship ..."). The important thing in any large engagement is to reduce the GM workload while still giving players a chance to affect the outcome.

Basic Concepts

Mecha use the d20 System action and combat rules unless exceptions are specifically mentioned.

"Mecha" refers to all sorts of mobile craft built with these rules.

"Giant robot" applies to machines that are moving with legs, or slithering like snakes, or flying with flapping wings, or swimming with arms, legs, or tails.

"Suit" applies to all mecha suits that mimic the wearer's normal body form.

"Vehicle" applies to all other machines: cars, tanks, trucks, jet aircraft, submarines, and so on. It also applies to giant robots that have transformed into vehicles.

Characters in Mecha

A character in a mecha fills one of several possible roles, which determines what the character can do.

Operators

These are the crew assigned to control the mecha's movement, weapons, sensors, etc. Often a mecha has only one Operator.

Pilot

The pilot of the mecha controls its movement (and any limbs, if a giant robot or suit). Depending on the type of mecha, he or she may be styled "driver," "helmsman," "steersman," etc.

Most mecha have only one position from where the mecha can be operated, so the person there is the pilot. Operating a mecha is, at a minimum, a move action, which means that the pilot may be able to do something else with his or her attack action.

Commander

In some mecha, there is a captain or commander whose main role is to give orders. He or she can help any crew member (pilot, gunner, etc.) by taking an Attack action. This can represent giving advice, highlighting targets or directions to travel, and so on. Doing so is a move action, leaving the commander an attack action each round to do something else — control another weapon, or act as an equipment operator, perhaps. A mecha can have only one commander at a time.

Gunner and Loaders

Some mecha have built-in weapons. If such a weapon is controlled from a location other than the pilot's position, a character can man that position and become the gunner. A mecha can have as many gunners as it has gunner positions. Some weapons may also require one or more loaders, if they have the Crew-Served weapon restriction, who must be stationed next to the gunner. This doesn't require any special Skill, so loaders often double as mechanics or service crew aboard the mecha.

Equipment Operator or Lookout

An equipment operator is assigned to operate one or more items of equipment aboard the mecha, such as a radio or sensor, freeing the pilot from having to worry about it. Not all mecha have equipment operators. In combat, the main use of an equipment operator is to make Computer Use checks without the -5 "spotter distracted" penalty that a character doing something else (like shooting or piloting) will suffer. Low-tech mecha may have an observer or lookout, who does the same job without any built-in sensors.

Passengers

All other personnel aboard the mecha are considered passengers for combat purposes. They may be officially part of a crew — a technician, cook, ship's doctor, a scientist, or a security team, etc. — but they perform no specific role in mecha operation. They may, however, be able to fire weapons from the mecha, perform repairs, fight fires, give advice, or take other actions.

Crew Quality

Rather than force the GM to create, or remember, statistics for everyone aboard a mecha, mecha statistics include a general "crew quality" descriptor. This indicates a typical crew's aptitude with the mecha's systems. Use the check modifier for all Skill checks related to the operation of the mecha (including Drive and Repair checks). Use the attack bonus for all attack rolls performed by the crew.

This does not restrict the GM from creating unique mecha where the crew's statistics are included.

Table 3-1: Mecha Crew Quality

Crew Quality	Check Modifier	Attack Bonus
Untrained	-4	-2
Normal	+2	+0
Skilled	+4	+2
Expert	+8	+4
Ace	+12	+8/+3

Getting Started

Vehicles and giant robots can be entered with a move action and started with a second move action. An exception is noted in a mecha's description when it applies. See the Start Up Time Defect.

Mecha suits normally take the same time to don or remove as plate armour.

Very tall mecha whose cockpit is in the head are assumed to have ladders or wire lifts that allow the occupants to reach them. A sufficiently agile pilot could leap into the cockpit, however.

Scale

These rules use three scales. If the encounter involves both mecha and characters on foot, use character scale. If the scene involves only mecha, and they're likely to move at much higher speeds than characters or creatures on foot, use chase scale. If neither is appropriate, or distances are very great, or no map is being used, use abstract scale. The GM can mix and match scales as necessary.

Character Scale

Character scale is identical to the standard movement scale used in most d20 System games: it's carried out on a grid in which each square equals 5 feet (1.5 m).

In character scale, most mecha are large enough to occupy multiple squares on the map grid. How many squares a mecha occupies is determined by the mecha's dimensions.

When moving a mecha, count the squares from the mecha's rear. When turning, pivot the mecha on the rear square toward which it is turning. When firing weapons, count squares from the location of the weapon.

No more than one mecha can occupy the same ground square.

Chase Scale

In chase scale, each square of the grid represents 50 feet (15 m).

In chase scale, most commonly encountered mecha occupy only one square. Some especially

large mecha might occupy more than one square. More than one mecha can occupy the same square. Mecha in the same square are considered to be within melee range for the purposes of determining range for attacks.

Abstract Scale

In abstract scale, the GM keeps track of spatial relationships in his or her head or on a sketch map, describing distances to the players in feet (or metres) as appropriate. The GM should keep a general, mental note of relative distances (in squares, feet, or metres) between combatants or important objectives. For example, if the encounter begins with two hostile mecha 300 metres apart, and on its first round one mecha charges forward 100 metres, then those two mecha are now 200 metres from each other. GMs should not become hung up on exact speeds and distances — just a general idea of the overall distance is usually enough.

Mecha Sizes

Mecha use the same size categories as characters and creatures, as described in Chapter 2. GMs should be familiar with the Big and Little Creatures in Combat rules (see the PHB), since these apply to mecha.

Facing and Firing Arcs

When dealing with mecha, the mecha's facing (the direction it is pointing) is important. Facing indicates the direction in which the mecha is travelling (assuming it's not moving in reverse). It can also determine which weapons aboard the mecha can be brought to bear on a target.

A fixed weapon built into a mecha can be mounted to fire in one of four directions — forward, aft (rear), right, or left — or be built into a partial or full turret, or an arm. A partial turret lets a weapon fire into three adjacent fire arcs (such as forward, left, and right), while a full turret or arm lets it fire in any direction. For mecha with weapons, a weapon's arc of fire is given in the mecha's description.

See the Fixed Arc of Fire restriction.

Initiative

There are two options for determining initiative in mecha combat.

The first is individual initiative just as in normal combat, where each character rolls separately. This is probably the best method if most or all characters are aboard different mecha since it can result in a lot of delayed or readied actions as passengers wait for pilots to perform manoeuvres when used if characters are all aboard the same mecha.

An alternative is to roll initiative for each mecha, using the mecha's initiative modifier. This is particularly appropriate when characters are in the same mecha, since it allows everyone aboard the same mecha to act more or less simultaneously.

Surprise and Situational Awareness

In mecha combat, the element of surprise can be crucial. Use the normal rules for determining surprise and awareness, but with these considerations:

Spot Checks

These are crucial for determining awareness, since mecha weapons often have very long ranges. The GM should be familiar with mecha sensor capabilities detailed in the design rules (see Sensors) and with modifiers to Computer Use/Spot and Listen checks detailed in the Stealth, Noisy, Windows, and Poor Visibility Defects. The GM should also impose a -5 distraction penalty on a character who is performing another task while spotting, such as driving.

Spotting Underwater

If not using sensors, spotting underwater uses a 1' rather than a 10' increment.

Spotting in Space

If not using sensors, visual spotting in space uses a 100' rather than 10' increment.

Movement and Action

Except where specifically noted below, movement and action use ordinary d20 System combat rules.

Options for Pilots

Here is what a mecha's pilot can do in a single round:

If in a Mecha Suit

A mecha suit moves exactly like the wearer, except that the suit may have a movement multiplier that applies to the wearer's speed and the distance he or she can jump, as well as a strength bonus. The wearer can perform any actions while wearing the suit, just as if he or she were wearing any other armour.

Run actions tire the wearer as usual; a suit may sometimes speed movement, but it is still fatiguing.

If in a Vehicle

- **Choose Speed**

The pilot may increase or decrease his or her mecha's speed category by one (or keep it the same). See Declaring Speed.

- **Optional Attack Action**

If the pilot wants, he or she can use his or her attack action before moving the mecha. If the pilot does so, however, he or she will be limited to a single stunt during movement.

Movement

The mecha moves at a speed determined by its speed. Along the way, perform any number of simple manoeuvres (limited only by their movement cost). The pilot may also attempt a single stunt as part of the movement (or two, if the pilot didn't take his or her attack action before moving). See Moving the Mecha.

Optional Attack Action

If the pilot did not take an attack action before moving, and performed one or fewer stunts, the pilot has an attack action left.

Transition

A giant robot that is using land movement may move as a character; if using another type of movement, it may transition to land movement if moving at high speed (see Declaring Speed) or less on the previous turn, and it is now on a solid surface. If so, see Giant Robot Agility, instead.

Giant Robot Agility

A giant robot can move either as a vehicle or as a character. It can only move as a character if it moved no faster than High Speed (750'/225 m) on the previous round, and if it uses land speed. If moving as a character, its pilot may have the robot perform any actions a living creature of the same size and shape could – using the normal rules for character action, with these two exceptions:

Speed

The giant robot moves at up to 1/4 its land combat speed, or 100' (30 m), whichever is less, when it takes a normal move (Move action). It can move at up to 1/2 its top speed, or 250' (75 m), whichever is less, when it takes a Double Move (Full action). It can move at up to its top speed, or 750' (225 m),

Table 3-3: Speed Per Round

Speed Category	Speed
Stationary	No Movement
Slow Speed	Up to 100' (30 m)
Tactical Speed	100' (30 m) to 250' (75 m)
High Speed	251' (75 m) to 750' (225 m)
Very High Speed	751' (225 m) to 2,500' (751 m)
Extreme Speed	2,501' (751 m) or greater

whichever is less, if it runs.

Running

The pilot does not tire from running.

Declaring Speed

At the beginning of his or her action, a pilot must declare his or her speed category for the round. The pilot can choose to go one category faster or slower than the category used in the previous round, if his or her mecha is fast enough to do so. For an exception to this, see Climbing and Diving.

The six speed categories and the speed, per round, at which the vehicle must be moving:

The pilot of a giant robot that moved at no greater than high speed on his last round may instead

Table 3-2: Mecha Speed and Modifiers

Speed Category	Move(Turn) (abstract feet)	Move(Turn) (abstract metres)	Move(Turn) (5' squares)	Move(Turn) (chase squares)	Defence Modifier	Manoeuvre Modifier
Stationary	no speed (0)	no speed (0)	no speed(0)	no speed (0)	-	-
Low	1 to 100' (5')	Up to 30 m (1.5 m)	1-20 (1)	1-2 (1)	+0	+0
Tactical	101'-250' (10')	31 m-75 m (3 m)	21-50 (2)	2-5 (1)	+1	-1
High	251'-750' (20')	15 m-225 m (6 m)	51-150 (4)	5-15 (2)	+2	-2
Very High	751'-2,500' (40')	226 m-750 m (12 m)	151-500 (8)	16-50 (2)	+4	-4
Extreme	2,501'+ (100')	751 m+ (30 m)	501+ (20)	51+ (3)	+8	-8

declare he or she is using character movement. See Giant Robot Agility. A mecha that was already using character movement may continue to do so, or may go to either of Stationary, Slow, or Tactical speeds.

Example: An officer is driving a tank with a top speed of 500'. From a standing start, she could accelerate to slow speed on the first round, tactical speed on the second, and high speed on the third round. The tank could not go past high speed, because reaching very high speed requires a top speed over 750'.

Move: The first number listed under Move (Turn) is the range of distances a mecha can travel at this speed and scale per round.

(Turn): The second, parenthetical number is the speed's Turn number, whose use is explained under Turn.

Defence Modifier: The bonus a mecha receives to its defence when moving at the listed speed, since a faster mecha is harder to hit.

Manoeuvre Modifier: The modifier to any manoeuvre checks or rolls when moving at this speed, since a faster mecha is harder to manoeuvre.

A stationary mecha cannot move, with these exceptions: A stationary giant robot can turn to any direction on land, as can a stationary flyer with no stall speed, or any mecha that is underwater.

A stationary mecha can change to low speed in either forward or, in some cases, in reverse. Mecha cannot usually go faster than low speed in reverse; flying mecha can only do so if they have no stall speed; mecha cannot usually do so in or under water.

Moving the Mecha

Controlling a vehicle or giant robot is a move action, taken by the mecha's pilot.

The Mecha Speeds and Modifiers Table lists a movement range for each speed category (in feet, metres, and squares). For example, a mecha that is moving at high speed has a listed movement of 251'-750'.

During his or her move action, the pilot may move the mecha any distance that falls within its current speed category, provided that does not exceed its top speed. For example, a mecha with a top speed of 500' that was moving at high speed could move 251-500', but it could not move 501-750'.

Unlike moving characters, a mecha's facing is important; unless it changes direction, a mecha always moves in the direction of its facing (or in the opposite direction, if it's moving in reverse).

While moving this distance and direction, the pilot can attempt manoeuvres to change the mecha's course or affect its next round's speed. These manoeuvres can be attempted at any point along the mecha's route. The pilot can choose to use his or her attack action to attempt an additional manoeuvre.

The two kinds of mecha movement are simple manoeuvres and stunts.

A simple manoeuvre, such as a 45-degree turn, is easy to perform. Each is a free action and can be taken as many times as the pilot likes while he or she moves the mecha. Simple manoeuvres, however, do cost movement, so a mecha that makes a lot of simple manoeuvres will not get as far as one going in a straight line. Simple manoeuvres do not require the pilot to make Skill checks.

Stunts are difficult and sometimes daring manoeuvres that enable a pilot to change his or her mecha's speed or heading more radically than a simple manoeuvre allows. A stunt is a move action. It can be taken as part of a move action to control the mecha, and a second stunt can be attempted in lieu of the pilot's attack action. Stunts always require Drive or Pilot checks.

If using a square grid, count squares for mecha just as for characters. Mecha can move diagonally;

remember that when moving diagonally, every second square costs two squares' worth of movement.

Exceptions: A suit moves like a character; a giant robot may move like a character. Mecha in space move differently; see Space Movement.

Simple Manoeuvres

During a mecha's movement, the pilot can perform any one of the following manoeuvres.

45-Degree Turn

A vehicle can make a simple 45-degree turn as part of its movement. The mecha must move forward at least a number of squares, feet, or metres equal to its Turn number (shown on the Mecha Speeds and Modifiers Table), before it can turn. At Extreme speed, a mecha can only make one such turn. At chase scale, each 45-degree turn counts as one square (50') of movement.

At character or abstract scale, each 45-degree turn counts as 5' (1.5 m) of movement.

Ram

At character scale, a pilot does not have to perform a manoeuvre to ram another mecha. He or she only needs to move the mecha into the other mecha's space, and a collision occurs (see Collisions and Ramming).

At chase scale, however, more than one mecha can occupy the same square and not collide. This means that ramming another mecha requires a simple manoeuvre. The pilot moves his or her mecha into the other mecha's square and states the intention to ram. Resolve the ram as a collision, except that the pilot of the target mecha gets a Reflex save (DC 15) to reduce the damage to both mecha by half.

If moving in three dimensions (air, space, underwater) a mecha must also be at the same altitude.

Sideslip

A pilot might wish to move to the side without changing the mecha's facing. This simple manoeuvre, called a sideslip, allows a mecha to avoid obstacles or weave in and out of traffic without changing facing. In character or abstract

scale, a sideslip moves a mecha 5' (1.5 m) forward and the same distance to the right or left. It costs 15' (4.5 m) of movement. In chase scale, a sideslip moves a mecha 1 square forward and 1 square to the right or left. It costs 3 squares of movement.

Climbing and Diving

A mecha that is flying can use some or all of its movement to increase or decrease altitude as follows:

• Mecha has no stall speed

The mecha can use all of its movement to climb or dive, but if climbing each unit (foot, metre, or square) of distance counts as two units.

• Mecha has stall speed

The mecha can use any of its movement to dive, but can spend no more than 1/2 of its movement climbing, and each unit of distance counts as two units. It must move horizontally a distance equal to its Turn number between a climb or dive.

For example, if a mecha moving 1,000' (at high speed) could dive 500', move horizontally 40' (its turn number at High speed), then use the remaining 460' of movement to climb 230'.

Keep track of altitude with a note of the mecha's altitude in feet, metres, or scale squares. In practice, it is usually easiest if most mecha stay at the same altitude unless necessary.

If a mecha spends at least half its movement diving, and does not climb, on its next round its top speed is increased by up to double normal or by +1,000' (300 m), whichever is less. The mecha may not decrease its speed category, and may increase its speed by up to two categories (if its new top speed allows this). If a mecha spends at least half its movement climbing, and does not dive, on its next round its pilot may not increase its speed category.

A flyer that dives into the ground will crash. A flyer lacking life support cannot climb beyond the altitude where its crew can breathe, or so high that its engines (if they are air breathing) run out of oxygen.

• Underwater

A mecha that is moving underwater is treated as a mecha with no stall speed, but otherwise uses the same rules as a flyer, and keeps track of depth the same way. The speed increase while diving, however, is limited to double speed or +500' (150 m), whichever is less. It cannot climb above the surface, or safely dive below its rated dive depth.

Stunts

Stunts are manoeuvres that require a Drive or Pilot check to perform successfully. Unsuccessful stunts often result in the mecha ending up someplace other than where the pilot intended. When this happens, the mecha collides with any objects in its path. The check/roll modifier from the Mecha Speeds and Modifiers Table affects all Drive or Pilot checks made by the pilot and attack rolls made by all occupants of the mecha.

Avoid Hazard Stunt

When a mecha tries to move through a space and altitude occupied by a hazard, the pilot must succeed on a Drive or Pilot check to avoid the hazard and continue moving.

Structures larger than 5' (1.5 m) (one square) across simply cannot be avoided. Also, if a pilot cannot make a check (if he or she has used all of his or her actions for the round performing other stunts), he or she automatically fails to avoid the hazard. In such cases, a collision occurs.

The DC to avoid a hazard varies with the nature of the hazard.

Table 3-4: Typical Hazards

Hazard	DC	Note
Caltrops	15	Usually only for ground mecha
Mines	15	Usually only for ground or water mecha
Oil slick	15	
Object		
Small (tire, light debris)	5	
Medium-size (crate)	10	
Large (pile of wreckage)	15	
Building	-	Cannot be avoided

On a failed check, the mecha hits the obstacle. For caltrops or a mine field, this means they make an attack against the mecha. An oil slick forces the drive to make a Drive or Pilot check (DC 15 plus a

modifier based on the mecha's speed category equal to the Defence Modifier) to retain control of the mecha (see Losing Control). Failing to avoid an object results in a collision with the object (see Collisions and Ramming).

Bootlegger Stunt

This is a stunt manoeuvre that allows a mecha moving on land to radically change direction without turning. In so doing, however, the mecha comes to a stop. Before a mecha can make a bootlegger, it must move in a straight line a distance equal to its turn number; it may not make a bootlegger at extreme speed.

Table 3-5: Bootlegger Stunts

Facing Change	DC
45 degrees	5
90 degrees	10
135 degrees	15
180 degrees	20

To resolve a bootlegger turn, simply change the mecha's facing to the desired direction. The mecha ends its movement in that location, at stationary speed. The DC for a bootlegger depends on the change in facing. On a failed check, instead of facing the desired direction, the mecha only changes facing by 45 degrees. Make a Drive check to retain control against a DC equal to the DC for the bootleg turn attempted (see Losing Control).

Hard Brake Stunt

With a hard brake stunt, a pilot can reduce the mecha's speed by up to two categories if on land or one category otherwise. This can represent anything from slamming on the brakes in a ground mecha to throwing out an anchor in a watercraft or a controlled stall with an airplane. This is in addition to any speed change made at the beginning of his or her action. The mecha's movement for the round ends as soon as it has moved the minimum distance for its new speed category. If it has already moved that far before attempting the hard brake, it ends its movement immediately. The DC for a hard brake is 15. On a failed check, the mecha does not change speed categories. Make a Drive or Pilot check (DC 15) to retain control (see Losing Control). If performed by a flying mecha, a successful hard brake

automatically results in a loss of altitude equal to the mecha's turn number.

Hard Turn Stunt

A hard turn allows a mecha to make a turn in a short distance without losing speed. A hard turn functions like a 45-degree turn simple manoeuvre, except that the mecha only needs to move forward a distance equal to half its turn number (rounded down). The DC for a hard turn is 15.

On a failed check, the mecha continues to move forward a number of squares equal to its turn number before turning, just as with a simple 45-degree turn. Make a Drive or Pilot check (DC 15) to retain control (see Losing Control).

Jump Stunt

The pilot of a mecha moving on land or water can attempt to jump his or her mecha across a gap. To make a jump, the mecha must move in a straight line a distance at least equal to its turn number. If the mecha doesn't have enough movement left to clear the gap, it must complete the jump at the start of its next turn. The DC for a jump depends on the width of the gap, modified by the mecha's speed category. On a failed check, the mecha fails to clear the gap, and instead falls into it (or collides with the far side). Determine damage as for a collision (see Collisions and Ramming).

A shallow gap (1 to 3 feet deep) is equivalent to a Medium-size object; the mecha may be able to avoid taking collision damage from the failed jump by treating the far side as a hazard and then continue moving (see Avoid Hazard).

Table 3-6: Jump Stunts

Gap	Width Sample	DC
1-3' (1 m)	Ditch	15
4-8' (2 m)	Culvert	20
8-15' (3-5 m)	Creek, small ravine	25
16-25' (6-8 m)	Narrow road, small pond	35
26-40' (9-13 m)	Wide road, small river	45

Table 3-7: Mech Speed Jump Modifiers

Mecha Speed Category	DC Modifier
Slow speed	+10
Tactical speed	+5
High speed	+0
Very high speed	-5
Extreme speed	-10

A moderately deep gap (4 to 10 feet deep) is equivalent to a Huge object. The mecha can only drive out of the gap if the walls are not too steep.

A deeper gap (11 feet or deeper) is equivalent to a Colossal object. The mecha can only drive out of the gap if the walls are not too steep.

If the gap is filled with water, the mecha takes only half damage from the collision with the surface. If the water is too deep or the bottom is too soft (GM's discretion), the mecha might not be able to move.

Sideswipe Stunt

During a mecha's movement, a pilot can attempt to sideswipe a target, either to deal damage without fully ramming it or to cause another pilot to lose control of his or her mecha.

At abstract or character scale, a mecha must be side by side with its target (in character scale, occupying the square or squares directly to its side) and moving in the same direction. Attempting a sideswipe costs 5', 1.5 m, or 1 square of movement.

At chase scale, the mecha must be in the same square as its target and moving in the same direction. There is no movement cost.

If the stunt is successful, both mecha take damage as if they had collided (see Collisions and Ramming), except that the collision multiplier is 1/4, and the pilot of the target mecha can make a Reflex save (DC 15) to reduce the damage to both mecha by half of that result. The pilot of the sideswiped mecha must succeed at a Pilot or Drive check (DC 15) at the beginning of his or her next action or lose control of the mecha.

The DC for a sideswipe is 15. It's modified by the relative size and speed of the target.

On a failed check, both mecha take damage as though the sideswipe attempt was a success. The other pilot does not need to make a check to retain control, however.

Table 3-8: Sideswipe Stunts

Target Condition	DC Modifier
Each size category larger	-5
Each size category smaller	+5
Each speed category of difference	-2

Stalling

A flying mecha will stall if, at the end of a round, it has not moved faster than its stall speed (see Stall Speed Defect). Some mecha have no stall speeds; they will never stall.

If a flying mecha starts its round in a stall, the pilot must make an immediate DC 15 check to avoid losing control (see Losing Control). Even if the pilot avoids losing control, the mecha cannot perform any manoeuvres or stunts other than to Dive, although he or she may alter the mecha's speed. It pulls out of its stall if it can end the round having moved faster than its stall speed. If not, next round the effects are the same — a check to avoid losing control, and the same limitations.

Collisions and Ramming

A collision occurs when a mecha strikes another mecha or a solid object. When a mecha collides with a creature or other moving mecha, the target can attempt a Reflex save (DC 15) to reduce the damage by half. These rules are applicable to mecha whether moving as characters or as vehicles.

Resolving Collisions

The base damage dealt by a mecha collision depends on the speed and size of the objects involved. Use the highest speed and the smallest size of the two colliding objects and refer to the Collision Damage Table (below).

After finding the base damage, determine the collision's damage multiplier based on how the colliding mecha struck the other mecha or object. For mecha moving in reverse, consider the back end to be the mecha's "front" for determining the collision multiplier. Consult the Collision Direction Table for a multiplier.

Once the damage has been determined, apply it to both mecha (or objects or creatures) involved in the collision. Both mecha reduce their speed by two speed categories if they are within one size class of one another. If one is two or more size classes larger its speed is unaffected but the other loses 3 speed categories.

If the colliding mecha moved the minimum distance for its new speed category before the

Table 3-10: Collision Damage

Highest Speed	Damage Die Type
Slow speed	d2
Moderate speed	d4
High speed	d8
Very high speed	d12
Extreme speed	d20*
Smallest Object / Creature Size	Number of Dice (+ adds)
Colossal	20
Gargantuan	16
Huge	12
Large	8
Medium	4
Small	2
Tiny	1
Smaller than Tiny	0

* If speed is over 10,000' (3,000 m), add +1 per die, or if over 20,000' (6,000 m), add +2 per die, or if over 30,000' (9,000 m), add +3 per die, and so on.

Table 3-10: Collision Direction

Colliding Mecha's Target	Multiplier
A stationary object	x 1
A moving mecha, striking head-on or 45 degrees from head-on	x 2
A moving mecha, striking perpendicular	x 1
A moving mecha, striking from the rear or 45 degrees from the rear	x 1/2
A mecha being sideswiped (see Sideswipe)	x 1/4

collision, it ends its movement immediately. If not, it pushes the other mecha or object aside, if possible, and continues until it has moved the minimum distance for its new speed category.

Example: A huge mecha smashes into a gargantuan mecha at extreme speed. The damage is 12d20 if the speed was 10,000/3,000m or less. If it took place at a speed of, say, 27,000', it would be 12d20+12. Each loses 2 speed classes.

The pilot of the mecha that caused the collision must immediately make a Drive or Pilot check (DC 15) or lose control of the mecha (see Losing Control, below). The pilot of the other mecha must succeed on a Drive or Pilot check (DC 15) at the beginning of his or her next action or lose control of his or her mecha. Exception: a mecha that was large enough that it did not lose speed does not make a collision check.

Collision Damage to Mecha Occupants

When a mecha takes damage from a collision, its occupants may take damage as well. The base amount of damage depends on the cover offered by the mecha.

No Cover: Same as damage taken by mecha

One-quarter cover: One-half damage taken by mecha

One-half cover: One-quarter damage taken by mecha

Three-quarters cover: One-tenth damage taken by mecha.

Nine-tenths cover or more: No damage.

If individuals are not strapped in, increase damage one category (no extra increase if no cover).

If half cover or less, each of the occupants may make a Reflex save (DC 15) to take half damage. If 3/4 cover or more, they get a Fortitude save (DC 10) to take half damage.

Losing Control

A collision or a failed stunt can cause a pilot to lose control of his mecha. In these cases, the pilot must make a Drive or Pilot check to retain control of the mecha. If this check is successful, the pilot maintains control of the mecha. On a failure, a mecha on land or water goes into a spin, or a roll/capsize if it fails by 10 or more; a mecha in the air or underwater inadvertently veers off course by 45 degrees to right or left (roll randomly) and loses altitude or depth, or if it fails by 5 or more, suffers a tailspin. Remember that the check/roll modifier from Mecha Speeds and Modifiers Table applies to all Drive or Pilot checks.

An out-of-control mecha may strike an object or other mecha. When that happens, a collision occurs (see Collisions and Ramming).

Veer and Depth/Altitude Loss

Roll 1d6. On a 1-3, it veers 45 degrees right; on a 4-6, it veers 45 degrees left. It may not make other manoeuvres this round, and loses depth or altitude equal to its current turn number and may not voluntarily increase speed next round unless required by diving. The sudden loss may cause it to crash or run aground.

Spin or Tailspin

At character or abstract scale, a mecha spinning on land, water, or in space moves in its current direction a distance equal to the turn number for its speed, then ends its movement if on land or water. At chase scale, the mecha moves 1 square and ends its movement. Once it stops, roll 1d8 to determine its new facing:

Reorient the mecha accordingly. Exception: A colossal mecha, such as a ship, has too much momentum to spin around completely. Roll 1d6. On a 1-3 it turns right 45 degrees; on a 4-6 it turns left 45 degrees. Other effects are the same.

If the mecha is flying or underwater, the mecha goes into a tailspin, continuing on the same course but diving vertically at its maximum rate and spinning about its axis; make a Pilot or Drive (DC 15) check at the start of each

round to recover; failure means it continues to dive out of control and can make no other manoeuvres, nor attack. When the mecha pulls out, roll 1d8 to determine direction as above. A mecha in a tailspin loses all defence bonuses from the pilot's Dex, Feats, and Levels.

Roll, Fall, or Capsize

The mecha may tumble, taking damage. This is referred to as "capsizing" if a mecha is on water.

At character scale, the mecha rolls in a straight line in its current direction for a number of squares equal to the turn number for its speed, then ends its movement. At the end of the mecha's roll, reorient the mecha perpendicular to its original direction of travel (determine left or right randomly). At chase scale, the mecha rolls one square before stopping and reorienting.

At either scale, a mecha takes damage equal to 2d6 x the turn number for its speed (using the 5' Square column values). The mecha's occupants take damage equal to 2d4 x the turn number for its speed (Reflex save, DC 15, for half damage).

Anyone not inside or strapped into a rolling or capsizing mecha will also fall off.

After a mecha rolls or capsizes on the ground or water, roll 1d6. On a 1-3 it right-side up and (if not disabled) can continue to operate normally. On a 4-6 it is upside down. If it is a giant robot, it can right itself using its arms (if not disabled). Otherwise, it is effectively out of action, unless it can fly.

A mecha which rolls in a situation that could cause it to topple off a cliff, into a ravine or similar, forces the pilot attempt a Reflex save (DC 25) to avoid falling all the way down. The mecha will sustain damage as above, plus an additional 1d6 damage for each 15'/5 m fallen.

Other Mecha Movement Activities

These activities can be used in combat, during chases, etc., whether using abstract, character, or chase scale.

Hide and Seek

When being pursued, a pilot can attempt a Hide check to lose the pursuer in heavy traffic, complex terrain or clouds, or a Bluff check to misdirect the pursuer before a sudden change of direction (such as turning onto an off-ramp or a side street, canyon, etc.). "Hide and seek" tactics are generally useless in any type of open country, at high altitude in good weather (or if your foe has radar, etc.), in deep space, or at sea.

To make a Hide check, use the normal rules for hiding (see the Hide Skill description). The normal size modifiers apply, but if the pilot is hiding among other mecha, most of which are size Large or Huge, he or she gains a +8 bonus on the check. This use of the Hide Skill can only be attempted in heavy traffic or very complex terrain (such as a jungle, thick forest, mountains, or cinematic asteroid belt); in lighter traffic, the GM might not allow it or might apply a penalty to the check.

A pilot can use Bluff to make a pursuer think he or she is going a different direction from what the pilot intends. This usually works only in urban driving situations, but it could also apply if flying through a maze of canyons or the like. Just before making a turn onto an off-ramp, side street, or side canyon, make a Bluff check opposed by the pursuer's

Table 3-11: Spin or Tailspin Facing

Dic Roll	Facing
1	no change
2	right 45 degrees
3	right 90 degrees
4	right 135 degrees
5	180 degrees
6	left 135 degrees
7	left 90 degrees
8	left 45 degrees

Sense Motive check. If the pilot is successful, the pursuer takes a -5 penalty on any Drive check needed to make the turn to follow the pilot. If the other pilot can make the turn using only simple manoeuvres and does not have to make a Drive check, the Bluff attempt has no effect.

Fighting from Mecha

The following rules provide a further framework for combat involving mecha.

Mecha Combat Actions

Actions during mecha combat are handled the same way as actions during personal combat. A character can take two move actions, one move action and one attack action, or one full-round action in a round. Free actions can be performed normally, in conjunction with another action.

Free Actions

Communicating orders and ducking down behind a door are examples of free actions. Characters can perform as many free actions as the GM permits in a single round.

Move Actions

Changing position within a mecha is usually a move action, especially if the character has to trade places with another character. If the character's movement is short and unobstructed, the character can do it as the equivalent of a 5-foot step. Otherwise, it requires a move action.

Attack Actions

Anyone aboard a mecha can make an attack with a personal weapon, and pilots and gunners can make attacks with any mecha-mounted weapons controlled from their positions.

Full-Round Actions

Since the pilot must use a move action to control the mecha, he or she can't take a full-round action unless he or she starts it in one round and completes it on his or her next turn (see Start/Complete Full-Round Action in the PHB).

Attack Options

Firing a mecha's weapon requires an attack action and uses the pilot's or a gunner's ranged attack modifier.

A pilot with 5 or more ranks in the Drive or Pilot Skill gains a +2 synergy bonus when firing fixed forward-firing mecha-mounted weapons while driving.

Some military mecha are equipped with targeting systems, such as computers. These systems grant equipment bonuses on attack rolls with the mecha-mounted weapons to which they apply.

Manoeuvre Defensively

Just as in melee combat, one can manoeuvre defensively while controlling a mecha. This option, usually called "evasive action," grants a +2 dodge bonus to the mecha's Defence and applies a -4 penalty on attack rolls made by occupants of the mecha.

Total Defence

A pilot can choose the total defence action, which grants a +4 dodge bonus to Defence but does not allow the pilot to attack (gunners or passengers take a -8 penalty on attack rolls). These modifiers last until the pilot's next round of actions.

Full Attack Action

A pilot cannot normally make a full attack, since controlling the mecha requires a move action. Gunners or passengers, however, can take full attack actions, since they don't have to use a move action (except, perhaps, to change positions in the mecha). Taking a full attack action is useful only if a character has a base attack bonus high enough to get multiple attacks. A passenger can make multiple attacks with his or her own weapon. A gunner can make multiple attacks with one or more weapons controlled from his or her position.

Targeting Mecha

An attack made against a mecha uses the mecha's Defence, modified by its speed category and any appropriate feats or class abilities (see Chapter 1).

Attackers can choose instead to target specific mecha occupants. An attack against a mecha occupant is made like any other attack. Remember,

however, that a character in a mecha gains bonuses to Defence from both the mecha's speed and any cover it provides.

Cover and Concealment

When a character fires from a mecha, objects or other mecha in the way can provide cover for the target. Use the normal rules for cover, bearing in mind the size of the mecha. Thus, a medium-sized suit could take cover behind a tree, but a huge giant robot could not. A few specific considerations:

- Concealment vs. Sensors

Concealment is ineffective if sensors used by the attacker can see through it. For example, normal smoke is ineffective against radar or infrared, so provides it no concealment.

- "Hull Down" Vehicles

A common tactic for tanks and similar vehicles (or giant robots with weapons mounted in their heads) is to be "hull down" behind a ridge with only the turret or head exposed. This is 3/4 cover.

Damaging Mecha

All mecha have Hit Points. Like most inanimate objects, mecha also have Armour. Whenever a mecha takes damage, subtract the mecha's Armour to determine the HP loss.

Major System Damage

If a vehicle or giant robot takes damage from a critical hit, or any time it loses more than half its original Hit Points from a single attack, the GM can have it suffer major system damage: something important breaks.

Based on the type of damage, certain special abilities or weapons might stop working or be reduced in level. For example, a hit could completely knock out a mecha's Force Field or sensors, or a transformable mecha's body-morphing mechanism might be put out of action, leaving it stuck in its current form. A fuel tank could start leaking, giving the mecha only a few minutes to land before it runs out of gas. The GM should choose something that seems dramatically appropriate – sometimes system damage can even lead to further adventure, as a damaged mecha is

forced to stop for repairs or needs a particular part to bring things back on line.

Another way to determine system damage is to roll randomly. GMs can create specific damage tables for individual types of mecha. Alternatively, this universal table can be used:

Table 3-12: System Damage Table

d20 Roll	Vehicle or Giant Robot
19-20	Crew injury*
17-18	Special damage
13-16	Weapon hit
10-12	Engine hit
7-8	Passenger injury*
5-6	Cargo hit
1-4	Propulsion hit

* If a mecha suit, treat as special damage, since the wearer is automatically damaged anyway

.If a result cannot happen, the mecha suffers no extra effect. For example, a rowboat would be immune to most of the following results, because it is so simple it has little that can be damaged other than its structure.

Crew Injury

A key crew member aboard the mecha is directly in the path of any penetrating damage. He or she takes the same damage that the mecha sustained. This damage is halved on a Reflex save

(DC 15). If the mecha has multiple key crew members, roll randomly to determine who was hit.

Special Damage

One or more of the mecha's special abilities (sensor, communication device, airlock, etc.) is knocked out. The GM decides what was hit, or rolls randomly.

Engine Hit

The mecha's engine, battery, or power plant is knocked out. The mecha must decelerate one speed category each turn until it reaches stationary speed. If in space, it will simply drift at its current speed. If this is not appropriate, the GM decides what happens. For example, a chariot's yoke might snap, or a ship's main mast could fall.

Propulsion Hit

The mecha's ability to manoeuvre is damaged. This may represent a flat tire, damaged leg, hydraulics rupture, fallen rigging, etc. The mecha is at -4 on all

manoeuvring checks. In addition, its pilot must make an immediate check (as if making a Stunt, at the -4 penalty above) to avoid loss of control.

Passenger Injury

As Crew, above, but to a random passenger.

Cargo

Part of the cargo is damaged; this could include any smaller mecha carried aboard. The GM determines the effect, usually applying the damage to an item carried. Note that if the mecha is carrying bulk cargo (such as a load of grain) a cargo hit will usually have no effect.

Weapon Hit

The mecha's main weapon is knocked out. If it has a number of weapons, roll randomly.

Option: Hit Point Transference

For characters, high Hit Point totals represent luck and skill as much as they do increased durability. Consequently, if a mecha takes damage, its pilot may voluntarily choose to take some of the damage to his or her own Hit Points instead of the mecha's, providing this does not reduce his or her Hit Points below his or her Constitution score. In games that split Hit Points into vitality and wounds, the pilot may use his vitality.

Example: A 10th Level Mecha Pilot with Con 11 and 50 Hit Points owns a fighter jet with 40 HP. Obviously, the pilot isn't tougher than 10 tons of steel — he's just luckier, and some of that luck can transfer over to his machine. In a dogfight, his fighter is hit by a radar-homing missile and takes 55 points of damage after Armour. Bad news! But the pilot isn't blown out of the air — instead, he decides to take 39 points of damage to himself (reducing his HP to 11 ... he can't drop them any lower than his Con); the remaining 21 points of damage are applied to the mecha, which drops to 24 Hit Points. Damaged, but flyable.

Damage Types and Mecha

Mecha are immune to subdual damage, but unlike ordinary constructs, can suffer critical hits.

Mecha take half damage from acid, fire, and lightning attacks unless they have a Defect that

indicates their vulnerability. Divide the damage by 2. Cold attacks deal 1/4 damage to mecha.

Apply these multipliers after Armour.

Mecha Suits and Damage

If a mecha suit takes damage, the wearer of the suit takes the same damage. This is because a suit (unlike a vehicle or giant robot) is form-fitting. An attack may kill or disable the wearer without doing the same to the suit, in which case someone else could salvage the suit. It might disable the suit while the wearer still has HP left, in which case he or is trapped in it until it is removed.

Fires

If a mecha loses 10 or more Hit Points due to fire or explosion, it will catch fire if it fails a fire save. The fire save DC is 10 + the damage inflicted. The mecha has no bonus to this save attempt — simply roll 1d20. Mecha that have the Volatile Defect automatically catch fire. If it catches fire, it suffers 1d10 damage each round until extinguished; the mecha's Armour does not protect it. If a 10 is rolled when determining the amount of damage suffered, the fire grows in size: add another fire.

Anyone occupying a mecha that is on fire is considered exposed to the fire and must make a Reflex save to avoid taking 1d6 damage: the DC is 20 if the mecha is large, 18 if huge, 16 if gargantuan, or 12 if colossal. If the mecha is medium-sized or a suit they are wearing, they cannot avoid the damage.

Characters may try to fight a fire instead of avoiding it. This is a DC 15 Reflex save. Success puts the fire out.

Disabled Mecha

When a mecha is reduced to 0 Hit Points or less, it is disabled. Although it might be repairable, it ceases functioning. The effects depend on the type of mecha, and its situation:

When disabled, weapons, special abilities such as sensors (excluding Ejection Seats), and exotic abilities such as Force Fields no longer function (or are frozen in the current form, for something like Transformation). If the mecha carries smaller craft (life pods, fighters, etc.) each still works on a roll of 1-4 on 1d6.

A mecha may explode if it has the Volatile Defect.

Disabled on the Ground

A vehicle drops one speed category each round until it comes to a stop or hits something. The pilot cannot attempt any manoeuvres except a 45-degree turn.

A giant robot or suit trips and falls over. It tumbles, losing two speed categories per round, and taking half normal collision damage each round until it stops or hits something.

Disabled in the Air

A disabled airborne mecha drops one speed and approximately 1,800' (550m) each round (unless diving enough to force an increase in speed, in which case there is no change) until it is stationary or stalls, then it falls from the sky. The pilot cannot climb, nor attempt any manoeuvres except a 45-degree turn or a dive.

Disabled in the Water

A mecha moving on the water drops one speed category each round until it comes to a stop. The pilot cannot attempt any manoeuvres except a 45-degree turn.

The mecha will also take on water and start to sink. The mecha takes 1d6 points of flooding each round. When the flooding reaches (2 x total HP — the positive value of the current HP) the mecha will sink, or if a submarine that is underwater, will be unable to surface, and continue to sink.

Example: A mecha that had 120 HP is reduced to -17 HP. It is disabled and sinking. Each turn, it takes 1d6 points of flooding. When the flooding reaches (120-17) 103 points, the mecha will sink.

A sinking mecha drops at a rate of at least 50'/15 m per round until it hits bottom, or breaks up due to pressure. Occupants will start to drown, unless they escape and make it to the surface, or can survive underwater. Occupants inside a large vessel may take several rounds to escape; if the vessel has sunk deep enough, they may be unable to escape due to water pressure without special gear. This is up to the GM.

If a colossal-sized vessel sinks, it may suck people on deck or nearby swimmers down with it. This

affects a radius equal to the mecha's longest dimension. Anyone in that radius must make a DC 15 Swimming check, to which they may add their Strength bonus; failure means that they go down with the ship.

Disabled in Space

A mecha that is disabled in space will continue drifting in the same direction at whatever speed it had before it was disabled. If it is disabled in a low orbit, its orbit may decay in minutes or hours.

This assumes "realistic" physics. If the mecha was using some form of dramatic drive or faster-than-light drive that defies normal laws of motion, it may come to a dead stop, slowly decelerate (as if an aircraft), drop out of hyperspace, or whatever; it all depends on how the drive works in the GM's campaign.

Destroying Mecha

Mecha don't "die" when they reach -10 Hit Points. Instead, a mecha is destroyed when it loses Hit Points equal to twice its full normal total. A destroyed mecha cannot be repaired.

Repairing Mecha

Repairing damage to a mecha takes a full hour of work, an appropriate tool kit (mechanical tools for most modern mecha), and a garage, workshop or some other suitable facility. Without tools, a character takes a -4 penalty on his or her Repair check. At the end of the hour, a successful Repair check (DC 20) restores 2d6 Hit Points; failure repairs nothing. If damage remains, the character may continue to make repairs for as many hours as it takes to restore all of the mecha's Hit Points.

Very large mecha may require extra time to repair. Multiply repair time by x2 for huge, x4 for gargantuan, or x8 for colossal mecha.

Wrecking Buildings

Characters can hit buildings automatically with melee attacks. Buildings should be given Hit Points and Armour depending on their size and construction.

If the building is reduced to 0 or fewer Hit Points, it is wrecked and systems in it (power, phone lines,

etc) stop working; if it drops to its total Hit Points below zero, some parts of it collapse.

Table 3-13: Wrecking Buildings

Type of Building	Size	HP	Armour	Collapsing Damage
Phone Booth	Large	20	2	1d6+4
Wood Shed	Huge	40	4	2d6+8
Outdoor Garage, Bungalow	Gargantuan	60	6	3d6+12
Concrete bunker	Gargantuan	80	20	4d6+40
Large house	Colossal	100	10	5d6+20
Small office building	Colossal	120	14	6d6+28
Mid-sized office building	Colossal	160	16	8d6+32
Fortress, large skyscraper	Colossal	240	24	12d6+48

Anyone in or adjacent to a collapsing building takes damage equal to 1d6 for every 20 Hit Points the building possessed originally plus 2 per point of Armour. A DC 15 Reflex save to leap out a window or find an appropriate structural member to shelter under may negate or halve damage if the GM feels it is possible.

Wooden buildings count as having the Flammable Defect. A villain's secret base is usually Volatile.

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