STARFLEET MARINE CORPS

MECHA MANUAL

2006 EDITION

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Mecha Manual

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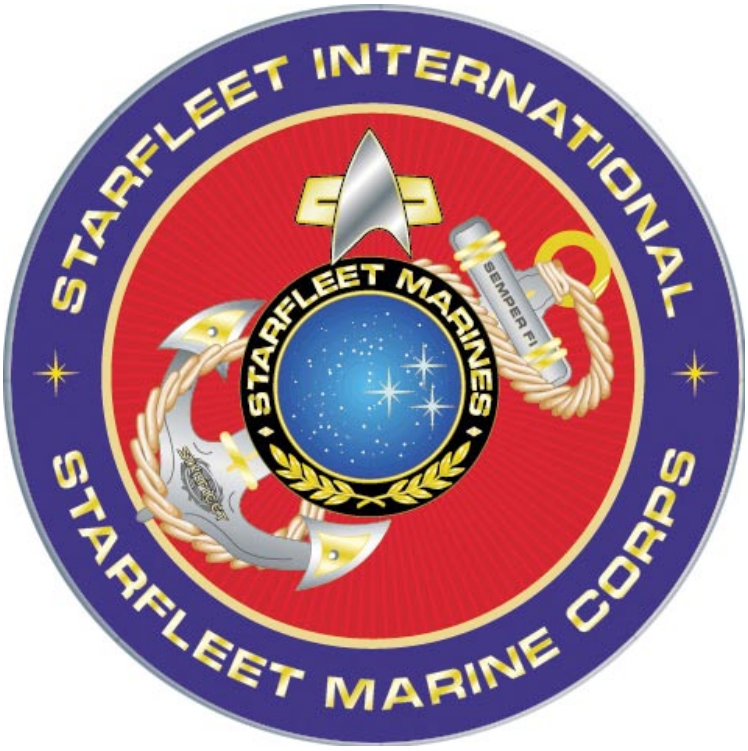

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Part 1 - Introduction

Welcome Aboard!
Welcome to the 3rd revision of the Mecha Branch Guidebook of the STARFLEET Marine Corps (SFMC). This publication is intended primarily for members of the SFMC, which is a component of STARFLEET, The International Star Trek Fan Association, Inc. (SFI). However, anyone with an interest in our part of the Star Trek universe is invited to look and learn.

This manual was created for members of the SFMC, their friends, and others with an interest in the Mecha Branch concept of Star Trek as it is applied by the SFMC. It is intended to serve as a handy reference work for members of the Mecha Branch. It covers the equipment, techniques, missions, and organization of the SFMC Mecha Branch. In short, it is a one-book source for the new Mecha member wherein they can get the information they need to know to role-play as a member of the Mecha Branch.

The majority of this work is obviously fictional in nature, but the references to uniforms and insignia of the SFMC are accurate. It is intended to provide a source of "background material" for members of the SFMC Mechal Branch, and/or anyone interested in the concept of the Mecha Branch in the 24th century. It is not intended to be the last word on the subject, however, as branch material is constantly being revised, upgraded and updated by the members of the branch themselves.

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Any images, statistics, or other data was obtained from public domain web sites. Persons wishing to play the SFMC Mecha combat detailed within will need a Battletech rule book to do so. Hope this makes you guys at WizKids happy, because your game has definitely done that for us.

Pronoun Disclaimer
In this manual, "he", "him", and "his" are used following the standard English-language grammatical convention to use these forms for gender-nonspecific pronouns. No sexist bias is intended. The convention is used merely for ease of writing and reading. There have been and hopefully always will be plenty of female members in the SFMC, and no slight to them is intended.

Acknowledgements
This edition of the Mecha Manual is only the latest in several versions of this important reference of which many fine folks have had a hand in shaping. Bill West and Matt Kelley have carried some of the material found in this manual over from the 1997 edition. Jeffrey Webb has carried over additional information found in this manual from the 2001 edition. The writer of this manual would also like to thank Kyle Wolf, Paul Williams, and the other members of the Mecha Council for their help.

Origin of the term "Battle Mecha"
FASA Corporation produced the extremely popular wargame BATTLETECH ®, which commonly uses the term "Mech". To avoid any infringement of copyright or trademark, the STARFLEET Marine Corps has chosen to use the more generic terms of "Battle Mecha" and "Mecha" to denote our equipment. Mecha is the generic term for any large, generally humanoid machine, either robotic or manned. It comes from the Japanese film genre known as `anime'.

How did Battle Mecha get into the Star Trek universe?
Many of the members of the STARFLEET Marine Corps play wargames and role-playing games (RPGs) like the aforementioned game by FASA/WizKids. Since we are a fan club, whose goals are fun and community service, it was decided to accommodate the fans of the "Mecha" genre. So although you will probably never see them in the movies or television series, Mecha have been fully integrated into the STARFLEET Marine universe, as you will see as you read this manual.

Reporting Authority
The governing authority for training information is the Commanding Officer, Training and Doctrine Command (COTRACOM). Send questions, comments, or suggestions to: **Tracom@sfi-sfmc.org**

Part 2 - Story: "Big Iron"

Smoke filled the air, burning the lungs of the young platoon leader crouching behind the rubble and lumber barricade. The unmistakable whine of disrupter weapons competed with the deeper hum of phaser rifles and continuous explosions, creating a mind numbing clamor. Someone was screaming in the background, a high wailing sound of agony. Lieutenant Walker knew he should do something, but it was difficult to think.

They had moved in on the rebel supply dump, expecting only limited resistance. Instead of a handful of poorly armed and trained civilians, however, they had found the first proof of Cardassian involvement in the civil war. A company of Cardassian troops and heavy weapons, definitely not poorly armed or poorly led.

The Cardassians had opened fire from cover, killing or wounding over half of the marine platoon in the first few seconds. Taking cover, the marine platoon sergeant had directed the defense, until a sniper had vaporized the upper half of his torso. Pinned down, the marines were in serious trouble.

Crawling over to the platoon sergeant's corpse, the Lieutenant dragged the commo gear loose. Trying not to notice what was smeared on the dials, he activated the secure channel.

"This is Gamma Three Six, Flash Traffic, break," he said. The odds of anyone actually picking up the call were slim, but the repeater satellite in orbit would receive the message.

A permanent record of what happened to my platoon, he thought. Behind him, the screaming abruptly stopped, silenced by the sharp blast of a missile exploding. He hunched farther over the radio as the tempo of disrupter fire increased. *Getting ready to charge*, he realized.

Drawing his sidearm and worming himself into a corner, he continued speaking into the handset. "This Gamma Three Six. We are under heavy fire from Cardassian troops. We are unable to withdraw and the enemy is all over the platoon area. I have greater than fifty percent casualties at this time, and we are about to be overrun. Over".

"Gamma Three Six, this is the USS High Frontier. We've just arrived in orbit, and are standing by to assist. Can you direct a phaser barrage from your location? Over."

Lieutenant Walker stared at the handset, momentarily stunned by the reply. It was only after the voice repeated itself again that he snapped out of it. "Negative," he shouted, "I can't tell where my people are and where the bad guys are! Can you get a transporter lock on us and get us out of here? Over."

"Negative, Three Six. Too much energy wash from all that firing. I can barely lock onto your signal as it is." The voice was apologetic.

Walker noticed someone ducking into a doorway down the street. He thumbed the safety off his phaser pistol and held his breath. A Cardassian trooper charged out of the doorway and rushed towards him, firing his disrupter rifle. The beam from Walker's combat phaser caught him in the knees and he went down. As the trooper

rolled over and tried to get to his feet, Walker shot him again, this time in the head. He went down and stayed down this time. Unfortunately, someone had noticed, and now disrupter beams began chewing away at the barricade. Lieutenant Walker dived back into the corner and fumbled with the handset. The voice was back, asking about a clear area to land a shuttle.

"A shuttle? They'll blow you away if you try to land one here," he warned.

"Negative Three Six, we just need an area big enough for one. Do you copy, over?"

A missile slammed into the barricade behind him, half stunning him. He squeezed the handset so hard it seemed it might break. "There's a road intersection fifteen meters north of my location. Whatever you're going to do, you better—"

The grenade landed a few meters away and rolled towards him. He dropped the handset and kicked the grenade into a storm drain. The blast flung him backwards over the barricade into the street, crushing the wind out of him. He struggled to get up, and fell back as a sharp pain in his leg told him it was broken. He saw more Cardassians charging up the street towards him and felt around for his phaser. It was gone. He drew his combat knife and gritted his teeth. As he struggled to get up onto one knee, the Cardassians stopped running and dropped into firing stances. Then everyone seemed to pause, and he heard a familiar sound.

A transporter effect?

A big one!

A huge shadow fell over him and he twisted awkwardly around to see what had caused it. He stared back, then up and up. *A machine, maybe a robot of some kind,* thought the Lieutenant. It was massive, easily twice that of a tank, and one of it's feet was taller than the kneeling figure beside it. It was tall, ten meters at least.

No, not a robot. There's a cockpit of some kind high up on top, where the head should be. He looked so far up that he fell over onto his back with a gasp of pain as his leg twisted. That seemed to break the spell of inactivity on the battlefield, and the Cardassians opened fire.

The armored giant crouched in a blur of motion, and whipped a hand down between the injured man and the incoming fire. Walker could see into the cockpit as the machine loomed closer to him. The pilot nodded to him as he spoke into a headset. Painted below the nose of the cockpit were the words "Big Iron".

"Lieutenant," boomed a speaker on the torso, "let me give you a hand."

Closing the hand around him, the Mecha lifted him gently into the air. There was a crunch as the concrete under it's feet pulverized. It stood and placed him on a nearby rooftop and then turned to face the enemy.

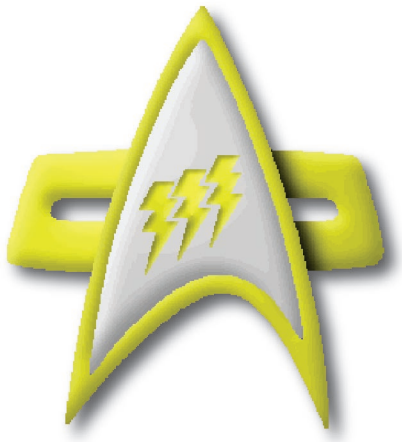
Striding forward, it lifted an arm and pointed at a building down the street. A beam of searing light flashed out and struck a Cardassian sniper position. An instant later, all that remained was a cloud of superheated plasma and chunks of blistered concrete. Without pausing, the Mecha continued walking down the street, scattering or crushing the enemy troops under foot. Panels slid open on the shoulders and a flight of missiles roared out. Streaks of smoke lanced down the

avenue into a fortified bunker, ripping it open with thundering effect. Halting at the next intersection, the Mecha paused to acquire more targets. The transporter effect shimmered again, and another Mecha materialized. Moments later, the Cardassians threw down their rifles and began surrendering.

The building trembled as the first Mecha returned to stand in front of Lieutenant Walker. The pilot gave a jaunty salute, and his voice came out through the torso speaker again.

"Sorry I'm late, sir. I had to get dressed for your party."

Part 3 - History and Traditions



History of Battle Mecha

The Battle Mechanized Enhanced Combat Heavy Armor program (Battle M.E.C.H.A.) was proposed in 2340 to cover a theoretical gap in the STARFLEET Marine Corps' force composition. Unsupported infantry (even in powered armor suits) were often insufficient to accomplish the tactical mission, and armored vehicles were unavailable or unsuited to the terrain. The proposal was for a mobile weapons platform that could cover rough terrain better than existing armored vehicles, but still be armed and armored enough to survive direct combat, even unsupported. After much research and development, the first prototype Battle M.E.C.H.A. was produced. Initial tests proved to be very encouraging, and plans were made to improve and upgrade the prototype. Unfortunately for the designers, it was about this time that the famous Camp Khitomer peace talks began. In a show of good faith, military budgets were drastically reduced, and many programs were canceled or indefinitely postponed.

One such program was the Battle M.E.C.H.A. project, now in Phase II development. The prototype was shipped to a storage facility and the information filed away somewhere. For nearly six decades, it remained there while the Federation enjoyed a relative calm period. There were few, if any, problems with the Klingon empire, and no contact whatsoever was made with the Romulans for almost fifty years. In the late 2340's, relations with the Tholians and a newly encountered race known as Cardassians began to deteriorate. Eventually, war shattered the half-century peace, as armed conflict escalated between the Federation and those two alien races. While clashes with the Tholians were confined to space battles, and they eventually came to terms, the Cardassians were much more adept and willing to engage in ground combat. It became apparent that existing level of weapons technology in the Starfleet Marine Corps was not capable of bringing the war to a rapid conclusion. Priority was assigned to finding ways to enhance the combat effectiveness of established marine units. Among the many projects that were revived, the Battle M.E.C.H.A. prototype seemed most promising. It was uncrated, sent through a rapid three-week long refit program and once again passed the rugged testing trials. Full production was authorized, and in 2355 the designer's dreams became a reality. Twenty-five Mecha (as they became known) composed the first company deployed against the Cardassians.

Transport of the Mecha proved problematic, as their anthropomorphic shape took up an unprecedented amount of volume. The Mecha were eventually crated into a bulk cargo container and towed to Thetas Mina IV. This combat gave the first inkling

that the inclusion of Mecha, while a drastic advantage on the ground, would require support from the other branches. The USS Lejune was attacked by Cardassian aerospace assets, and only the quick response of an escorting SFMC Aerospace squadron saved the Mecha from being destroyed in orbit. Deployment was a simple affair, using scaled-up versions of the ablative cocoons used by SFMC Infantry. The Mecha literally 'dropped' from the belly of the cargo container toward the planetary surface. Once into the atmosphere, the cocoons broke up and allowed the Mecha to soft land thanks to the inclusion of jump jets built into their structures.

During combat, the Mecha demonstrated both their strengths and their weaknesses. Though effective against infantry and conventional armored forces, they were at a disadvantage against the Cardassian aerospace forces. Eighteen of the twenty five Mecha units sent into combat survived that battle, and when the data was analyzed, designers went back to the drawing boards and began implementing a number of changes in the next set of Mecha produced. It is from this second generation of Mecha that the current variety of units is derived. The original eighteen units are still on duty to this day, serving as an elite honor guard outside the Mecha Training Center on Mars. In 2366, Mecha units and Special Operations teams cooperated to disrupt a Cardassian offensive known as "Operation Hammer". Clandestine units of the SFMC, known as OMEGA units, had discovered the Cardassian plans in advance and passed the information on. Literally hours before the Cardassian offensive was scheduled to begin, Mecha units were inserted from orbit with instructions to destroy enemy supply and assembly areas.

As Mecha units rampaged through the closely packed vehicles and buildings, SFMC Special Operations forces took out Cardassian command and control units, while Starfleet naval vessels attacked the Cardassian fleet elements. Unable to call for orbital fire support and lacking their usual communications and coordination, the Cardassian units that actually fought back were unable to do much damage in such confined terrain. Operation Hammer was a failure, before it ever got started. When the Federation forces withdrew, the bulk of Cardassian material and manpower was in ruins. When the truce that ended the war was signed in 2367, Mecha had become a formal branch component of the Starfleet Marine Corps.

SFMC R&D had almost a decade before new threats materialized to cause the need for new and improved Mecha designs. By the time Starfleet was ramping up appropriations for research into the Borg threat, the third generation of SFMC Mecha were ready to be field tested. Since the Borg very seldom fought overland, the funds the Mecha project received were not as much of a windfall as other research areas received, but the appropriation was enough to establish a dedicated research facility at New Macross. The Fokker Research Facility began immediately to 'tweak' the designs R&D put forth for the Third Generation of mecha, and contracted local industry at New Macross to produce prototypes.

It became obvious to the R&D team that there were cultural design biases present in the Mecha engineer teams. The Andorian designers favored large, heavily armored Mecha as can be evidenced in their 'Bigfoot' and 'Bigfoot' designs. The Daa'vit team members advocated quadruped Mecha, theorizing that the four-legged stance would allow for much greater stability as a gunnery platform. Their 'Crabgunner' and 'Blizzard Gunner' models, while strangely named by a quirk of translation, have proven to be excellent platforms for long-range weapons fire. Bolian designers added the reverse-articulated knee joint concept, which has produced some of the most effective Mecha units to date, such as the superlative 'Strider' reconnaissance Mecha and the devastating 'Glaug' Heavy Combat Mecha.

As more and more Mecha designs made their way to the prototype and limited production stages, it was increasingly apparent that the designs were also becoming much more specialized. Some Mecha were leaving the drawing board without hands, and the Daa'vit designs weren't even humanoid. The Mecha design team decided that although each of these design philosophies had shown strengths in simulation, the SFMC needed a hardy, middle -of-the-road Mecha suit to serve as the 'All-purpose' Mecha design, to be supplemented by more specialized Mecha. The resulting design was the 'Dougram' Combat Mecha. Fully humanoid, classed as a medium Mecha with a 55mt displacement, the Dougram was well armored for it's size, was quick overland, mounted integral jump jets, and looked impressive on parade. It's weapons suite contained systems for use at all ranges Mecha had been developed to engage at. It's sole flaw was that while it did everything, it really did not excel at any one task. None of it's weaponry had a damage index of more that 5 on the SUPCOM R&D scale, it simply lacked a definitive punch. The 'Blockhead' and 'Soltic' designs were rushed into testing to try to correct this flaw, but the 'Blockhead', while it improved the short-range firepower and jump jet capacity of the 'Dougram', sacrificed the long-range combat capability somewhat. The 'Soltic' went the opposite direction, while also concentrating on improving the jump capability and stiking power. The 'Soltic' was flawed in its total lack of close-in weaponry. Both it's weapons systems are optimized for long-range attack, and have trouble achieving a targeting lock at close ranges.

In the end, the 'Dougram' won by default, and has become the most common standard Mecha unit in the SFMC's Mecha teams. While specialized teams, such as Air Defense or Fire Support will employ differing Mecha, the average Mecha unit will include a handful of 'Dougram' suits for all-purpose use. Since the inception of Mecha, transport and deployment had always been a problem. Transporters had been used for Mecha deployment, but just as for every other SFMC application, a backup plan had to be developed. Transport inhibitors had become common technology by this time. The lack of starships with enough internal space to house Mecha and launch them was also an issue. During this time period, the external Mecha Drop Pod was developed, along with the *Leopard*-class Frigate, designed for atmospheric entry and Mecha deployment. The idea of Mecha that could reconfigure to assist with launch, transport, and recovery lead to the beginnings of 'Project Valkyrie', whose implications are only now being seen with the production of limited-run prototype reconfiguring Mecha.

It was shortly after this flurry of design and prototype production that the Federation Council officially declared the Dominion War. Many of the Mecha prototypes and pre-production models were pressed into service as the conflict reached it's epic proportions, leaving few worlds in the Federation completely untouched. Mecha served at the Liberation of Betazed, the Battle of Bolarus, AR-551, Chin'Toka, and numerous other ground actions. Just as in their baptism of fire against the Cardassians, the Mecha showed some strengths, and some weaknesses. Design flaws were discovered, and remedied. Strengths were capitalized upon. By the end of the War, Mecha had proven it's worth to the SFMC soldiers, but the post-war demobilization threatened to see the entire branch dissolved or drastically reduced in size. Only time will tell whether the mighty Mecha of the SFMC can withstand the stroke of budgetary ink, but even with this threat looming over the Branch, Mecha pilots and engineers of the SFMC continue to serve with the sole purpose of defending the Federation as only they are able.

Traditions

Mecha Branch Motto
The motto of the Mecha branch is "Wielding the Lightning", and refers to the Mecha's combination of precision accuracy and powerful weapons. Since many Mecha combat missions start with an orbital drop or a beam down, the lightning analogy is particularly appropriate. There is also a saying among Mecha pilots that sums up the esprit de corps that they share - "The reason lightning never strikes the same place twice is because the same place isn't around after the first strike!"

Mecha Branch Slogan
The slogan of the Mecha Branch is "Big Iron" which refers to their size, stamina and attitude.

Mecha Branch Device

The device, or symbolic logo, of the Mecha branch is an armored fist clenching a three lightning bolts. The symbol of the armored gauntlet is a symbolic link to the armored knights of Earth's distant past - the first to stride into battle encased in armor. The lightning bolts symbolize the striking power of the Mecha, while the clenched fist denotes the Mecha pilot's control over that power.

Mecha Branch Uniform

Like other branches of the SFMC, the Mecha Branch has it's own particular uniform specifics that set it apart from the other branches. Since the Mecha branch is the newest in the Corps, there was a lack of 'history' to draw traditions from. The early Mecha pilots were members of the Armor Branch, and some still wear their Armor spurs with their dress uniforms, although it is no longer 'regulation' for them to do so. The main point of difference in a Mecha uniform will be the Sash, worn on Class A, B, and Dress uniforms.

The Mecha Sash
Mecha officers have worn the Mecha sash since the Officer's Basic Course, Mecha was first established on the campus of what had been the New Macross Military Academy, the training ground for militia officers before the New Macross colony joined the Federation. A badge of pride among the graduates of the NMMA was the blue sash that adorned their dress uniforms, and somehow this sash made it's way into SFMC informal regulations until it's wear could not be ignored and was adopted into Regulations some time during the Dominion War.

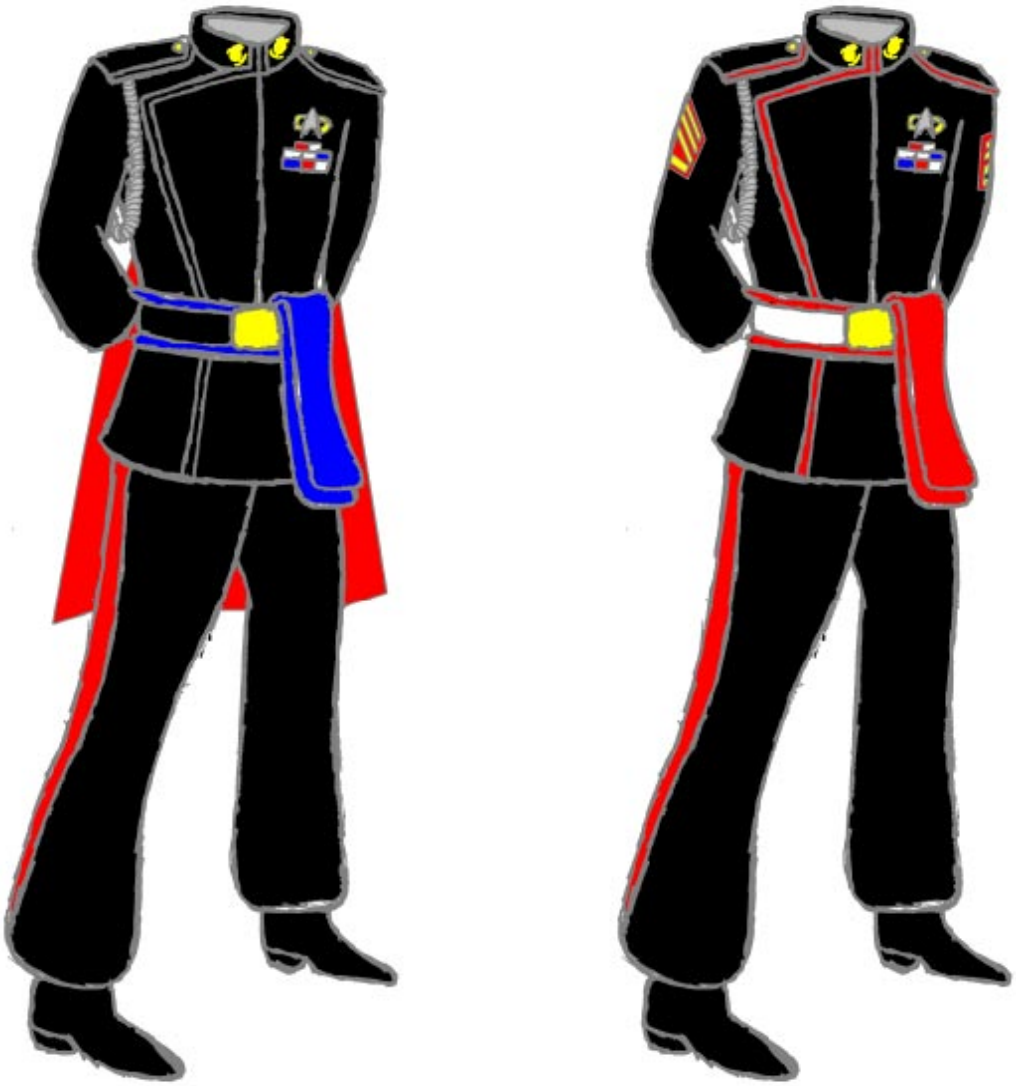
The Mecha Sash is a wide cloth sash, traditionally silk or satin, worn around the waist at the sword belt level and knotted on the wearer's left side, in line with the ribbons and com badge (if worn). The sash tails hang naturally down the left leg, and are sometimes decorated with non-regulation markers for combat kills or tours served, a practice that is prevalent, though officially frowned upon. The sash of a Mecha Officer is a royal blue, while NCOs wear scarlet sashes. The sash is authorized to all Mecha branch members of the rank of Corporal and above, but some local commanders are known for withholding the Mecha sash until a young NCO has `seen the elephant'.

With the Class A or B uniforms, a duty belt is sometimes worn over the sash and centered on it if a duty belt would otherwise be required. With the Dress Uniform, the sword belt (if worn) is worn over the sash and centered on it.

The Mecha Dress Black Uniform

The Mecha Branch adopted the older Dress Black uniform as their own when the Corps changed the design to one more reminiscent of the Fleet uniforms from the late 2200s and early 2300s. The Mecha branch keeps the high collar of the older uniform, and the shoulder boards as opposed to the shoulder strap of the newer "Monster Black". The collar and closure flap of an enlisted Marine's uniform is piped in the same Mecha scarlet as their sash, while the Officer's uniform is piped in black, creating a plain, but striking uniform cut.

The SFMC collar pins are worn 1/2" from the collar closure on either side and centered top to bottom. The rank insignia are worn 1/2" from the outer end of the shoulder boards and centered on them. Officers of the Mecha Corps are authorized a knee-length cape of black satin or silk material lined in Mecha scarlet, this cape is attached by buttons under each shoulder board.



Part 4 - Organization

In the 20 years since the inception of the Mecha Branch as part of the Starfleet Marine Corps order of battle, the basic unit of organization has been altered to fit the logistic reality of fielding combat Mecha. The originally conceived platoons of five often had to be transported on separate ships due to the sheer amount of space a single Mecha occupied. Carrying Mecha lying down in a shuttle bay or cargo bay was an imperfect solution, and caused problems with normal shuttle operations as well as being awkward for the Mecha team, fitting drop cocoons and dropping from zero-gee just outside their carrying starship. The Mecha platoon was reduced to four units, to ease transport and preserve the Table of Organization and Equipment (TO&E).

In 2372, the addition of the external Mecha pod made it more convenient to carry Mecha units, as well as streamlining the actual drop procedure. A *Miranda*-class vessel with four underslung drop pods could now deploy a four-unit platoon of Mecha to a planetary surface. Recovery was still a problem, but deployment had become much less of an issue. The new organizational doctrine allowed for platoon integrity, and soon Mecha platoons were being assigned to Starbases for ready-reaction duties. Older *Miranda*-class vessels were refit and recommissioned from the orbital mothball fleet to serve as Mecha deployment vessels. By this time, drop pods had been designed for most serving classes of Starfleet vessel of frigate or larger size.

The Mecha Platoon

A platoon of Mecha consists of four Mecha units. The Platoon Commander, who is usually a Lieutenant, pilots one. The Platoon Sergeant pilots another of the Mecha. The Mecha usually pair off in the classic `Battle Buddy' system, with one of the platoon's Marines teaming with the Lieutenant, and the other with the Sergeant.

Types of Mecha Platoons

Mecha Platoons and Companies may be `general service', or have fanciful designations from history like `Dragoons' or `Hussars', but in many cases the purpose of a particular Mecha platoons is fairly specialized. Scout units, Air Defense units, Heavy Assault units, and the like abound within the SFMC. Below you will find many, but by no means all, of the possibilities for specialization at the platoon or company level.

Air Defense Platoon These platoons are optimized for anti-aerospace operations. A foursome of 'Defender' Mecha would not be unusual for an AD platoon. Mecha able to fire devastating volleys accurately and at appreciable ranges do well at this kind of duty.

Anti-Infantry Platoon This is by far the most rare type of dedicated platoon in the SFMC. The Khitomer Accords ban the use of large-caliber weaponry against infantry, and Mecha pilots themselves balk at the idea of firing on unarmored humanoids. Nonetheless, the SFMC maintains a small number of these units for riot control and infantry suppression.

Assault Platoon	Usually consisting of the heaviest units available, Assault Platoons have the grim duty of reducing an objective to rubble, and can usually do so with a minimum of effort.
Command Platoon	Comprised of almost any combination of Mecha, the Command Platoon will usually contain the Commander's Mecha, along with the detachment Executive Officer and First Sergeant or Sergeant Major. The fourth element is normally a communications specialist to assist the Commander with C3 duties.
Reconnaissance Platoon	Recon units are almost always fast and light. Although larger, heavier recon Mecha exist, by far the most successful tend to be Light Mecha with exceptional maneuverability, like the 'Wasp', 'Stinger', and 'Strider' classes. A group of these Mecha can cover a lot of ground very quickly, and can negotiate terrain that most wheeled or hover vehicles would find impossible.
Skirmisher Platoon	Skirmishers are usually medium units, a mix of speed and firepower, designed to mix it up with the enemy while maintaining mobility to exploit any weaknesses in the enemy position. Skirmishers are usually deployed to harass enemy supply lines during guerilla campaigns.

The Mecha Company

A company of Mecha is comprised of two or more Mecha platoons. The normal TO&E paints a company as three platoons, or three platoons plus a command platoon. The Company Commander, usually a Captain, is in overall charge. A Company XO, usually a senior Lieutenant, assists the Captain, with a First Sergeant assigned to handle the NCO training and discipline in the unit.

The Company is very often the largest independent Mecha unit deployed, and is often known as a 'Mecha Team'. The Marine Strike Group (Mecha) is most commonly a Company-sized unit.

The Mecha Battalion

On the SFMC rolls, each Brigade is comprised of battalions made up of the various combat and combat support branches. On paper, for instance, the Third Brigade's two Battalions represent a pair of Combined Arms Battalions, comprised of elements of each branch operating within each of the two Battalion operation zones. In reality, the SFMC does not receive the funding to operate at the full organizational strength dictated by the TO&E. In the event that an entire Mecha-only Battalion was to be fielded, it would likely be comprised of three companies with a battalion command platoon attached. Battalions are most often commanded my Lieutenant Colonels or senior Majors. This same caveat applies to the Regimental and Brigade levels, while such formations are possible on paper and have been planned for, such a large concentration of Mecha within any one operational zone seems unlikely at this time. The SFMC's current combined arms battalions seem to handle their myriad jobs better than a force of homogenous single-branch Marines would.

Part 5 - MOS

Within each Branch of Duty in the STARFLEET Marine Corps, there are a variety of different specialized jobs called Marine Occupational Specialties, or MOS's for short. Each is assigned a unique number, which allows personnel managers to place individuals into units where they are most effective. In some branches, like Mecha, there are also skill qualification identifiers, or SQI's added to an MOS number to indicate special training or experience. Note that there are separate MOS's for each weight classification. This is deliberate, since there are significant differences in piloting a lighter Mecha versus a heavier one. For more information regarding Mecha Branch MOS's please see the SFMC MOS Manual.

Mecha Branch MOS Listing (500 series)

Branch Command

500 Mecha Branch Director
501 Mecha Commander
510 Mecha Leader

Pilots

520 Mecha Pilot, Light Mecha
525 Mecha Pilot, Medium Mecha
530 Mecha Pilot, Heavy Mecha
535 Mecha Pilot, Assault Mecha

Technicians

540 Mecha Technician, Power Systems
545 Mecha Technician, Armament Systems
550 Mecha Technician, Sensor Systems
555 Mecha Technician, Support Systems
560 Mecha Technician, Defensive Systems

Skill Qualification Identifiers (SQI)

S Special Operations/Reconnaissance qualified
D Aerospace Insertion qualified
X Expert Gunnery qualification
E Engineer Equipment qualification
Z Nonstandard Skill Specialty (Other Branch/MOS, etc.)
V Variable Geometry Mecha (VALKYRIE) Qualified
L Light Mecha qualified
M Medium and lighter class Mecha qualified
H Heavy and lighter class Mecha qualified
A Assault and lighter class Mecha qualified
P Platoon leadership qualification
C Team leadership qualification
F Force leadership qualification

Example: Lieutenant Walker, having seen the light and transferred into Mecha Branch from the infantry, is sent to school. He shows an aptitude for Heavy Mecha and so is trained in that type of Mecha. His MOS is then 530. Because he also has a secondary Branch/MOS of Infantry (from his prior training) he is given an SQI of "Z". He is then considered a 530/Z.

Example: Gunnery Sergeant Phillips is trained to pilot Assault Mecha, and later receives training in the other three weight classifications of Mecha. He qualifies expert on the Mecha Gunnery Range, by shooting the nose hairs off a gnat with his Mecha's main guns, and is thereafter considered an Expert Gunner. His MOS/SQI is 535/AX.

Part 6 - Mecha Classifications

The many types of combat Mecha possible may be broken down into classifications by their displacement, and by their general function. While general purpose Mecha exist, so do Mecha designed with specific purposes in mind. Generally, by looking at both of these classifications, a fair idea of a Mecha's capabilities can be surmised.

Classification by Displacement Tonnage

Classification	Tonnage Range
Light	10 to 35 tons
Medium	40 to 55 tons
Heavy	60 to 75 tons
Assault	80 to 100 tons

Classification by Design Purpose

Air Defense Mecha — These Mecha are Medium to Heavy weight class and defend against enemy aerospace attacks. These Mecha carry multiple long range weapons systems, excellent sensor arrays and have good mobility and armor. They may also serve as Fire Support Mecha, but usually carry only direct fire weapons, which limit their bombardment capability.

Assault Mecha — The largest and heaviest types of Mecha, and the slowest. Carrying extremely heavy armor and formidable weapon systems, they sacrifice mobility for sheer firepower. Only Mecha eighty tons or greater can serve as Assault Mecha.

Command Mecha — This Mecha carries extra command and control equipment to allow the commander to coordinate the activities of widely separated units under his command. This Mecha is classified as an Assault Mecha due to it's weight and heavy armor, but is only lightly armed.

Commo Mecha — This Mecha carries communications equipment to allow it to communicate with widely separated units, both on the surface and in orbit.

Fire Support Mecha — Any weight class of Mecha that specializes in long range combat, usually with bombardment capability. These Mecha usually fall into the Medium to Heavy weight classes, sacrificing mobility and some armor for more long range weapon systems.

Recon Mecha — These Mecha are Light to Medium weight class Mecha, equipped with sophisticated sensor arrays and high mobility. Their function is to locate the enemy and relay the information to command personnel, or in some cases to act as artillery spotters and call in fire on the enemy positions. Lightly armed and armored, their best defense is to avoid fights, or outrun their opponents.

Striker Mecha — These are the deadliest of Mecha, falling into the Medium to Heavy weight class. Heavily armed and armored, but still retaining enough speed to outmaneuver most Assault Mecha. These Mecha are used as backups for Recon Mecha or fast moving outriders for Assault Mecha.

Part 7 - Mecha Anatomy

The mecha used by the SFMC are varied, but all share some of the same design components. The anthropomorphic nature of the standard bipedal mecha creates a complex unit with thousands of moving parts. Design, construction, maintenance, and even operation of such devices is incredibly involved and requires massive amounts of training. Technicians assigned to mecha units face the challenge of their careers.

The Skeleton

The `bones' that make up the framework and skeleton of a mecha are comprised of a lightweight duranium alloy linked to heavy-duty actuator motors at the joints. The structure resembles that of a humanoid or animal, since the expected range of motion is much the same. Improvements to the standard duranium construction have been made, but tend to lighten the frame at the expense of compactness or durability.

The Actuators

Heavy motors control the finer movements of the mecha's joints. From the tiny actuators that move finger joints and balance struts, to the truly massive ones that traverse waist joints and flex knees, these motors actually lack the power the mecha truly needs to function at combat speeds. These motors control fine movements, and leave the large, powerful movements to the mecha's musculature.

The Muscles

Electro-bonded myomer fiber composites make up the eerily organic looking musculature that attaches to a mecha's skeleton. These bundles of fiber contract when power is applied to them, making them work much like real organic muscles. These provide the `power' movements, while minor adjustments are made by the actuators.

The Powerplant

Microfusion reactors power combat mecha. These relatively small reactors have been reinforced and shielded for combat use to prevent catastrophic failure in the case of battle damage. The power core lacks the extensive heat shunt assets a starship-mounted fusion reactor makes use of, so the combat mecha is outfitted with a suite of polymer-ceramic heat sinks. As power spikes through the fusion plant, heat energy is produced in the power core along with electric energy. This heat energy is wicked away through the heat sink system. Imprudent use of systems or engine shielding damage may cause overheating, which can effect combat systems and even cause the fusion engine to shut itself down to prevent core breach. Although a simple fusion core breach is much less destructive than a matter/antimatter core breach, the explosion can still be quite spectacular, and generally unwelcome by either side in a ground battle.

The Armor

Combat mecha armor is an improvement on the ablative composites used on the Defiant-class starships and their contemporaries. Similar to the plating on SFMC armored vehicles and tanks, the armor of a combat mecha is designed to be proof against ballistic weapons as well as explosions and energy beams. Armor is rated in TSEs, or Type Sixteen Emissions. A TSE is the amount of damage the armor takes each time it is hit by a setting sixteen blast from a personal sized phaser, either a Type II or Type III. Although this setting is capable of vaporizing several square meters of rock, thanks to the advanced energy dissipation properties of the ablative armor, infantry weapons are seldom a problem for combat mecha. Generally, a ton of standard ablative plating can survive 16 TSEs of damage before the components it protects are damaged.

Weapons Systems

The myriad weapons systems used by the Mecha of the SFMC are designed to be able to compliment one another, taking advantages of certain known weaknesses of Threat forces, the Borg weakness for projectile weapons, for instance. Missiles, rockets, energy weapons, and the like are used to allow for maximum tactical flexibility in combat situations. See the updated Arms and Equipment manual for the descriptions of the weapon systems used on Mecha units.

Part 8 - Mecha Generations

The First Generation of SFMC Mecha
The first generation of Mecha was very basic, even the weapon systems used were nothing like those used today. They are no longer used by the SFMC. They are only mentioned here as reference, should you ever see one. For more information on these Mecha, please look in the Arms and Equipment manual.

First Generation Mecha List

Light Combat Mecha				
Model	**Class Name**	**Primary Design**	**Secondary Design**	**Tonnage**
FLR-1	Firefly	Recon	Forward Observer	15
CLR-1	Cueball	Recon	N/A	20
FLR-2	Falcon	Recon	Short Range Fire Support	30
CLR-2	Crossbow	Recon	Medium Range Fire Support	30
Medium Combat Mecha				
Model	**Class Name**	**Primary Design**	**Secondary Design**	**Tonnage**
BMS-1	Bulldog	Striker	N/A	40
NMS-1	Nemesis	Striker	Precision Fire Support	40
BMS-2	Brutus	Striker	N/A	50
TMS-1	Talon	Striker	N/A	60
Heavy Combat Mecha				
Model	**Class Name**	**Primary Design**	**Secondary Design**	**Tonnage**
BHA-1	Brahma	Striker	N/A	70
THA-1	Thunder	Striker	Fire Support	75
LHA-1	Lightning	Striker	Fire Support	75
Assault Combat Mecha				
Model	**Class Name**	**Primary Design**	**Secondary Design**	**Tonnage**
FLD-1	Firelord	Assault	N/A	90
PHA-1	Persuader	Assault	N/A	90
DVH-1	Devastator	Assault	N/A	100
Specialized Combat Mecha				
Model	**Class Name**	**Primary Design**	**Secondary Design**	**Tonnage**
QHF-1	Quarrel	Air Defense	Fire Support	70
THF-1	Tsunami	Fire Support	N/A	80
AHC-1	Archangel	Electronic Warfare	Communications	85

The Second Generation of SFMC Mecha

The Fokker Research Facility was established on New Macross shortly after the activation of the first Mecha team to serve as the premier Mecha research facility for the SFMC. Doctor Victor Lowther, along with civilian engineer Professor Steven Hazel and a number of other Federationdesigners and engineers, went to work on the Mecha that would eventually be rushed into production to turn the tide of the Ground War against the Dominion.

With improved technologies and years of experience with the first generation of Mecha fielded by the SFMC, the scientists at Fokker went to work improving on the older designs, in the hopes of refining the abilities of Mecha to overcome the dubious reputation they had earned from their mixed bag of victories and defeats in the Cardassian War. The SFMC specifications to the Office of Mecha Branch Development were specific in that the entire new generation of Mecha suits must have in order to be accepted for procurement, and it was immediately clear that with the number of engineers and scientists working for the OMBD, these ends could be achieved. The problem that arose nearly as immediately was one of differing design philosophies. While some designers claimed that the anthropomorphic shape of the Mecha was the point of the entire exercise, other designers created mecha proposals with reverse-articulated legs, or arms consisting entirely of weapon barrels, or no arms at all. While the engineers would sometimes argue loudly and well into the night, it was SSG Timothy Owings, aide-de-camp to the SFMC Mecha Branch Director, who supplied the solution in a fine Marine tradition, fight it out. The teams were given the SFMC's specifications for the certain types of Mecha required, and the designers grouped with like-minded colleagues to build prototypes, which were then pitted against each other in a series of combat simulations and occasionally live-fire exercises to determine the best mission-specific Mecha for a particular job. This proved to be useful, as every team made notes during the construction and testing of their prototypes as to the effectiveness or lack thereof of every system, widget, and new design element going into a particular Mecha.

In the end, the second generation of SFMC Mecha was a smattering of mission-specific and general-purpose Mecha ranging from 20 to 85 tons in mass incorporating design refinements from literally hundreds of test simulations and dozens of designs. Most of these new breed were baptized in combat during the Dominion War, although only in small numbers toward the later months of the conflict. Both multi-role and dedicated purpose Mecha exists in the SFMC of the 2380's, ready to respond to any ground-based threat against the Federation. OMBD scientists were even working on a new generation of engines, heat exchangers, ablative armor, and other improvements to make the next generation of Mecha more potent than this new generation. Further refinement to Mecha design and the problems arising from Mecha transport have given birth to Project Valkyrie, the code-name for variable geometry Mecha designed to excel outside the normal operational envelope of SFMC Mecha. For more information on these Mecha, please look in the Arms and Equipment manual.

Second Generation Mecha List

Light Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
RMS-160	Strider	Recon Mecha	20	Locust	3025
RMS-190	Wasp	Recon Mecha	20	Wasp	3025
RMS-195	Stinger	Recon Mecha	20	Stinger	3025
Medium Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
MPMS-19	Blockhead	Multi-Purpose	55	Wolverine	3025
MPMS-20	Roundfacer	Multi-Purpose	55	Griffin	3025
MPMS-22	Dougram	Multi-Purpose	55	Shadow Hawk	3025
FSMS-09	Blizzard Gunner	Fire Support	55	Scorpion	3025
Heavy Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
ADMS-X	Defender	Air Defense	60	Rifleman	3025
CEMS-06	Bushman	Combat Engineer	60	N/A	N/A
HCMS-IIX	Crusader	Heavy Combat	60	Crusader	3025
HCMS-VI	Ironfoot	Heavy Combat	65	Thunderbolt	3025
MBMS-IX	Spartan	Missile Bombardment	70	Archer	3025
HCMS-IV	Tomahawk	Heavy Combat	70	Warhammer	3025
HCMS-VIII	Glaug	Heavy Combat	75	Marauder	3025
Assault Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
FSMS-44B	Tequila Gunner	Fire Support	80	Goliath	3025
MBMS-85F	Phalanz	Missile Bombardment	80	Longbow	3058
CMMS-128	Bigfoot	Command Mecha	85	Battle-master	3025

NOTE: TRO 3025 is the original version, not the Classic Battletech version.

The Third Generation of Mecha

Much was learned during the Federation-Cardassian War. The Second Generation Mecha, an excellent weapons platform when they first came out, now needed to be updated to compete with the other race's Mecha. The Cardassians had made some major updates to theirs, and the Second Generation Mecha of the SFMC were having problems taking them down. This led to three new projects to be started by Fokker Research Facility, Project: Rebirth (to update the existing Mechas), Project: MCP (bringing unit Commanders onto the battlefield, allowing them to be in the battle while at the same time protecting them), and Project: Valkyrie (combining the abilities of both Mecha and Aerospace fighters). For more information on these Mecha, please look in the Arms and Equipment Manual.

Third Generation Mecha (Project: Rebirth) List

Light Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
RMS-160-II	Strider II	Recon Mecha	20	Locust	PP
RMS-190-II	Wasp II	Recon Mecha	20	Wasp	PP
RMS-195-II	Stinger II	Recon Mecha	20	Stinger	PP
Medium Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
MPMS-19-II	Blockhead II	Multi-Purpose	55	Wolverine	PP
MPMS-20-II	Roundfacer II	Multi-Purpose	55	Griffin	PP
MPMS-22-II	Dougram II	Multi-Purpose	55	Shadow Hawk	PP
FSMS-09-II	Blizzard Gunner II	Fire Support	55	Scorpion	PP
Heavy Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
ADMS-X-II	Defender II	Air Defense	60	Rifleman	PP
HCMS-IIX-II	Crusader II	Heavy Combat	65	Crusader	PP
HCMS-VI-II	Ironfoot II	Heavy Combat	65	Thunderbolt	PP
MBMS-IX-II	Spartan II	Missile Bombardment	70	Archer	PP
HCMS-IV-II	Tomahawk II	Heavy Combat	70	War-hammer	PP
HCMS-VIII-II	Glaug II	Heavy Combat	75	Marauder	PP
Assault Combat Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
FSMS-44B-II	Tequila Gunner II	Fire Support	80	Goliath	PP
MBMS-85F-II	Phalanz II	Missile Bombardment	85	Longbow	PP
CMMS-128-II	Bigfoot II	Command Mecha	85	Battle-master	PP

Third Generation Mecha (Project: MCP) List

MCP Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
MCP MK i	Hellfire	Mobile Command Platform	100	N/A	N/A

Third Generation Mecha (Project: Valkryrie) List

Valkyrie Mecha					
Model	**Class Name**	**Role**	**Tonnage**	**Battletech Name**	**TRO**
AAFM-V-IX	Valkyrie	Variable Geometry Mecha	30	N/A	N/A
AAFM-IX	Excalibur	Variable Geometry Mecha	55	N/A	N/A

Project: MCP
What follows is the current data on the continued tests on the MCP and her working file. The Mecha Branch has found their universal Mecha in the Dougram. The Bigfoot has been considered the Mecha for Battalion and Regimental commands. The Bigfoot is a good Mecha, but with Starfleet and Starfleet Marine policy starting to change to ensure the safety of the commanding officers, something needed to fir the desire to be on the battlefield with the men and to maintain policy; therefore, the MCP came into existence.

The MCP allows the commanding officer to be "safe" and still be a part of the battle. To date, the MCP is the largest of the Mecha designed and built. A number of test systems were incorporated into the MCP. It is hoped that the MCP will prove just more than a successful Mecha, but also test successful the new systems to be included in other Mecha.

The MCP is the first Mecha unit to employ shield generators, to aid in the defense of our units. While the initial tests have shown their worth in continued experimenting, their current size and power usage still needs to be worked upon. The Phaser Cannons have already proven their successfulness. Further experiments in different designs and strengths are now underway. The DLCS system is also under new designs theories, as to how the technology could be applied to other systems, if not to help the HP throughout the Mecha.

History of the MCP Project

2366 Sergeant Ryan O'Neil, a weapons specialist, proposes the concept of the mega-phaser cannon emitter. The cannon uses a compression theory and a sequential energy amplification to boost the output of phaser energy.

2368 With a trend towards more powerful systems and greater heat generation, the Fokker Research Facility is assigned the task to look into ways of reducing generated heat and for ways of generating less heat from systems. Major Allen R. Payne is assigned to this task. One of the first steps Major Payne takes is to gather members of his team and to layout a design and theory plan, in which different people would be further assigned to lead specific project ideas. Captain Allison Franklin, an assistant to Major Payne, is given the go on a proposed idea to further enhance the Liquid Coolant System (LCS) recently designed. The results of this proposal will be the Dual-Liquid Cooling Sequencer (DLCS).

2369 Gunnery Sergeant Katharine McMillan, Director of Phaser Projects at the Fokker Research Facility, is assigned the project to combining phaser emitters to produce a larger yield with lower power requirement and heat generation. The eventual end product of this assignment will be the Tri-CPE. The project is given the name of Six Guns, and referred to as research security clearance level three (3).

Two (2) years after the completion of the Fokker Research Facility, the first working shield generator for Mecha units is granted project assessable status for further work and research with other projects. The first proposal that takes into concept the Mecha Unit Shield Generator (MUSG) is the Starfire Command project.

2370 The 40cm Mega-Phaser Cannon is successfully tested and granted authorized weapons platform status.

1st Lieutenant Richard Xavier, a coolant and refrigeration specialist, is brought in on the Six Guns project to design a cooling system to reduce the heat generated by the proposed weapons platform.
Corporal Kelly T. Ranger, a machinist, is brought on to the Six Guns project to design the casing and layout of the Tri-CPE platform.

2371 The last tests on the Dual-Liquid Cooling Sequencer (DLCS) confirm the application of a working rapid cooling system.

2372 The Mobile Command Platform (MCP) Project is submitted to the SFMC Command for preview and authorization.

The initial tests for the Tri-CPE show promise in the weapons platform concept. The tests showed that some additional mechanical designs were needed for a complete applicable platform. Later in the year, the Tri-CPE is granted authorized weapons platform status, being designated as Tri-CPE FLAP (Full Length Arm Platform). A medium and small sized version of the weapon platform are also passed into authorization.

The DLCS is tested with the 40cm Mega-Phaser Cannon. There were some problems with the initial tests, but after a few weeks of working with the systems a successful system is tested and granted authorized weapons platform status. The 40cm Mega-Phaser Cannon Mk II is assigned as the designation for the weapons platform.

2373 SFMC Command authorizes the MCP Project, placing the project under the cover name of Starfire Command. False data records on what Starfire Command is about are entered in the R&D facility computers and records are sent to SFMC Command. Authorization code Alpha-Mu-Zeta-13-3-16 is assigned to the project files. A secondary authorization code that is entered after the first of Lambda-Beta-Omicron-1-13-26 will allow access to the true files for the MCP Project. Colonel Matthew Broderick is placed in charge of the project.

A reactor explosion kills three and injures fourteen. The cause of the explosion is a faulty power transfer conduit transferring power to a test of the 40cm Mega-Phaser Cannon platform with only two of the initial four-barrel design. The project is setback only three weeks while the investigation is concluded and ceremonies are given for the dead. A news article states that the accident was a fusion reactor explosion that was testing a new power distribution process. This data file was given out to keep the actual project details out of the public view. The location of the explosion was outside at a testing ground, therefore, no structural damage was caused to any existing buildings.

2375 The first prototype of the MCP is presented. While a number of problems are discovered during the tests, the project still showed promise and was permitted to continue. While the Dominion War ends, the SFMC feels to place a stop on the MCP project, as well as, some other projects would place the Federation in jeopardy. The SFMC had assigned itself with the task of ensuring the protection of the Federation as Starfleet, even the SFMC, had taken some massive amounts of damage between the incursions from the Borg and the Dominion War.

2376 A fully operational unit is presented. The tests show a weapons platform of massive firepower. The project is green lighted for complete production. Brigadier Samuel S. Michaels is given the command for finalizing all related projects and subprojects that will accompany the MCP. During the presentations of the MCP's capabilities, the Mecha design was given the name of "Hellfire." The reason for this is that one Brigadier, Arnold Switcher, commented on the power capability and the destructiveness done by the unit as being like hell's fire.

2378 The first few units roll of the assembly line and enter into service. Sixteen units are commissioned for construction. The first unit off the line and placed into service is given the nickname "Dragon Fire." A member of the engineering team has a logo of a fire-breathing dragon painted onto the unit. This began the process of nicknaming the MCP units and giving each one a unit shield representing the unit's nickname.

2379 The first real test of the MCP was presented when a renegade Federation faction seized control of a planet by force in an attempt to further their goals of destroying the Cardassian Union. Two MCPs were assigned to the Mecha platoon sent in to aid in the retaking of the planet. The MCP Mk-I MCN-003 "Thunder's Might" and the MCP Mk-I MCN-005 "Giant Smasher" were the units assigned to the platoon. Both units performed will and survived the outcome of the operation. In fact, Mechajock Tomas Regal earned a service medal for saving the platoon from a sneak attack.

General Overview:

The MCP Mk I is the largest and heaviest of the Mecha to date, and therefore, the slowest. The primary purpose of the "Hellfire" is heavy artillery backup and command, with the secondary purpose of anti-aerospace defense. Other then the speed limitation, the only failing the "Hellfire" has is that it does not really have a short-range offensive system. The Tri-CPE Barrels can protect the Unit in close combat situation, but are more effective at medium ranges. The armor plating and dual shielding are the saving grace of the Unit. No other Mecha to date has the defensive systems the "Hellfire" possess. Between the plating and the two different layered shields, the "Hellfire" is nearly indestructible. The mega-phaser cannons, with their twelve-mile range, allows the Unit to sit on the backline and punch holes into the frontline offensive.

The dual engine design also allows for a less drain effect on a single reactor. Additionally, should one reactor go down, the secondary system could take over and keep the Unit running. While the system performs at top rating when the dual engines are running in tandem, a single reactor will allow the Unit to continue while only moderately limiting the Unit's capabilities.

MCP Breakdown

Engine Systems

The MCP is unique in current Mecha design, in that it is the only system designed with two operating cores. This is a redundant system application (RSA). In the dual operation of the two cores, the unit actually divides the power requirements between the two cores. Weapons and defenses are generally powered from one core, while the other core powers all other systems. Should one of the cores become non-operational, the sole core left is able to power the unit. This is the main part of the RSA, in that should there by a core failure the commander is still able to operate his unit. The possibility of both cores failing is a small percentage. It is considered that the unit will first be nearly destroyed before both cores will fail. The primary core is an Enhance Reactor Core Chamber (ERCC), which is capable of generating a larger supply of power for less mass. The secondary system is a standard Reactor Core Chamber (RCC) system found in other units.

CP-1500 Fusion Reactor

The CP-1500 is an enhanced lightweight fusion reactor produced by Northern Light Energy. Generally considered compact and carrying the same amount of power output for a unit twice its size. The truth of the matter is that the reactor core uses condensed injectors and reactors with a mini-chamber designed to take better advantage of energy spin and flow. While the reactor is more compact and energy efficient, its size and design does allow for more of a chance for damage to be caused to the system. Therefore, the core is located with a better arrangement of armor and/or components surrounding it to help protect the system from battle and fatigue style damage.

Tonnage: The CP-1500 has a tonnage of 8.5 tons.
Power Units: The CP-1500 is measured to have an output of 285 PU.
Lifespan: The CP-1500 is rated at twenty (20) years before needing complete replacement.

FT-800 Fusion Reactor

The FT-800 is one of the standard heavy fusion reactors that is produced by Industrial Power Ratings. The FT-800 is rated to handling a 100-ton mecha unit. One of the key features of the FT-800 series is the re-usage of generated heat into the chamber. As a chamber rated to handle 100 tons, the system can generate a great amount of heat to move the full mass of the unit. Most fusion reactor designs incorporate a feature for shunting the generated heat back into the chamber, which helps to maintain the generated heat and provides a minimal amount of re-usable generated heat.

Tonnage: The FT-800 has a tonnage of 8.5 tons.
Power Units: The FT-800 is measured to have an output of 200 PU.
Lifespan: The FT-800 is rated at twelve (12) years before needing complete replacement.

Weapon Systems

For the size of the unit, many find it hard to believe that the MCP only has two weapon platforms. While the MCP is an artillery unit, its function is more of the mobile command post. With the losses that Starfleet and the SFMC have taken in the last few years between the Borg incursions and the Dominion War, the SFMC has had to incorporate the Starfleet rule of keeping a commander in the background where they are considered safe and less likely of being killed. Telling a marine to set back and let someone else do the job is not something you tell a marine. Therefore, this unit has a weapon platform that allows the commander to contribute in the fight while remaining in the background as per the guideline. Both weapon platforms are used for distance firing with a secondary purpose of anti-aerospace assault and defense.

40cm Mega-Phaser Cannon

The 40cm Mega-Phaser Cannon is Amplified Phased Particle Accelerator Emitter (APPAE). Working on the principle of the phaser bank element of a type X phaser, the energy is channeled through the barrel where it is amplified through additional acceleration of the accelerated phased particles. The beam is said to be like shooting a physical energy projectile instead of phased energy.

Classification: Type-X-A Vehicle Phaser Emitter
Primary Purpose: The primary purpose of the 40-MC is assault and defense.
Secondary Purpose: The secondary purpose of the 40-MC is anti-aerospace assault and defense.
Range:
The 40-MC is a medium to long-range weapon platform. While the 40-MC is capable of firing at a short range, it is at a disadvantage. Additionally, the potential for the mecha unit itself taking damage from its own energy blast radius is present. The targeting sensors are at an index of negative two when firing at short range. At the medium range of the weapon, the targeting sensors are able to lock straight on. At the long-range of the weapon, the targeting sensors are able to provide assistance in the area of a positive one index. The 40-MC is truly a long-range weapons platform and therefore has an advantage when operating within its parameters. Short-range minimum is 600 feet (183 meters), while the effective long range maximum is 12 miles (19 kilometers).

Short Range: target area index of 6
Medium Range: target area index of 18
Long Range: target area index of 30

DR (Damage Ratio): The damage ratio is 15 units per shot fired.

HB (Heat Bloom):
The 40-MC uses a Dual-Liquid Cooling Sequencer (DLCS), as well as, Plasma Management Cooler (PMC). By applying the DLCS directly into the design of the firing mechanism, the amount of HB that is generated by a single cannon is reduced by a factor of five. The total of HB generated by firing the cannon is five, ten should the DLCS not be functioning. The PMC work with the electro plasma system (EPS), in that the amount of heat generated is reduced as the plasma system regulates and transfers the plasma flow to the emitter segments. With the PMC in place, the heat is reduced by a factor of five. Therefore, as the plasma is channeled through the plasma distribution manifolds (PDM) it is cooled by a factor of five, thereby, generating only a heat index of five. Once the plasma stream reaches the particle thermal regulator, which controls the phased particle beam and channels it to the emitter crystal, an addition of a heat index of five is added to the total heat index. The emitter crystal chamber (ECC) is surrounded by the DLCS. It is at this point that the last of the heat reduction index is possible in the system. If all heat reduction systems are not functioning, the total HB that is generated is fifteen, instead of five or ten.

ROF (Rate of Fire):
The ROF that is available is the pilots firing ratio. While the weapon platform can be designed with a single barrel to a mecha unit, the platform is usually paired. This allows the pilot to use a one-by-one firing sequence. The one-by-one sequence has the pilot firing one barrel while the other barrel is cooled, then the barrels are switched. This is only one firing sequence, but the basic one that is taught to those learning the weapon platform. There is a technique that has been developed by the gunners of the MCP, who premiered the weapon platform, called the ‘Haymaker.’ This is an unusual firing sequence, but if used properly it has a very powerful effect.

Haymaker:
When the MCP is on site and getting ready to engage the enemy, the gunner enters in a sequence of rapid firing. The first round of firing, the gunner fires all four barrels of the MCP. This generates a HB of 20. While firing on the sequence, the gunner uses a Purged Heat Vent (PHV) that eliminates an index of 10 HB. On the next firing round, the gunner uses a two-by-two punch firing sequence. Here, the gunner only fires two of the four barrels, which only generates a HB of 10 for the firing sequence. While the two barrels are firing, the non-firing barrels use a Ventral Heat Shunt (VHS) through the DLCS. This cools an index of 10 HB. Thereby, using this technique, the gunner is able to maintain a HB index of ten from the 40-MC firing sequence. Of course, this technique requires that the DLCS is working in perfect order and that the gunner uses the PHV properly so as not to overload the firing array.

Crescent:
A crescent firing technique is similar to the haymaker, except that it is designed for weapon system that only has two 40-MC barrels instead of the MCP's four-barrel platform. Here, the HB that is generated and cooled is an index of five instead of the ten.

Payload:
Since the 40-MC is powered by the fusion reactor of the Mecha unit, the payload is considered unlimited, as it is based upon the power availability of the fusion generator.

ED (Energy Drain):
The ED index per barrel is seven. Although, for a system that uses the 'Crescent' firing technique has an ED index of 15, while a system that uses the 'Haymaker' firing technique has an ED index of 30 (this is at the initial firing round, after which the ED follows the normal usage).

Tonnage: Each 40-MC barrel has a weight index of five tons.

Location:
Due to the system design, the weapons platform can only be top mounted on a mecha unit. The 40-MC is simple to large of a platform to attach to an arm segment or any other part of the mecha.

Additional Notes

Dual-Liquid Cooling Sequencer:
The DLCS is a system designed around the LCS. The DLCS is only designed for use with the 40-MC weapons platform, as there is no other applied application for the system with any other mecha component. Using the chemical agent from the LCS, when the initial firing sequence is initiated the DLCS begins its process of cooling the weapon platform. As the phaser sequencer emits the initial energy blast, the first stage of the DLCS flows through Outer Cooler Ring (OCR) located at the base of the barrel, just after the emitter. The chemical agent is then sent to another LCS subsystem where yet again the LCS chemical agent is used to draw the heat and provide cooling of the system. Some of the initial heat is absorbed into the chemical coolant, while some is shunted to the fusion core and anything left over is passed to the Ventral Heat Shunt (VHS). Since the weapons platform is not part of the propulsion systems, the heat venting is processed through the VHS instead of the Vectored Propulsion System (VPS).

Firing Arc:
The weapons platform is able to maneuver in a 60-degree arc from its resting position. This allows the gunner to adjust the firing arc of the weapon to fix upon a target without moving the mecha itself.

System Mounted Gyroscope:
The System Mounted Gyroscope (SMG) is a computerized system that keeps the barrels on target, even if the unit is moving.

Tri-CPE Barrel

The Tri-CPE Barrel is a weapon platform designed around a set of stationary phaser emitters. The Tri-CPE Barrel is a triple set of compress phaser emitters, hence how the weapons platform received its name. The emitters are unidirectional instead of omni-directional and the phaser beam is compressed, similar in concept to the compressed phaser rifle of lower power setting. The Tri-CPE Barrel is based upon the Type VIII Vehicle Phaser Emitter. The Tri-CPE comes in two varieties: Full Length Arm Platform (FLAP) and Short Arm Platform (SAP).

Classification: Type-Tri-VIII-C Vehicle Phaser Emitter
Primary Purpose: The primary purpose of the Tri-CPE is assault and defense.
Secondary Purpose: The secondary purpose of the Tri-CPE is anti-aerospace assault and defense.

Range:
The Tri-CPE is a short to medium-range weapon platform. While the Tri-CPE can be used for short range firing, the weapon platform is at a slight disadvantage at extreme short range. The platform is best at the edge of the short-range limit to the medium range limit. The platform's effective long-range maximum is 6 miles (9.5 kilometers) for the FLAP System. For the SAP system the effective long-range maximum is 5 miles (about 8 kilometers).

FLAP
Short Range: target area index of 5
Medium Range: target area index of 10
Long Range: target area index of 15

SAP
Short Range: target area index of 3
Medium Range: target area index of 8
Long Range: target area index of 12

DR (Damage Ratio):
FLAP: The damage ratio is 24 units per shot fired (8 units per barrel).
SAP: The damage ratio is 18 units per shot fired (6 units per barrel).

HB (Heat Bloom):
Using an experimental cooling system for external components, the HCV Mk-II (Hype-Coolant Ventilator), the system is placed on the end of the platform where it draws the heat from the system and then shunts it by venting it out the back of the platform. The HCV Mk-II is able to reduce the generated HB of a single barrel by half; therefore, each barrel only generates a HB of 4 for a FLAP system and only generates a HB of 3 for a SAP system. The total HB that is generated for a FLAP system is 12 units, while for a SAP system the total HB that is generated is 9 units.

ROF (Rate of Fire):
The ROF that is available is the pilots firing ratio. The platform can only be fired as a triple shot. The barrels cannot be fired separate from each other.

Payload:
Since the Tri-CPE is powered by the fusion reactor of the mecha unit, the payload is considered unlimited, as it is based upon the power availability of the fusion generator.

ED (Energy Drain):
FLAP: The ED index per shot is three.
SAP: The ED index per shot is two.

Tonnage:
FLAP: Each Tri-CPE Barrel has a weight index of two tons.
SAP: Each Tri-CPE Barrel has a weight index of one tons.

Location:
The Tri-CPE Barrel is designed as an arm unit to Mecha design, but with some modification and strengthening of the normal arm units can be arm side-mounted. Although, by side-mounting them to enhanced arm units this limits the capabilities of the arm units themselves. Additionally, if the arm units are not properly enhanced, the arm units will fail under the weight and design of the barrels themselves.

Defensive Systems

The defensive systems of the MCP are also somewhat unique to the unit. While the unit still uses armor plating, the plating uses a new blend of materials found during the Dominion war. Otherwise, the armor plating is the same as any used on any Mecha within the branch. The most unique defensive system is the TSG-F131 force fields. While the term used for referring to the force fields is shields, this is not to be confused with starship shielding. Another new feature that is added in the MCP is the use of countermeasures. A countermeasure is designed to destroy, redirect or deflect incoming missile weapons to the unit.

CHP Armor

The CHP Armor uses current armor plating technology that incorporates a new material discovered during the Dominion war. At this time the exact nature of the material and how it is incorporated into the current armor design is considered high security clearance that it cannot be printed within this manual. The nature of the plating is that is reduces the damage ratio of energy based weapon systems. An energy based weapon's DR is reduced by twenty-five percent, while any physical DR is reduced by ten percent. Between the paint and plating system, this truly allows a unit to withstand more damage then was allowed by the now old plating system. This type of plating can be applied to all Mecha types except for light Mecha, as it is simple to heavy for the units to handle. Even the medium Mecha units have a slight disadvantage with the new plating system; it reduces their maneuvering capabilities. The heavy and assault units have no problems with the new plating.

DFR (Defensive Rating): The DFR index is 295.
ED (Energy Drain): There is no ED for plating.

TSG-F131 Shields

The TSG-F131 (Tonsten Shield Generator – Force 131) is a new technology for Mecha units. For sometime now many of the marines other combat vehicles were able to take advantage of the force fields. Mecha were nearly the only combat vehicle that did not incorporate this defensive system. Some Mecha may have had this system adapted into their frame, but for the most part Mecha simply did not use force fields. The TSG-F131 changes this flaw. A complete description of energy armor can be found in the Armor Branch Guidebook. A quick brief: deflector shields, those used by starships, work by altering local gravity to extreme levels, bending energy waves away from the hull and completely destroying physical penetrations. A force field is a barrier to incoming energy that distorts, absorbs or deflects the energy away from the unit generating the field. (please see the Armor Branch Guidebook for more information)

The case of the MCP, there are three generators. There is a low-level bubble generator (LLBG) and the other two are partial-unidirectional shield generators (PUSG). The first layer of shielding is the LLBG, which completely surrounds the unit in a defensive shell. This defensive shell is not too strong as shielding goes, but it works great against small to medium weapons DR. The PUSG is set so that it either protects the front or back of the unit and they overlap in the middle to ensure proper protection. It is the PUSG that really defends the unit using the shield system. The LLBG is more for what gets through the PUSG and any other factors that could affect the unit.

DFR (Defensive Rating): The DFR index is 100 – 50 for each shield generated.
ED (Energy Drain)*:* The ED index to use the TSG-F131 is twenty.

FLAR (Fodder Launched Armory Reflectors)

The FLAR system is a simple countermeasure system that has been used in aerospace ship designs for many years. When an incoming missile is detected, a FLAR is launched from the unit in an attempt to deflect the incoming missile in order to destroy it before it strikes the unit. How the FLAR does this depends upon the type of incoming missile. A heat seeker would use a Starburst FLAR. A Starburst FLAR is a reflector that once launched and reaches to distance ignites into a high heat plasma ball. The heat seeker should then lock onto the plasma ball as the heat generated is greater then the Mecha unit. The plasma ball is designed to 'blind' the heat seeker to the mecha unit. Should the heat seeker lock onto the Starburst and then strike it, the Starburst will destroy the missile.

DFR (Defensive Rating): There is no real DFR applied to the unit directly from the FLAR system as it is an external defensive measure and the capability rests with the FLAR itself to confuse the incoming missile.
ED (Energy Drain): The ED index to launch a FLAR is 1.

SJC (Sonic Jamming Counter-measure)

The SJC is used to jam incoming missile's radar. When a radar guided missile is detected, the SJC sends out an intense pulse to confuse the missile into thinking that its target has either moved or vanished. By allowing the system to think it has lost its target, the missile is then destroyed since there is no target for the missile to strike.

Subsystems

When people see Mecha, usually the first take notice it their size and then the take notice of the weapons. What many people do not see or notice are the number of other systems that make up Mecha unit. There are a number of subsystems that are just as important to the unit as is the offensive and defensive systems. With out these subsystems, the unit could not operate.

Commu-nication Suite

The unit maintains one of the state of the art communications arrays designed for combat situation. The MCP is able to link to all communications systems and all other units assigned to the MCP. The pilot compartment has a number of video screens that allows the commander to view a number of images, which include live video from the other Mecha in the field. This allows the commander an on hands view of what is going on with the combat situation.

Computer Assisted Targeting (CAT)

All Mecha units are equipped with the CAT system. This system assists the pilot in identifying, locking-on-target (LOT), and setting firing sequence. With this system the pilot can more accurately handle threat targets, providing the unit and pilot a better chance for survival. All weapon systems on a unit can be fired without the use of the CAT, and pilots are trained to do so, but the CAT truly provides the pilot with a better option and allows the pilot to concentrate on other things.

Electro-Magnetic Grippers (EMG)

As part of the systems incorporated into the feet of the Mecha is the EMG. The EMG allows the unit to magnetically attach itself to the hulls of space going vessels. This allows the unit to walk along the hull and to remain in spot when firing weapons.

External Audio Pickup Amplifier (EAPA)

The EAPA is a system that is able to locate, lock-on, and amplification any sound within 300 ft (91.5m), even a whisper.

Heat and Radiation Shielding

Because Mecha are designed to work in outer space and hostile environments, the plating system incorporates a heat and radiation shielding to prevent damage from the extremes that the unit operates in. This not only protects the pilot, but protects the Mecha systems as well.

Heating and Cooling System

As part of the pilot compartment, there is an internal heating and cooling system that keeps the compartment at a prescribed setting. This unit is part of the life support system.

Independent Life Support System (ILSS)

All Mecha units are equipped with a self-sustaining life support system. This system has a connection to the main power supply, but also contains its own power supply should the main source become inactive. This allows the system to maintain life support for the pilot. The system uses a re-breather style of application to ensure fresh air. There is a small replicator that will allow a pilot to sustain life in case of prolonged operation or other reasons.

Laser Assisted Targeting System (LATS)

The LATS is part of the CAT system. For those systems that use or can help by being identified with a laser, the LATS takes care of this feature. The LATS also help the M3C with the data indicators, such as range, location, and positioning.

Loudspeaker

All Mecha are equipped with an external loudspeaker system that is accessed through the pilot compartment.

Mecha Combat Computer (M2C)

The M2C is a microcomputer core that handles all combat situations. The system is able to identify, catalog, tag, lock-on-target (LOT), and assist the pilot. The M2C is a separate computer core from the main core that operates the unit. This allows the M2C to concentrate solely on combat situations and the main core on operating the unit.

Microcomputer Core

The Microcomputer Core is a compact computer core that operates the unit. This system is similar to the cores that operate starships, shuttles, and other such vehicles.

Multi-level Locking System (MLS)
All Mecha units use a series of locking mechanism to disallow any unauthorized people from gaining entrance to the unit. There is a voice-actuated system that uses a code sequence to allow access. There is also a DNA identifier, retinal scanner and Pilot Signature Imprinter (PSI). Should there be no power to allow this form of entrance, there is an older method of external locking systems. Although this system takes longer to get in to ensure the proper person is gaining access.

Reinforced Pilot's Compartment
All Mecha are designed with a reinforced pilots compartment. This compartment is designed to maintain the pilot's life, control the unit, and provide a location for the Mechajock to pilot the unit.

Self-Destruct
All Mecha units incorporate a system of explosives that take out all key systems and ensure that enemy, for study, does not take the Mecha.

Sensor Grid
The sensor grid is an series of various arrays that allow the unit to determine needed information, such as the current environment, location of possible hostile forces, identifying life forms, and much more. The Sensor grid runs the full gambit that is standard to small vehicles.

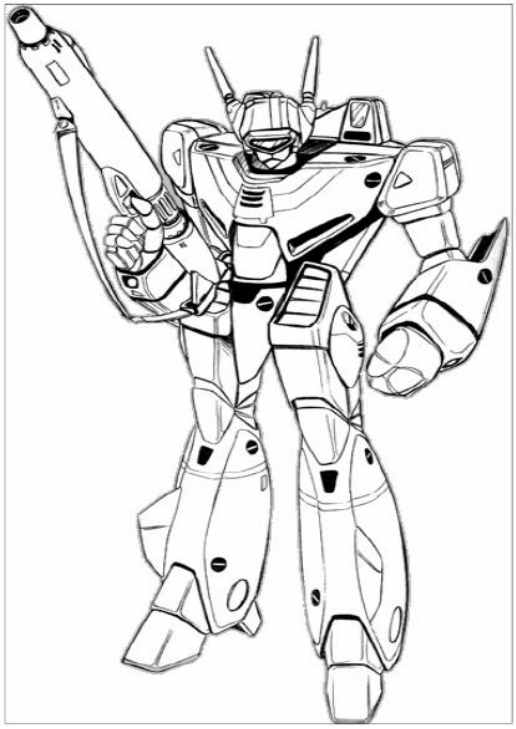
Space Propulsion System
Mecha have to be able to operate in space, therefore they need a system of propulsion. All mecha are designed with a propulsion system to allow limited travel in space, enough to allow for maneuvering.

Standard Survival Kit (2SK)
All Mecha units are equipped with a standard survival kit should the Mechajock need to leave the unit, or is on extended operations.

Varied Optical Resolution (VOR)
As part of the sensor grid, Mecha are designed with a Varied Optical Resolution system. The VOR is a series of optical sensor systems.

Infrared: the system sends out an infrared beam that is invisible to normal vision. The system allows the pilot to see in compete darkness and other infrared lights.
Ultraviolet: allows the pilot to see into the ultraviolet spectrum.
Nightvision: the system takes ambient light and amplifies it to allow the pilot to see in limited darkness.
Thermo-Imager: the system allows the pilot to view variances in heat sources.

Project: Valkyrie



The Variable Geometry Mecha or Valkyrie is a radical concept within the Mecha Branch of the Starfleet Marine Corps. As early as 2355 designers were already working on a proposed radical design for the Mecha Branch. This concept was based on the analysis gathered from the data during the battle on Thetas Mina IV. The result of the finding yielded two major concerns that needed to be addressed. The first was transporting a Mecha unit to their target and the second was surviving an assault from aerospace fighter attacks. Conventional Mecha design prohibits this. During the time that massive amounts of Mecha designs were being proposed only a hand full of designs were being approved for production. Colonel Jeffery Webb was a staunch supporter of the Valkyrie Project and it was through his efforts that the project survived. When work began on the Variable Geometry Mecha or VGM things were beginning to heat up between the Federation and the Dominion. Combat against Jem'Hadar forces proved to be difficult and with the tactics used by the Dominion Standard Mecha were at a severe disadvantage during combat. During this time two prototypes of the Valkyrie, the Stinger and the Wasp shined on the battlefield. Do to their versatility and speed they achieved many victories. They however suffered the greatest losses due to their size and the fact they lacked the firepower of their bigger brothers. A footnote on this those Mecha Jocks who did survive came up with some very innovative solutions to the short comings of those particular Mecha. This did not go unnoticed by the Valkyrie design teams. The long and short of it is the development of a new generation of Mecha. Just like the multi roll fighter craft in the Aero Space Branch the Mecha Branch developed a multi roll Mecha.

These Mecha would be designated as Aerial Assault Fighter Mecha or AAFMs. This designation was a compromise to both the Mecha Branch and the Aero Space Branch of the Corps. Due to the unique nature of this Mecha cross training had to be achieved from Marine personnel in both branches. Another aspect of AAFM training is the requirement to pass infantry training so that the Valkyrie pilot can integrate this training into the Ground assault mode of the AAFM. Traditionally each branch of the Corps specialized in one area of training. With the introduction of the AAFM those barriers have been removed so that a Marine could drive a Mecha, fly a fighter or ground pound with infantry grunts. With this in mind due to certain requirements there are currently two variations of the AAFM, the first generation, the Valkyrie, and its bigger brother, the Excalibur.

Both Mecha have the Variable Geometry that the designers wanted but based on the needs of combat situations a slightly bigger version of the Valkyrie was needed. To fill the need for rapid deployment and recon the Valkyrie fit this roll perfectly. Due to this factor its versatility may eventually replace the wasp and Stinger Mecha in many fields of operation. Both of those Mecha cannot be completely phased out due to on major factor. That factor being the highly specialized training required to pilot the Valkyrie. Not every Mecha Jock will be able to pilot a Valkyrie so both the Stinger and the Wasp will still have their place in the Mecha Branch. The Valkyrie is a light Mecha unit whose primary role is Recon and Interception. This Mecha also has the benefit of being small enough that three squads can be stationed aboard any starship with a standard sized hanger deck. The Excalibur is the Valkyrie's bigger counter part falling into the Medium Mecha category. This makes the Excalibur more formidable on the battlefield. The primary reason for a bigger Mecha is for rapid deployment to hold a forward position until the heavier Mecha can be deployed.

What the Excalibur lacks in speed and agility it more than makes up for in firepower. Granted The Excalibur may be slower than the Valkyrie but it is the most agile of Mecha in it's weight class compared to Standard medium Mecha. The most advantageous attribute of the Excalibur is when it is in Fighter mode. This combined with the technologies involved make this an ideal Mecha to be stationed along side the Valkyrie aboard a starship. Unfortunately due to the size only two squads can be stationed in a standard hanger deck. The future of this Mecha is not set but it appears that it is here to stay.

Valkyrie Motto

The Motto that has been coined by those fortunate enough to train in an Valkyrie is "FLEET OF FOOT". This phase was coined by one of the first test pilots and it stuck. Referring to how agile and versatile the AAFM is this phase now applies to all VGM. A note on the Valkyrie Logo to the left. This started out as a joke that revived an old earth tradition. Apparently a rumor was spread about the Commanding Officer of the Norad test facilities on Earth had an ancestor who was a Norseman. After much debate and a few pints of alcohol the ground crew engineers decided it was time to decorate the nose of the ten Valkyries with some rather unique artwork. Unknown to the ground crew however several high-ranking members of Star Fleet and the SFMC were to tour the facility and to be introduced to the latest Mecha development. The result was one very irate Colonel and several amused Admirals, Generals and a hung over ground crew. The logo stuck and became part of the standard signage stenciled on to every Valkyrie produced. This also ushered in the standard practice of nose art to be used by AAFM pilots through out the Corps.

AAFM Squad

Due to the nature of this particular Mecha organization of the AAFM units became problematic. Since Marines from several branches of service were going to be put together a small development came up. Each branch of the SFMC developed similar but different organizational structures to suit their needs. Those who developed the Valkyrie ran into problems integrating those organizational structures into the AAFM program. The solution was to dispense with some of the traditional structure and come up with a compromise unique to AAFM units. Since the Primary branch affiliation for the AAFM was the Mecha branch and the Secondary was the Aero Space branch it was decided that a hybrid structure was needed. In the Mecha branch the organization was broken down into Platoons, Companies and Battalions and within the Aero Space Branch this structure was broken down to Teams, Flights and Squadrons. It was determined since AAFMs would be assigned to both Mecha Branch and Aero Space units the decision was made to keep it simple. AAFMs would be assigned as Squads assigned to a unit. These squads would range in size from 3

to 5 Mecha. A three-unit squad would primarily be used for recon and patrol. A five-unit squad would be used for interception and forward deployment at designated drop zones. Composition of each squad would vary depending on the needs at any given moment but typically three unit squads are made up primarily of Valkyries and the five-unit squad would have two Valkyries and three Excalibur's. In the case of multiple squads organization would follow whichever branch they were assigned to be it Mecha or Aerospace. Mixing and matching of squads is not uncommon especially when optimum results are needed to achieve victory. Ideally Squads would form and be a cohesive unit through out a VGM pilot's career.

Pilot and Ground Crew Rivalry

The rivalry between the AAFM pilots and their ground crews are very much like those of the Aerospace branch. The big difference is that there is a closer bond between them. In most cases you will see pilots working along with the ground crew assisting in the care and repair of their craft. Each has a respect for the other. There is also the tradition of practical jokes witch is very much alive. One of the biggest jokes is having the ground crew paint nose art on pilot's AAFM. This usually results in the pilot receiving their call sign.

VGM Mecha Pilot and Aerospace Rivalry

The relationship between these two groups tends to be very competitive. It is more evident between those pilots that start off in the Mecha Branch. Aerospace fighter pilots already consider themselves to be the best of the best and look at those Mecha Jocks as ground pounders that want to be pilots. Mecha pilots that make it to the VGM Program consider the Aerospace pilots to be arrogant snobs who don't know the meaning of the term "War is Hell!" To this end both Mecha Branch personnel and Aerospace personnel have an uneasy relationship built on die-hard competition. This is so much so that both groups tend to play poker with the loser usually doing some inappropriate act to fulfill the obligation of a debt. This also tends to be a sour point of contention during training. Instructors have to make it very clear that there is no competition among the Branches. This does not always work and there is usually injuries because one or the other of each group invariably will find a way to try to out do the other. Despite this when they meet to do battle against an enemy they will fight to the death to defend one another in the end. One distinction has come up that is a minor difference in skills. Aerospace Pilots tend to do a little better in Assault Fighter mode were as the Mecha pilots do slightly better in Ground Assault mode. There is however no distinction in Recon Mode.

Variable Geometry Mecha (MOS) Requirements

Due to the nature of this particular Mecha, training is very much a specialized field within the SFMC. To qualify for this program there is a considerable amount of training and aptitude the pilot of this machine needs in order to be considered worthy of the honor of piloting this very special craft. The MOS and SQI's of these individuals is only the starting point of this program. To qualify for this program there is a pre-set of MOS training needed. Based on this factor the following list is a general overview of prerequisites to qualify.

Mecha Branch Qualification MOSs

520 Mecha Pilot, Light Mecha (Officer)
525 Mecha Pilot, Medium Mecha (Officer)
540 - 560 Mecha Technician (basics of)

Skill Qualifications list

Reconnaissance qualified
Aerospace insertion qualified
Expert Gunnery Qualified (Mecha)
Light Mecha pilot ACE
Medium Mecha Pilot ACE,

Aerospace Branch Qualification MOSs

601 - 605 Technical Specialist (see Aerospace Manual for details)
620 Fighter pilot, Air Combat
630 Fighter Pilot, Space Combat
640 Amphibious Assault Pilot
650 Special Operations Pilot

Skill Qualifications list

Aerospace Fighter Pilot ACE (both Air Combat and Space Combat)
H.A.L.O. jump qualified
EVAC and Zero-G Combat Qualified

Infantry Branch Qualification MOSs

308 Scout / Sniper
350 Powered Infantry
351 Powered Scout
357 Powered Heavy Infantryman

* Notation on why powered infantry training. Since the Variable Geometry Mecha is essentially a very large powered armor suit. This gives the pilot a basis of understanding and manipulation of the Mecha in a way that equates to the powered armor used by the Infantry but on a much larger scale.

Special Operations Branch Qualification MOSs

833 Spec Ops Scout / Sniper
841 Spec Ops Fire Support Specialist
882 Spec Ops Recon Specialist

Transporting the AAFMs

Transportation of the AAFMs is just a matter of leaving room in the Hanger Deck of any Starship. Most AAFMs are launched and recovered like most standard Marine fighter Spacecraft. Launching of these craft can also be done in the same manner as a standard Federation shuttle. For Covert insertion of the AAFMs, they can be outfitted with a specially designed Warp sled designed to make the AAFM Warp capable. One Starship Class is currently being used as the test ship for the AAFM. A Sabre Class Starship was modified for this purpose. An extensive overhaul was done and the internal structures completely modified to house the AAFM and all necessary support equipment and two platoons of standard Mecha. This is also part of the testing of the AAFMs to coordinate operations and tactics with the interaction between the two distinctive types of Mecha.

Weapon Systems

The weapons that the Variable Geometry Mecha can carry are standard to all Mecha. All of the Weapons fielded by standard Mecha can be outfitted to the AAFM. There however is one notable change exclusive to the VGM, this being the external Weapons Pod. This is not a permanently mounted Weapon system. With a Variety

of load out options this Pod can be configured in many different ways to suit the needs of any given situation at a moments notice. Once a forward support station has been established these pods can be readily available and all the AAFM pilot has to do is pick it up and use it. The Draw back to this is the limited amount of ammunition these pods have. This is more apparent in the Projectile and Ballistic weapons pods than in the Energy Weapons pods. The advantages of these pods however out weigh the disadvantages. In essence these would the AAFM equivalent to a standard infantryman's weapons that a soldier would carry into the field with him. This is part of the advantage that the AAFM has over the Standard Mecha in that if the pod gets damaged during combat the pilot would just pick up another one. Another advantage to these weapon pods is that there is no heat bloom built up for the AAFM when used. Another advantage is for those Standard Mecha that has hand actuators is they have the ability to use these pods as well but some training and practice is needed.

Story: "Maiden Flight"
Sergeant Edward "Penguin" DeRuggiero sat in his cockpit, ready to take the Valkyrie out for the first time. He had been selected to be the first pilot of the new Variable Geometry Mecha. During the last two years, he had been assigned to Fokker Research Facility, preparing for this day. He had qualified as an expert Pilot on all classes of Mecha, as well as qualifying as an expert Aerospace Pilot. He had beaten out many of SFMC's finest Officers for this honor, and he was glad to finally be sitting in the Mecha, waiting for the start of it's final testing, and it's maiden flight.

Three of the Engineer's (all three were also SFMC Reserve officers) and Ed had become very close in those two years. Again, all three engineers had been handpicked, being the best SFMC had to offer in their respective disciplines.

Commodore Edgar "Smilin' Buddha" Torres had been picked as the Main Project Engineer once the project started. He had been involved with the Third Generation Mecha conversions, and was seen as the person who would see the project from start to finish.

Lt Commander Benjamin "Ben" Kokochak had been chosen to work on the propulsion system. He had been there as well during the Third Generation Mecha conversions, working on the new engine designs. He also had experience working with the aerospace fighter engines SFMC had become proud of. It was his goal to design a Mecha engine that could also work on an aerospace fighter.

Fleet Captain Ann Marie " Red Corsair" Reilly was working on the conversion hardware. Although her experience was not with anything that was used normally in a Mecha unit, she had worked on other projects for the Marines, and was felt to be the best person to work on the conversion hardware.

There were other Engineers assigned to the project, but none of them were as close as these four had become.

Now it was test day. Ed, Ann Marie, Edgar, and Benjamin had decided that morning to meet up early and have breakfast together. This would give them all a last chance to talk about any concerns they had. It seemed that all they could talk about was where they would go once the project was complete.

Now Ed was alone in the cockpit, waiting…waiting…waiting. He knew this was what he had waited for, and he wanted to get the tests started. But even he knew the

engineers were doing their last minute checks. Once in a while, he would hear Ann Marie's or Ben's familiar voice in the headset, going through the pre-flight checklist.

"Base to Penguin."

"Go ahead, Buddha" Ed replied to Edgar.

"Ready to get this started?"

"OK then, let's get started. Activate your engines."

"Roger."

Ed started throwing the switches necessary to start the engines. He watched as the instrument panel showed the status of each engine. He could feel the vibration of the engines in his seat. "Hmmm" he thought. "Have to remember, the ejector seat isn't working yet. Hope she holds together."

"OK Buddha, engines are a go."

"OK Ed, take the engines to ten percent power" said Ben.

"Taking engines to ten percent."

"Take them to twenty five percent."

"Twenty five percent, aye."

"Engines still look good. Let's take them to seventy five percent."

"Going to seventy five percent."

"Engines are still looking good. Go to one hundred percent."

"Going to one hundred percent. It's getting a little warm in here."

"I expected that. With no motion, the heat sinks are unable to dissipate the heat quickly. Except for heat, they still look good. Let's go to one hundred and tem percent. Take it to red line."

"OK, but let's not keep it there too long."

"No problem Ed. Engine data still looks good. I don't want to push them any more today. Bring them back to minimum.

"Taking them back to minimum, aye."

"OK Penguin, let's start the tests. Head north from your position at half walking speed."

"Roger."

Ed took the throttle control in one hand, and the steering/weapons control in the other, and started moving the Valkyrie. At first, she was sluggish, but as she moved, the controls became easier.

"Half walking speed, Check."

"Take her to full walking speed."

Ed pushed the throttle forward to the full speed marking on the control. The Valkyrie went to full walking speed with no problem. She even seemed to enjoy the faster pace.

"Full walking speed, Check."

"Take her to running speed"

Ed took the control to running position. He felt himself slide into the chair even further. The Mecha felt like it was gliding over the ground.

"Full running speed, Check."

"Try a Jump."

Ed pressed the jump button. He felt the jump jets fire and saw the ground fall below him. As he started to descend, the jets fired again to slow his landing. Upon landing, he was back at full run speed.

"Jump complete."

"OK, Penguin. I'm turning it over to Ann Marie for the final testing. Good

luck, my friend"

"OK Ed, are you ready for the rest of the test?" He heard Ann Marie ask.

"As ready as I'm ever going to be."

"OK, take her to Recon Mode."

As Ed pressed the button for Recon Mode, he felt the Mecha change. His cockpit slid forward, and wings appeared to his sides. The Mecha was still at running speed, but it was the engines that were providing the speed. The jump jets were firing just hard enough to keep the feet airborne, just above the ground.

"OK, Ann Marie. Recon Mode, Check."

"OK Ed, final test. Hit Jump and go to Assault Fighter Mode."

Again, the Valkyrie went high into the air as the jump engines ignited full. As he pressed the Assault Fighter Mode button, the Valkyrie once again converted, becoming a complete aerospace fighter. It started to climb better than he expected.

"Assault Fighter Mode, Check."

"OK Ed, bring her down, and convert her back to Mecha Mode."

"OK, on my way back down"

He watched his altimeter as it clocked down…200 ft…150 feet…100 feet… He started to slow his descent. 80 feet… 70 feet… 60 feet… 50 feet… At 20 feet above the ground, he hit the button to convert back to Mecha Mode. His Fighter converted back to a Mecha, fired its jump jets to slow down, and touched down at a running speed. Ed took his control and slowed his Valkyrie down to a stop, just in front of the engineers.

"Buddha, this is Penguin. Tests complete. Successful run."

"That is affirmative Penguin. We have some Champaign to celebrate"

Fourth Generation Mecha

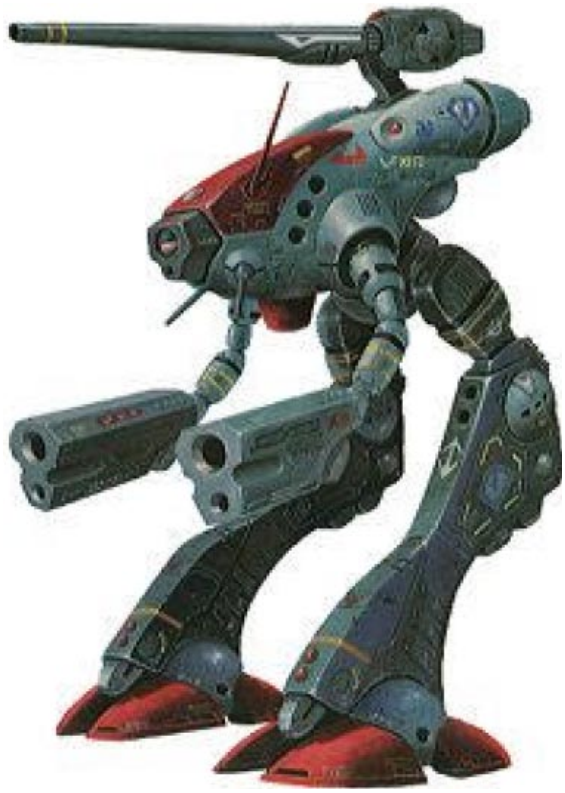
R&D personnel at Fokker Research Facility are already looking into the next generation of Mecha. There are currently two propositions on the table.

With the creation of the Second Generation Mecha, the design aspect of having separate torso and leg devices, as setup in a modular design, allowed for rapid replacement of either section due to fatigue or damage. A standardized set of leg modules were set that could be interchanged to allow for such changes as speed, armor, and armament (as well as strength, lift, and better jump capabilities). This design concept met with success, and it was felt that it was time to move the concept to the next level. This led to the concept of the Omni-Mecha. Other areas of the Mecha could be designed as modules; arm/hand actuators, weapon pods, equipment pods and packs, thruster packs, and redesigned torso and leg modules. The only Mecha that would be excluded for the time being would be the Quad-legged Mecha. This was due to their non-modular design, even though their parts were still listed with the modular scheme.

The other concept for the Fourth Generation Mecha is that of the Bio-Mecha. The Bio-Mecha would be a 50/50 combination of mechanization and bioengineering. Some of the Mecha infrastructure would be replaced with bio-engineered components. The Bio-Mecha would be the most advanced, fastest and well-piloted Mecha in the fleet. The down side to the Bio-Mecha is that, like the Second Generation Mecha, the bioengineering is susceptible to conditions that hamper bio-matter. Also, the Mecha 'act' more in a 'human' manner, which includes the effects from damage.

Part 9 - Mecha and Equipment

Before embarking on your education in Mecha deployment and tactics, it will be important for you to learn the basic equipment of the SFMC Mecha Branch. *For more information about Mecha Arms & Equipment, please refer to the SFMC Arms & Equipment Manual and the SFMC Arms & Equipment Manual ME Supplement.*



Part 10 - Non-SFMC Mecha

The Klingons

Our allies, the Klingons, have received some older Mecha from the SFMC for testing purposes, and have just begun to field designs of their own. In keeping with the Klingon predilection for close combat, Klingon designs favor massive melee weapons. The Klingons have so far designed medium, heavy, and assault class Mecha for immediate production. These designs are undergunned by SFMC standards, but are designed for shock value and close combat.

Special Technologies

The Klingons have developed several items that are only now being tested by SFMC armorers for possible inclusion on our Mecha. These innovations have their drawbacks, but are impressive in their show of Klingon ingenuity.

Heavy Armor — Klingon Mecha may mount armor that is twice as durable as the armor mounted by other nations. This armor does degrade the agility and performance of the Mecha, but drastically increases it's staying power. (BATTLETECH Equivalent: Hardened Armor, see Maximum Tech)

Improved Myomer — Klingon Mecha have the ability to supercharge the synthetic muscles that drive their massive limbs. When a Klingon Mecha unit builds up heat, the energy can be used by these improves Myomer bundles to increase the Mecha's physical strength. (BATTLETECH Equivalent: Triple-Strength Myomer, See Battletech Master Rules)

Melee Weapons — In the Klingon tradition, Mecha have been outfitted with huge, giant-sized melee weapons. These weapons allow Klingon Mecha to engage in hand-to-hand in a much more effective manner. (BATTLETECH Equivalent: Axe/Hatchet, Mace, Sword. See Battletech Master Rules)

The Romulans

Romulan Mecha design philosophy maintains that energy weapons rule the field, due to their independence from ammunition. Romulans like their mecha quick, and hard-hitting. Romulan mecha are based around stolen Federation prototypes and wreckage they claimed from the Dominion War, however the Romulans have made a couple of advances in Mecha Design themselves.

Special Technologies

The Romulan reverse engineering of Federation mecha has yielded them access to nearly every technology present in the first generation of SFMC mecha, and their own innovation has added a few twists of their own.

Stealth Armor — This armor absorbs normal sensor emissions, making Romulan Mecha quite stealthy for their size. (BATTLETECH Equivalent – Stealth Armor. See Maximum Tech)

Null Signature System — This system helps cloak Mecha from sensors as well, and has proven to be quite effective. (BATTLETECH Equivalent – Null Signature System. See Maximum Tech)

The Cardassians

Romulan Mecha design philosophy maintains that energy weapons rule the field, due to their independence from ammunition. Romulans like their mecha quick, and hard-hitting. Romulan mecha are based around stolen Federation prototypes and wreckage they claimed from the Dominion War, however the Romulans have made a couple of advances in Mecha Design themselves.

Special Technologies

The resource-poor Cardassians have begun to rebuild their shattered home, and their Mecha force with it. Being the first Threat power to be attacked by SFMC Mecha made the Cardassians very aware of what Mecha could do, and they immediately embarked on their own design projects. Cardassian Mecha designs focus on low-cost weapons systems that are not resource intensive.

Barrage Rockets — Cardassians believe in cheap area saturation weapons. The Barrage Rocket batteries fire multiple 'dumb' rockets into a target area. They are exceedingly inexpensive, and effective due to their close range employment. (BATTLETECH Equivalent: MRMs. See Battletech Master Rules)

Foamed Carbon Structure — Cardassian scientist have developed a foamed carbon laminate that replaces the tritanium 'bones' other powers use for their Mecha. Not only is it less resource-intensive, it also reduces the weight of the Mecha skeleton by half. It is, unfortunately, prone to damage. (BATTLETECH Equivalent: Composite Structure: See Maximum Tech)

Part 11 - Transporting Mecha

Originally, mecha were wedged onto Federation starships wherever there was room. Most often, this meant the cargo or shuttle bays. This made deployment difficult at best, and a nightmare if attempted under fire. It became standard battle doctrine for the fleet to first secure orbital supremacy before landing the mecha, which limited their use as a support force for the rapidly deployable infantry units. Design of dedicated mecha transports was deemed too costly by the appropriations committee, as most Starfleet vessels (with the exception of those rushed into production during the Dominion War, and those designs produced in reaction to the Borg threat, such as the *Akira* and *Defiant* classes) were meant to serve in multiple, usually peaceful, roles.

Transporters offered a shaky fix to the problem of deploying a mecha. While it was possible to channel enough transporter energy to beam a mecha in theory, in practice few ships ever accomplished the feat. Heavy modification of the transporter systems to allow nearly every pattern buffer on a vessel (and some supplementary ones!) to network in order to was necessary, along with the rerouting of immense amounts of power, and, of course, the lowering of the beaming ship's shields. Although this method of deployment was very effective in some cases during the Cardassian War, a more practicable solution had to be found.

The answer came in 2372, when the externally mounted mecha drop pod was designed. Originally fitted to older, mothballed *Miranda* space frames, the pods were mounted ventrally, between the nacelles. Four such pods could be mounted abreast, allowing for a platoon of mecha to be transported by a relatively small vessel. The pods contained the mecha in it's drop cocoon, and an umbilical allowing the pilot to board the mecha while in transit. Although any preparation work or maintenance had to be done before the pod was mounted to the ship, mounting a mecha pod took an experienced crew less than thirty minutes to accomplish. Recovery was still a problem, and often handled by the same jury-rigged transporter systems that had been used to deploy mecha. Used when combat was resolved, and hopefully won, the transporter could recover the mecha at a leisurely and safe pace. Combat situations requiring the recovery of the mecha remained problematic until the design of the first and only dedicated mecha transport vessel by a team of independent researchers in concert with Leeding Engines, Ltd of Mars.

Conformal mecha pods have been designed for nearly every Starfleet vessel class likely to be involved in combat operations. While this allows a greater number of mecha to be transported more easily, it must be noted that these drop pods often block weapon firing arcs and alter warp geometry. The test bed for the *Intrepid*-class drop pods, *U.S.S. Ark Angel,* reported her ventral phaser collimator completely blocked by the pods, and a 7% loss in warp capability above cruise velocity due to the field geometry changes. It should be noted that while these pods allowed the *Ark Angel* to successfully carry and deploy a full company of twelve mecha, it's combat capability was severely impaired during the exercise. It is also interesting to note that the *Intrepid*-class vessel's variable warp geometry nacelle structure makes it better able to adapt to the field configuration changes caused by the drop pods, therefore, a warp capability degradation greater than that suffered by the *Ark Angel* should be assumed for most vessels lacking variable geometry nacelles (the bulk of Starfleet).

In April of 2375, as the Dominion War was in it's final days, the prototype Mecha Platoon Transport, *U.S.S. Leopard*, had just finished her warp trials. The vessel was designed to make planet fall and be able to lift off again, much like the *Intrepid*-class vessels, but unlike those cruisers, the *Leopard*-class vessels were designed to be all engine and mecha storage space. Since the mecha were stored in articulated repair frames, tech crews could actually repair and maintain the mecha while in transit. The vessel allowed mecha to simply step into or out of the massive bay doors, making deployment and recovery much easier. A through-deck dual fighter berth was added as an afterthought, to allow for integral air support, or an additional pair of mecha from the Valkyrie Project. The *Leopard* vessels have been dubbed `Flying Bricks' by many, due to their aerodynamic qualities, or lack thereof. The vessels have not yet seen combat duty, but simulations and war games have shown promise.

Of the Leopard class, twenty have been authorized, four are complete, and six are under various stages of construction. The final ten spaceframes are on hold pending a review of their necessity by the Defense Appropriations Committee. All Leopards were produced at the Harland and Wolff Orbital Yards at Earth. The Leopard class is designated as Attack Transports (APA).

Name	Hull Registry Number	Status
USS Leopard	NX-73024	Operational *(Prototype)*
USS Hanse Davion	APA-73025	Operational
USS Katrina Steiner	APA-73026	Operational
USS Takashi Kurita	APA-73027	Operational
USS Maximillian Liao	APA-73028	Under Construction
USS Janos Marik	APA-73029	Under Construction
USS Morgan Finn Kell	APA-73030	Under Construction
USS Jaime Wolff	APA-73031	Under Construction
USS Natasha Kerensky	APA-73032	Under Construction
USS Justin X. Allard	APA-73033	Under Construction
USS Michael Stackpole	APA-73034	Under Construction

Part 12 - Operations

Strategic Use of Mecha

Combat Operations

Assault, Point	Mecha may be used to attack an enemy strongpoint. Using their superior mobility, they may be able to take up firing positions which would otherwise be unavailable to conventional military vehicles. Concentrated fire from several Mecha can reduce most fortifications to rubble in a short time.
Assault, Area	Mecha may be used to attack an area in depth. Again, their mobility plays an important part, by allowing them to rapidly shift firing positions and bring heavy concentrations of firepower onto a target and then move on.
Raid	Mecha make excellent raiders, being able to move in terrain to restricted for vehicles, and yet still being able to carry far more firepower than even a company of infantry. The sight of a huge armored figure charging through an area as it fires in all directions can cause even more disruption than the actual weapons used.
Garrison	Equipped with powerful sensors and ready weapons, Mecha make excellent garrison forces when used with supporting infantry. Their ability to patrol a perimeter is useful, and their presence gives the enemy pause.
Riot Prevention/ Suppression	Heavily armored, Mecha make imposing figures even when they aren't standing in a line facing you. Most mobs will disperse when facing an opponent that looks as if it could step on you. For those that don't, Mecha may be equipped with a variety of nonlethal weaponry and accessories like stunners, chemical dispensers, and loudspeakers. Flaming barricades may be simply removed by the Mecha's hands, or extinguished by foam sprayers.
Hostile Environments	Combat operations in hostile environments (vacuum, high or low pressure areas, or exotic atmospheres) are limited to sealed vehicles or powered infantry. Mecha have obvious advantages over both of these in terms of versatility and firepower.

Non-Combat Operations

Exploration

Powerful sensors, atmosphere sealed armor, and good mobility combine to make a Mecha an excellent choice for mapping or exploring areas of wilderness or even hostile environments (see the preceding paragraph).

Firefighting

As mentioned in the preceding paragraphs, hostile environments have little effect on Mecha, so firefighting is a natural use for them. Equipped with fire retarding chemical foam, water, and the Mecha's powerful lifting ability, most blazes can be effectively fought. For extremely high temperature or unusual fires, a layer of reflective and/or ablative armor may be applied to reduce temperature buildup in the Mecha. The Mecha's hands can help shift debris or remove injured personnel.

Heavy Construction

Mecha make excellent construction tools, using their hands to hold large pieces of equipment or material in place while they are welded or braced. Specially modified Mecha (such as the Combat Engineers use) may be equipped with cutters, diggers, trenchers, or welders to perform these tasks themselves. Mecha are especially effective solutions to the problems posed by construction underwater or in vacuum.

Precision Demolition

While anyone with enough explosives and free time on their hands can demolish a structure, Mecha allow the use of more precise methods of demolition. While it would seem elementary that a Mecha would be useful in demolition, they are also "environmentally friendly". They can remo ve sections of material by hand so it can be reprocessed, leaving most of a structure intact. Mecha are generally quieter than explosives, and faster than manual labor.

Tactical Use of Mecha

Insertion from Orbit

Transporters

When beamed directly into combat areas, Mecha are placed one per Mecha transporter array and beamed down in either single unit or platoon strength. Note that the transport location may be established by shipboard scanning, or use of an Emergency Transporter Location Beacon emplaced and activated by someone on the surface.

The Assault and Fire Support Platoons are sent down first, to secure a landing area for the "follow on forces" or FOF. Once an initial area has been cleared, the Recon and Striker Platoons are sent down to secure the area and begin scouting. As the perimeter is established and secured, the Command Platoon and any non-Mecha forces are sent down.

Carrier Landings

When shuttles or other small cargo vessels are used to land Mecha, the process is essentially the same. The heavier armed and armored Mecha are deployed first, to secure and enlarge an area for the lighter armed and armored units that follow. If landing in a "Hot LZ", Mecha are deployed as rapidly as possible, regardless of enemy fire, in order to allow the dropship or shuttle to exit the area as quickly as possible. In this case, all Mecha are used in direct combat to secure the area for the FOF to come. In the case of the Leopard carriers and atmosphere-capable Starships, the carriers themselves may provide cover fire for the disembarking Mecha.

Aerospace Drops (the "Egg Toss")

When a rapid or surprise drop is necessary, Mecha may be placed in armored reentry containers and launched into the target planet's atmosphere. These ablative shells ("eggs") are equipped with limited maneuvering thrusters and battery powered ECM equipment, to guide the shell and protect it from enemy fire. Once the shell has fallen low enough into the atmosphere to allow a safe landing, it is jettisoned by the Mecha pilot inside. The shell breaks apart, falling away and igniting itself with thermal charges, and burning up as it nears the ground. This gives enemy sensors multiple signals in both the metallic (Radar) and heat (Infrared) detecting range, dramatically decreasing the chances of the falling Mecha being successfully targeted by the enemy. A single use anti-grav unit slows the Mecha at the last instant, and then burns out, dropping to the ground as the Mecha lands on it's feet.

Surface Operations

Movement to contact

Advancing towards the enemy, the Recon platoon is deployed in a skirmish line with each Mecha just at the limit of it's effective weapons or sensor range. There should be a slight overlap of these, which should be increased if there is a great deal of dead space (buildings, rocky terrain, ridges) between Mecha. Once the enemy has been detected and combat is expected, the Recon platoon will maintain the advance, keeping within the effective range of the Fire Support platoon. This is so that if support is required, the Recon platoon can call in long range fire from the Fire Support Mecha covering them. The Striker Platoon generally remains between the Recon platoon and the Fire Support platoon, advancing rapidly to reinforce the Recon platoon once the enemy is encountered.

Engaging the enemy

Once combat ensues, the Recon and Striker platoons will attempt to penetrate enemy lines, bypassing and marking strongpoints for destruction by the Assault platoon, while searching out the enemy command and logistic support areas. The Assault platoon will advance and destroy any enemy strongpoints, while attacking the enemy front line. The Fire Support and Command platoons advance to their respective optimum weapons range. Once there, they will engage the enemy with long distance weapons fire, harassing and destroying any enemy positions located by the Recon platoon, to include the enemy's secondary forces.

Setting up a Firebase or Field Headquarters

Once an area is secured a perimeter is designated, usually about three kilometers in diameter. At the outer edge of the perimeter is the Sentry line, composed of five Mecha who are relieved every six hours. Normally, sentry duty is assigned to Recon, Striker, and Assault platoons depending on expected enemy activity and strength. Halfway between the Sentry line and the actual Headquarters Area is the Air Defense line. The Fire Support platoon, any Air Defense Mecha, and any Assault Mecha equipped with long range weapons are assigned to this line, and are evenly spaced along it. They may be located in improved defensive positions like revetments or trenches. In any case, duty is six hours on, six hours off, with every other Mecha in line on duty at a given time. In certain cases, multiple Mecha may have their weapon systems slaved to a single Command Mecha, who functions as a fire control director.

The actual Headquarters Area is composed of the Command platoon, any remaining unassigned Mecha, and the Technical Support platoon. This is also where the Logistics Area will be found (mess hall, field hospital, ammo point, motor pool, etc.) when available. Mecha crews sleep at the feet of their machines in personal collapsible shelters, or inside their machines if conditions warrant it.

Part 13 - Piloting a Mecha

The Art of Mecha Piloting

Mecha pilots, or Mechajocks, as they are sometimes known, have a very different type of cockpit environment than any other type of vehicle operator in the SFMC. The cockpit of a Mecha unit sits atop or very near a pocket fusion generator, common enough with SFMC vehicles, but particularly unique in it's necessary considerations for a Mecha unit. Unlike a tank or other block-shaped vehicle, the Mecha unit cannot simply vent the fusion generator's waste heat out it's rear, a standing Mecha unit is target enough without providing that kind of thermal signature. Unlike an aircraft, whose exhaust makes heat baffles redundant, the Mecha must deal with the waste heat from the fusion plant by shunting it to a series of heat exchangers throughout the Mecha. This makes the cockpit of a Mecha unit a very warm place to be during combat.

Mecha pilots make use of a Nylex bodysuit made of enhanced thermal material designed to wick excess heat away from the body. Over this, the FE-7803M MIPPA armor is placed, with it's enhanced cooling system and power/telemetry hookups to the Mecha itself. This allows for the MIPPA armor's own oxygen, coolant, and power reserves to remain untapped until a power interruption from the Mecha itself. Although externally indistinguishable from the standard MIPPA helmet, the NECI (Neuro-Electronic Communications Interface) helmet provides the same measure of protection, but also makes use of sensors mounted in the helmet's interior that read the motor impulse centers of the humanoid brain, linking the Mecha's gyroscope to the pilot's inner ear for balance, and allowing the pilot's mind to 'image' fine movements through the NECI, rather than the physical cockpit controls.

In the field, most Mecha units have a simple rope ladder or handholds build into the legs and torsos of the Mecha units. This allows the pilots to be able to climb into and dismount their Mecha regardless of the location or equipment of their current camp. Once the pilot is in place, a modified version of the standard sickbay medical suite begins to monitor all vital signs, and log them into the telemetry computer. The Mecha unit will bring it's fusion plant to warm standby, and await the personal unlock code from the pilot. Each Mecha can be keyed to accept anyone, or a single pilot by the use of these security codes. In their simplest form, they can be a spoken phrase, but in more complex security conditions, the code might involve voluntary muscle movements logged by the NECI helmet.

A five-point harness secures the Mechajock into the command couch, and the bottoms of the MIPPA boots adhere magnatomically to the foot pedals which control the direction of the Mecha's orientation. At this point the pilot or their ground crew will seal the hatch, and the fusion plant will come all the way to hot standby, with the gyroscope spinning to operating RPM as well.

In The Cockpit

Every Mecha unit is different, and all require familiarization time exclusive of one another, since each has varying performance profiles and systems. The basic controls for the Mecha consist of a joystick, a throttle, and the floor pedals. The NECI helmet rounds out the basic control

The Joystick

The 'stick is used in the Mecha pilot's dominant hand, and in it's crudest function moves the 'crosshairs' or 'pipper' around the view screen Heads Up Display. The thumb switch controls the currently selected combat mode, and squeezing the pinkie button will change the control of the reticule to follow the pilot's gaze rather than the stick control. The main trigger fires the currently selected weapon, with the middle finger button and the buttons on either side of the thumb switch comprising the Target Interlock Circuit system, allowing the Mecha pilot to slave multiple weapons systems to a single hardwired trigger for speedy volley fire during an engagement. Other weapons selection options are located on the throttle control.

Twisting the joystick in a rotational movement causes the Mecha to rotate at the waist (if any) and pressure on the mounting ring at the bottom of the 'stick with the heel of the hand while releasing rotational pressure will cause the torso to 'auto-center' back to it's normal facing.

The Throttle

The throttle controls the speed of the Mecha, with a thumb switch for 'Forward/Aft' movement, as well as a thumb button that controls whether the comb at computer changes the selected weapon system after a weapons discharge, the available modes are 'single fire', 'chain fire', and 'group fire'. Four finger buttons allow for the quick-keying of image enhancement, satellite map overlay, communications channel select, and other user-definable functions.

The Pedals

A pair of foot pedals controls the Mecha's direction much like rudder pedals on an aircraft. Press left, and the Mecha will begin to turn left. By combining this with other systems, like the throttle and joystick, the Mecha can be made to walk to the right while twisting it's torso to the left to acquire a target. A strong ankle-motion on one of these pedals will cause the corresponding leg to kick out at whatever the 'pip' on the HUD is currently illuminating, if possible.

NECI The Neuro-link helmet allows the Mecha to 'image' the Mecha through various maneuvers too intricate for hard controls. For instance, while a pilot may use the 'pip' to guide a Mecha's arm toward an item to pick up, the Mecha pilot will 'see' the Mecha's hand open the right amount in his mind's eye, and the NECI helmet will cause the Mecha's hand to respond accordingly. It takes practice and training for the gross control movements and tiny 'imaging' commands through the NECI helmet to mesh properly, because contrary to the popular misconception, the NECI helmet is not a 'mind-reader' in the strictest sense, it simply interprets motor-cognitive impulses when properly in context with the actual cockpit controls.

Other Controls In the cockpit, a Mecha pilot will find controls for the reactor, radar, LIDAR, communications, and TIC configuration. There will be a readout for each weapons system, life support, and a myriad of other systems. Controls for image enhancement, low-light mode, coolant flush and many other maintenance tasks are here as well.

The Express very SFMC combat Mecha has a pair of yellow and black striped handles located on either side of the command couch above the pilot's NECI helmet. These handles activate the ejection system, causing the canopy or head module's top armor plate to blast free of the Mecha, and the command couch to rocket up to 2km straight up, with a semi-guided parachute descent.

Basic Piloting Skills

Heat Management One of the most problematic skills to teach a newly trained Mecha pilot is heat management. While the movement of the Mecha generates very little heat on average, weapons fire complicates this process a bit. Most Mecha cannot 'alpha strike', that is, fire all of their bearing weapons, without some concern for heat buildup. Here are some tactics to deal with heat problems.

Water, water everywhere... If your Mecha has heat sinks mounted in it's legs, then standing in ankle to waist-deep water can help cool the Mecha off if it's running hot. Bear in mind that Mecha up to their waist in water tend to be hit above the waistline more often, sometimes taking critical cockpit damage.

One-Two Punch If you have a suite of 'hot' weapons, consider firing less of them every second or third turn, as necessary. Sometimes, this can allow for a staggering rate of fire to be kept up, with minimal heat issues.

Home on the Range

If your Mecha has weapons that are effective at different ranges, choose the most effective weapon to fire, and don't fire the others for the heat savings. For instance, a pair of Type V Phasers do two more points of damage for 2 less heat than a single Type VIII Phaser. If you are in range to use the Type Vs, do so at the expense of the Type VIII. This will generate more damage for less heat! Use the Type VIII for targets outside of the 9-hex maximum range of the Type Vs.

Movement and Maneuver

Experienced light and medium Mecha pilots will tell you to commit to heart the adage 'Speed is Armor'. Heavy and Assault pilots will tell you 'Armor is Armor'. Both is best, but seldom achieved. Use cover at all times to your advantage. Remember that if you are inside a grove of trees firing out, that your opponent is at a disadvantage and you are not. Remember that partial cover is sometimes better than no cover at all, and in some cases works oneway, such as when your Mecha is standing behind a wall.

Remember that the faster you move, the more difficult it is for an opponent to hit you, so maximum movement is often advantageous. Remember that jumping can make you a very hard target indeed, but may also spoil your own aim. The best advice for a beginning Mecha pilot on movement and maneuver is to familiarize yourself with the effects of varying terrain, and watch an experienced pilot at work. Experience is the best teacher.

Basic Combat Skills

Line of Sight and Target Acquisition/ Lock

All energy weapons and most ballistic ones are considered direct fire weapons; that is to say you must have line of sight (LOS) to hit your target. In most cases, you must have a target lock (LOK) on your opponent before your weapon will fire as well. Therefore, most combat consists of trying to get line of sight on a target, and then maintain it long enough to achieve a target lock so you can fire. Of course, you are trying to prevent your opponent from doing the same to you.

Cover vs. Concealment

An important part of keeping your opponent from getting LOS and LOK on your Mecha is to take advantage of cover and concealment. Concealment is anything that keeps the enemy from locating you. This can be natural, like smoke and heat from a forest fire that confuses or distorts thermal detectors, or it can be artificial like the signal masking that is performed by an Electronic Warfare Mecha. Concealment only can hide you. It won't protect you. If you give yourself away or are detected in some fashion, the enemy can shoot you. Cover is any physical barrier that will protect you from enemy fire, whether or not it conceals you. Like concealment, it can be natural (ridges, ravines, etc.) or artificial (buildings, wa lls, etc.). Cover can conceal you, but will protect you even if the enemy knows you are there.

Count your rounds

Remember that it might be a while before you get any resupply, so be conservative with your ammunition. Of course, if you have energy weapons, the ammunition problem is practically non-existent, but be aware of the wear and tear on your weapons, regardless of type. If it breaks down, your phaser is just as useless as an unloaded autocannon.

Choose the right tool

Know your weapon systems, and choose the right tool for the job. Don't waste missiles on targets you can kill with phaser shots. Don't empty your rocket launcher on an infantry position, when you can chase them off with a little forest fire started by your plasma guns. Always try to use the most effective weapon on a target, and use just enough force to get the job done—even if that bunker complex has really been stressing you out, don't go running over and jump up and down on top of it.

The Buddy System

Sometimes you may be unable to effectively engage the enemy because you are out of range, out of ammo, or simply overmatched. In cases like this, you can use your communications equipment to call for assistance. Two or three Mecha working together is a beautiful thing, and having an entire company come running to help you is even better.

Big Brothers, Little Buddies

If there aren't any Mecha around to help you out, there may be a starship in orbit who can assist you. A single phaser blast from orbit can do serious damage; after all, that's why Mecha units spend so much effort trying not to draw the attention of enemy starships. Even an unarmed starship or shuttle can use it's powerful sensors to tell you what's going on around you (this is called "getting the bigpicture"). Don't forget your smaller brethren, either. Besides watching where you step, consider how useful it could be to have a squad of troopers in powered armor suits swarm that enemy bunker complex that's been sniping at you with particle beams for the last twenty minutes. Combat Engineers are handy when you encounter mines (and you will encounter mines), and although they aren't as versatile as your Mecha, Grav Tanks carry even more firepower than you do.

Uncle Archie

If you are working unsupported, the nearest help may be friendly artillery. Keep in mind that while artillery shells are devastating weapons, they take time to get to you. It is difficult to hit a moving target with indirect fire, unless you target a known point and lure the enemy into the beaten zone as the incoming rounds arrive. However, against a fortified (static) position, artillery can do some serious damage; destroying or suppressing enemy heavy weapons positions before they can hurt you. In some cases, a "rolling barrage" of artillery may be used, hammering enemy psotions as you advance closely behind the "curtain of steel". Before the enemy can recover from the artillery attack and exit from any covered positionshe is in (like those annoying little bunkers), your Mecha will be right on top of them. Obviously, this takes a great deal of coordination and training between the artillery units and the advancing Mecha units, and can be dangerous if the rounds fall short or the advancing Mecha move into an area of "dead space" that isn't affected by the barrage.

Zoomies: Your friends in high places

The best long-range fire support you can get is a couple of aerospace fighters configured for ground support missions. They carry firepower that nearly equals an artillery fire mission, but they are far more accurate and can switch targets much faster.

There are few things in combat more pleasant than hearing a voice over your headset saying "Big Iron, this is Voodoo Flight with sixty thousand pounds of happiness...where do you want it?" Except, of course, sending Voodoo Leader the coordinates of a pesky bunker complex.

Part 14 - Recommended Reading

BATTLETECH	
Author	**Book**
Ardath Mayhar	**Sword and the Dagger**
William H. Keith, Jr.	**Decision at Thunder Rift** **Mercenary's Star** **The Price of Glory**
Michael A. Stackpole	**Warrior: En Garde** **Warrior: Riposte** **Warrior: Coupe** **Lethal Heritage** **Blood Legacy** **Lost Destiny** **Natural Selection** **Assumption of Risk** **Bred For War**
Peter Rice	**Far Country**
Robert Charrette	**Wolves on the Border** **Heir to the Dragon** **Wolfpack**
Robert Thurston	**Way of the Clans** **Bloodname** **Falcon Guard** **I am Jade Falcon**
James D. Long	**D.R.T.** **Main Event**
Victor Milan	**Close Quarters**
Christopher Kubasik	**Ideal War**
Andrew Keith	**Blood of Heroes**
GUNDAM M. S.	
Yoshiyushi Tomino & Frederick L. Schodt	Awakening Escalation **Confrontation**

ROBOTECH	
Author	**Book**
Jack McKinney	**Genesis** **Battle Cry** **Homecoming** **Force of Arms** **Doomsday** **Southern Cross** **Metal Fire** **The Final Nightmare** **Invid Invasion** **Metamorphosis** **Symphony of Light** **The Devil's Hand** **Dark Powers** **Death Dance** **World Killers** **Rubicon** **The End of the Circle** **The Zentraedi Rebellion** **The Master's Gambit**
WARSTRIDERS	
William H. Keith Jr.	**Warstriders** **Rebellion** **Jackers** **Symbionts**

About SFMC Academy

The Starfleet Marine Corps Academy was established by Commander Starfleet in 2164 when it was determined that Starfleet Academy could no longer adequately meet the needs of both services. The historical home of the United States' Navy and Marine Corps academies, Annapolis, was selected as the new home of the SFMCA. The head of the Academy, known as Director SFMCA (DCO - Academy), is still headquartered at the main campus in Annapolis.

The motto of the SFMCA is "Facta Non Verba" or, in Federation Standard, "Deeds not Words." This is reflected in the more informal academy slogan, "We lead by example... whether we mean to or not."

The Director SFMCA reports to the Commanding Officer of the Training Command (COTRACOM) who, in addition to the SFMCA, oversees branch schools, enlisted personnel training, advanced technical schools, and periodic skill re-fresher courses. Most of these courses are held either at one of the SFMCA facilities, or at one of the many training facilities in the New Valley Forge system which is home to TRACOM. These facilities, together with an Oberth-class spacedock serving as TRACOM headquarters, comprise Station Valley Forge.

Today, the SFMCA consists of 5 campuses, 8 training worlds, and 42 ranges and field courses throughout the UFP. Together with Station Valley Forge, the SFMCA comprises one of the largest and most advanced military training organizations in the known universe.