PD-60 Thesis Project

Maritime Operations

*

Putting the Maritime back in the Marines

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And rebuilt by Brigadier Aaron Murphy

SAIL HO!!!

The Armored Column had been chasing the Breen bandits across the surface of Ackbarh IV for two weeks, and the Commander knew he finally had them cornered on the peninsula's tip. The Breen's anti-air capability had kept the supporting aerospace units from observing, delaying or even attacking the Breen. The Colonel smiled as his lead Patton came over the last hill before the coastal plain. Finally, the Breen would be captured or eliminated. As the Colonel looks through the big eye binoculars his smile slowly disappeared, on the plain, at the docks, in the streets of the small coastal town, there was nothing.

300 Breen raiders and their vehicles, equipment and all of the stolen property was gone. The Colonel immediately called for the accompanying aerospace units to launch a recon drone. Within seconds the drone rose high enough over the horizon to begin transmitting images from out at sea, and then was blinded and destroyed by a Breen energy weapon.

But for those few seconds the images showed what the Colonel feared, the Breen were sailing across the ocean and with their defenses, they could escape to another continent to begin their rampaging once again. More unnecessary death and destruction and nothing the Marines could do to stop them. The Colonel's grip on the big eyes tightened so hard, that the glass began to distort under the pressure of his Power Armor glove.

"Darn it, we are Marines, we should be able to operate on the water as well as the land and the air, when did we lose our Anchors?"

"Colonel there is a transmission on Frequency 65.2, someone named Colonel Mazach, wants to talk to you," came the call from the radio operator in the lead vehicle.

"Colonel Myers here, go ahead Colonel Mazach"

Myers turns his head as he hears a loud buzzing coming from his right around the point.

"Myers, could you boys use some assistance," and with that, 24 Large Hover-like Vehicles come into view. "515th Marine Maritime Operations Flotilla, reinforced, at your service sir"

Colonel Myers looks down at the vessels as they come alongside the piers in the town, several of the ships looked like major gun platforms, while others are obviously built to transport the armored vehicles of Armor Branch. In addition were two aerospace platform ships, and a couple of tanker/supply ships.

"Mazach, who the hell are you guys," asked the bewildered armor Colonel.

“Myers, you are on a planet with 78% of the surface covered with water, you think we took the Maritime out of Marine when we went into space? Get aboard, and lets go catch us some Breen.”

Myers’ tank rolls aboard the first transport, and as he jumps down, a large Marine wearing a dark blue coat and a branch device of a single fouled anchor then meets him.

“Welcome aboard Myers, Colonel Mazach - Maritime Branch formerly Aerospace, you are on board the USS Ardennes, my command vessel, ready to go hunting?”

Colonel Myers starts to smile again, and this time the teeth look like fangs, a wolfen grin that is duplicated on the face of his sea going counterpart “Let’s go!”

As the ships turn into the wind and accelerate over the horizon, clamshell doors close over the decks of the ships and they begin to submerge so that only about a meter of freeboard remains above the water, and **The Tiger Shark** flotilla is on its way.

* * * * *

Armor, Aerospace, Infantry, Combat Engineers, Mecha, Support, Medical, and Special Operations, but one thing is missing in the Starfleet Marine Corps. What does the anchor represent? A long ago past, that no longer matters to the realities of 24th century combat? Or maybe it is just a pretty device that looks good on our Dress Blacks? Of course not, the Anchor represents the Maritime in the Starfleet Marine Corps. Today people most often think of that as it being part of Starfleet, sailing from star to star on ships loaded for whatever planet side battle that may face the Federation. But this neglects not only history, but also the reality of Class M planets and humanoid species. Water matters, water means life, water means a planet that can support life. And usually do to the particulars of Class M planets distances from their primary stars; it means a LOT of water ranging from 40-90 percent of the planets surface. Where there is water, where there is sentient life, and where there is a need for the protection of the SFMC, there is a need for a wet-water maritime force. Armor’s hovercraft don’t have the distance, Aerospace can bomb but not control the sea lines of communications, Mecha cannot operate for prolong times on or under the water, that leaves a specialized

service whose training, personnel, equipment and tactics are dedicated to Maritime Operations. And thus, this brings us to this the ninth Branch of SFMC Service, the Maritime Operations Branch. This thesis will present the manual for said Branch and all of the requirements to serve in, operate and lead, and the details of a Marine Maritime Operations Strike Group.

As we have seen in previous branch analysis – no branch is in and of itself isolated from any others. Aerospace relies on Infantry to secure airfields, and ground facilities, Special Operations requires Aerospace to get them to the insertion points, Mechas would be sitting ducks if not properly supported. Infantry is in itself nearly self sufficient, but even there requires the logistical support, medical support, and even fire support provided by Support, Medical and Armor branches. Also within the Armor Branch and specifically within the Marine Armored Cavalry there is also a need and means of self sufficiency but again, they borrow and make organic Support, Medical and to a large extant Aerospace branch personnel. Following the earlier research into Infantry and Armor, there has been discussion on the importance of Support, Combat Engineering and Medical Branches as part of the entire whole of the SFMC galaxy of roles. But as the introduction has show something is missing. Are the SFMC and Starfleet doomed to ignore water planets, or be content with controlling the skies above the water, and possibly even the surface of those seas?

This paper will be laid out differently than most of the academic analyses that have been done on the various branches. While it will have the standard opening and closing formats, the body itself will be a Branch Manual, with the standard five part set up of: History and Traditions, Organization, Equipment, Tactics, and the Appendices. The History and Traditions will cover the History of Maritime Operations on Earth, Andor, Alpha Centauri, Tellar, and the dearth of same on Vulcan. The Traditions section will cover: the maritime motto, the maritime slogan, the maritime device, the maritime distinctive clothing item, and other maritime traditions.

The Organization of Maritime Operations will look at the Unit Organization, Fields of Services, MOS listings by Field, and will take a look inside one particular Marine Strike Group-Maritime, **The Tiger Sharks.** The units of a Maritime Operations are the Ship, Flotilla, Squadron, and Fleet. The major fields of services in the Maritime Operations branch include Deck, Weapons, Engineering, and Services. The MOS numbers for those fields would be Deck (900-924), Weapons, (925-949), Engineering (950-974) and services (975-999). The look at **The Tiger Sharks** will look at how the different type of vessels in the MSG work together as a flotilla, and how the MSG-flotilla works with others to form a squadron.

The Equipment section will cover Combatant Vessels, Power Projection Vessels, Amphibious Warfare Vessels, and Auxiliary Support Vessels in Surface Classes, Semi-Submersible classes, and in Fully Submersible classes of maritime craft. Then Tactics will be discussed with each type of vessel, in each classification of craft.

Finally, the Branch Manuals – Appendices will be detailed, BEFORE the paper's closing review, referencing of future works, and conclusion. These appendices will cover the Shark Class Fully Submersible Cruiser, the Alligator Class Amphibious Assault Cruiser (semi-submersible), the Osprey Class Coastal Air Superiority Cruiser (surface), and the Turtle Class Transport (submersible).

Part 1 - Introduction

Welcome Aboard!

Welcome to the Maritime Operations 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 serves as a handy reference work for members of the Maritime Operations Branch, covering equipment, tactics, missions, and organization. It is a one-book source for the new member wherein they can get the information they need to role play as a member of the Maritime Operations Branch. The majority of this work is obviously fictional in nature, but the references to uniforms and insignia of the SFMC are accurate.

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Pronoun Disclaimer

The use of “he, his, him,” etc., and in particular the term “man” as in “crew-man”, are used for convenience as the standard English-language convention for unknown-gender pronouns. Not very politically correct, perhaps, but grammatical...and a lot less awkward than “crewpersons”. The point is, we don’t mean anything by it.

Acknowledgments

This manual was truly a team effort. Thanks to John Adcock, Aaron Murphy, Sandy Berenberg, Kurt Roithinger and Rahadyan Sastrowardoyo who all contributed greatly to the finished product.

Reporting Authority

The governing authority for the Maritime Operations Branch information is the Commanding Officer, Training Command (COTRACOM). Send questions, comments, or suggestions concerning Maritime Operations to:

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Part 2 – History and Traditions

History of the Maritime Branch

Earth History:

Almost from the beginning of Human Civilization, mankind has taken to the sea. First: as fishermen, and then as merchants, and then as warriors. The first ships, were mere rafts with sails, but quickly as the need to protect the merchants from pirates grew, warships designed to protect them came about, galleys with increasing banks of rowers transported ancient Greek, Persian, Chinese, Indian, and Polynesian warriors across the seas and oceans of Earth. From ramming tactics, to catapults and archers, the ancient sea battles were merely extensions of the battles on ground. Then came gunpowder, and the battles became more distant, as longer and larger guns, led the ships to fight each other at greater and greater distances. Add in steam propulsion of the Terran 19th century, and then metal cladding and then simple metal ships, and we had the warships that are still recognizable today. Other innovations were Naval Aircraft, and Submarines and missiles. Suddenly in the middle of the 20th Century, naval warfare consisted of combatant vessels, which often never saw each other except on radar screens, and satellite camera monitors. Along this whole route, the Navy's of Earth carried Marines or Naval Infantry, some nation's having a better-developed Marine Force concept than others, the United States and Great Britain the prime example. By the mid 21st and even up to the beginning of World War Three, the United States enjoyed great supremacy in Blue Ocean power, and was able to project power unto the coasts and several hundred miles inland all over the globe, through Aviation, Missile, and Marine Corps assets.

Andorian History:

Andoria is the eighth of nine worlds that circle the Epsilon Indi star. Andoria is a Class M planet, something bigger than Earth, and shows a blue-green color when seen from space. It's the home planet of the Andorian race. Andoria is a dry world, compared with others Federation worlds, due to have 92% of its surface covered by land. The popular name in Andorian language is *Fesoan*. During this period, the settlements were based in regions with natural water. Since Andoria does not have oceans, like Earth or Tellar, settlements were located in river's coast and oasis, both of them exists in a big amount over the planet. The climate and food in the North and South were more difficult to deal than in the Center, but they developed quite effective agricultural techniques and hunting. It is a not so documented period, of course, but there are quite a lot of tracks found in historic research. Andorian culture is then divided into the ``Coastal'' and the ``Inland'' races. Those who live in coastal cities constitute about 60% of the total population, and have been the centers of technological development. Because of the much smaller water area of the planet, the Andorians developed a tradition of Riverine

craft over the centuries, and instead of direct fire guns that can be fired over long ballistic trajectories, instead early developed indirect missile weapons, which is still a tradition of Andorian spacecraft today. Submarines were virtually unheard of in the Andorian naval tradition, but ramjet powered aircraft came much earlier than on Earth.

Tellarite History:

The naval history of Tellar is quite similar to that of Earth. With a planet that is 70% covered with water, and a race that is very belligerent and prone to confrontation, the seas became a perfect staging ground for their conflicts. Sudden advances were not a key part of Tellar conflict, but steady and continual improvements in the engineering and design of their ships was their trademark. Their submarine technology and their use of submersibles for all types of vessels: combatants, amphibious, and merchant shipping, was a direct outgrowth of the intense atmospheric storms and continual lightning strikes through their coastal areas. Their ability to withstand the cramped confines of early submersibles was offset by their seeming enjoyment to argue on endlessly with each other, or any others who will listen. These skills as engineers are valued in the SFMC maritime branch just as it is in Starfleet Engineering.

Vulcan History:

The naval history of Vulcan is even less impressive than that of Andoria. A dry planet, with virtually no standing water outside of rivers fed by the polar ice caps, the Vulcan physiology is highly evolved for such a climate. But it did not create a naval tradition. The result of this for their spacecraft was an intriguing diversion from the tradition of other races with an aquatic naval tradition. Spacecraft were not built along streamlined designs, but rather much more utilitarian and sometimes aesthetic plans.

Early Federation History:

Following the formation of the Federation, Maritime Forces like traditional Marine Forces were handled in a very ad hoc manner. When needed, Starfleet would recruit planetary maritime units in whole from constituent member militaries, transporting them to the battle zone as needed, and then returning them when the particular need ceased to exist. Following the Four Year war with the Klingon Empire, it was decided that the time had come for a dedicate Starfleet Marine Corps, but Maritime forces were neglected, and those responsibilities were handled by the Corps, the Fleet, by whatever aerospace assets were available. This overhead focus and bias of the maritime operations proved a hindrance when dealing with aquatic combat situations, but very few in Starfleet could see an immediate answer to the problem. Until 2305 when the Military Liaison from the planet of Argo, was conversing with this counterpart in the SFMC, at Starfleet Headquarters. Argo a planet with both a sentient species with both Water Breathing and Air Breathing individuals had long had a naval tradition considering their planet,

species, and climate. Admiral Rila of Argo suggested that Starfleet or the SFMC, form a Maritime branch, similar to the Armor Branch, that would fill this gap, and provide the SFMC with a standing naval force, and further suggested that specialized Starfleet Vessels be equipped to carry these vessels to whatever battle zone the Federation may need them to go to, instead of trying to shoe horn one planets warship onto a federation freighter never designed for such a load. The Marine Officer, later General and Commandant LouJaye McPhereson championed the idea to his superiors in the SFMC, and on January 1st, 2312, the first Maritime Branch under command of Colonel Samuel Morrison was formed. Ever since the SFMC has maintained a limited but well equipped and trained Maritime Branch with eighteen strike groups/flotillas, these are formed into six squadrons, and these into two fleets under the command of experienced Generals of the Starfleet Marines.

The Maritime Motto: "Before the Mast":

From the beginning of the age of sail, young sailors have stood before the mast, to receive their education at sea, to receive their pay, to receive their honors, and to receive punishment. It is the mast of the ship that held the sails, which allowed the ships the freedom to move across the vast oceans of many of the Federation's planets. Main Mast, Mizzen, Jib, Royals and Tops. "Before the Mast" where the Sailor of yore and the Maritime Marine of today belong.

The Maritime Slogan: "Anchors Away":

Since the dawn of naval operations, "Anchors Away" was the call that the fleet was underway and on it way to the next destination and often the next battle. It is a simple saying that denotes the readiness of the Maritime Branch to get underway at a moment's notice. More than the Armor or Mecha Branches, Maritime Branch can move its gigantic fortified vessels across vast expanses of a planet without ever leaving the atmosphere. Above, on, or under the sea the Maritime Branch is Away.

The Maritime Device: "The Fouled Anchor"

The decision to use the Fouled Anchor for the SFMC-Maritime Branch was almost immediately unanimous. It is the Anchor in the SFMC logo that reminds the Corps of their Naval and Maritime heritage. They are not soldiers who cross far away lands to get to the battle, but Marines. Marines rode ships, and to signify this, they have worn the fouled anchor in some incarnation or another, to signify this. Thus it was only fitting that the Maritime Branch straighten the anchor vertical, like the navies of old, and adopt it as their device.

The Pea Coat

Defined as a short, warm, double-breasted coat of heavy wool, worn especially by sailors. The Pea Coat or Pea Jacket goes so much further than that in being THE thing that sets sailors apart from landlubbers. Any who spend from Dusk to Dawn walking watch on the deck of a sea going vessel, will know why the Pea Coat is an essential part of any Maritime Marine's gear issue. From the over sized buttons to the large collars, everything about the Pea Coat echoes the call of the sea for those who have once heard its siren's song.

Maritime Traditions

The Maritime Branch reborn was able to reach back for many traditions that are an essential part of being a sailor.

Tattoos

Members of the Maritime Branch often received distinctive Body Art markings, ranging from mermaids, and likenesses of their ships, to birds and hearts. Members of distinct units would often get the same tattoo, and some units even went so far as adding on to their tattoos, additional art denoting each combat operation.

The Ballcap

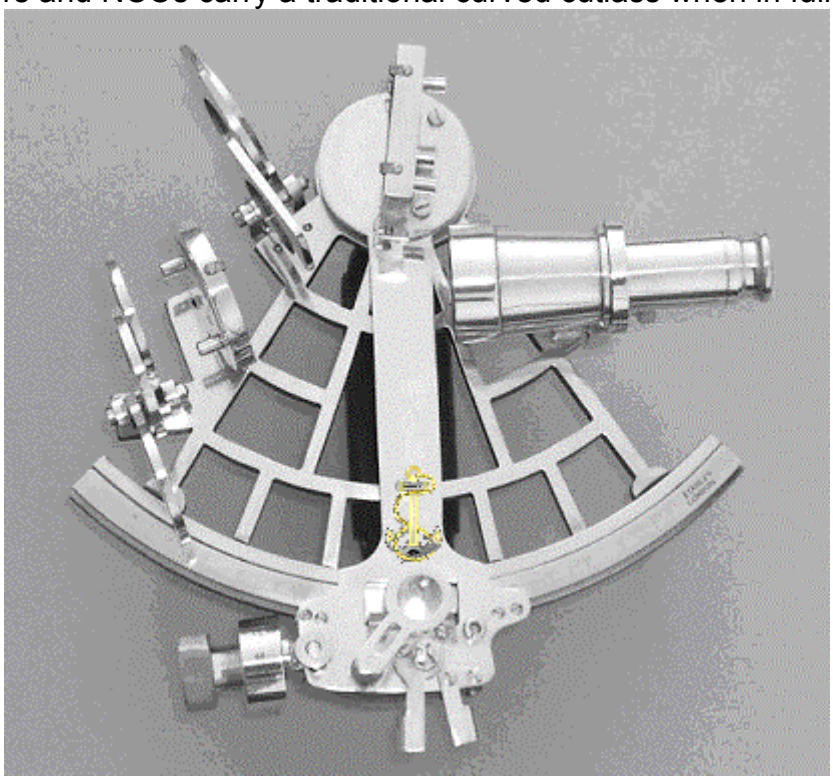
As late as the latter half of the 22nd century, Fleet Crews in Starfleet would wear the Ballcap with their ship's name embroidered on them, this tradition bought back by the Maritime Branch, as each Vessel's crew wearing a distinctive Navy Blue Ball Cap, with lettering and insignia of the vessel, and rank insignia in gold for officers, and silver for enlisted personnel.

The Sextant

Every vessel in the SFMC – Maritime Branch has a ship's working sextant on the Bridge at the Navigator's Station, though long obsolete by today's standard, every Navigator and Officer of the Deck qualified officer, knows how to navigate by celestial means. The Sextant like the Binnacle is kept polished to a glow, as a matter of pride by the vessels bridge crew.

The Cutlass

While in full dress uniform, swords can be authorized by local commanders. The SFMC officer sword and SFMC NCO sword are the normally prescribed accessories. However, Maritime officers and NCOs carry a traditional curved cutlass when in full dress.



Part 3 – Organization

The Marine Strike Organization format in the SFMC Maritime Branch is unlike any other branch in the SFMC, and often more closely resembles that of the Starfleet itself, than that of their land oriented brethren. Just like any other branch, any independent indivisible detachment of SFMC personnel is a Strike Group. This can be either an individual sea going vessel, but more often is represented by the flotilla of mutually supporting ships. The crews of these ships are very small fraction of the crews needed on warships of the 20th-22nd centuries, due the large amount of automation, especially in the Engineering Spaces.

Unit Organization

Above the ship/vessel, maritime branch is made up of Flotillas. Flotillas make up the Squadrons. And the Squadrons make up the permanent Fleets of the Maritime Branch. These are organized into Strike Groups of more than one ship. These are then combined into task elements of one or more Strike Groups on a mission specific basis. And then the task elements are combined into task forces on a theatre (planetary conflict) basis.

Ship:

Each ship/vessel has five to seven departments with from 4-20 marines in each. Each ship has the command department, with the Commanding Officer, Executive Officer, Chief of the Boat, and the command security detail. In addition each vessel has the Deck, Engineering, Weapons and Services Departments. Some vessels also have an Aviation Department (Carriers), and/or a Logistics Department (Supply Ships).

Ships' compliments will range from as small as 12 for small coastal patrol craft to upwards of 150 maritime marines on the larger carriers capable of carrying 12-24 aerospace craft.

Flotilla:

A flotilla is a unit of two or more ships, working as a team. Usually made up of the same type of vessel, or a major vessel and its escorts. For example, three surface combat destroyers working in tandem, or four sub surface attack vessels patrolling a designated area would make up a flotilla. The Flotilla commander is either the senior commander afloat in a flotilla of like ships, or the commander of the largest vessel in a mixed flotilla (who is usually but not always the senior commander afloat as well). Flotillas fulfill the role of Marine Strike Groups for the Maritime Marines and are often deployed through the vast distances of the Federation as a unified MSG as well as Flotilla command.

Squadron:

A squadron is a unit of two more flotillas working as a team. Again these can be of like elements, such as all cruisers or all destroyers, or a combination of units working as a team, or as a patrol area group. For example four destroyer flotillas of three ships each would make up a Destroyer Squadron or 'DesRon' for short. Or a flotilla of three ballistic missile submarines and two flotillas of four attacks sub each acting as escort would be a Strategic Submarine Squadron or "StratSubRon' for short.

Fleet:

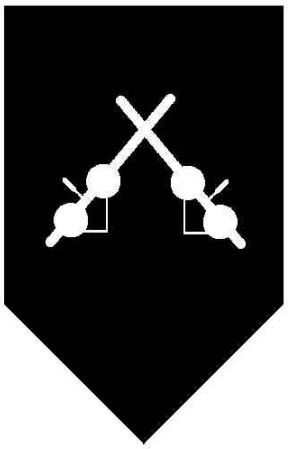
Finally a fleet is the largest administrative unit of the Maritime Branch. Fleets are composed of all of the administrative Squadrons in their command area. The Fleet commander will then combine squadrons and sometimes even individual flotillas together to form the aforementioned Task Forces to accomplish some specific or even general combat mission. For instance: destroy a particular enemy convoy, or raiding force would be a specific task, while patrol that coastline, or show the flag in that port, would be a general task. The Task Force commander can then subdivide his command and combine flotillas and sometimes even individual ships into Task Elements to complete one part of the combat mission. Fleet Commanders are usually Maritime Branch Brigadier Generals or Higher and are considered Flag Commands.

Fields of Service

The Maritime Operations Branch is divided into four related areas, called Fields of Service. These fields of service are based on the specific role each fulfills on each vessel and how they are part of the total maritime mission.

Deck:

The Deck Field comprises all those rates (the nautical term for MOS is rate or rating) that deal with the non-engineering aspects of operating the ship. Boatswain's Mates, Quartermasters, Signalmen, Communications Techs, Data Techs, and the myriad of other jobs that are concerned with getting the ship from pier to sea, and sea to pier comprise this field. The field's logo, the Quartermaster's Wheel, is the age-old symbol of controlling the destiny of the vessel while underway.

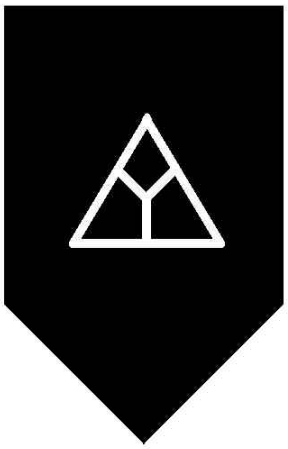


Weapons:

Obviously the Weapons Field deals with all of the offensive and defensive weaponry and their respective MOS's on the ship. Gunner's Mates, Torpedo Mates, Fire Control Technicians, Sensor Techs, Phaser Specialists, as well as those ratings involved in the maintenance and repair of this equipment. The logo of the crossed cannons is also an ancient one, and the reason why members of this field are often nicknamed "Guns" for short.

Engineering:

Quite self-explanatory, the Engineering Field is concerned with the propulsion and power supply of the ship. Main Propulsion of planetary bound vessels is almost always by cold fusion reactors providing the energy for jet turbines that can move the vessel at speeds of over 100 knots, and sometimes up to 200 knots, be it sub-surface, surface, or hydro-foil/air cushioned effects vessels. The logo, a stylized steam turbine is the ancient symbol for Nautical Engineering.



Services:

The last field is Ship's Services, and is the catchall field of the Branch. From Mess Cooks, to barbers, Clerks and Medics, the entire support aspect internal to the Maritime Operations Branch is self-contained within the Services Field. The Logo a two-dimensional image of the Pyramid shows how Services is the base for the other three fields to operate.

MOS Descriptions by Field

Most Maritime Operations Branch MOSs are assigned/achieved independently of a particular vessel. This has not always been true, with specialized rates for submarines versus carriers versus small or large combatants. But as the physical frame of the sea going vessels became more standardized the ratings to operate them did so as well. As a result, the skills to navigate one vessel became pretty much the same skills to navigate all vessels. A torpedo mount on a submersible is pretty much the same equipment as a torpedo mount on a hydrofoil. In an effort to streamline personnel systems within the Corps over the last decade or so has led to a simple but effective MOS system and scheme that is currently used.

Deck (900-924)

900 Boatswain's Mate (Boson's): BMs train and supervise personnel in all activities relating to marlinspike, deck and boat seamanship, and the maintenance of the ship's external structure and deck equipment. They act as petty officers in charge of the deck operations, and may perform duties as master-at-arms, serve in or take charge of gun crews and damage control parties.
901 Coxswain's Mate (Cox sun's): CS's are the master's of the small crafts, are the steersmen of same, and are in charge of the crew and the passengers therein.

905 Quartermaster: QMs assist the navigator and officer of the deck (OOD), steer the ship, take radar bearings and ranges, make depth soundings and celestial observations, plot courses and command small craft.
906 Helmsman: HLs specialize in the steering of the vessel, as well as operating the after steering controls, as well as maintenance of the rudder and all steering controls. Master's Helmsman can steer the vessel underway, while another is alongside.
907 Chartmaster: CM's maintain the navigational charts, navigational aids and oceanographic publications and records for the ship's log.

910 Signalman: SMs send and receive various visual messages, handle and route message traffic, operate voice radio and repair visual signaling devices. They also render honors to ships and boats and serve as navigators.

911 Communications Technician (Radiomen): RMs have such maritime activities operating the radio communications systems that make the complex ship to ship teamwork possible. RMs operate radiotelephones and radio-teletypes, prepare messages for subspace communications, and send and receive messages via the SFMC system, including satellites and antennas.
912 Data Processing Technician: DPs are responsible for all computer systems, network administration (including LAN hardware), peripheral operations and systems modifications.

915 Weather Specialist: WM's are the Navy's weather forecasters. They are trained in meteorology and the use of aerological instruments that monitor air pressure, temperature, humidity, wind speed and direction. They also prepare weather maps and forecasts and analyze atmospheric conditions to determine the best flight levels for aircraft. A WM may also measure wind and air density to aid the accuracy of anti-aircraft firing, shore bombardment and delivery of weapons by aircraft.
916 Ocean System's Technician: OTs operate special electronic equipment used to interpret and document oceanographic data, such as the depth and composition of the ocean floor and how sound travels through water. They operate tricorders and related equipment, prepare reports and visual displays and convert analyzed data to be used in statistical studies.

920 Master at Arms: MAs uphold law and order aboard ships and shore stations. They report to the executive officer, help maintain discipline and assist in security matters. They ensure regulations are enforced, conduct investigations, take part in correctional and rehabilitative programs and organize and train Sailors assigned to police duty.

Weapons (925-949)

921 Gunner's Mate Guns & 922 Gunner's Mate Missiles: GMs operate, maintain and repair all gunnery equipment, guided-missile launching systems, rocket launchers, guns, gun mounts, turrets, projectors and associated equipment. They make detailed casualty analyses and repairs of electrical, electronic, hydraulic and mechanical systems. They also test and inspect ammunition, missiles and their ordnance components. GMs train and supervise personnel in the handling and stowage of ammunition, missiles and assigned ordnance equipment.

926 Torpedo Mates: TMs maintain underwater explosive missiles, such as torpedoes and rockets, that are launched from surface ships, submarines and aircraft. They also maintain launching systems for underwater explosives, and are responsible for shipping and storage of torpedoes and rockets.

931 Fire Control Technicians: FCs maintain the control mechanism used in weapons systems on combat ships. Complex electronic, electrical and hydraulic equipment is required to ensure the accuracy of the Maritime Branches guided missile and surface gunfire-control systems. FCs are responsible for the operation, routine care and repair of this equipment, which includes radars, computers, weapons direction equipment, target designation systems, gyroscopes and range finders.

936 Sensor Technicians: STs are responsible for all maritime surveillance. They assist in safe navigation and aid in search, rescue and attack operations. They operate and repair sonar, radar, & other sensing equipment and jam enemy sensors. STs track underwater objects and repair antisubmarine warfare fire control equipment and underwater radiotelephones.

941Operation Specialist: OSs operate radar, navigation and communications equipment in shipboard combat information centers (CICs) or bridges. They detect and track ships, planes and missiles. They also operate and maintain identification friend or foe (IFF) systems, electronic countermeasures (ECM) equipment and radiotelephones.

946 Phaser Specialist: PSs operate all directed energy weapons mounts onboard ship, as well the maintenance and repair of this equipment. Phasers, Lasers, Disruptors, Plasma weapons are all sub specialties of this MOS.

Engineering (950-974)

950 Fusion Plant Technician: FUPs Continuous operation of the many engines, compressors and gears, refrigeration, air-conditioning, gas-operated equipment and other types of machinery associated with the operations of the Fusion Plant afloat.
951 Fission Plant Technician: FIPs Continuous operation of the many engines, compressors and gears, refrigeration, air-conditioning, gas-operated equipment and other types of machinery associated with the operations of the Fission Plant afloat.
952 Matter/Antimatter Plant Technician: MAPs Continuous operation of the many engines, compressors and gears, refrigeration, air-conditioning, gas-operated equipment and other types of machinery associated with the operations of the Matter/Antimatter Plant afloat.

955 Turbine Technician: TTs operate, repair and maintain the turbine engines; main propulsion machinery, including gears; shafting and controllable pitch propellers. They also perform administrative tasks related to the turbine propulsion system operation and maintenance

960 Auxiliary Systems: Technician: ATs operate, and maintain the assigned auxiliary equipment propulsion control systems; electrical and electronic circuitry up to the printed circuit module; and alarm and warning circuitry.

965 Electronics Technician: ETs are responsible for electronic equipment used to send and receive messages, detect enemy vessels, and determine target distances. They must maintain, repair, calibrate, tune and adjust all electronic equipment used for communications, detection and tracking, recognition and identification, navigation and electronic countermeasures.

970 Hull/Repair Technician: HTs are responsible for maintaining ships' hulls, fittings, piping systems and machinery. They install and maintain shipboard and shore based plumbing and piping systems. They also look after a vessel's safety and survival equipment and perform many tasks related to damage control.
971 Damage Controller: DCs perform the work necessary for damage control, ship stability, fire-fighting and chemical, biological and radiological (CBR) warfare defense. They instruct personnel in damage control and CBR defense and repair damage-control equipment and systems.

Ship’s Services (975-999)

975 Mess Specialist: MSs operate and manage the dining facilities and bachelor enlisted quarters. They cook, bake, order, inspect and stow food in dining facilities ashore and afloat. They maintain food service; prepare spaces and equipment; and keep records of transactions and budgets for food service in living quarters ashore.

980 Ship’s Serviceman: Serving afloat, SHs manage barber shops, tailor shops, ships' uniform stores, laundries, and dry cleaning plants.

985 Yeoman: YNs perform secretarial and clerical work. They deal with visitors, telephone calls and incoming mail. YNs organize files and operate copy machines and order and distribute supplies. They write and type business and social letters, notices, directives, forms and reports. They maintain files and service records.

986 Personalman: PNs provide enlisted personnel with information and counseling about their careers, opportunities for general education and training, promotion requirements and rights and benefits. They also assist enlisted members' families with legal aid or reassignments in hardship situations. PNs keep records up to date, prepare reports, type letters and maintain files.

987 Disbursing Clerk: DKs maintain the financial records of all personnel. They prepare payrolls, determine transportation entitlements, compute travel allowances and process claims for reimbursement of travel expenses. DKs also process vouchers for receiving and spending public money and ensure accounting data is accurate. They maintain fiscal records and prepare financial reports and returns.

988 Religious Programs Specialist: RPs assist Chaplains with administrative and budgetary tasks. They serve as custodians of chapel funds, keep religious documents and stay in contact with religious and community agencies. They also prepare devotional and religious educational materials, set up volunteer programs, operate shipboard libraries, supervise chaplains' offices and perform administrative, clerical and secretarial duties. They train personnel in religious programs and publicize religious activities.

990 Hospitalman: HMs assist medical professionals in providing health care to service people and their families. They serve as pharmacists, medical technicians, food service personnel, nurse's aids, physician's or dentist's assistants, battlefield medics, X-ray technicians and more. An HM's work falls into several categories: first aid and minor surgery, patient transportation, patient care, prescriptions and laboratory work.

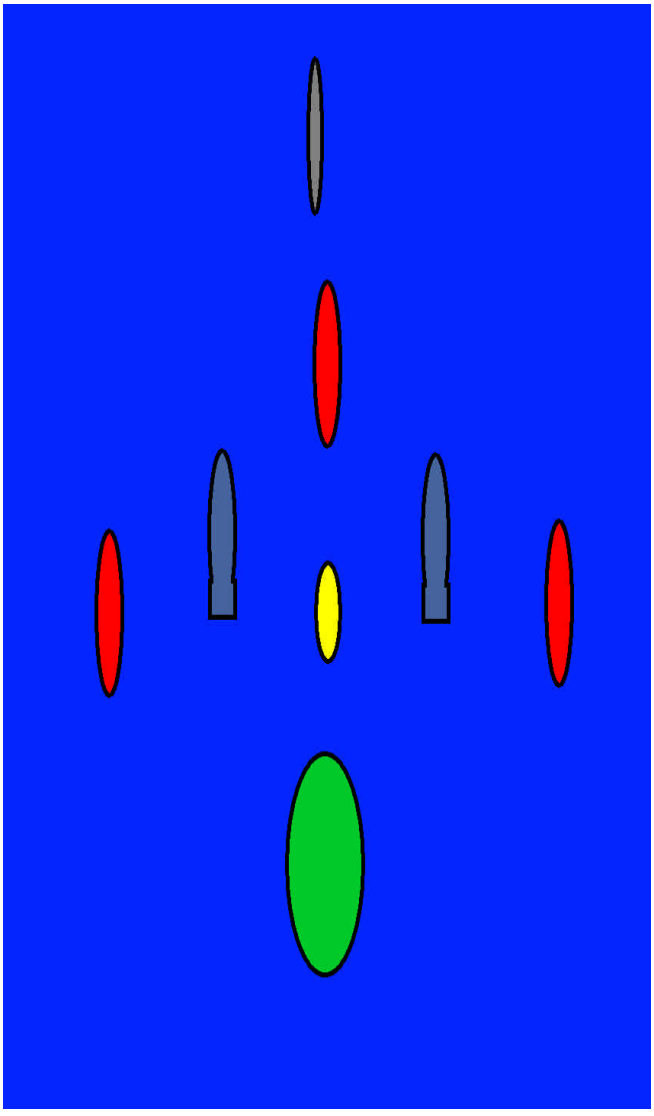
991 Dental Technician: DTs are the Dental assistants and dental technicians. DTs have a variety of "chairside," laboratory and administrative duties. Some are qualified in making and fitting artificial teeth; dental X-ray techniques; clinical laboratory procedures; pharmacy and chemistry or maintenance and repair of dental equipment.

995 Storeskeeper: SKs are the Navy's supply clerks. They see that needed supplies are available including everything from clothing and machine parts to forms and food. SKs have duties as civilian warehousemen, purchasing agents, stock clerks and supervisors, retail sales clerks, store managers, inventory clerks, buyers, parts clerks, bookkeepers and even fork lift operators.

Inside the Marine Strike Group (Maritime)

515th Marine Maritime Operations Flotilla
The TIGERSHARKS

The 515th MSG, known as the TIGERSHARKS, is a larger than normal Maritime MSG. With 8 Hover capable vessels, it is one of the largest such groups in the Starfleet Marine Corps. In addition this group is special, that while all of the group's ships are hover capable, they are also semi-submersible, this combination gives them both great speed (the slowest craft can go 200 knots while on its sail), it also gives them great stealth, with the tallest ship only 1.4 meters above the surface of the water when in full semi-submersed mode. The 515th also often operates with the 571st and 581st MSGS, which are Amphibious Warfare specialties flotillas. The 515th consists of one Command and Control ship, one Supply/Support Ship, two RPV Carriers, three Arsenal Ships, and an escorting Attack Submarine. While steaming the ships are arrayed as in the figure below.



The 515th Maritime Flotilla cruising in battle formation. The Gray Icon in front is an attack submarine submerged and actually in front of the main flotilla by about 3-10 kilometers.

The Red Icons are the Arsenal Ships with their multiple Vertical Launch System (VLS) launchers. Acting as a buffer to the other vessels, as well as the Flotilla's direct fire as well as missile fire platforms. Each of the Arsenal ships is equipped with multiple Phased Array Beam Weapon Mounts, allowing over the horizon targeting of energy weapons.

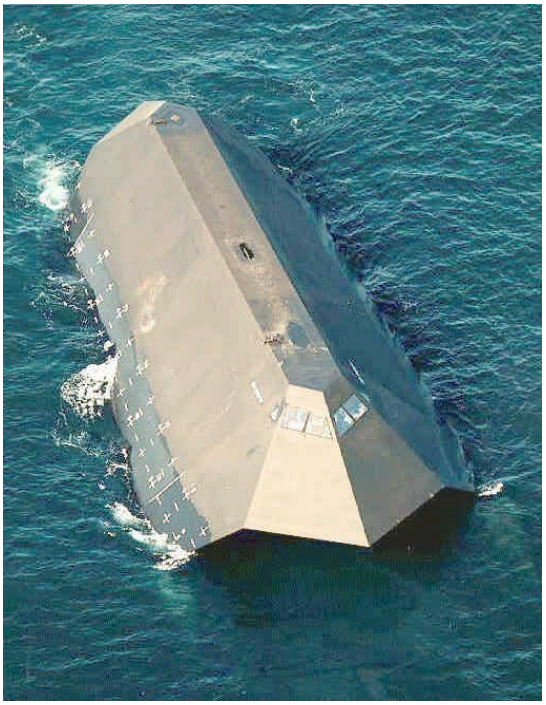
The Light Blue Icons are the RPV Carriers, protected by the Arsenal Ships while protecting the Command and Control Ship. Each of these carriers has from 24 to 72 Remotely Piloted Vehicles with energy weaponry controlled as well as indepen-dently missiles packs. The Pilot sitting in a control chair in the safety of the Carrier can instantly

*

control the RPV and its weapons systems in a dogfight, ground attack, or delivering of strategic packages.

The Gold Icon is the Command and Control Ship, equipped with enough Communications Gear and Anti-Jamming gear to manage the combat picture. The entire weapons package for the Command Ship is defensive in nature, with additional shields to allow it to focus on directing the fight, without getting into the fight.

Finally the Green Icon is the Supply and Support Ship of the Flotilla. Carrying addition ammunition, food and other perishable supplies as well as fuel for the vessels and RPVs. Underway replenishment, utilizing transporters, aerospace craft and lines makes the supply ship extremely valuable to increasing the range and endurance of the flotilla.



* Logo designed and built by Brigadier Aaron Murphy

Part 3 – Equipment

Surface Vessels

Each of the three Categories of Maritime Combat Vessels is subdivided into one of four classifications and each of these fulfills a specific role in their specific battle-zone. These categories are similar for each battle-zone be it Surface, Semi-Submersible or totally Submersible. These are: Combatant Ships, Power Projection Ships, Amphibious Warfare Ships, and Auxiliary Support Ships.

Combatant Ships

There are three major classes of combatants: Arsenal Ships, Projector Mount Ships, and Command & Control Ships. Each in turn fills a special role in the surface battles, as well as having limited ability to cross into each other-s roles as well as serve in the other categories of surface ships.

Arsenal ships, like the Osprey Class Surface Combatant are primarily missile launching platforms. Each ship (normally of a trimaran design) will have a Type IV phaser projector, a vertical launch system with 25 launcher ports, and an aft-deck landing platform for two to four assigned aerospace craft for spotting, rescue, or transport. Each of the launcher ports is above a rotating magazine of 10 missiles with various warhead for mission varying from aerospace defense, to anti-submarine warfare, to anti-ship wave skimming missiles, to long range ballistic trajectory missiles that can attack land bases thousands of kilometers away. Once completely fired and empty, a missile magazine can be refilled in about 5 minutes, and each arsenal ship carries 4 full reloads for each magazine, providing each arsenal ship, 1000 missiles that can be completely fired off in less than one half hour.

Projector Mount Ships, like the Talon Class Surface Combatant replace the VLS with three to six bank of Phaser Projectors. These however are unlike the point-to-point beam weapons aboard starships. Instead each bank of projectors is composed of from one to six hundred mini projectors. Each Bank can produce the same total on target power as a Starship Type V mount, but with a greatly reduced range. However, since we are dealing with planetary surface, ranges of less than a thousand kilometers are still more than enough for the surface battlefield. The advantage gained however is immense. By varying the power to the individual projectors, beam “lobes” are created, as the beams combined along a vector model, they can actually “bend” the beam to go over the horizon, and act like a direct fired ballistic weapon. This allows the Projector Mount Ship to target enemy vessels that are not in a direct line of sight.

Finally the Command & Control Ship is the brain of a maritime flotilla. For surface engagements the SFMC uses the semi-submersible Bull-Halsey class. Equipped with

reinforced shields, a vast array of communications equipments and an anti-aerospace 8 box launcher and a type IV Phaser projector, the Halsey can defend it self, while controlling the surface battle. It can also take control of up to 3000 different guided missiles in case the launching ships lose control, are damaged/sunk, or are already controlling more missiles than their computers can handle. In addition, the Halsey can remotely control up to 100 RPVs, which will be discussed next.

Power Projection Ships

This is essentially a one-type category. Remotely Piloted Vehicle carriers, have the ability to launch small, unmanned aircraft, each with a variety of payloads available to them. Some of the RPVs are equipped with a small fusion generator and a simple Type III Phaser Projector, for direct attacks on other vessels, ground attacks, or dog fighting against aerospace craft or enemy RPVs. Other RPVs are equipped with sub-munitions packages that can be either bombs/bomblets, or micro torpedoes/missiles. Finally there are reconnaissance craft, with cameras, sensors, or even holo-projectors that can be used for scanning the enemy, or projecting false images unto their scanners. The standard carrier has twenty-four control stations for the RPVs, while the larger carriers like the Osprey Coastal Air Superiority Carrier has control stations and launch capabilities for ninety-six different RPVs at one time. While each of these sophisticated craft are a large investment of resources, their loss is inconsequential compared to the lives save by having their pilots remote from the craft in case of fatal damage to that craft.

Amphibious Warfare Ships

The Surface version of this type of ship is the Crocodile Class Amphibious Warfare Ship. A very shallow draft ship, able to approach the shore with depths of only three meters, and still maintain maneuverability the Crocodile can also work in the deep ocean. With a docking well that can be flooded and hold up to six LCAC (Landing Craft Air Cushion) and a landing platform for four aerospace craft. The Crocodile is as a type one of the most traditional of maritime Marine ships. Able to transport 300 marines and twenty armored vehicles from fifteen kilometers from the shore, to that shore in less than ten minutes. In addition to twin type IV Phaser Projectors, the Crocodile is also equipped with six 105mm mortars that can throw smoke, illuminations or even explosive rounds all the way to the shore, and are design to walk rounds ahead of the landing forces all the way to the shore.

Auxiliary Support Ships

Auxiliary Support Ships come in several different types, fulfilling different roles for the Maritime Branch needs. Underway Replenishment Ships, Supply Ships, Repair Tenders, Hospital Ships, Recovery Ships, and even Dredges and Tugs are part of this

group. Since perfected by the US Navy during and after Earth's World War II, nothing has increased the mobility and range of the Maritime Branch then the Underway Replenishment. These ships once known as Combat Oilers or Fast Combat Support Ships, are built both for speed, and for transporting fuel and supplies over to the pure combat ships, while sailing at speeds of 25-100 knots at distances of a mere 20 to 40 yards. The Replenishment ships will sail into a flotilla, re-supply it, fall back to the supply ships outside of the combat zone, re-supply themselves and then catch back up with the combatants and start the process over again. The supply ships are built for endurance and cargo capacity and will remain 100's of kilometers outside of the combat zone usually in convoys protected by Arsenal Ships and Submarines. The Repair Tenders will likewise remain in the protected convoy, but will then steam to the flotilla after a battle, to begin "onsite" repairs of the ships. The Hospital Ships unfortunately have the same task but for the wounded maritime marines. Specialty Ships like Recovery Ships will work to extract a sunken vessel from the sea bottom, while Dredges work on opening or deepening channels at friendly ports, while tugs help escort/nudge deep draft vessels to the correct piers in those ports.

Semi-Submersible Vessels

As with Surface Vessels, Semi-Submersible vessels are divided into Combatant Ships, Power Projection Ships, Amphibious Warfare Ships, and Auxiliary Support Ships.

Combatant Ships

Like the Surface Class there are three major classes of combatants: Arsenal Ships, Projector Mount Ships, and Command & Control Ships. Each in turn fills a special role in the surface battles, as well as having limited ability to cross into each other's roles as well as serve in the other categories of surface ships.

Arsenal ships, like the El-Sharak Class Semi-Submersible Combatant are primarily missile launching platforms. Each ship (normally of a single hull design) will have a Type IV phaser projector, a vertical launch system with 25 launcher ports, and an aft-deck landing platform for two to four assigned aerospace craft for spotting, rescue, or transport. Each of the launcher ports is above a rotating magazine of 10 missiles with various warhead for mission varying from aerospace defense, to anti-submarine warfare, to anti-ship wave skimming missiles, to long range ballistic trajectory missiles that can attack land bases thousands of kilometers away. Once completely fired and empty, a missile magazine can be refilled in about 5 minutes, and each arsenal ship carries 4 full reloads for each magazine, providing each arsenal ship, 1000 missiles that can be completely fired off in less than one half hour.

Projector Mount Ships, like the El-Cid Semi-Submersible Combatant replace the VLS with three to six bank of Phaser Projectors. These however are unlike the point-to-point

beam weapons aboard starships. Instead each bank of projectors is composed of from one to six hundred mini projectors. Each Bank can produce the same total on target power as a Starship Type V mount, but with a greatly reduced range. However, since we are dealing with planetary surface, ranges of less than a thousand kilometers are still more than enough for the surface battlefield. The advantage gained however is immense. By varying the power to the individual projectors, beam “lobes” are created, as the beams combined along a vector model, they can actually “bend” the beam to go over the horizon, and act like a direct fired ballistic weapon. This allows the Projector Mount Ship to target enemy vessels that are not in a direct line of sight.

Finally the Command & Control Ship is the brain of a maritime flotilla. For semi-submersible engagements the SFMC uses the semi-submersible Bull-Halsey class C&C ship. Described about the Bull-Halsey is equipped with reinforced shields, a vast array of communications equipments and an anti-aerospace 8 box launcher and a type IV Phaser projector, the Halsey can defend it self, while controlling the surface battle. It can also take control of up to 3000 different guided missiles in case the launching ships lose control, are damaged/sunk, or are already controlling more missiles than their computers can handle. In addition, the Halsey can remotely control up to 100 RPVs, which will be discussed next.

Power Projection Ships

This is essentially a one-type category. Remotely Piloted Vehicle carriers, have the ability to launch small, unmanned aircraft, each with a variety of payloads available to them. Some of the RPVs are equipped with a small fusion generator and a simple Type III Phaser Projector, for direct attacks on other vessels, ground attacks, or dog fighting against aerospace craft or enemy RPVs. Other RPVs are equipped with sub-munitions packages that can be either bombs/bomblets, or micro torpedoes/missiles. Finally there are reconnaissance craft, with cameras, sensors, or even holo-projectors that can be used for scanning the enemy, or projecting false images unto their scanners. The standard carrier has twenty-four control stations for the, while the larger carriers like the Osprey Coastal Air Superiority Carrier has control stations and launch capabilities for ninety-six different RPVs at one time. While each of these sophisticated craft are a large investment of resources, their loss is inconsequential compared to the lives save by having their pilots remote from the craft in case of fatal damage to that craft.

Amphibious Warfare Ships

The Semi Submersible version of this type of ship is the Alligator Class Amphibious Warfare Ship. Sister class to the Crocodile is almost as shallow of a draft ship, able to approach the shore with depths of only five meters, and still maintain maneuverability the Alligator can also work in the deep ocean. With a docking well that can be flooded and hold up to six LCAC (Landing Craft Air Cushion) and a landing platform for four aerospace craft. The Alligator is as a type one of the most traditional of maritime

Marine ships. Able to transport 300 marines and twenty armored vehicles from fifteen kilometers from the shore, to that shore in less than ten minutes. In addition to twin type IV Phaser Projectors, the Alligator is also equipped with six 105mm mortars that can throw smoke, illuminations or even explosive rounds all the way to the shore, and are design to walk rounds ahead of the landing forces all the way to the shore.

Auxiliary Support Ships

The major new class of Auxiliary in the semi-submersible family of vessels is the Aerie Class, Aerospace Tender. With only two meters of freeboard above the surface, this moving spaceport provides up to twenty-four standard sized Aerospace Craft a home on the planets surface. In situations where there is no land, or no ready landing zone, the Aerie Tender can provide landing, support, refuel/supply, and rest for the pilots of Aerospace Craft which have had to be left behind without orbital support. Needless to say, few AE Pilots choose to go to an aquatic planet battle zone without an Aerie Tender nearby.

Submersible Vessels

As with Surface Vessels and Semi-Submersible vessels are divided into Combatant Ships, Power Projection Ships, Amphibious Warfare Ships but not Auxiliary Support Ships. Extended operations that must remain completely remain underneath the surface preclude underway replenishments by the their very nature.

Combatant Ships

Unlike the Surface Class there is only one major class of combatants and that is the fully submersible Arsenal Ships or Fast Attack Submarine. Because of the underwater nature of this family of vessels Projector Mount Ships are nearly useless, and the Command & Control roles is relegated to the Power Projection classes.

The Arsenal submarines, like the Shark Class Fully Submersible Cruiser are primarily missile/torpedo launching platforms. Each ship (of a organic hull design) will have two Type G close in defense phaser projectors, a vertical launch system with 16 launcher ports, and a torpedo launch tube system with 8 tube doors forward and aft. Each of the launcher ports/doors is above/alongside a rotating magazine of 10 missiles/torpedoes with various warhead for mission varying from aerospace defense, to anti-submarine warfare, to anti-ship wave skimming missiles, to long range ballistic trajectory missiles that can attack land bases thousands of kilometers away. Once completely fired and empty, a missile magazine can be refilled in about 5 minutes, and each arsenal ship carries 4 full reloads for each magazine, providing each arsenal ship, 960 missiles that can be completely fired off in less than one half hour.

Power Projection Ships

This is essentially a two-type category. Like their surface brethren there are Remotely Piloted Vehicle carriers, which have the ability to launch small, unmanned aircraft, often called “Whiskers”, each with a variety of payloads available to them. Some of the RPVs are equipped with a small fusion generator and a simple Type III Phaser Projector, for direct attacks on other vessels, or dog fighting against enemy RPVs. Other RPVs are equipped with sub-munitions packages that are micro torpedoes/missiles. Finally there are reconnaissance craft, with cameras, sensors, or even holo-projectors that can be used for scanning the enemy, or projecting false images unto their scanners. The standard carrier has twenty-four control stations for the, while the larger carriers like the Remora Deep Sea Superiority Carrier has control stations and launch capabilities for seventy-two different RPVs at one time. While each of these sophisticated craft are a large investment of resources, their loss is inconsequential compared to the lives save by having their pilots remote from the craft in case of fatal damage to that craft. The other type is the long range Ballistic Missile Platform, often referred to as “Boomers” capable of carrying up to 48 Missiles with up to 25 thousand kilometers of range, and each with a capability of 20 Multiple Independent Re-entry vehicles, giving the Boomer the ability to destroy 960 different targets, on the other side of most Class “M” type planets. Boomers also serve double duty as the Command and Control ships for the undersea flotillas. For submersible engagements the SFMC will use the Burt-Mancuso class of Boomers, which are equipped a vast array of communications equipment and a sophisticated passive sensor system. The Burt-Mancuso can defend itself, attack the enemy anywhere on the planet, while controlling the sub-surface battle. It can also take control of up to 2000 different guided missiles in case the launching ships lose control, are damaged/sunk, or are already controlling more missiles than their computers can handle.

Amphibious Warfare Ships

The Submersible version of this type of ship is the Gharial Class Amphibious Warfare Ship. Sister class to the Crocodile/Alligators, it is a much smaller and very low draft vessel, with only four meters of total height, and like most true submarines having deep ocean capability. An internal a docking well that can be flooded will hold up to eight twelve man mini-subs to deliver either ½ of a Marine Company to the shore, or two special operations units anywhere where there is a beach, with minimal depth with 5 kilometers. Unlike their larger brothers, the Gharials exist to deliver their payload of marines to the target zone, quietly, silently, and stealthily as possible.

Part 4 – Tactics

Surface Vessels

Cat and Mouse in the 24th Century

Due to the immense firepower of the vessels concerned, ocean going combat become a huge game of hide and seek, with days upon days of maneuver and deception, finally culminating with a few minutes of deadly combat, that leave one or both sides devastated. The idea is to hit the enemy first, and if possible without them knowing where the incoming fire came from. With energy weapons it is nearly impossible to prevent counter battery fire from pinpointing where your ship is, so by necessity most ship-to-ship combat starts with long range and extreme over the horizon missile or RPV attacks. The major combatants arsenal ships, thus become the capital ships of the surface battle, with the phaser projector mounted ships, acting as their escorts and protectors. Working in tandem, long range scans; satellite imagery and other intelligence will determine where the enemy is located. This will be followed by firing of a first salvo of missiles in either Ballistic or Wave Skimming trajectories, or then the flotilla, quickly moving to another location, to prevent random counter battery fire from striking their location. Missiles fired on a Ballistic Trajectory are easier to detect, and to shoot down, but provide the firing ships more opportunity to misdirect from whence they were fired. Wave Skimming missiles are harder to detect and also harder to shoot down, but generally must be fired from closer range and thus easier to track back to there firing ship.

One-Two Punch

Power Projection Ships and their RPV attack craft, come into their own, in the surface battle. With their light weight, long endurance, and extended combat reach with either munitions or beam weapons (or sometimes both), the RPVs can take the battle to the enemy flotilla extending the reach and effectiveness of the flotilla thousands of kilometers away from the ships themselves. Standard tactical doctrine as the RPVs working in conjunction with the Arsenal Ships, working in tandem waves to wear down the enemy and either affect a surrender or destruction. The RPVs will first act as scouts, discovering and pinpointing the enemy, often acting as a laser pointer for the Arsenal to fire their first missile salvo on an indirect course. The first wave of RPVs will often be sacrificed to decoy the anti-missile defenses of the enemy ships, so that the first missile salvo will have maximum effectiveness. The second wave of RPVs consisting of attack craft will then proceed on their attack run, dropping sub-munitions, or conducting pinpoint attacks with their beam weapons. This wave will be attacking an alerted but often-dazed enemy, and losses of vehicles usually reach 50%, but their pinpoint attacks can be counted on to finish the destruction on any inherent anti-missile defenses. Thus the second salvo of missiles fired from the arsenal ships will be able to

effect even more devastating damages than the first. This is usually enough to wipe out resistance and lead to surrender of the enemy. This back and forth can happen up to four times before both the Arsenal Ships and the RPVs need to be replenished.

From the Shores of …….

Amphibious warfare tactics are essentially unchanged since US Marines first took the beaches on Guadalcanal, and the US Army Rangers landed in Normandy. Offshore bombardment of coastal defenses begins hours to days ahead of the actual landing, while special operations units swim ashore before and during the bombardments and set demolitions to clear avenues of approach through any obstacles and barriers emplaced along those landing areas. Aerospace transports will carry strike teams behind the front lines to cause confusion, and to seize important communications and transportation centers. Actual LCAC landing craft will carry marines and armored vehicles onto the beach, following close behind an advancing curtain of mortar fire from the amphibious vessels that will screen their exact position from the beach defenders until the LCAC lands right on their doorstep. As the infantry and armor marines deploy off these vessels, the LCAC will return to the Amphibious transport for more reinforcements, while the Marines on the Beach set up transport bomb inhibitors to protect the forces on the beach as they battle to set up a beachhead and corridors of advance up off those beaches.

Haze Gray and Underway

Auxiliary Support vessels are what give the Maritime Operations Branch its staying power and its range on aquatic planets. The process known as Underway Replenishment is described below:

Underway replenishment (UNREP) is a broad term applied to all methods of transferring fuel, munitions, supplies, and personnel from one ship to another while the vessels are underway. Two general methods of UNREP are used - connected (CONREP) and transporter (TRANSEP). They may be used singly or at the same time. In connected replenishment, two or more ships steam side-by-side and the hoses and lines used to transfer fuel, ammunition, supplies, and personnel connect the ships.

Ships transporters carry out transporter replenishment with the ships in close proximity, or kilometers apart depending on the tactical situation and the amount of cargo to be transferred. Connected replenishment involves two processes - refueling and re-supply. In fueling at sea (FAS), fuel is pumped from the delivering ship such as a fast combat support ship (AOE). Other replenishment ships such as the combat stores ship (AFS) and the ammunition ship (AE) can deliver fuel, but their primary mission is the delivery of dry cargo by methods referred to replenishment at sea (RAS).

There are several factors in favor of replenishment with the ships alongside each other instead of astern. First, by replenishing alongside, the fueler or other auxiliary ship, can service two ships at once, with multiple replenishment stations to each ship. Second, by replenishing alongside rather than astern, the whole formation of ships can maintain greater speed (up to 16 knots instead of the 7-8 knot maximum for astern refueling). Third, by replenishing alongside, both fuel and dry cargo can be transferred, instead of being limited to fuel only. Astern fueling does have a place in the replenishment plan, but it is generally limited to a tanker in convoy refueling the convoy escorts.

Underway replenishment techniques continue to advance with the introduction of new systems and equipment. STREAM stands for Standard Tensioned Replenishment Alongside Method and is utilized in both RAS and FAS evolutions. The STREAM rig is preferred over other connected replenishment methods as it permits greater ships separation.

When utilizing the STREAM rig for FAS operations a tensioned spanwire is suspended between the two ships. A series of hose saddles are attached to the spanwire by trolleys. The actual transfer hoses are then suspended in between the saddles. The receiving end of the hose rig is tipped with a coupling. A variety of fueling couplings may be used to ensure compatibility between the delivery and receiving ships. The most common is a probe-fueling coupling. The probe may be used in the transfer of either deuterium or tritium products. The probe itself has a latching mechanism that holds it in the receiver by spring force. The receiver is mounted on the receiving ship by a swivel arm. The swivel arm allows the receiver to move throughout the full working range of the receiving station, ensuring proper alignment prevents the probe from unseating. The probe assembly will unseat from the receiver when a 2,500 lb. line pull is applied. The receiver also has a manual release lever, which is the desired way to release the probe upon completion of the fuel transfer.

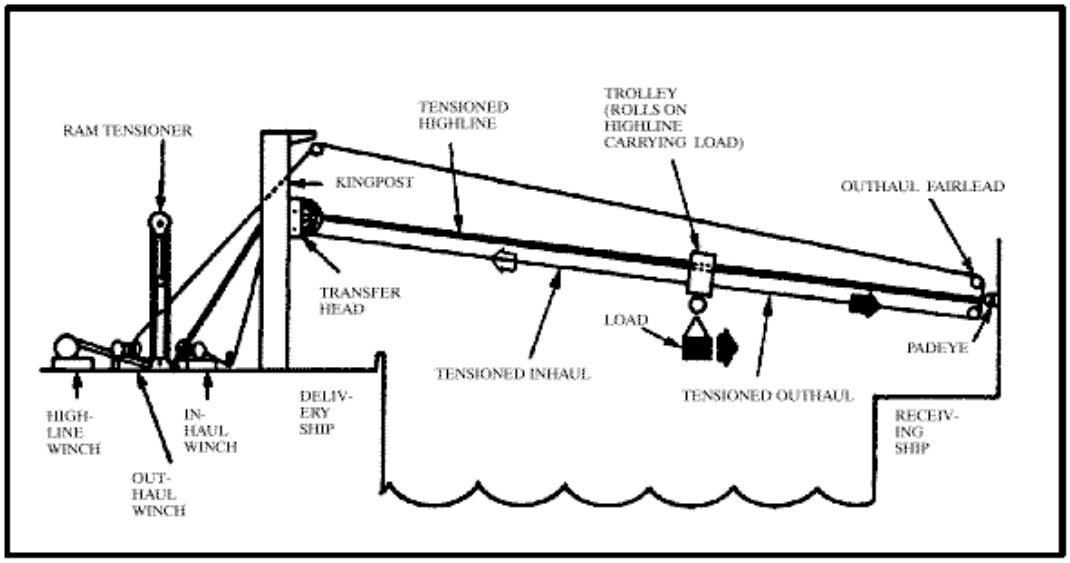


Figure 571–3–1. Missile/Cargo STREAM Rig (All-Tensioned Wires)

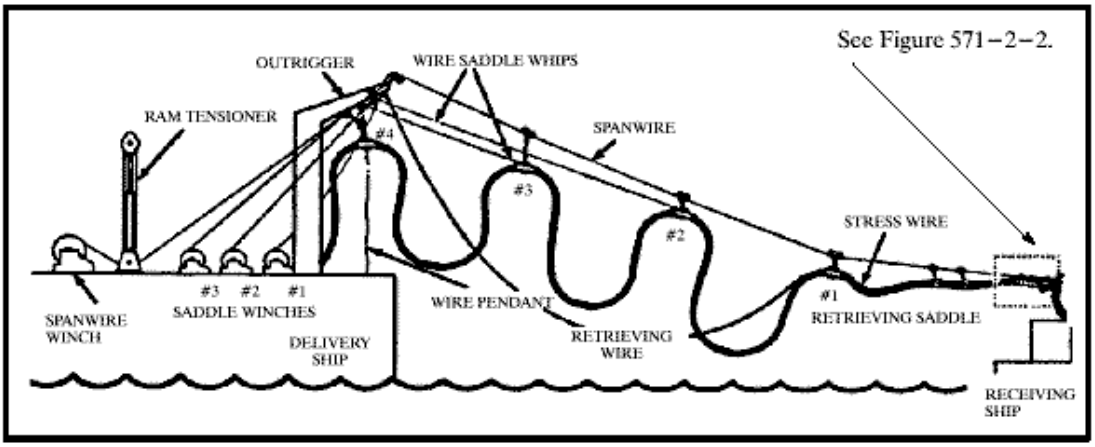


Figure 571–2–1. Fuel STREAM Rig – Single Hose with Probe

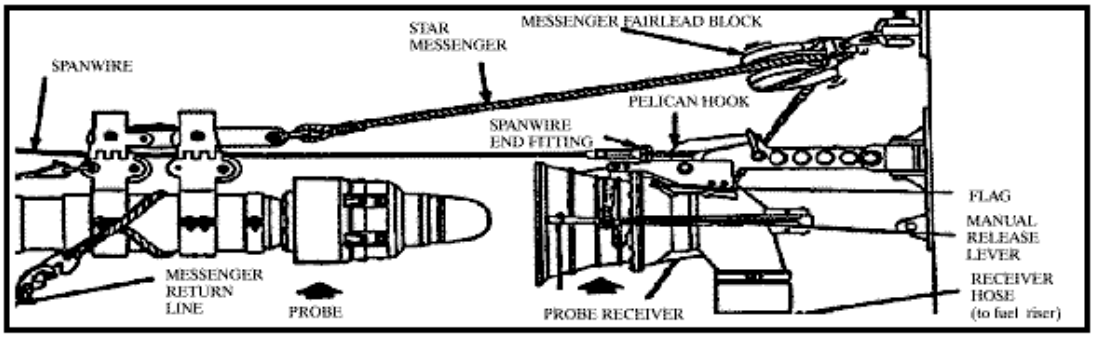


Figure 571–2–2. Single Hose Fuel STREAM Rig with Probe

During RAS the STREAM transfer rig utilizes a tensioned wire highline suspended between two ships. The exact type of STREAM rig is dependent on the kind of cargo. In all rigs, cargo to be transferred is connected to a trolley, which rides on the highline. The trolley is moved between the ships by inhaul and outhaul winches located on the delivery ship. When using a STREAM rig with all tensioned wires, the wire rope outhaul is faired through a SURF (Standard Underway Replenishment Fixture) block and attached to the outboard side of the trolley. The SURF is located on the receiving ship. A ram tensioner, located on the delivery ship, applies highline tension ensuring constant load support regardless of ship separation or motion. However, if ship separation becomes too great the amount of wire on the winch drum may be exceeded. A stream rig can handle loads up to 8,750 lbs. under ideal conditions.

A replenishment at sea consists of two or more ships, one of which will be designated the "guide" ship. The guide will generally be the ship delivering cargo, but in a two-ship replenishment this may be changed. From the ship handling aspect, the responsibility of the guide ship is to maintain steady course (by gyro) and speed (by engine). The other ship(s) are referred to as "approach" ship(s), and their job is to come to station alongside the guide and maintain that station throughout the replenishment. The goal of the approach ship is to come alongside the guide, with sending and receiving stations aligned, at a lateral separation of about 160 feet, and then maintain that station throughout the replenishment.

The first step in conducting a replenishment at sea, from the operations and ship handling standpoint, is to coordinate a rendezvous time and position. While this is being done, additional information such as fuel quantities required and fueling stations and fittings available will also be exchanged and coordinated. Selecting a good rendezvous position, with plenty of clear water and acceptable to all ships' operational requirements, often requires some compromise of less urgent requirements in favor of more important considerations. If either ship has other pressing commitments, the replenishment course and speed (*Romeo Corpen*) may also be a subject for discussion during the planning and coordination stages.

Once the receiving (also referred to as "customer" or "approach") ship rendezvous with the delivery (or "guide") ship, the next task, if not already accomplished, is to agree on a Romeo Corpen. Normal speed for auxiliary ship replenishments will be 12-14 knots. Selecting the replenishment course can be more of a challenge, depending on sea state. Replenishments are routinely conducted in sea state 4, with highly skilled personnel on both ships they can successfully be conducted in sea state 5. A rule of thumb is that if the guide ship is able to remain within 1 degree of base course, the replenishment is a definite "go". If the guide is yawing 1.5 degrees, it is a judgment call based on skill and experience, as well as operational necessity. And if the guide is yawing as much as 2 degrees on either side of base course, it's probably not possible to safely conduct a replenishment. Replenishments will normally be conducted on a Romeo Corpen that best satisfies both ships' follow on commitments, but in extreme conditions the sea state will determine the course, and even whether the replenishment is possible. Quartering seas are the worst possible situation from a ship-handling standpoint.

Once a Romeo Corpen is agreed upon and the guide ship is steady on that course and speed, the receiving ship's next task is to come to waiting station. The duty of the guide ship is to steer the agreed upon course and maintain a constant engine speed. Both ships will have gear tested and stations manned to at least the same standard used for sea details at arrival and departure from port. The purpose of waiting station is threefold. First, it improves the efficiency of the operation by having the approach ship begin coming alongside from a fairly close station (shorter approach times, less waiting around on deck). Second, it provides the approach ship an opportunity to accurately gauge the guide ship's course and speed. And last, but not least, it gives everyone on the bridge, including the Master, a chance to acclimate to being at such close proximity to another ship. All ship handling on the approach shipside is relative to what the guide ship is doing, so matching course and speed is critical. A waiting station of 600 yards astern the guide ship, and just outside the guide ship's wake on the appropriate side, maintains about 100 feet of open water between the approach ship's side and the guide's wake. Ships normally spend at least ten minutes in waiting station, and may spend 30 minutes to an hour if one arrives early. When the guide ship is ready to receive the customer ship alongside, she'll indicate that by hauling up the Romeo flag on the appropriate side. At that time, or whenever ready, the customer ship will commence her approach alongside the guide. The approach ship indicates the

commencement of her "approach" by also hauling up the Romeo flag on the appropriate side.

Replenishment at sea demands the very best of helmsmanship from both the guide and approach ships. *As the two ships close each other, the hydrodynamic forces will both change and increase noticeably.* At a replenishment speed of 12 knots, a one-degree course variation will move the ship 20 feet sideways per minute. The best separation alongside during the replenishment depends on a number of factors, but is controlled by wanting to ensure the safest separation while keeping the probes seated. For surface combatants, 140-160 feet seems to work well. Larger ships seem to favor 160-180 feet. Carriers are especially challenging because of the flight deck overhang, but by the time the separation increases to 200 feet, they are probably at the point of unseating the probes.

To commence the approach and begin closing the guide, all that's required of the approach ship is to increase engine speed by 4-5 knots. On an AOE, they would normally use about 60% throttle for 13 knots, so from waiting station we will increase speed to 80-85% (17-18 kts engine speed) to commence the approach. While closing the distance to the guide ship, the lateral separation between ships deserves some attention. However, if the approach ship has established good waiting station, it's likely that nothing more than minor course corrections will be required until alongside. When about 1 ship length astern of the guide, the approach ship can reduce speed to 1-2 knots above base speed. From this point until alongside and settled in position, matching speed will be the conning officer's primary concern. It's worth noting that an UNREP approach is significantly different from a docking maneuver. Mental adjustments to appropriate relative motions, lateral separation, and vessel aspect must be applied. To put it simply, what looks "right" during a docking maneuver is very different from what looks "right" during an UNREP approach.

As the approach ship's bow crosses the guide ship's stern, but probably not before then, the approach ship can ring up an engine order to match base speed. Before reducing to base speed the conning officer should ensure that he has enough momentum to pass through the pressure wave generated by the guide ship and carry herself into station. At times, the conning officer will match base speed too early and end up stalled out on the guide ship's pressure wave, which can result in a prolonged delay in getting alongside. From this point forward, engine orders to bring the ship into position and match speed are made almost entirely by eye, keeping in mind the base speed determined while in waiting station. The exact matching speed while alongside the guide will probably be very slightly less than the speed required to match while in waiting station. One very effective technique is to order an engine speed somewhat below the matching speed to reduce excess headway, rather than trying to laboriously "glide" into position. However, in using this technique the peculiarities of the ship and the current sea state must be taken into account.

On a large, relatively low-powered auxiliary ship, perhaps the most challenging aspect of replenishment conning is finding the matching speed alongside. Occasionally, the

conning officer will basically luck out and hit both proper position and matching speed at the same time. More commonly, he will have to order an engine speed below matching speed to bleed off excess headway, then ring up an engine order above matching speed to catch the afterward drift (relative to the guide ship). It's not unusual to go through several cycles of ordering speeds, alternately, above and below the required final speed to figure out exactly what's required. The goal should be to decrease the range of engine orders until the needed engine setting is determined. One factor that adds to this challenge is the very slow rate of acceleration that most large auxiliaries experience.

As soon as the approach ship reaches adequate position, a shot line is sent for the phone and distance (P&D) line, which is marked every 20 feet by a flag. Once the P&D line is across, the job of maintaining separation becomes much easier, since constant "eyeballing" is no longer required. The P&D line also provides for sound powered bridge-to-bridge communications. Once alongside, the shot lines for the replenishment stations can be sent over, the messenger hauled across, with spanwire and hoses following. The teams on deck and in the pump room are then ready to commence cargo transfer.

Maintaining station alongside is best done through a series of small corrections. Of course, the rougher the conditions, the larger the envelope the ship will be operating in, so course and speed adjustments need to be tailored to the conditions. Ideal station while alongside will generally result in the replenishment rigs being aligned, with a ship-to-ship separation in the 140-180 foot range. At closer separations, the hydrodynamic forces between two large ships begin to build quite rapidly. At greater separations, the replenishment rigs begins to see larger stresses (particularly when a probe fitting is used, which can unseat at due to excessive lateral separation).

Upon completion of cargo transfer, the team on deck will begin sending back or retrieving the replenishment rigs. At this time, a prime concern from the ship-handling standpoint is to maintain station and not begin drifting away from the guide. Lines can become fouled, and in any case the added distance will put more spanwire in the water. Once all lines are clear of the other ship, the approach ship can begin opening the guide. This is probably the easiest part of replenishment ship handling and can be accomplished by ordering a 2-3 degree course change away from the guide and increasing speed 2-3 knots. As those changes begin to take effect, and with the ships a safe distance apart and opening gradually, the process can be repeated as desired while the ships clear each other.

Replenishment at sea involves an extended period of time where two ships are in close proximity while at relatively high speeds. Any problem at all, either external to the ships or internal to one or more of the ships, can require an immediate and timely disengagement. The Captain of either ship can initiate emergency breakaway procedures if there is a maneuvering problem or an unsafe situation is developing. An emergency breakaway follows the same procedures as a normal breakaway, but all steps are expedited as much as possible.

Semi-Submersible Vessels

You can't strike back what you can't see

The semi-submersible vessel concept and accompanying tactics were created to ensure a more effective maritime fighting force for the 24th century, and was devised to foster innovative ways to employ new and emerging technologies in support of four tactical/operational concepts; dominant maneuver, precision engagement, full dimensional protection, and focused logistics. The semi-submersible arsenal ship measures up well with this plan for the future

Dominant Maneuver being the multidimensional application of information, engagement, and mobility capabilities to position and employ widely dispersed joint air, land, sea, and space forces to accomplish the assigned operational tasks."- This concept matures the process of maneuver warfare, emphasizing the need for forces capable of "conducting sustained and synchronized operations from dispersed locations.

The semi-submersible arsenal ship provides the Maritime Branch Commander (MBC) with a powerful tool to support the land force's scheme of dominant maneuver through close support and interdiction weapons. It can be particularly effective as an instrument of asymmetric leverage against an enemy with little or no maritime capability. This allows massing fires through rapid targeting and near simultaneous engagements with "massive" amounts of "ordnance on target." The huge initial punch provided by the arsenal ship will allow the MBC to gain an immediate offensive advantage and continue to exercise the initiative through maneuver and synchronization. The preponderance of weapons contained in the arsenal ship will also free other naval combatants to conduct other vital missions within the force, making the most efficient use of available forces.

Dispersal of forces is a key consideration for dominant maneuver, however in the sense that the arsenal ship consolidates many weapons into one platform, it opposes the movement toward dispersal. This will reduce flexibility somewhat and make the arsenal ship a primary and perhaps vulnerable target for enemy forces. However, in the sense that the arsenal ship provides an additional platform for large-scale precision fires, interdiction, and close support, missions normally conducted by land and air forces, the ship may actually enhance dispersal of those forces. In order to overcome the inherent bulk of the platform, the MBC should employ methods to disperse the arsenal ship within the theater on a continual basis. Maneuver, stealth, and synchronization with land and air forces can make the arsenal ship a true "hit and run" platform, the semi-submersibility of the arsenal ship then, makes it even more of an elusive target, thus contributing to its tactical and operational capability.

Precision Engagement by incorporating the latest technology in precision weapons, the arsenal ship will be a key element in the "system of systems." The ship possesses no targeting, command and control (C2), or battle damage assessment capabilities, so maximum use of joining with other elements of the system is essential to successful employment. While this may be necessary for the initial deployment period of the

arsenal ship, the full development and joint use of independent C2 must be pursued. C2 will allow air and land force commanders to target and launch arsenal ship weapons directly, eliminating the "middle man" platform. Unity and efficiency of command is a principal issue for successful joint operations, particularly with regard to the arsenal ship, since it will support multiple component and functional commanders.

This division of resources would allow the MBC to direct primary tasking, flexible enough for the rapid pace of future conflicts, while also providing a measure of decentralized execution necessary for efficient mission accomplishment. Full-Dimensional Protection and control of the battle space to ensure the forces can maintain freedom of action during deployment, maneuver and engagement, while providing multi-layered defenses for our forces and facilities at all levels. This concept emphasizes proactive measures, built on information superiority, to degrade the enemy's opportunity for offensive action. The arsenal ship can bring a large number of defensive weapons to a theater to enhance the protective posture of the joint force and shore facilities. While not contributing directly to information superiority, it can provide additional resources for the ground theatre commander to execute their defensive plans and also to pursue the destruction of enemy command and control targets.

The arsenal ship brings with it an added consideration for the MBC: how to protect such a valuable platform. The greatest weakness of the arsenal ship concept is the lack of robust active defense systems for such a large concentration of firepower. Although designed to enhance passive defense measures (stealth, double hull construction, etc.), the arsenal ship's value to the joint force, as well as its value as a primary target for enemy forces, will necessitate a high level of attention to its protection. Maritime Branch SOP states that a beam mount combatant will provide a defensive escort for the arsenal ship. In light of the maritime branches other commitments, said vessel and the projected number of combatant ships available, assigning a full time beam mount escort for the arsenal ship may not always be possible. The MBC must pursue additional defensive options. Submarines could be used for surface and subsurface protection, and aerospace craft could provide additional air defense. Innovative methods of operational deception, high levels of maneuverability, best use of the ship's reduced signatures, and the inherent toughness of the platform must be continually assessed and combined to maximize protection. The arsenal ship will be one of the most valuable platforms in the joint force, and its protection must be a high priority at all levels of command.
Focused Logistics and the fusion of information, logistics, and transportation technologies to provide rapid crisis response, to track and shift assets even while enroute, and to deliver tailored logistics packages and sustainment directly at the strategic, operational, and tactical level[s] of operations.

The arsenal ship could reduce the logistics requirements during a regional contingency conflict. As detailed in past reports, weapons of deployed arsenal ships could replace 2-3 days of aerospace deep strike and interdiction assets early in such a conflict. The release of an equivalent amount of space lift required to transport the associated aerospace support could be used for other vital needs. While realistically, the MBC would probably not forego an equivalent amount of aerospace firepower because of the

presence of an arsenal ship or two, some craft could be directed to other targets or delayed in transport, lightening the early space lift requirements to some lesser degree. Later in the conflict, the arsenal ship moves closer to the land mass as air and sea control are achieved, and its close support and theater missile defense weapons could replace land-based weapons systems, further lightening the logistics load for their support. The key for the realization of any logistics savings will be in loading of the correct mix of weapons in the arsenal ship prior to deployment. Long term theater needs must be considered if the weapons brought to the theater will continue to meet the MBC's needs throughout the arsenal ship's deployment. The arsenal ship will also reduce the need for naval ammunition replenishment by traditional methods, because it will be able to transport, position, and fire additional weapons on the command of combatant forces that need them most. In fact, "the most efficient replenishment ship yet designed" could be the most accurate assessment of the arsenal ship's primary contribution to the joint force of the future.

Submersible Vessels

The Silent Service

In the five domains in which our military forces operate --- on land, in the air, on the sea, beneath the sea, and in space --- it is undersea operations that are the least visible. This makes these operations extraordinarily valuable. They offer the ultimate in stealth and surprise while influencing events in all five domains. Therefore, they can have the highest impact at the least risk. Unfortunately, because they are least visible and highly secretive in nature, these operations are least understood and most frequently under-valued.

What SFMC Maritime Branch Submarines can do

SFMC submarines perform numerous critical missions – many in ways that submarines are uniquely able to perform. Many missions are classified; however, general mission areas include the following.

1. Intelligence, Surveillance and Reconnaissance. Submarines provide the nation with a crucial intelligence gathering capability that cannot be replicated by other means. Employing multiple sensors and operated with care and cunning, submarines can monitor any event in the air, surface, or subsurface littoral domain providing a complete picture of an event across the full spectrum of intelligence disciplines. They are also intelligence "force-multiplier" by providing tip-offs of high interest events to other collection assets. Submarines are able to monitor undersea events and phenomena not detectable by any other sensor. Since they are able to conduct extended operations in areas inaccessible to other platforms or systems, submarines can intercept signals of critical importance for monitoring international developments and enable a wide array of military operations. Furthermore, the ability to dwell covertly for extended periods

defeats efforts to evade collection or deceive satellites and other sensors. The unique look angle provided by a submarine operating in the littoral region enables it to intercept high interest signal formats that are inaccessible to reconnaissance satellites or other collection platforms. The intelligence gleaned from submarine operations ranges from highly technical details of military platforms, command and control infrastructure, weapons systems and sensors to unique intelligence of great importance to national policymakers on potential adversaries' strategic and operational intentions. Significantly, our submarines can provide real time alertment of indications of imminent hostilities. And unlike other intelligence collection systems such as satellites, submarines are also full-fledged war fighting platforms carrying militarily significant offensive firepower.

2. Mine Warfare. In both covert offensive mining and mine reconnaissance, submarines provide capabilities that no other platform can deliver. The submarine offensive mining capability allows national leaders to precisely place mines for maximum effect without enemy alertment and with minimal risk. Mine reconnaissance capability from submarine launched Unmanned Undersea Vehicles allows the submarine to covertly detect and report mine danger areas without risk to naval forces. As a result, potential adversaries have fewer clues indicating potential locations of expeditionary operations and military planners are better able to exploit the element of surprise.

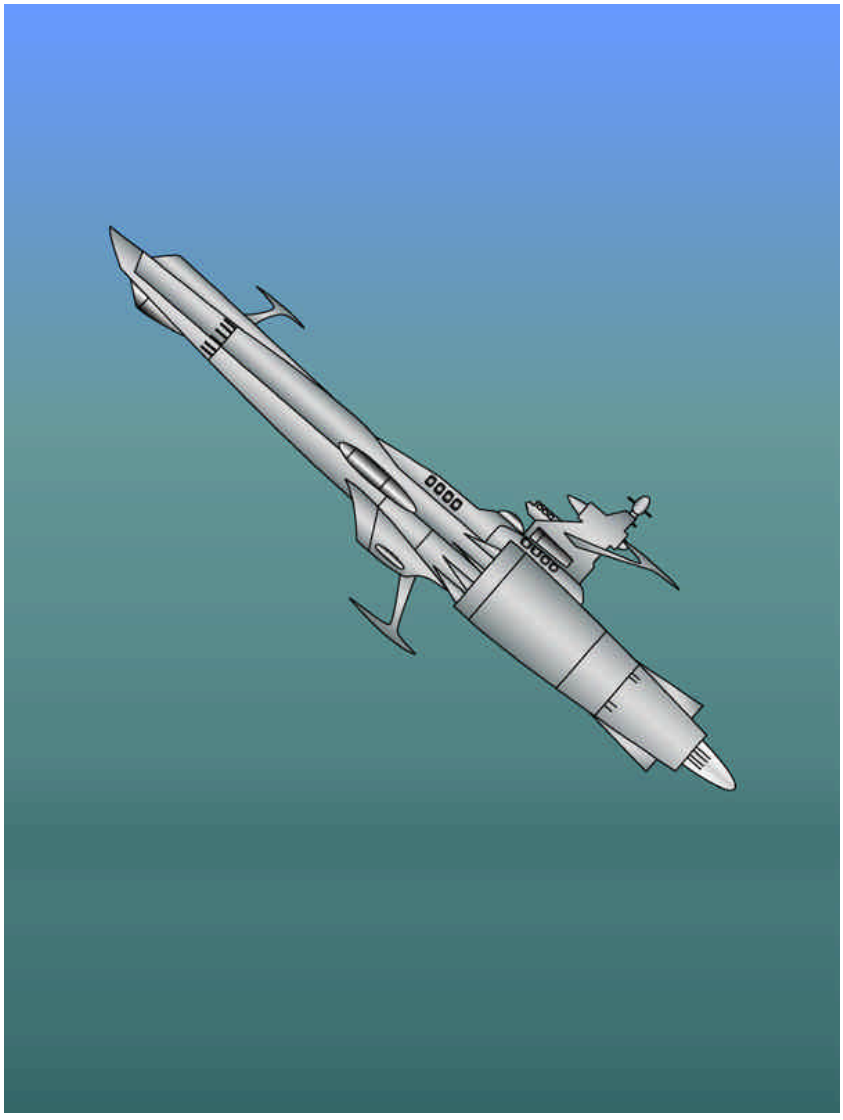
3. Landing Special Operations Forces. Submarines are an excellent means of clandestine insertion for special operations forces when operating in the littorals. The submarine’s inherent stealth and endurance, as well as sophisticated communications equipment, sensors and navigation suites, enable covert, precise insertion of special operations forces close to their littoral objective, and provide a reliable means for their extraction once their tasks are accomplished.

4. Power Projection – Conventional Land Attack. An attack submarine can carry a 24 to 48 land attack missile salvo ready for submerged launch, with from 72 up to 96 additional missiles that can be reloaded and fired while submerged. Additionally, because of their stealth, these attack submarines can be positioned to operate alone in environments where the risks would prevent surface and air forces from operating without extensive protective cover.
Whatever an opponent's ability to deny access to, or preempt, a SFMC presence, it can use these weapons in only limited ways against submarines. First, it cannot reliably detect their presence. Second, submarines are not threatened by many of the existing or projected access denial weapons. Coastal cruise missiles, tactical ballistic missiles and weapons of mass destruction pose little or no threat to a well-operated submarine. Submarines carry organic mine detection systems allowing them to avoid previously undetected minefields. A credible attack capability against submarines could be developed only by substantial investment in an attack submarine force comparable to that deployed by the SFMC.

5. Control of the Seas: Modern SFMC submarines, armed with significantly improved sensors and weapons, are vastly superior to their historical ancestors. They possess unsurpassed abilities to hunt and kill submarines and surface ships on the high seas

and in the littorals. And, as trade follows the flag, the merchant shipping of our colonies, allies, and friends can conduct the trade on which their prosperity and security depend. Likewise, power projection logistical military capability can be counted on to flow when and where needed.

6. A Survivable Strategic Deterrent. Because of the invulnerability of submarines operated in the vast ocean areas, they provide the strategic deterrent more effectively and at less cost than other systems. Submarines excel at preparing and controlling the littoral battle space for joint expeditionary forces. Submarines greatly enhance Federation policymakers' understanding of enemy and terrorist force dispositions and operational doctrine before the outbreak of hostilities. Likewise they allow the ability to decisively engage and destroy key threats at minimal risk. Before a full surface battle group or amphibious ready group with nearly 10,000 marines has approached a high threat area, a submarine can have already detected, reported and destroyed major threats.



Glossary

Here is a list of common terms, abbreviations and acronyms that appear in this manual. There may be some references to terms that are common to the SFMC, but are not listed in this glossary. Those terms should be listed in the Marine Force Manual or in other relevant Branch Guidebooks.

Aerospace - 1. A planet's atmosphere and the space outside of it, considered as one continuous field.
2. Things that are designed for flight in aerospace.
3. The combat arm that deploys aerospace vehicles, such as fighters.
4. The aerospace vehicles of a combat force.

Air Defense Battery – Shipboard mount which provides fires to destroy enemy aircraft.

Amphibious - Relating to or organized for a military landing by means of combined naval and land forces. Historically referred only to operations from water to land, but now also refers to ops from orbit to planet-side.

Antiaircraft - Designed specifically to damage/destroy aerospace craft.

Antigrav/Antigravity - A method of propulsion or lifting that uses an anti-graviton generator to counteract the normal effects of gravity.

Antishipping - Designed specifically to damage/destroy spacecraft/starships.

Antivehicular - Designed to damage/destroy ground/water-based vehicles.

Branch - A group of related jobs within the Starfleet Marine Corps. There are eight branches of duty within the SFMC: Aerospace, Armor, Combat Engineers, Infantry, Mecha, Medical, Special Operations, and Support.

Calibre - The diameter of the bore of a firearm, shown today in millimeters.

Camouflage - 1. The method or result of concealing personnel or equipment from an enemy by making them appear to be part of the natural surroundings.
2. The use of physical, as opposed to electronic or holographic, camouflage.

Centimeter - One one-hundreth of a meter. There are about 2.54 cm in an inch.

Charge Pack - Large power cells which provide electrical power for vehicles.

Cloaking Technology - Any system designed to render persons or objects "invisible"; usually by selective manipulation of light rays.

Colonial Marines - One of several historical Marine organizations that evolved into the present day SFMC.

Combined Arms - Military term for operations that involve more than one branch type of unit (Aerospace and Armor, Mecha and Infantry, etc.). Also known as "composite" operations or units.

Deflector Shield - Standard defense field for starships, based on the ability to alter gravitational effects across a plane perpendicular to the incoming threat. Deflector shields do not function safely or effectively inside a planetary atmosphere.

Differential Thrust - The process of maneuvering by disproportionately distributing thrust through nozzles which usually point in several directions. Commonly used by missiles. *See also "vectored thrust".*

Direct Fire - A method of weapon employment where line of sight must exist between the firing weapon and it's target.

Electronic Countermeasures (ECM) - Measure to counteract enemy sensing and targeting attempts through jamming, misinformation and distortion of their sensor signals.

Effective Range - In weapon systems, the distance at which the average operator can place the majority of shots on target. *See also "maximum range"*

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Essential Task List - The list of duties, standards, behaviors, tactics, etc. of which a Marine must have mastery in order to attain a certain MOS.

Eugenics Wars - Devastating wars that took place in Earth's history, as genetically engineered humans (who believed themselves superior to non-engineered humans) tried to conquer the world.

Exotic Atmosphere - Any non-Class-M atmosphere that is composed of hominid-toxic, corrosive or high pressure gases.

*Field of Servic*e- In SFMC organization, a group of related MOSs within a branch. Examples in the Maritime Branch are Deck, Weapons, Engineering and Services.

Force Field - A defensive technology, consisting of an energized field that protects a target by deflecting, diverting or absorbing a certain amount of energy per millisecond. Sometimes inaccurately referred to as "shields".

Gravitic - Of or having to do with gravity; esp. the manipulation of gravity.

Heavy Weapons - Weapons designed to engage vehicles or equivalent hardened targets, or to affect a large area with a single attack. Often requires a special mount or firing platform and more than one person to operate.

Hominid - Historically, a primate of the family Hominidae, of which Homo sapiens is the only extant species. Today used interchangeably with "humanoid" to describe beings which are Terran-like in appearance.

Hovercraft - Usually refers specifically to a vehicle which uses a cushion of air for limited lift in negotiating terrain.

Humanoid - See "hominid".

Incendiary - Causing or capable of causing fire.

Indirect Fire - Fire from artillery, mortars, rockets, or similar weapons of a ballistic or semi-ballistic nature. The projectile does not travel a straight path and so a direct line of sight to the target is not needed.

Kilogram - Standard measurement for weight used in the metric system. One kilogram is 1000 grams, or about 2.2 pounds.

Kilometer - Standard measurement for distance used in the metric system. A kilometer is 1000 meters, or about 0.6 miles.

Kiloton - Standard measurement for explosive force. It is equal to the explosive force of 1000 tons of conventional TNT explosive.

Marine Occupational Specialty (MOS) - The specific "job" or function to which the individual Marine is trained to do. Groups of related MOSs are called Branches.

Maximum Range - In weapon systems, the maximum distance a shot will travel if it hits nothing else in flight. For Infantry weapons, it is usually expressed in terms of a Class M atmosphere/gravity.

MegaCorporations - Huge industrial conglomerates of the 21st century, responsible for much of Earth's early colonization efforts and rebuilding of civilization after the Eugenics Wars. Funded the Colonial Marines.

Meter - Measure of distance, the standard on which the metric system is based. One meter equals 39 inches, or one yard plus three inches.

Millimeter - One one-thousandth of a meter. About the thickness of a 20th century U.S. dime.

Mission - 1. A special assignment given to a person or group. 2. A combat operation assigned to a person or military unit. 3. An maritime or aerospace operation intended to carry out specific program objectives.

Muzzle - The end of the barrel of a projectile weapon through which the projectile leaves. Also, the emitter crystal end of an energy weapon.

Non-Commissioned Officer (NCO) - Refers collectively to pay grades E-4 through E-9 (corporal through sergeant major). These are enlisted personnel who lead other subordinate enlisted personnel.

Normal Upper Ceiling of Operations - The altitude at which vehicles can operate with no difficulty regarding power drain, control, and excess detectability.

Portable - Designed to be carried from place to place by personnel as opposed to vehicles. *See also "man portable" and "crew portable".*

Power Cell - An advanced form of battery, used to power small electronic devices and weapons.

Sensor Signature - The signal or emissions that personnel or vehicles give off, which can be detected by enemy sensing devices. This can be heat, electromagnetic, acoustic or some other form of energy.

Special Operations - Any operation that is not considered routine, common or standard when speaking of the SFMC as a whole.

Spotter - One who observes friendly fire for fire control purposes.

Strategic - Important or essential in relation to a plan of action; essential to the effective conduct of war; highly important to an intended objective. Usually refers to a longer term plan or view of a military situation.

Tactical - Of, relating to, used in, or involving military operations that are smaller, closer to base, and of less long-term significance than strategic operations. Usually refers to the immediate plan and situation rather than the long-term goals and picture of the strategic operation.

Track - A tractor-tread-type system used for ground vehicle propulsion over varying terrain.

Transatmospheric - Traveling from atmosphere to space or vice-versa.

Transponder - A transmitter-receiver activated for transmission by reception of a predetermined signal.

Vectored Thrust - The process of maneuvering by changing the orientation of a thruster nozzle while maintaining the level of thrust through the nozzle. See also "differential thrust".

Guide to Acronyms

Here is a list of commonly used acronyms in this manual. Entries followed by an asterisk have a separate glossary entry. Other terms are covered in detail in their respective manual sections.

ACH - Air-Cushioned Hover
AFV - Armored Fighting Vehicle
AG - Antigrav
ALSTTAR - Advanced Life Support for Trauma, Transportation, And Resuscitation
AMS - Artillery Missile System
AOD - Armor Operations Directorate
APC* - Armored Personnel Carrier
ARV - Armored Recovery Vehicle
BDA - Battle Damage Assessment
BDU - Battle Dress Uniform
BMNT - Beginning of Morning Nautical Twilight (first light)
C3 - Command, Control, Communications
CAS - Close Air Support
CQB - Close-Quarter Battle
CP - Command Post
cm* - centimeter
DEW - Directed Energy Weapon
ECM* - Electronic Counter Measures
EMD - Emergency Medical Dispensing unit
EMPW – Electro-Magnetic Projectile Weapon
EPS - Energetic Plasma System
EXCHEG - Extreme Conditions Hazardous Environment Garment
FACTS - Forward Aerospace Control and Tactical Support
GOEIS - Ground Offensive Electronic Interdiction System (pronounced “goes”)
HE - High Explosive
HEAT - High Explosive Anti-Tank
HIVAP - HI Velocity Armor Piercing (pronounced “hi-vap”)
HOTAS - Hands On Throttle And Stick
HPK - High Probability of Kill
HQ - HeadQuarters
IDF - Inertial Dampening Field
IFV - Infantry Fighting Vehicle
I-LINK - Individual communications Link
IR - InfraRed
kg* - kilogram
km* - kilometer
kph - kilometers per hour
LCARS - Library Computer Access and Retrieval System
LPK - Low Probability of Kill
m*- meter
MAPLIML - MAn Portable Light Infantry Missile Launcher (called “mapper”)
MIPPA - Marine Infantry Personal Protective Armor (pronounced “mippa”)
MOS* - Marine Occupational Specialty
mm* - millimeter
MSG - Marine Strike Group
MVS - Modular Vehicle System
NBC - Nuclear, Biological and Chemical
NCO* - Non-Commissioned Officer
NUCO* - Normal Upper Ceiling of Operations

OIC - Officer In Charge
OpArea - Operational Area
OPCON - Operational Control
OPORD - Operations Order
OPSEC - Operational Security
PADD - Personal Access Display Device
PL - Platoon Leader
PS or PSG - Platoon Sergeant
PVC - Pilot/Vehicle Commander
R&D - Research and Development
RCT - Reginetal Combat Team
RF - Radio Frequency
SAC - Sensor-Absorbent Coating
SFMC - StarFleet Marine Corps
SIF - Structural Integrity Field
SOP - Standard Operating Procedure
SURTACCOM - Surface Tactical Command
TACAIRCOM - Tactical Aerospace Command
THEOG - Thermal Hazardous Environment Over Garment (pronounced “thug”)
TVD - Through-Visor Display
UFP - United Federation of Planets
UN - United Nations
UNPF - United Nations Peace Forces
UNPFMC - United Nations Peace Forces Marine Corps
US - United States
USMC - United States Marine Corps
XO - Executive Officer

Designer's Notes

Unique among any other branch guidebook, this one was a top down creation. Following my very successful Infantry Branch Thesis, I was inspired to write a sequal paper in my Armor Branch Thesis. This led to my Support Branch Thesis inspired by Matt Copple, when he challenged me to show how a Marine Mobile Armored Cavalry Squadron could be moved from the safety of a Federation Garrison to the front lines. Following three papers in a series, each in turn becoming more and more academic, I decided to finish the series with Combat Engineering, Medical and Professional Development. During this entire process I was approached by Aaron Murphy, then Deputy Commandant, with a question "Where would maritime operations fall under?" My instant response was SFMC, as all planet bound operations fall under their purview. Aaron asked why, and thus this branch manual was born, first after some rapid brainstorming with Aaron, and then with others.

I would like to thank Aaron Murphy, John Adcock, Sandy Berenberg, Kurt Roithinger, Rahadyan Sastrowardoyo, Wade Olson, and Allyson Dyar for their support and assistance in developing this manual and this new branch. It is specially rewarding as a former sailor in the United States Navy, to be able to integrate what was my first career into what has become a lifelong hobby. I have now served over twice as long with the SFMC, than I did with the USN, but I will always remain a swabby and a squid.

I follow in mighty big shoes of those who have developed the eight preceding branch manuals as well as the Professional Development and Leadership manuals, and I would like to take a moment to recognize their efforts and thank Matt Copple, Matt Kelley, Erik Larson, Rex Prior, Nancy Lynch, Marc Harris, Kim Brooks, Michael Davis, Jim Monroe, Bill Cooper, Raye Crews, Wade Olson, and others I've no doubt forgot to mention. If you know or meet any of these folks, please tell them thanks. They've all worked hard to make this enjoyable for you.

Semper Fi,
GEN Scott A. Akers
Past Commandant (5th), SFMC

References and Further Reading

Bits and pieces of information from this manual came from many sources, Navy PQS Guides and the Bluejacket Manual figuring prominently among them. Also of much help was the Proceedings of the US Naval Institute, specifically an article written in January 1988, entitled *Revolution at Sea* by Vice Admiral Joseph Metcalf III, USN-retired.

Also, thanks to the many, many web sites set up by the US Navy and Marine Corps and their subordinate units which continue to be a harvest of pictures and information to me.

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, 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.

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