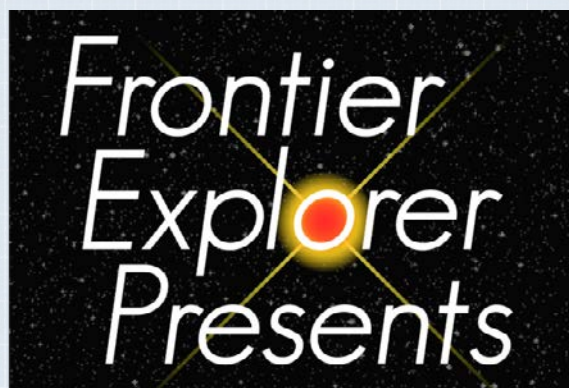


Frontier
Explorer
Presents

November 2017

UPF ASSAULT SCOUT TECHNICAL MANUAL





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ABOUT THE ACCOMPANYING FILES

The digital version of the UPF Assault Scout Technical Manual includes several additional digital files. These include:

- High resolution deck plans of both ship classes. These deck plans are produced at a scale of 1 square = 1 meter and are rendered at 200 dpi and can be used for printing or with a virtual table top system.
- High resolution versions of the cross-section images, both labeled and unlabeled.
- High resolution version of the face images of the Swift-class assault scout both labeled and unlabeled.
- A 3D model (STL & OBJ files) of the assault scout suitable for 3D printing or in other 3D modeling software.

You are free to use these images and models in your games and other work so long as credit is given to Tom Stephens and the Frontier Explorer.

INTRODUCTION

The United Planetary Federation (UPF) Assault Scout is probably one of, if not the, most iconic ships from the Star Frontiers game. Gracing the cover of the Knight Hawks rules, one of the Knight Hawks adventure modules, having a set of deck plans provided in the rules, and figuring prominently in the starting adventure, the Assault Scout is a ship most players of the game are familiar with.

The assault scout is an ideal ship for an adventuring party. Capable of hosting a crew of up to 12 beings, relatively small, fast and maneuverable, capable of both interstellar and atmospheric operations, the assault scout can go anywhere a group of players might want to take it.

This Technical Manual looks at the original Stiletto-class assault scout as provided in the Knight Hawks rules and a new Swift-class that updates the design to better match the provided statistics and game mechanics. While this technical manual focuses primarily on the new Swift-class, the statistics, design, and deck plans of the older Stiletto-class are also covered for completeness.

ORIGINAL STILETTO DESIGN

This is the version of the ship that is described in the original Knight Hawks rules and figures prominently in the first Knight Hawks adventure module KH0: Warriors of White Light.

As described in early UPF documents, assault scouts are larger than fighters and can be used to attack larger ships much as fighters can, but their larger size and crew of 4 to 6 give them much more versatility. They are as fast as fighters, but are big enough to operate without a base station or carrier. They can make interstellar trips, although they require an overhaul after each jump. They serve as scouts and rescue ships as well as combat vessels. However, they are lightly armed and easily damaged when compared to larger capital ships.

WHY IS THE ORIGINAL THE STILETTO-CLASS?

The name for the original design comes from the UPF Tactical Operations Manual included in the original Knight Hawks boxed set. The Tactical Operations Manual laid out all of the tactical board game rules for starship combat. In that book, in the first scenario of the basic starship rules (p8), the assault scout listed was the UPFS Stiletto, thus we have adopted that name as the class name for the original assault scout design.

SHIP STATISTICS

The basic board game statistics of the assault scout are as follows:

HP: 15 **ADF:** 5 **MR:** 4 **DCR:** 50

Weapons: LB AR(x4)

Defenses: RH

The full Knight Hawks data for the ship is:

Hull Size: 3

HP: 15

ADF: 5

MR: 4

DCR: 50

Engines: 2 Class A Atomic Engines

Fuel Carried: 3 pellets per engine

Life Support Capacity: 12 beings (primary)

Communication & Detection Equipment: Videocom radio, Subspace Radio, Radar, Intercom with 12 speaker/mics, Energy Sensors, Skin Sensors

Computer Level: 4 **FP:** 179

Computer Programs: Atomic Drives 4, Life Support 1, Alarm 2, Computer Lockout 4, Damage Control 2, Astrogation 4, Laser Battery, 1 Assault Rockets 1, Analysis 4, Communication 1, Computer Security 5, Information Storage 4, Installation Security 4, Robot Management 4, Skin Sensors 1

Ship's Vehicles: none

Other Equipment: Engineer's Toolkit x2, Laser Power Torch & power pack

Weapons: LB AR(x4)

Defenses: RH

Cost: 1,071,070 cr. (fueled)

SHIP DESIGN

The main fuselage of the ship houses the decks where the crew lives and works. The fuselage has a 6m by 10m hexagonal cross-section that rises about halfway through the ship's height and then tapers down to a blunted nose. The ship's weapons and much of its mechanical systems are housed in this tapered nose area above (forward) of the crew decks.

The assault scout has two atomic engines that are relatively quite large compared to the size of the ship itself. The "struts" required to offset the engines from the main body of the ship have been designed into full-fledged wings allowing for full atmospheric flight. Two jet engines, one in each wing, allow for atmospheric flight without using

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the full power of the atomic engines, although they are available if ever needed.

The Stiletto-class assault scout consists of six decks as shown in the deck plans below. They are arranged within the ship as shown in the cross section on page 4. The ship stands 42.3 meters tall and has a full wingspan of 37.6 meters.

ISSUES WITH THE STILETTO DESIGN

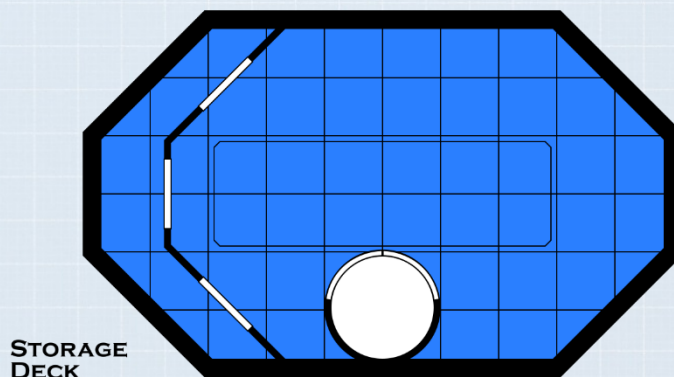
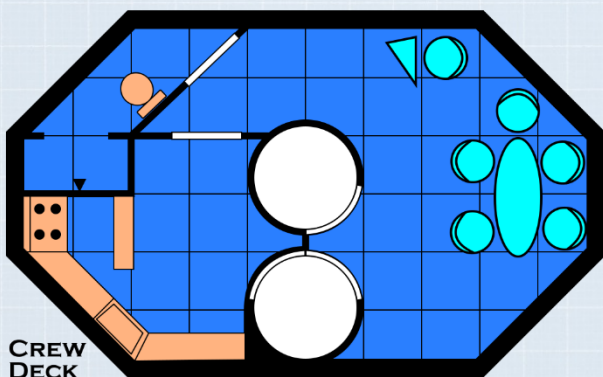
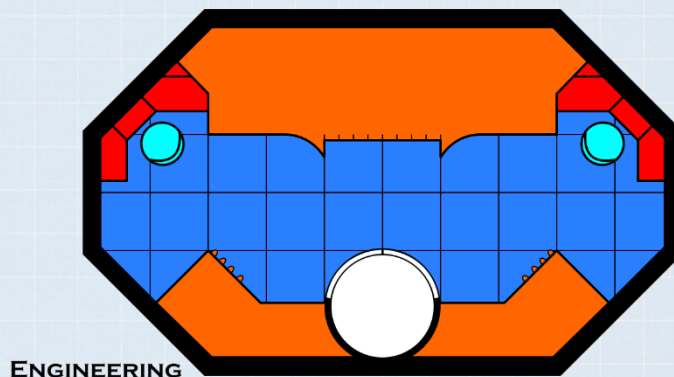
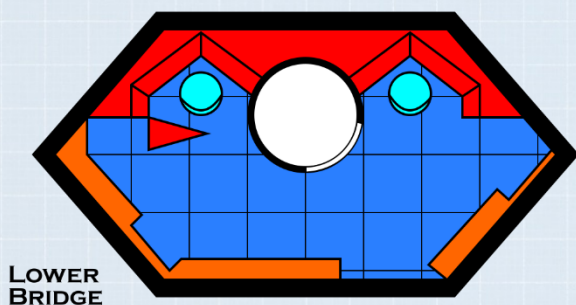
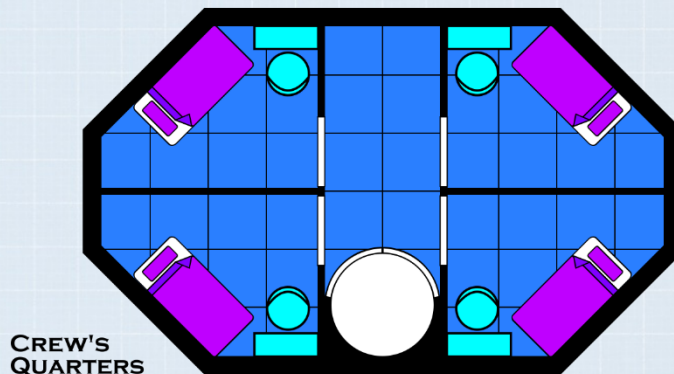
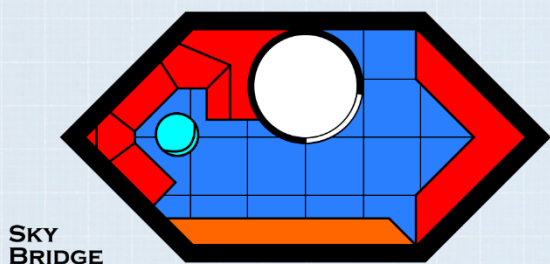
The Stiletto-class represents the original assault scout design developed shortly after the Great Sathar War that prompted the founding of the UPF. It was the first attempt at a versatile scout ship that spanned the gap between the larger capital ships and the small one-man fighters. While

DETERMINING DIMENSIONS

The dimensions for the Stiletto-class assault scout were derived from the drawings and deck plans provided on the back of the main Knight Hawks map. From the deck plans, the width of the fuselage is 10m. Using this as the baseline, the other dimensions could be determined from the cross-section drawing provided. This method provides reasonable dimensions for the various aspects of the ship with one exception. As drawn, this gives each deck a height of 4.5m which is a bit tall as all of that seems to be open volume.

quite successful, the design has a few flaws that make it less than ideal for use by Spacefleet.

1. **Lightly armored** – Even though it is a warship, the Stiletto-class assault scout only sports a civilian hull.

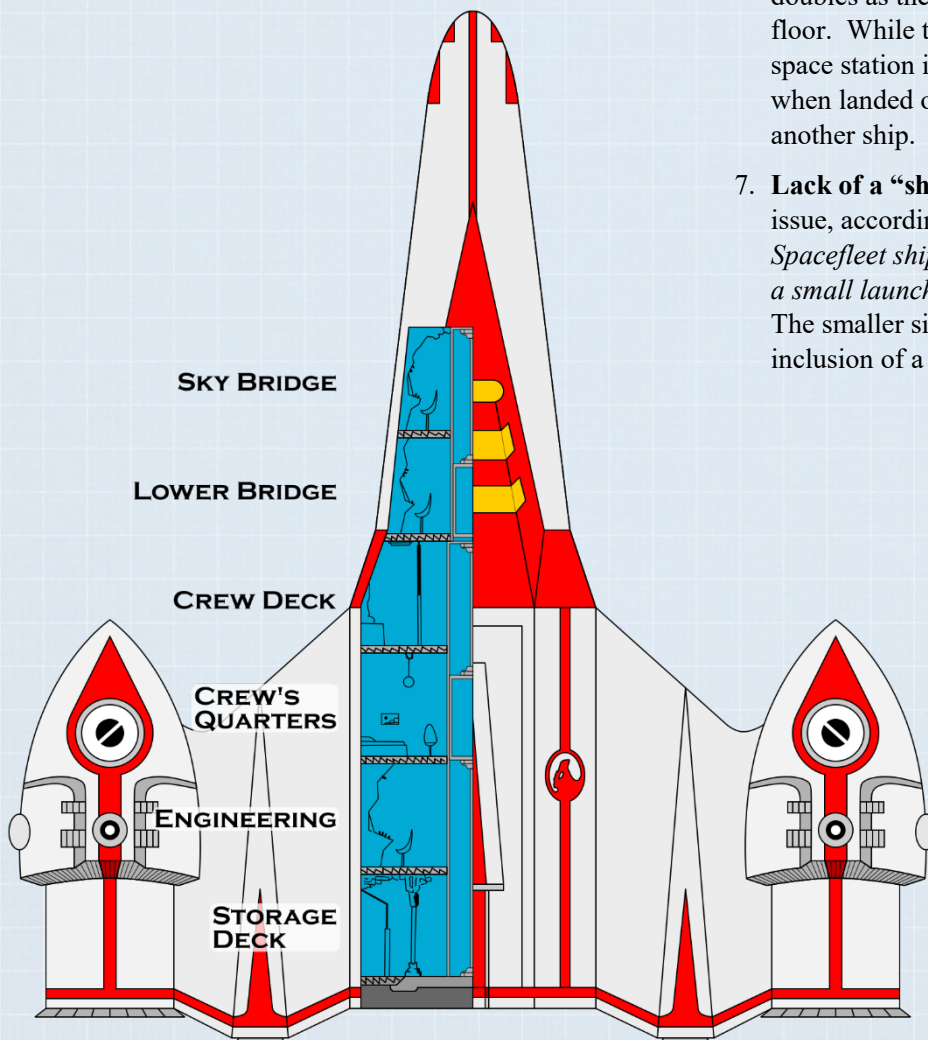


Despite its excellent maneuverability and weaponry, this results in an assault scout often being taken out of a fight before it can bring its full power and advantages to bear.

2. **Limited crew and cramped living space** – While capable of supporting a crew of 12, the typical crew size is 4-6 beings. While more versatile than a fighter, this is still a very small crew size that can limit operations. Additionally, the ship only has four crew cabins. While that works relatively well for the smaller crew sizes, in order to have a full crew compliment (of 12) this requires a lot of hot-bunking and staggered shifts. Additionally, the crew area is limited. This can be hard on the crew during extended voyages. This has a greater impact on Spacefleet crews who are often on their ships for months at a time and has less of an impact on militia crews who are often back in port after only a few days or weeks out in the ship. Because of this, most Stiletto-class assault scouts are now found exclusively in the rosters of the various planetary militias with Spacefleet phasing

them out in favor of the newer Swift-class vessels.

3. **Maintenance nightmare** – because all the decks are stacked right on top of each other, all of the ship's mechanical systems, along with its weapons, are crammed into the nose and wings. This makes access to those systems difficult at best and some can only be accessed while in free fall via exterior ports on the ship's hull.
4. **Lack of redundancy** – Because of its smaller size, the Stiletto-class assault scout lacks a few critical redundancies considered essential on a modern warship, namely a full backup life support and computer system.
5. **Elevator-only deck access** – Due to limited space, the only way between decks on the ship was via the installed elevators. Because of their size, this limited the rate at which crew could move between decks which sometimes proves to be a bottleneck in the event of a malfunction or other emergency.
6. **Bottom-facing airlock** – The ship's only airlock also doubles as the ship's cargo bay and the door is in the floor. While this works well enough while docked at a space station in near zero-g, it doesn't work so well when landed on a planet or attempting to dock with another ship.
7. **Lack of a "ship's boat"** – Although this is a minor issue, according to modern Spacefleet regulations: *All Spacefleet ships of Assault Scout class or larger carry a small launch* (Knight Hawks Campaign Book, p 30). The smaller size of the Stiletto-class prevented inclusion of a launch in its design.



NEW SWIFT DESIGN

After the events surrounding the exploration ship UPFS Eleanor Moraes and the discovery of the sathar starship construction center in the Liberty system, the UPF decided that an updated and redesigned assault scout was needed. Spacefleet's assault scouts are being pressed more and more into their "scout" role, serving as escorts to the Moraes-class exploration vessels as the UPF begins a serious push outward from the core Frontier worlds. The goal of this effort is to

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look for sathar presence in the systems around the Frontier and provide an early warning buffer zone against another sathar invasion. A new assault scout design was needed to make the ship more effective on these longer missions. The first of these new assault scouts, the UPFS Swift, assigned to Strike Force Nova, became the namesake of the new class.

The Swift-class maintains the overall styling of the Stiletto-class although its longer body and proportionately larger engines results in it standing about 8 meters taller than its older sibling. The basic silhouette, however, is almost identical and the two classes can easily be mistaken for one another unless seen close up and side by side.

SHIP STATISTICS

The basic board game statistics of the Swift-class assault scout are as follows:

HP: 25 **ADF:** 5 **MR:** 4 **DCR:** 60

Weapons: LB AR(x4)

Defenses: RH

The full Knight Hawks data for the ship is:

Hull Size: 3

HP: 25

ADF: 5

MR: 4

DCR: 60

Engines: 2 Class A Atomic Engines

Fuel Carried: 3 pellets per engine

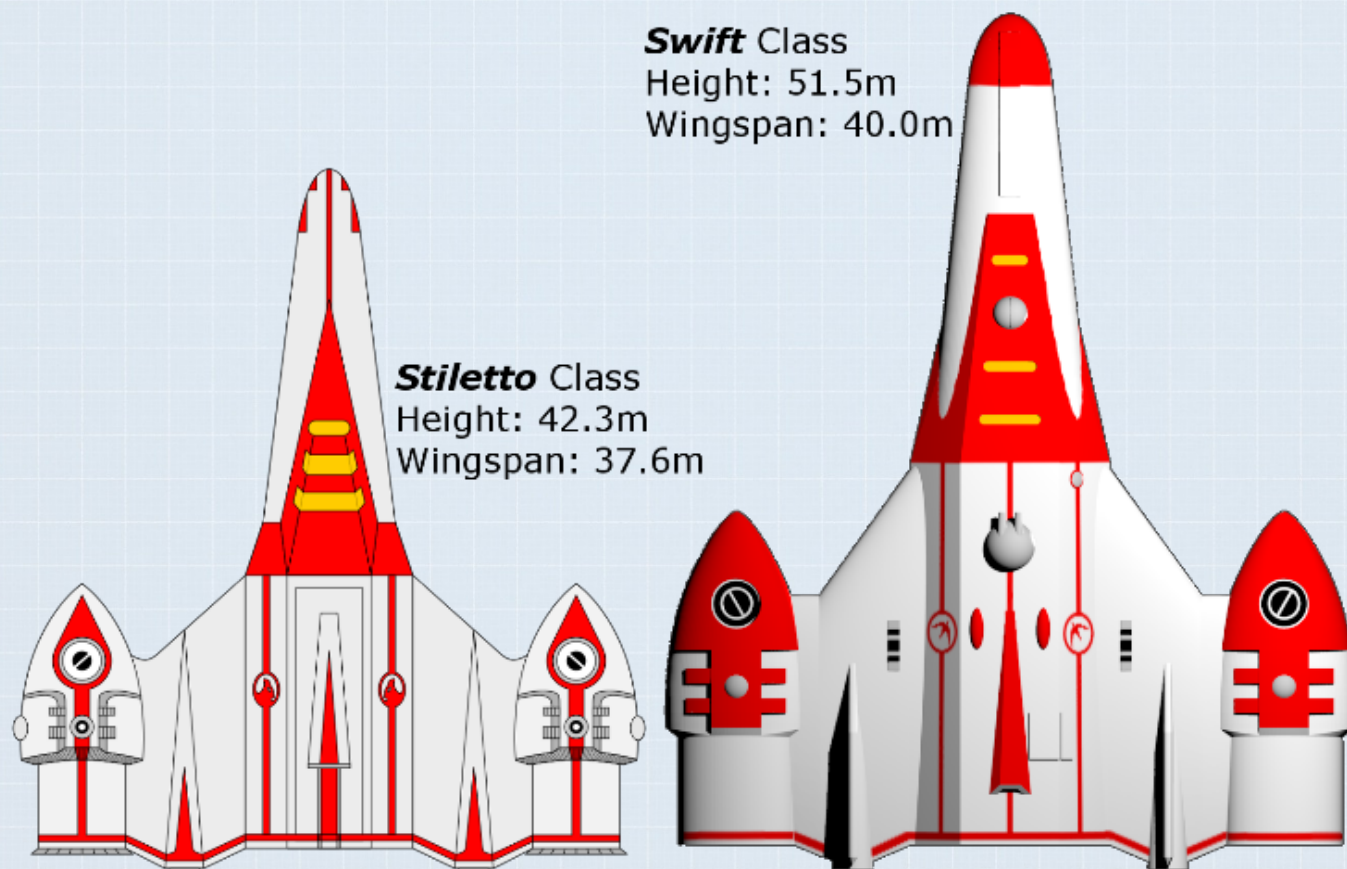
Life Support Capacity: 12 beings (primary and backup, 6 months each)

Communication & Detection Equipment: Videocom radio w/3 additional control panels, Subspace Radio, Radar, Intercom w/3 control panels & 40 speaker/mics, Energy Sensors, Skin Sensors, 6 portholes, external camera system

Computer Level: 4 **FP:** 191

Computer Programs: Atomic Drives 4, Life Support 1, Alarm 2, Computer Lockout 4, Damage Control 2, Astrogation 4, Skin Sensors 1, Assault Rockets 1, Laser Battery 1, Analysis 4, Communications 3, Computer Security 5, Information Storage 4, Installation Security 4, Robot Management 4, Maintenance 1

Ship's Vehicles: small launch



Other Equipment: supplies for 1 year additional life support capacity, Engineer's Toolkit x2, Laser Power Torch & power supply, SMMR-MKVI Robot x6

Weapons: LB AR(x4)

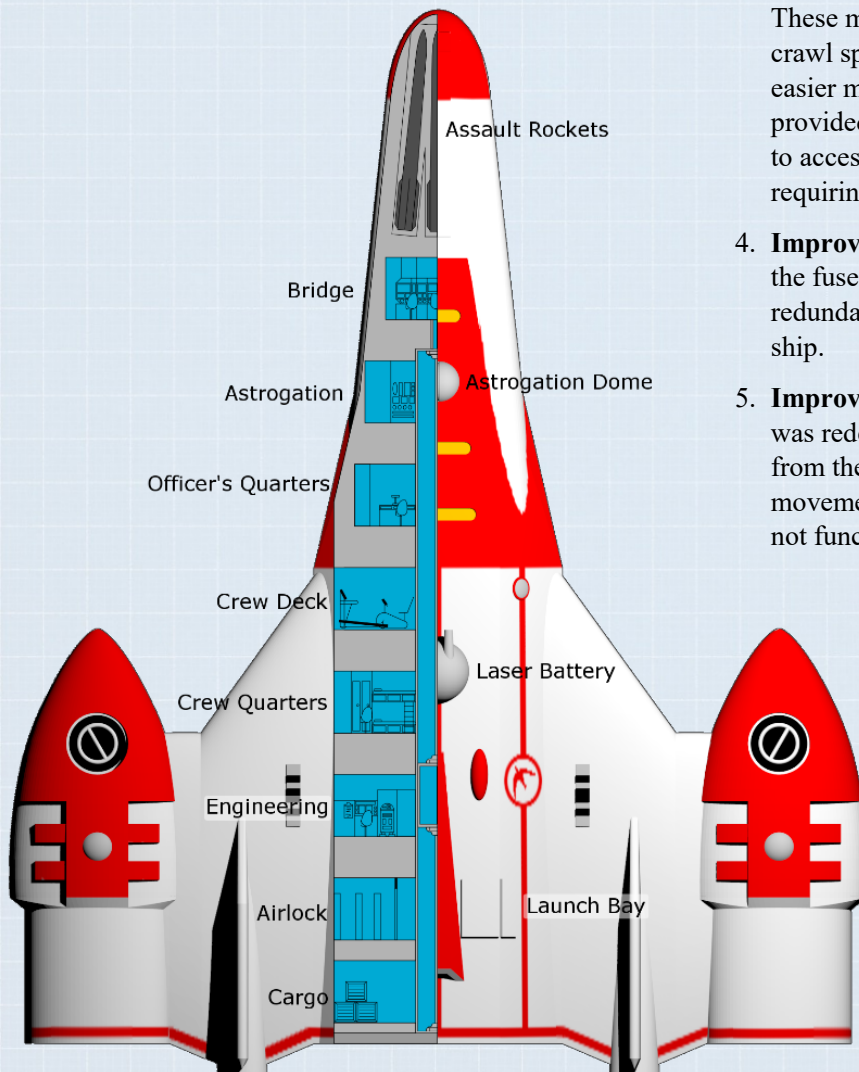
Defenses: RH

Cost: 1,650,422 cr. (fueled)

SHIP DESIGN

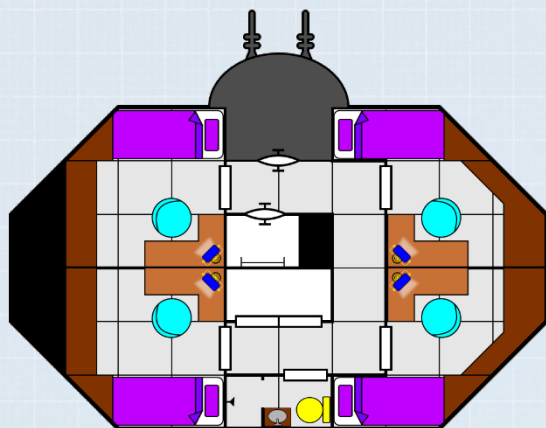
The primary difference between the Stiletto- and Swift-class assault scouts is a stretching of the fuselage and appropriate scaling of the wings and engines housings to match. The Swift class adds two additional decks to the ship's body and fixes many of the design flaws of the original ship. Of course it introduces some issues of its own but that is hardly surprising.

The full deck plans of the new Swift-class can be seen on page 7 with a cross section showing their relative positions shown below.

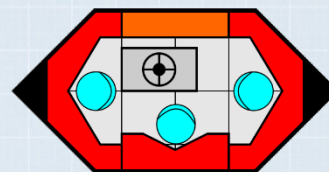


The new design addresses the known issues with the Stiletto-class design in the following areas:

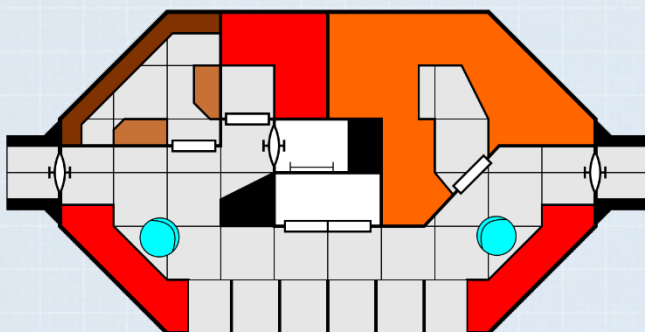
1. **Better armor** – Using new military grade hull systems, the ship's armor has been significantly upgraded and is now about 66% stronger. This makes the ship more survivable in a fight and better able to take advantage of its speed and maneuverability and utilize its weapons to their fullest potential.
2. **Larger living space** – The additional two decks add almost 100 square meters of living space (~1000 sq. feet). This allows for additional bunk space, larger communal areas and better work areas. All of these things contribute to making the ship more livable and removes that stress from the crew on long voyages.
3. **Easier maintenance** – Instead of cramming all the ships systems into the nose, the machinery, life support systems, computers, and other components are spread throughout the ship by alternating them between the inhabited decks. Typically, the inhabited decks are 3m in height with 2m of machinery between each deck. These machine areas are accessed via floor plates and crawl spaces to allow access from within the ship and easier maintenance. In addition, access tubes are provided through the wings from the engineering deck to access some of the engine components without requiring a full EVA for engine maintenance.
4. **Improved system redundancy** – The extra space in the fuselage provides extra space that allows for a fully redundant life support and computer system for the ship.
5. **Improved deck access** – The central elevator shaft was redesigned to include a small ladder well separate from the main elevator. This allows efficient movement between decks when the elevator is busy or not functional.
6. **Airlock and cargo bay redesign** – Retaining the cargo deck at the tail of the ship, the airlock was moved up one deck and is now on the side of the ship. The cargo bay doors were also moved to the ship's side instead of its floor. This allows for better cargo storage as well as better airlock access and docking configurations for the ship.
7. **Addition of a ship's boat** – The extra deck space allows for the addition of a small internal bay that holds a small (4 being) launch bringing the ship into spec with modern Spacefleet regulations.



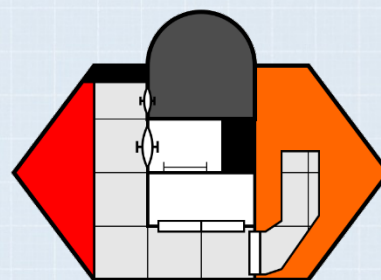
CREW'S QUARTERS & LASER BATTERY



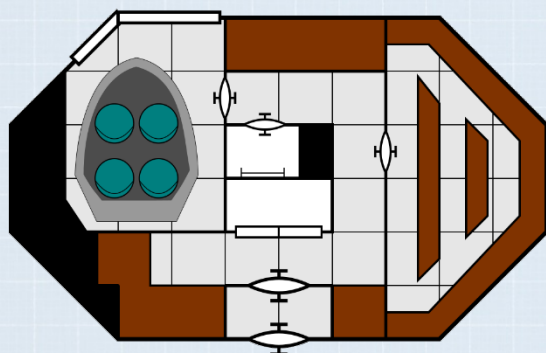
BRIDGE



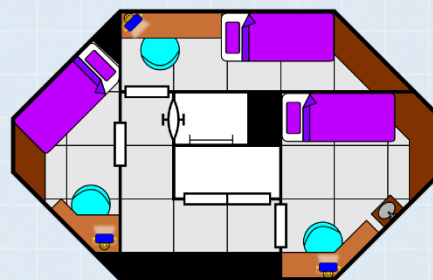
ENGINEERING, COMPUTER & LIFE SUPORT



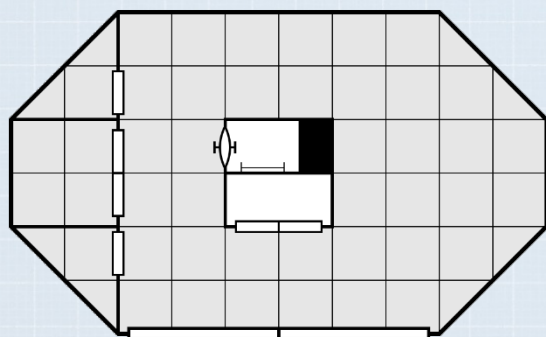
BACKUPS & ASTROGATION



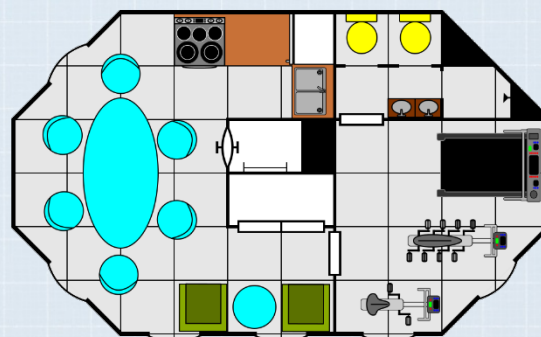
AIRLOCK, LAUNCH, & HYDROPONICS



OFFICERS' QUARTERS



CARGO DECK



CREW DECK

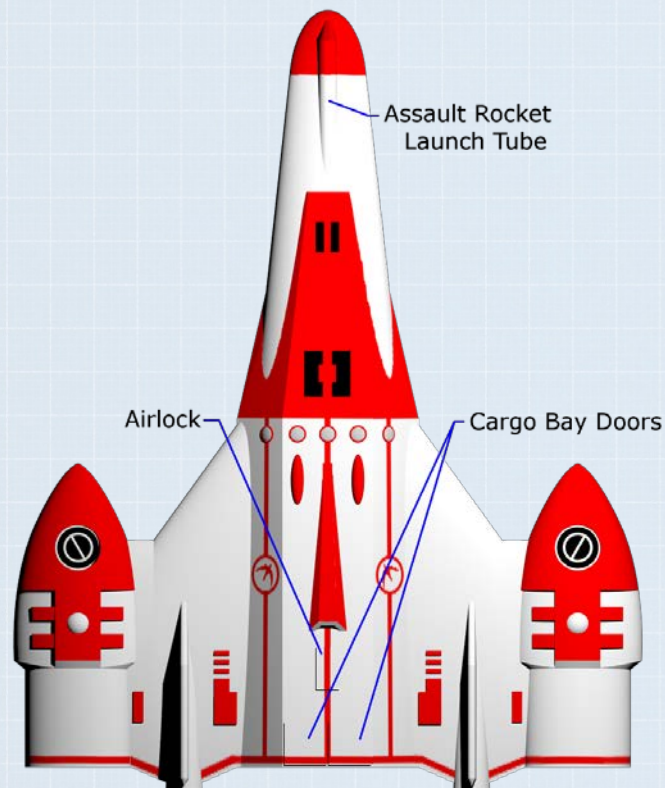
SWIFT-CLASS DESIGN DETAILS

EXTERIOR FEATURES

This section covers the various features of the ship visible on its exterior.

FRONT FACE

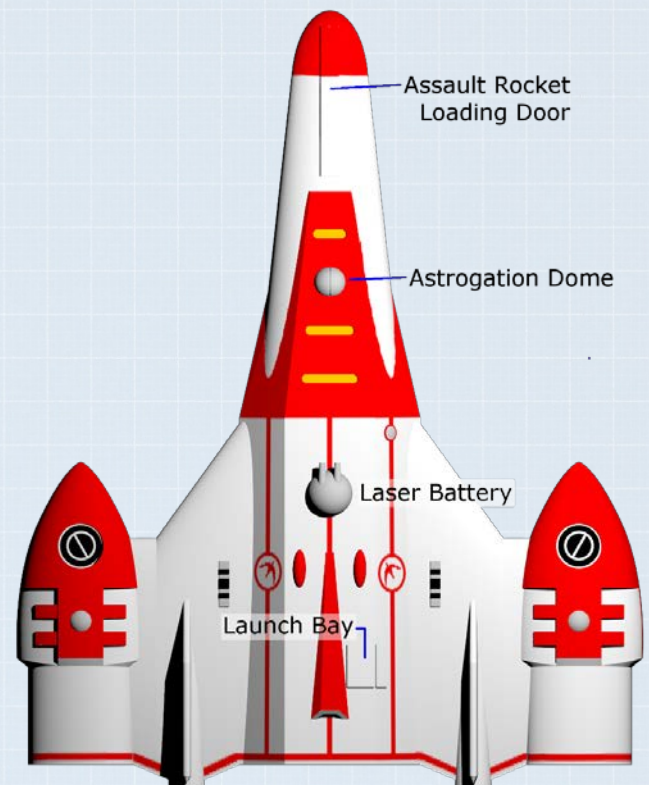
This view presents the front face of the Swift-class which is also the ground facing side when the ship is engaged in atmospheric flight. Near the nose is the launch tube for the ship's assault rockets. About halfway down the fuselage, near where the top of the wings joins the ship, are the portholes from the crew deck. At the very bottom of the



fuselage are the cargo bay doors taking up the full width of the main body. Centered directly above those is the ship's main airlock.

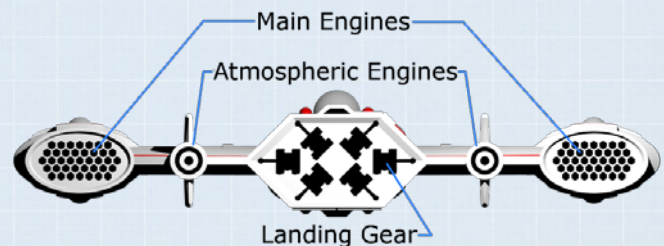
BACK FACE

This is the back of the ship or the "top" during atmospheric flight. At the nose of the ship on this side is the loading door for the ship's assault rocket launcher. About halfway down the tapered nose of the ship is the astrogation dome that houses the ship's 1.2m navigation telescope. Further down, just below the center of the ship is the assault scout's laser battery. It has a full 180° arc on this side of the ship and in combat a quick roll can bring it to bear on any target.



The final primary feature on this side of the ship is the bay doors for the ship's small launch which is located on the right side of the fuselage about 5 meters up from the tail.

AFT VIEW



This is the bottom of the ship shown to illustrate the ship's engines as well as the location of its landing gear.

DECK PLANS

While the deck plans on page 7 show all the decks together and the cross section on page 6 shows how the deck are arranged, the following sections go through each deck individually and describe the various rooms and features of those decks starting at the top of the ship and working toward the tail. Despite the extra space over the Stiletto-class, the Swift-class assault scout is still fairly cramped and lacking some features that one might expect on a military vessel. The crew is still very close-knit and more intimate than on a larger vessel with less distinction between the officers and the rest of the crew. Unless

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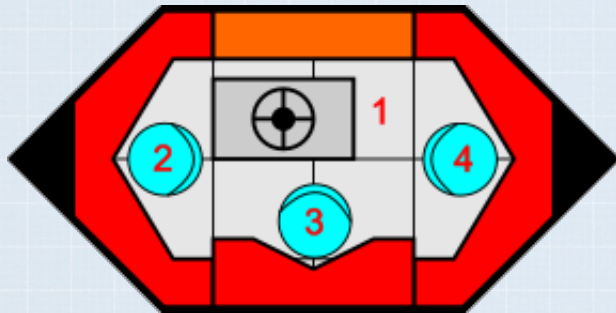
otherwise stated, each deck has a 3m high ceiling with 2m of machinery between them.

THE NOSE

Not really a deck, the upper 13 meters of the ship primarily houses the assault rocket launcher and weapon magazine. In addition, some of the ship's energy sensors are located in this area along with some of the pumps, filters, and ducting for the life support system.

Access for reloading the assault rocket magazine is through a large external access hatch on the back face of the ship. One rocket is housed in the launch tube while the other three are rotated into their storage positions once loaded (see the cross section on page 6).

DECK 1 – BRIDGE



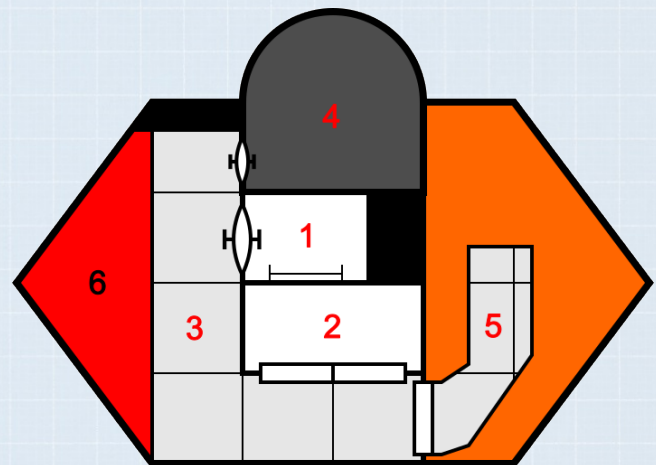
Nestled about halfway up the tapered nose of the assault scout, the bridge houses the pilot, gunner, and astrogation/sensor station on the ship. It is the only deck that cannot be accessed via the ship's elevator. The only access is through the ladder well which is capped by a double pressure door in the floor of the bridge deck. Also unlike every other deck on the ship, this entire deck (with the exception of the machinery panel opposite the pilot's station) rotates 90 degrees for atmospheric flight. This transition and rotation takes about two minutes to complete. Also unlike all other decks, this one has a 2.5m high ceiling instead of the standard 3 meters.

1. **Bridge Deck** – The top of the double pressure doors that cap off the ladder well is set into the floor of this deck. The second one is set two meters lower at the top of the Backups & Astrogation Deck (deck 2). The machinery bank at the top of the plan is attached to the ship's hull and does not move when the deck rotates into its atmospheric flight mode. The transition into atmospheric flight mode can only occur if both pressure doors are sealed and takes two minutes to complete.
2. **Gunnery Station** – This is the gunner's position. While it can control both the laser battery and assault

rocket launchers, it is typically used for just the laser battery with the assault rocket launcher being controlled by the pilot. This station also provides a full damage control readout for the ship.

3. **Pilot's station** – This is the pilot's (usually the Captain) control station and also contains controls for the ship's assault rocket battery. The master intercom control system as well as the master videocom radio control panel are also located at this control station.
4. **Astrogation Station** – This is the astrogator's duty station. In addition to the astrogation controls, this station houses the main readouts for the ship's radar, energy sensors, and camera systems. This station also controls the ship's subspace radio, and has a videocom radio control panel.

DECK 2 – BACKUPS & ASTROGATION



This deck houses several of the backup systems for the ship as well as the main astrogation telescope. It is the uppermost deck reachable via the ship's elevator.

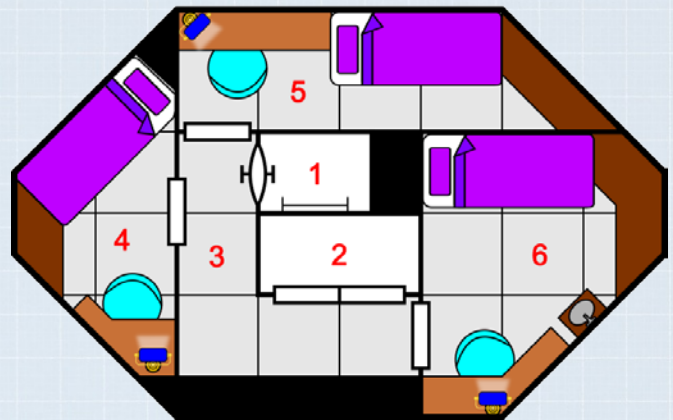
1. **Ladder Well** – This 1m x 1.3m ladder well runs the entire inhabitable length of the ship from the bridge down to the cargo deck. Ladder segments mounted on the bulkhead closest to the elevator run along the entire length of the shaft breaking only for the pressure doors that separate each level. These pressure doors are located in-line with the ceilings of each level and can be secured to prevent loss of pressure in other levels due to a hull breach on any level. Each pressure door swings upward (toward the nose) to open and are hinged on the bulkhead opposite the elevator. In addition to the main ladder, there are hand/foot holds along the sides of the ladder well in order to allow crew to pass one another when going opposite directions as well as for ease of travel by some races (such as the vrusk). The entrance to the ladder well on this deck is via a pressure door on the port side.

2. **Elevator** – The ship's main elevator runs from this deck down to the cargo deck at the bottom of the ship. 2m by 1m in size, it can accommodate up to 4 beings (although they will be packed in pretty tight). The elevator travels one deck per turn. The elevator doors are pressure doors that seal when closed to prevent loss of air in the event of a hull breach. If the hull is breached on a deck, the elevator doors will not open on that deck and the only access is via the ladder well unless the entire ship has already been depressurized; in which case the elevator will function normally.
3. **Hallway** – This hallway connects the various cabins on the deck with the elevator and ladder well.
4. **Astrogation Dome** – This dome houses the main astrogation telescope for the ship. The outer dome is usually open to allow observations by the 1.2m telescope housed here. The telescope can observe in both optical and infrared wavelengths and is typically in constant operation taking navigational measurements. Access to this compartment for system maintenance is via a pressure door that will only open if the outer dome doors are closed and sealed.
5. **Backup Life Support System** – This compartment houses the ship's backup life support system. While much of the system is in the areas above and below this deck, this room provides access to the various filters and other portions of the system that need regular access and maintenance.
6. **Backup Computer** - Along the port side of the hall is the ship's backup computer system. Extending a bit into the machinery space above and below this deck, the backup computer is a complete copy of the main computer and capable of fully controlling the ship if the main computer goes off-line.

DECK 3 – OFFICER'S QUARTERS

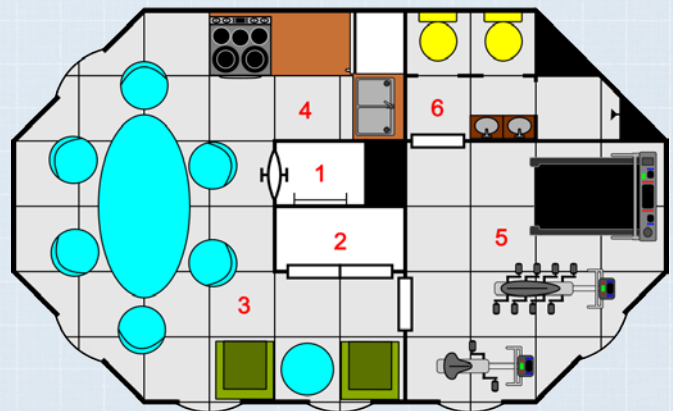
This deck houses the quarters for the ship's officers. There are two single person rooms and a double bunk room.

1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the port side.
2. **Elevator** – This is the elevator access on the officer's deck.
3. **Corridor** – This small corridor is 1 m wide and runs from the elevator and entrance of the Captain's cabin along the port side of the ship past the XO's cabin to the Officer's Cabin.



4. **XO's Cabin** – This is a single occupancy cabin designated for the ship's executive officer. It contains a small desk, closet, and bed. The desk drawers have a level 3 lock that only the XO and captain can access. The door to the room itself has a level 4 lock that only the ship's officers can open.
5. **Officers' Cabin** – This double occupancy room contains a pair of bunks and is typically shared by the ship's engineer and astrogator. The beds are designed to fold up along the wall if desired to provide additional space in the cabin. In addition to the bunks, the room contains a desk and closet space for personal belongings. The door to the room is secured by a level 4 lock accessible only by the ship's officers.
6. **Captain's Cabin** – This large, single occupancy cabin is assigned to the ship's captain. It contains a desk, bed, closet, and small wash basin. The desk can be secured with a level 4 lock accessible only by the captain and the door to the cabin itself has a level 5 lock accessible only to the captain and the XO. This cabin also contains a master control panel for the ship's intercom.

DECK 4 – CREW DECK



This deck houses the common areas of the ship. It contains a lounge/galley area, a workout/rec room, and head.

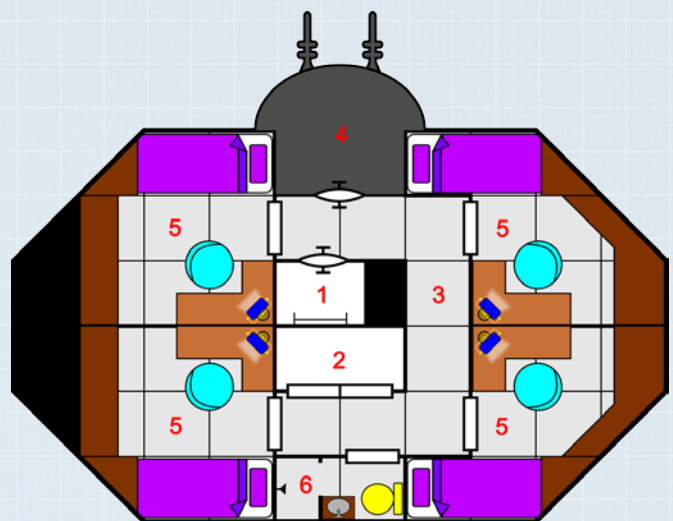
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1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the port side.
2. **Elevator** – This is the elevator access on the crew deck.
3. **Dining Hall/Lounge** – This is the ship's main communal area. The two cushioned chairs along the wall opposite the elevator doors can double as acceleration couches if needed. The large table is fixed into position but can be collapsed down into the floor if desired to open up the space in the room. This area is used for meals as well as off-duty recreation by the crew. The chairs in this room can be moved freely but can also be magnetically locked to the floor (or wall) during high-g, zero-g, and atmospheric operations.
4. **Galley** – This small alcove in the Dining Hall is where food is prepared for the crew. It contains a stove, sink, and small refrigerator along with cabinetry containing food, dishes, and utensils. Typically, there are 2-3 days' worth of meals here along with snacks and beverages. The remaining food is stored in the cargo area, hydroponics lab, and life support rooms and brought in as needed.
5. **Workout/Recreation Room** – This room contains a pair of exercise bikes (one designed for vrusk and the other for the other races) as well as a treadmill usable by all races. The treadmill folds up and the bikes can be moved along the walls to free up an approximate 3m x 3m area for other types of exercise if desired.
6. **Head** – This is the main head for the ship containing two toilets and a shower as well as sinks.

DECK 5 – CREW QUARTERS AND LASER BATTERY

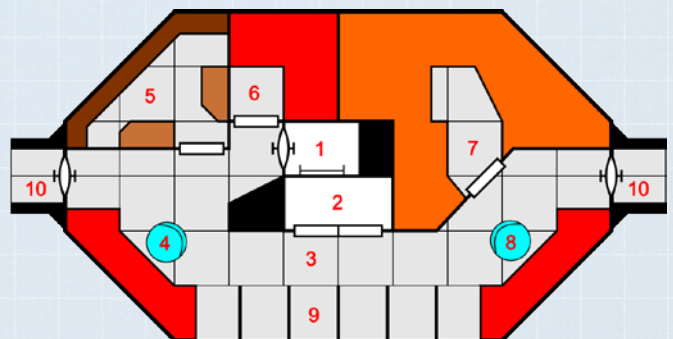
This deck primarily holds the quarters for the other members of the crew in four double bunk rooms. In addition, there is a small head and maintenance access to the ship's laser battery.

1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the upper side of the ladder well opposite the elevator shaft.
2. **Elevator** – This is the elevator access on the crew quarters deck.



3. **Corridor** – The corridor on this deck runs along the starboard side of the deck around the elevator shaft and ladder well to connect the crew cabins, elevator, ladder well, and laser battery maintenance access hatch.
4. **Laser Battery** – This is where the ship's laser battery is housed. The main lasing cavity and equipment are located here and extend to the areas above and below this deck while the main rotating mirrors of the laser battery is housed in a dome on the outside of the hull on this deck. The machinery can be accessed by a pressure door on this deck for maintenance and repair.
5. **Crew Bunk Rooms** – Each of these four rooms is a double occupancy cabin with a set of bunk beds, a desk, and closet space for personal belongings.
6. **Small Head** – This small head contains a toilet, sink and small shower.

DECK 6 – ENGINEERING, COMPUTER, & LIFE SUPPORT



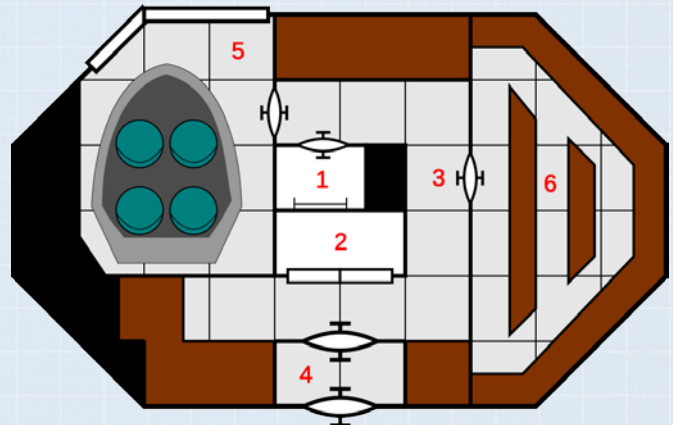
This is the ship's main engineering deck which houses the engineering and life support stations, a small repair shop, the primary life support system, main computer, robot storage, and also provides interior access to the engines for loading and refueling the atomic fuel pellets and some overhaul maintenance.

1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the port side.
2. **Elevator** – This is the elevator access on the engineering deck.
3. **Corridor** – The corridor on this level runs the width of the ship connecting the engine access tunnels on either side and passing by the elevator access for this level. There is a small side passage on the port side of the ship that connects up to the main computer and ladder well.
4. **Engineer's Station** – This is the engineer's duty station and controls systems. This station can monitor all of the ship's systems and direct the ship's repair robots. It also has a master control panel for the ship's intercom system as well as a control panel for the videocom radio. The chair is an acceleration couch that supports the engineer and allows them to work even during high-g maneuvers.
5. **Repair Shop** – This is the ship's shop with tools and machinery to repair most of the ship's systems and robots. Any technical, computer, or robotics work performed in this shop gains a +5% chance of success. It contains the equivalent of 2 full tech kits and robocom kits as well as additional resources for repairs. This room also contains a charging port that can recharge up to six power beltpacks or backpacks at a time. Each port charges at the rate of 1 SEU/turn.
6. **Main Computer** – This is the ship's main computer system.
7. **Main Life Support System** – This room houses the machinery, filters, and some food storage for the ship's main life support systems. While much of the system is located in the areas above and below this deck, this room provides access to those portions of the system that need regular maintenance or replacement.
8. **Life Support Station** – This station monitors and controls the ship's life support systems and can monitor all aspects of that system including the hydroponics lab. The chair is an acceleration couch that can be used by a crew member during high-g maneuvering.
9. **Robot Storage** – These six bays are the storage and charging stations for the ship's maintenance robots. Normally docked here, the robots activate under direction of the engineer's station and the ship's maintenance and damage control programs to repair

the ship and keep it maintained. Each station has a charging port that recharges the robot's parabatteries at a rate of 2 SEU/turn.

10. **Engine Access** – This passage runs through the wing to access both the atmospheric engines as well as the main atomic engine housing. In addition to the pressure door at the ship's hull, there is another one on the other end before entering the atomic engine housing. If only accessing the atmospheric engines, normal work clothes may be worn. However, if entering the atomic engine housing, an insuit must be worn to prevent radiation exposure. There are two insuits in the repair shop. Accessing the atomic engines in this manner allow for 60% of the repair work required by an overhaul to be done from within the ship while under normal acceleration. The remaining work must be done by EVA while the ship is in free fall or docked at a station.

DECK 7 – AIRLOCK, LAUNCH, & HYDROPONICS



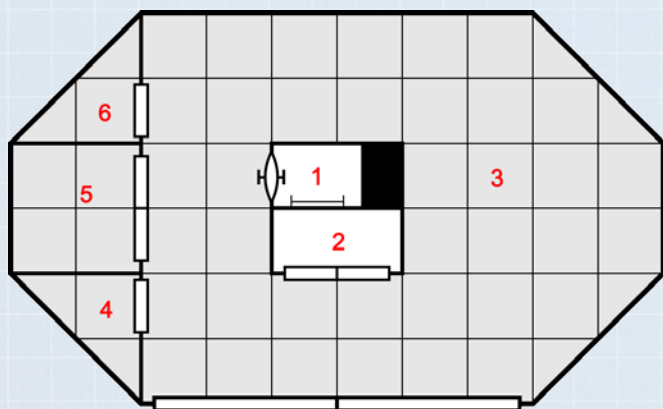
This deck houses the ship's small launch, the main airlock, and the hydroponics facility of the life support system

1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the upper side of the ladder well opposite the elevator shaft.
2. **Elevator** – This is the elevator access on the airlock deck.
3. **Corridor** – The corridor on this deck runs from the elevator and airlock entrance along the starboard side of the ship up to the ship's launch bay. Next to the airlock and the launch bay, the corridor is lined with a series of lockers that contain spacesuits for the ship's crew.

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4. **Airlock** – The ship's airlock can hold two beings in full spacesuits comfortably or three to four if they squeeze in together. If there is atmosphere outside the ship (such as when docked at a station), both airlock doors can be opened simultaneously to allow crew to pass through without cycling the system. Otherwise, safety locks prevent both doors from being opened simultaneously. It takes three turns (18 seconds) to equalize pressure within the airlock once both doors are sealed.
 5. **Ship's Launch** – This launch bay contains a small, four passenger launch. The launch bay doors open out of the side of the ship and the launch functions as described in the Knight Hawk rules. This room can double as an alternate airlock if necessary (but lacks docking attachments on the outside). It takes one full minute (10 turns) to equalize pressure once both doors are sealed. When not in operation, the launch is magnetically clamped to the deck to prevent it from moving during zero- and high-g operations.
 6. **Hydroponics Lab** – This room contains all the hydroponics systems for the ship that are integrated with the primary and backup life support systems. It contains rows of vertical growing vats that produce fresh produce for the ship as well as assist in converting the carbon dioxide back in to oxygen. The vats are designed to be secured during both high accelerations and zero-g operations although prolonged high-g (greater than 2g) operations can severely damage the plants.
2. **Elevator** – This is the elevator access on the cargo deck.
 3. **Main Cargo Bay** – This is the main cargo area for the assault scout. It is typically stocked with a variety of canned and non-perishable foods, spare gear, and, if the mission profile requires it, can hold a couple of ground or hover cycles, a small ground or hover car, or even an air car. On extended patrol missions it is possible to store up to four additional assault rockets here in the main hold, two in front of the elevator and two behind, although it makes access and maneuvering in the cargo hold difficult. If necessary, the entire cargo bay can act as a large airlock. However, everything in the main bay would be exposed to vacuum conditions which may not be desirable. If used in this way, it takes three full minutes (30 turns) to equalize pressure in the deck before the bay doors can be opened.
 4. **Chilled Storage Bay** – This smaller storage area is designed to act as a cooler/freezer if needed and can be used to store perishable foodstuffs or other materials at cold temperatures.
 5. **Locked Storage Bay** – This room has a level 5 security lock on the door and is used to store valuable or dangerous materials such as spare ammunition and weapons for the ship's crew as well as any other materials that need extra security.
 6. **Shielded Storage Bay** – This storage room also has a level 5 security lock keyed to the ship's officers and engineer. It has extra shielding on the walls to contain any stray radioactivity. It is used to store any hazardous or radioactive materials the ship may be transporting. Typically, this room is used to store additional fuel pellets for the atomic drive. If filled, it could hold over three hundred fuel pellets for a very extended mission.

DECK 8 – CARGO DECK



The lowest deck on the ship, the cargo deck is primarily a large open area but contains a few smaller storage rooms.

1. **Ladder Well** – The ladder well on this deck is identical to that on the other decks. The entrance to the ladder well on this deck is via a pressure door on the port side.

OPERATIONAL & DESIGN NOTES

FURNITURE

All beds in the ship double as acceleration couches. If a character straps themselves into one of the beds (requires 60 seconds) they can safely withstand the maximum acceleration that the ship can produce. In addition, the two large chairs in the lounge area on the crew deck (area 3) can also be used as acceleration couches if needed.

In any of the two-bunk cabins, both on the crew deck (area 5) and officer deck (area 6), the lower bunks can be

swapped out for vrusk style rest couches to allow vrusk crew members to properly sleep. These couches can also be configured as acceleration couches as needed. In addition, the beds in the Captain's Quarters (officer deck area 5) and XO's quarters (officer deck, area 4) can be swapped out as needed.

All fixed station chairs on the bridge and engineering decks are designed to support their occupants under the maximum acceleration obtainable by the ship. All other chairs in the ship can be magnetically clamped to the deck floor to be held in place during high- and zero-g maneuvering.

The table in the crew lounge area is fixed in place but can be collapsed down into the floor to allow the area to be opened up as needed. It takes only a half a minute (5 turns) to stow or retrieve the table.

ZERO-G OPERATIONS

While the assault scout typically operates under approximately 1g of acceleration, there are a few times, noticeably right before a Void jump and when docked at stations, that the ship operates in a zero (or very low) gravity environment. There are several design features of the ship that support safe and comfortable operation at these times.

- All cabinetry in the ship lock to prevent contents from coming out. This applies during high-g maneuvers as well.
- The floor has cloth strips running throughout the ship to allow the use of Velcro shoes during zero-g operations permitting the crew to move and hold position easily.
- The life support system includes some fraction of its stores that are designed to be prepared and consumed in zero gravity. These are typically used when on station during patrols since the crew usually eats off the ship when docked at a station. The galley includes gear allowing food to be cooked in zero-g as well.
- The ship's hydroponics system is designed to contain the water and nutrient solution the plants are growing in during both high- and zero-g operations to prevent loss of material and maintain the health of the plants.
- All chairs, as well as the exercise equipment and small table on the crew deck, can be magnetically clamped to the deck to prevent their movement during non-standard operations.
- The showers, toilets, and sinks have a vacuum system in the drains that can be activated when used in zero-g

conditions to control the flow of water and waste material when in use.

ATMOSPHERIC OPERATIONS

While the assault scout is primarily a deep space vessel, it is capable of operating in planetary atmospheres, although it is not ideally designed for this. During atmospheric flight, the ship is designed to be operated with its laser battery and astrogation dome on the "top" of the ship and its airlock and cargo bay doors on the "bottom". Anything or anyone not properly secured will find themselves tossed about and dumped onto the wall that is now the "floor".

Ideally, the ship and crew will have a few minutes to transition the ship to atmospheric flight. If everything was already secured for high- or zero-g operations, this is a fairly quick transition. The bridge deck is mounted on gimbals and the entire deck swivels and locks into a horizontal operating position. On the crew deck, the two acceleration chairs can be rotated to sit on the wall facing the bow of the ship and the other six chairs in that room have mount points on the "floor" (the wall where the portholes are) where they can be attached for atmospheric flight. Finally, the engineer and life support stations on the engineering deck partially swivel to allow the operators to remain at their station during atmospheric flight.

While operating in this mode, the ship's elevator does not run and all travel between decks is done via the ladder well. On each of the decks, there are small recessed rungs built into the walls low to the ship's deck that act as a ladder during atmospheric flight to allow access to the ladder well.

When flying through a planetary atmosphere, the assault scout normally just relies on its smaller atmospheric engines (mounted in the middle of each wing). These engines allow the ship to be propelled up to 1,500 kph (Mach 1.21) with a normal cruise speed of 1000 kph (Mach 0.81). However, the ship is fully capable of speeds up to 10,000 kph (Mach 8.1) if it employs its atomic engines for additional thrust. The atmospheric engines can accelerate or decelerate the ship at a rate of 100 m/turn (1.67g) while the atomic engines can accelerate at up to 300 m/turn (5g).

While using its atmospheric engines, the ship has a minimum speed of 300 kph. Below this speed the wings don't produce enough lift to keep the ship airborne. However, if desired, the pilot can pitch the ship nose upward (killing all forward momentum) and use the engines to hover in place (or gain or lower altitude). They should probably warn the rest of the crew in advance, though, as the floors are about to become "down" again.

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The ship's atmospheric handling statistics are summarized in the following table.

Assault Scout Atmospheric Flight Statistics	
Atmospheric Engines	
Top Speed	1,500 kph
Cruise Speed	1,000 kph
Minimum Speed	300 kph
Accel/Decel (per turn)	100 m/turn
Main Engines	
Top Speed	10,000 kph
Accel/Decel (per turn)	300/100 m/turn

LANDING ON PLANETS

While not really designed for extended maneuvering through a planet's atmosphere, the assault scout is perfectly capable of planetary landings.

With six large landing legs folded up along the back of the main fuselage (see image on page 8), the assault scout is equipped to make tail first landings on any planetary surface. These landings do not require the use of the main atomic engines to complete unless the planet has a surface gravity over 1.2g as that is the maximum thrust the atmospheric engines can produce. For planets with higher gravity or planets without atmospheres, the main atomic engines can be used for the landing.

When landed, the cargo bay doors on the bottom level open downward to provide a ramp to reach the surface and the cargo bay serves as the ship's airlock. For missions that expect to make repeated planetary landfalls, especially on planets with unknown or hostile atmospheres, the ship can be equipped with an extendable ladder fitted at the base of the main airlock that folds against the ship's hull during space and atmospheric flight and can be extended to the ground allowing use of the main airlock instead of the cargo bay to keep the foreign atmosphere out of the ship.

GENERAL MAINTENANCE

Maintenance and janitorial work on-board the Swift-class assault scout is primarily handled by the maintenance robots. In addition, the ship's engineer and crew can help out as needed. Typically, one or two of the maintenance robots are active at any one time performing routine maintenance, changing filters, cleaning, or restocking foodstuffs in the galley.

As most of the ship's machinery, ducting, and pipework is in the areas between decks, many of the floor and ceiling plates can be removed to allow access to this machinery and to crawl spaces to access bits that are more recessed. These crawl spaces do not allow someone to move between decks through them, they are not connected and typically travel only a meter or so to allow access to some bit of machinery underneath portions of decks that cannot be accessed via floor or ceiling plates. Crews have been known to use some of these crawl spaces as extra storage compartments from time to time, much to the dismay of the engineer when he needs to get in there to fix something.

Additionally, some wall panels, typically in areas where ducting and pipes run through a deck (most notably by the elevator and ladder well), can also be removed to access the ship components inside for inspection and maintenance.

INTRASHIP COMMUNICATIONS

The ship is equipped with an intercom system that allows communication between every cabin and corridor on the ship. The intercom system has three master control panels: at the pilot's duty station, in the captain's quarters, and at the engineer's duty station. Every other room and corridor has a speaker/microphone panel somewhere in the room.

This includes the passages allowing access to the engines. There is a speaker panel halfway down that passage (near the atmospheric engine access) and another inside the atomic engine access area beyond the final pressure door.

There are a number of speaker panels in the ladder well, one on every deck to allow communication from that area even if sealed off from the decks above or below.

Additionally, the communications program in the computer, combined with the ship's videocom radio, allows crew to use their personal chronocoms to communicate throughout the ship if needed or desired.

REFUELING & OVERHAULING ENGINES **REFUELING ENGINES**

Refueling the engines can be done completely from within the ship even while under normal thrust. The engineer can access the refueling areas of the engines through the access tubes from the engineering deck (area 10). The time required is as defined in the Knight Hawks Campaign Book (p13 – 2d10 - engineer's skill level in hours). An insuit is required to perform the refueling.

OVERHAULING ENGINES

While the time required to overhaul the atomic engines on the Swift-class Assault Scout is the same as defined in the Knight Hawks Campaign Book (p13 – 60 - (engineer's skill level)d10 in hours), a large portion of this work can be done while the ship is under thrust and from within the ship due to the design of the engine housing on the assault scout. Roll normally to determine the overall time required, and then assume that 60% of this work can be done from within the ship with the engineer only being required to wear an innsuit for working on the engine. The remaining work must be done while the ship is not under thrust and via an EVA in a spacesuit or in a workpod if one is available.

If more than one engineer is on board the ship, both engines can be worked on simultaneously. Roll for each engine individually to determine the amount of time required for its overhaul.

DEPRESSURIZING THE SHIP

Typical procedure is to fully depressurize the ship prior to any sort of engagement that might involve ship combat. This is to prevent explosive decompression of the ship or sections of the ship in the event of a hull breach. By depressurizing the ship in advance, crew and repair robots can move freely through the ship as needed.

All rules for an airless environment apply once the ship is depressurized. Everyone had better be in spacesuits.

STANDARD DECOMPRESSION

It takes six minutes to properly empty the ship of air. During this time, equipment is sealed, the plants in the hydroponics section are sealed in airtight containers and the air is pumped out of the various ship compartments and stored in atmospheric storage tanks that are part of the life support machinery.

For most decks of the ship, it takes one minute for the systems to shut down and seal themselves properly to withstand the vacuum of space. After that it takes 3 minutes to evacuate all the air from the deck. Each cabin has one or more airtight containers installed. Anything that cannot handle exposure to vacuum should be stored in these containers prior to the start of this process. Anything not properly stored will sustain appropriate damage.

The deck with the active hydroponics systems takes 2 minutes longer. These systems have special container systems that seals up as part of this decompression process. The sealing of the plants takes the first 3 minutes of the decompression process. After which, it takes another 3

minutes to evacuate the air from the deck. If this sealing process is skipped or not completed before the actual depressurization starts, the plants will die, effectively reducing the duration of the life support on the ship by a month.

RAPID DECOMPRESSION

The above assumes that the crew is trying to capture the air in the life support system to reuse later. If the crew wants to just vent the air to space, the ship can be emptied in 30 seconds (5 turns) by overriding the safety systems, opening all elevator and ladder hatches and then opening the cargo bay, air lock, and ship's launch bay doors to vent the air to space. Evacuating the ship this way reduces the available life support duration of the ship by a month.

Any being or robot on the ship when it is vented must make a STR roll if they are not attached to something via a tether or magnetic boots to avoid being knocked off balance and through a hatch by the outrushing air. If they fail the STR check, they immediately take 1d10 points of damage from being bashed around. If they can make a DEX roll, they manage to grab something and avoid being swept away. Any character strapped into an acceleration couch is automatically safe.

If they fail the DEX check, the referee should determine how far away they are from the closest external hatch. Depending on the number of rooms and decks away they are from the nearest external hatch, they may have more opportunities to catch themselves. For each opportunity they have, they take 1d10 point of damage (from being tossed around) and then can roll to make a DEX check. If they succeed, they catch themselves and take no further damage and remain on the ship. If they fail all of their checks, they may be swept out of the ship. Consult the following table to determine the number of attempts available based on distance from the hatch.

Distance from external hatch	Number of save attempts
same cabin	1
same deck but different cabin	2
2-3 decks away	3
4+ decks away	3*

* even if they fail all of their checks, they remain in the ship as the wind doesn't have enough force by the end to carry them away. They still take 3d10 points of damage though.

ROBOTS

The Swift class assault scout carries six Mark VI Spacefleet multipurpose maintenance robots (SMMR-MKVI) that perform general janitorial work on the ship as well as are responsible for helping the engineer with any shipboard maintenance and damage control. These robots can also assist in defending the ship and are capable of participating in boarding actions if necessary.

When not actively performing duties, the robots are docked in their storage cradles on the Engineering Deck (area 9) which also serve as their charging stations. These cradles keep them secured during zero- and high-g maneuvers.

The robots have a standard body and are roughly humanoid in shape with legs, arms, and a head although they are somewhat smaller than a human standing only 1.5m tall. This allows them to access all of the passages and crawl spaces designed for the live crew. However, they have an extra set of arms (for a total of 4), allowing them to manipulate and hold more tools and components while working. Their "feet" have built-in magnetic boots allowing them to work on the hull of the ship even while under acceleration. They are fully capable of working in vacuum with no adverse effects.

They have both normal optical vision as well as built-in IR goggles allowing them to see in both visible and infrared wavelengths simultaneously as part of their maintenance duties.

While they have no built in armament beyond their hands, the robots are equipped with an Attack/Defense program and can participate in boarding actions and repelling any

boarding attempts if necessary. They can use any standard weapon from the ship's stores if instructed to do so.

The robots are connected to the ship's computer via their computer link program and the ship's robot management program. This connection is used to coordinate their janitorial, maintenance, and repair activities either autonomously or under direction of the ship's engineer. As such, they form an integral part of the ship's Damage Control Rating, accounting for 15 of the 60 total DCR points. For every two robots missing from the ship's compliment, reduce its DCR by 5 points.

ROBOT STATISTICS

Spacefleet Multipurpose Maintenance Robot (SMMR-MKVI)	
Body Type:	standard
Level:	4
Movement:	bipedal, built-in magnetic shoes
# of Arms:	4
Speed:	60 m/turn (maximum)
STA:	100
Attack:	70%, two sets of hands or single weapon
Damage:	2d10 hands, or per weapon type
Programs:	Security Lock, Maintenance, Attack/Defense, Computer Link
Other Equipment:	toxy-rad guage, IR goggles
Cost:	12762 Cr.

MISSION AND FUNCTIONS

MISSION

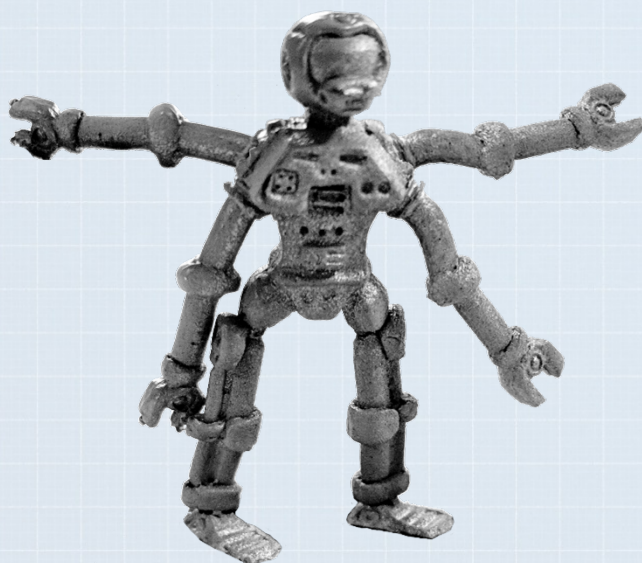
Maintain and repair assigned ship and assist in protection of ship and crew.

FUNCTION 1: MAINTAIN SHIP'S SYSTEMS

The ship's systems are defined by a list of all the various components on the ship. Maintenance is defined as a list of standard tasks and checks to be performed on a set schedule. Details of the operation and status of the various systems are part of the robot's maintenance program.

FUNCTION 2: REPAIR DAMAGED SYSTEMS

When routine maintenance and checks determine that a system is not operating properly, the robots, in conjunction with the ship's computer and engineers, use data in the robot's maintenance program to bring the system back into its proper state or working condition.



FUNCTION 3: ASSIST AS DIRECTED IN DEFENDING SHIP

Direction can come from the ship's computer or authorized ship's crew and can include instructions on level of force, type of weapons, and areas of the ship to defend. In the absence of other instructions, priority is given to protecting the crew first, and ship's systems secondarily.

FUNCTION 4: ASSIST IN BOARDING ACTIONS

Under direction of an authorized crew member, assist in capture of other vessels using designated force, weapons, and objectives. The robot must remain in visible range of a ship's crew member at all times when leaving the ship and has a priority of defending the ship's crew.

FUNCTION 5: PERFORM TASKS ASSIGNED BY SHIP'S CREW AND COMPUTER

Perform non-routine tasks as assigned by authorized ship's crew members or the ship's computer.

FUNCTION 6: AUTHORIZED SHIP'S CREW

Authorized ship's crew are defined as all ship crew members assigned to the vessel by the governing authority (Spacefleet, planetary militia, etc.). Recognition is by vocal, visual, and biometric prints delivered via the ship's computer when the crew member is assigned to the ship.

THE 3D MODEL

DESCRIPTION

The accompanying 3D model was generated using the deck plans provided in this Technical Manual. The positioning of hatches, portholes, and other external features exactly represent the placement in the deck plans.

Some additional cosmetic features were added as well which are not discussed in the technical manual such as the

vents on both sides, the spheroid protrusions and some features on the wings.

The wings in the model have a curved airfoil-like cross section widening to their maximum thickness where the engine access tube would be and tapering towards the back of the ship.

PRINTING THE MODEL

In the model files provided, the ship is scaled to be 103mm (4 inches) tall which is 1/500th scale of the actual ship. Both OBJ and STL formats have been provided so you may use whichever works best for you. If you wish to 3D print the ship, the model is good to sizes as small as 2" tall (1/1000th scale). Once you go smaller than that, you start to lose the fins on the wings and the back of the wings themselves. The file can be enlarged to print as big of a version of the ship as your printer can handle.

The picture below shows several different sizes that were printed on my personal printer. The smallest is the 4" version, the next larger one is 6" tall (1/333rd scale). The second largest is 7.6" (6mm scale), and the largest is 12.6" tall (10mm scale with a wing span of just over 10"). This is "back" of the ship where the laser battery and astrogation dome are located.



If you are interested in owning your very own assault scout model but don't possess or have access to a 3D printer, I am printing them and making them available in the four sizes pictured above. You can find the details about sizes, ordering, and approximate print times as well as the pricing at <http://starfrontiers.info/AssaultScout.html>. Ordering a model is another way to help support the Frontier Explorer.

HELP SUPPORT THE FRONTIER EXPLORER

Our agreement with Wizards of the Coast requires that all Star Frontiers material be made available at cost. However, the agreement also stipulates that we can ask for and accept donations. These Frontier Explorer Presents issues are one of the ways you can donate to help keep the Frontier Explorer going.

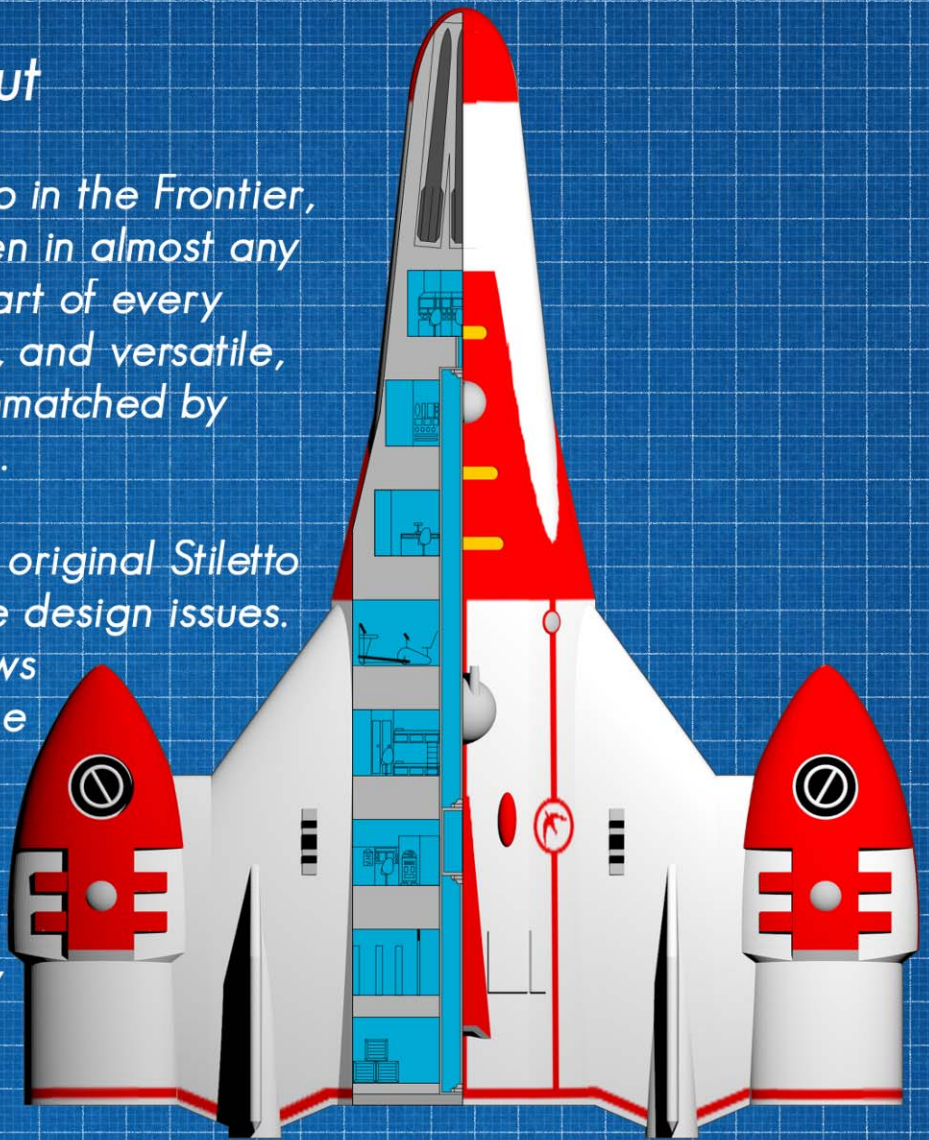
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Whether you donate or not, we hope you enjoyed this special issue, along with the regular issues, and can find a use for the material in your games. Keep exploring!

The UPF Assault Scout

Probably the most iconic ship in the Frontier, the assault scout can be seen in almost any SpaceFleet patrol and as part of every planetary militia. Small, fast, and versatile, the assault scout is a ship unmatched by anything in the Sathar fleets.

Despite its advantages, the original Stiletto class assault scout had some design issues. This Technical Manual reviews those issues and presents the details of a new Swift-class. Roomier, hardier, and designed for longer missions, the Swift-class is quickly becoming a mainstay of SpaceFleet's roster.



The Frontier Explorer Presents

UPF ASSAULT SCOUT TECHNICAL MANUAL

*Content, Maps, Models,
Art, and Layout: Tom Stephens*

*Editing: Tom Stephens, Bill Logan,
Eric Winsor*

