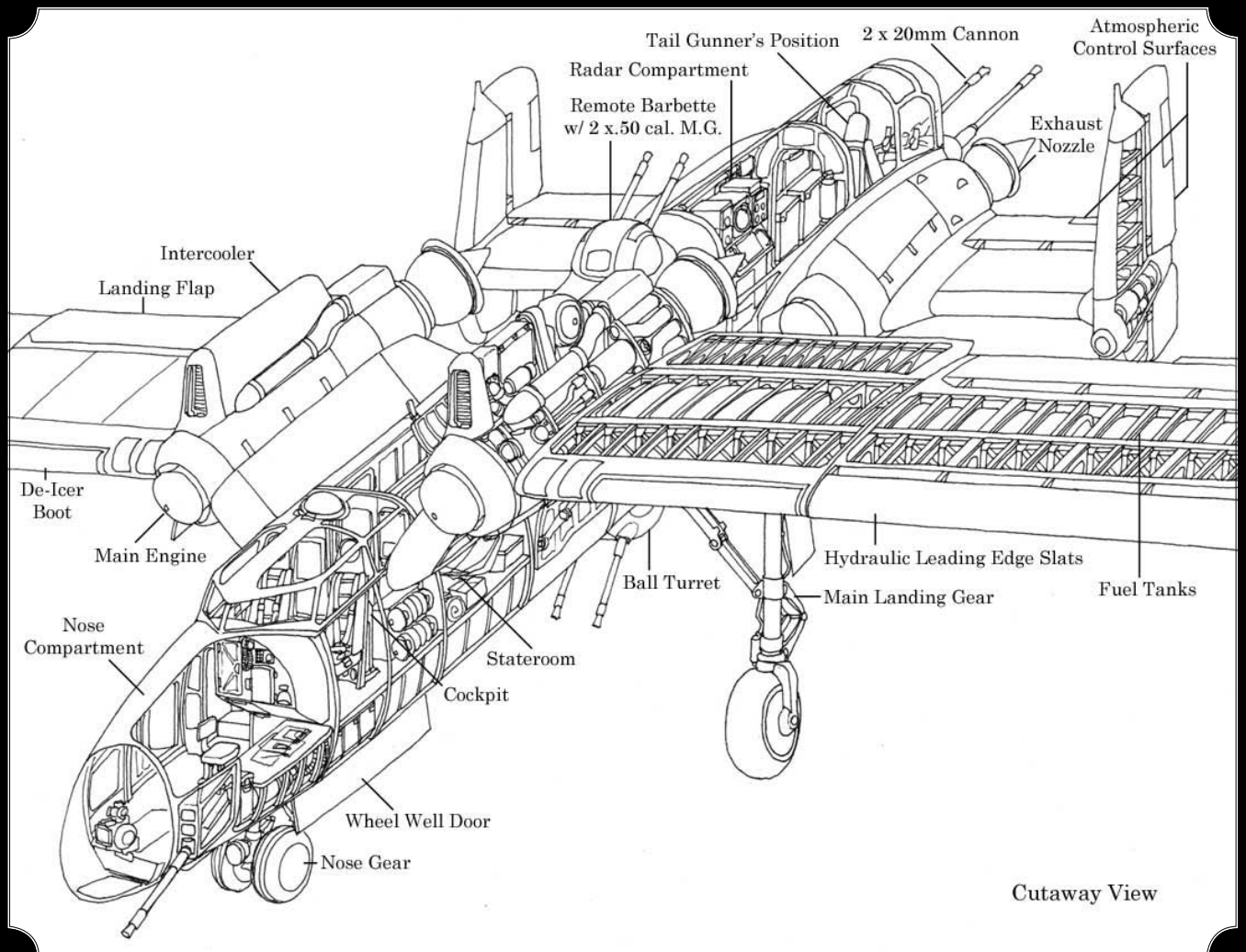


Rocketship Empires 1936™

Player Starship The Gunslinger Betty

Starship Feature Book No. 1

by
Edward M. Kann



Cutaway View

The Gunslinger Betty B-25B Mitchel Assault

By Edward M Kann

Featured Artist: Mike Doscher

PILOT AND OPERATIONAL MANUAL

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*North American
Spacecraft Co.*

Rocketship Empires 1936

Welcome aboard The Gunslinger Betty, the toughest little transport this side of the corridors. She should make a swell base of operations for you and your partners for whatever business ventures you have in mind. From exploration and survey work to mercenary duty and even blockade running. There's precious little she can't tackle with the right crew and the right Captain at the helm.

This book is more than a quick overview of a single starship. In almost any science fiction novel or film the starship figures largely in the unfolding drama. Starships in science fiction occupy a spot as vital as any character on screen and yet even the best ships are provided with the merest of cursory overviews in most RPG source books.

This starship feature series has been produced as a tool for making this starship the most immersive experience possible for you and your players. Significant efforts have been invested into this resource book so it will provide game directors with dozens of plot hooks, adventure ideas and tons of little details written to enrich their game.

My dream in writing this book for my own group of players was a ship operations manual which practically dripped rocket fuel and oozed engine oil.

Systemless

Rocketship Empires is a systemless campaign setting. You will need the rules for your favorite game system to use this book, although whenever possible we try to facilitate its use through simple charts and plenty of detail.

I recommend that you pick up a copy of the Rocketship Empires 1936: core campaign book to further facilitate your use of this material.

Credits

Many thanks go to the pilot and crew of "Old Glory", one of the last operational Mitchels flying in the world. It was my pleasure and privilege to visit this amazing aircraft and spend most of an after-

noon asking questions of her owners and taking photographs to use as technical references.

Artist Credits

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Photography

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Legal

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sour. There are also rumors that Hollywood left Earth in one of his prototype starfighters and flew off to who knows where. Some believe he was picked up by the Reich and now labors somewhere in a secret Reich lab, others believe he is still out there exploring the far reaches beyond the edge of colonized space.

North American Space Corporation continues to offer a substantial reward for information leading to his whereabouts and his safe return to Earth.

Plot Point

The very night that Dr. Hollywood vanished this very starship was sitting partially assembled on the NASC assembly floor, a few feet outside of Hollywood's office.

Over the course of the ship's history certain mysterious individuals have made attempts to gain access to the ship and search it as though they expected something of value to be hidden inside her.

What vital piece of information or technology might be sealed inside of the Betty's bulkheads awaiting discovery? What might be the truth behind Dr. Hollywood's mysterious disappearance?

The exact details of this plot point rest in the hands of the Game Director.

A Ship is Born

The starship that would be known as B-25B-21-NC USRF s/n 44-30018 North American construction number 108-33923 and later be dubbed the Gunslinger Betty rolled off of the NASC assembly lines in Detroit on October 31st, 1934.

The first US Rocket Forces contract called for fifty of the new X-41s, which received the official fleet designation as the B-25 Mitchel. Out of the first fifty B-25 Mitchels twenty were earmarked to fulfill a desperate need in the United States Territorial Marshals Service. The Marshals required

The X-41

In 1934 the United States Rocket Forces submitted a request to a variety of U.S. manufacturing firms to construct a new Fast Transport class vessel which could operate successfully in a wide variety of roles, from fast attack bomber to military transport, to reconnaissance vessel.

In February of that year The North American Space Corporation met the request with a design for a prototype starship which they designated as special project X-41.

The X-41 was the brain child of NASC scientist Reginald Hollywood, a brilliant and sometimes eccentric young engineer credited for three of the last five successful NASC prototype fighter / bomber designs since his joining the company's R&D team in 1929. Only thirty years old in 1935, Professor Hollywood was counted as one of the youngest scientists working in American astrogration as a lead designer.

Following successful flight trials during the summer of 1934, Professor Hollywood vanished. His disappearance remains a mystery and NASC continues to expend resources in an attempt to locate him. Rumors abound regarding the nature of Hollywood's disappearance. The most popular story circulating is that Hollywood became obsessed with a young starlet named Rita Angeles but went into seclusion after the romance turned

new fast military transports to handle rising border conflicts between the Federal Territories and Confederation Privateers. The Betty's first duty was intended to be that of a Federal privateer and commerce raider.

The grim reality of the Great Depression put the brakes on placing her into service. For five months the entire production order sat in hangers or neglected on the airfield associated with the NASC assembly plant in Flint, Michigan. Ultimately the Federal government was forced to cut their original order significantly and only ten of the vessels earmarked for Federal service were purchased. The remainder languished in hangers for another three months before NASC was forced to auction them to private buyers in order to recover some portion of their investment in the design.

All branches of the US military, including the Rocket Forces have faced major spending cuts in 1934 and 1935. American ship builders have sought to survive the economic hard times by modifying their designs for civilian production as much as possible. Sales of starships while nowhere near booming continue to move forward sufficiently to keep most of the current names in American starship production in business, albeit with reduced factory personnel and shorter production runs.

Out of the forty Mitchels sold at auction nearly half were purchased by foreign concerns such as the Kingdom of Holland and British Star Empire. The remainder were sold to private buyers, a mixture of explorers, adventurers, mercenaries and those who could benefit from a sufficiently fast and heavily armed transport.

B-25 Mitchel Starship - Overview

The B-25 Mitchel was constructed with a (at the time) new hybrid engine design which separates the primary impulse star drive and gravity drive system from the tactical drive. Two Wright Cyclone Hybrid Class C drives are mounted close to the fuselage while a pair of stripped down Pratt and Whitney Type B drives containing only a star-

ship impulse drive provide additional thrust from the tail. The twin engines mounted under the wings are designated as the starship's primary engines while the two engines positioned on the starship's tail are designated as the starship's secondary engines. The B25 series was originally built with the Pratt and Whitney Type B drives as their sole primary engines but speed performance during combat trials proved to be disappointing. With an allotment of the engines on hand, North American Spacecraft made the decision to strip the engines and test them as boosters.

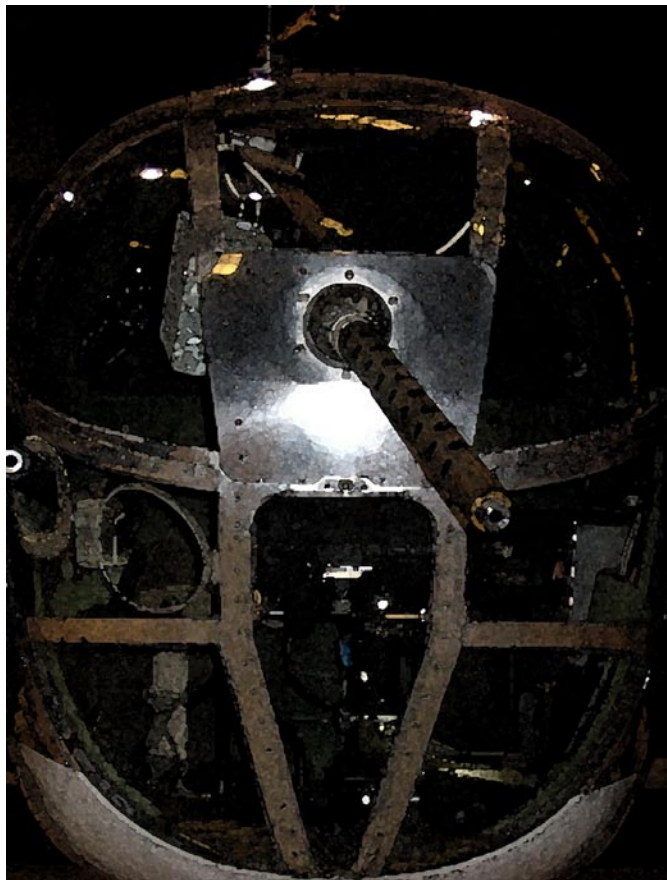
The Pratt and Whitney drives on the tail reduce weight and drag to the spacecraft, providing a boost to speed without the same increase in weight for installing four "Type C" drives in a vessel this size. Too late it was discovered that the Pratt and Whitney drives developed issues in retaining heat, mounted as they are directly in the back draft of the larger engines. Heat issues with the secondary engines is covered in detail on page 40.

The Betty's quad engine, high wing and tri-cycle landing gear configuration makes for a crisp and clean, aerodynamic configuration during atmospheric flight.

Crew Positions and Weapons

The starship pilot and engineer are seated in tandem in a long greenhouse style cockpit similar to that seen on earlier Martin B-10 spacecraft. The navigator is seated in a fully glazed nose which allows for excellent forward and down observation. This forward observation position provides an excellent location for mounting the ship's camera designed for planetary survey and cartography work and military reconnaissance.

The wide angle of view in the nose is particularly important since navigation is limited to simple directional guidance provided by the martian navigation computer. The martian system will help a ship reach a destination safely but the system has no computerized library or encyclopedia to provide detailed data about destination systems. Instead the starship Captain and Naviga-



solar day and to provide this coverage during long space voyages a two shift or two team crew is required. During combat five crew members can fill all of the necessary combat stations while the remaining three provide additional damage control and medical support.

Each gun in The B-25 has been designed to carry 500 rounds of specially designed hybrid ammunition. The hybrid ammunition for the .50 Cal. is less likely to jam compared to standard .50 Cal ammunition used in human weaponry but is expensive and can be difficult to find far from major space stations and supply depots.

Ammo Purchase Price

Purchase price for a 500 round belt of .M2000 Hellion ammunition is \$100.00. Advanced ammo is expensive, use it wisely.

The gun's load-out of 500 rounds of ammunition greatly improves the B-25's ammo load compared to earlier starships of the same class. This includes such starships as the Martin B-10 and North American Space Co.'s own B-47.

The 500 round belt allows for twenty bursts of weapons fire from each weapon supplied with such an ammo belt, twice the usual ammo capacity for older ships.

In a pinch, the Betty's .50 nose weapon can be loaded with non-hybrid ammunition although it will not fire in space and will tend to jam. The non-hybrid munitions will also inflict vehicle class damage and not starship class damage. Jams occur on a natural roll of a 1 or a 2 rather than a natural one. (If critical miss results and rules are used in your game system of choice.)

When loaded with the proper hybrid ammo the Betty's guns will not jam on a single natural roll of a 1. A roll of a 1 must be accomplished twice in a row for one of the Betty's guns to jam when using the proper M2000 Hellion ammo.

The first production run of the X-41 (the

tor must rely on a collection of general maps and travel journals stored at the Navigator's station. In the Rocketship Empires 1936 universe, navigators must rely on maps and physical landmarks on a new planet to find their way to the star port or colony that is their final destination and newspapers, radio broadcasts, printed journals and old fashioned rumors to research any specific details about a destination colony or planetary system.

The navigator is provided with a single Browning .50 Cal. mounted in a flexible hard point in the nose. Four fixed forward firing Browning .30's have been installed in mounts on either side of the hull facing forward and are operated by the pilot. A powered dorsal turret is intended for use by the vessel's sensor / radio operator who has controls for this remote control barbette at his station. A fifth crewman, usually an engineer or medical officer can be assigned to handle the twin 50s located in the tail turret while a dedicated turret gunner handles the ventral turret of the starship.

The B-25 can function safely during peace time with a crew of eight. A minimum of four critical stations must be manned twenty four hours a

B-25A) featured a pair of Pratt and Whitney Hybrid Class B engines whose tactical performance was somewhat disappointing, coming in at a speed of only 2,000 feet per combat round. These engines were replaced (almost immediately in the B-25B model) with Wright Cyclones whose improved performance and tuning boosted the speed of the B-25B to a tactical speed of 2,500 feet per combat round.

The Betty was one of the very first B-25B's to roll off of the assembly line. The first operational group to fly the new spacecraft was the 17th Bombardment Group. The 17th is based at Chorus Field in the Pearl star system and currently performs system defense patrols in that sector. The 17th finally received 20 of the B-25B Assaults fitted with the new, top secret, Norden Bombsight in October of 1935.

NASC has seized on the B-25B as the next shining star in Fast Transport class spacecraft and has pushed into production some 250 additional B-25B's for broad sale on the international market. These modified B-25B's lack some of the military refinements installed in Mitchels supplied to the Federal government. Most notably the "civilian" versions of these vessels are supplied with the majority of their standard weapons stripped and absent the top secret Norden Bombsight.

Plans are already on the drawing board for improvements in a B-25C model for the winter of 1936. Small shipments of the new bombers have been promised to the besieged Kingdom of Spain, The Kingdom of Holland and the French Republic despite loud protests in the League of Nations. A short list of exclusive private buyers have also made orders for the new spacecraft.

The chances of running into a B-25B during the early part of 1936 is slim. At present only thirty B-25B's are in the hands of private operators, one of these being The Betty. This rarity makes The Gunslinger Betty a sure head turner at any star port and in particular at foreign ports of call. The new owners of The Betty will need to take this into account and insure that curious or greedy individu-

als do not attempt to make off with their valuable new starship.

Captain's Walkthrough

A starship captain must know every nut and bolt, every wire, fuse, vacuum tube and glowing martian glyph on board his or her ship.

This walk through will provide you with all significant operational details of The Betty so that you and your crew will be familiar with her from top to bottom and stem to stern.

The Captain's walk through begins with the navigator's compartment located in the nose of the starship and moves from crew compartment to crew compartment through the ship and ending in the tail gunner's position. Schematics of every position are provided to you as a reference.

Unlike her sister vessels the Betty comes into the hands of the players with her weaponry intact. She does not possess the top secret Norden bombsight as she has been fitted out as a recon and survey vessel. Her heavy armament and sturdiness in combat make her the perfect vessel for an active adventuring party with a more military mind set.

Nose Compartment

Our walk-through will begin in the nose of the Betty and move through the ship to end in the tail gunner's turret. We will review almost every system on board inside and out, how these systems function in game terms and what life is like on board for her new captain and crew.

Civilian Modifications

Under the direction of the U.S. Rocket Forces the primary components of the top secret Norden Bombsight have been replaced with the expensive and top rate K-3L camera system.

The K-3L is designed perform photographic

surveys and create photographic maps of unexplored planetary regions. The K-3L Camera was constructed under contract by Titan Optics for the United States Geological Service in 1931. It was designed as a planetary survey camera but has been made night capable in the hopes of serving as a new reconnaissance camera for the United States Rocket Forces.

Only the original bomb sight mount, bracket, bomber's seat and optical glass remain in the nose compartment.

The K-3L Camera

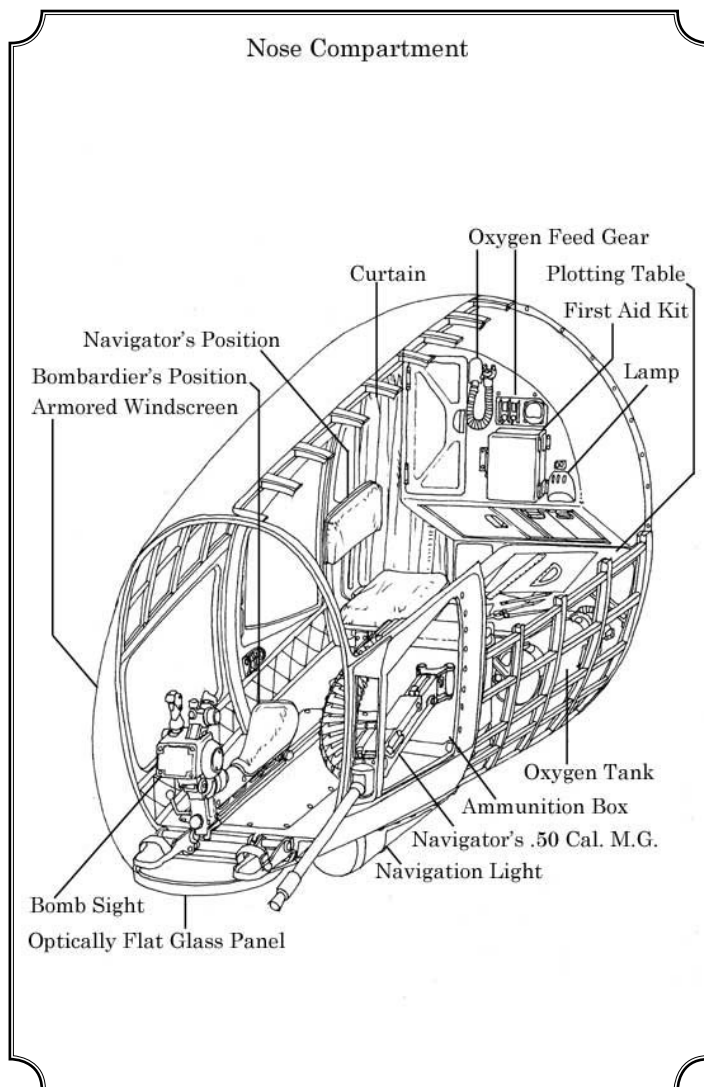
The optics on the K-3L camera allow the navigator to zoom in clearly on ground targets. The viewfinder enables the operator to obtain excellent clarity on buildings and terrain at altitudes of up to 5,000 feet depending on atmospheric conditions and visibility.

The camera loads from the operator's side with a black metal box of film.

Each film cartridge provides twenty exposures before reloading becomes necessary. The used film can remain safely enclosed in its cartridge until the Navigator finds the time to develop it using his dark room equipment.

The Navigator's work area is equipped with a black light and the large locker door to the left of the navigator's plotting table contains the chemicals and equipment necessary for developing film into photographs for study and sale. The dark room cabinet contains five cartridges of film for a total of six, if you count the one already loaded and ready in the camera.

The navigator's compartment is filled with a simple dark olive curtain which can be snapped into position to completely cover the glass of the navigator's green house. The curtain and black light provides the navigator with the dark room necessary for developing his photographs. During flight operations the navigator can take advantage of his curtain to dim his compartment when he or



she desires a little well earned shut eye. The curtain is large and waterproof. It can be removed from the compartment to be used as an additional makeshift cover for a tent or waterproof tarp when necessary.

Planetary Surveys

A planetary survey is most valuable if it is conducted on a planetary body that is habitable and which has not been surveyed previously. A complete planetary survey includes both airborne work comprised of some forty to fifty photographs of the region and at least one accurate topographic map. An accurate topographic map necessitates that the survey party land and hike most of the major geographic features on foot using standard 1930's human surveying equipment. Few teams shoulder the major expense of hybrid planetary

survey equipment. Martian technology has been adapted for use by a human planetary survey team but the equipment has an equivalent value in trade to most decent starships. Ninety nine out of one hundred survey teams walk every foot of the region of the survey, carrying heavy surveying equipment and making measurements and taking both geological and horticultural samples which will be noted on the team's survey maps.

Standard survey practices require twelve sets of geological core samples collected at different points around the survey area. Each set should contain at least eight core samples for study.

Core samples require the use of a motorized drill capable of taking a core sample down to a depth of approximately one hundred feet.

The Betty does not currently have the necessary drilling tools to gather geological core samples. It remains the only critical piece of equipment that the vessel lacks for conducting official / League of Nations approved planetary survey missions. Truth be told previous owners have used the Betty for other purposes, primarily as an armed transport for valuable goods and blockade runner. The Betty has earned something of a reputation for itself in certain quarters as a smuggler vessel. The new owners may or may not be advised of this situation.

Flora samples must be collected at twelve different locations. A standard survey contains at least fifty different examples of native flora, catalogued and preserved for study.

A finished planetary survey has a considerable monetary value. Starship crews make a regular living exploring newly discovered planets. A single survey may earn a team from \$2,000.00 up to \$10,000.00 (a huge sum by 1936 standards) depending on the survey quality and what is found. A single survey covers an area of one hundred square kilometers so many, surveys may be conducted on a single planetary body before the potential for survey money is exhausted. Private buyers (corporations and private individuals) are

essentially interested in what can be found in unexplored or un-survey star systems off of the major trade lanes or beyond the edge of explored space. Surveying an already occupied planet, even in a location not previously explored, brings in considerably less revenue. Earnings from such projects are generally halved.

Planetary Surveys and Colonial Claims

Since the expansion of the nationalized corridors, resistance to League charters on the floor of the League of Nations has waned. Today star systems somewhat removed from the major trade routes but still within League controlled space may turn a tidy profit to those willing to explore them.

A member state of the League of Nations may claim territory on a newly explored planetary body for which member state has obtained documented survey information. The survey must be submitted and approved by the League of Nations council on Earth. Today planetary survey reports are routinely auctioned to the highest bidder. In some cases the award of the League charter goes to a private or corporate sponsorship rather than to a government.

Member states are forbidden to place claims on, to explore, or travel to star systems that have been expressly declared to be Martian restricted zones. The Hegemony claims that Martian restricted zones have been established for the safety of humanity, and should not be tampered with.

Navigator's Computer

The Gunslinger Betty is equipped with a Naz'okt Sept navigation computer. The computer is built into the surface of the navigator's plotting desk. A light table feature and a fold up screen allow the Navigator to work with the system which has its main components protected inside of an armored box bolted within the deck beneath the Navigator's feet. The brains of the navigation computer can only be reached by unbolting an access hatch marked "WARNING Security Area

Do Not Open” set into the deck of the Navigator’s work space. The bio-mechanoid components of the navigation system are highly sensitive and the system can easily be damaged by the clumsy efforts of a human operator without clear knowledge of what they are doing.

A character must possess the skill Xeno-Tech or Martian Insight to possess the knowledge to work directly with this alien computer system. Remember that computer programming skills are extremely limited even amidst engineers and science team members in the human community. Concepts of computer system hacking are almost completely non-existent in the human community of 1936.

Should the system require an update to its database of routes and star systems the entire case can be unbolted and carried in its (heavy and shielded) suitcase to an appropriate shop within the Martian district of a major colony or star port.

To use the system the navigator references a large hard copy binder distributed by the International Astrogator’s Association on a semi annual basis. This manual contains flight path information listed alphabetically for all explored star systems and also for approximately 300 additional star systems included in what the martians refer to as the “Hegemony sphere of influence”. Each IAA entry ends with a series of Martian symbols that must be entered in sequence into the Navigator’s computer. These markings calibrate the computer to plot a safe course from the starship’s current position to the intended planet or destination.

Updates to the manual should be purchased every six months to insure that the ship’s computer is using the most up-to-date information available.

The cost for an update to the manual runs between \$75.00 and \$150.00 US and an update necessitates that the entire unit be left with a Martian tech on one of the major colony worlds. Running a full update into the system usually requires a full eight hour stay for the unit at the shop.

The navigator plots a course by inputting a series of defined glyphs into the face of the navigation computer and then locking the course in by pressing a series of keyboard command sequences. This course is fed into the pilot’s instrument panel where a pair of gauges similar to an aircraft horizon indicator show the pilot whether the starship is on course or not. Autopilot systems are extremely limited on board human starships and much of the piloting from origin to destination is conducted by pilots or co-pilots with hands on the controls of the vessel.

The navigation system automatically adjusts course plots for the movement of planetary bodies and contains a record of billions of potential navigation hazards, asteroids, comets, and debris. The navigation computer is very reliable and can be depended upon to set a safe course for a pilot from point A to point B so long as the navigator follows the instructions provided. Plotting a course requires the navigator to invest at least 10 minutes working with the computer and the navigation manual. The navigator must make a basic skill roll to input a course for a well known system and greater difficulty for plotting a course to systems that have not been fully surveyed before.

Failure indicates that the starship follows a course that is not exactly true. The navigator can spot a problematic course by making a basic navigation skill roll once every eight hours. Varying from course is not usually a serious problem but it may cause the pilot to eventually input a course correction and burn up several hours worth of fuel beyond that normally required.

Unexplored systems may only have basic planetary locations inputted. Planetary information from ancient Hegemony records may be incomplete and many features such as asteroid belts, comets and small planets or moons may not be recorded at all. The Navigator’s flight book has instructions for how to record these items into the navigation computer for download when they return to an established colony world. The Martians pay a flat reward of \$1,000 US for significant updates of data into systems where that information

was previously missing.

A star system survey that is fairly complete plus a top notch survey of a previously unexplored habitable planet can earn a survey team more than several thousand dollars from an interested party.

Emergency Oxygen Reserve

Beneath the navigator's desk is an emergency oxygen reserve tank. This piece of hybrid technology contains a charge of oxygen that is normally sufficient for one hour. The scrubbers enclosed in a removable module on the interior of the emergency tank can (however) refresh the carbon dioxide produced by a user into fresh oxygen for many, hours. With fresh scrubbers this unit can provide its user with seventy two hours of life support when plugged directly into a space suit. In the event that a life support suit is not available the unit can be opened up and allowed to recycle the atmosphere enclosed in the navigator's compartment so long as the compartment remains sealed. This option reduces the effectiveness of the unit to sixty hours of emergency life support but allows the navigator to work without being encumbered by their space suit.

Replacing the scrubbers is easy so long as a fresh unit is available. Fresh scrubbers for these units are fairly common and interchangeable between hybrid models. A replacement charge typically has a purchase price of \$10.00 US at any well supplied spaceport.

The oxygen tank can be unbolted using a tool fastened underneath the navigator's chair. The reserve tank can then be carried or strapped to the back of the navigator while he works in his space suit.

Intercom

On the cabinet to the left of the navigator's work station is an intercom that can be used as a hand held or plugged directly into the helmet of the navigator's space suit. The intercom allows direct communication with the cockpit, sensor operator's

positions and all turret gunner positions. The intercom in the navigators section operates either as an open circuit to all locations at once or can be toggled to speak person to person with the cockpit. The Betty's intercom is on a closed hard line circuit and can not be jammed by external communications jamming devices. Using the intercom does not violate orders to maintain "radio silence" as the sound can not be detected outside of the spacecraft.

Navigator's Parachute

A backpack is stowed just to the left of the emergency oxygen reserve beneath the navigator's desk. It contains the navigator's escape parachute. The Betty is equipped with standard human-gear parachutes at the navigator, radar operator, cockpit and all gunner locations. These chutes are put on by personnel during air combat or flak in atmosphere. Should the crewman need to bail out these U.S. manufactured chutes will open correctly in the vast majority of cases. Failure to successfully activate a chute or to be thrown out of the craft without one, indicates that the actor will likely plummet to their doom. Such is the life of an aviator in 1936.

Armored Green House

The navigator's section has been fitted with a green house constructed from a hybrid material introduced to the Humans by the Martians in 1920. The material is called glass-steel, and it replaces the glass installed in all spacecraft.

The glass-steel installed in the nose of the Betty is several generations improved over previous types. The navigator is protected by a 90 mm armored windscreen capable of withstanding point blank rounds from most small arms and even resisting the firepower of many light vehicle weapons. The bracing of the green house provides additional strength and the navigator is protected by a bonus to their resistance to damage should the nose position be hit with a critical.

Stats for the crew position's protection is in-

licated below:

90mm Glass/Steel	MEDIUM (++)
8mm Armor Plating	LIGHT (-)

These two layers of protection stack when determining the total protection afforded the navigator versus a direct hit to his or her compartment.

Emergency Pressure Door

A large yellow button is set into the floor of the navigation area protected by a metal kick plate that can be nudged or kicked open by a boot and the button stomped. The button activates the emergency pressure door for the navigator. The pressure door seals the nose off from the rest of the ship in case of the ship takes internal damage. The navigator's door can be over-ridden by the copilot's position where a master control for all pressure doors on the starship is located.

A pressure alarm on the Betty immediately sounds when the ship experiences a hull breach of any size. This alarm is meant to alert crew members to activate their kick plates and seal their crew compartments from decompression. A very large breach might be sufficient to decompress the entire vessel faster than the crew can seal their compartments. For this reason most ships button up individual compartments prior to entering combat or risky areas such as asteroid fields.

.50 Caliber Hellion

The nose mounted .50 Cal. has a bench seat for the navigator to occupy when using the weapon. The navigator's .50 Cal. is linked into the ship's CXAM Sensor System. A green monochrome screen mounted between the weapon's grips provides a fuzzy image of enemy targets out to a range of 100 kilometers. Beyond that range and out to a distance of one AU the system shows targets as glowing blips with corresponding codes and numbers which identify each target and reflect relative range to the starship.

The hybrid .50 Cal M-2 has a maximum effective range of 5,000 ft. and is more or less a moderate weapon not suited for combat with a military vessel in the capital ship range.

Should the CXAM targeting link fail (in the event of a critical hit that takes out the sensors) the gunner must depend on visual targeting. Range and targeting are greatly impacted when a gunner is forced to rely on mere eyeballing. During combat most vessels run dark and they are extremely difficult to make out in the blackness of space unless they are firing their weapons or employing certain types of energy shield.

The .50 Cal has a flexible mount but remains a forward arc weapon incapable of firing into the starboard, port or rear arcs of the spacecraft. The navigator position is a decent secondary gunner position for covering the ship during landings or while on the ground as the green house provides a wide angle of observation. The belly turret is perhaps the most effective gun for defending the ship on the ground with its three hundred and sixty degree motorized traverse. The little ball turret has a limited degree of visibility to the rear and might benefit from a spotter in the nose to call out targets.

The forward .50 Cal on the Betty retains its full load of 500 rounds of M2000 Hellion ammo. An ammo crate contains an additional 500 rounds and is located in a locked position in the underside of the shelf to the immediate left of the navigator's desktop. A second ammo can position is empty but could receive an additional load of 500 rounds. It is stored in a pop up container at the navigator's feet when seated at the weapon.

The M2000 ammo is installed on a belt system that has been improved a great deal over earlier feeds. Unlike other belt fed weapons which require an entire combat action to reload, the .50 Caliber M2000 Hellion requires only a half action to lock and load if the ammo is ready and placed near the gunner.

Rocketship Empires 1936

Navigator Skills

Below is a list of skills that are central to the duties of a starship navigator. Every starship navigator should possess at least some skill in these important areas.

- Navigation
- Forward Observer (Vision or Perception Bonuses)
- Alertness
- Planetary Survey
- Cartography
- Photography
- Knowledge Skill: Technical - Human Gear
- Knowledge Skill: Technical - Hybrid Gear
- Knowledge Skill: Astrogation (Planets and Star Systems)
- Repair
- Starship Gunnery

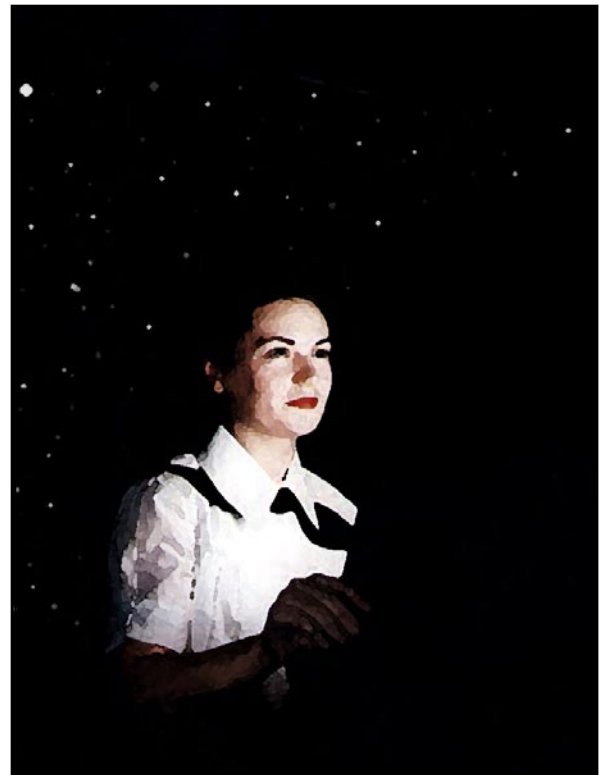
Other skills which might be handy for a Navigator include medical skills, firearms, brawling, drive and any tech. oriented skills or training.

Preflight

During a starship's preflight the Navigator is responsible for checking to insure that all of his flight books are available, that his navigational computer appears to be working, that his .50 caliber is locked down and in a secure position for take-off and that everything in the nose compartment is secured safely prior to launch. Prior to take-off the Navigator should check all planetary survey supplies, film stores and developing supplies and check the camera to insure that it is working and that the optics are secured.

System Test

A common practice among navigators is to lay in a test course to a nearby moon, asteroid, planet, orbital base, etc.. to insure that the ship's navigation system is working correctly. Better to run through a test on the way out then suddenly realize when you arrive in the next system that your system is malfunctioning.



Even the best systems have a chance of breaking down. Consider rolling a cumulative one percent chance of the navigation system beginning to slip up. Once the system begins to break down it will become steadily worse each time a course plot is laid in.

Spotting the problem with a diagnostic test requires the navigator to make a repair or electronics roll. Spotting a system problem running a test course makes finding the problem easier and provides a bonus to the navigator's diagnostic test.

Laying in a course

Laying in a course varies in difficulty depending on the navigator's goal. Laying in the generic course right out of the martian reference manuals insures that the vessel will follow the most traveled space lanes from point A to point B. Any pirates or enemy ships will have these space lanes well scouted. In League space and well patrolled star systems traveling the known space lanes is not a serious concern. Partnering with a friendly ship or two on the way out can help reduce the chance of trouble for those with some concern for their secu-

rity.

Laying in a secondary course is a little tricky. A secondary course runs parallel to an established route but places the ship's trajectory several thousand kilometers outside of the established space lane. Step the difficulty for this course up a notch.

Finally the navigator can "take the scenic route". Taking the scenic route implies that the navigator lays in a course to a different destination, a dead moon, an asteroid belt or some other feature and makes an approach to the final destination from an unexpected and unused direction of travel. The navigator must insure that the ship has sufficient fuel to make the round about trip, must estimate the time in flight and relay that information to the Captain. The navigator must work out a course that may be listed only in fragments and clues.

Failure

Failure at a navigation roll usually results in the loss of an hour or perhaps a few hours of travel time and the loss of some fuel. A critical failure might bring a vessel to a destination in the general direction of their travel but to an unexpected location. Unexpected locations might include a minor planet or moon the party did not originally intend to visit but which orbits somewhere in their general direction of travel, a rogue asteroid or even some hazard depending on the Director.

Plot Point

Failing a navigation roll while attempting to plot a route off the usual space lanes can be a fun opportunity for a side adventure. Maybe the characters encounter a derelict space craft or abandoned space station in a part of space no one would otherwise travel except on accident.

Maybe the ship slips into a natural worm hole and warps to an unexpected destination star system. Maybe the ship discovers a rogue asteroid with an ancient alien ruin on its surface or a deposit of valuable looking crystals. Perhaps the

characters stumble upon a secret black market space station operated by the Qin Shadow Empire.

Primary Route

Basic navigation skill roll.

Secondary Route

Bump the difficulty up a notch.

Scenic Route

Twenty minutes to lay in the course. Bump the difficulty up a couple of notches over the base roll.

Star Dive

The star dive is the crucial, jaw clenching moment when a starship fires its thrusters towards a flaming sun in order to dive into the star's gravity well to activate the ship's gravity drive.

Laying in the correct trajectory to keep the vessel on is in the hands of the navigator. Thankfully these trajectories are already plotted for almost every star system the characters will travel in while operating inside the borders of the Hegemony.

Flying the ship and keeping it locked on course during the star dive rests in the hands of the pilot and co-pilot / engineer. A star dive is not an automated action. The ship's pilot must maintain firm hands on control over the ship's stick to keep it traveling along the correct trajectory.

Good jumps begin with sound navigational computations. Feeding the course into the navigational computer and locking it into the instrument panel in the cockpit requires ten minutes and a successful skill roll. If the navigator is not pressed for time they may always take additional time to insure that the coordinates they input are correct.

A critical failure will result in the wrong jump point being filed into the pilot's instruments. They will fly the vessel into the wrong trajectory and the ship will jump to one of the other star systems closest to their current location. If only one star system

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is available as an option the vessel will ultimately reach its intended destination but at a cost of an additional day or so in jump space.

Plot Point

Critical failure of a jump might indicate that the vessel has slipped into “dark space” where the crew will experience a direct encounter with whatever evil lurks between the stars.

An ambitious Director may plot out a module or encounter in dark space and hold this in a folder specifically for a time when the actors experience a failure when entering jump.

Freezer Time - Navigator Duties

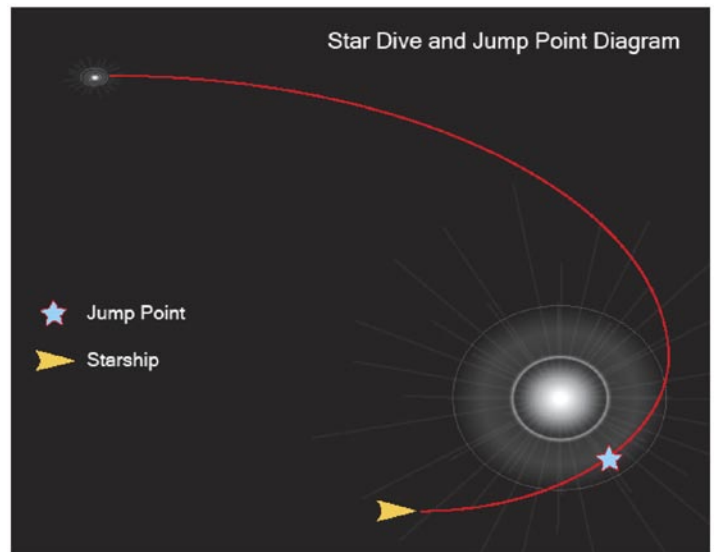
While the ship is in jump space the navigator is responsible for keeping the ice under control in the nose compartment. Freezing temperatures on board can take condensation from the crew's breathe and slowly layer the ship's instruments and equipment in ice. Each crewman is responsible to keep their particular part of the ship functional.

Outside of that responsibility the navigator plays a game of wait and see or perhaps spends some time in prayer or catching up on work or reading as the ship hurtles through the vast black between the stars.

System Transit

Once the course is laid in and the ship is in transit through a star system the navigator is the vessel's forward observer. The navigator can use the sensor link in the .50 cal. to sweep the area in front of the ship for anything that the ship's sensor operator may have missed.

Meteors, debris, suspicious ships are hopefully spotted long before they come close enough to cause the ship any real problems. Outside of acting as a forward observer during transit times the navigator is free to work on other projects, develop film from the last survey mission, work on



maps, update their personal flight log, taken inventory of ship's supplies, whatever needs doing.

Combat

During combat the navigator's place is at the .50 caliber weapon mounted in the nose compartment.

The Cockpit

The cockpit contains the duty stations of the ship's pilot and the ship's engineer or co-pilot. The pilot is typically the Captain of the ship as well but this is not always the case. Starships are expensive vehicles and there are plenty of examples where the ship's owner and "Captain" has hired a professional pilot to fly their ship from place to place.

In addition to the usual gauges and instruments an additional horizon style instrument indicates whether the ship is on course during space flight. Course information from the navigator's computer is locked into the pilot's instruments by the navigator from their station in the nose.

Autopilot Systems

Autopilot systems in the Betty are limited to the most primitive sorts of fly by wire equipment. In fact devices like autopilots are altogether unusual on board starships flown by human pilots.

In most cases a pilot must remain at the helm of the ship throughout star system travel. Only after entering jump does the vessel continue forward on an intended course without input by the pilot. In fact travel through jump space has been likened to riding the rails of a steam engine. Once a ship sets out in jump space the course, destination and arrival time are locked. Even if the pilot wanted to change course engine maneuvers would be useless. A pilot could cut out the primary drives altogether and the vessel would still arrive at its final destination after entering jump.

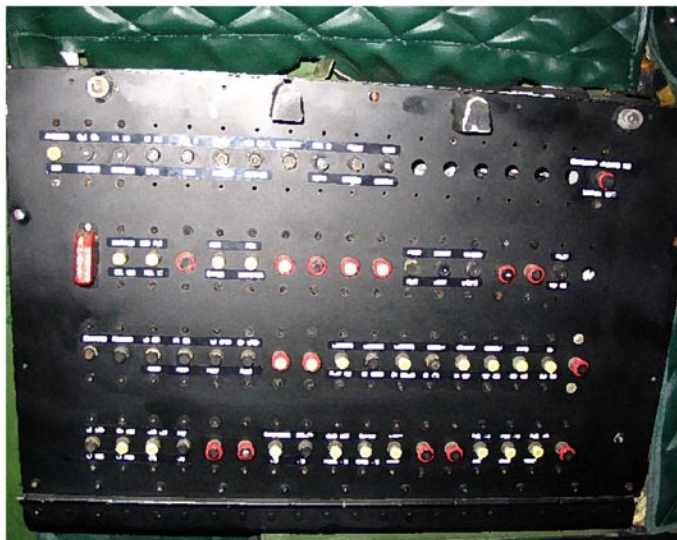
Simple A-3 autopilots are available in a modest number of commercial starships. The military's C-1 autopilot is still in prototype and will probably not be available until 1937. At best autopilots in the Rocketship Empires Campaign Setting will allow a ship to fly straight and level or effect minor changes in course during flight during system transit. Even the best autopilots contain no components that allow a ship to dodge enemy attacks. Pilots and co-pilots in The Betty must fly her the old fashioned way, sleeping in shifts and drinking a lot of black coffee during the long, cold flights through the dark heart of space.

Controls

The pilot controls one of two control columns (sticks) in the cockpit. The co-pilot or engineer's stick is removed in the technical drawing on the following page so the nose companionway access can be seen.

The engineer is responsible for monitoring a number of panels and gauges measuring the operation of different vital systems throughout the starship. Meanwhile the pilot is responsible for flying. This can be a fairly straight forward task out in deep space when days of stick time can blur together. Piloting becomes more challenging and interesting during take off and landings, during atmospheric flight, during any sort of starship combat and most especially during the star dive immediately preceding a starship jump.

Engineers Controls



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The engineer / co-pilot has access to a wide variety of simple toggle switches that can turn on/off most of the systems on board ship remotely from the cockpit.

Should a breaker blow, the main breaker box for the starship is installed immediately to the right and just behind the engineer's usual seat position. Reaching down and slapping the seat adjustment bar can allow the engineer to push his or her seat far enough back to access this panel easily and also move out of the way of the navigator who might want room when making their way up out of the nose gangway.

A specialized fire extinguisher that functions safely zero-gravity is close at hand and the engineer's tool set is stowed in a handy compartment immediately under their feet in the floor of the cockpit.

Engineer Toggle Controls

The Engineer has immediate on/off control over the following ship's systems.

Lights

Cockpit Interior Lamp
Single Switch - All interior ship lights
Red Lamp - Cockpit
Red Lamps - Ship Interior

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Navigator's Interior Lamp
All Exterior Running Lights
Nose Fog Lights

Heaters

Wing and Flight Surface De-Icers
Cockpit Windscreen De-Icers
All crew space electric heaters on/off

Powered Motors and Equipment

Landing Gear
Dorsal Turret Motor
Ventral Turret Motor
Cargo Lift Power on/off
Navigation Computer on/off (restart)
Powered Air lock Doors on/off
Emergency Pressure Hatches on/off
Fire Control System on/off
Starboard Engines Master Power on/off
Port Engines Master Power on/off
Secondary Engines Master Power on/off
Starboard Fuel Pumps on/off
Port Fuel Pumps on/off
Fuel Processing Equipment on/off
Master Power Cut-Off Switch on/off*

*Master Power Cut-Off kills power to every system in the ship. Systems often require individual re-starts which may take up to an hour to perform.

Emergency Life Support

The pilot and co-pilot seats each carry an emergency life support tank in a mount on the back of their flight seat.

These emergency tanks are identical to the one found in the navigator's compartment. They can provide 72 hours of life support to a subject that is suited up in a space suit and can also be cracked open and adjusted to provide atmosphere sufficient for the sealed cockpit area for sixty hours each.

Ejection Seats

At the request of the marshal's service the

cockpit was upgraded with a pair of hybrid ejection seats. Controls on the far left and right side of the cockpit allow the pilot and co-pilot to activate each ejection seat independently. A charge overhead blows open a roof hatch when the chairs are deployed. Each chair contains its own parachute.

The system is designed to refuse to deploy unless both occupants are seated in their flight seat and secured in their space suits, with the chair's emergency life support hooked in.

With the occupants safely in space suits the ejection system can eject the pilot and engineer clear of the ship into space or clear of the ship in atmosphere. The underside of each flight chair has a parachute installed that is designed to deploy during atmospheric bail outs.

Weapons Locker

A hatch in the floor behind the pilot's chair provides access to some of the wiring and ship's systems contained in the hull of the ship below decks. Contained beneath this hatch is a locking gun safe that contains a cache of weapons for the pilot, co-pilot and navigator.

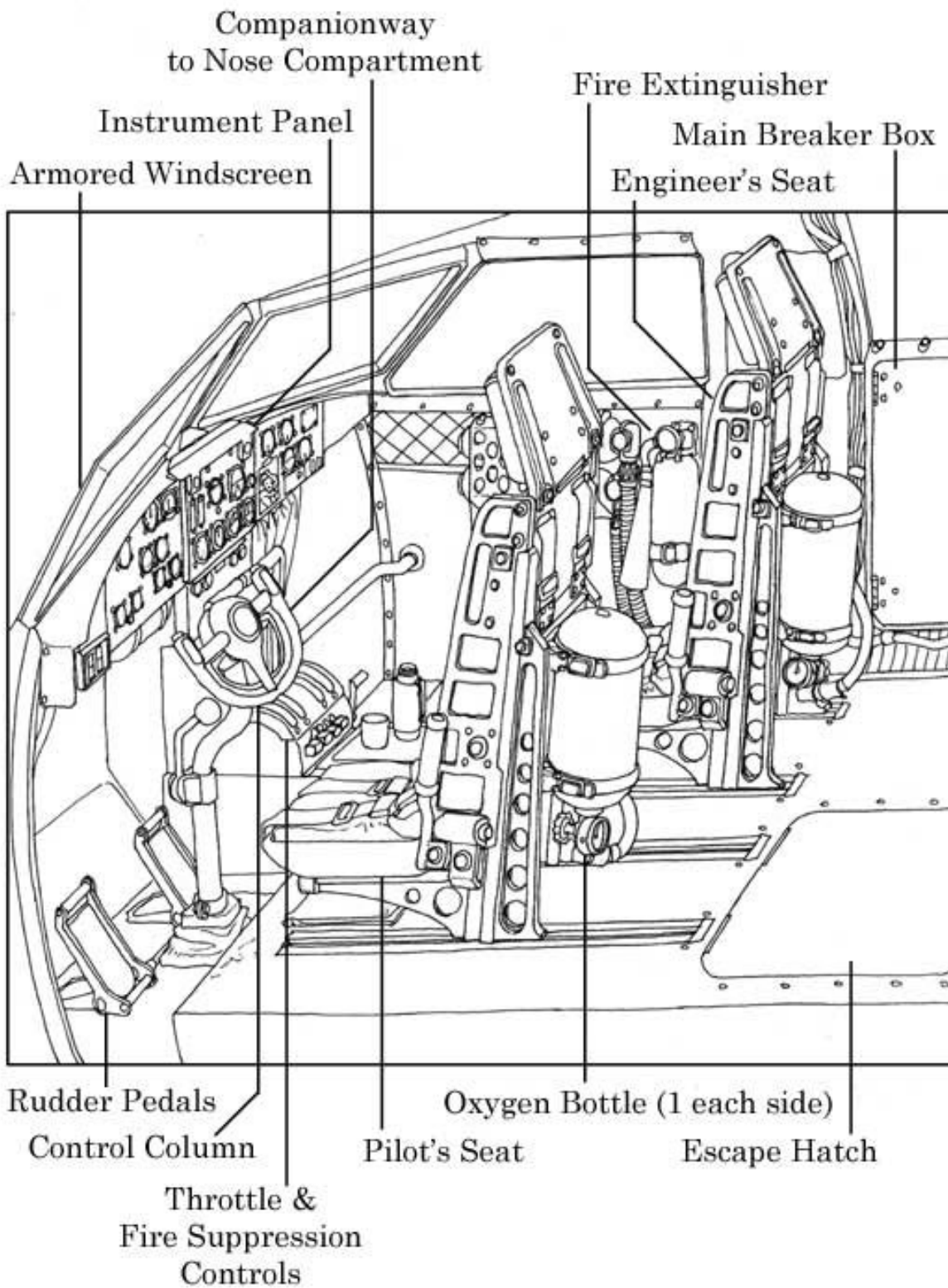
The cockpit weapons locker contains two Colt 1911 autoloader pistols and a Thompson SMG 1928 naval model. Each weapon is stored with rounds loaded and two additional clips for each weapon.

Hull Patch Kit

A hull patch kit is located in a lunch box sized kit which can be quickly removed from beneath the engineer's seat. The patch contains a palm sized adhesive gun and folded pressure patches that can seal a small hull breach quickly.

The adhesive in the gun is formidable and can only be removed with a solvent carried in the ship's mechanic's tool kit stowed in the cargo compartment. The adhesive bonds in seconds so an operator must be careful not to glue themselves to the patch, to the hull or to the adhesive gun during

Cockpit



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the process.

The patch kit in the cockpit contains six patches which can seal a breach in the hull up to the size of a quarter.

Breach Size

- Pin Hole
- Small (Penny)
- Medium (Quarter)
- Large (Silver Dollar)
- Catastrophic (Baseball+)

Repair Difficulty

- Simple
- Moderate
- Difficult
- Very Difficult
- Forget It*

*Catastrophic hull breaches can only be repaired after all of the atmosphere has vented and someone in a space suit works for several hours at least to close up the hole.

A replacement kit for the patches has a purchase price of \$50.00 US. A new hull patch kit has a purchase price of \$100.00 US and can be found at any star port.

Engineer's Duties

Below is a list of fundamental skills that every ship's engineer should be familiar with to at least some degree.

- Starship Piloting
- Craft: Electronic
- Craft: Mechanical
- Craft: Weaponsmith
- Craft: Engineering
- Knowledge Skill: Technology - Human Gear
- Knowledge Skill: Technology - Hybrid Gear
- Repair
- Forward Observer
- Space Suit - EVA

In addition a ship's engineer may want to possess skills in various vehicles, mechanic, electrical, chemical, firearms or brawling. The ship's engineer may wish to double up on the planetary survey skill so that the engineer and navigator can take the lead when the crew is faced with survey and exploration missions. A wide variety of science team skills suit an Engineer well.

Preflight

The ship's engineer is busy during starship preflight. They must insure that the ship is properly fueled and that all fuel tanks are covered and secured after fueling. They must check all of the hydraulic systems on board the ship and run through a test of every single switch and system they have control over from the cockpit.

Prior to take-off the engineer is responsible for doing a final walk around the ship, checking the integrity of the landing gear and tires and looking for any potential problems in the ship's structure. Starships are complex vehicles and have many systems and moving parts. The ship's engineer is faced with a constant challenge in keeping up with the wear and repair of these systems.

Every time the ship is used, even for short hops, there is a cumulative chance (defined on the facing page) that a system will begin to experience mechanical, electrical or other problems. This cumulative chance does not go away the moment one system experiences a failure. The percentage continues to rise until the ship undergoes a period of focused repair and refit known as the "starship overhaul".

Replacement and repair of ship's systems is time consuming and expensive. Thankfully ship systems do not fall off the moment they begin to show signs of wear.

Plot Point

Why all the emphasis on ship wear and tear and engineering? What science fiction show have you watched where the maintenance and upkeep of the starship did not figure largely in some shape or form over the course of the film?

When players understand that the ship has a cumulative rate of wear they will be more interested in earning the money necessary for upkeep. Ship pilots and crews will be faced with decisions about putting the ship into space dock for a the repair of a system or forging forward with the adven-

ture with one or another system in a questionable state.

Some game systems already make allowances for this element in a science fiction setting and in that case go with the native game mechanic to the system you have chosen to play. Either way this optional approach is also available.

Starship Wear and Tear Table

On the table below I have devised a starship wear and tear table. Any time the Director rolls a system problem during pre-flight they should roll to determine which system faces a potential problem and increase the severity on the chart by one level.

Starship Wear and Tear Table

During the engineer's walk around the ship they may or they may not spot the potential problem. The engineer faces a skill check to notice problems as they raise in severity. Equipment in "the green" is Difficult to notice while a problem with a piece of hardware becomes easier and easier to notice (rolls become easier) the more advanced the problem becomes.

When a piece of equipment is in the red only a near sighted and somewhat distracted engineer would miss the problem. (Or one that ignored doing their regular checks of the ship.)

A piece of equipment that becomes FUBAR no longer functions. That is pretty difficult to miss

Roll	Skill	Equipment	Green	Yellow	Red	FUBAR	Repair Difficulty
1	Engineering	Port Main	Green	Yellow	Red	FUBAR	Difficult
2		Starboard Main	Green	Yellow	Red	FUBAR	Difficult
3		Secondary Engines	Green	Yellow	Red	FUBAR	Difficult
4	Weaponsmith	.30 cal.	Green	Yellow	Red	FUBAR	Easy
5		.50 cal.	Green	Yellow	Red	FUBAR	Easy
6		Ball Turret	Green	Yellow	Red	FUBAR	Moderate
7	Electrical	Ammo Feed	Green	Yellow	Red	FUBAR	Moderate
8		Radio Unit	Green	Yellow	Red	FUBAR	Moderate
9		Sensors	Green	Yellow	Red	FUBAR	Difficult
10	Mechanical	Cockpit Controls	Green	Yellow	Red	FUBAR	Moderate
11		Lights	Green	Yellow	Red	FUBAR	Easy
12		Barbette Remote	Green	Yellow	Red	FUBAR	V. Difficult
13	Mechanical	Landing Gear	Green	Yellow	Red	FUBAR	Moderate
14		Pressure Hatch	Green	Yellow	Red	FUBAR	Easy
15		Wing De-Icers	Green	Yellow	Red	FUBAR	Easy
16	Mechanical	Ball Turret Motor	Green	Yellow	Red	FUBAR	Easy
17		Wing Hydraulics	Green	Yellow	Red	FUBAR	Moderate
18		Tail Hydraulics	Green	Yellow	Red	FUBAR	Moderate
19	Martian Systems	Life Support	Green	Yellow	Red	FUBAR	Xeno Tech
20		Navigation	Green	Yellow	Red	FUBAR	Xeno Tech

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for anyone who attempts to use the equipment.

Equipment repairs are cheaper the earlier the problem is caught. An item in the green might be reset completely with a successful repair check. An item in the yellow might be set back one step to green. I usually allow an engineer to push back the advance of wear one step for one piece of equipment. After that the equipment will continue to progress as a problem when it is rolled on the chart until it either goes FUBAR or the entire ship goes into overhaul and all of the equipment is reset to starting levels.

Starship manufacturing can have a major impact on the severity of equipment problems with a particular type of starship. A manufacture with a poor rating in engines will automatically begin the wear and tear table with one slot notched off against them (in the green). Manufacturers that construct components or systems with "wretched" quality ratings face an automatic two strike starting point for the systems that receive the wretched quality rating (start in the yellow).

To repair or not to repair...

Engineers can usually repair a ship's system one step as long as they have the tools, the time, and the problem is in the human or hybrid components.

Performing an overhaul does not reset the cumulative chance of the erosion of ship's systems. Thus a ship can accumulate a ten, twenty, forty, eighty percent chance of a system advancing in wear and tear over time each time the ship goes into the air.

Table Key

Green Status

The equipment is in top shape. Unless it is damaged in combat or through some accident it will not malfunction during flight.

Yellow Status

The equipment is showing signs of wear. Replacement parts for worn parts may vary widely depending on the equipment in question. We leave the specific details of the malfunction in the capable of hands of the GM.

If left damaged the system will continue to function and has a 05% chance of suffering a malfunction during flight.

Red Status

The equipment is showing signs of serious wear and the engineer may have had problems with it already to some degree. Repair costs increase. If left damaged the system has a 10% chance of suffering a malfunction during flight.

FUBAR

The equipment is FUBAR. It is broken and no amount of repair is going to fix it. Time to buy a new one Captain.

Repair Difficulty

This is a measure of the difficulty for repairing a piece of equipment once it has reached YELLOW status. As damage progresses the difficulty for making the repair should rise. Keep in mind that repairing a broken piece of equipment is harder than tearing the unit out and replacing it with a new one. A straight replacement of a unit should have a moderate difficulty in most cases.

Ship Status Report

The ship's engineer can submit a status report immediately prior to embarking on a voyage or upon arrival the starship Captain.

It takes 5 minutes to properly check one broad class of equipment on the ship (all electrical systems for example) and around thirty minutes to perform a proper inspection of the entire ship.

The wear and tear chart can be copied and turned into a tracking form for monitoring the current status of the ship. One copy should be maintained by the Engineer and the other copy with the actual system information should be maintained confidentially by the game Director.

Malfunctions

At the GM's option they may make a system malfunction check. I recommend that these are made ever once in a while during ship operations (about once a jump) or whenever the vessel is placed under considerable strain.

Roll for any equipment that is in the yellow or red. The chance for a piece of equipment to malfunction is listed on page 19 under the table key. If a malfunction occurs roll again on the opposite table.

FUBAR Table

Roll	Result
1-5	A yellow warning light comes on in the cockpit, nothing more.
6-8	A yellow warning light comes on in the cockpit and 1d20 minutes later the system begins to make a rattle or banging noise from a loose part but otherwise nothing else happens
9-10	No warning light comes on. The system simply begins to short or make noise but nothing else happens
11-12	A yellow warning light comes on followed by a red idiot light approximately ten minutes later. Yet the system hangs in there and does not fail.
13-14	A yellow light comes on and then a red idiot light. The system will begin to stutter, working for a few moments and then sputtering off. It needs repair to function.

15	A yellow light comes on. Twenty minutes later a red light comes on. Ten minutes later the system immediately ceases working and must be repaired
16	A yellow light comes on the system sputters and then dies. It must be repaired.
17	The system goes up in smoke with no warning and is immediately FUBAR
18	A yellow light comes on, then a red light. 1d6 minutes later the entire system shorts, jams or breaks down and must be repaired.
19	The next time the system is turned on, it doesn't turn on and must be repaired.
20	The next time the system is turned on it doesn't turn on and is FUBAR

Jury Rigging

Jury rigging involves cobbling a device back into working condition temporarily using whatever happens to be on hand. A ship's engineer may find that they are forced to jury rig a ship's vital system that has been damaged during combat or knocked out because of a system malfunction.

Jury rigging will NOT repair a device that is FUBAR. No amount of cursing, kicking, throwing money at the device, prayer nor anything else will get a FUBAR device back online.

Jury rigging a device requires 10 minutes x 1d6 to complete. The time involved includes scrounging around the ship for parts, duct tape, bubble gum or whatever else is necessary to cobble the device back together.

If any portion of the device is exposed to space or constructed onto the outer hull of the vessel there is a chance the engineer will need to put on a space suit and go outside the ship to per-

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form the repair.

Space walks are possible in jump space but the cost is high. Suits do not provide sufficient protection from radiation to allow a technician to survive the experience and setting foot outside of a starship during jump travel, while not resulting in immediate death is a guaranteed death sentence from radiation sickness.

Jury rigging requires a repair roll. The engineer or technician may receive help from another character or may make a complimentary skill roll before beginning work if they have a suitable skill that specifically applies to the problem at hand.

Status of Device	Repair Difficulty
Battle Damage - Minor	Easy
Battle Damage - Serious	Moderate
Battle Damage - Catastrophic	Difficult
Malfunction from Yellow Status	Moderate
Malfunction from Red Status	Difficult
FUBAR	Impossible

Jury Rigging - Duration

A jury rigged device will not remain functioning forever. Every 1d8 hours that the system is jury rigged the system must make a system check or break down.

Any time the ship is hit with an attack, suffers a collision or performs radical maneuvering perform a system check to see if the repairs hold together. A system check can be as simple as assigning a percentile chance of failure. The chance is up to the director.

The manufacturing quality of a system can provide a bonus or penalty to the duration that jury rigging on the system will last. Add or subtract the appropriate system quality modifier listed below based on the manufacturing modifier of the starship in question.



Manufacturing Quality	Modifier
Excellent	+2 Hours
Good	+1 Hour
Average	+1 Hours
Poor	-1 Hour
Wretched	-2 Hours

Scavenging

Pulling parts off of a hulk in a junk heap or floating abandoned in space is called scavenging. Scavenging for parts can save a ship Captain a considerable amount of money in operational costs. The big hitch of course, is whether the parts will be compatible with what is on board the Captain's ship.

Attacking a ship so you can blast it to bits in order to scavenge it for parts is called piracy, in case you were unclear on that small detail.

Hybrid Systems - Martian Components

At the core of every hybrid system are martian bio-mechanoid devices which make the

device work. These devices are designed to be modular so damaged pieces can be easily removed and replaced. The core components to any hybrid system have a 75% percent chance of being compatible from system to system no matter who manufactured the starship or the final piece of equipment.

Hybrid Systems - Human Components

Components built by the same human manufacturing concern for the same device will have a 95% chance of being compatible even between different models of ships. Components from different manufacturers but from the same nation will have a 40% chance of being compatible and components from different manufacturers from different nations will have a 10% chance of being compatible. These guidelines also apply to purely human devices such as automobiles, bi-planes, toasters and walkie-talkies.

Ship Overhauls

Overhauling a ship is time consuming and expensive. A ship must be at a spaceport or orbital station in a birth or hanger before a ship overhaul can begin. Ships can not be overhauled in transit or while floating in space away from major repair facilities.

The time required and cost of an overhaul varies depending on the size and class of the ship. The table below will provide details for GM.

Ship Class/Size	Time	Repair
Starfighters	24 Hours	Medium
Fast Transports	48 Hours	Medium
Atmo-Capable	72 Hours	Difficult
Light Class	1 Week	Difficult
Medium Class	2 Weeks	V. Difficult
Heavy Class	1 Month	V. Difficult

Time requirements listed here are for a team of three technicians. Additional technicians will shave five hours off the time required for each additional tech. Adding techs. that are not player

characters will add to the cost.

Captain's Duties

Below is a list of fundamental skills that every Captain/Pilot should be familiar with to at least some degree.

- Starship Piloting
- Craft: Electronic
- Craft: Mechanical
- Knowledge Skill: Technology - Human Gear
- Knowledge Skill: Technology - Hybrid Gear
- Repair
- Starship Gunnery

In addition a ship's pilot may want to possess skills in various vehicles, trade skills, firearms or brawling and have some social skills to assist in getting the ship and crew past red tape or entanglements imposed by greedy merchants or bureaucrats. The ship's pilot may also wish to have skills in space suit - EVA and zero gravity fighting.

Piloting

Little has been introduced in many sci-fi rpgs regarding the little details of day to day ship operation. The emphasis in many books is on combat. I would like to put forward that some of the most gripping sequences in science fiction films have to do with maneuvering in tight spaces, taking off or landing in dangerous weather or fierce storms, ignoring warnings from an enemy control tower before taking off from the runway anyway.

Much of this has been glossed over in previous works but I would like to include them here. Not because every director will want to use these ideas in every scenario but so game director's have these materials to add to their tool box for bringing non-combat actions aboard a starship to life.

Preflight



When the ship is in port it is the captain's responsibility to deal with the port authority, secure a berth for the ship, pay for any fees and set the ground rules for the shore leave of the crew.

Prior to take off the captain works with the engineer to run through the ship's preflight check list. He tests all of the control surfaces, runs the engines and fuel pumps through a test, personally tests the fuel levels manually to insure that false readings on gauges don't place him in space with a half a load of fuel and contacts the radio tower to get in line for take-off.

All of this activity means that the pilot is very busy during preflight and will not want to be bothered with problems that the rest of the crew should sort out for themselves. At least until the ship is safely underway.

Taking Off

Pilots will face two different scenarios when embarking. In the first and most common scenario the pilot will be taking off from a planetary surface. In the second the pilot will be launching into space out of a confined docking platform at an orbital or deep space station.

Atmospheric Take Off

While taking off is safer and easier than landing it still holds its own risks and challenges. First and foremost the pilot must decide whether they are waiting in line for clearance or if they are ignoring the tower and taking off anyway.

If the pilot is taking off with the blessings of the tower they will have a clear flight path off of their runway out to a distance of twenty to fifty kilometers as long as they don't deviate from a straight climb.

If the pilot decides to ignore the tower and take off immediately they face the danger of a possible collision with an inbound spacecraft.

Roll on the table below for results. If an inbound spacecraft is encountered the pilot must make a piloting roll to avoid a collision.

Spaceport / Colony Size	Inbound
Very Small / Outpost	01%
Small	03%
Medium	05%
Large	08%
Enormous	10%

It is up to the GM to define where the starport or colony falls in the ranges listed above.

When taking off from remote locations (away from runways and spaceports) and after take-off from standard spaceports the pilot will want to climb their ship to a safe altitude for flight. A safe altitude is considered one where the pilot has time to recover the starship in the event of an engine failure or other problem.

Safe Operational Altitudes

A good operational flight altitude to reach is 3,000 feet. Below 3,000 feet and down to 1,000 feet the pilot suffers a negative modifier to their piloting roll to pull out of a spin or stall should the ship encounter problems. Starships and starfighters operating below 1,000 feet suffer a -2 penalty

and ships operating below 500 feet suffer a -4 penalty.

Weather conditions, turbulence and visibility are all challenges that a pilot faces when flying in atmosphere.

Making a safe take-off encompasses the time from when the wheels leave the ground to when the ship is cruising at its operational altitude. The ops. altitude is set by the pilot.

The pilot faces risks of heavy turbulence, radical drops in altitude and loss of control whenever he is flying. The risks during take-off are outlined below.

Piloting Table Key

The results running across the top of the piloting table reflect the pilot's success or failure at their piloting roll.. Flight is a dynamic, everything is happening "right now" and "what are you doing about it, right now" sort of activity so pilots

may not take extra time to gain a bonus to their skill roll.

Table results:

Smooth

Your flying is as smooth as glass. Not even a bump all the way from the ground to your operational altitude.

Light Turbulence

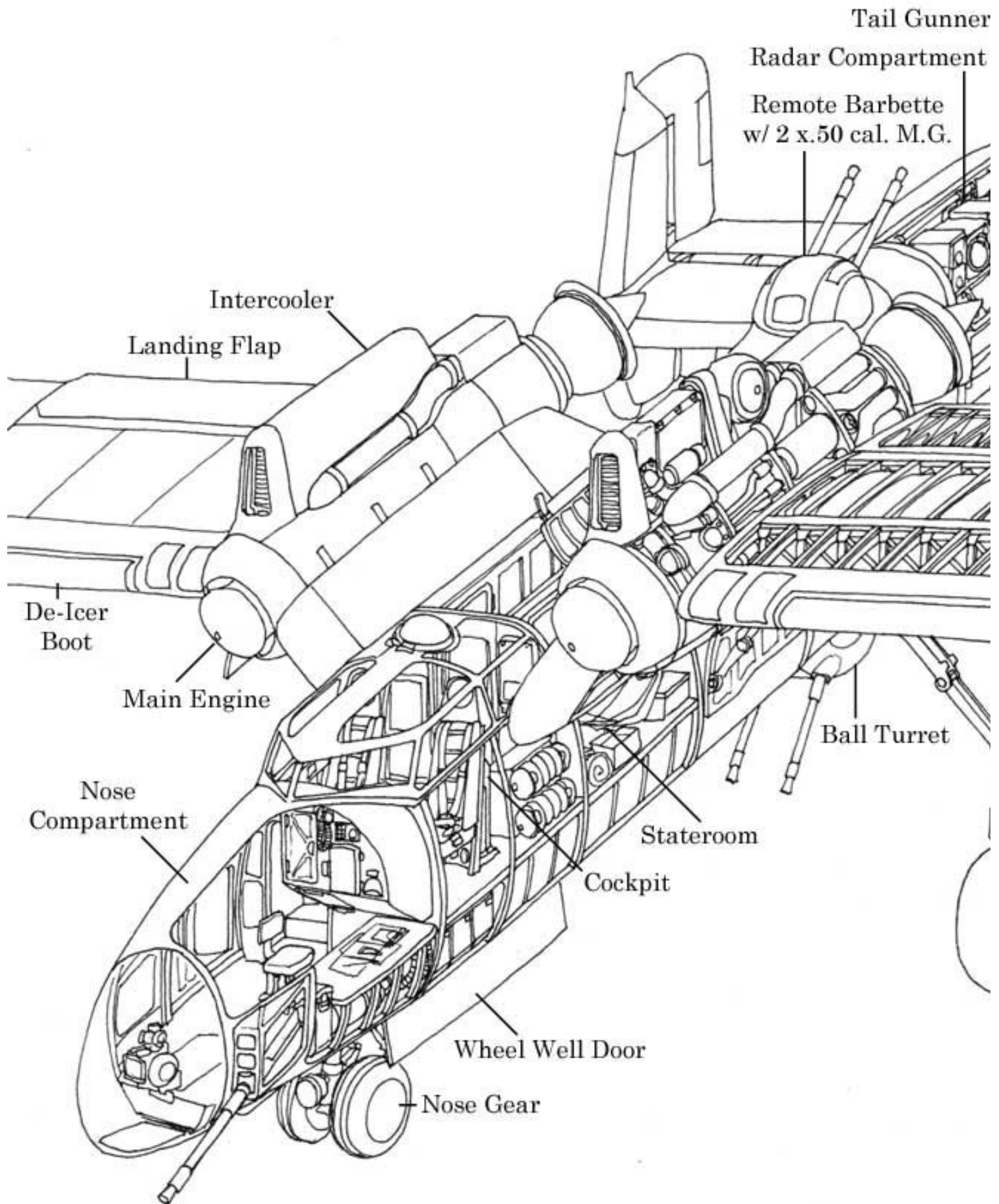
A few minor bumps here and there but nothing to worry about. Crew members walking through the craft may need to make an check to keep on their feet if they try to move around during Light Turbulence.

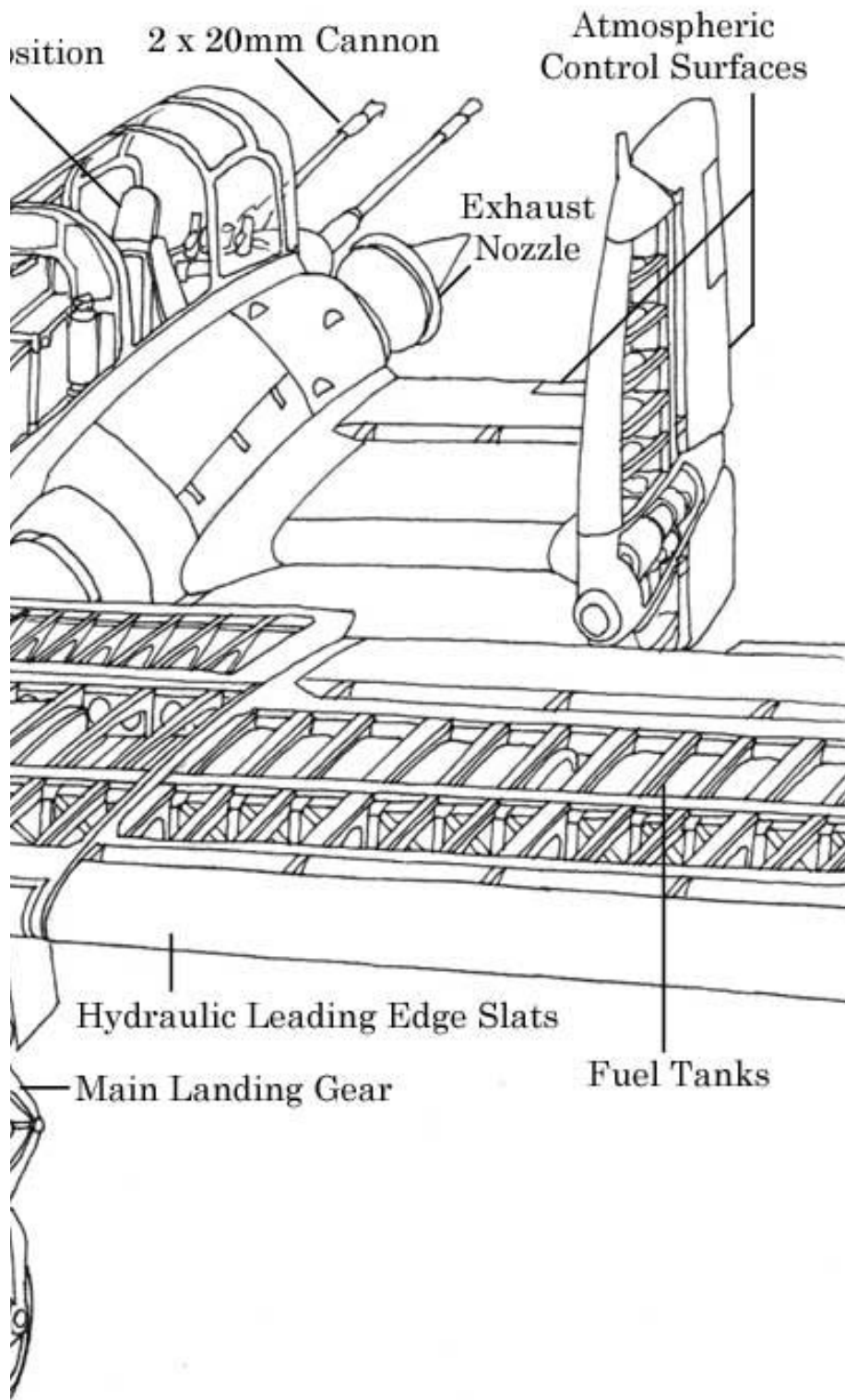
Bumpy

Ok things are a little rocky. Crew members and passengers with a thing about flying (fear of

Piloting Roll vs. Weather Conditions

<u>Weather</u>	Very Bad	Failure	Success	Good	Excellent
Calm and Clear	Bumpy	Light Turbulence	Smooth	Smooth	Smooth
Windy and Clear	Heavy Turbulence	Bumpy	Light Turbulence	Smooth	Smooth
Foggy	Off Course	Bumpy	Light Turbulence	Smooth	Smooth
Pea Soup	Lost	Off Course	Light Turbulence	Smooth	Smooth
Rain	Bumpy	Light Turbulence	Smooth	Smooth	Smooth
Storm	Forced to Land	Heavy Turbulence	Bumpy	Light Turbulence	Smooth
Snow	Forced to Land	Lost	Light Turbulence	Smooth	Smooth
Tornado	Crash	Crash	Forced to Land	Heavy Turbulence	Bumpy





Cutaway View



To the left is a full cutaway schematic of the Gunslinger Betty produced as large as we could make it for this source book.

This schematic features a partial cutaway view of one of the primary engines and wing internal structure showing the locations of fuel tanks, hydraulics and flaps.

What I hope to convey through Mike Doscher's incredible image here is that life aboard most starships in the Fast Transport class is rather cramped.

While the Betty does possess a limited number of "creature comforts" compared to traversing a star system in a starfighter or snubfighter she is still fairly small.

The tricycle style landing gear featured on the Betty is the most common type of landing gear produced on starships of this class. The vast majority of these starships rely on at least some sort of rudimentary landing field, even a dirt field or road will suffice in a pinch.

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flying) will start to get worried. Crew members and passengers attempting to move around the ship will face a check any time they attempt to move around to keep on their feet. Light objects unsecured about the craft may jostle and fall.

Heavy Turbulence

The ship is pitching and yawing like a ship on the high sea. Pilot and crew members will likely want to keep themselves strapped into their seats. Unsecured cargo in crew areas or the cargo hold may become dislodged. Crew members who attempt to move around face a more challenging roll any time they attempt to move to keep on their feet.

Failing the roll forces the passenger or crew member to take a point of damage from falling or being battered around. (There's that light damage class for you.)

Off Course

Poor visibility has you off course. Even using your instruments you are a little confused and flying in the wrong direction. Roll a spot roll every five minutes to find your way back on course, or climb up out of the fog, rain or bad weather. In very poor conditions you may be forced to rise out of atmo completely and stage yourself in orbit until conditions clear.

Lost

You are lost. Not only do you not know which direction you are headed you are not sure whether you are climbing or descending. Make an immediate piloting roll and if you fail badly you may wind up crashing the ship into a hill, building, mountain, radio tower or some other tall obstacle. If you succeed you may climb out of the bad weather or fog.

Forced to Land

You are forced to land the ship immediately. If you just took off or were landing then you are

lucky and may immediately return to land at your point of origin. Otherwise you must make a roll to spot an open field or other suitable location where you might be able to set down your craft. If you fail to spot a field or other suitable spot you may be in for a very unpleasant crash.

Crash

Flying in severe weather has its risks. You are going down. Whether a wind sheer has torn off one of your wings or tail, a stroke of lightning has just blown off one of your engines and most of your wing or you have set her into a flat spin, you are done for. No amount of fancy tricks is going to recover your bird now. Choose whether you are going to give the order to bail out and hit the eject button or whether you are going to ride her down into the dirt. You've lost control of the ship and there is no recovering her. Good luck to you mate, she was a good ship and god save you and your valiant crew.

Atmospheric Flight

During atmospheric flight make a roll on the piloting table once every 1d4 hours. Starships must use tactical flight any time they are flying in the atmosphere. Attempting to use system drives while flying in an atmosphere is a bad idea. It will result in an immediate and massive build up of friction, heat and structural stress which will tear the ship into teeny, tiny pieces and scatter the remains over many, miles.

All starships have a fail safe system that insures that the system drive can not engage any time an atmosphere is detected around the gravity drive.

Flying into and out of confined spaces

So you want to pilot your starship into the ice caverns of that asteroid and weave your way through the tunnels in order to shake those snub fighters. Well flyboy, such things are possible but should not be attempted by rookie pilots or those with weak hearts.

The real trick to flying in and out of confined spaces is your starship speed. Of course you must be flying at tactical speeds in order to have any real maneuverability in the first place.

Flying into a docking bay at extremely low speeds is safe and just about any rookie pilot can pull it off. Spiraling between giant ice shards at your maximum combat speed is another thing altogether.

As usual we've created a simple table for Directors to reference so they have some simple tools on hand for dealing with these special case situations.

Starship Speed	Piloting DC
500 ft. per combat round	No Roll
1000 ft. per combat round	Easy as Pie
2000 ft. per combat round	Easy
4000 ft per combat round	Moderate
6000 ft per combat round	Difficult
8000 ft per combat round	Very Difficult
10,000 ft per combat round	Ridiculous
12,000 ft per combat round	Godlike
Beyond 15,000 ft round	Impossible

Even with serious augmentations it is impossible for any species, human, or alien to fly in confined spaces at speeds greater than 15,000 feet per combat round (assuming the combat round is 10 seconds long) without taking an enormous dirt nap.

The System Drive

The navigator will input course information into their computer which will in turn lock the information into your instruments. In space it is your responsibility to keep the ship flying on course.

Engaging the impulse drive takes about a full minute once the drive has cooled down and is ready to go. When a ship leaves system travel to engage tactical speeds the gravity drive requires an hour of system recovery time before it is ready to re-engage the system drive.

Course changes when flying at impulse speeds are very gradual. Even if you throw the stick hard to the side your course will alter only slightly over a long period of time and over a vast distance of space. Dramatic maneuvers are impossible when traveling with the system drive engaged. Careful course plots, planning and hopping back down to tactical speeds to make any major course changes is vital.

When flying at system speeds your only real concern as the pilot is how and when you want to punch out of system speeds and drop back into tactical for maneuvering.

Tactical Drive

A starship's tactical drive allows the starship to maneuver, dogfight, dock with a space station, enter orbit or land on a planet's surface.

When a pilot engages the tactical drive it immediately cuts out the ship's impulse drive system at a range of 5,000 to 10,000 kilometers from their intended destination.

Keep in mind that the ship is hurtling along at 1,700 kilometers per second. At a distance of 5,000 kilometers the starship is literally seconds away from blazing past or driving right into their intended destination.

All navigation computers have an automated cut out for the ship's system drive system so the ship will safely leave system speeds 10,000 kilometers from its intended destination. Some hotshot pilots will deactivate this system and attempt to cut out the drive manually so they can perform a *hot burn* into their destination. Hot burn maneuvers are usually performed by smugglers, pilots who wish to eliminate as much tactical drive time as possible to avoid interception or military pilots attempting to achieve the greatest level of surprise during an attack.

Hot Burn

Performing a hot burn requires the pilot

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make a difficult piloting roll. Failure on this roll indicates that the pilot has punched out early or late. Roll two different colored d10. One die is positive result and the other is negative. Compare the difference between the two rolls and that is how many seconds the pilot punched out early or late. If the rolls are equal the pilot has punched out on time but more through sheer luck than skill.

Merciful GM's that we are, a late punch out merely indicates that the pilot has missed their destination and does not require that the pilot roll to avoid burying the nose of their starship into the side of the space station they were intent to hot burn near.

Example:

Starfighter Pilot Valerie performs a hot burn in her Hurricane Starfighter. The target distance she wants to punch out at is 1,000 kilometers. At that distance and flying at her starfighter's top tactical speed of Mach 2, she will be upon her target in just under 24 minutes. If she punches out a second late or early she will still be in good shape at that distance.

Unfortunately Valerie blows her roll, punching out perfectly is a difficult maneuver after all. She rolls 1d10 for early and 1d10 for late times and rolls a five for her early time and a two for her late time. The difference between the two rolls places her punching out three seconds early.

Valerie's actual distance punching out is 1,700 kilometers X 3 + 1,000 kilometers (her target distance) or 6,100 kilometers out from her target.

At top speed Valerie's starfighter will take well over three and a half hours to reach her target.

Jump Space Travel

Star Diving

Martian gravity drive technology relies upon the presence of a massive gravity body, such as a

star, or in some cases a super gas giant or gas giant to slingshot a starship into an alternate space-time state known as jump space.

The ship's navigational computer will plot a course for the pilot to follow that provides the correct trajectory for the starship to follow during the star dive. A count down allows the co-pilot or engineer to activate the starship's gravity drive system at the optimum moment to effect a jump.

During a star dive the pilot lowers a series of armored blast plates that cover the green house nose and all of the exposed glass-steel surfaces of the vessel so crew are not exposed to the direct glare of the star.

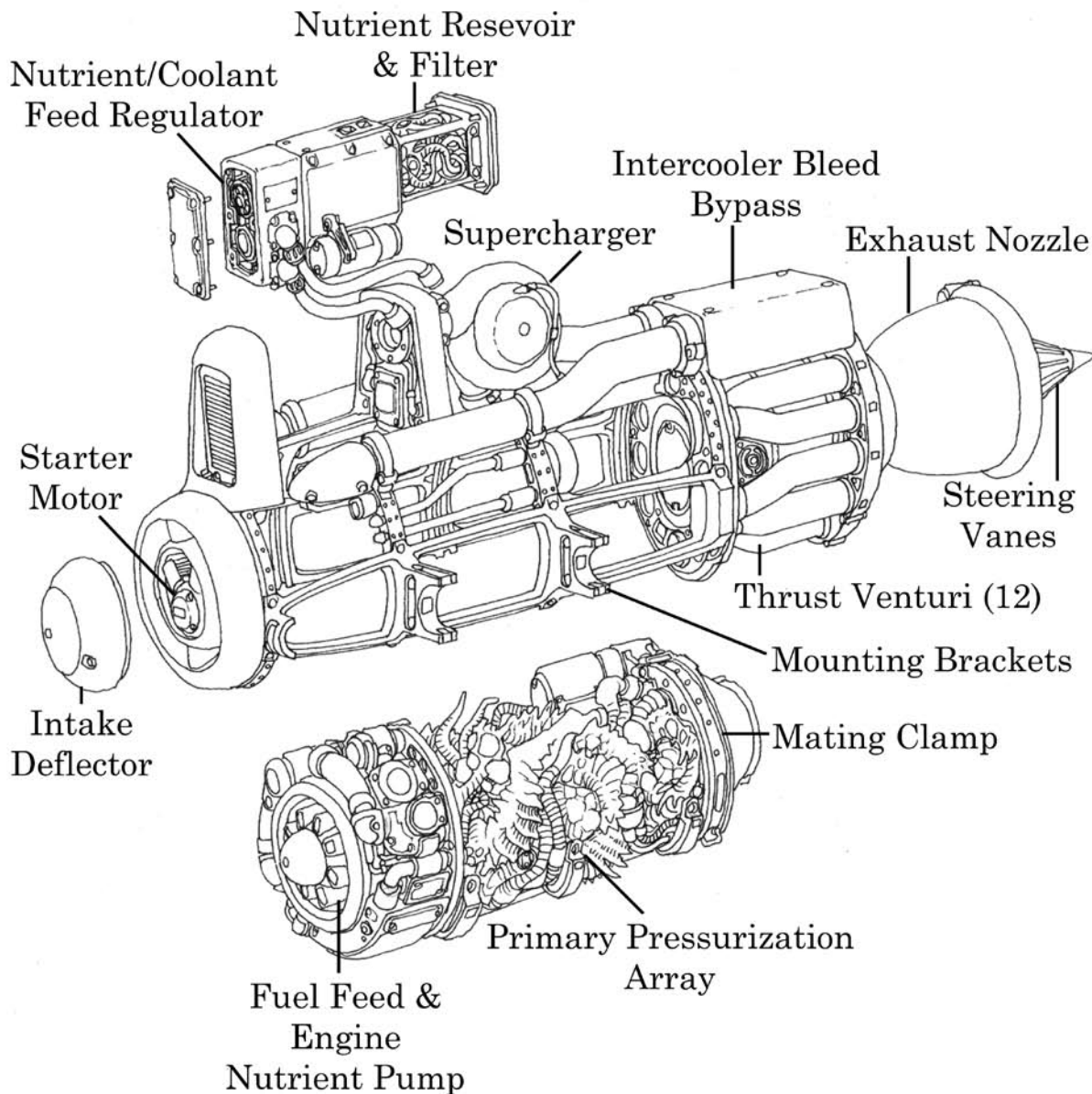
Blast coverings are lowered approximately 24 hours prior to the starship making jump while the starship remains reasonably distant from the star. Flying a starship blind, using the instruments to guide you while the starship experiences rising internal temperatures despite the best efforts of the ship's life support system can be a bit hair raising. All pilots fly their ship by instrument throughout a star dive.

During a star dive Starships have been known (rarely) to have their gravity drive fail. This occasional disaster results in stories of doomed ships with ailed drives flaming out into the heart of a star. Thankfully these occurrences are rare but swapping stories about the Flying Dutchman or Boyd Rukkerman's doomed Lucky Gambler helps to pass the time, particularly when rookie crew members come aboard.

Performing a star dive in the Gunslinger Betty requires the pilot to make an easy piloting maneuver. A failure indicates that the starship is slipping off course and although the jump will go through the starship may appear almost anywhere in the target star system rather than at the usual re-entry point approximately one quarter AU from the target star. Roll 1d10 for the number of AU's distant the re-entry occurs from the target star.

A critical failure indicates a threat of a jump

Main Engine



system failure. The engineer must make a moderate starship engineering roll amidst a great clamor of alarms and system warnings to manually activate the jump drive. Otherwise the jump drive fails to activate and the pilot must then effect an emergency maneuver to abort the star dive.

The emergency maneuver to abort the star dive is called an escape maneuver. The pilot has one and only one chance to make this moderate roll. At this point the vessel is hurtling into the heart of the star. Surfaces inside the ship are becoming more than warm to the touch. The edges around the armored plates lowered over the ship's view ports are beginning to glow.

Failure to make the escape roll leaves the pilot with only one last option. They *must* activate the ship's gravity drive and hope to be thrown clear of the star and into jump space. The results of this attempt are left solely up to the game Director. Either the starship burns up in the fiery heart of the star or the starship enters jump space and emerges in any system within 2d10 light years.

Alternatively a Director can opt to have the vessel appear in a distant part of unexplored space with just enough information in their navigation books to plot a course from system to system back towards home but no other information whatsoever. The players may encounter all manner of adventures during their attempt to bring their ship back to colonized space.

Cargo Hold and Crew Staterooms

This Spartan central chamber on The Betty serves as both home and cargo hold. The cargo hold and crew staterooms area are separated by the cockpit compartment emergency pressure door on one end and the radar room pressure door on the other end. Both of these doors are kept secured during routine space operations.

Each crew stateroom has four hammocks with only two strung into position at the same time. The extra hammocks are rolled up and stowed against one of the bulkheads so crew mates do not

need to share hammocks but can rearrange things depending upon who is on-duty during a flight and who is off.

Accommodations are available for eight crew so The Betty can carry an additional scientist, medical officer, engineer or even a passenger along with its seven person crew compliment. At least two crewmen are on duty even when the ship is on the ground (usually standing watch) when the other crewmen rest. Should the crew ever get a real break and find that The Betty could be secured in a hanger facility they might enjoy the evening off the ship completely. Avoid making it impossible for the entire crew (or least all the player characters) to leave the ship to be involved in an adventure. Hangers should be available with sufficient security to keep the ship safe in most ports. Where security is questionable it can be bribed or purchased to insure that the ship is not tampered with. Nobody wants to show up to a game and spend the entire adventure sitting in the ship while everyone else goes off to explore the alien ruins or the pirate bunker.

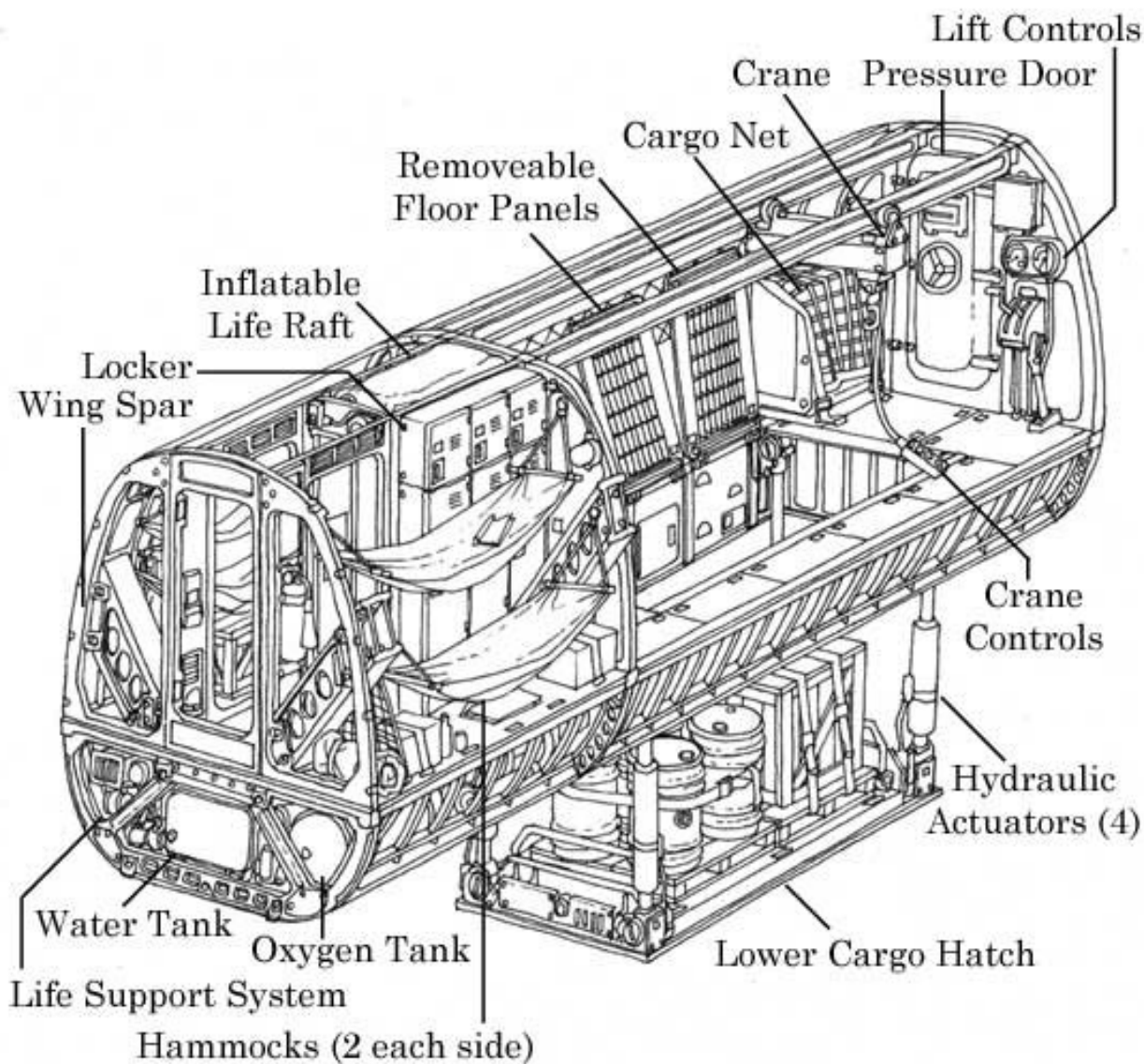
Real shore leave is a high point for any starship crew. Crew mates want a break.

Every crewman has their own full sized locker for stowing personal items and a second temperature controlled mini locker overhead where perishables can be stored between flights. An additional locker for each crewman is located in the radio room. This brings the total personal locker space to two large and two small lockers for every crewman on board the ship.

Emergency Oxygen Tanks

A pair of emergency oxygen tanks identical to those found in the rest of the ship are located under the deck in each crew stateroom. These can not be removed or opened easily by unbolting an access panel in the floor of the ship. A crewman in a space suit can rest in a hammock while plugging in to the emergency oxygen supply stored here.

Cargo Hold & Crew Staterooms



Smuggling

One smugglers trick is stowing illegal or contraband goods inside of the drum-like housing of the emergency oxygen tanks stowed beneath the floor plates of the starship. A smuggler can gain several gallons of hidden storage by gutting two of the emergency oxygen containers and converting them over for this use.

Inflatable Life Raft

A standard United States Navy inflatable rubber life raft is stowed in an overhead compartment here. The raft is large enough to accommodate six crewmen and includes two oars, a compass and small survival kit.

Eleven life preserves are located on board , one under each chair in the cockpit, one under the navigator's chair, one under the radar / radio operator's chair, one in each turret and four more stowed in various marked locations around the cargo bay.

The Crane and Lift

The crane is powerful enough to lift up to 20 tons of equipment.

Cargo Capacity and Trim

The cargo hold has a posted maximum capacity of 25 tons. The Betty begins handling a little heavy in the stick starting around 15 tons.

Starting at 15 tons and for every 5 tons of additional cargo The Betty loses 500 feet of tactical movement and suffers a -1 to initiative bonus in combat.

Flying over the cargo limit

It is possible to fly The Betty over her posted load limit but she becomes extremely lubberly and slow. For every ton over her posted maximum cargo weight add a penalty to all piloting maneu-

vers including take-off and landings.

Example:

The Betty is packed with machine components that can be packed tightly but which comprise some significant weight. The total cargo weight comes to 30 tons. 30 tons exceeds the 15 ton limit before impacting flight performance by 15 tons. Every five tons beyond 15 reduces the tactical speed of The Betty by 500 feet so The Betty is reduced to a maximum tactical speed of 1,500 feet per combat round. This is even with burning both the primary and secondary engines at full burn. To avoid an engine burn out in the secondary engines the pilot will operate The Betty at a speed of 1,000 feet per combat round unless an emergency occurs.

Exceeding the 25 ton maximum cargo limit by 5 tons stacks a -5 piloting skill penalty. Every piloting maneuver including take-off, landing, star dive and combat maneuvering the pilot faces a -5 penalty for operating the vessel over its maximum cargo capacity.

The Radar Compartment

Ship's Head

Beyond the cargo hold's pressure door is the ship's head. The toilet can be modified to be used in zero gravity should artificial gravity fail. The ship's artificial gravity generator allows the head to be used in the usual manner during normal flight operations.

The ship's central life support unit and primary gyroscope are both located in the radar compartment. The radar / radioman's seat is designed to slide back and forth between all of the controls for the ship's sensors and the main panel for the life support system.

Recycling Unit

A simple but extremely valuable hybrid piece of technology is enclosed in the deck below the



ship's head. This recycling bio-mechanoid device not only eliminates waste products, it shunts the products through a series of filters that allows the water to be reused. Waste products are shunted into the engine's fuel processors which can break down any carbon based material into fuel for the engines. The fuel produced by recycling ship's waste is negligible and is only mentioned here because waste products are burned up rather than stored for removal later.

The Betty contains a sink with a medicine cabinet that is shared by the entire crew. Captain and crew must use the sink to wash up the best that they can during flight ops. The Betty does not contain the luxury of a shower stall which is typical for Fast Transport class vessels.

Barbette Magazine and Barbette Controls

The dorsal turret of The Betty is a remote controlled dual .50 caliber gun turret. A camera system and radar gunnery screen at the radar operator's station allows the operator to act as the gunner for this remote turret during combat. Four magazines of 500 rounds of the .50 caliber M2000 Hellion ammunition are stored in ammo feeders overhead. This allows the Barbette to fire 2,000 rounds or 80 individual auto-fire attacks before reloading. The dorsal barbette is by far the weapon system with the largest ammunition load-out. The weapon has a 360 degree arc of fire allowing the gun to assist the tail gunner in covering the rear of the ship. The dorsal guns are not able to cover attacks from below the vessel.

Crew Lockers

Immediately beyond the ship's head are two banks of lockers that flank the passage into the radar ops work station. A metal mesh overhead stows personal items and allows crew members to hook hangers for holding flight suits or personal clothing items while they dress. A pair of fold down seats provides a small measure of comfort while using this area to change.

The lockers are set up with sufficient locker space to provide six crew members with one three foot tall by one foot wide by two feet deep, medium locker and a smaller two feet tall, one foot wide and two foot deep locker space.

The smaller security locker is equipped with a fairly advanced locking system keyed to the crew members personal identification card or plastic key card. Personal identification cards are constructed from a thick layer of Bakelite. The security locker can be sealed and temperature controls allow items stored there to be cooled. The small locker will not actually freeze items stowed here but it can be set up to function as a small personal cooler for beers, supplies or personal items that are of a perishable nature.

The cockpit contains an override toggle switch which will automatically unlock all of the smaller security lockers simultaneously.

Medical Locker

The medical locker is a full sized container that is five feet tall, one foot wide and two feet deep. The equipment in the ship's medical locker provides a trained medic or physician with a bonus on treating wounds and most common infections or ailments.

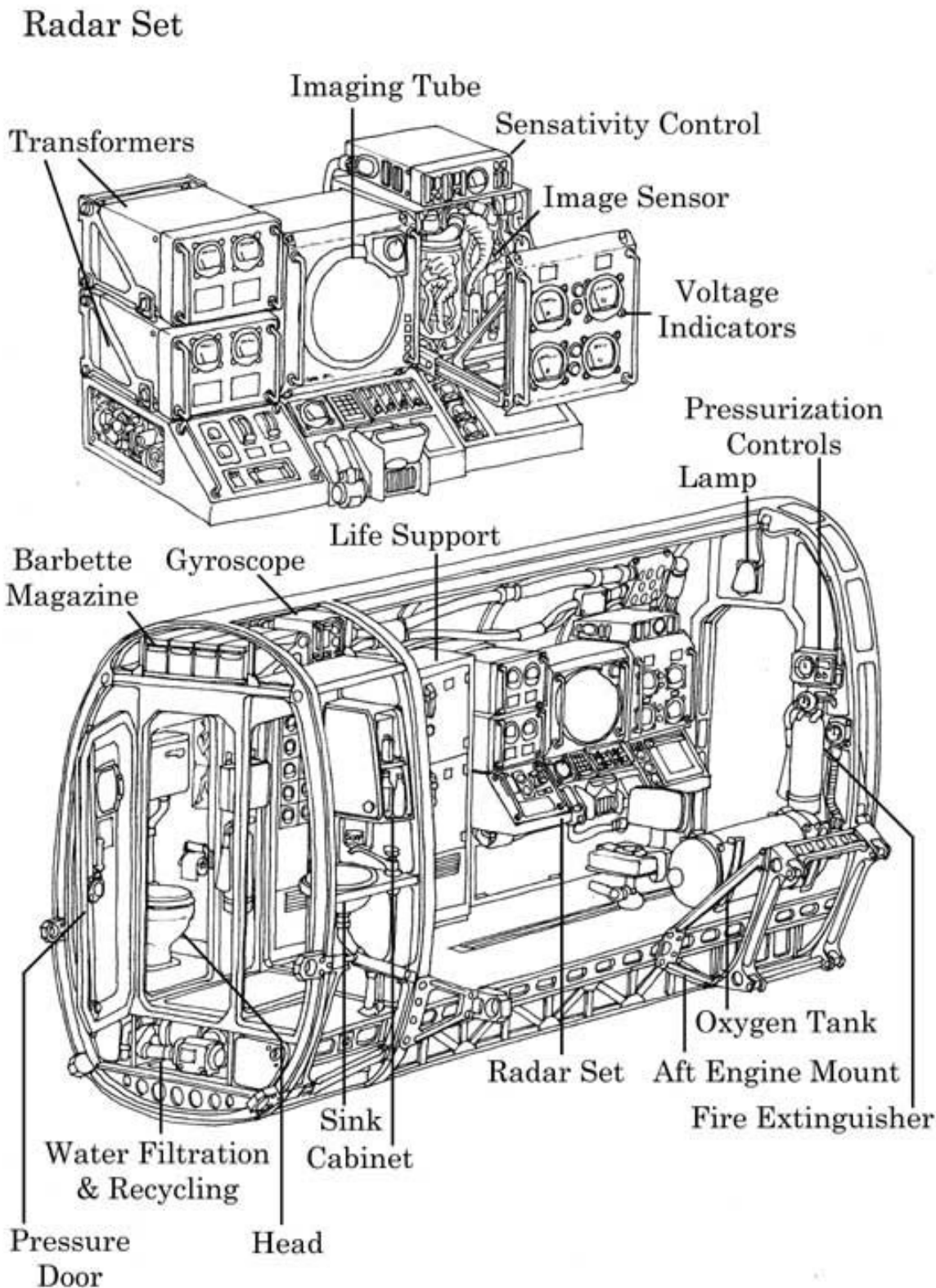
The Betty's medical equipment is currently all "Human Gear" and contains no specialized hybrid equipment for auto healing wounds, burns or auto diagnosing illnesses. Bandages, splints, pain medication and a limited supply of antibiotics is the current limit of the medical bay.

It is up to the characters to invest time, energy and resources into expanding the medical capacity on board the Betty if they feel the desire to do so.

The CXAM Sensor System

The CXAM sensor system installed in the Betty no longer holds the top spot for military model sensors used by North American Space Co.

Radar Compartment



The current cutting edge sensor installed by North American Space Co. is the Type -11.

The CXAM however is a well tested and dependable sensor system that can be found in most military spacecraft of this class produced by NASC prior to 1933.

The CXAM has an impressive maximum range of 1 AU. Clear resolutions and details sufficient for identifying objects can be obtained at ranges of 1,000 kilometers or less depending on the size, shape and mass of the target.

The CXAM draws power from the engines during routine operation but is equipped with a back-up battery secured in the unit's interior. This can provide additional power for the unit for up to twenty four hours of continued use.

The CXAM provides the operator with no bonus in spotting and identifying hybrid targets. It can identify human technology targets (incoming aircraft in atmospheric flight) with a small bonus (+2). The CXAM faces a penalty (-2) when attempting to identify and detect spacecraft that are made with purely Martian or advanced Alien technologies.

The CXAM emits sensor patterns that are difficult to detect by earlier models. Sensors constructed prior to 1931 face a penalty when attempting to detect the system while in operation. The newest Type - 11 sensor and equivalent Radar Detection units have a bonus for detecting the older CXAM system while it is in operation. The newer models of Sensor Detectors being installed by the Reich in their latest ships also have this bonus (+2) to detect the CXAM system when it is in operation.

Hybrid Radio Unit

The Radar Ops. Station includes the base station for the starship's hybrid radio system. The guts of the radio is secured to the upper right top of the CXAM Sensor. The radio is wired directly to the cockpit for direct communications with the pilot

or co-pilot. The Radar Ops officer doubles as a communications operator and can make fine tuning adjustments to the radio in an attempt to reach distant vessels or break through an enemy radio jammer.

Martian Tech. Components

The CXAM as a hybrid unit contains internal Martian components that allow the unit to function in a fashion similar to a standard piece of human radar equipment.

Human crew members with basic mechanical skills have sufficient training to work on and make repairs to most of the sensor system, but must swap out the Martian components with new replacements.

The Martian components in the CXAM are fairly typical for hybrid equipment, in that they are designed to be modular and can be removed by a human technician with little fuss. Human technicians may not repair the bio-mechanoid Martian components without the Xeno Science skill.

CXAM - Screens

The CXAM features two screens. The larger circular screen is the primary sensor display. The display functions in the same fashion as typical human radar systems, only with a much improved range and capability for identifying targets.

The CXAM has a smaller view screen where the operator can attempt to analyze the sensors on enemy ships operating in the region and attempt to adjust the carry frequency of the CXAM so that it is more difficult to detect by possible foes.

Passive Sensor Detectors

The CXAM also includes a limited passive sensor detection capability. This allows the operator to tune down the active sensors on board the ship or even shut them down completely and scan passively for the outbound signals of enemy ships operating in the area.

The Wright Cyclone Class C - Gravity Drive

The two red dials on the top left of the system indicate the detection of active sensors in the area. The top indicator can detect the presence of a purely Martian carrier wave the lower dial can detect the signature of a starship as it jumps into or out of a star system.

The passive capabilities of the CXAM are primitive at best. They do not function effectively when the sensor is operating in active mode. Any attempts by the operator to use the CXAM in its passive capacity faces at the minimum a Difficult skill attempt.

The red dial on the bottom of the CXAM indicates the presence of a standard hybrid sensor in operation. The CXAM has sufficient capabilities to detect active sensors at a range of up to .10 AU.

Human radar systems are easier to detect. The CXAM can detect a human gear radar system in operation at a range of .10 AU with a bonus (+4) to detect and identify the target.

Sensor Masking and Sensor Burn

The Radar Operator can sacrifice a point from their chance to detect a target object in order to make their own system more difficult to detect.

The Radar Operator may sacrifice up to five points at a single time in order to mask the operation of their sensor system but will face greater and greater difficulties in using the system successfully.

Conversely the operator may gain a +1 bonus to their sensor scans by burning some battery power to boost their signal. Up to a +3 can be gained but enemy units gain a +2 to detect the system for every +1 the operator gives himself during the sensor burn. Every full combat round the sensors are operated in this artificially boosted fashion the operator drains a full hour of battery time out of the sensor's reserve battery supply.

The Wright Cyclone Gravity Drive partially dismantled and illustrated on page 31 is a modular design that allows easy access to all of the engine's major components.

Many of its parts are made from martian materials which have been formed into structures that mirror familiar human technology. Most mechanics feel comfortable working with the technology in these engines with the exception of the core components which are far too sophisticated and alien to approach without very specialized training.

The upper structure of the engine is the engine's jump drive super charger. The super charger is necessary for the Fah'Zol Gravity Drive engine nacelle below to make the transition from maximum system speeds to jump space.

The stripped Pratt and Whitney Type-B drives mounted on the tail have their super chargers and related components removed. The removal of the super chargers and some of the related internal components greatly reduces the weight of these engines, although now they function only as impulse drives.

Engineers at North American Space Co. have installed an engine cowling which allows the pilot to vent heat from each of the four engines more effectively during atmospheric flight. This feature was added late in production after combat trials demonstrated heat problems in the Pratt and Whitney engines when operating at full capacity. The introduction of the modified engine cowling was an attempt to solve this design flaw but it has met with only moderate success.

Many pilots run this model of starship's secondary engines at half throttle to take a measure of the work load off of the primary engines during flight but otherwise avoid pushing the engines hard due to concerns about overheating or overtaxing them.

Pratt and Whitney Engines and Heat

If the Betty is caught in a situation where her secondary engines must be pushed (the starship is made to travel at maximum tactical speed for five combat rounds consecutively) the engineer must make a moderate engineering roll to keep the secondary engines from overheating. Each additional combat round that the engines maintain full tactical speed the engineer faces an increased difficulty to the target roll.

If the engineer fails in their roll then one of the engines (roll randomly) will begin to red line and smoke. If speed is not reduced from full in 1d4 combat rounds then the engine will burn out and fail.

A burned out engine will result in the Betty losing movement off of her maximum tactical speed. Continued pushing of the remaining secondary may result in the second engine failing. Thankfully in the Betty this does not result in the starship suffering any other hardship than a loss of speed but this may produce a serious hazard for a vessel attempting an escape from prolonged combat.

The Ball Turret

The ball turret gunner gains entry to this position through a hatch that can be secured with its own atmosphere tight seal. The turret spins using an electric traverse motor operated by the gunner from their seat inside the ball. A gyroscope installed next to the turret's oxygen tank works with the controls and motor to swing the gun and turret into position in response to the gunner's controls.

The belly turret relies on the radar operator or one of the other gunners to secure them into their position. The turret door must be bolted into position by fastening a series of locking bolts that can only be latched or unlatched from within the spacecraft. The interior hatch from the ship into the ball turret must be locked in the "closed" position before the guns will come on line or the motor will traverse the turret. This is a safety feature

which protects both the gunner when climbing down into the ball from accidentally traversing the turret and nearby ships or structures from an accidental discharge of the weapons while the gunner is climbing in and out of this extremely tight spot.

A gunner fitted with a parachute requires one full combat round to squeeze down into the turret and into position. A second combat round is required to secure the locking bolts into place so that the ball turret becomes active. A gunner without a chute can drop down into the turret with more speed (half a combat round) but the hatch still requires the same amount of time to secure.

Communications within the belly turret is maintained through the ship's intercom system. The gunner does not have control over their intercom other than to toggle it on or off.

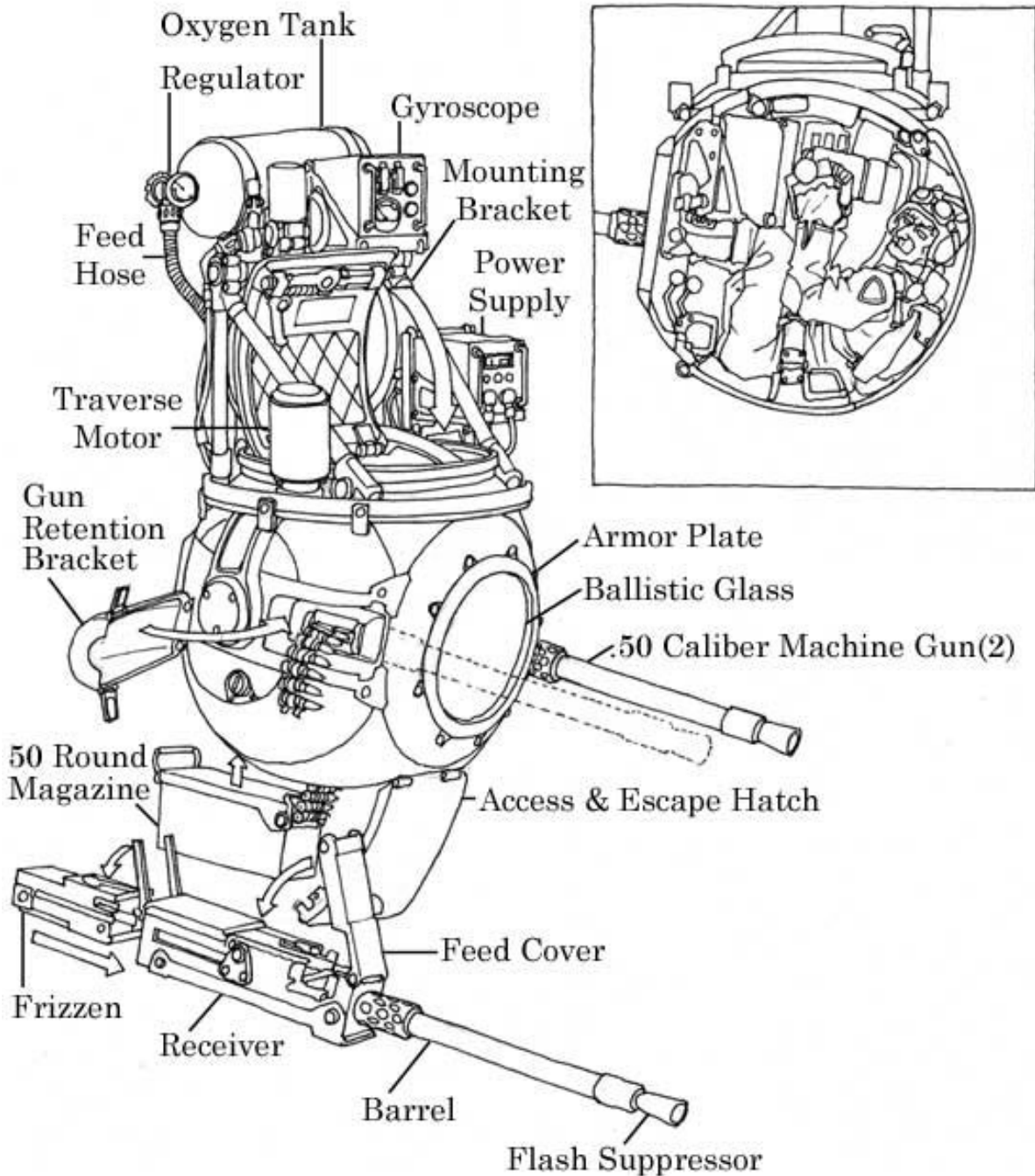
The schematic shows one of the turret's .50 caliber Hellions removed from its bracket. When the gun is installed in the turret the feed cover on the top of the gun, receiver and frizzen are located inside of the turret. The gunner has full access to the gun to drop a new magazine into it for reloading. The ball turret is not large enough to contain more than one reserve 500 round belt. The gunner must call to another crewman during combat, have their turret hatch unbolted and have the new belt passed into the turret to reload should they run out. This event is unlikely. It is far more likely that the Betty will be destroyed if a combat lasts so long that the belly gun runs completely out of both its standard and reserve belt.

Reloading in the ball turret is such a cramped and slow process (3 Full Combat Rounds with help!) that most experienced gunners will conserve their ammunition and avoid running their guns dry early in a combat.

A secondary access hatch is located in the underside of the ball turret. This escape hatch is constructed as the back of the seat that holds the gunner curled into position. An emergency release button protected by a metal plate is located over the gunners head. Smacking the plate to the

Ventral Ball Turret Position

Cross Section with Operator



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side arms the emergency release. Punching the red emergency release button cycles a light from green to yellow to blinking red to releasing the emergency hatch.

The emergency hatch is designed to allow the ball turret gunner to topple backwards out of the gun so they can bail out if the spacecraft is going down in a planetary atmosphere. The ball turret is so small that gunners complain that they can barely fit inside of the device with their parachute. Without a parachute the emergency hatch may save the gunner from burning alive in a ship going down but will certainly not save their life.

Tail Gunner's Position:

The tail gun position in the Betty is accessed by the last emergency pressure hatch in the ship. The tail gunner operates two linked 20mm S9 cannons. The cannons replace the B-25A's rear .30 caliber guns and significantly improves cover for the rear of the spacecraft.

The tail position features a range indicator that is linked with the CXAM sensor system. This special range indicator emits a sound pulse into the headset of the tail gunner when a potential target moves into the rear arc of fire. The gunner may either clear this target or allow it to remain designated as an enemy target with the flip of a thumb toggle.

The rising and falling tone in the gunner's headset provides a secondary clue which coupled with the range indicator's digital readout helps identify the optimum firing range for the explosive rounds fired by the cannons.

The tail turret is equipped with two stacked magazines for the S9s. This provides the weapon with a 1,000 round ammunition capacity prior to requiring reloading or up to twenty pulls of the trigger.

Reloading the 20mm cannons is time consuming and frankly impossible to perform during flight without performing a space walk. To reload

the 20's an engineer or gunner must access the feed belt and feed covers from the exterior, underside of the craft.

The 20mm cannons are loaded with high explosive rounds that are fused to explode either upon impact or automatically at a range of 3,000 feet behind the spacecraft.

Proximity attacks that miss the intended target by a mere point or two on the to hit roll still inflict half damage from the round's proximity explosion.

Tail Gunner Armor

The tail gunner is protected by ballistic plate armor installed in the tail and the strength of the tail turret's glass steel.

A small electric cooling fan helps keep the air circulating through the tail and keeps the cramped compartment a little more comfortable for the tail gunner during atmospheric flight operations. A modest electric heater helps keep the tail gunner warmer during jump operations although the tail gun position and other turrets are rarely manned during jump space travel. As far as anyone is aware starships do not encounter one another in jump space and nothing "natural" lives or grows in jump space to be a threat to a vessel traveling there, at least not via an outside attack on the craft.

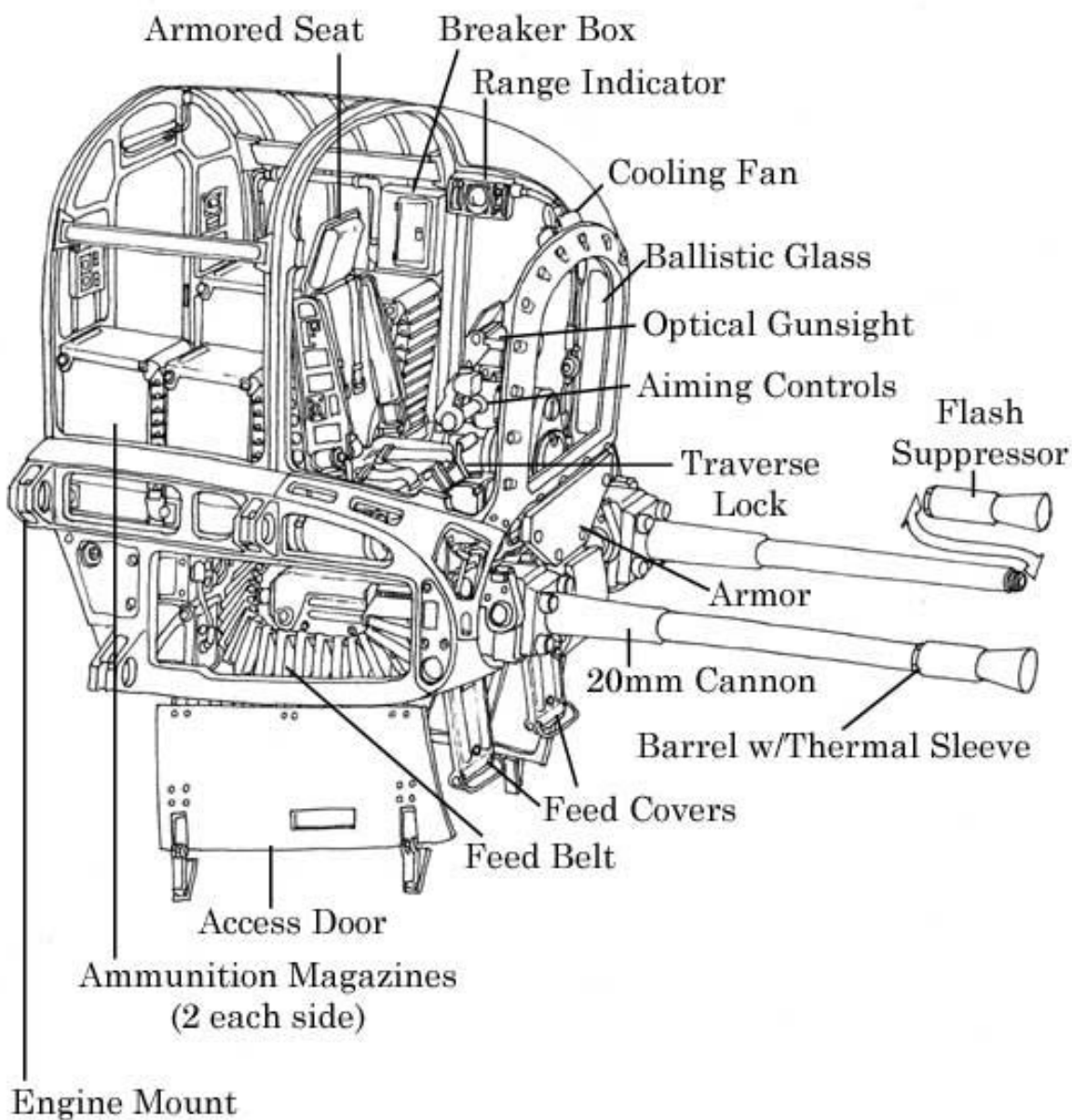
Turrets and the tail gunner position are some of the first locations to become quite cold. Many B-25B commanders seal off these areas during jump drive travel and concentrate ship's life support resources into the central and vital compartments of the ship.

Other Features

Landing Gear

The Betty's tricycle landing gear requires at least a modest, primitive landing field to be prepared for a safe landing. Landing the starship in

Tail Gunner Position



Rocketship Empires 1986

The Gunslinger Betty

an open field risks damage to the landing gear tires or to the struts themselves.

The Betty has a rugged undercarriage that can withstand a fair amount of abuse on take-off and landing but she is far from being a vertical take-off and landing craft.

Pilots of The Gunslinger Betty must take-off and land the starship the old fashion way

Belly Landings

The Betty is capable of effecting a belly landing on the ground or in water. The Betty will not remain on the surface of a body of water for long following a belly landing. The crew must evacuate the ship, making use of the ship's escape boat and vests within five combat rounds of landing on water before The Betty begins to sink. The Betty can remain water tight below the water's surface for a long time so long as her hull remains intact. Chances are quite good that whatever damaged the Betty sufficiently to force a water landing has violated the integrity of her hull and that much of her will fill with water.

Starship Record: The Gunslinger Betty

B-25B Mitchel Assault
Heavy Fast Transport Class

Cockpit	03 Slots
Nose Hard point	04 Slots
Dorsal Hard point	05 Slots
Ventral Hard point	04 Slots
Left Wing	05 Slots
Right Wing	05 Slots
Fuselage	13 Slots
Tail Hard point	07 Slots

Equipment and Locations

Cockpit	1 Slot Fire Control System
	1 Slot Emergency Pressure Door System
	8 mm Armored Plate
	30 mm Armored Windscreen

	(Glass Steel)
	1 Slot Dual Seat Ejection
Nose	1 Slot Navigator's Lab with Darkroom
	1 Slot 90mm Armored Windscreen (Glass Steel)
	8mm Armored Plate
	2 Slots .50 Cal Hellion
Dorsal	4 Slots 2x .50 Cal Hellion in remote control barbette
	1 Slot Additional Ammo Supply
Ventral	4 Slots 2x .40 Cal Hellion in Belly Turret
Left Wing	4 Slots Wright Cyclone Engine
	1 Slot 1,000 Liters Fuel
Right Wing	4 Slots Wright Cyclone Engine
	1 Slot 1,000 Liters Fuel
Fuselage	1 Slot Medium Airframe
	3 Slots CXAM Sensor System
	1 Slot Hybrid Radio System
	2 Slots Crew Quarters
	1 Slot Radar / Radio Lab
	2 Slots 25 Tons
	1 Slot 1,000 Liters Fuel
Tail	4 Slots 2x 20mm S9 Cannons
	1 Slot Expanded Ammo Magazine
	1 Slots Stripped Pratt and Whitney
	1 Slots Stripped Pratt and Whitney

Tonnage	150 Tons
Tactical Speed	Single Engine Moderate (+) Twin Engines Fast (-)
	All Engines Fast(+)*
Fuel	3,000 Liters

*Remember engine burn out rolls are required when all four engines are firing at full power. When all four engines are firing the Betty is considered to be "running hot" making her an easier target to detect with enemy sensors.

Introducing the "Heavy" class vessel

The Betty is an example of a Heavy Fast Transport. Heavy Fast Transports possess between 40 and 60 available slots which may be pushed and pulled into different locations when designing specific starship models.

Any heavy class of vessel will tend to be bumped up one full tonnage level on the vehicle size charts related to engines and engine performance. Thus the Betty which would have normally been spec'd out as a vessel around 50 tons jumps up into the 101-500 Ton category.

Heavy atmo-capable transports likewise begin ten slots higher in capacity than their standard atmo-capable cousins. Heavy atmo-capable vessels are still limited to the upwards tonnage range in size but tend to be more heavily armored, armed and durable than their lighter counterparts.

Thanks to our Readers

Many thanks for picking up this first edition of our series spotlighting starships designed specifically as primary vessels for player characters. I hope you enjoyed reading through these pages as much as I enjoyed writing them for you.

A very special thank you goes out to Mike Doscher whose creative genius with the pen brought to life most of the illustrations found within this volume. Mike, thanks! I could -not- have produced this book without you.

Please visit our web site and forums frequently at www.rocketshipempires.com. We have at least two more books planned for release in February of 2008 and many other exciting RE projects on the horizon in the second quarter of 2008. Why not drop by and make your recommendations for how we can improve, what starships you would like to see modeled in future books or share with us news from your personal Rocketship Empires campaign.

I would love to hear from you.

This is Edward
...signing off.

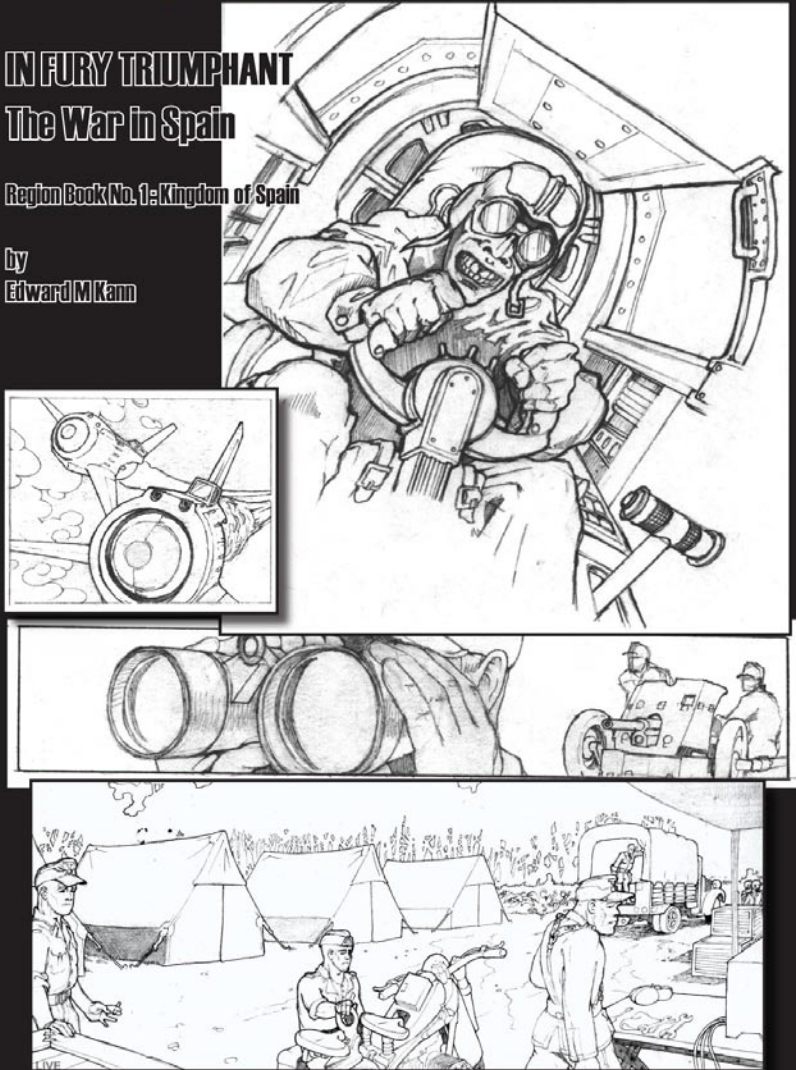


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