

ISSUE

11

STAR FRONTIERSMAN

Magazine

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Freighters, Destroyers and Scouts! Oh my!

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LETTER FROM THE LAYOUT EDITOR

Welcome to issue 11! This is our first fully themed issue of the magazine. As you can probably guess from the cover, the theme is Knight Hawks. All of the articles in the magazine this time around have something to do with spaceships. If you have suggestions for future themed issues, let us know and send us content.

In this issue we've got a good variety of articles and art. It contains several new ship designs, ship generation rules, more Knight Hawks themed stories and some great campaign background material including a complete list of names for all the UPF ships.

We don't have a Frontier Feedback section this month as we didn't get any submissions and nothing really came up on the websites that would fit in. If you have questions, comments, suggestions or want to relate an experience using the material provided in the magazine, send them to submissions@starfrontiersman.com and we'll include them in a future issue. To help us out, please include 'Frontier Feedback' in the subject line.

As always we are constantly looking for more content, especially artwork. If you'd like to contribute images or articles just send your contribution to our submission e-mail (submissions@starfrontiersman.com) and we'll get it into a future issue.

So turn the page and dive into the Frontier once again. We hope you enjoy the issue.

- Tom Stephens (a.k.a. Terl Obar)

Editing: Larry Moore, William Signs, Tom Stephens

Layout: Tom Stephens

Cover Art: GJD

Interior Art: GJD, Art Eaton, Chris Harper, Ben Norman,
Tom Stephens, Tom Verreault

On the cover: Original art by GJD, a member of the starfrontiers.us site. It is a modern recreation of the classic Knight Hawks cover replacing the large UPF style vessel with a Sathar Heavy Cruiser. GJD has numerous 3D models of the classic SF ships and his art can be seen throughout the issue.

STAR FRONTIERS

WITHOUT SUBSPACE RADIOS

Chris Putnam

INTRODUCTION

The *Alpha Dawn* rulebook has the following rules about the use of subspace radio between star systems:

SUBSPACE RADIO. A subspace radio is used for sending messages between distant planets and star systems. Subspace communicators send coded tachyon beams that must be broadcast from very carefully aimed dish antennas to hit their target planet or system. A subspace message crosses one light-year in one hour. The radio uses a type 1 parabattery. Sending a message uses 100 SEU.

Later, the rulebook makes the following comment in the section about layovers during travel in the Frontier:

If the characters are working for a company that is flying them to their destination, their ship probably will not stop over in a system for more than one or two days: just long enough to pick up supplies, fuel and news.

Taken together these comments suggest that communication can pass readily through the Frontier, especially for important messages coordinating such groups as the UPF, StarLaw, and various companies. The comment in the layover section suggests either that ships cannot be contacted when jumping through the Void (hence the need to catch up with news) or that subspace radio is bandwidth limited, so that bulk of entertainment and non-essential messages are carried by starships.

I personally find the second scenario particularly attractive; isolation between different systems and the concomitant differentiation of cultures in different systems is enhanced when subspace radios can only send the most essential messages. This would make each inhabited system highly and rapidly interconnected, however, most communication between systems requires waiting on ships that travel one light-year in one day. This brings to mind the "sneaker-net" phenomenon of the 20th and 21st century computing environment, in which carrying disks between computers is faster for transferring large amounts of information than using wired or wireless connections.

Pushing this concept to the extreme of a Frontier without subspace radios changes a number of aspects of the standard setting. First, intersystem couriers become a major force holding together the Frontier. Second, news outside of the system is always old, which is particularly problematic for large organizations that span multiple systems. And third, travelers and/or pirates in the Frontier can reach new systems before

the news of their misdeeds. Although this concept might involve modification of certain adventures (such as reaching the subspace radio in the Strel compound in *Mission to Alcazzar*), simply making the subspace radio a non-commodity item opens up a large number of campaign possibilities.

BONDED COURIERS

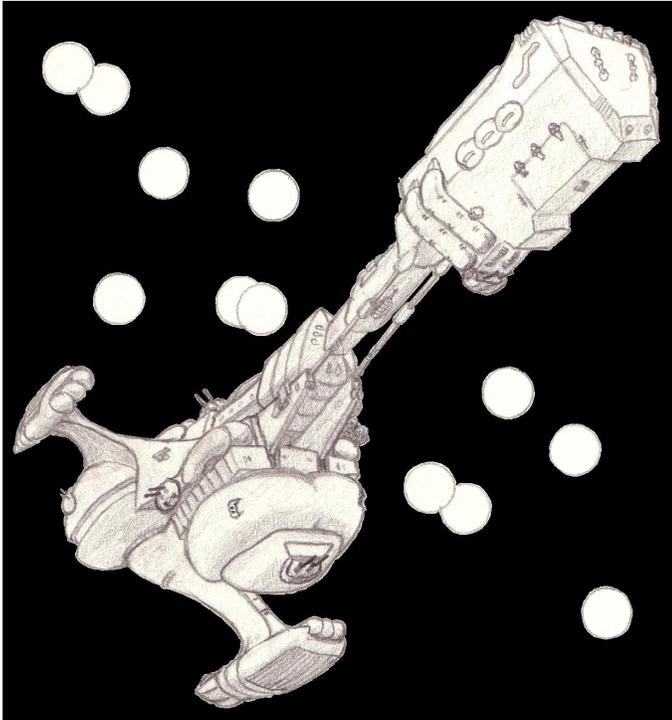
Although all ships can carry information as "cargo", bonded couriers were established to ensure both the validity and the security of the information they carry. Governments, banks, small corporations, and even average citizens are customers of these couriers. Similarly, large enough organizations are unwilling to trust couriers outside their direct control and therefore employ their own private courier fleet (often with secret navigated pathways between systems). The ability to corrupt, attack, or otherwise influence these couriers could lie at the heart of many schemes involving criminals, warfare between the mega-corps, or the Sathar.

Several large bonded courier companies compete for Frontier-wide services. These companies are more likely to have the most sophisticated infrastructures and protocols; however, some of their reputations have been darkened in recent years due to allegations that bribery from mega-corps and/or fanatical association with various cults has caused some sensitive information to be leaked, occasionally to various news services. To speed communications, these larger companies do not bring their ships near to inhabited worlds. Rather, these ships dock for supplies and communications download and upload at space stations, which communicate to inhabited worlds via encrypted electromagnetic signals. These facilities are typically armed and sometimes have their own fighter patrols (either owned by courier company itself or listed as "vital infrastructure" and supported by UPF and/or local militia forces).

Not all couriers have Frontier-wide range. The smaller carriers have short runs and frequently specialize in connecting small regions of the Frontier and doing so more efficiently than other carriers. For example, the Vrusk-colonized systems of Kizk-Kar, K'aken-Kar, and K'tsa-Kar are linked by a carrier that minimizes intersystem communication times by setting a secret rendezvous point between the systems in which information is rapidly exchanged with other vessels that only travel between the home system and the rendezvous point. This information distribution substantially reduces the communication time between

Kizk-Kar and K'tsa-Kar and has made these routes unprofitable even for the larger courier companies.

Unlike mega-corps that produce physical products, the courier companies gain clients solely through the trust of their clients. Conflict between the major couriers has been as viscous as any of the conflicts between the mega-corps. Empty space between systems and outer regions of various solar systems are littered with the remains of courier ships destroyed and ransacked hulls of courier ships exposed to vacuum. Thus, modern courier vessels are well armed and armored and several have had distinguished records fighting along side UPF and local militias in conflicts with Sathar invasion forces.



MESSAGE DRONES

One potential solution for automated message delivery is through the use of uncrewed vehicles carrying messages. These message drones are particularly useful for regions with little ship traffic or in military situations where information can be returned, even if the ships themselves are destroyed. The *Knight Hawks* rules suggest, however, that even an uncrewed ship capable of jumping into the Void will be prohibitively expensive. Thus, these drones would not be disposable. These very valuable ships are owned by only the richest governments, mega-corps, and probably the UPF. These ships are also targets for thieves, pirates, and rival mega-corps both for the information they carry as well as the ship itself. The importance and expense of message drones could easily be motivations for adventures in which characters send, intercept, retrieve, or destroy message drones.

LARGE SYSTEM-SPANNING ORGANIZATIONS

In the absence of rapid intersystem communications, all large organizations must give local systems sufficient autonomy to operate effectively in-system. For many organizations, this autonomy gives rise to substantial changes in operating procedure from system to system, which can cause headaches for travelers. Additionally, sufficient separation (including separate administrative branches and bank accounts) has caused some mega-corps to split along system lines. Newly-formed subsidiary branches have on occasions rebelled against the parental organization, using differences in local legislation and StarLaw to legally support their efforts. Historically such corporate "rebellions" have been most successful in cases where the parent company and the branch are in Frontier systems with different biases in racial makeup.

The problem of slow, courier-based communication is particular acute for the UPF and StarLaw, which must be able to organize and transport forces to systems that are under attack or are undergoing local problems such as large scale mob assaults and anarchy. One solution adopted by both organizations are standard responses, such as "launch all battleships to a specific rendezvous points upon reports of attacks on this system". These standardized responses help minimize the lag in responding to news by avoiding additional communications with headquarters located in other systems. The triggers for the organizations and their specific responses are regularly updated and kept under the tightest possible security. A sophisticated attack on the Frontier could be engineered by various parties by intercepting couriers and planting false news reports that would trigger known responses by the UPF and/or StarLaw to move them away from the site of the subsequent real assault.

A second very real problem for both the UPF and StarLaw is the same as for the mega-corps. Local autonomy (and different points of view) can tend to cause various branches in different systems to respond differently and on occasion fail to respond to reports according to current standing orders, especially when local events prevent reallocation of forces. Both the UPF and StarLaw are large enough organizations that they can exchange personnel between systems in an attempt to minimize the local effects; however, these programs are frequently criticized and have not been clearly demonstrated to work.

USING THE COMMUNICATION LAG

The disadvantages of the slow communications has for many organizations has been used as advantages. Perhaps the best known cases have been individuals and some corporations withdrawing large sums of credits from the same bank account on multiple worlds before the various branches can be updated. The most famous of these incidents, reported by StarLaw to

involve over twelve individuals on twelve different worlds, has led to the development of the quantum-encrypted "account bar" that travelers carry from world to world; however, recent rumors suggest that even these measures are not sufficiently secure.

Another clear case of individuals gaming the communication lag, which has been much harder to prosecute, is a novel form of "insider trading" where individuals who learn of specific events can beat news reports to more distant starsystems and make strategic purchases and sales of stocks to make money off of corporate losses and mergers. This is a fairly expensive crime; however, it is difficult for StarLaw to trace them, as perpetrators book passage with special (and often illicit) carriers having faster, and frequently more dangerous routes than those standardly used.

Crime waves have also spread similarly, in which sophisticated criminals or criminal cells concoct a specific crime with a profitable *modus operandi* that they then repeat on system after system before the news of these specific crimes are reported and defenses against them can be launched. Pirates have similarly launched raids sequentially against multiple systems, calculating the lag on the UPF response to pick subsequent targets.

LACK OF SUBSPACE RADIOS IN INDIVIDUAL CAMPAIGNS

For seasoned Star Frontiers gamers, the easiest way to incorporate the concept of a Frontier without subspace radios might be to start a new campaign in which this modification has been applied. For the campaign to "feel" different, it is important that the characters are forced to interact with the implications of the lack of subspace radios directly. For example, characters might be forced to attack or defend specific courier vessels, investigate deep space espionage involving mis-information placed on a courier vessel, "out-run" news traveling from one system to another themselves, carry a message themselves, or deal with the consequences of poor communications in the exploration of systems outside of the Frontier.

The lack of subspace radios might not completely fit in with current campaigns in which the use of (or consequences of) subspace radios are in full force. The role of information courier (and their use as a source of adventures) could still exist and be important for high-level communications that must not be intercepted. Alternatively, subspace radios could fail throughout the Frontier (with the failure zone propagating through the Frontier at the speed of light). Causes for these failures might be a natural event, a scientific experiment gone awry, or tachyon jamming precluding a Frontier-wide attack. In any case, many different entities might enlist the characters to investigate the source of these failures. The consequence of a sudden failure of subspace radios, however, would likely be

very disruptive, and many of the infrastructure changes detailed above would not preexist and would only be set up in the short term in an *ad hoc* manner.

RESTRICTED ACCESS TO SUBSPACE RADIOS

An alternative to the complete elimination of subspace radios is to treat them as a newly developed technology not available for regular use or whose use is filtered through a "controlling organization" that has access to them, potentially the UPF, a mega-corp, or even some fanatical cult. The importance of the organization controlling access to subspace radio service depends on their ability to keep the technology behind the radios secret. All sites of subspace radios, therefore, have the highest possible security with both ground and space forces ready to defend these installations. If the controlling organization is not the UPF or the local system government, the presence and action of these military forces may cause political problems; however, the reliance of the UPF and the local system governments on rapid subspace communications almost always gives the controlling organization the upper hand.

More insidiously, the controlling organization may apply its own agenda to what messages are passed and what information becomes available to the general public. These organizations rarely modify information that is publicly available and can be readily learned through normal ship-borne information traffic; however, simply delaying this type of information or modifying secret communications between governments, the UPF, or mega-corps could be done to provide direct or indirect leverage for the controlling organization.

With a Frontier with restricted access to subspace radios, characters could be recruited into investigating and/or infiltrating the organization behind the subspace radios in order to hunt down political ties, outside influences, or the schematics for the radios themselves. Characters might also be recruited by the organization controlling the radios in order to protect an installation or hunt down messages or radio schematics stolen from them. The central role of these organizations in the Frontier could easily embroil characters in adventures that interact with the political heavyweights of the Frontier.

ACKNOWLEDGMENTS

This alternative view of the Frontier was inspired by a few messages about subspace radios I have read but have been unable to relocate in an old Star Frontiers mailing list archive. Message drones were inspired by message torps in the *Legion of the Damned* series by William Dietz. The restricted subspace radio access is a scenario inspired by Comstar in FASA's BattleTech Universe.

SOURCES FOR MINIATURES

Tom Verreault aka jedion357

EDITOR'S NOTE: This short review of miniature sources was taken from the starfrontiers.us forums in response to a question by one of the forum members. Tom is an avid miniature painter and will be doing reviews of miniatures (both metal and paper) in future issues. So keep an eye out for upcoming articles.

Right off the bat you can still find original TSR minis on ebay. However, be careful! They are lead and after 25 years about 40% of them suffer from lead rot (chemical process involving acid from paper, card board and other sources interacting with Co2)

Sadly, Star Frontiers aliens will be tough to come by (outside tracking down the originals). You could check out these sites for the minis you need:

The miniatures company **Reaper**, which caters to D&D players massively has just started a new line of minis called Chronoscope which caters to Sci-fi and quasi Sci-fi gaming. Everything from zombie nazis to cowboys to Indiana Jones genre types to some really cool looking spacer types as well as some aliens. They also initiated P65 metal minis which is a cheaper mix of metal (65% lead as I understand). I find the quality of the metal slightly below their top notch standard though not so much that it would be noticeable after a coat of primer. Web site: <http://www.reapermini.com/>

Old Crow specializes in resin terrain but has some Predator alien minis with a matching clear resin mini to simulate invisible predators. Look for the listing INAP (Its Not A Predator). They've thrown in extras on both of my orders. Web site: <http://www.oldcrowmodels.co.uk/>



Ground Zero Games has excellent stuff in 15mm and 28mm. They have good products with a wide range of selection. The store catalog seems to be undergoing a revamp and they have great customer service (quick communication via email). They have very nice ship minis that matched my old SF minis very well. They are a good source for fighter craft.

Web site: <http://www.groundzerogames.net/>

For **Alternative Armies**, their flagship game is Flintloque and Slaughterloo which is a fantasy version of Napoleonic. However, they're rereleasing their old ION range this year (I play tested the rules last year with some of their old figs I got off eBay). Their figure line for this game has some real surprises (I was blown away by the remote gun and its gunner with the remote control as well as a 70mm tall killer robot with a rotary gun) in it so I'd watch for them.

Web site: <http://www.alternative-armies.com/>

Hassel Free Miniatures is a small little company (husband-sculptor & wife-customer service) with an expanding line of top quality stuff- I love their space dwarves & pirates and I've bought several of their fantasy figures.

Web site: <http://www.hasslefreeminiatures.co.uk/>

Old Glory caters to historical gamers in several scales and produce stuff in such quantity that they can price it at \$1 for a 28mm mini. However, they picked up some smaller lines by Blue Moon that have some awesome figs and vehicles. I've never had a problem with any shipment but they are notorious about not answering e-mail enquiries. But at a \$1/ mini I'm not complaining.

Web site:

<http://www.oldgloryminiatures.com/bluemoon.asp/>

MegaMiniatures is an eBay store that has cheap minis. They specialize in offering stuff that no one else has, though the quality of the sculpt isn't on the level of say Foundry or Reaper miniatures. Still, they have good stuff cheap and I've bought from them countless times. Plus they have great customer service and they take PayPal. They offer a line of robots (20 total), plus some alien bar scene aliens with band (20 total) and some space men that look like they stepped off a Star Trek set with captain Kirk and Spock. They also offer some paper models for free of 28mm scale vehicles (yellow taxi, hearse, fire truck, crates, trailer park trailers, etc.)

Web site:

http://stores.shop.ebay.com/MegaMiniatures_W0QQ_nkwZminiaturesQQ_armrsZ1QQ_fromZQQ_sasiZ1

MILITARY SHIP DESIGN

Adam Moffett

AUTHOR'S NOTE: This write-up is by Adam Moffett, incorporating ideas worked on collaboratively by Adam Moffett, Sean Moffett, Darren Moffett, and Eric Moffett in our parents' basement around 1993(?) or so.

INTRODUCTION

First off, I don't know if TSR's writers really had a system in mind when they came up with stats for the UPF and Sathar ships in Knight Hawks. I do know however, that players or referees who want to make a new type of warship will find it helpful to have something to go on. What my brothers and I did some years ago was look at how weapons are applied to civilian ships (using the "MHS" number of the weapon), and extrapolate a similar system for military ships.

In Knight Hawks, each weapon and defense system has a minimum hull size or MHS value. That value represents a cost associated with installing that weapon, where the ship builder gets 1 unit per hull size of the ship. For example, a torpedo launcher has an MHS of 5 so a hull size 10 ship can install 2 of them. Spending over your limit causes severe penalties to ADF, MR, and cargo capacity.

If you add up the number of points spent on UPF/Sathar ships which are described in the book, you'll find that they spend way over their MHS limits without any penalty at all. This is attributed to more advanced technology which is only available to the military.

ASSUMPTIONS MADE TO CREATE THIS SYSTEM

1) **Ammo and other costs** - The book provides no cost for ammunition (other than monetary). Why then, do the gigantic battleships only carry 8 torpedoes? Why not carry 200 and not have to worry about running out? I have assigned MHS values for ammo to account for this. I have also assigned values for upgrades which provide extra Hull Points and changes to ADF/MR.

2) **Atmospheric Flight Penalties: The Assault Scout Problem** - When plotting the number of points spent on weapons and ammo versus the hull size of the ships, it was obvious that the assault scout was

out of line with the rest of the universe. On the chart below you'll see that the assault scout does not fit on the curve with the rest of the ships. Then it occurred to me that the assault scout is also the only military starship made for atmospheric flight, and that perhaps that is the source of its penalty.

To fly in an atmosphere, a ship needs to be balanced and streamlined and it needs control surfaces. It may also need reinforcing to survive a high speed lift off and heat shielding to survive the initial descent through the atmosphere. My position is that all of these additional things limit the amount of mass and volume that can be devoted to weapons. So for ships hull sizes 2-5 I have provided a heavy penalty for making the ship capable of atmospheric flight. Hull size 1 gets it for free.....that's one advantage to being so little. ☺

3) **Hull Points, ADF, & MR** - Some ships don't fit the normal amount of Hull Points, ADF, or MR for their size, so methods of trading MHS for any of these values were created. I also added methods to trade them for each other in some cases.

4) **Is MHS truly "minimum hull size"?** - The Warriors of White Light introduced a pirate corvette, which was a hull size 4 ship equipped with a laser cannon (MHS 5). So apparently some minimums are more minimal than others. If the referee wants to allow a larger weapon on a smaller ship that wouldn't be allowed using civilian rules, then I say go for it.

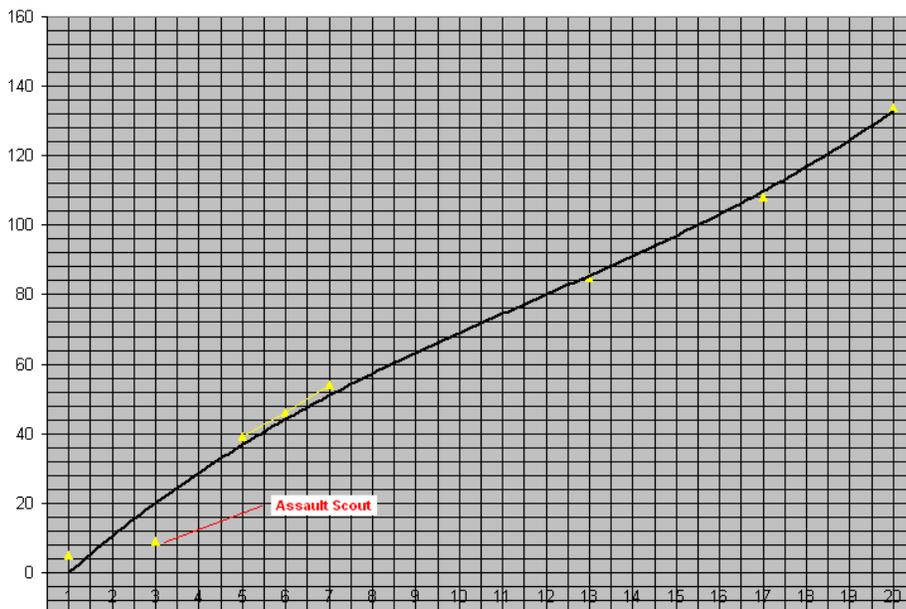
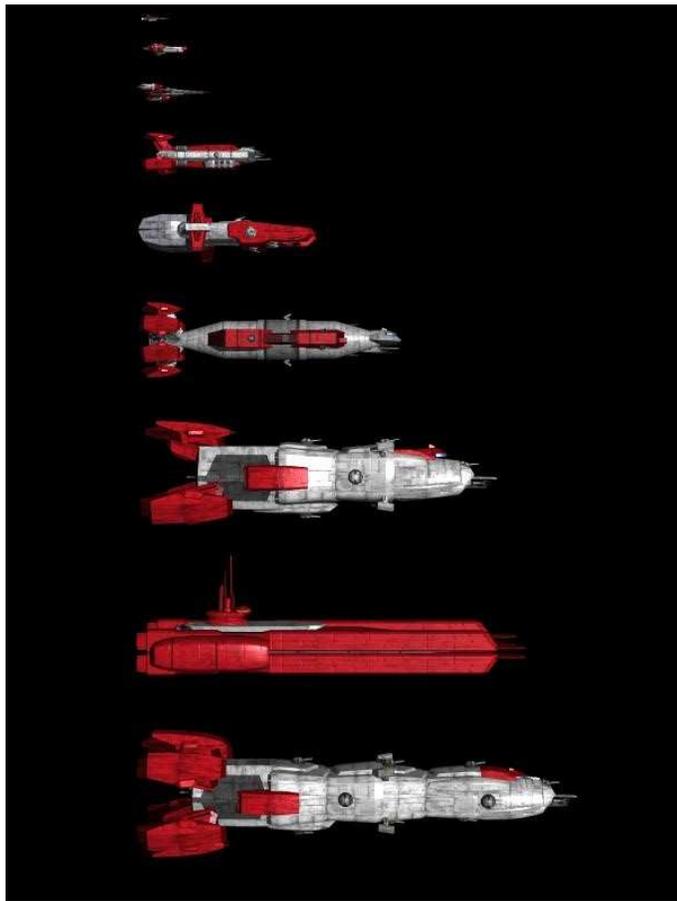


Figure 1 - Total minimum HS of weapons compared to hull size of ship

5) Technology differences: The Heavy Cruiser Problem - Like the assault scout, the heavy cruiser does not fit on the curve with the rest of the UPF ships. I attribute this to their age. The book states that heavy cruisers were battleships which were reclassified as heavy cruisers when the new and larger battleships were built. Therefore I say that all heavy cruisers are old ships and have weaker capabilities due to inferior technology. Referees should feel free to apply penalties to MR/ADF/MHS/HP or whatever else makes sense to ships which are very old, or also to account for technology differences among factions. You may also notice that UPF frigates and destroyers come out just slightly better than what you could build with these rules (they have 4 or 5 extra MHS points), so referees should also feel free to grant bonuses to very new and/or high tech ships.



AVAILABLE MHS POINTS

This table gives the number of MHS points that ships of various hull sizes receive toward armament and defenses.

Ship's Hull Size	Number of MSH Points
1-10	Hull Size * 8
11	82
12-20	Hull Size * 7

Yes, hull sizes 11 and 12 get the short stick, but that's how the line curves.

BASE HULL POINTS

Base hull points are the same as civilian ships: Hull Size * 5

DCR

DCR is calculated the same way as for civilian ships, but then doubled.

MHS COSTS

This section lists the cost in MHS points for the various parts of the ships:

ORIGINAL KH ITEMS

These are unchanged from the original rules.

Defense or Weapon	MHS Point Cost
Reflective Hull	1
Masking Screen	4
Electron Screen	10
Proton Screen	12
Stasis Screen	10
ICM Launcher	5
Laser Cannon	5
Laser Battery	3
Proton Battery	10
Electron Battery	6
Disrupter Cannon	12
Assault Rocket Launcher	1
Rocket Battery	5
Torpedo Launcher	5
Mine Spreader	7
Seeker Missile Rack	7
Grapples	5

AMMO

Ammo Type	MHS Point Cost
Extra water for masking screen	1
Batch of 4 ICMs	1
One unit of ammo for any other weapon	1

REINFORCED HULL

Add up to 60% more hull points using the following cost scale, this is a much better buy for smaller ships, though it is also worthwhile for battleships because their base hp is so high.

Hull Size	MHS Point Cost
Hull Size 1-6	1 per each 10% increment
Hull Size 7-14	3 per each 10% increment
Hull Size 15-20	10 per each 10% increment

Each 10% boost will provide at least 1 HP

EXAMPLE: UPF Frigates have a base of 25 hull points. A 10% boost is 2.5 extra hp. After buying the extra hit points the maximum number of 6 times, the UPF Frigate now has 40hp (24 + 2.5 + 2.5 + 2.5 + 2.5 + 2.5 + 2.5)

ARMOR

Sacrifice MR or ADF for extra hull points. This is only worthwhile for ships whose speed is less important

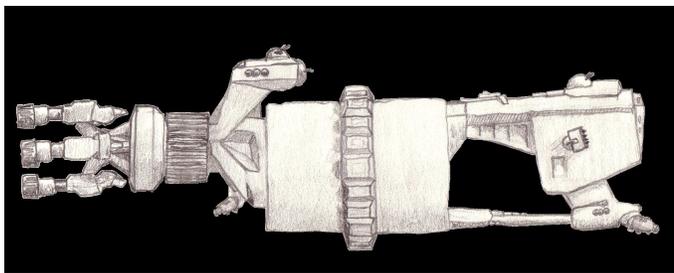
than their durability, such as minelayers and assault carriers.

Hull Size	HP Gained	ADF/MR Cost
Hull Sizes 1-10	5 HP	1 MR or ADF lost
Hull Sizes 11-20	10 HP	1 MR or ADF lost

TRANS-ATMOSPHERIC PENALTY

This is the cost in MHS points to streamline the ship for atmospheric flight. This is not possible for ships larger than Hull Size 5.

Hull Size	MHS Penalty	Remaining MHS Points
1	No penalty	8 MHS points
2	4/8 penalty	8 MHS points
3	5/8 penalty	9 MHS points
4	6/8 penalty	8 MHS points
5	7/8 penalty	5 MHS points



FIGHTER BAYS

The cost of a fighter or shuttle bay is 8 MHS points. I think the difference would only be in how the bay was equipped. Ships can of course carry shuttles or fighters docked to the outside, but then any repairs or maintenance require extra vehicular activity which we can assume is more time consuming.

EXTRA MHS

If you still need more room for weapons and equipment you can trade off maneuverability or hull points for a little extra space using the following two rules:

1. **OVERLOADED:** Trade 1 MR or 1 ADF for a 10% MHS bonus. This does very little for small ships, but big ships have less MR and ADF to spare, so it's tough to justify using this option. This rule was made to make the Assault Carrier fit the rest of my model.
2. **LIGHT HULL:** Trade 10% of ship's original hull points for a 10% MHS bonus. Also a hard trade to justify. None of the UPF ships do this. Can't be used with reinforced hull, and unlike reinforced hull this option can only be taken once.

CREW

I think it is unclear how the number of crew members on a SpaceFleet ship is arrived at. I think a bare minimum crew would consist of the following:

- 2 pilots (so someone can be at the wheel day and night)
- 1 gunner per weapon

- 1 operator per defense system (except reflective hull)
- 1 technician per engine
- 1 commanding officer
- 1 navigator

On small ships like assault scouts, jobs can overlap, so the captain could also be a pilot, an engineer can double as a gunner, etc. I would probably double everything for any ship of frigate size or larger. People will need downtime so they don't burn out.

As the ship gets larger, you'll need to add more techs for everyday maintenance, a handful of marines for security, and probably at least one medic. Once you have more enlisted people you'll need more officers too. Referees should try to use common sense as to the number of people required to crew any ships designed by them or by players.

MONETARY COSTS

You may notice that I did not assign credit costs to any of the new ship features. Since military ships are built by governments, the exact cost of its armor and weapons will not usually be relevant to player characters.

DOES THIS ALL MAKE SENSE?

Maybe. Changes in MHS versus hull size are almost linear, where changes in the ships' volume and surface area are exponential. So if it's a matter of physically stuffing the weapons into the available area, then everything is way off. A destroyer should be exponentially mightier than a frigate in that case.

On the other hand, mass should also increase exponentially with hull size, and the fact that large ships get less ADF and MR means that thrust does not increase to match. My explanation for the difference then is that it's really a matter of how much extra mass we can attach to the hull without impairing its speed more than its own size already does.

But then again it's also more about having fun and keeping the game balanced. If the player characters' frigate is exponentially weaker than their enemy's destroyer then there is very little difference that heroic characters can make in the battle. So a linear progression of strength is more appropriate for gaming.

WHY DID WE DO THIS?

My brothers and I added extra factions to the game outside of the Frontier Sector, having a system to design ships allowed us to differentiate factions without just making stuff up. Equally cool is that the players were able to design the ship that their characters were assigned to. It was fun and gave them more of a stake in their ship's survival.

UPF ORDER OF BATTLE

parriah

INTRODUCTION

I compiled this from every source I could find. I considered all the Polyhedron and Dragon articles to be Core or canon. If anyone disagrees, I'm sorry, but it's the criteria I used.

A * indicates a name I have made up. All other names are derived from a source. I will try to mention them all, but didn't do a great job recording those.

The Knight Hawks Campaign book gives a list of ships and types, but no names. The Boardgame book has several. I started there.

In the Nov '84 Dragon issue there is a KH scenario called "The Day of the Juggernaut. The entirety of SF Nova is given, but it is a different composition of ship types and numbers. I went with the composition in the Campaign book.

In the Aug '84 Dragon issue there is a KH scenario called The Battle at Ebony Eyes. This one is a cool one set in a point of equal attraction between 2 black holes. The Admiral Clinton and some others are guarding a scientific expedition when in slither the Sathar in Heavy cruisers and destroyers.

The War Machine is another KH Scenario in Dragon as well as one other around Zebulon that was with the Yachts and Privateers articles.

UPF VESSELS

TF PRENGLAR

BB Admiral Morgaine (given in Campaign book)
 CL Dark Star
 CL Intrepid (Raid on Theseus)
 CL Honor
 DD Thrasher
 FF Flying Cloud (War Machine)
 FF Vega *
 FF Proton
 AS Doboruas (War Machine)
 AS Starpacer
 AS K'Riss
 AS Dauntless
 ML Mainstay*

SF NOVA

BB Admiral Clinton
 CC Zamra
 CC Grak
 CL Courage
 CL Glory
 DD Chivalry

DD Faith
 FF Shimer
 FF Zz'Nakk
 FF Z'Gatta (Never mind the Dolin Bay scenario)
 FF Draidia
 AS Scimitar
 AS Dagger
 AS Raiper
 AS Lancet
 AS Razor
 (The Campaign Book has 6 fighters 1 Cv, 1 BB, 2 CL, 1 DD 2FF and 3 AS. as I said different make up.)

TF CASSIDINE

BB Admiral Harsevort
 CC City of New Hope *
 CL Courageous (Because of the composition of the TF in the KH book, I reassigned the Starpacer to TF Prenglar)
 FF Electron
 FF Z'YTTL
 CVA Confluence *
 ML Z'Rakt'Zoz
 AS Avenger
 AS Justifier
 AS Morning Star

NON-ASSIGNED

CL Steadfast *
 CL Benefactor *
 DD Allison May (I would have put her in TF Cassadine, but the Campaign book has no DD in it)
 DD Arcturon (Dragon APR 85 issue)
 ML Gree-Ka-Mip *
 AS Arrow (Apr '85 Dragon)
 AS Remora (Apr '85 Dragon)
 AS Javalin *



In addition, the Raid on Theseus article names three additional Assault Scouts that are not on the UPF Order of Battle for the Second Sathar War game in the Campaign book. This ship have the names Dirk, Blade and Needle.

MILITIAS

CLAIRON (*don't call them Golloywog unless you want to start a barroom brawl!*)
(White Light system)

All listed in Warriors of White Light:

FF Leo
AS Ospery
AS Wasp
AS Falco
(AS Flitter and Swallow on order)

INNER REACH

(Dramune System)

All listed in Dramune Run:

DD Republic
FF Progressive
As Scrapper
AS Odessa
As Draminid

OUTER REACH

(Dramune System)

All listed in Dramune Run:

FF Drasimian
FF Starhawk
AS Maltharia
AS Goldenrod

MINOTAUR

(Theseus Syatem)

These ships are listed in an article in Polyhedron # 13 Raid on Theseus. The militia in the article has the same composition in ships and types as in Campaign book. This source is where some UPF ship's names come from also.

Minotaur Station

FF Heroic

DD Republic (yeah, the same name as in Inner Reach, but not a problem I think because they're different systems.)

As Wasp (Again a dupe name)
AS Dragonfly
AS Mosquito
AS Gnat

HARGUT

(Gruna Goru Syatem)

As Load Runner * (Anybody remember that game?)

AS Lynx *



HENTZ

(Araks System)

FF Sliz K'Klak * (Don't ask me why a Yaz system has a Vrusk name on thier capitol ship)

AS Epe *

AS Cinqueda *

AS Dirk * (Yaz's do like their blades don't they?)

KEN' ZAH HIT

(Kaken-Kar System)

AS Mongoose *

AS Meerkat *

PALE

(Truane's Star Syatem)

FF City of Point True *

AS Cerval *

AS Mako *

AS Bolt *

TERLDROM

(Fromeltar Sastem)

As Kingfisher *

AS Perigren *

AS Redwing *

Inner reach ain't the only ones who like to name their AS's for birds! ;)

ZIH-HIT

(Kiz' Kar System)

As Szkt *

AS Klak Tak *

FTL TORPEDOS

Larry Moore

"The attack came fast. Without warning, the radar lit up showing a half dozen small objects coming in-system at an incredible speed. They couldn't be ships... ships would be decelerating. Nobody knew where the attack came from and it was already too late to determine that. A fighter was able to launch in time to take out two of the objects before being destroyed by the last four objects. Someone or something had fired a torpedo capable of faster-than-light travel. The entire station was wiped out."

Faster Than Light Torpedos (FTLT) are relatively new in the Frontier. The UPF believes the Sathar are behind the attack since several target area have had encounters with Sathar scout ships. FTLTs have been used to destroy capital ships and orbiting stations. There is no defense save a one man fighter attempting to intercept these devastating harbingers of destruction.

** FTLTs are outlawed within the UPF territories.

THE PROCESS

A Sathar ship, typically destroyer class, will accelerate on a trajectory inline with the target location. Just before reaching Void speed the ship will launch the FTLT; from there it accelerates on a pre-programmed route, enters the Void, and when finally reaching its destination the FTLT will drop out of the Void at a speed of 180 hexes per turn. Faster-than-light torpedoes drop out of the Void about 10,000,000 kilometers from its pre-programmed target area. A station or ship has about 50 minutes (5 Knight Hawk turns) to react to these nasty incoming threats.

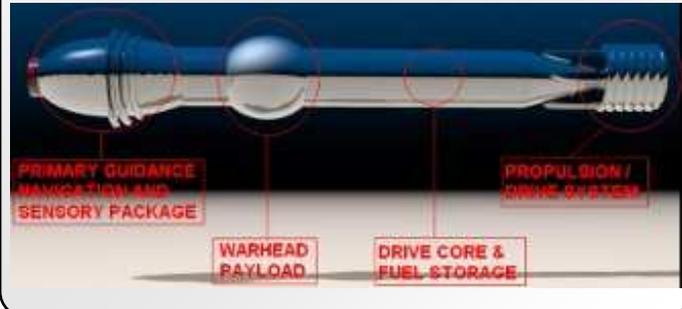
ACCURACY

FTLT must be launch from the ship on a trajectory that will intercept its intended target. Minor adjustments can be made once a torpedo has exited the Void. In addition to hitting a target the torpedo must explode upon impact to cause the maximum amount of damage. The torpedo has a 15% chance that it will simply puncture a hole in the target causing minimal hull damage and causing the effected area on the ship to decompress.

A simple navigation program keeps FTLTs from hitting objects and planets until they reach their destination. If there aren't any objects within 20 hexes of their pre-programmed destination they will exhaust their fuel and drift harmlessly in space until caught by a gravitation force.

KNIGHT HAWK STATS

HS: 1
HP: 5
Power plant: 1 Atomic sub-A
ADF: 2
MR: 1
Armament: Sathar Nuke: 6d10 -20 on DTM
Defenses: RH
Communication/Detection: n/a
Misc Equipment: Streamlined Hull, Missile shape
Computer: Astrogation (1), Homing (1)



NUMBER CRUNCHING KNIGHT HAWKS STYLE

The table below gives the speed of an object just fast enough to enter (or just exiting) the void in a variety of different units that can be used in the game.

Speed of Light (c)	300,000 km/s (approx)
	0.01c
	3,000 km/s
	180,000 km/min
	1,800,000 km/turn
	180 hexes/turn
	10,800,000 km/hour
	3.33 seconds per hex

Void Jump Speed (in various game units)

EDITOR'S NOTE: These FTL torpedos are probably best used as a plot device rather than in a KH board game. The mechanics are such that a fighter probably couldn't intercept one of these in a way to get a MPO Assault Rocket shot off to destroy them unless they were lucky in the way the ref sets up the board. Other ships, equipped with weapons that aren't MPO limited, however, could line up along the flight path and take defensive fire shots on the last round before it impacted its target (or take the hit instead).

PLANETARY BRIEF

Shadow Shack

MINOTAUR THESEUS SYSTEM

Diameter: 10,714 kilometers

Gravity: 1.209 g

Length of Day: 15 hours, 23 minutes

Atmosphere: 62% nitrogen, 22% oxygen, 1% argon, 15% carbon dioxide

Climate Range: Varies from north to south; freezing to near boiling, semi-humid to arid.

Average Surface Temperature: 25°C (equatorial region), -10°C (north polar region), 89°C (south polar region)

Number of Moons: None

Colonizers: Predominantly Human

Native Life: Lasette (Land Shark)

PLANET HISTORY

Minotaur is a moon orbiting a gas giant, Ares, that occupies the 4th orbit out of 11 planets in the Theseus system. Its axis is tilted at 38 degrees with the southern pole tidally locked toward Ares. As such the planet is divided into three major sections: the desert wasteland at the southern polar region, the hospitable equatorial region, and the frozen northern region. The surface is comprised of roughly 53% water, with most of it in the form of ice at the northern polar area.

Minotaur is a capitalist authoritarian society. That is free trade is encouraged by a totalitarian ruling factor. The planet's history is rich under this model, as such the major city "Maze" has grown beyond belief over the last few centuries, covering the entire equatorial region with tendrils reaching into both polar regions. In addition to spreading east and west indefinitely, the city has also grown both upwards and down, meaning that there is no "ground level" per se. Inhabitants navigate the megacity with a complex coordinate system that involves both the use of a compass and altimeter along with a grid layout. Aerial vehicles are the only transportation (with major businesses and military sections sporting private shuttle pads), although a complex series of monorails and subways exists. Only in the outskirts will ground vehicles ever be encountered. Two major starports can be found in the polar border regions, Port White Sail bordering the sea and Port Aegeus near the ice cap.

Social class is determined by how "high" one's residence is...downtown (subterranean to sea level) is where the lower class and poor reside, midtown (sea level and up to 1000m) is the working middle class,

and uptown (1001m+ high-rise) would be the wealthy and upscale types. Also spotted along Maze are numerous factory complexes, but business centers dominate the city. One notable section is a huge man made body of water (Aegean Sea) which is an enormous tourist trap, with scores of megaresorts and attractions including an amusement park (Ninland) that is beyond belief, thus earning the area the title of the largest vacation spot in the Frontier. Nearly every business in the Frontier has an office in Maze, including StarPlay Enterprises whose corporate headquarters reside in the heart of Maze's business district.

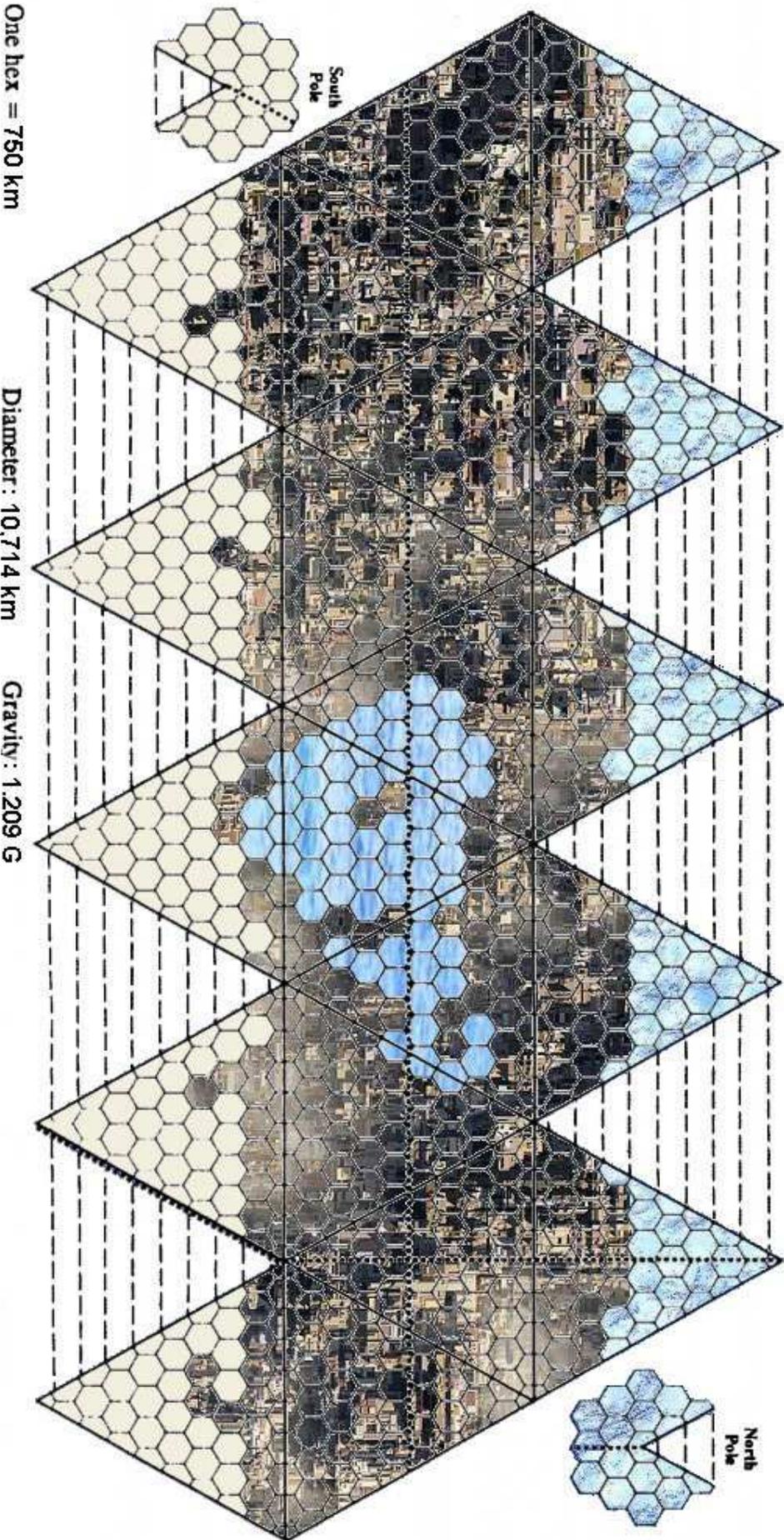
The southern polar region, known as the Asterion Desert, is an inhospitable climate. The sun never sets and temperatures soar to unbearable levels which only the native Lazettes can survive. On the opposite pole, the frozen wasteland known as the Solid Ocean is covered in ice that extends several thousand meters into the surface. This polar region never sees sunlight, and the only moisture in the atmosphere collects here to add to the ice mass. To this end a network of refineries and drilling platforms are set up to provide drinking water for the population, along with a separate network that taps into the planet's wealthy reserve of petroleum.

Overhead are the wheels in the sky, also known as Androgeus Station (a fortified space station) and the Daedalus Shipyards (a Class: II Starship Construction Center comprised of three type 6 stations). A third smaller civilian station also orbits the moon, dubbed Minotaur Station (size 4 station). Minotaur's Defensive Ships are berthed in Androgeus, including a destroyer (MDS Republic), a frigate (MDS Heroic), four assault scouts (MDS Dragonfly, Gnat, Mosquito, and Wasp) along with six squadrons of fighters. Their militia is the largest and most respected in the Frontier.

POLITICAL STRUCTURE

Minotaur is ruled by a totalitarian government, so no weaponry is permitted by the citizens (aside from military and police, and only while on duty). As such strict laws are enforced to this end, anyone seen with a weapon can expect a lengthy stay in their prison system, anyone attempting to smuggle weaponry can expect a death sentence. These laws extend into their space stations, although personal weaponry is permitted aboard privately owned vessels berthed within. The Minotaur Defense Network is a large scale military/police system not to be trifled with, as they carry out the law of the land with swift efficiency.

MINOT AURA PLANETARY MAP



TSSS DART

Tom Stephens

DESCRIPTION

The TSSS Dart is a custom-designed, hull size 2 vessel built for Obar Enterprises. It is designed as a multi function vessel. Designed primarily for interstellar travel, it is also capable of atmospheric flight. This versatile little ship is relatively fast and lightly armed sporting a Reflective Hull and incorporating military Pod Laser Turret technology to provide some firepower without sacrificing performance.

The Dart can carry up to eight beings. It has a one unit cargo bay as well for carrying small loads or extra equipment. This vessel was commissioned as the operational base for the new Obar Enterprises troubleshooting team (see <http://starfrontiers.homelinux.net/forum/viewforum.php?f=8>). It also sports a beefed up computer as it is designed to be a mobile base for the problem solving team.

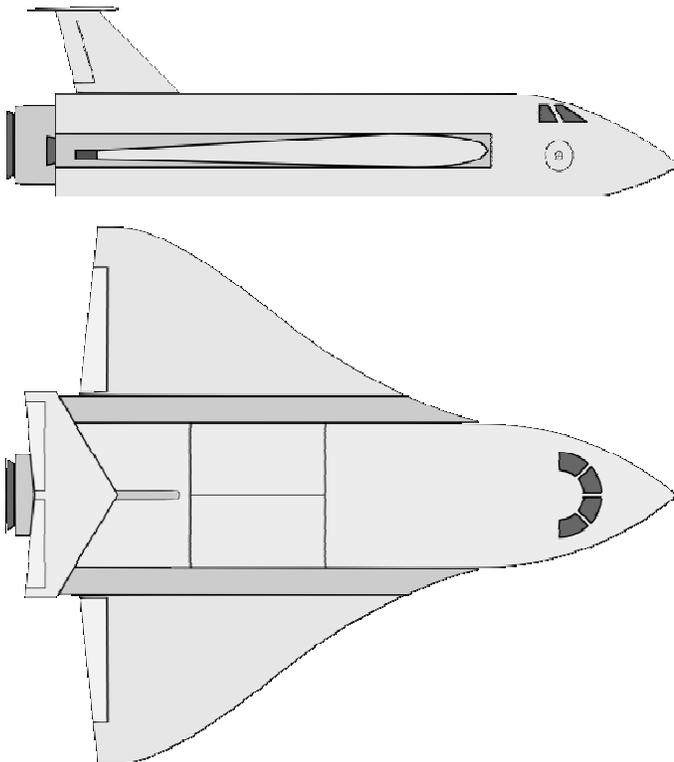


Figure 1 – Side and top view of the Dart

Figure 1 shows an external view of the ship. Figure 2 is a cutaway of the interior and shows the position of the various decks relative to the body of the ship. The bridge, crew, passenger and engineering decks are all aligned perpendicular to the main engine thrust axis for standard space flight. The Flying Bridge and the

middeck (which doubles as the airlock) are aligned parallel to the main thrust axis for atmospheric operations. A single elevator shaft connects all the various levels of the ship. The elevator can hold one being at a time, two if you want to get cozy.

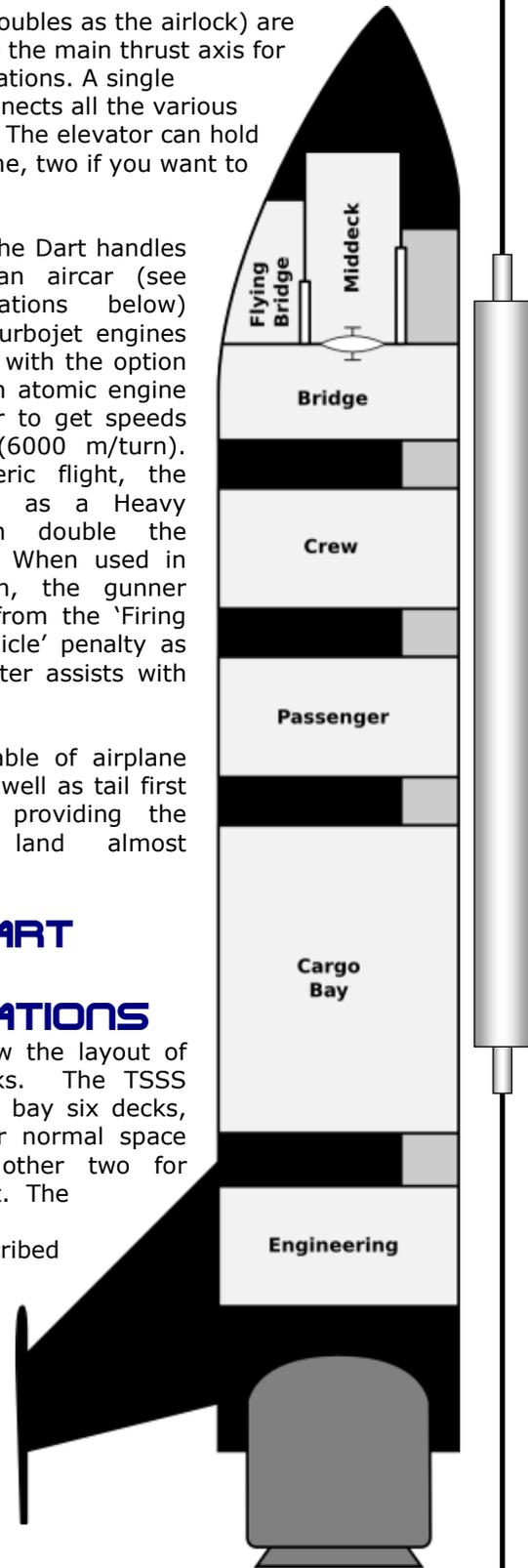
In atmosphere, The Dart handles somewhat like an aircar (see vehicle specifications below) using a pair of turbojet engines in the wings, but with the option of using the main atomic engine as an afterburner to get speeds up to Mach 3 (6000 m/turn). During atmospheric flight, the PLT reconfigures as a Heavy Laser but with double the effective range. When used in this configuration, the gunner does not suffer from the 'Firing from moving vehicle' penalty as the ship's computer assists with targeting.

The Dart is capable of airplane style landings as well as tail first rocket landings providing the possibility to land almost anywhere.

TSSS DART DECK SPECIFICATIONS

Figure three show the layout of the various decks. The TSSS Dart has a cargo bay six decks, four designed for normal space flight and the other two for atmospheric flight. The various decks and locations are described below.

Figure 2 – A cut away of the Dart showing the relative size and positioning of the various decks on the ship.



BRIDGE

The bridge holds the stations for the pilot and co-pilot/astrogator. It also provides access to the middeck/airlock. The stations on the bridge are:

1. **Elevator** - The elevator provides access to the various decks of the ship. It takes six seconds (1 turn) to travel between each deck. It is secured by a level 4 recognition (voice and hand print) lock. While the elevator can normally stop at the middeck, when the middeck is being used as the airlock the elevator shaft seals, preventing access.
2. **Pilot's station** - This station is the main flight controls for the Dart. All necessary instrumentation to fly the ship is at this station.
3. **Co-pilot/Astrogation Station** - This station can be configured for either auxiliary flight controls or astrogation work.
4. **Pressure door to airlock/middeck** - This pressure door, located in the ceiling of the bridge provides access to the middeck.

CREW DECK

The crew deck holds two double bunk cabins as well as a small common area for dining and sanitation facilities.

5. **Hallway** - Small Access hallway to get into the various rooms on this level
6. **Crew Cabin** - This room holds a double bunk, a small desk and a chair. There is storage in the desk and under the bunks for personal items and clothes as well as a small cabinet above the desk.
7. **Crew Cabin** - This room holds a double bunk, a small desk and a chair. There is storage in the desk and under the bunks for personal items and clothes as well as a small cabinet above the desk.
8. **Head** - Sanitation facilities and shower for the crew on this level.
9. **Common Area/Galley** - Small common area that contains a small desk/table, two chairs and small galley.

PASSENGER DECK

The "passenger" deck is an exact copy of the crew deck and is really designed for additional crew members as the cabins are not even up the minimum standard set by TransTravel for a Journey class cabin.

10. **Hallway** - Small Access hallway to get into the various rooms on this level
11. **Crew Cabin** - This room holds a double bunk, a small desk and a chair. There is storage in the desk and under the bunks for personal items and clothes as well as a small cabinet above the desk.
12. **Crew Cabin** - This room holds a double bunk, a small desk and a chair. There is storage in the desk and under the bunks for personal

items and clothes as well as a small cabinet above the desk.

13. **Head** - Sanitation facilities and shower for the crew on this level.
14. **Common Area/Galley** - Small common area that contains a small desk/table, two chairs and small galley.

CARGO BAY

The cargo bay can hold up to one cargo unit of material. It is large enough to hold an explorer or air car with a little room to spare. The bay doors open above the wings and there is a ramp that can be extended down over the rudder assembly when the Dart has landed vertically to allow cargo to be rolled on/off the ship.

ENGINEERING DECK

15. **Engineering station** - Controls and sensors to monitor the various ships systems. The seat design at this station allows it to be manned in both normal and atmospheric mode.
16. **Pod Laser Turret Controls** - Weapons controls for the ships Pod Laser Turret. The seat design at this station allows it to be manned in both normal and atmospheric mode.
17. **Storage** - Holds two Engineering Toolkits, a Laser Power Torch and power backpack, six insults, a techkit, a robocom kit and various other pieces of machinery and circuitry for repairing the ship.
18. **Storage** - Additional storage for ship supplies, personal effects or robots.
19. **Storage** - Additional storage for ship supplies, personal effects or robots.

MIDDECK/AIRLOCK

This deck hosts the ships airlock as well as flight chairs for the crew during atmospheric flight.

20. **Airlock** - The ship's airlock. There are five flight chairs here for crew and passengers not on the flying bridge. There are also pressure sealed hatches into the main bridge and the flying bridge.

FLYING BRIDGE

This deck holds the flight controls for atmospheric flight.

21. **Pilot's station** - Duplicate of area 2
22. **Gunner's Station** - Duplicate of area 16
23. **Co-pilot's Station** - Duplicate of area 3
24. **Middeck access** - This is the hatch that provides the connection between the middeck and the flying bridge.

SHIP STATISTICS

This section gives the ship statistics for use with the Alpha Dawn rules (during atmospheric flight) and the

Knight Hawk rules (during interplanetary and interstellar flight).

ALPHA DAWN

Min/Cruise/Top Speed: 150/400/900 kph (3600 kph with main engine)

Acceleration/Deceleration: 150 m/turn (300 m/turn with main engine)

Turns: The Dart can make up to eight 45 degree turns in a combat turn

For purposes of damage, 300 structure points equals 1 HP of damage to the ship. Any laser weapons used to attack the ship have a fifty percent chance of being deflected by the reflective hull. If a laser weapon hits the Dart, roll d100, on a roll of 1-50, the weapon causes no damage. Projectile, gyrojet and other types of weapons hit normally. Because of the size of the ship, when rolling on the Flying Vehicle Damage table (AD p 33) only roll 1d10 instead of 2d10 before adding the dice of damage to the vehicle.

KNIGHT HAWKS

HS: 2 **HP:** 10 **DCR:** 26

Engines: 1 hull mounted Shielded Class A Atomic

ADF: 4 **MR:** 4

Weapons: PLT

Defences: RH

Cargo Capacity: 1 unit

Crew size: up to 8 (4 typical)

Life Support Capacity: Primary: 12 Backup: 12

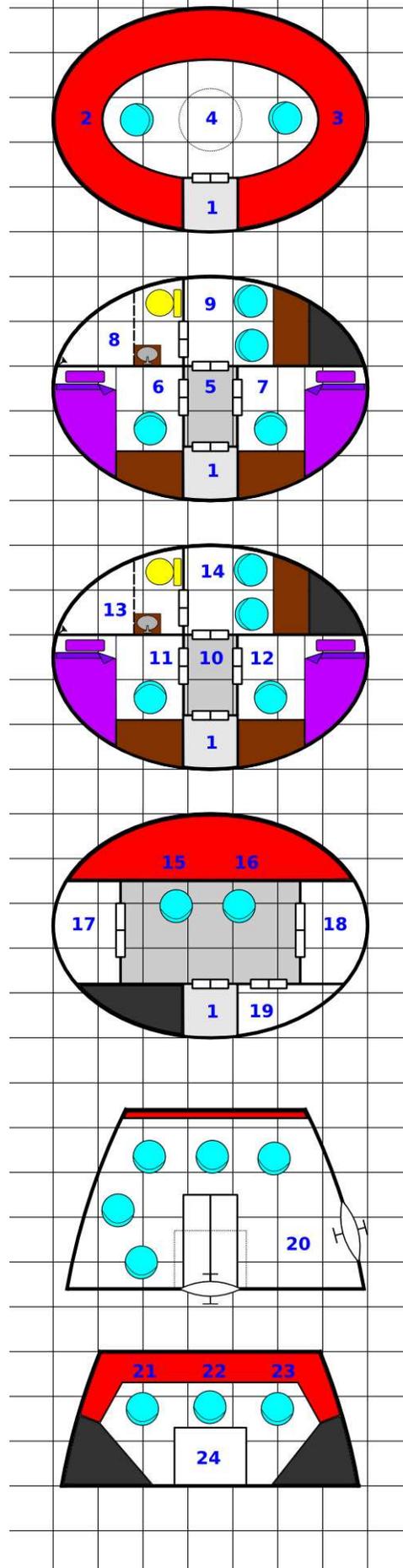
Communications Equipment: Videocom radio, Subspace Radio, Radar, shipwide intercom one speaker/mike in every room, control panels on the bridge, flying bridge and engineering deck.

Computer: Drive 4, Life Support 1, Alarm 2, Computer Lockout 4, Damage Control 2, Astrogation 4, Skin Sensors 1, Cargo Arm 2, Laser Battery 1, Communications 2, Information Storage 6, Robot Management 6, Installation Security 4, Computer Security 5, Language 6, Analysis 6

Other Equipment: Deluxe Astrogation Equipment, 2 Engineer's Toolboxes, Laser power torch and power pack, 6 insuits, Techkit, Robocomkit

EDITOR'S NOTE: Full scale versions of the deck plans (1 square = 1/2 inch suitable for use with the counters from the boxed game sets) can be found on this ship's website at <http://starfrontiers.homelinux.net/ships/Dart>.

Figure 3 - Deck plans for the TSSS Dart. The decks from top to bottom are the bridge, crew deck, passenger deck, engineering deck, middeck/airlock, and flying bridge. All squares are 1 meter on a side.

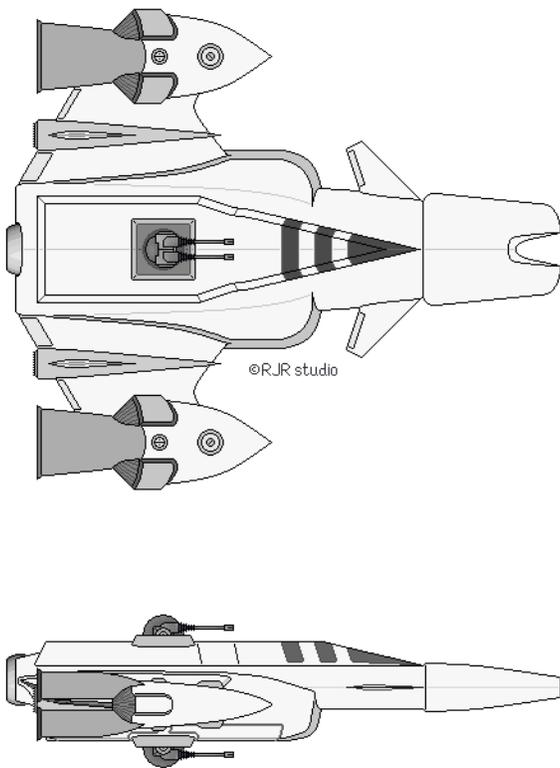


RT-3100 MERCHANT SCOUT

Shadow Shack

INTRODUCTION

The Rayax Transport 3100 series Merchant Scout is a small freight hauler loosely based on a retired assault scout hull design. The design incorporates fattening across the middle but shortening the overall length, all in all the vessel is sporting a 10% variance over a standard class 3 hull. Little was changed from the original UPF scout configuration beyond basic proportions, although the most noticeable alteration would be the tiered cargo hold slung along her underside. As such, it makes a great craft for a small group of adventurers looking to staking a claim in the trade routes of the Frontier. While there are restrictions to landing nuclear powered craft in many civilized worlds, the craft is atmospheric capable and may physically do so. The flying bridge is situated for such use, running parallel to the main axis while the rest of the decks are positioned perpendicular for artificial gravity via propulsion in space.

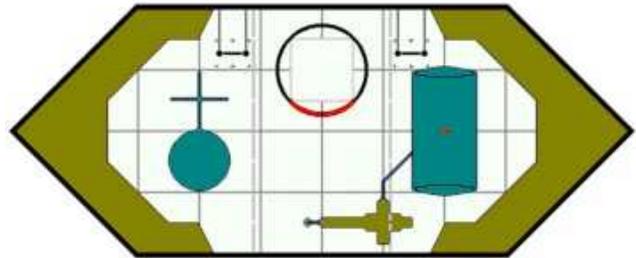


While it may lack the large hold for big profits, the ship more than makes up for this shortcoming via great acceleration and maneuverability, along with the standard issue laser battery to ward off anyone else that may desire the contents in her hold. Up to eight

crewmembers can operate the vessel without taxing her life support equipment, and they all reside in shared cabins on one deck. That allows for a minimum of four to operate the craft, with a back up position for each when rotating shifts.

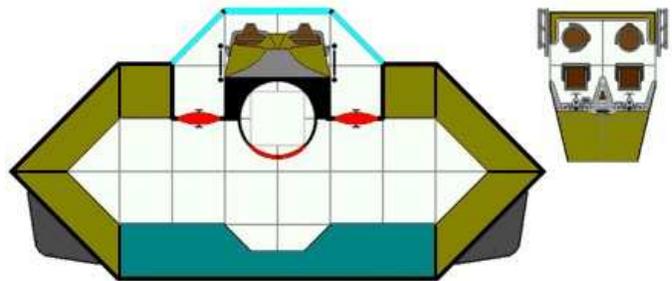
DECK DESCRIPTIONS

DECK 1 is the uppermost deck and features the forward maneuver array, water tank and a purification plant, ladder wells to the forward mandibles housing the avionics equipment, and space for a back-up life support unit if so desired.

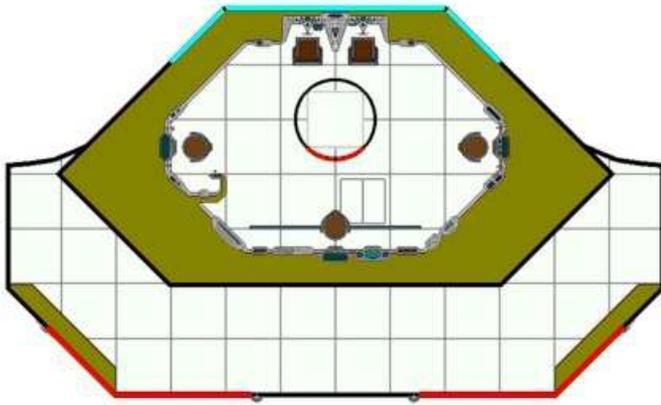


©RJR studio

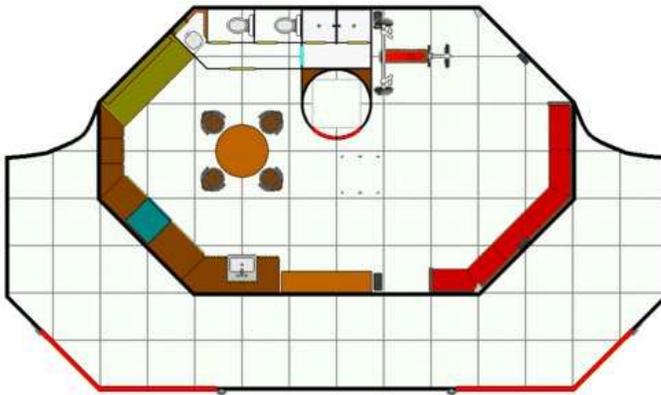
DECK 2 is the flying bridge, housing the communication and detection equipment along with more avionic circuitry, and ladder well access to the "fighter jockey" poised flying bridge.



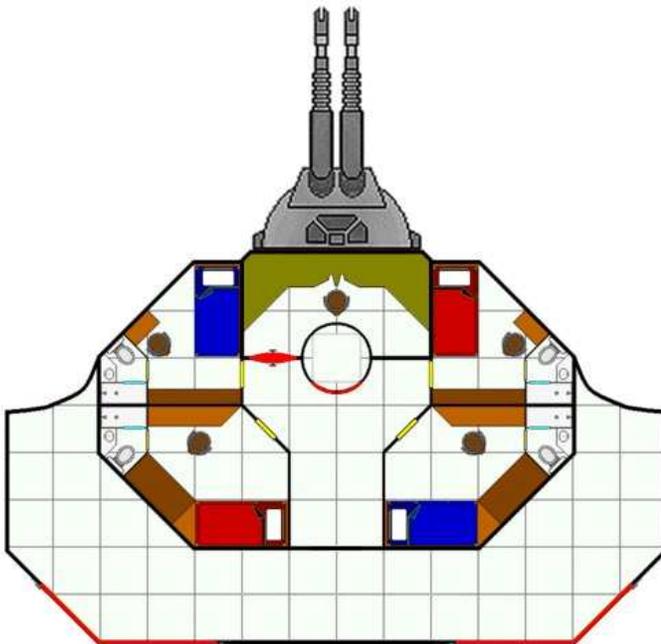
DECK 3 is the main bridge, with full access controls for the helm sporting positions for a pilot and copilot. In addition are positions for an astrogator, chief engineer, and an additional computer operator/communications & detection officer. A floor panel can be removed to access the innards of the mainframe computer. The uppermost tier of the cargo hold is depicted, but not accessible from this deck.



DECK 4 is the Recreation Deck, featuring a crew lounge and dining area complete with galley and food storage. A freshner and exercise equipment round out this deck.

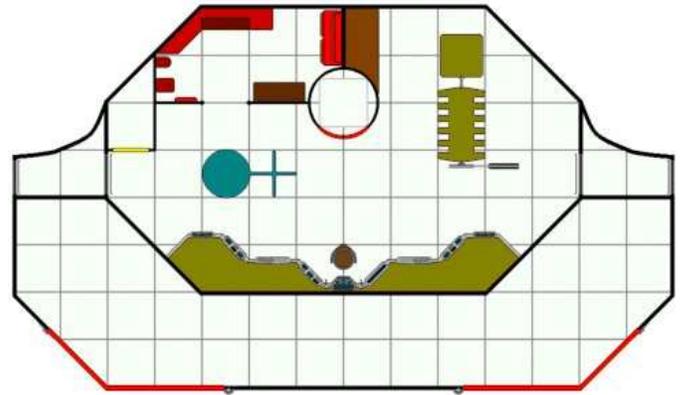


DECK 5 is the Crew Deck with four double occupancy cabins and controls for the laser battery.

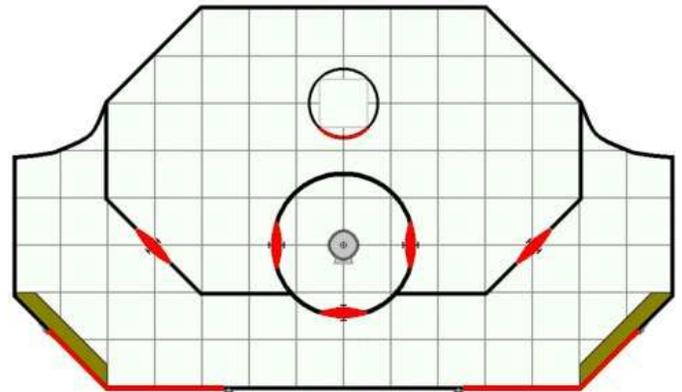


DECK 6 is the Maintenance Deck with an engineering station (used for overhauls), main life support unit,

generator and power relay center, tool shop, and access to the aft maneuver jets.



DECK 7 is the aft hold, separate from the adjacent multi-tiered main hold. An outer hull hatch in the central airlock leads to the universal docking collar, and the airlock also permits access to the main hold.



KNIGHT HAWKS STATS

HS: 3
HP: 15
Power plant: 2 Atomic A
ADF: 4
MR: 4
DCR: 30
Crew: 4-8
Armament: LB
Defenses: RH
Communication/Detection: SubSpace Radio, VideoCom, Radar, Intercom
Misc Equipment: Streamlined Hull, Universal AirDock
Computer: Alarm (2), Analysis (4), Astrogation (4), Bureaucracy (2), Communication (1), Computer Lockout (3), Damage Control (2), Drive (Atomic) (4), Industry (1), Information Storage (1), Life Support cap:8 (1), Laser Battery (1), Maintenance (2)
Cargo Capacity: 2 (1.5 main hold, 0.5 aft hold)
Crew Accommodations: 4 double cabins
Passenger Accommodations: n/a
Ship's Vehicles: none

VECTOR MOVEMENT

Art Eaton & Tom Stephens

A MORE REALISTIC MOVEMENT SYSTEM FOR KNIGHT HAWKS

This article presents an optional spacecraft movement system that can be used with the Knight Hawks board game rules. This system is adapted from the Knight Hawk Vector rules which can be found in their entirety on the Starfrontiers.org site. This movement system represents the way ships would actually move in a space environment but simplified for use in the board game. While it is a bit more complicated than the standard Knight Hawks movement rules, it is still a fairly simple system to use. Despite its relative simplicity, it is a very accurate representation of real space mechanics.

This movement system makes a few changes to the standard KH system. Primarily, it eliminates the Maneuver Rating (MR) characteristic from the ship. The standard Knight Hawks MR concept is completely unphysical. There is no way for ships to behave in that manner in space. The only way to change direction in space is to stop moving the way you are headed and start thrusting in the direction you want to go. There is no medium, like air or water, to exert a force on your ship to help you turn. All you have is your engines. With this system ships, only have the Acceleration/Deceleration Factor (ADF). This represents the thrust available from the engines to move the ship.

The ship still has smaller thrusters that allow them to change their facing but these thrusters (called the Reaction Control System or RCS) are large enough to rotate the ship around in space but not large enough to affect it on the scale of the board game.

The second change is that the ship can fire its Forward Firing (FF) weapons in any direction regardless of the direction of its motion. This reflects the fact that the RCS system can rotate the ship quickly to any direction, allow the ship to fire and then rotate it back to continue thrusting along its desired direction.

OPTIONAL VARIATION: *Since you can now fire the forward firing weapon in any direction, the referee may opt to eliminate the +10 Head-On Shot bonus for firing at a vessel directly in front of the ship. Alternately, you may only allow the +10 modifier if firing directly along a line of hexes.*

Finally, since the MR statistic has been removed, the entries on the Advanced Game Damage Table (UPF

Tactical Operations Manual p12 and back cover) that affect the MR of the ship simply affect the ADF instead. A roll of 54-58 causes a loss of 1 ADF and a roll of 59-60 causes a loss of 1/2 remaining ADF.

Now that the changes to the rules have been explained, let's get on with a description of how this new movement mechanic works.

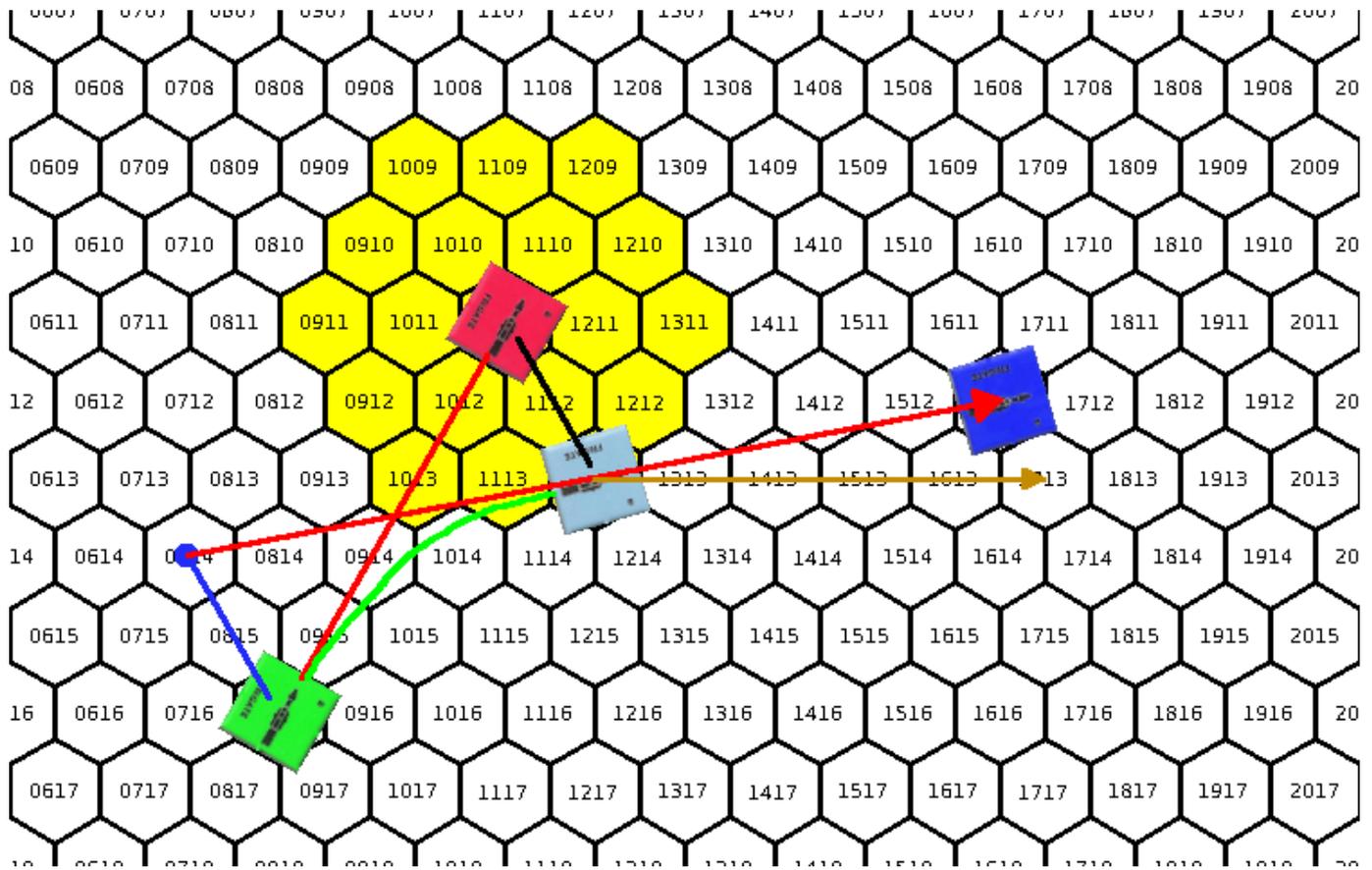


ACCELERATION

First let's start with a little description of the way acceleration works in real life. Suppose that a ship is stopped. It has an ADF of 4 (it's a frigate). The ship needs to get underway fast to get to the scene of a pirate attack (pilot is late for dinner). The ship accelerates at full thrust (ADF 4). During the turn, he will be accelerating to a speed of 4 hexes per turn. During the time he is accelerating, however, he will only move 1/2 that distance! So during the first turn, he only moves two hexes. At the beginning of the next turn, his speed will be four. If he doesn't continue accelerating, he will move 4 hexes on the second turn. If he does continue to accelerate at full thrust, he will move 6 hexes this turn (4 plus 2 more) and his speed at the start of the next turn will be 8.

MANEUVERING EXAMPLE

In the following diagram, a frigate is traveling at a speed of 5, moving from the bottom-left of the chart to the upper right of the chart. At the start of turn 1, the frigate is in the location marked by the green counter.



The red line indicates the direction (vector) the frigate will travel in if it performs no maneuvers. The hex marked by the red counter is where the frigate will be at the end of the turn. The yellow area around the red counter is the area it is possible for the frigate (which has an ADF of 4) to maneuver to.

During the turn that a ship applies acceleration, it only actually changes the position by half the number of hexes as the number of ADF points used. For this frigate the ADF of 4 means that it can change its position by up to 2 hexes (hence the size of the yellow area). The frigate's pilot decides to apply full thrust at vector 120 (down and to the right from its direction of motion). This place is indicated by the light blue counter, with a black vector line to it from the red hex.

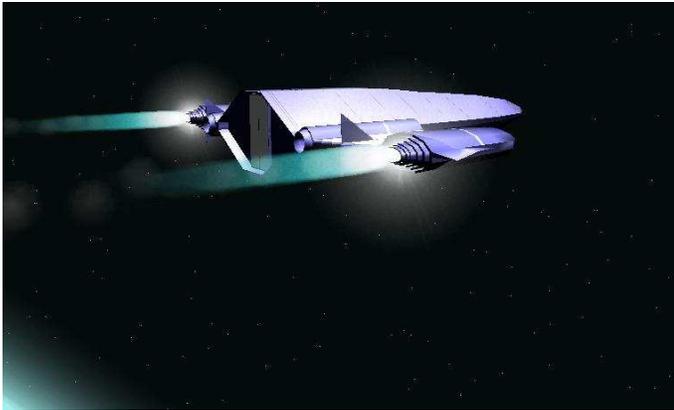
To calculate the frigate's new direction, a line parallel but opposite of the black line is drawn from the *point of origin*. This is the blue line with the big dot at the end. The blue dot is at the same distance from the green counter as the light blue counter is from the red counter, but in an opposite direction (2 spaces). The curved green line is the actual path of travel you would see if you were to watch this maneuver in real life. It curves as the ship thrusts sideways and back.

The distance and vector between the blue dot and the light blue counter is the new speed and direction of travel. Counting the hexes, this shows the frigate's speed to have remained at 5 despite the maneuvering it did. The red arrow that goes from the blue dot to the

AUTHORS NOTE: For the truly brave, this maneuvering method can be used to add up and down motion as well if two maps are used (this method is fine for two-ship encounters). For true 3D maneuvering you need a third display however, and that just becomes too tricky. The two chart method works fine and gives the same results anyway. One chart is the plane of the ecliptic, and the other is the up/down chart. Be sure to mark "+" and "-" on the second chart as well as drawing a line down the center to represent the plane of the original map. Pick your best visual math guy to resolve questions and memory lapses. This makes for a really fun game because almost no-one really understands 3d tactics when they start out. Two ships are no big difference, but when that becomes five ships, a moon, and a space fortress, the game suddenly takes on....well...a **new dimension!**

dark blue counter shows the exact new vector. The brown arrow shows the vector to use if you want to simplify maneuvering by only allowing six directions along the hex sides. If the ship does not maneuver again the next turn (and the vector indicated by the brown arrow is not used), it will continue on a straight line to the hex marked by the dark blue counter. If the ship does maneuver again, then the light blue counter hex would become the new green counter hex, and the dark blue counter hex would become the new red counter hex.

The position of the dark blue counter (and therefore the new speed and vector) can also be found by simply starting at the light blue hex, going up 5 hexes (the original course and speed) and then go down and to the right by 4 hexes (the vector and ADF the ship maneuvered for). This will put you in the same spot. Practice this a bit and you will find it easy to do, and you might even learn how to get where you are going.



MOVEMENT SEQUENCE

Okay, now that we've been through an example, let's go through this step by step and show how you would manage this on the map.

1. First, mark the start hex for the ship (green counter). This is an easy one since this is where your ship counter is sitting on the map. Next mark the destination hex based on current speed and course. (red counter in above example). See step 6 for recommendations on how to keep track of this.
2. Decide how many ADF the ship will use, and divide that number in half (you may round up or down here). This is the radius from the red counter that shows possible destinations for this turn. (yellow area)
3. Pick a destination hex (light blue counter). Place your ship counter there and place a marker on the original position to mark its location.
4. Mark the hex that is in an opposite direction and distance from the green counter (your temporary marker you placed in the last step) as the light blue counter is from the red counter (this is the location of the dark blue dot in the diagram). **Note:** *If you are using an odd number of ADF points, then the number of hexes you trace out from the green hex should equal the number of ADF points used minus the number of hexes you determined in step 2. For example, if you are using 3 ADF and rounded up in step 2, moving two hexes from the red hex, you would only move your line out 1 hex in this step. If you opted to only move 1 hex in step 3, you would need to move out 2 hexes. Using this properly can allow for subtle variations in the direction of your ship that you will learn to master with practice.*

5. Count the distance in hexes from the dark blue dot to the destination hex (light blue counter). This is your speed.
6. Take note of the line between the blue dot hex and the ship's new position. That is the ship's new direction of travel (red arrow). Point your ship counter in that direction. This does not indicate your ship's actual facing, only the ship's motion vector. In order to make things simpler for the next round it is helpful to keep track of where your ship would end up next turn if it didn't accelerate (i.e. the red hex for next turn). To determine this, just continue to trace out along the line connecting the blue dot to the light blue counter (red arrow) and continue on the same distance (this is the dark blue counter in the diagram). You can mark this with another counter or if you are playing on a map that has the coordinates numbered (as in the diagram), just note the number on the ship record for next time. **Note:** *If you only want to deal with movement along the six hex sides adjust the vector to align with the closest hex side (brown arrow). In this case you can just note the speed of your vessel and don't need to mark where it would move to.*
7. Take note of the actual path of travel the ship would have taken during the maneuver (green curve), and assure it did not pass through an obstacle (i.e. planet). If it did you have to make a different move.
8. Finally remove the marker that was on your ship's original position.

Once this is done for all your ship, you have finished your movement turn. The mechanics may seem a bit difficult at first, but after a couple of practice maneuvers, the system becomes quite natural and easy to use.

AUTHOR'S NOTE: While the mechanics of the system are easy to learn and use, mastering maneuvering and tactics using this new system can take some time. Play a few simple games with only a few ships to become familiar with the system before taking on a major fleet battle.



LAST OF THE BREED

William S. Signs

PART II (continued from Issue 10)

**War Room, Planetary Government Center
First Landing, Histran, Scree Fron System
01/08/95, 11:30:33 GST**

"We have our confirmation," Elmore remarks.

"From Hargut as well," Bellinghausen replies, his back still to his subordinate, his eyes fixed to the telemetry being relayed from the Landfleet sergeant continuing to press forward with the hunt, in spite of his injuries.
"Yes, Master," Elmore says.

"The President and the Council of Worlds," he adds, "fully concur with your assessment of the tactical situation, given this new information, and they've ordered Hargut, Histran and Hakosoar reinforced in anticipation of an imminent Free Alliance offensive. Task Forces *Scourge*, *Magister*, *Mounumental*, and *Titanic* are en route from Nexus to Histran, with Task Forces *White Fire*, *Mammoth*, *Juggernaut*, and *Behemoth* en route to Hakosoar from Nexus; they should arrive in system three days from now."

He pauses a few moments, before concluding: "As your Morality Index Number will be the highest of the task force commanders who will be assembled in the Scree Fron system, Fleet Admiral Creed has requested that you assume command of all military operations in the Scree Fron system, as well as military governorship of both Histran and Hakosoar, effective immediately." Bellinghausen nods his head, smiling.

"Send a signal to Fleet Admiral Creed on Gran Quivera," he says, "and inform him that, in His name, and for the greater good of the New Frontier, I humbly accept command of this system and the governorship of both its worlds."

"At once, Master," Elmore replies.

**Aboard the FAS Captain Melinda McCoy
In orbit, 1,500 kilometers over Volturnus,
Zebulon System
01/08/95, 11:42:28 GST**

She tries not to think about Lindy, the commander of the Star Forces' Fleet instead raining blow after blow on the heavy bag in the crew deck gymnasium.

Gods only know what'll happen to her, if they capture her and her crew, a part of her insists on thinking anyway, Hannah screaming as she gives the bag an

especially vicious kick which sends it slamming into the bulkhead and bouncing back to try and hit her.

Hannah kicks the bag again, punching it several times in quick succession, the sweat stinging her eyes, as she keeps going, trying to work past the thoughts of the one person she's been foolish enough to let herself get close to, even knowing what happened the last time—

"Vog!" she screams, as the heavy bag smacks her good in the face, Hannah kicking it some more...gods-damned traitor probably sold *Oath-Bound* and *Wanderer* out like he'd sold out his fellow Star Lawmen and his Federation twenty slagging years ago, Alissa Quinn should've let the New Frontier's goons blast him to Hells instead of risking her ship and crew to rescue them.

She renews her assault against the heavy bag, spurred on by the rage and hate she feels towards someone she had once been stupid enough to call her friend...should've vogging known better, everyone in her life either left her, creeted on her or both.

Lindy would've found a reason to leave too, she thinks, her strikes against the heavy bag gaining in ferocity with each passing moment, if I hadn't given her one, or I would've gotten her killed, like I did Carla and everyone else aboard the Dirk, aboard the Albatross, aboard all those other ships I've sent to their deaths these past twenty years, because I'm just not—

"Admiral," a Vruskian voice says from behind Hannah's right shoulder, the Star Forces Fleet Vice Admiral wheeling about on her heel, turning to face her executive officer, Captain Star Forces M'kx Vraxix, and screaming, "what?!"

"What is it, Captain?" she asks again, as she breathes deeply and fights to get her anger under control.

"Report from Special Branch, Hannah," says the Vrusk female who's been Hannah's right hand since their days together aboard the *Albatross*. "According to their sources, the New Frontier government is proceeding on the assumption that we are targeting Hargut, Histran and Hakosoar next, deploying forces from the Nexus, Pan-Gal and Rhianna systems to reinforce their garrisons around those worlds; Command further reports that Battle Groups *Red Cloud*, *Brannecken*, *Klast*, *Freiling*, *Douroup*, *Hargut*, and *Star Law Zik'Kar* have entered the Void from the Timeon system en route to Pan-Gal, ETA seven days."

Hannah takes another deep breath, nodding her head.

"It's begun, then," she remarks.

"Battle Groups *Anglann, Oropoho, Montoya, Bridger,*" M'kx continues briefing her commander, "*Felicia III, Leotus XIX, Hirkania, Morgaine, Harsevoort,* and *Star Forces X'ak Daar* are still in transit from Midpoint Station to Alcazzar, ETA, seven days."

"Any word on *Oath-Bound*?" Hannah finds herself asking, despite telling herself she wouldn't.

"None, Admiral," M'kx tells her, "since the destruction of the *Diogenes*. Special Branch reports they are attempting to analyze all Federation comm traffic originating from the Gruna Garu system for any hint, but, so far—"

"Gods damn it," Hannah whispers, trying to stop the tears running down her face.

**Aboard the FAS *Oath-Bound*
350 million kilometers from Hargut, Gruna Garu System
01/08/95, 11:46:26 GST**

"*Gods damn it!*" Melinda curses, her bridge shaking and briefly going dark, damage reports a steady drone in her ears, as Jezzine fires the main lasers into a flight of *Hatchet*-class 'vettes at point-blank range, the gunnery deck loosing another brace of torpedos at the same time the medium laser batteries engage corvettes swooping down on the elderly Star Forces warship from every direction.

"Bridge, gunnery deck," Ensign Kella Nash's holo reports. "Captain, we are almost out of interceptors and anti-beam ordinance—"

The bridge lights dim again, as *Oath-Bound's* gunnery officer continues her report: "—estimate one minute thirty, before interceptor and anti-beam launchers run completely dry."

"Understood," Melinda replies, "thank you, guns."

"White Leader," she says into her headset comp, *Oath-Bound* continuing to plow straight through the 'vettes she hasn't shot down at 2,980 kilometers per second, "*Oath-Bound*. Hari, have your squadron turn over and come at these bastards from behind."

"Will do, Skipper," Ensign Hari Cellini's holo replies instantly, even as L'ak reports, "Captain, am detecting a *Marauder*-class war cruiser and two corvettes at zero, twelve-fifty-five Zulu, closing rapidly to grappling range with the escape pod; also, I have four additional war cruisers emerging from the Void at plus one-five, eighteen-twenty Zulu, distance 10,000 kilometers from us and closing rapidly."

"Gunnery deck, launch torps," Melinda orders. "Pilot, ready main beams; astrogation, how long until we reach Void speed."

"Four minutes, ten seconds at present acceleration, Captain," Mohara replies.



"Torpedos away," Kella reports at the same time. "Estimate another forty-two seconds before we run out of interceptors and anti-beam ordinance."

"How long will it take for those ships to enter grappling range?" Melinda asks.

"Four minutes precisely," Mohara tells her.

In her command station holoprojector's tactical display, green crosshairs bracket the three enemy ships closing with *Diogenes'* creet bucket, six torpedos streaking towards them from the *Oath-Bound* at an acceleration of over thirty gravities, the two 'vettes and the war cruiser opening up on them with electron batteries and interceptor launchers, the torps' robot brains frantically jinking them about, keeping them on course for their intended targets at the same time.

Interceptors slam into two of the torps, the sheer kinetic energy of the impact vaporizing them instantly.

Electron beams from the 'vettes dispatch three of the remaining four, the final torpedo slamming home against one of the corvettes, the resulting explosion taking out the other one as well in a cloud of debris and hot gas which momentarily blinds *Oath-Bound's* sensors and cameras.

"Fire main beams," Melinda snaps out. "Guns, fighter squadron, stand by to—"

The bridge lights dim, as six heavy electron beams strike the forward mag shielding.

"Evasive maneuvers," Melinda orders, Jezzine already ducking the former Star Law frigate out of the path of six more heavy electron bolts, a flurry of lesser electron bolts and a storm of heavy massdriven projectiles.

"Sensors, pay attention," Melinda says, waiting for she *knew* was going to happen next. "Gunnery deck, bridge, launch torpedos, set for radiation homing, astern on my mark. Pilot, fire main lasers into the debris cloud, keep the cruiser ahead of us occupied."

"If the cruiser ahead maintains his present vector," Mohara reports, "he will no longer be able to close to grappling range before we reach Void speed."

"How long is that, Astrogator?" Melinda asks.

"Another two and a half minutes, Captain," Mohara replies.

"Captain," Kella reports, "we ran out of interceptors and anti-beam ordinance some time ago. From here on in, we're completely reliant on our mag shielding for defense."

"Thank you both," Melinda replies, dryswallowing, gripping the arms of her command chair. "Guns, stand by medium laser batteries; fighters, concentrate on those 'vettes."

"Standing by on torps and medium las batteries, Captain," Kella replies.

"*Enemy criusers astern have en—*" L'ak starts to shout out, Melinda screaming, "*launch torps, now!*"

Several things happen at once.

Four torpedos, their seekers set to home in on radiation, are instantly drawn to the brief heat and radiation pulse made by the four *Marauders* astern, as their Void fields alter the density and volume of the spacetime they intersect and manipulate.

Two of the four cruisers emerge in normal space 1,250 meters from *Oath-Bound*, only to be atomized instantly by two torpedos just as attracted to the radiation streaming from their exhaust venturis as they'd been to the radiation caused by their momentary passage through the Void.

One of the remaining two New Frontier machines is blasted apart by a torp while still in the Void.

The remaining *Marauder* emerges from the Void nearly two kilometers from *Oath-Bound's* stern, its interceptor launchers having time to fire a cloud of kinetic-kill missiles which handily dispatch the remaining torpedo.

Jezzine violently wrenches the *Oath-Bound* down and to the right, just as the *Marauder* fires all six of her main beams, the elderly former Star Law warship losing some of her velocity from the evasive maneuver in exchange for staying alive a few more seconds.

"Gunnery deck, bring all medium las batteries to bear on the cruiser astern and *fire!*" Melinda snaps out, as the cruiser astern continues closing rapidly with her ship.

"Pilot, keep firing main beams at the cruiser ahead," she adds, watching, as the cruiser ahead of them now moves towards *Oath-Bound* rather than away from her.

"*Seeker missiles inbound from both cruisers!*" L'ak reports. "*Federation multi-missile drones accelerating towards us along present vectors of both enemy craft!*" "*For what we are about to receive—*" her Dral comm tech quips at precisely the wrong time.

"*Shut the vog up!*" Melinda snaps at it. "Astrogator, how much longer?"

"Forty-six seconds, Captain," Mohara replies.

"Which we don't have," Melinda observes, "unless...."

"Guns," she barks out, "launch decoys *now*, if you want to live. Pilot—"

The *Marauder* ahead of them flashes white against space, and then just vanishes from the tactical display, its multi-missile drone disappearing almost as quickly, as Jezzine turns the main lasers loose on it, the three Black Team Boomerangs streaking past *Oath-Bound*, closing rapidly with the seekers converging on her from dead ahead, their light laser cannon soon firing on the desperately jinking seekers.

At the same time, Hari's three White Team Boomerangs swoop down on the multi-missile drone moving on the elderly Star Forces strike cruiser from dead astern, the *Marauder* which had been pursuing them now tumbling end over end in the dark, frozen atmosphere streaming from a dozen gashes in its spaceframe.

Four decoys drop from *Oath-Bound's* ordinance bays, each of them now making enough electronic noise to confuse the seekers on those missiles, whatever they may be set to home in on.

Several of the incoming missiles veer away from *Oath-Bound* to take out one of the decoys, the remaining missiles remaining true to course, as a fifth decoys drops into space.

"Void entry in twenty-one seconds," Mohara reports, as more incoming missiles pull away from the Star Forces strike cruiser and go for the decoys.

"*Multi-missile drone has launched additional seekers!*" L'ak shouts out, as Hari's holo curses, "gods damn it, Skipper, that little vogger's punched all his missiles, there's too many for us to shoot down!"

"Hold on, Boss," Master Petty Officer Gezzi Garn, Black Team's leader, says over comms, "we're coming."

"*Enemy 'vettes launching missiles!*" L'ak adds.

"Void entry in ten," Mohara says, as Melinda watches way too many missiles converging on her ship in the tactical display, "nine, eight—"

"Burned that little vogger," one of Gezzi's pilots growls out.

"Way too late to do any good," Hari comments.

"—five, four—" Mohara continues her countdown, as the decoys draw some of the approaching missiles off course.

"Take out those gods-damned missiles!" Hari roars out.

"—one," *Oath-Bound's* astrogator says, and the former Star Law frigate enters the Void barely ahead of the incoming seeker missiles, reentering normspace less than three hundred meters from the *Diogenes's* escape pod.

"Standing by to match pod's vector," Jezzine says. "Arming grap—"

"Hells with that," Melinda decides instantly, as a wave of Stinger starfighters appear on the tactical display five hundred meters from the creet can, a task unit of escort carriers and 'vettes right behind them. "Open the hangar bay doors, maintain present vector through space."

"Aye, Captain," her Yazirian female executive officer replies without a second thought, keeping the ship pointed at the pod, as it barrels down upon it at 2,990 kilometers per second.

"Hangar bay doors opening," she adds moments later, the enemy ships ahead of them opening fire, a fusillade of electron bolts nearly overwhelming the forward mag shielding, as the bridge lights dim.

"Returning fire," Jezzine and Kella both report, as *Oath-Bound's* chief flight engineer, Ensign Bryce Jellicoe, shouts from his station directly behind the sensors and comms stations, "*we're not going to be able to take another shot like that, Captain! The mag shield generator's badly damaged!*"

"Understood," Melinda replies.

"White Leader, *Oath-Bound*," she asks. "Hari, what's your status?"

"We're all in one piece, Skipper," Hari replies, "gods only know how; we're about to turn over and rejoin—"

"No," Melinda replies. "Maintain your present vector and get clear the instant your fighters make Void speed."

"Captain, you're practically naked back there," Hari objects. "One more shot by those ships, and—"

"We only have to take care of ourselves a little while longer," the master of the *Oath-Bound* replies grimly. "Your people have done everything they could, now it's time for you to get clear of the fighting. Jump for the outsystem rendezvous, as soon as you reach Void speed."

"That's an order, Ensign," she adds, L'ak reporting, "Captain, we did it. Escape pod's inside our hangar bay and setting down now."

"Enemy vessels opening fire again," Jezzine says.

"Close hangar bay doors and return fire," Melinda snaps out. "Astrogator, how long—"

"Void entry in sixteen seconds and counting, Captain," Mohara replies instantly. "Void field generator coming on line, engine computer answering astrocomp commands."

"Hangar bay doors closing," Jezzine reports, returning the enemy vessels' incoming fire at the same time she jinks violently in every direction at once.

"Marines to the hangar bay," Melinda says over her headset comp, swallowing once, as the enemy warships ahead of them open fire again.

She prays very hard, very quickly.

And, *Oath-Bound* streaks into the Void, again cheating almost certain destruction by microseconds, Melinda's ship running for the outsystem rendezvous at 350 times the speed of light.

Grataan Island, Sea of Volcanoes Histran, Scree Fron System 01/08/95, 11:55:58 GST

"I'll take first watch," Amanda says, stepping outside the cavern in which the survivors of *Wanderer's* crew have taken refuge, the twenty-one year old ensign pointing her laser rifle down the mountain pass they had just travelled, eyes scanning the forest for any sign of Landfleet soldiers.

Her heart jumps up into her throat at the sound of rotors, the Star Forces Fleet ensign looking up, aiming her weapon at a dirty-brown jetcopter—the UPF logo just barely visible against the paint—skimming the treetops, the electron cannon in its chin turret slewing slowly towards her.

The 'copter moves off, as the heavy tread of boots blundering through underbrush echoes up from below, a cloud of panicked birds flushed from the treetops letting Amanda know precisely where the enemy is.

An hour, she concludes, maybe an hour and a half, depending on how much longer they can keep up the pace.

We've that long, she observes grimly, to prepare ourselves.

(to be continued...)

CLASSIFIEDS

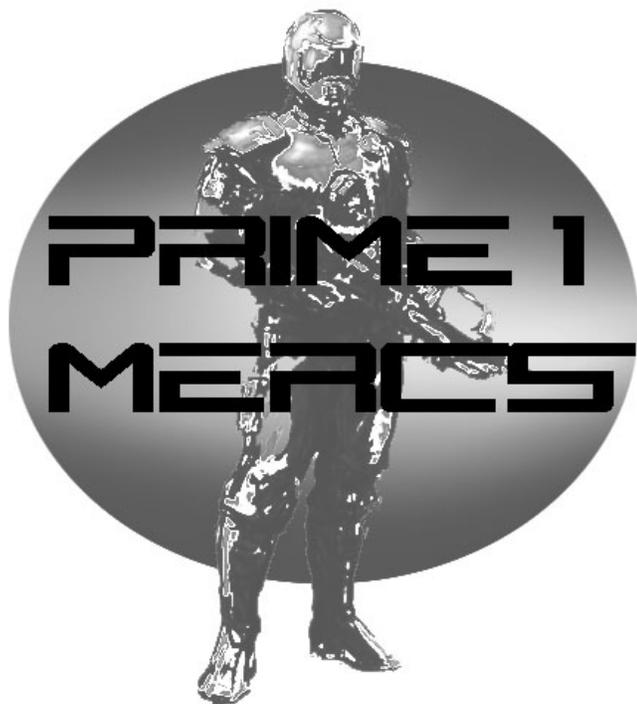
Prime 1 Mercs Apology

At Prime 1 Mercs we try our best to keep collateral damage to a minimum.

When we were hired to stop some bio / ecological terrorists at New Brunner colony we did not intend for the destruction that ensued. We assure the colonists that the damage is conventional. Not the viral and ecological catastrophe that our adversaries intended. Our environmentalist is confident that the damage to your colony will be restored in as little as eighty years.

As per our contract we stopped the cruel Dralosite Norvis Gumgy and his band from making the planet uninhabitable.

In spite of our success we extend a formal apology to the New Brunner colonists. This fulfills our obligation as set forth by the UPF.



Subspace Relay #
98552256987455612271

Estate Sale

We announce the recent passing of Groko (he finally bit the bullet, literally) due to unforeseen (by him) circumstances. Friends and family are welcome to come and try to claim items from his residence. Artifacts will be available over the next week at which point all items will be made available to the public.

- Tordia

Join the Star Fighter Corps!

"This is Alpha Two, I've got one in my sights. Switching over to guns."

"Watch your six there Two, you've got one on your tail!"

"I can't shake 'im!!!"

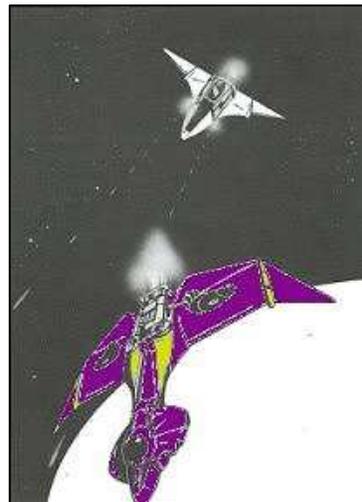
"Evasive maneuvers Two, I'm coming in at vector two five niner."

"Hurry up Chief, I can't hold this much longer..."

"Yahooooo!!! Chalk up another one!"

"Thanks Alpha One, drinks are on me when we land."

"Roger that Alpha Two, let's take out that other bogey and we can go home."



Enlist into the Star Fighter Corps, slide behind the stick of a sleek & deadly fighter craft, and take the fight to the enemy!

Do you have the right stuff to become an ace fighter jockey? Come find out

Interested parties should report to Mercenary Starbase, orbiting Volturnus in

the Zebulon system for qualifying exams.

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(<http://starfrontiers.homelinux.net/forum/index.php> - See the Wing Commander subsection there for more details and character submission.)