

JUMP POINT

A ROBERTS SPACE INDUSTRIES PUBLICATION ISSUE 03.05

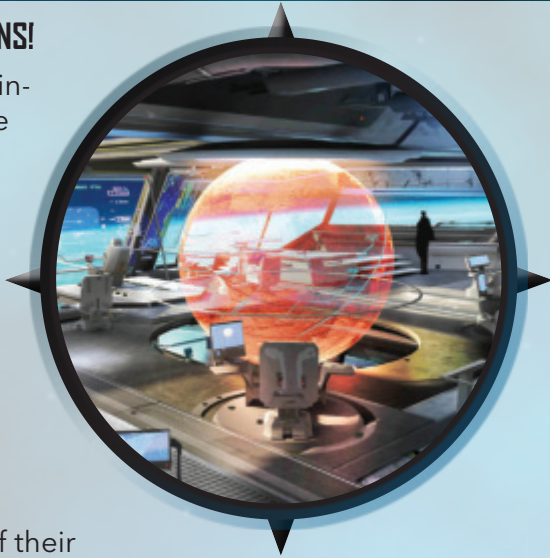


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GREETINGS, CITIZENS!

I appreciate the interest that you've shown in suggesting teams to interview for Behind the Scenes articles. Some of your suggestions are more likely to happen than others, and some are simply months ahead of their time. For example, we're paddling as fast as we can to create a valid economy model for Star Citizen, but it will still be awhile before ... well, let me pull a quote from Kristos Aristarchus:



I have not found an updated article on the state of the economy, how prices are determined to fluctuate based on supply and demand, what happens when the UEE changes policy to direct colonization of a newly discovered planet, or how to move vast amounts of supplies in the case of war, natural disaster (like the just released info about the famine on Fora) or the discovery of a new jump point.

I'm not picking on you, Kristos – you make a perfectly legitimate request. But you won't have an answer for several months, because we're still working to put all that together. The earlier article was as much speculation as it was finished mechanics, and (as with plenty of other things in this great venture) we've realized that we need to make modifications in the economy before it's ready for prime time.

I didn't have to go far to find my Behind the Scenes article this month – bowing to popular demand, I've described the economy boardgame that I put together last year. As I say there, it wasn't necessarily a good representation of the software-driven economy in *Star Citizen* to

begin with, and it's a year out of date now, but I'm hoping you'll find a few insights there; we did when we played it.

Galactic Guide visits Oso, the system Dave Haddock's Tonya Oriel explored back in the 2013 serial *The Lost Generation* (still a good read, at robertsspaceindustries.com/comm-link/spectrum-dispatch/12857-The-Lost-Generation-Issue-1). Meanwhile, Chronicles this issue begins *Brothers in Arms*, the story of Gavin, Walt and Dell, a renegade family that is determined to turn legit and climb the ladder to Citizenship. Andy Rogers is the newest author to explore the 'verse with us.

And with his story, we welcome new help in our monthly efforts. Our staff artist Ken will continue illustrating the Chronicles and the Galactic Guide, but concept artist Megan Cheever will assist at times, as well. We're happy to have both of them helping to make the 'verse a more colorful place. Along with Ryan, of course, who did the cover and all five of the beauty shots at the end of the Hull WIP article.

The new term of the issue for me is "nurnies," which turns out to be pretty much identical to another word that had heard before but hadn't really defined: "greeble." I'll let Wikipedia do the honors this time: *a nurnie or greeble is a fine detailing added to the surface of a larger object that makes it appear more complex, and therefore more visually interesting. It usually gives the audience an impression of increased scale.* (en.wikipedia.org/wiki/Greeble)

Hold on, it's gonna be a wild ride!

David

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PAGE 37:	CLINT SCHULTZ
PAGE 54, 56:	KEN FAIRCLOUGH
PAGE 57:	KEN FAIRCLOUGH & MEGAN CHEEVER



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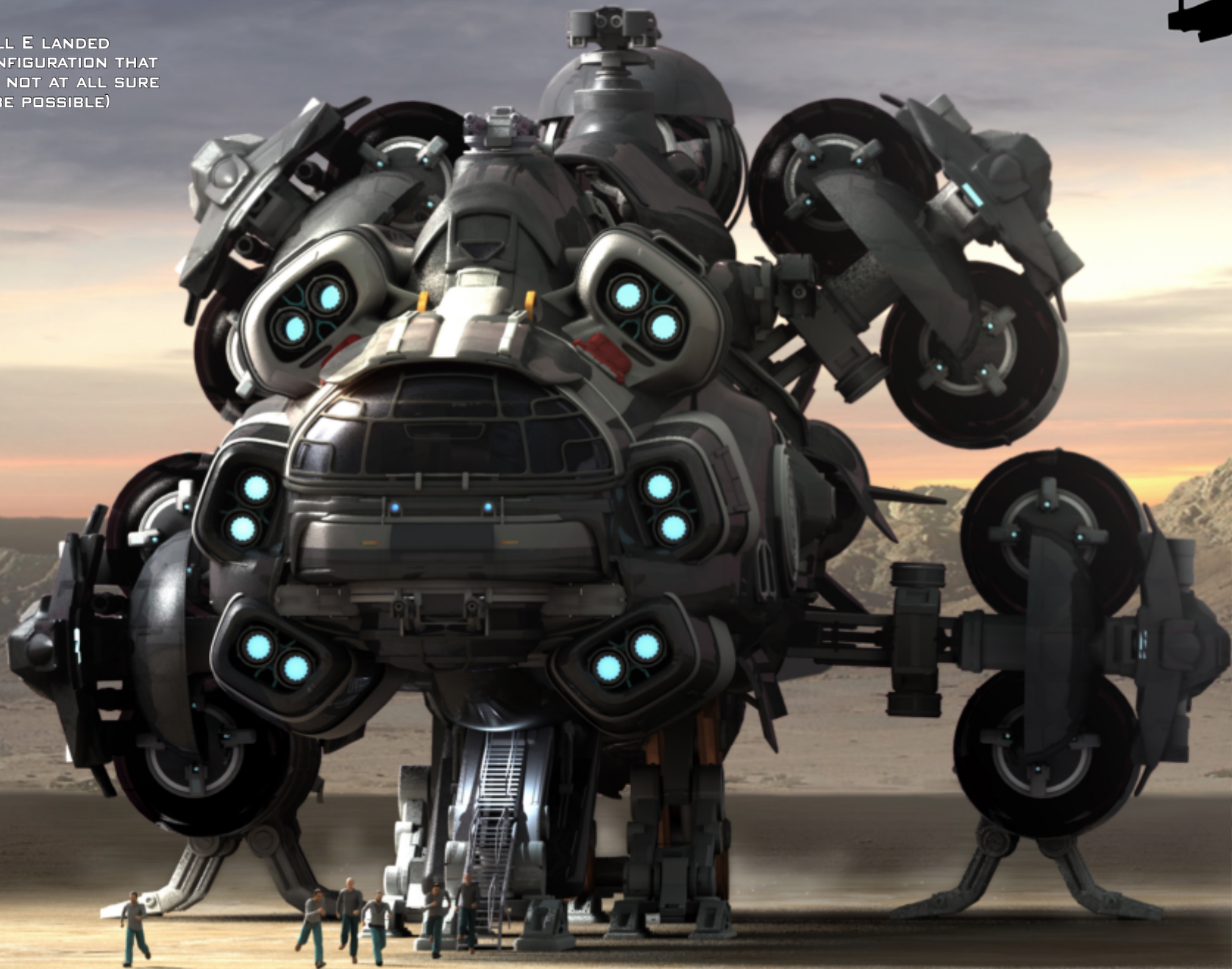


FROM THE HICKORY

A CLOUD IMPERIUM GAMES PRODUCTION. A STAR CITIZEN NEWSLETTER.
PART OF THE STAR CITIZEN/SQUADRON 42 UNIVERSE.

Hull Series

A HULL E LANDED
(A CONFIGURATION THAT
WE'RE NOT AT ALL SURE
WILL BE POSSIBLE)



WIKIPIEDIA

INITIAL DESIGN BRIEF

Hull Series (A - E)

Musashi Industrial & Starflight Concern

Scaling from small "box trucks" to massive supertankers, the MISC range of cargo Hulls (A-E) are the standard goods transporter in Human space. Extremely configurable, MISC Hulls can be adapted for most any type of transport job: from standard bulk shipping on the patrolled spacelanes to armored cargo hauling on the frontier. While these pre-configured hulls are primarily used for legitimate purposes, the MISC Hull Cs have recently become the favorite for criminals who modify the ship with advanced sensor shadow technology, quick-decompress holds and a variety of hidden compartments without modifying the ship's body so it will appear to onlook-

ers as a standard everyday transport.

- Hull A = Small Car ~ Aurora size
- Hull B = Truck ~ Freelancer
- Hull C = Big Rig
- Hull D = Super Hauler
- Hull E = Super Tanker -> Primary function is to take (boxed) ships through Jump Points?

Russian Nesting Doll?

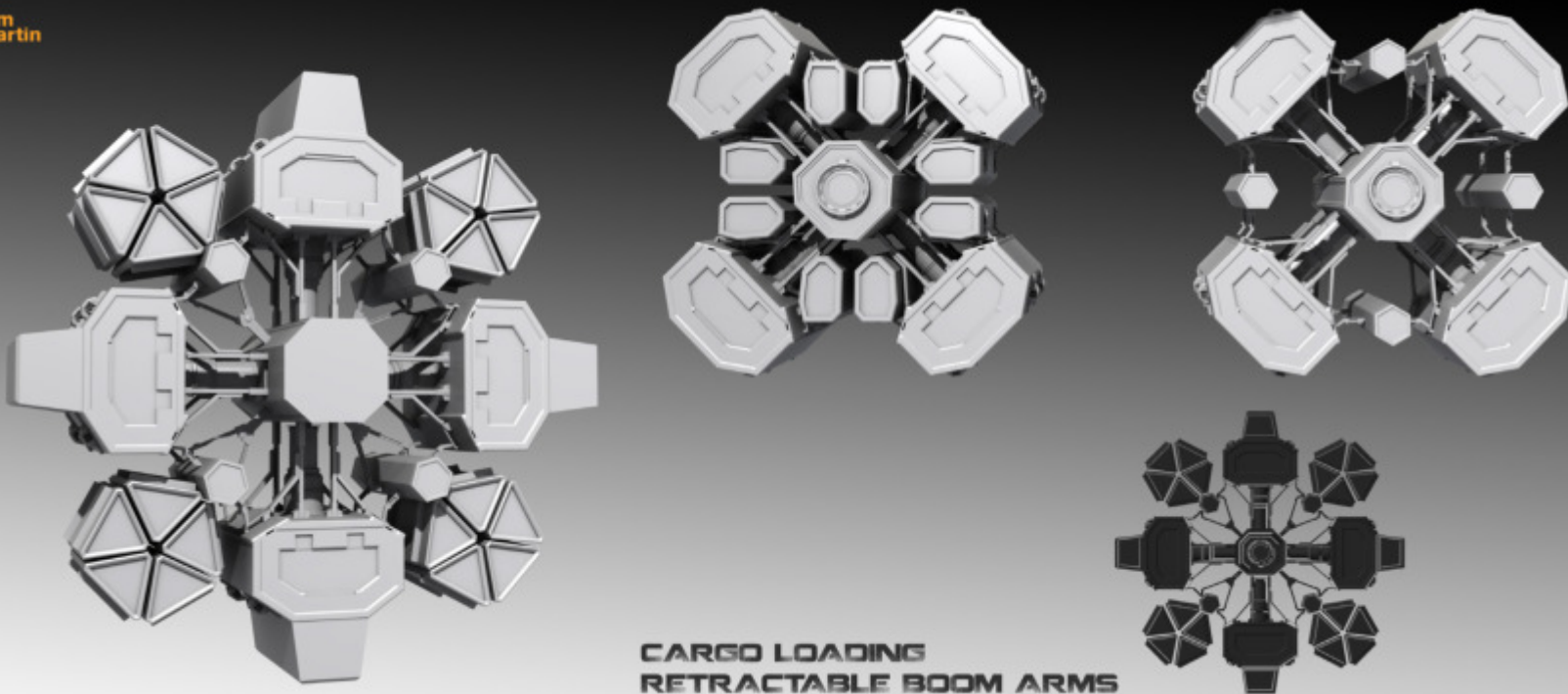
Each Hull in succession is twice as big as the previous?

Hull A = 1 size 1 gun and more Cargo than Aurora

Hull A = Slower acceleration than Aurora, but can reach similar speeds



Jim Martin



WORKING IN PROGRESS

INITIAL DESIGN BRIEF (cont.)

Hulls are broken down into the following:

- Cockpit = Detachable shuttle to land on planets (can be reattached).
- Pods = Can be jettisoned. Can be rotated at will by pilot. Rotate automatically by default if pilot doesn't give rotation commands. It can have Living Pods, Cargo Shelf Pods, Engine Pods, Internal Cargo Pods.
- Spokes = Arms that extend from pods. Can be jettisoned.
- Extendable Shelves. These shelves can move up and down on the spoke to accommodate different sized cargo containers. Shelves can be collapsed completely if no cargo, to lower surface area, but this also changes flight dynamics.
- Outer Shield/Shelf (shields cargo, but can also be used to display banners/billboards/clan insignias).
- Engine Pods.

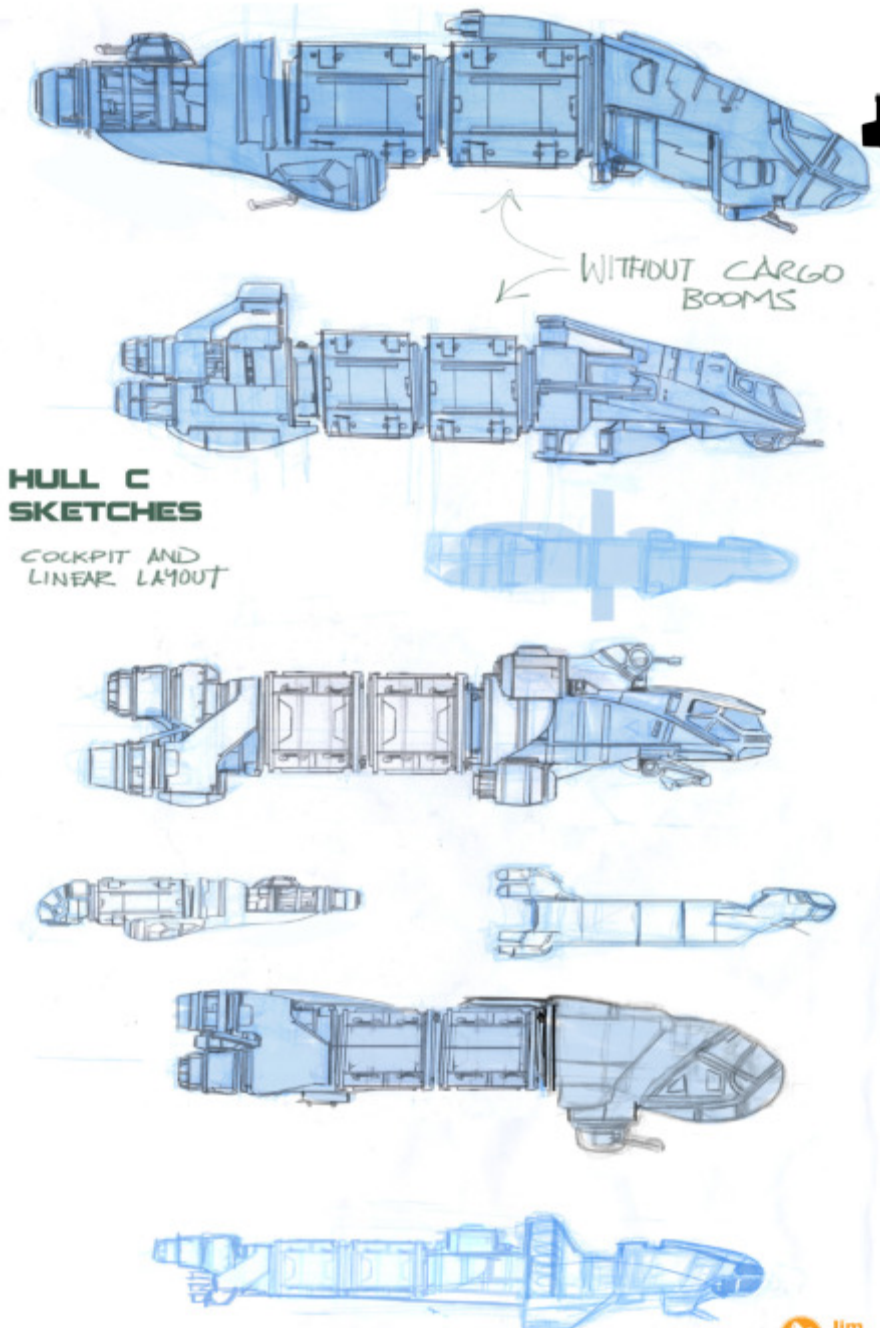
Hull A = a new Starter Ship. Is jump capable, but doesn't come stock with Jump Drive.

Countermeasures are attached to spokes (will look like a C130 when ejecting flares)

Shields

Hull A = 1 Face
Hull B = 2 Faces
Hull C = 4 Faces
Hull D = 6 Faces

No variants, but different style of spokes (Cargo size? Turrets? Armor?) are sold separately for each Hull model.

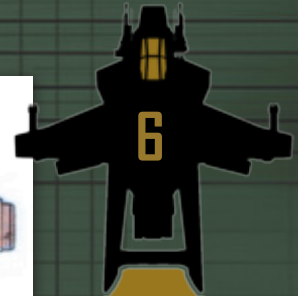
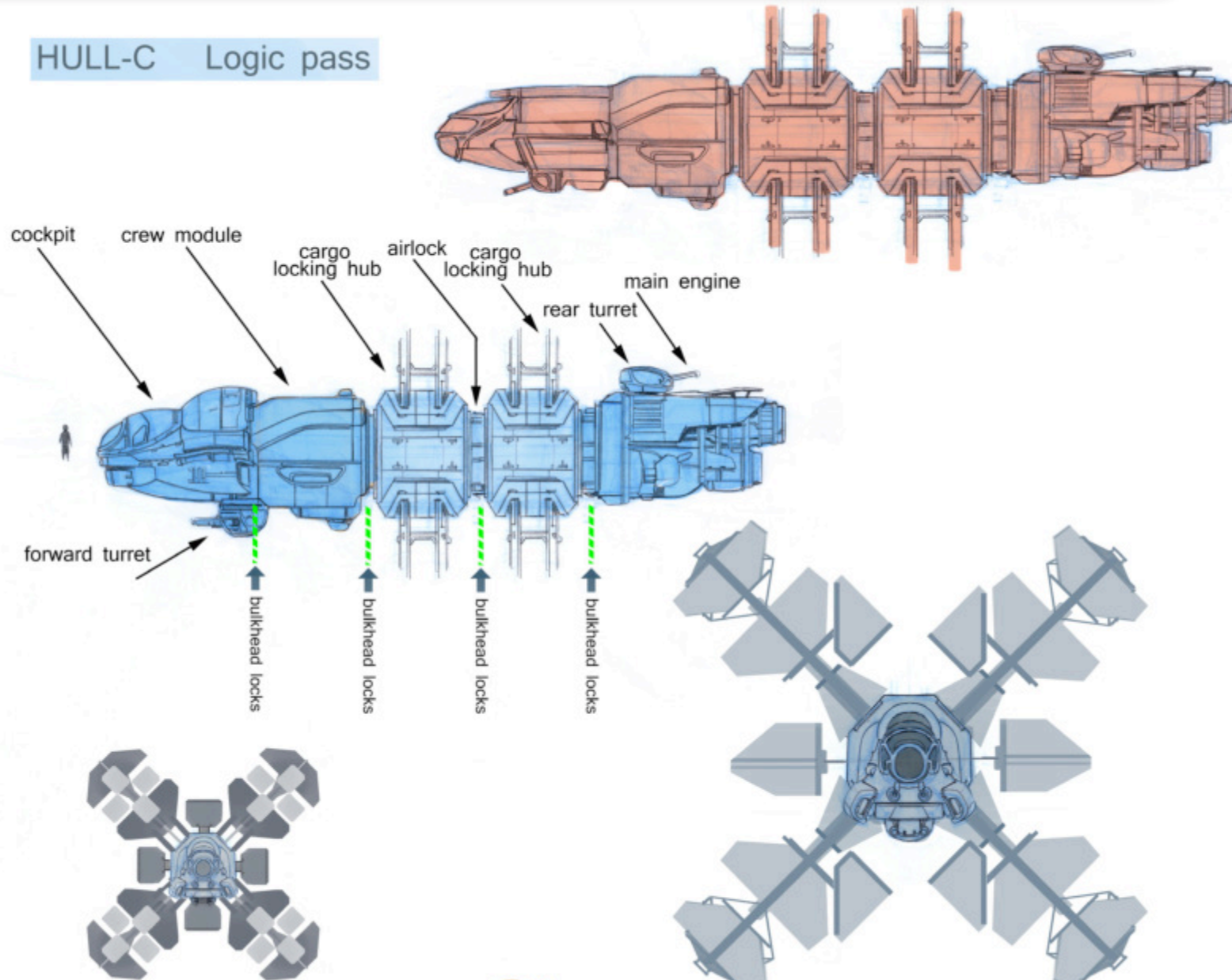


WORK IN PROGRESS

Jim Martin, freelance concept artist of the Cutlass, Scythe and Freelancer, created the Hull concepts for us. He worked with **Suzana Brown**, Art Outsour

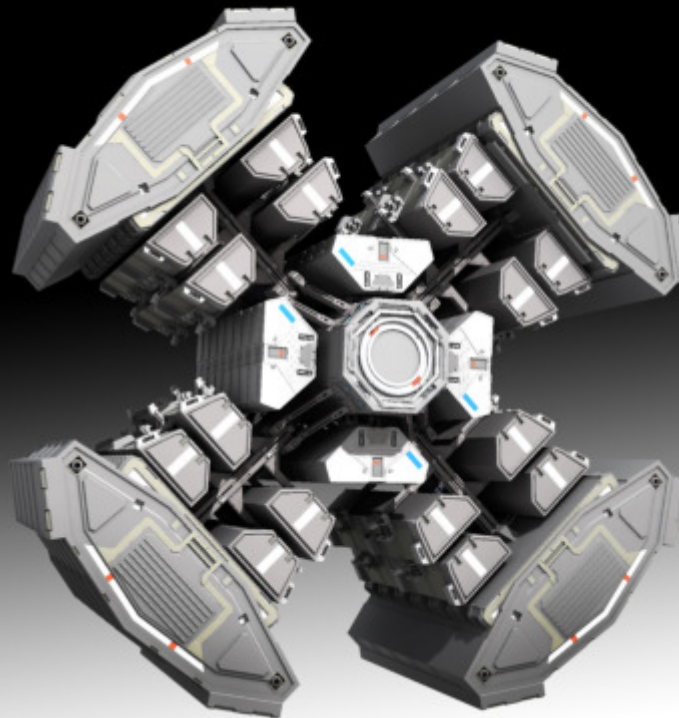
Manager, and **Lance Powell**, Supervising Art Director. He focused on the Hull C, and scaled up and down from there to design the other models in the series.

HULL-C Logic pass



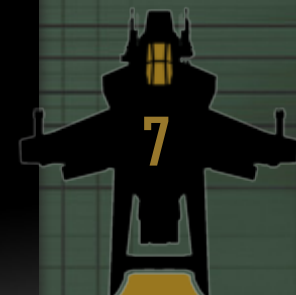
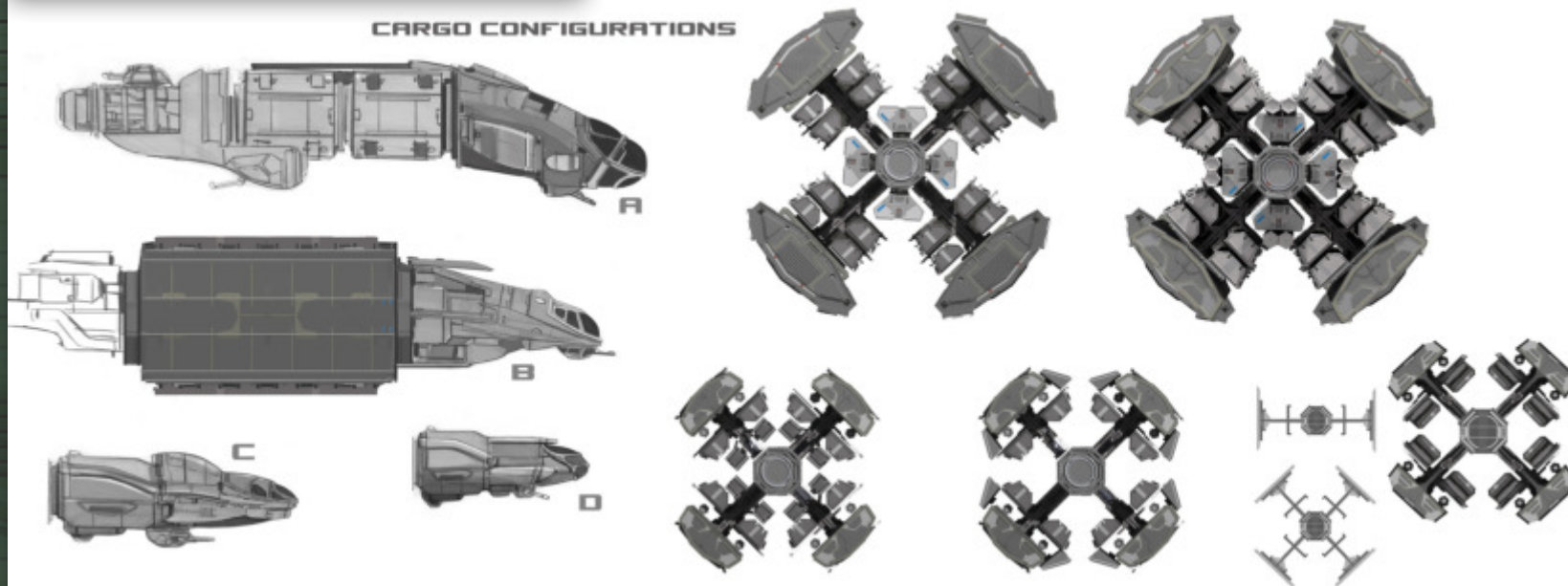
WORKING IN PROGRESS

HULL C STACKED BOOM ARMS



Jim: Here's a configuration for the center section cargo clusters. I'm trying a layout that features a heavy outer cargo container, and smaller units on the inside. Center portion could be a crew module?

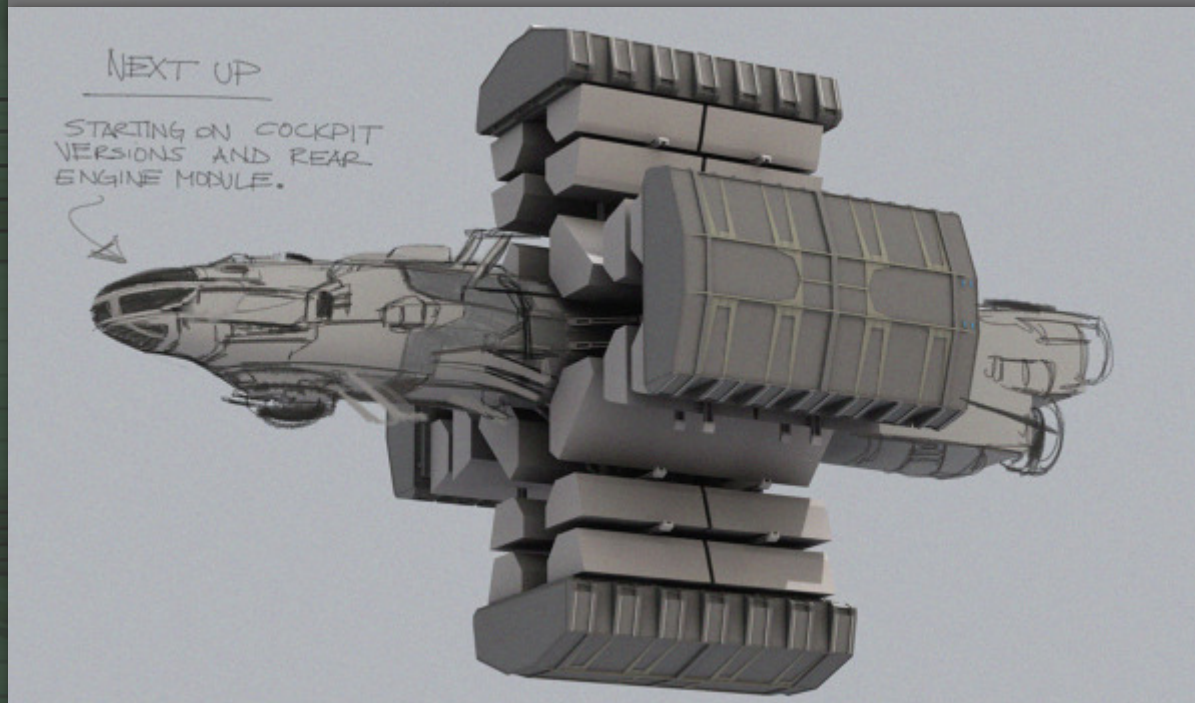
CARGO CONFIGURATIONS



WORKING PROGRESS



HULL C RIGGING



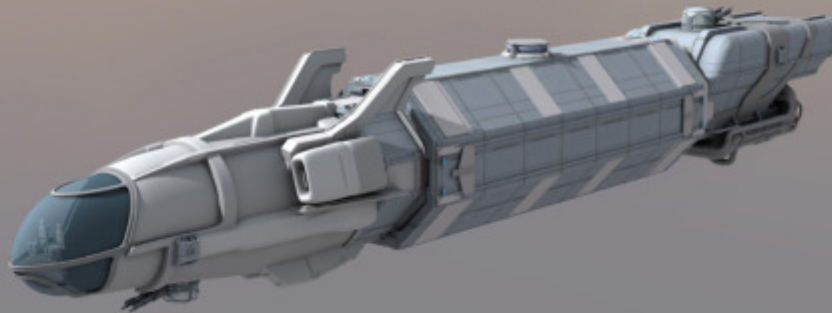
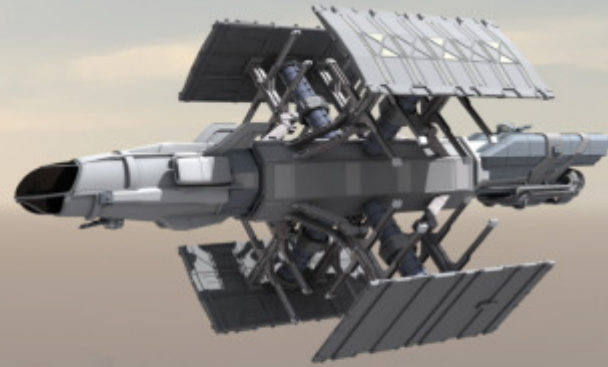
Jim: Final rigging arm layout. I'm thinking about two things. First, possibly the arms can expand and contract to accommodate different cargo sizes. Also, maybe there are retractable slats to guide the cargo containers, kind of like shelves.



WORKING IN PROGRESS



PURE SIDE VIEW



BODY ROUGH FOR PROPORTION

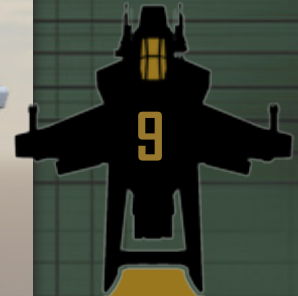
Jim: I'm sending you a proportion model with the front detachable ship mocked in for scale. The front is just a "stand in" to look at overall scale.



LOADED CARGO

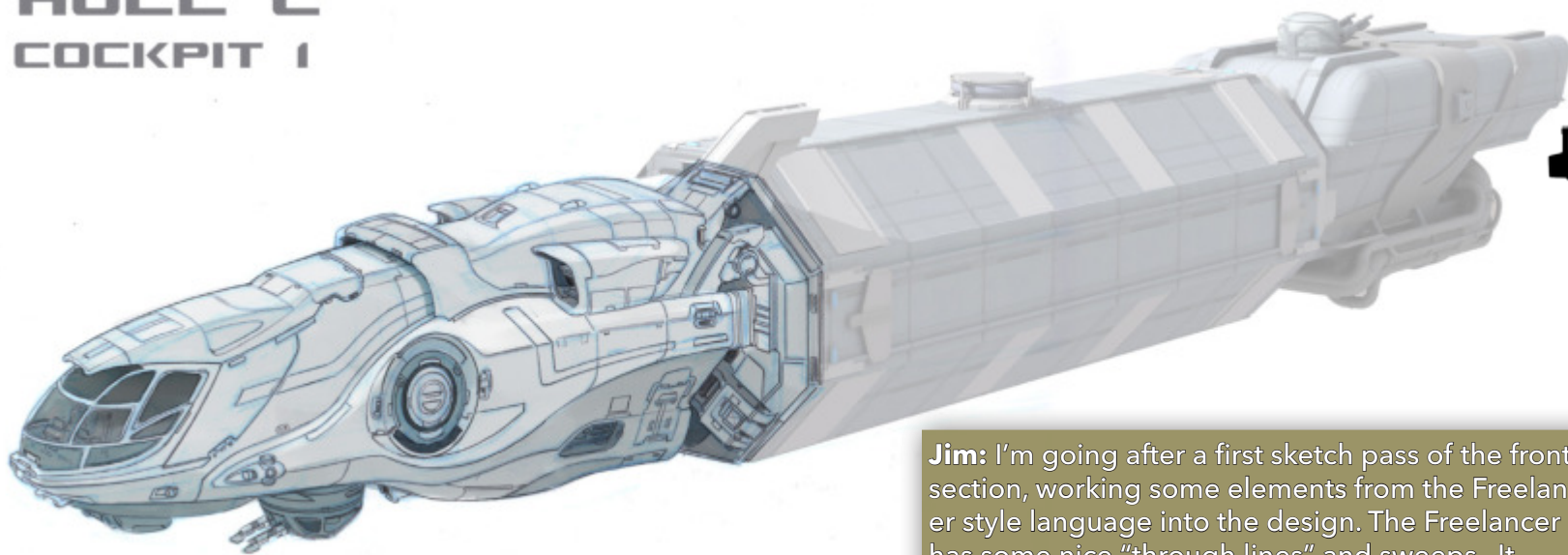


REAR VIEW



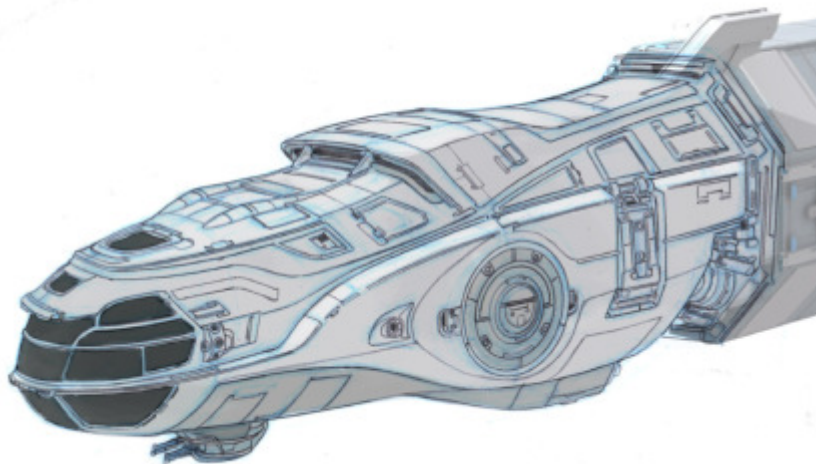
WORK IN PROGRESS

HULL C COCKPIT 1

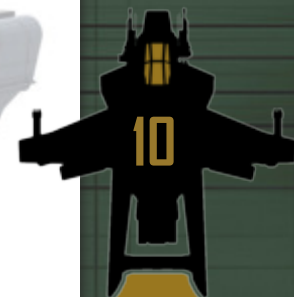
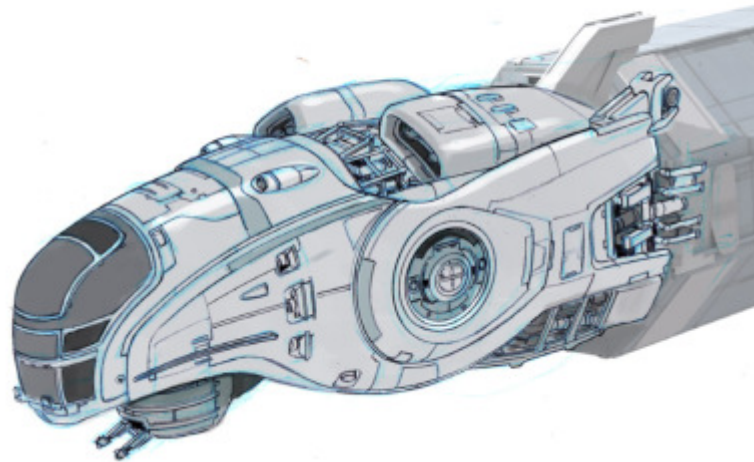


Jim: I'm going after a first sketch pass of the front section, working some elements from the Freelancer style language into the design. The Freelancer has some nice "through lines" and sweeps. It would be nice to have the side docking ring detail echo the side circular gun turret of the Freelancer.

COCKPIT 2

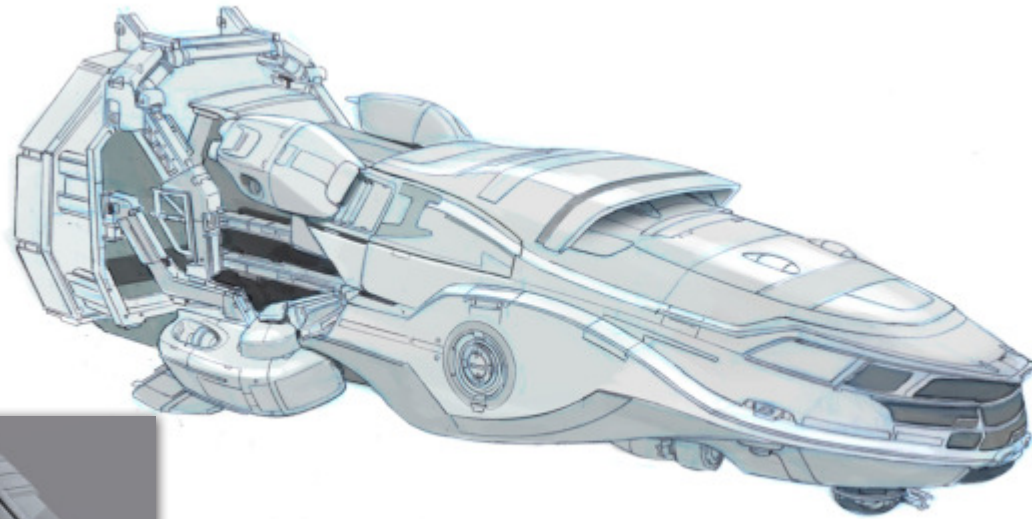
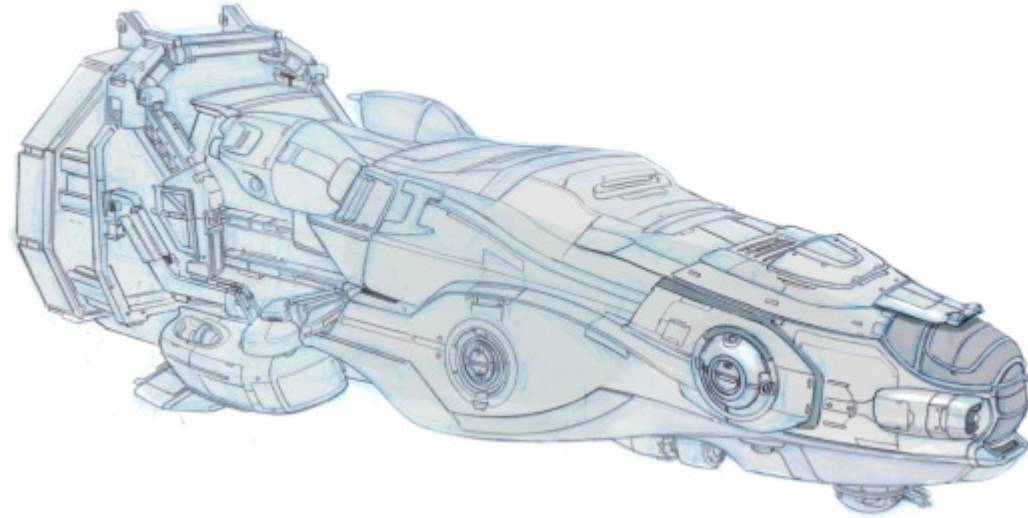


COCKPIT 3



WORK IN PROGRESS

COCKPIT VARIATIONS ON VERSION B



DOCKING COLLAR



WORK IN PROGRESS

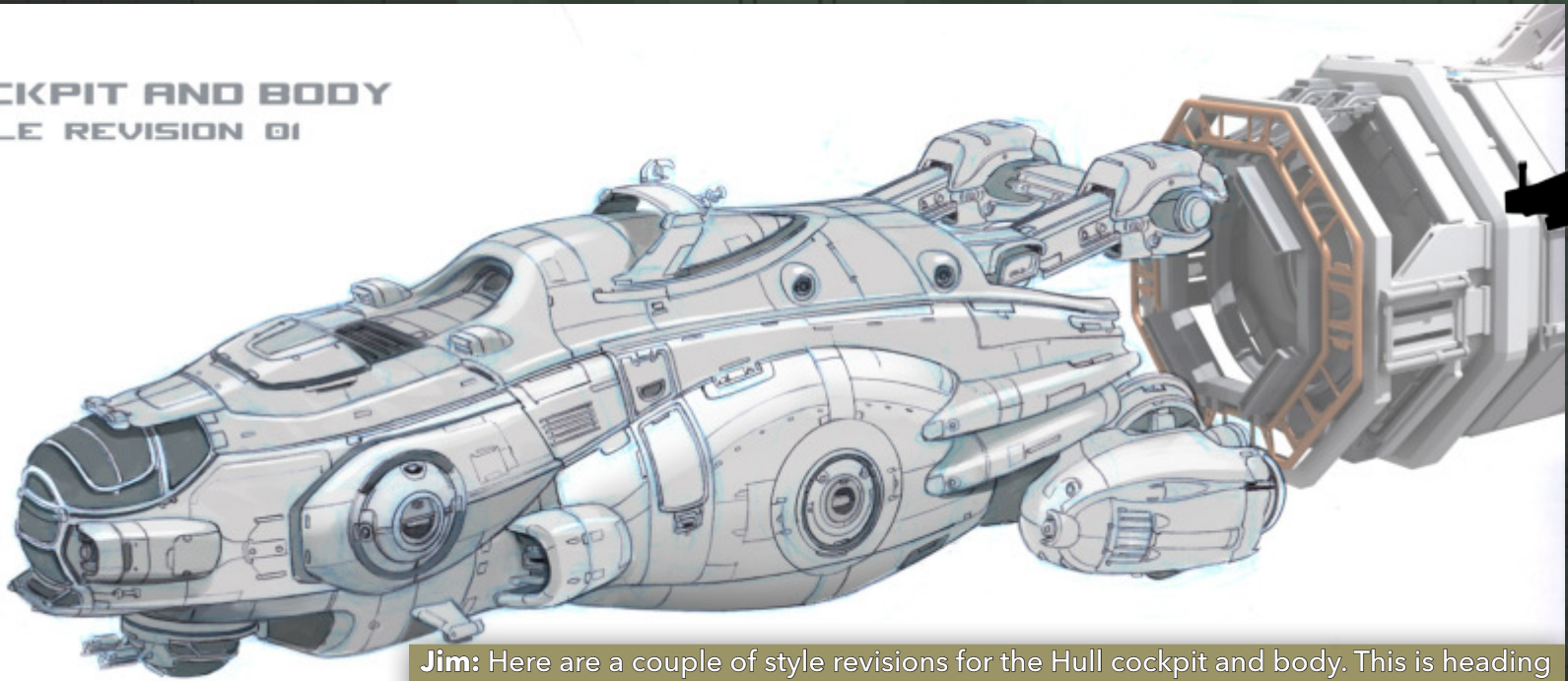


Jim: Early double engine concept. It's lacking the heavy engine feel of a long haul cargo carrier.



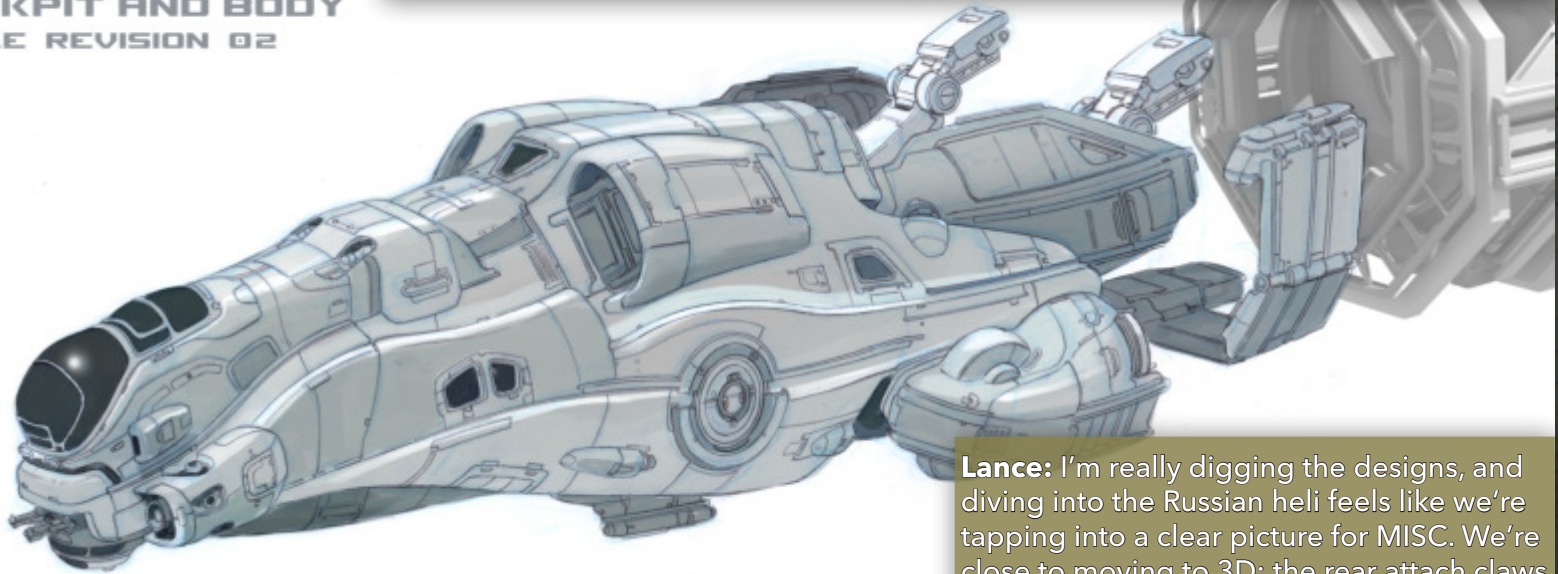
WORK IN PROGRESS

COCKPIT AND BODY
STYLE REVISION 01



Jim: Here are a couple of style revisions for the Hull cockpit and body. This is heading closer to modular Russian helicopter panels and rounded shapes. Either one of these would work for me as a starting point to get into a 3D version that we could continue to tinker with. I will send along a version that has outboard Xi'An engines at the front.

COCKPIT AND BODY
STYLE REVISION 02



Lance: I'm really digging the designs, and diving into the Russian heli feels like we're tapping into a clear picture for MISC. We're close to moving to 3D; the rear attach claws are the only sticking points. They counter the docking rings from last version.



WORK IN PROGRESS

HULL C
COCKPIT AND
FUSELAGE MODEL



SIDE

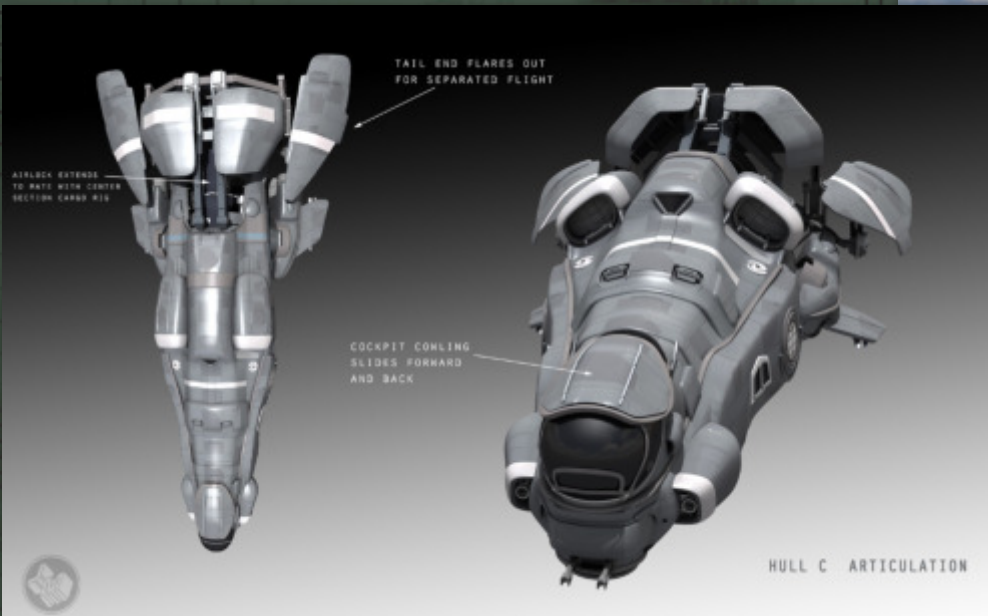


REAR



FRONT

Jim: I modeled a cockpit and fuselage from the last pass. Wanted to see "volumes" and get a sense of it in space. I put in some temp docking claws, but that can change around depending on what you'd like to see for that. I'm hitting the Russian Helicopter note pretty strong.



WORK IN PROGRESS

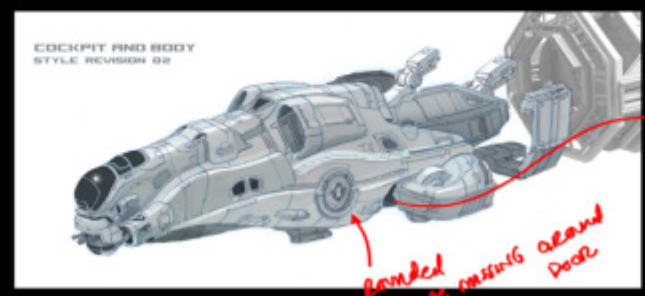
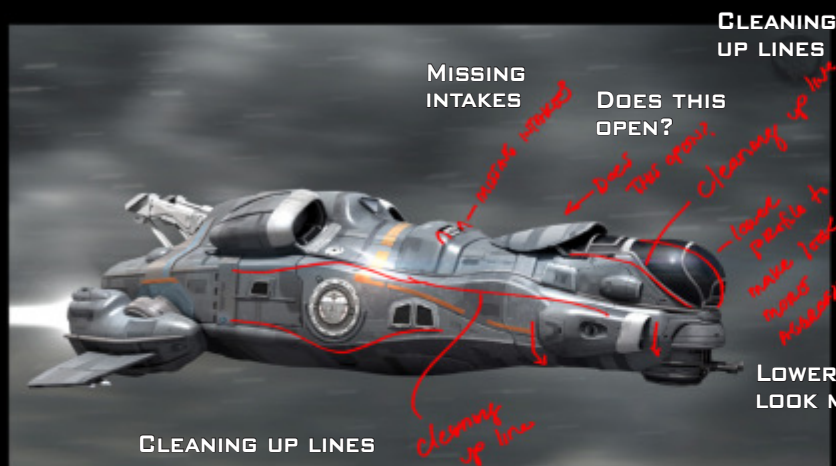
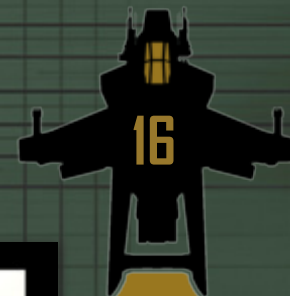


Jim: here's a landed version of the Hull C front section. I think it looks pretty sweet in this view. It's bulky and awkward in a cool way.



WORKING IN PROGRESS

Lance: The feedback I have is limited at the moment – most of it cleaning up shape lines, and making the ship look a little more aggressive.



ROUNDED SHAPE MISSING AROUND DOOR

Any way to bring this space back?

WORK IN PROGRESS

Jim: I'm starting to shed the idea of the round helicopter canopy glass. I'm looking for some ways to do a plated break-up around the glass.

HULL C
VERSION 1
ORIGINAL DESIGN

FIRST VERSION
SCOOPS BACK
→



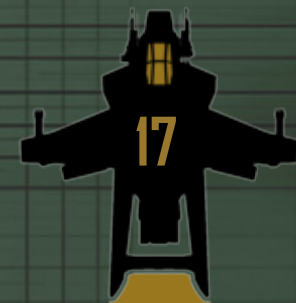
VERSION 2



VERSION 3



VERSION 4



WORKING PRINCIPLES

HULL SERIES VARIANT C

SHIP TO CARGO DOCKING LOCKS

CARGO RIG CENTER
CORE IS HABITABLE

SMALL CARGO LOCKS
FOR LANDING

STABILIZING CLAW

CONTRACTS INTO
THE CARGO SPINE

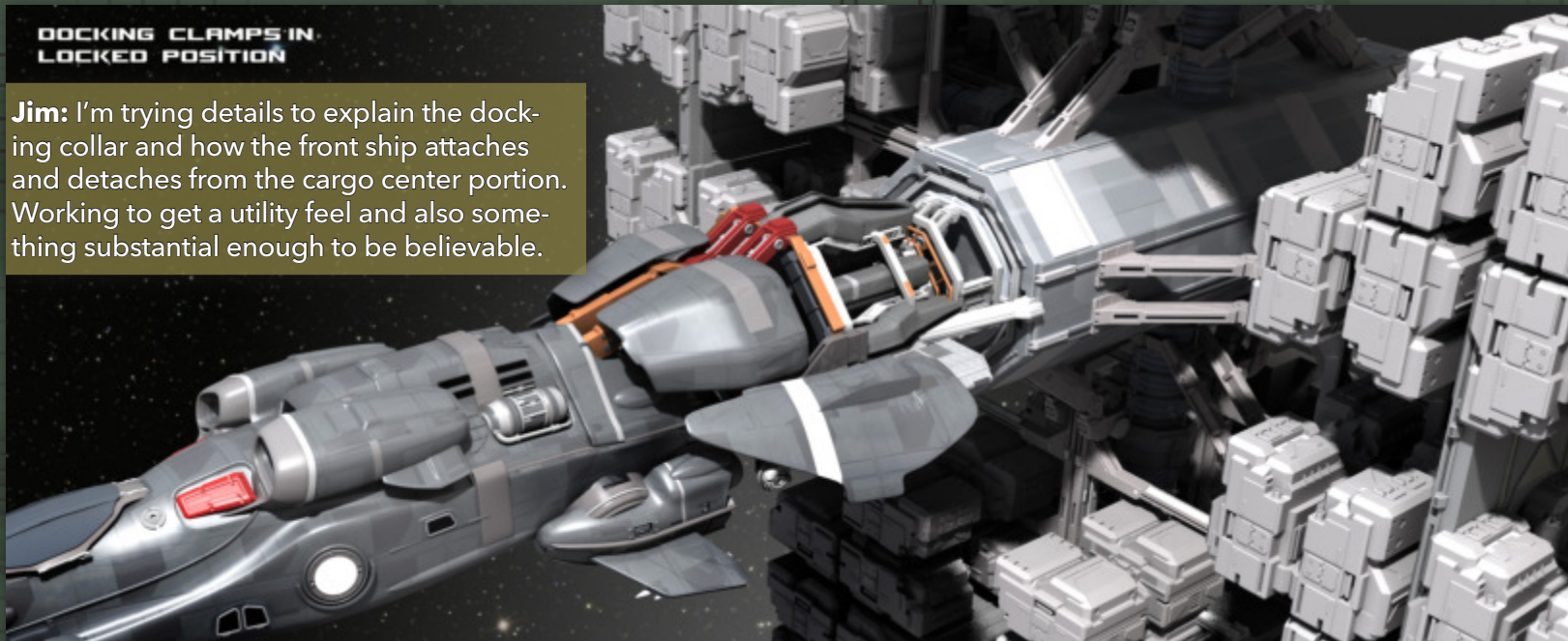
PERMANENT COLLAR



WORKING IN PROGRESS

DOCKING CLAMPS IN
LOCKED POSITION

Jim: I'm trying details to explain the docking collar and how the front ship attaches and detaches from the cargo center portion. Working to get a utility feel and also something substantial enough to be believable.

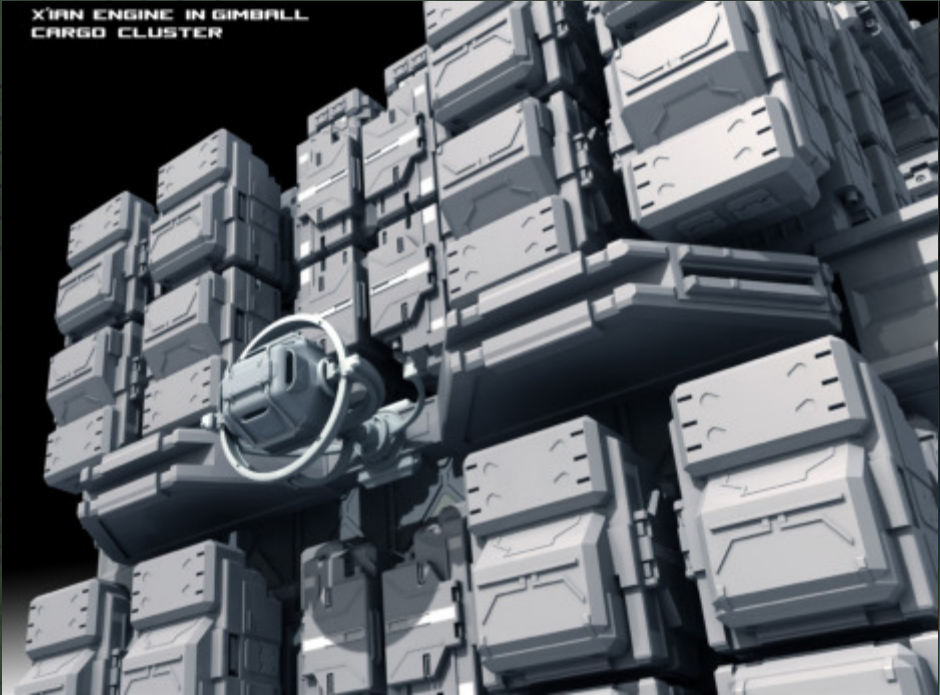


HULL C ENGINES



WORKING IN PROGRESS

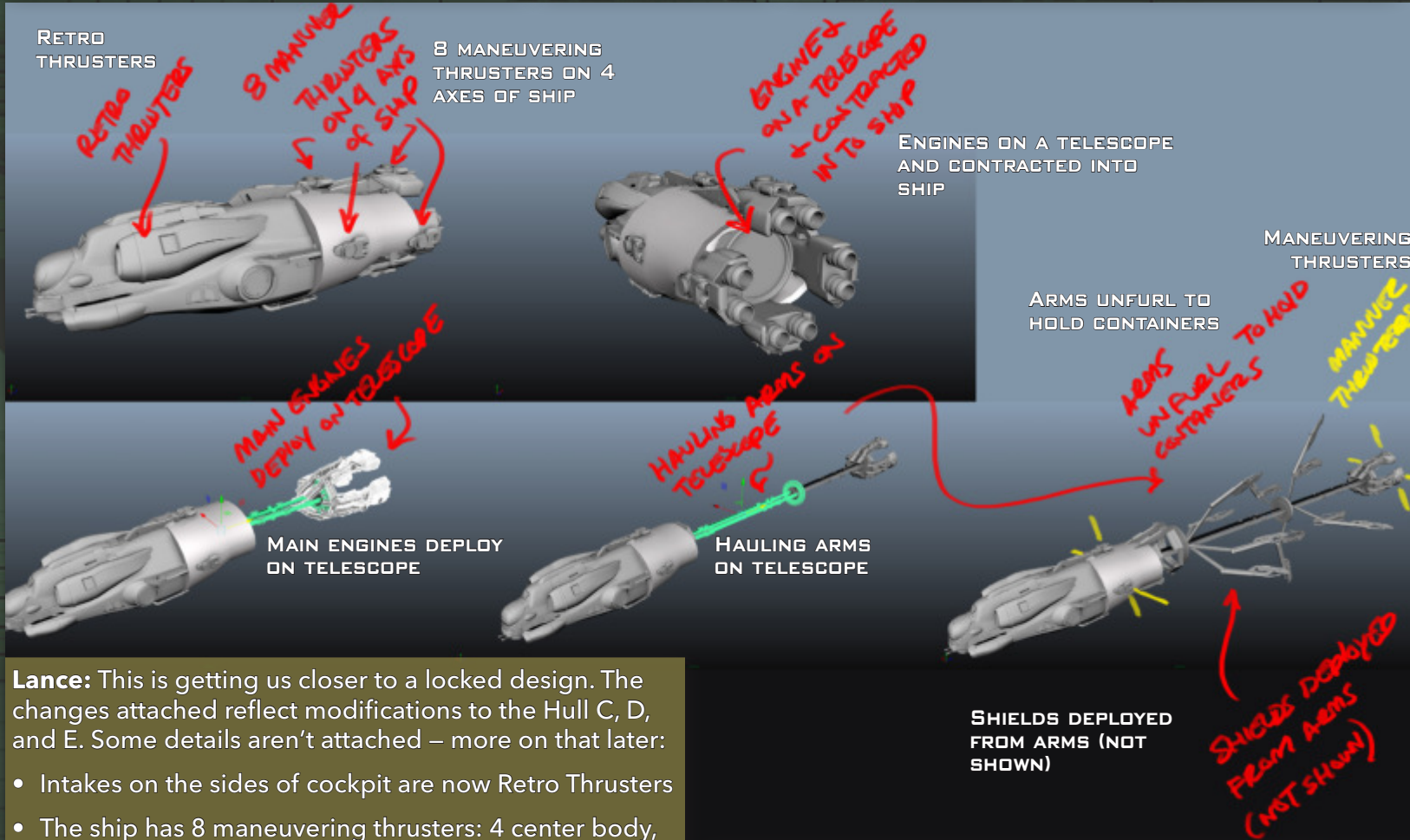
X'IAN ENGINE IN GIMBALL CARGO CLUSTER



Jim: Here's the Hull C model. No subdivisions, and a "reduced polygon" version where the program randomly reduces polys and makes some things look bad, but overall the same shape and form.

Lance: Chris said he wants them to look more like a Semi.

Jim: Ok, major course change on our concept. The Hull C won't be three separate pieces (detachable front ship, center cargo rig, rear engine), it will be all-in-one! Cargo arms fold into ship body, ship opens up to deploy cargo rig.



Lance: This is getting us closer to a locked design. The changes attached reflect modifications to the Hull C, D, and E. Some details aren't attached – more on that later:

- Intakes on the sides of cockpit are now Retro Thrusters
- The ship has 8 maneuvering thrusters: 4 center body, 4 attached to Engines
- Engines telescope, along with cargo crane
- Along the crane, arms extend. Those are used to hold the containers
- When the arms are extended, shields unfurl (more on this later)

Jim: So the vibe I'm getting about the Hull series is that it needs to feel very utility: "tractor trailer" and "box truck" and "semi." I can head in that direction with some ideas; it means we pull back from the Russian helicopter rounded shapes (unless we are talking Huey or Chinook, which are very utility). Maybe the sweeping curves of the Freelancer also don't apply as much.



WORK IN PROGRESS

Lance: After talking with Dan [Dan Tracy, Lead Technical Designer], I made a few more adjustments to the Hull C. This includes Chris's feedback from last week. It's quick work – excuse the mess.

Summed up:

- The Hull C and D have two sets of telescoping engines that extend from the body out 90 degrees
 - > When not towing, those engines are retracted into the body and operate as its primary engines
 - > When towing, the engines are used for maneuvering
- The ship comes with a caboose that operates as its

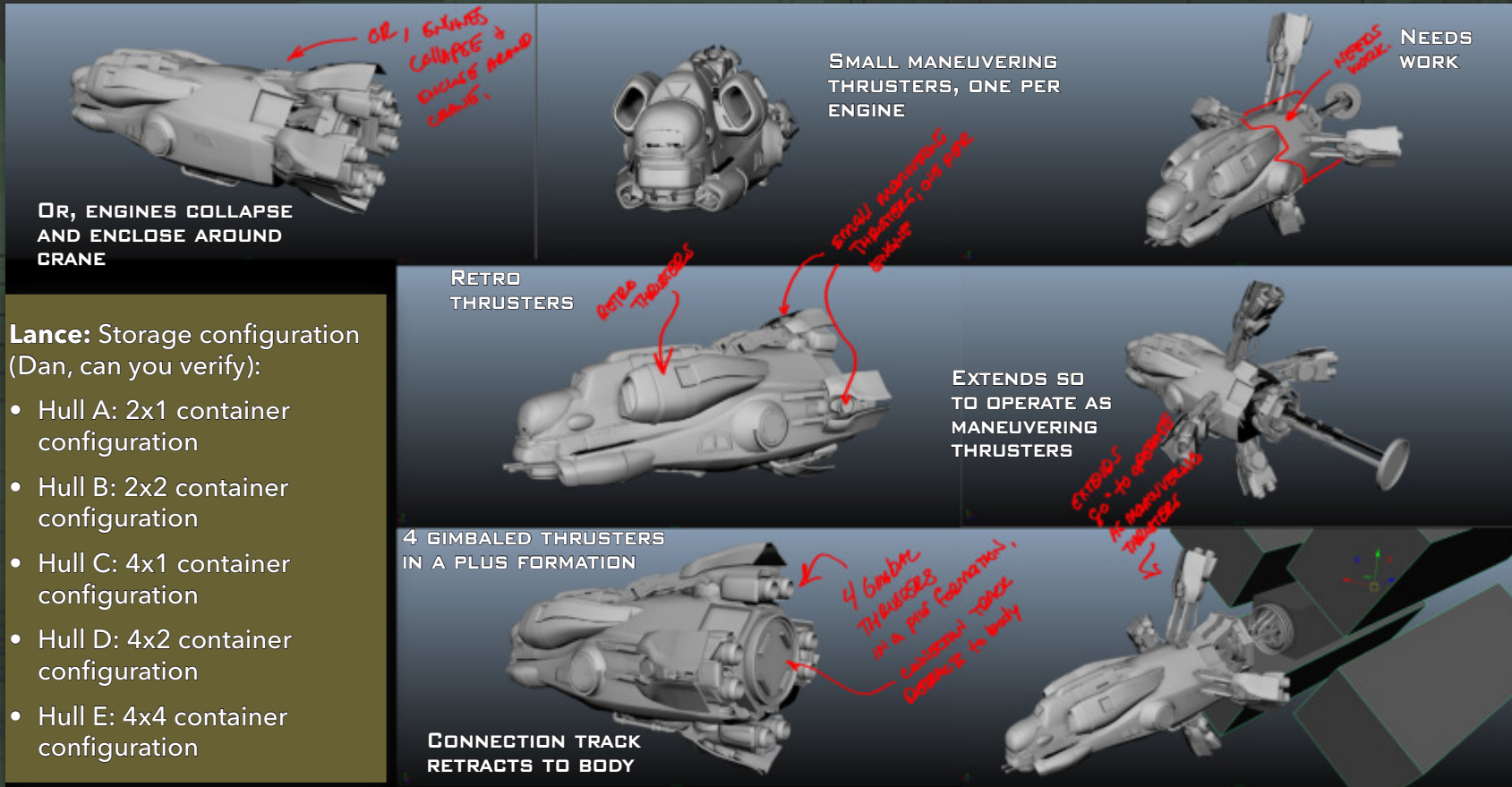
hauling thrusters – these are the normal iconic MISC engines (beefy)

- The front intakes are now retro thrusters
- There are four smaller maneuvering thrusters around the front of the ship
- The docking ring retracts into the body, and it's either locked in place by the extended thrusters, or pulls into the ship's hull

These changes were made at Chris's request to make the ship look like a hauler, while keeping the beefy look of the ship from a front view.



WORKING IN PROGRESS



Lance: Storage configuration (Dan, can you verify):

- Hull A: 2x1 container configuration
- Hull B: 2x2 container configuration
- Hull C: 4x1 container configuration
- Hull D: 4x2 container configuration
- Hull E: 4x4 container configuration



REVISION CAB 1-2



REVISION CAB 3-4



REVISION CAB 5-6



Jim: Here are some revisions for the forward cab, giving it some heft and more utility. Trying to hit that Mack truck idea. These are rough; I can get these to a nice finished place if we see a direction we like.



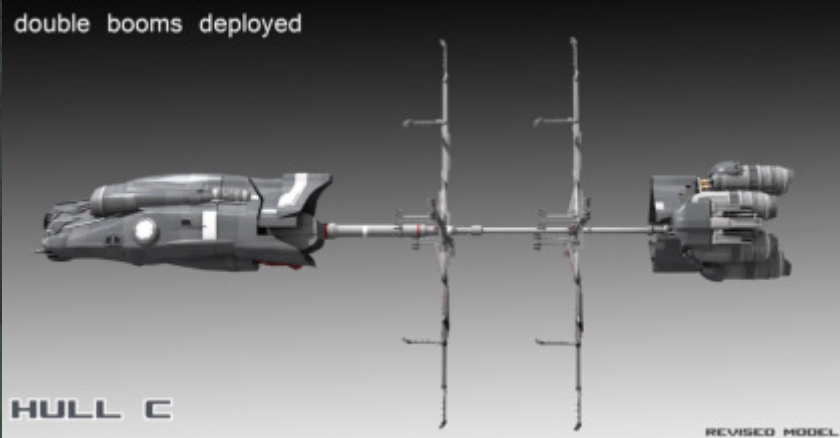
WORKING DRAFTS

Jim: These are rough grabs! There's a more polished detail pass needed, but the underlying design is there and it's holding tight to your concept. Shield deployment I can add in this week with the finesse pass, but first step would be Chris buying off on the concept and shapes at this stage. The other stuff is frosting the cake.



HULL C CLOSED

REVISED MODEL
014 000 05



double booms deployed

HULL C

REVISED MODEL



HULL C
DEPLOYING CARGO ARMS

REVISED MODEL
014 000 06

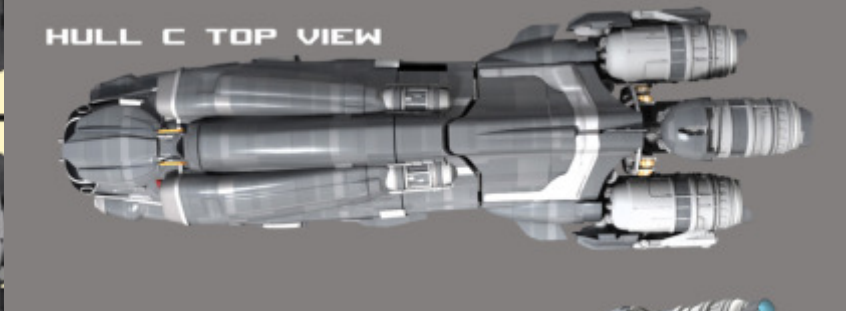


HULL C
TEMPERED-IN CARGO

REVISED MODEL
014 000 05



HULL C TOP VIEW



HULL C ENGINE CLUSTER

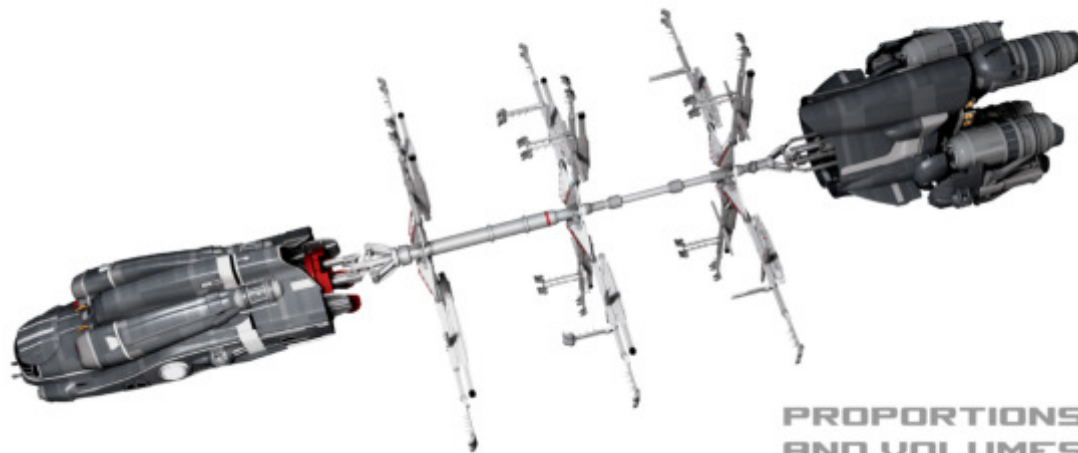
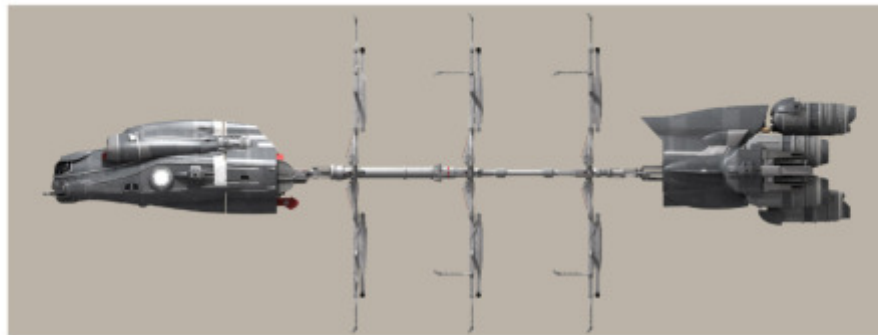


WORKING PROGRESS

Lance: Overall Chris liked where things were headed. He loved the retractable arms. Specific feedback: the engine rig needs to be equally as long as the main cab, with maneuvering thrusters on both ends (in opposing locations). He also felt the cockpits details were too large, and didn't sell scale. There were also minor notes about the retractable arms (and how long each container will end up being, and their configuration).

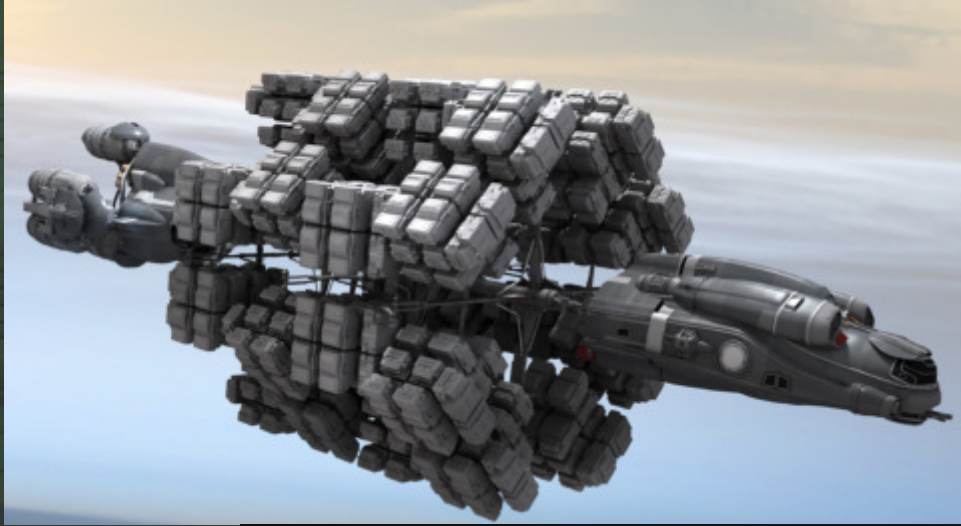
More nurnies will obviously help sell scale. Keep pushing – you're on the right track.

Jim: Thanks for the notes. I'm going to start on a revised cockpit end and larger/longer engine package. I'll wait for more notes from you on thrusters, shields, details. Sounds good.

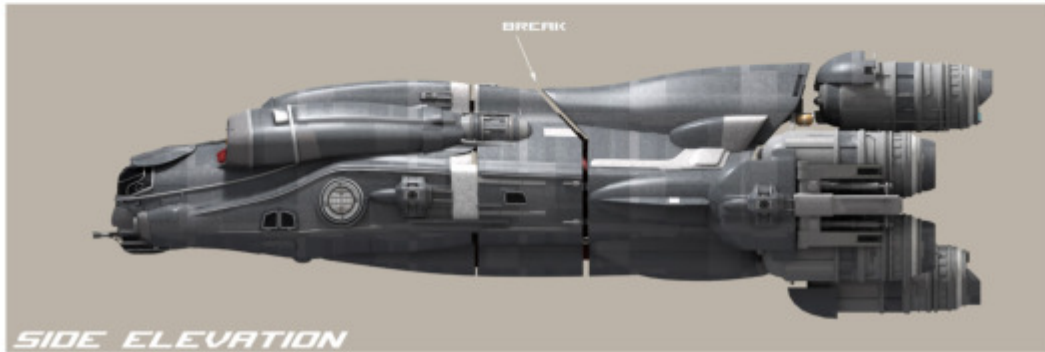


Jim: Here are some Hull C revised versions. The cockpit glass is smaller for overall scale, I added side thrusters, and the rear engine volume is larger and equal to the front volume. I also added some more flow lines to keep it in the Freelancer family of MISC. The model is tighter and closer to a hand-off.

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HULL C
CLOSED



SIDE ELEVATION

WORKING PRIORITIES



HEAVY



MEDIUM

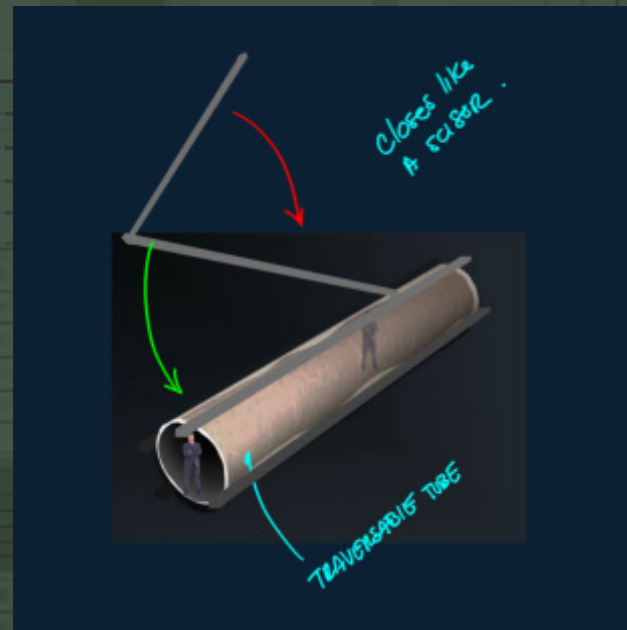


LIGHT

HULL C

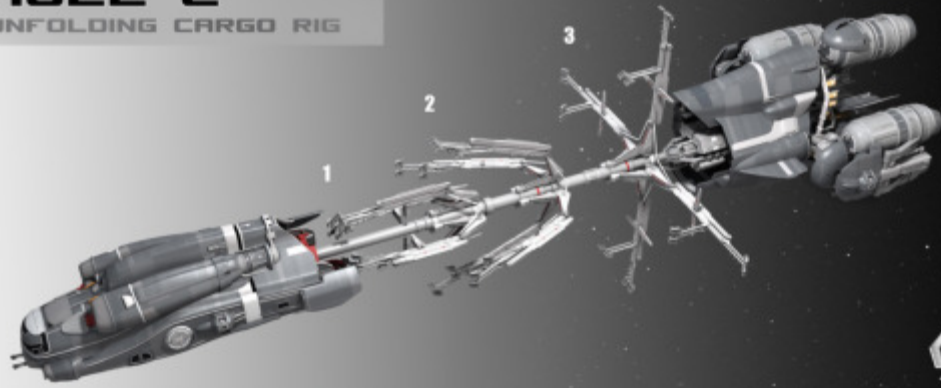
Jim: I posted a revised Hull C and also the arms in a staged fold-out. I will send you a cargo-loaded Hull C tonight. How about if we do a straight elevation of the whole Hull series side by side, spotlighting the C. Then we can be a little vague on the other versions and play up their capacity more than final designs? Final thought. The Hull C "closed" condition has a new cockpit glass without the over-hood. It is a relatively small piece of real estate in the overall painting, so I can paint over anything you want as long as we contain it to the same space and relative size. So if you want angular, faceted, lower-profile, rough it in with an overlay and I will put it in the painting. We can change the actual geometry itself a little bit down the line so we don't get held up.

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WORK IN PROGRESS

HULL C
UNFOLDING CARGO RIG



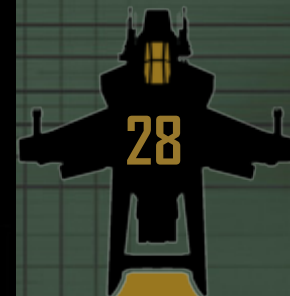
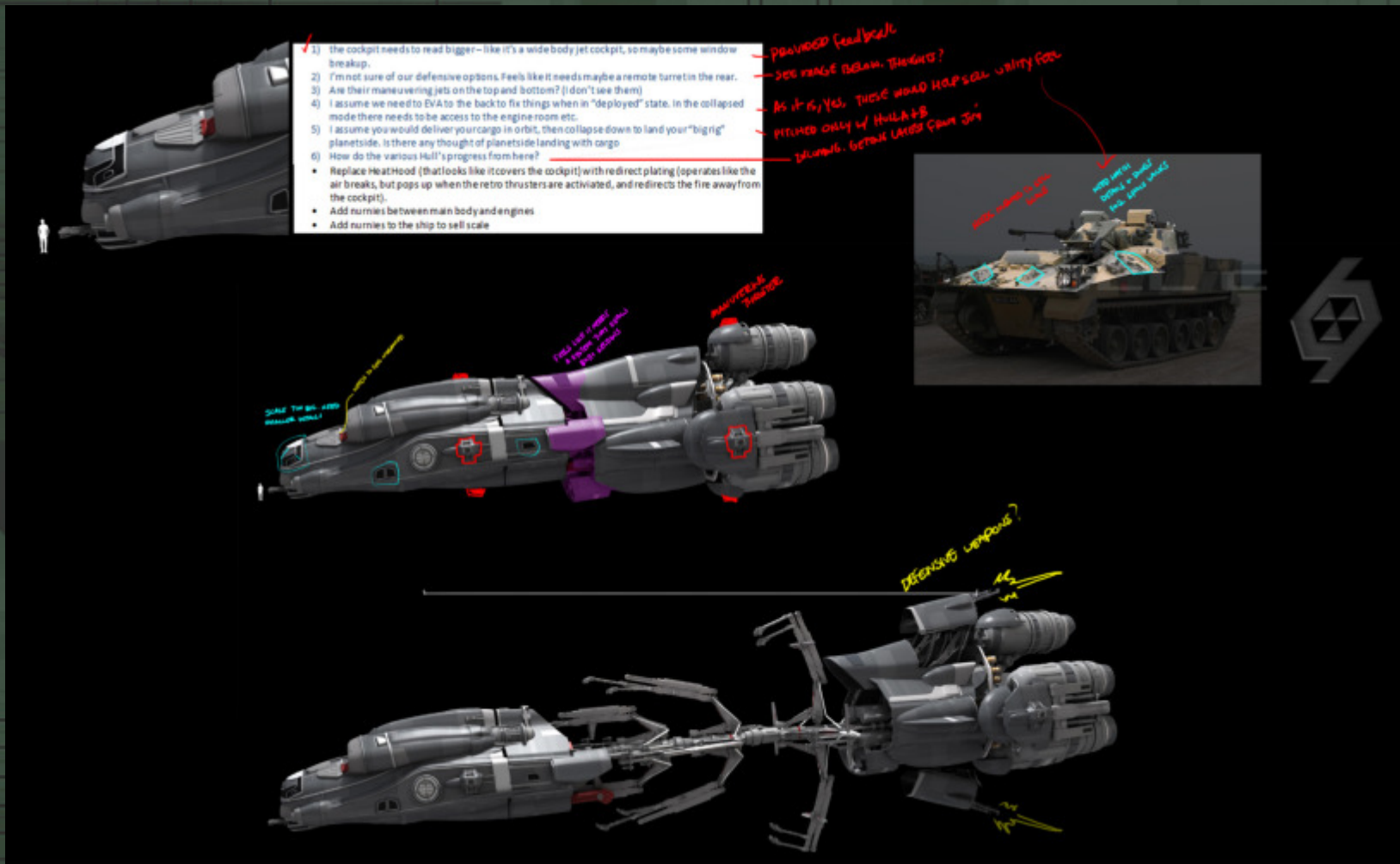
HULL C



SCALE



WORKING IN PROGRESS



WORK IN PROGRESS

Lance:

- Replace Heat Hood (that looks like it covers the cockpit) with redirect plating (operates like the air breaks, but pops up when the retro thrusters are activated, and redirects the fire away from the cockpit).
- Add nurnies between main body and engines.
- Add nurnies to the ship to sell scale.

Chris R:

1) The cockpit needs to read bigger, like it's a wide body jet cockpit, so maybe some window breakup.

- 2) I'm not sure of our defensive options. Feels like it needs maybe a remote turret in the rear.
- 3) Are their maneuvering jets on the top and bottom? (I don't see them.)
- 4) I assume we need to EVA to the back to fix things when in "deployed" state. In the collapsed mode there needs to be access to the engine room etc.
- 5) I assume you would deliver your cargo in orbit, then collapse down to land your "big rig" planetside. Is there any thought of planetside landing with cargo?

Lance: Worked with Dan to sort through and solve a few discrepancies between the Hull series. A and B are the same body; B has a larger engine and 4 retro thrusters (both have one bottom cannon). C and D are the same body; D has a larger engine and 4 retro thrusters (two weapons bow, two stern). E is giant, stands alone, and has 4 stern, 4 bow weapons.

Also added an interior connection ring for the whole series, so the player can walk between the cockpit and the engine.

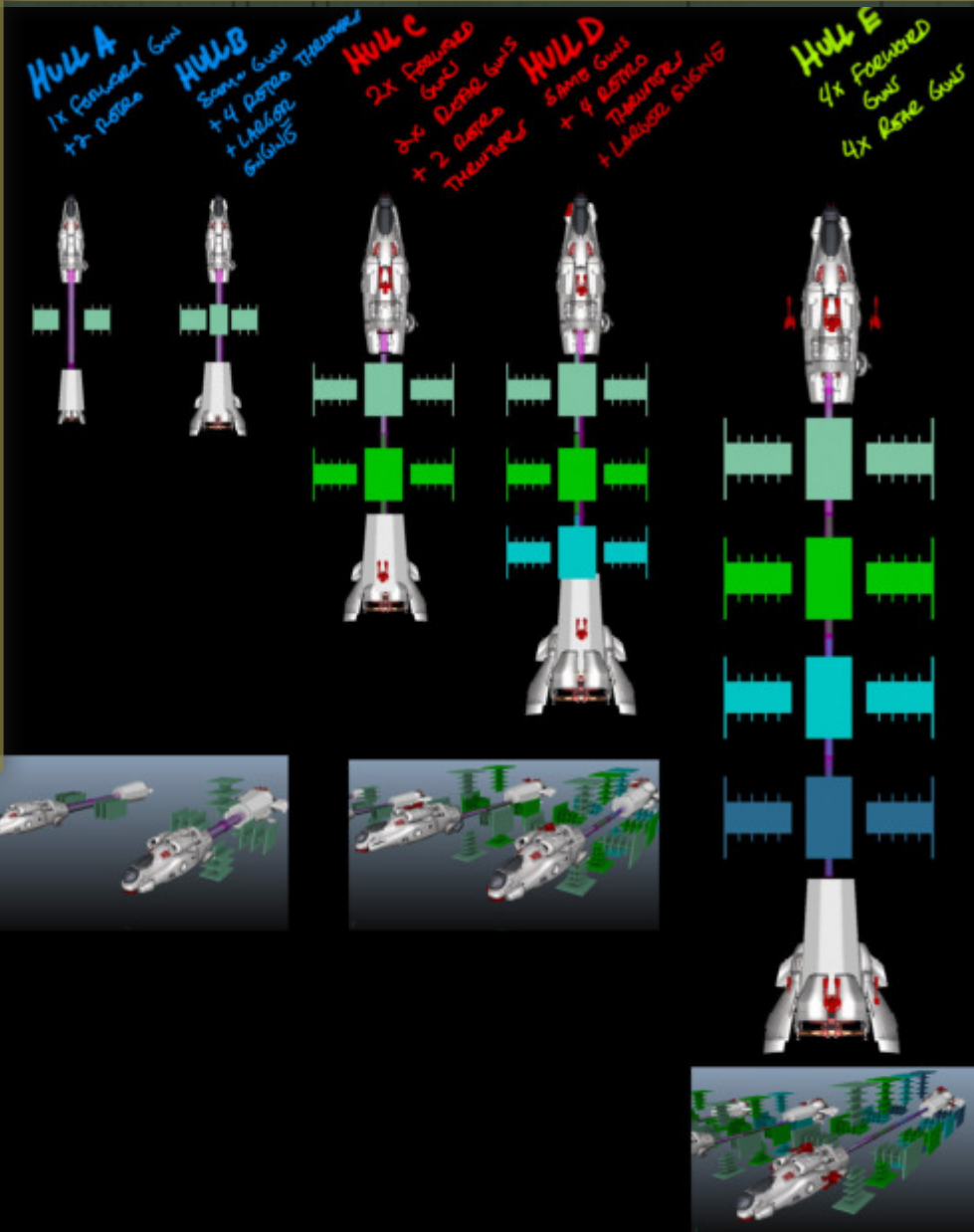
Lance: I'm still trying to lock down deliverables – but a few curve balls were thrown in the mix. After talking with Design and CR, a few things came to light:

- A & B are the same ship; however:
 - > A: two retro thrusters, and a cannon
 - > B: four retro thrusters, a cannon, and a larger engine/stern
- C & D are the same ship; however:
 - > C: two retro thrusters, two cannons bow, two cannons stern
 - > D: four retro thrusters, same cannons, larger engine/stern

• E (there is an E):

- > Much larger than the C, four retro thrusters, four cannons bow, four cannons stern

The connection/docking ring needs to be traversable by the player as well, so the cargo arms should fit on four points of the ring.



WORKING PROGRESS

HULL A



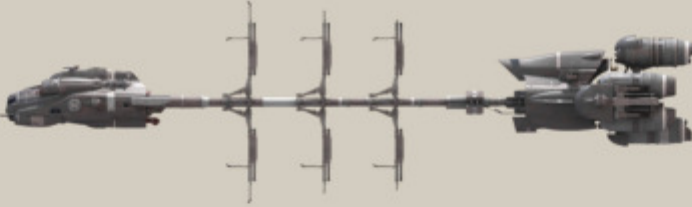
HULL B



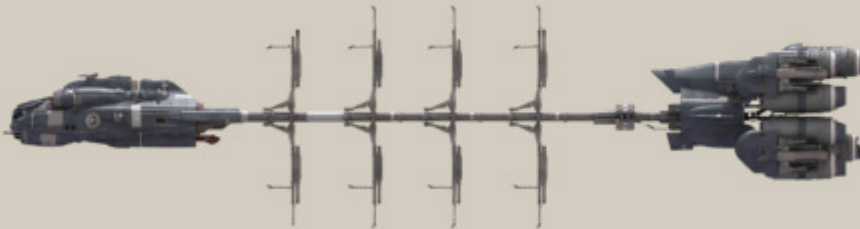
HULL C



HULL D



HULL E



Jim: I posted a few renders of the Hull with some loaded cargo. I also updated the Hull AB model and made an eight-engine rig for the Hull D. Take a look and see what you think.

I'm tackling the changes to the models, the "canopy" scale revisions to the D and E, the rethink of the rear gun design and layout, the landing gear idea, increasing the Hull D body, increasing the E to balance.

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HULL A/B

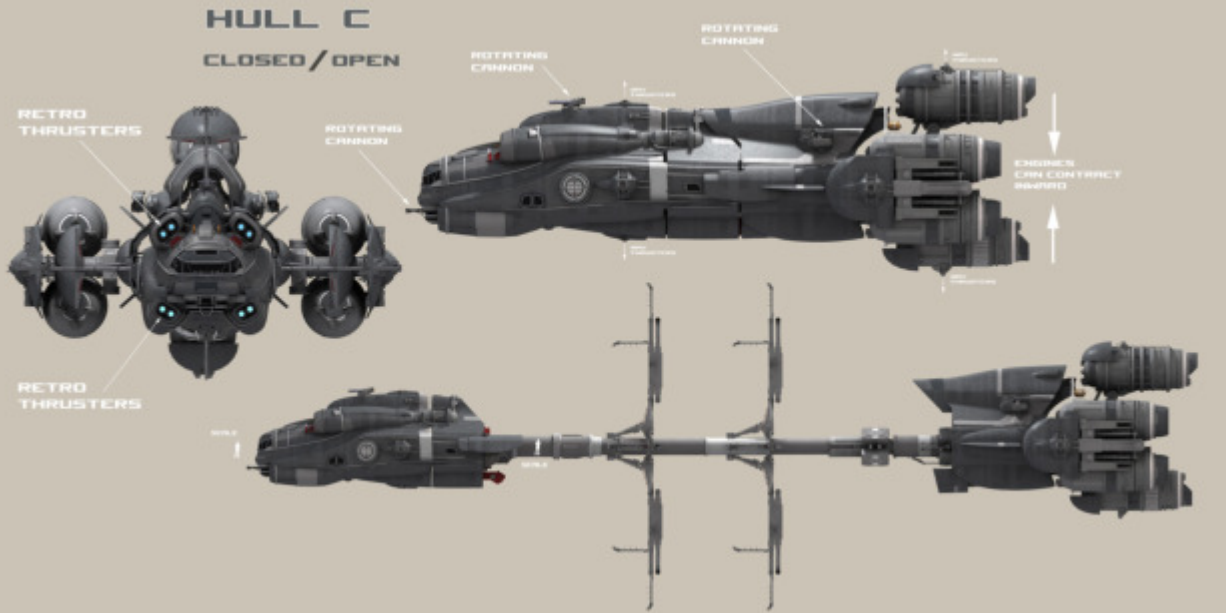


WORK IN PROGRESS

MISC HULL LINE



HULL C CLOSED / OPEN



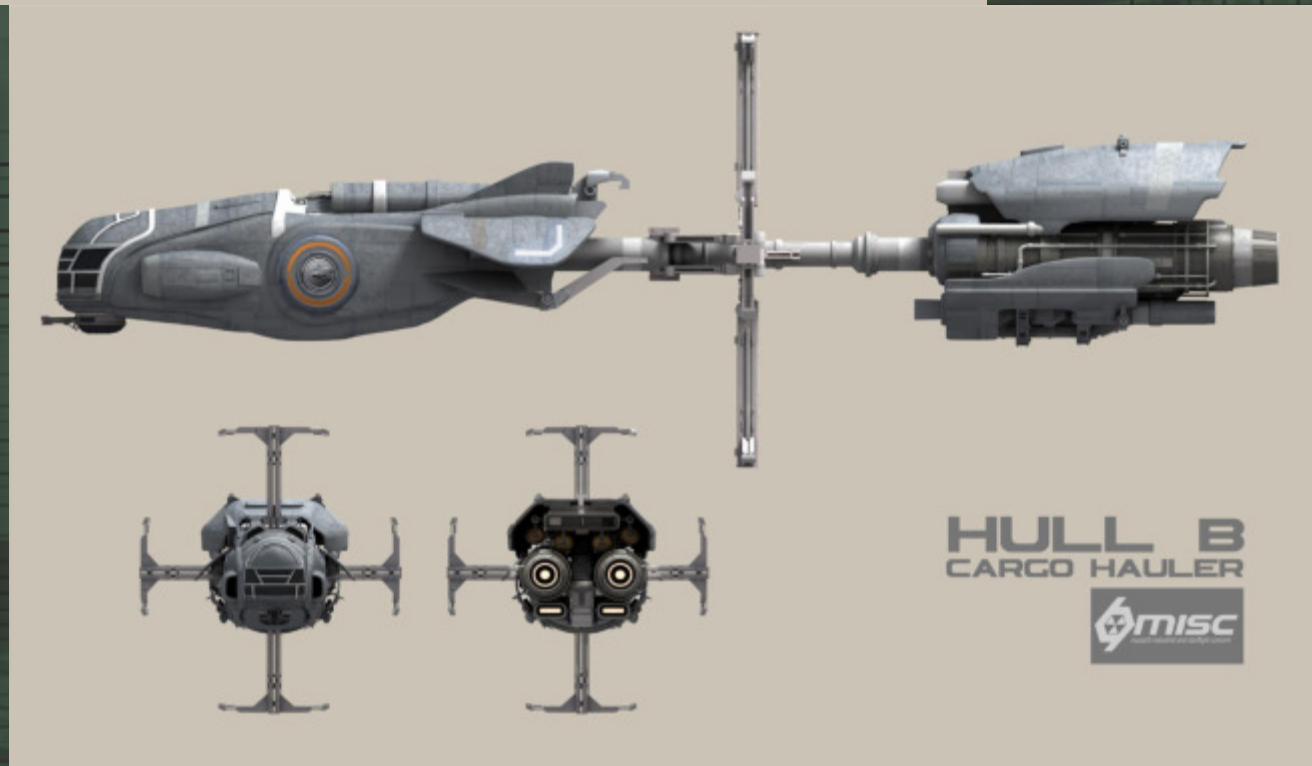
WORK IN PROGRESS

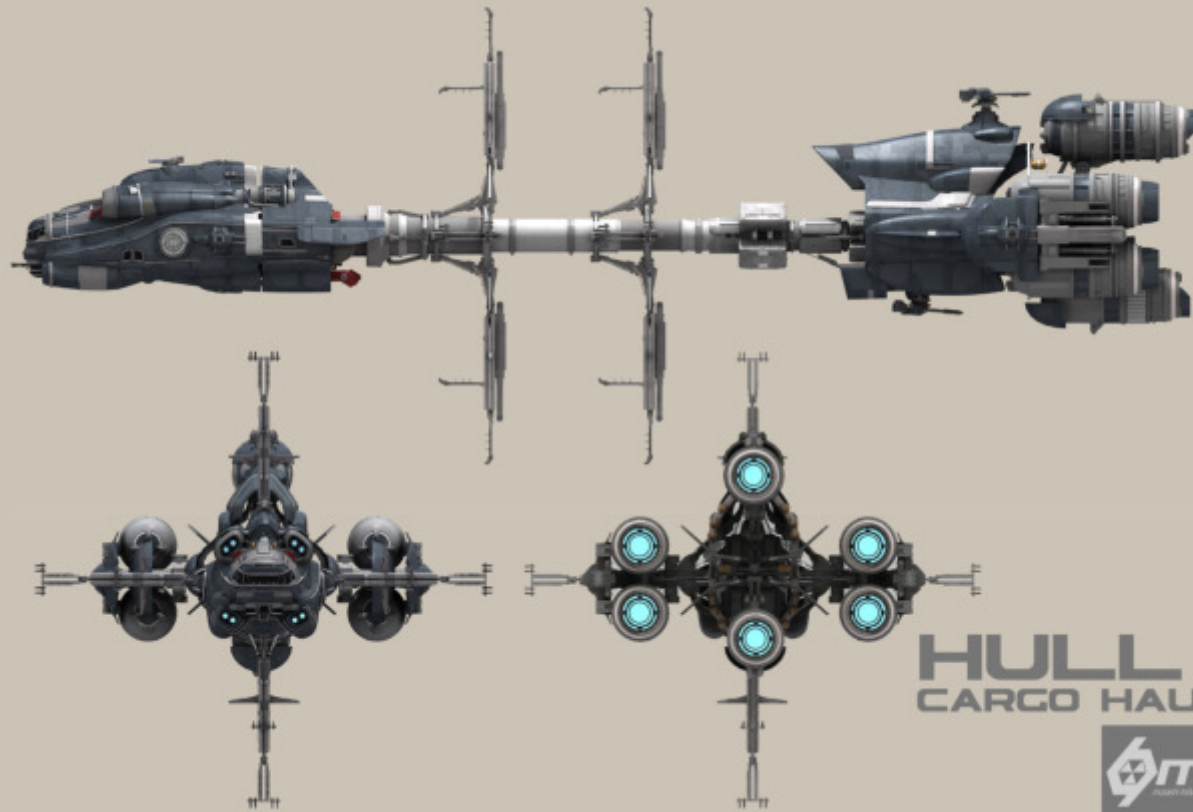


WORKING IN PROGRESS

Jim: I've beefed up the center spine as requested, so that we can conceivably have a crewman pass through from the cockpit to the engines. I also beefed up the cargo arms to make them feel a bit more substantial. The center spine varies slightly in thickness as it telescopes in on itself during the folding and unfolding. I think it's ready to go!

[this page and next two pages]

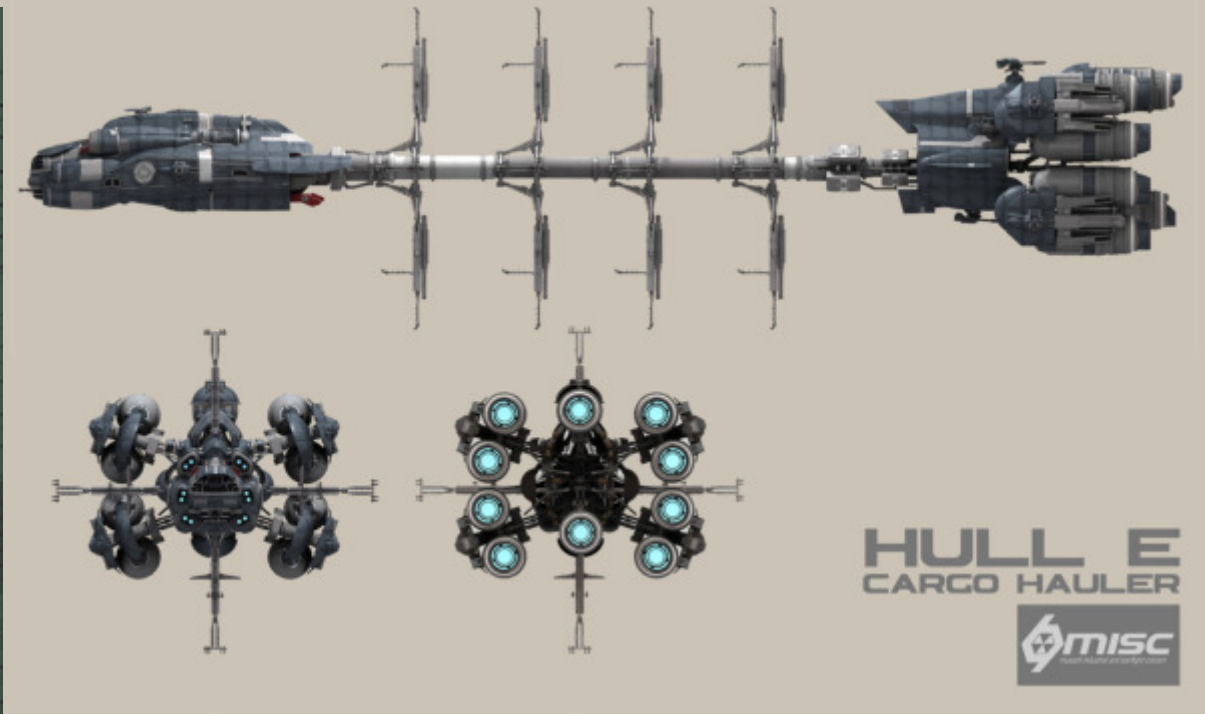
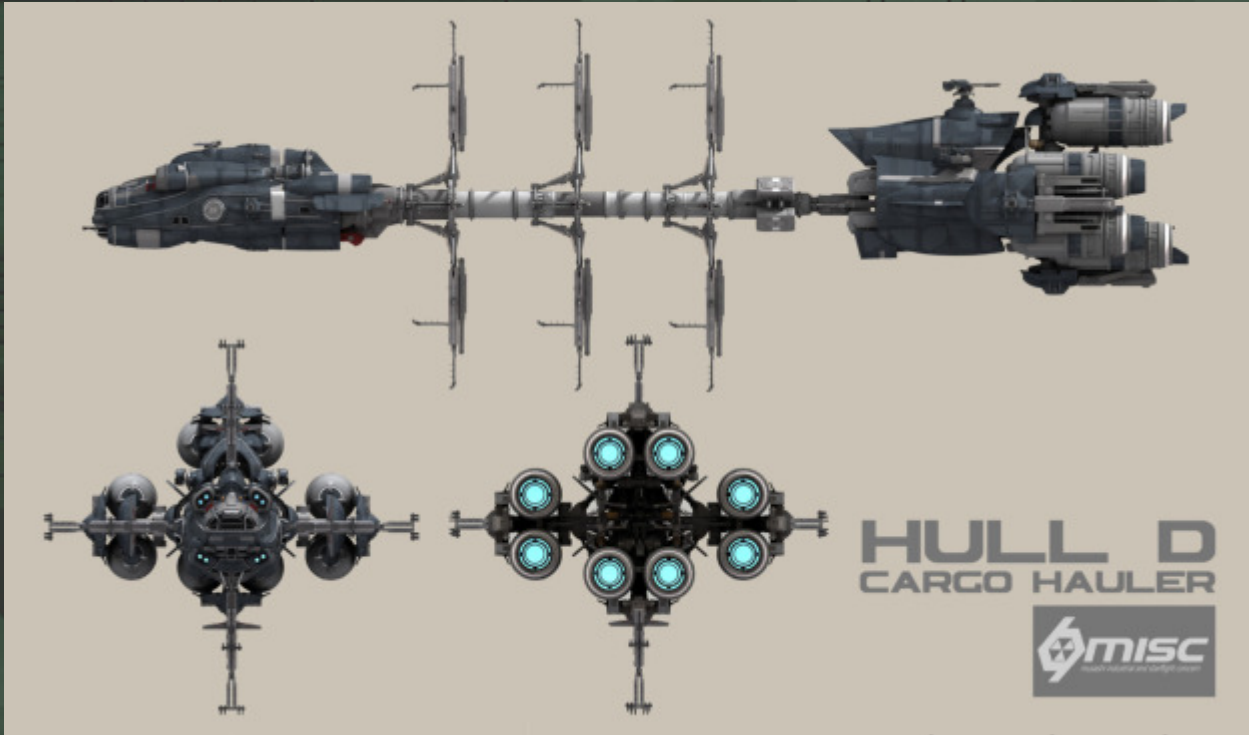




HULL C
CARGO HAULER



WORKING IN PROGRESS



WORKING IN PROGRESS

HULL A



WORK IN PROGRESS

HULL B



WORK IN PROGRESS

HULL C



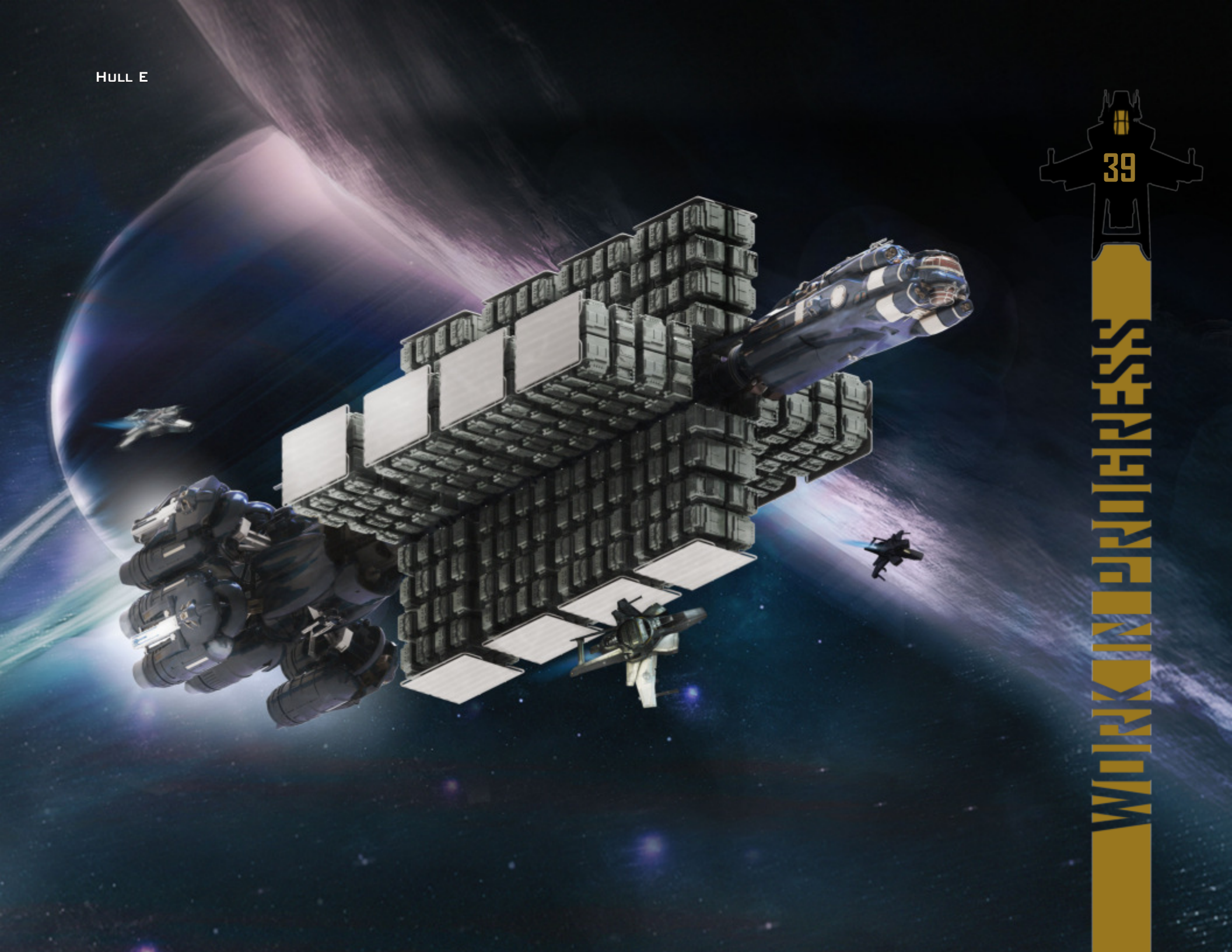
WORK IN PROGRESS

HULL D



WORK IN PROGRESS

HULL E

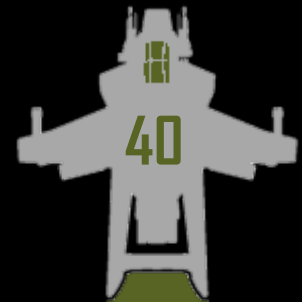


WORKING PRIORITIES



COVALEX

SHIPPING



SHIPPING

It is said that if you want to see the farthest corners of the Empire, join the Navy. If you want to see even farther than that, join Covalex shipping. With hubs across dozens of systems and contracted transports hauling goods to almost everywhere else, Covalex has become an indispensable part of everyday life in the UEE. Many are surprised to learn that this auspicious conglomerate can trace its origins to less than legal beginnings.

A Rocky Start

Near the end of the Messer Era, the government, desperate to fund an ever-growing military complex, increased taxes on interplanetary shipments till off-world goods were rapidly becoming unaffordable luxuries. With the UEE's tight control over the flow of goods, many had begun to count on black market smugglers to provide

the everyday things they needed to survive. Though extremely lucrative, smuggling was even more dangerous than it is today. The Navy was instructed to take extreme measures to protect this important tax revenue stream and smugglers were dealt with harshly and with lethal force. Yet thousands of men and women, known at the time as “conveyors,” braved jump points and blockades to secretly haul goods throughout the Empire.

One such conveyor, Hanso Malloy, decided that there had to be a better way. If she could get an official transport license, she would be able to smuggle goods more easily than any of her competitors and be fast tracked through the often risky scan stations. Unfortunately for her, only a handful of new licenses were allotted in any year, and to earn one was a lengthy and costly proposition. If she tried to acquire one through the normal means, she would have little to no chance – but for Hanso, the normal way was never her way.

She figured that if she wanted to acquire one of those licenses she would have to find something to ship that everyone needed but no one wanted to deal with. The answer came to her when a farmer, Covantino Lexly, requested she smuggle in a load of a fertilizer called moly-nitronese to the newly terraformed world where he was settling. He was at his wits end trying to get it through normal trade since most haulers refused to deal with the highly hazardous animal waste derivative. The problem was that though it was a better fertilizer for terraformed soil, there were cheaper, safer, if poor performing, alternatives. The small boost in harvest gain was not worth the Credits it would cost to ship it all the way to the frontier ... at least for a normal hauler.

With the Empire eager to encourage the development of these new planets, Hanso saw her opportunity. She sidestepped the TDD licensing board and petitioned the Agriculture Ministry directly for a special license to

specifically haul moly-nitronese. She named her company Covalex in honor of the farmer who inspired her. The best part, though, was that the fertilizer was by nature hard to scan through, and very few customs agents were willing to search the horrible stuff by hand. She had not only gotten her license, but she had also found the perfect way to smuggle goods.

Going Legit

With license in hand, Hanso began hauling ‘fertilizer’ to systems far and wide. Never one to rest on her laurels, she realized that the terms of her license could be applied to sub-contractors as well. Soon conveyors far and wide were paying Hanso to fly her colors. The only rule was they had to carry the moly-nitronese and more importantly, they had to charge a fair price for the goods they were smuggling. She knew that the good will of the people was almost as valuable for the safeguarding of her livelihood as anything else. It was this long-sighted vision that soon made a Covalex-flagged ship landing in your town something to be celebrated. These ships heralded the arrival of not only cheap fertilizer (if you were into such a thing) but more importantly, black market goods at a reasonable price.

It wasn't long before the UEE administrators took notice of this positive reputation as well. Their own popularity waning, they were in need of a service provider they could trust to move goods through systems that had grown hostile towards their occupation. Covalex was approached by the Messer government and issued a charter to become an official vendor. Given clear access across all borders and military lines, Covalex ships were soon providing Messer troops with supplies and for the first time officially carrying something beyond fertilizer.

A smuggler at heart, and ever a prudent business wom-



an, Hanso saw that despite this high paying contract, times were changing and the tide was turning against the Messers. She decided to stick to her usual company motto of keep the people happy. Therefore, Covalex ships began to smuggle weapons to rebel forces while providing dry goods to the Navy. Their deliveries in many ways could be attributed with fueling the success of the uprising.

When the revolution finally ended, and the Messers ousted from power, Covalex had firmly established itself as indispensable and a true company of the people; the place to turn to when you really wanted to ensure something got to where you needed it to go. In a short time, Covalex had become so profitable that Hanso decided the company should give up smuggling altogether and focus entirely on transporting legal goods.

Anything You Need

Today Covalex has one of the largest fleets in the 'verse; thanks to its policy of contracting with independent ship operators. It has discovered that owners who fly their own ships are more invested in the success of the company and that their wholehearted commitment ensures a higher level of performance. In most systems, at any given time, a majority percentage of the ships flying are working under contract to Covalex.

In addition to its hauling arm, Covalex owns a number of orbital platforms in a variety of systems. These platforms, while owned and operated by Covalex, act as transfer hubs for many other shipping companies as well. Interestingly enough, and to its credit, there is no additional charge or tax on non-Covalex companies that patronize these centers. Not charging other businesses is viewed both as a means to expand its influence and as a way for it to give back to the Empire.

Some of the bigger platforms have even become tourist destinations. Shops, simulations arcades, and eateries line most of the available real estate not taken up by the shipping business. Originally developed as a way to entertain haulers in-between jobs, they have become a place to visit for anybody passing nearby looking for a hot meal, and some company.

Next Stop

While today Covalex is seen as a stalwart company that is responsible for transporting a large amount of cargo across the Empire, the formula to its success continues to be as much a part of its DNA as are the many crates it uses:

Always keep the people happy.





43

BEHIND THE SCENES

THE ECONOMY BOARDGAME

DASH, DAVID, RYAN,
EVAN (HIDDEN) & ROB

You asked for it, you get it. I hope it's what you wanted ...

Before we talk about the game itself, let's talk about its context. Early last year, Chris Roberts and Eric Peterson asked me to put together a boardgame that mirrors the computer game closely enough that we could draw valid conclusions about the computer game from playing the boardgame.

*In spring and summer we played five sessions spread over several weeks (after which, work on the PU engulfed all the players). We haven't tried to play any more since then. While I think we accomplished our goal to a certain extent, it's pretty obvious that a boardgame can't have all of the detail that a computer game can have (and that Star Citizen **will** have).*

This means that the boardgame has some very basic mech-

anisms (for example, roll a 6 > get a hit) that are obviously much less sophisticated than SC game mechanics.

We should also remember that this was designed and played a year ago, and the nature of how the economy in the game works has changed a lot since then, especially since Tony Zurovec arrived to drive the PU design. That means that when a comment says something like "this is designed to match the way the computer game will play," there's a pretty good chance that the comment is way out of date, and that it didn't do a great job of matching the computer game in the first place.

So why bother running an article on a year-old game system that was never all that accurate? First, because you keep

asking for it – this is one of the most often requested topics in the forums. And second, because while the specific mechanics aren't very accurate, there are times that the gameplay and the comments do give interesting food for thought regarding how the economy in SC might work.

That means that forum discussion regarding the boardgame and the light that it shines on the computer game are very welcome. But please avoid, "it's this way in the boardgame, so the computer game will be like that, and I hate it!" Odds are, if you hate a particular mechanism, we'll probably be figuring out another way to play it.

So, with the understanding that this is way out of date and not particularly accurate in the first place, let's talk about the economy boardgame.

The first set of "rules" was actually just a list of ship costs (below) and a set of stats for each ship (right). Every ship started with the Base value listed, and you could improve your ship in various ways, with each step costing 50K. For example, you could boost its Attack strength (from 3 dice to 4) or its Attack accuracy (normally, it takes a "6" to roll a hit, but improved accuracy means one "5" can also be a hit). I won't try to explain it all, but in general, the more six-sided dice you roll, the better your odds, and a "6" is a success. Seek and Evade were for finding and avoiding enemy ships. Mine was for finding ore, and Research was for finding a use for the ore (by creating enhanced components).

SHIP REGISTRY OF _____

Ship Designation _____

	Base	50K	100K
Attack Dice (A)	3	4	5
Shields Dice	3	4	5
Structure Pts. (S)	3	4	5
Cargo Size	1	3	10
Missiles (M)	1	2 (10K)	3 (10K)
Seek Dice	3	4	5
Evade Dice	3	4	5
Mine Dice	3	4	5
Research Dice	3	4	5
Missile Evade	0	1	2

1-A	5-S	9-	13-
2-A	6-S	10-	14-
3-A	7-M	11-	15-
4-S	8-M	12-	16-



BEHIND THE SCENES

	BASE	EFFECT	Added Strength: Cost: 50K	Added Accuracy: Cost: 50K	Beginning Status
Attack	3 dice	Roll dice. Each 6 is a potential hit.	1 die	Can change one 5 to a 6	Cutlass 2, Hornet 1, Freelancer 1,2, Caterpillar 1,2, 300I 1,2
Shields	3 dice	Roll dice. Each 6 cancels an Attack hit.	1 die	Can change one 5 to a 6	Shield 1,2, Mine 1,2, Research 1,2, Seek 1,2, Evade 1,2
Structure	3 points	Ship's hit points (along with Attack and Missiles)	1 point		
Cargo	Size 1	How much cargo you can carry.	Size 3 (50K)/ Size 10 (100K)		
Missile	1 missile	Roll a die for each missile fired. Hits on a 3 or better.	1 missile capacity (10K)		
Seek	3 dice	Roll dice. Each 6 is a potential discovery.	1 die	Can change one 5 to a 6	
Evade	3 dice	Roll dice. Each 6 cancels a discovery.	1 die	Can change one 5 to a 6	
Mine	3 dice	Roll dice. Each 6 has a chance to discover something useful.	1 die	Can change one 5 to a 6	
Research	3 dice	Roll dice. Each 6 has a chance to discover a new formula.	1 die	Can change one 5 to a 6	
Missile Evade	(none)	Adds +1 to required roll for each missile	+1 per required roll for missile		

Structure + Attack + Missiles = Hit Points

New Ship	100K
Replacement Ship Component	10K
New Ship Boost	add 50K
New Boosted Component	50K per level (50/100/200)
Maintenance (fuel, etc) per turn	200
Missile	2K per missile
Research, Mine, Seek, Trade	no cost
Generic Haul	300 x combined Risk Levels
Escort/Courier	400 x combined Risk Levels
Trusted Haul (after 10 identical generic)	500 x combined Risk Levels

1. Start with a base ship.
2. Add 4 points/dice to it.
3. Classify it.
4. Identify it.

PIRATES

Base: Roll 3 dice. # = dice at or below Risk Level.
Add a die for each additional ship in the convoy.
Seek: Roll 2 dice + # of pirates.

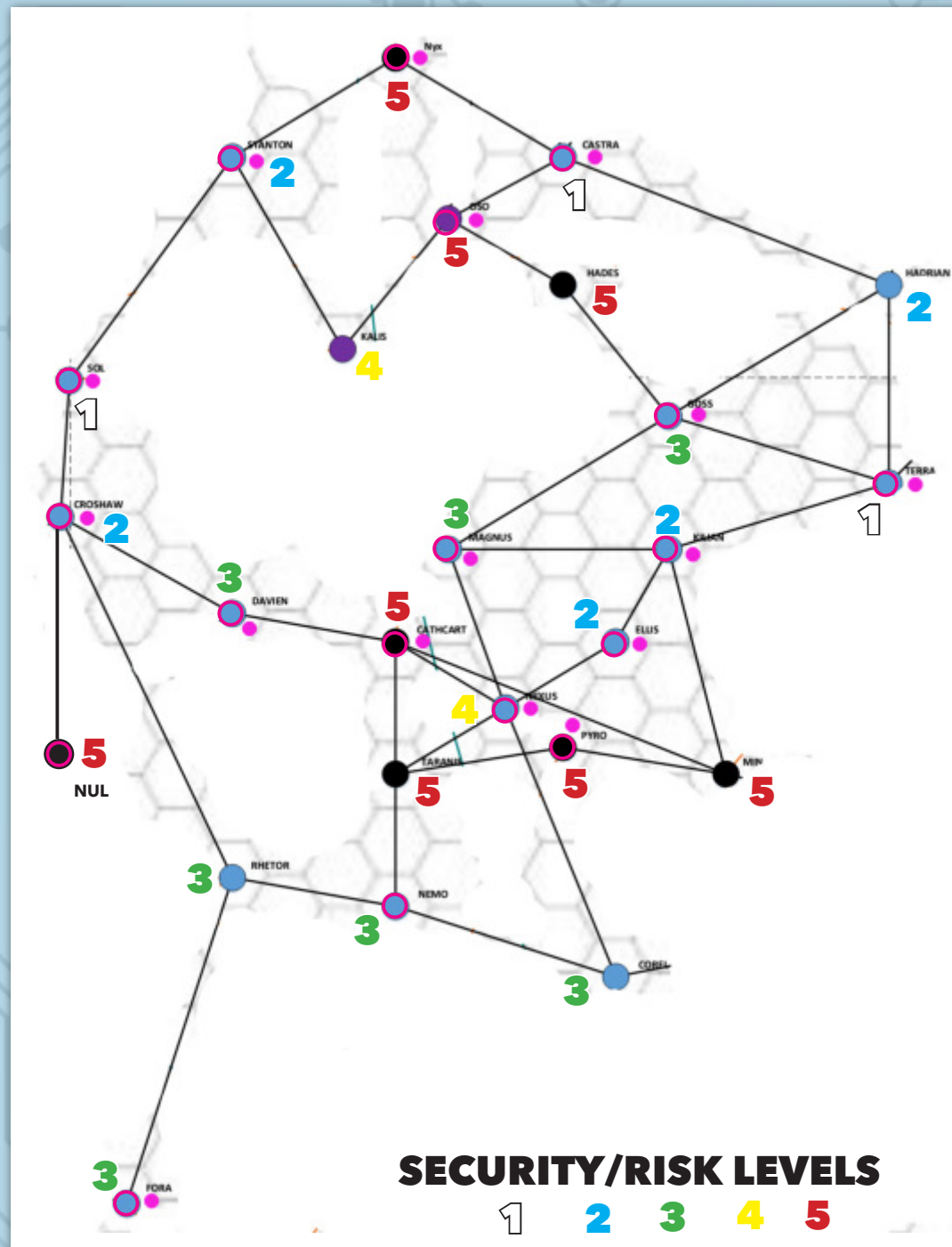
Hit location on a ship was determined randomly, with an 8-sided die; when a ship's Structure, Attack and Missiles were all gone, the ship was destroyed.

In the bottom of the middle column you can see the costs (maintenance: ⌘ 200 per turn, missiles: ⌘ 2K each, repair a damaged point: ⌘ 10K each) and payoffs: at least ⌘ 300 per Risk Level of each system through which you travelled.

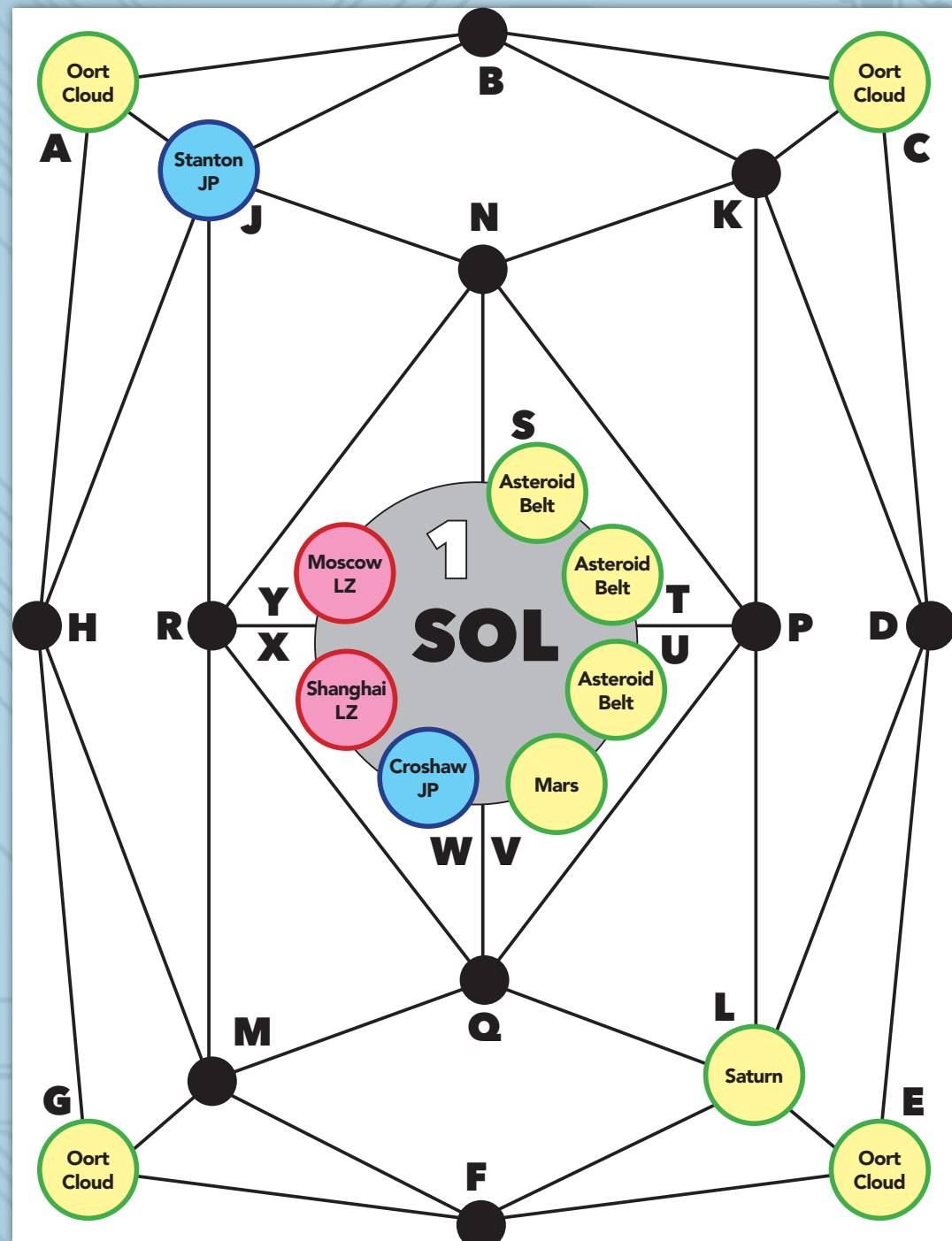
Each player had 4 ships to begin with, and they were encouraged to create different sorts of ships. Each player designated each ship as a **Cutlass**, **Hornet**, **Freelancer**, **Caterpillar** or **300i**, but this designation was only used to determine which upgrades could be installed (or researched) on each ship.

The righthand column lists which boosts have been discovered (in black) and which might be discovered through Research during play (in blue).

The "galaxy" map (shown on this page) is limited to 25 systems ... and don't take much time analyzing the map; that's changed, too. Pink dots note systems with Landing Zones (which means they could conduct commerce). Security/Risk levels indicate how well the UEE patrols each system, with "1" being very secure and "5" marking outlaw anarchy.



BEHIND THE SCENES



There was also a map for each system; here's the Sol system map. For this playtest, movement was 3 jumps per turn. For example on the Sol map, in one turn (called a phase in these rules) you could move a ship from the Stanton jump point (J), through R and Q to Saturn (L). When you jumped to a jump point, you automatically jumped through to the connected system, all in one jump.

Every system had the same basic map, with possible locations labeled A through Y. The inner system (marked by the gray circle) was so small that you could get from any point in it to any other point in a single jump. The outer edge of this inner circle is basically about the distance of the asteroid belt in Sol system. The ring beyond that (N,P,Q,R) is about the distance of Jupiter, and the ring beyond that (J,K,L,M) is about the distance of Saturn. The outermost ring (B,D,F,H) is where Neptune, Uranus and Pluto orbit (yes, I said Pluto), and beyond that is the vast, nearly empty space basically beyond our solar system – the Oort cloud – where remote discoveries can still be made. Every system had its own Oort cloud.

Pink marked landing zones, blue marked jump points, and yellow marked locations that could be mined.



First Session Debrief

We played our first session today. Six players – ATX designers Nate Blaisdell, Dash Nemeth, Rob Reininger, Evan Manning and Todd Bailey and art intern Ryan Archer – with 4 ships each, played for about 90 minutes and 9 turns. (As with most first plays of a game, turns took longer than they would normally, as players learned how to play.)

Some of the negative results were expected. For example, the cost/reward numbers were unbalanced; that'll get better the more we play and revise. The pirate attacks were also unbalanced. That was in part because pirate attacks were initially time-consuming (we streamlined them more in the second half of the game) and because (with ships clustered) I avoided pushing pirate attacks that could have eliminated most or all of a player's ships. I think we'll want to scale some of the NPC attacks to fit the size of the player force they're attacking – sending 5 pirates against 2 player ships is very different from sending 5 pirates against 10 player ships.

Players weren't thrilled with how long it took to travel within a system. That definitely models the typical time in the computer game. We need to make sure they don't get bored while taking the time to travel across a system; I'll try to come up with ways to do that in the paper game that can translate into the computer game.

Unexpected Results: (Some of this is obvious in hindsight, but still useful as observations.)

Players created four separate ships, using a standard base model and then applying modifications. I didn't expect players to keep their ships as clustered as they did, both in design and in movement. Throughout 9 turns (which is not very long), only a couple of times did a single player-ship venture out by itself.

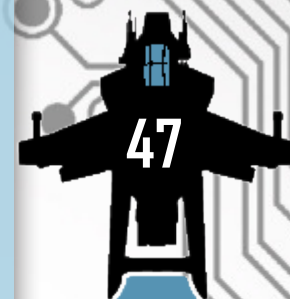
They took no opportunity to initiate player conflict. This is in part because the rules had little mention of player conflict, and they had few if any reasons to attack each other. No one chose to play a pirate. I'll create more reasons and opportunities for player conflict in the next playtest.

Todd Bailey: We need to adapt a very fast combat mechanic that doesn't require as many dice as we were rolling.

Part of the problem with the travel times was that too often there was nothing happening. If you weren't attacked by pirates you had nothing to do. It might behoove us to put POIs in all of the landing zones (or randomly roll POIs). Even if they were just things like rolling on a table and seeing "Beautiful Nebula" or "Space Debris" or something. Though I think we should also be able to salvage space debris.

Additionally, we could have distressed ships calling out for help. Sometimes you may ignore it, sometimes you may help and get something out of it (the ship was so grateful they upgraded your lasers or something) and sometimes it may be pirates laying an ambush.

With each of us having four ships we might want to say we're playing 4 different characters. I think we're all mature enough RPGers to handle this. Maybe everyone has to designate one of their ships a pirate ship?



SC Paper Playtest v2 (5-6-14)

MAKING MONEY

Multiply all results by the number of cargo spaces the cargo fills.

Maintenance: \$100 per phase for each ship.

Squirt

You can carry information from one system to another. (This does not take cargo capacity.) You start at a jump point, and in your phase receive the information and transit the JP. You receive **\$300 per phase** (at any JP, in either direction).

DANGER. Low, unless you do something to anger the JP patrols.

Mining

At this point in the game, everything that you find can be used to buff a specific part of one type of ship.

At any location where mining is possible, GM rolls your mining dice. Once you achieve the minimum required to locate something, GM tells you if you have found anything.

If you find something, you can continue to explore for rarer materials, or start mining what you've found. Finding something previously unknown to exist at this location is worth a bonus from the associated ship manufacturer.

If you start mining, roll your own mining dice. 6 = extract enough to fill one cargo space.

DANGER. Pirates/"claim-jumpers" will start nosing around, the longer you stay.

Transport

Generic. You can get and carry a generic cargo from any LZ to any other LZ (in another system). Payment = **\$300 per system** (counting shortest route).

You can carry a generic cargo within a system that has multiple LZs for **\$300**.

Specialty. Roll a die. Add one for each level of cargo (+1, +2, or +3). You receive a contract to carry a specialty cargo on a 6. You can carry a specialty cargo from the list for **\$1000 per system**. If you fail your specialty die roll, you can wait till next phase and try again, or (this phase) you can take any other action instead.

DANGER. There is chance of an encounter at every location along your way.

Specialty-Contraband. Double the value of a normal specialty (**\$2000 per system**), but you are scanned by UEE patrols at each JP (on both ends). Make a Seek/Evade roll; if you fail to evade, the UEE has detected your contraband and orders you to surrender it.

SURRENDER: pay \$30,000 fine.

RESIST: Quick combat, and UEE will attempt to pursue. At every subsequent location: roll 1 die before the Seek/Evade check. On a 6, add another UEE patrol ship to the chase.

If you can reach a pirate LZ and wait a turn, UEE will drop the pursuit. However, you are tagged as a pirate for the rest of today's play session; jumping into a UEE system will trigger pursuit again.

Buy/Sell

Buying and selling a cargo yourself is like Transport, but pays more, at a higher risk. (Who knows for sure what a cargo will be worth when you deliver it?)

Generic. Pay \$3000 (per cargo space). Sell for:

Base: \$2000

Distance bonus: \$200 per system

Variable price: Roll 1 die. Add \$500 per pip.

So for example, carrying a generic 1-space cargo from Sol to Terra, with a variable roll of 4, costs \$3000 and pays: \$2000 (base) + \$1200 (6 systems) + \$500 x 4 (variable roll) = \$5200.

Specialty. Roll to see if you can get one (as with transporting specialty cargoes). All costs and payments are double the Generic amounts. Pay \$6000.

Base: \$4000

Distance bonus: \$400 per system

Variable price: Roll 1 die. Add \$1000 per pip.

Specialty-Contraband. Double-double. Pay \$12K.

Base: \$8000

Distance bonus: \$800 per system

Variable price: Roll 1 die. Add \$2000 per pip.

If you surrender or are captured, the fine is \$100K.

Second Debrief

News Flash! How much we charge (for various costs, fees, etc.) and how much we pay off (for delivery, for mining, etc.) makes a significant difference in the game!

In other news ... we probably need to dial the NPC adversaries down, so that their ships aren't as strong as the average PC ship. Pirates were inflicting too much damage. However, if a PC ship attacks a PC ship, we should anticipate that one of them will be disabled. (Running might be possible, but a strong attacker probably has speed buffs, as well.) And we should anticipate lots of PvP action.

One thing we incorporated that seemed to be trending well: a miner didn't attract additional attention while searching for the best ore, but he did once he started stowing it away – the more ore cargo a ship had, the higher the likelihood of attracting a piranha. (Once the miner shut his cargo doors and flew away, the odds of a pirate attack dropped back down to normal.)

Security in systems should probably degrade the further out from the center that you travel. If you're out in the exploration area (basically,



BEHIND THE SCENES

NPC ENCOUNTERS

At each location (dot or circle):

Roll two dice. First die is for UEE. If it is higher than Risk Level, (Roll - Risk Level) = how many UEE patrol ships are there.

Second die is for Pirates. If it is lower than Risk Level, (Risk Level - Roll) = how many pirates are there.

Don't roll for pirates at UEE LZs. Don't roll for UEE at pirate LZs.

Evasion. If you want to avoid either one, make an Evade/Seek check:

Roll 3 Seek dice for pirates and/or UEE. Count successes (6's), and add one for proximity. Roll your Evade dice. If you roll at least as many Evade successes as there are Seek successes, you avoid their notice.

If you are at a Jump Point, you are automatically detected by anyone who is looking.

At a Pirate JP, add two more pirates. (Pirate systems all have Risk Level 5.)

At a UEE JP, add two more UEE. (UEE systems all have Risk Level 1-3, plus Nexus (4).)

At a Developing system JP (Kalis or Oso), add one of each.

Transiting a JP costs no extra action, but you must check for an encounter on both ends. (In one Phase, move onto and then through a JP.)

If there are more PC + UEE ships than pirate ships, the pirates withdraw. (If you would rather fight on the side of the pirates, then the equation is PC + Pirates vs. UEE. However, you are then tagged "Pirate" while still in that system and for 8 Phases after that.)

Mass/NPC Combat (Quick)

There is only one round of Quick combat per phase. You must chase and Seek an opponent to continue the combat in subsequent phases.

Roll Attack dice. A 4 = 1 hit, a 5 = 2 hits, a 6 = 3 hits.

Roll Shield dice. They absorb hits: (4 → 1, 5 → 2, 6 → 3).

Missile. Roll a die for each NPC ship. It fires a missile on a 4-6. If anyone fires a missile, it does (Roll - 1) hits. Only Missile Evade can reduce a missile's hits; subtract one hit for each level of Missile Evade.

PvP Combat

Roll Attack dice. A 6 = 1 hit.

Roll Shield dice. They absorb hits: (a 6 cancels 1 hit).

Missile. If anyone fires a missile, it does (Roll - 2) hits. Only Missile Evade can reduce a missile's hits; subtract one hit for each level of Missile Evade.

Multiple Ships. If there are multiple ships on both sides, either assign ship-to-ship (each ship gets at least one attacker), or roll all together and apportion hits to targets evenly.

Damage Location. Roll a d10 for each hit that a ship takes. Assign to the appropriate system (1 = Attack, 2 = Shields, etc.). If a system is missing or already destroyed, a hit on that system does no damage. A ship that loses all its Structure is dead.

If you do more damage than the NPCs, each PC ship with available space may collect one unit of salvage (no additional time needed), that will be worth \$500 + [1d6 x \$100].

Bounties

If you're interested in whether there is a bounty on a pirate, roll: a 6 = a bounty. Roll again for amount of bounty: 1-3 = \$20K, 4-5 = \$30K, 6 = \$40K.

You can pursue a bountied pirate (using Seek/Evade). Add one automatic success for each previous phase in which you have already successfully tracked the pirate, along with the automatic success if you are at the same location (max: 3 total automatic successes). You must disable a ship (eliminate its Structure) to capture its pilot.

The Seek/Evade check to chase a fleeing ship is made as though the two ships are at the same location. If it fails, the seeker doesn't know to which location the evader has travelled.

The same Seek/Evade die rolls apply when someone is attempting to track you.

Following each successful Seek check, execute one round of combat.

NPC ships will attempt to pursue PC ships if they scored at least 3 more hits than the PCs scored (in the preceding phase).

NPC Patrol/Attack Ship Stats

4 Attack / 3 Shields / 3 Structure / 2 Cargo / 4 Seek / 3 Evade / 1 Missile Evade

Oort cloud territory), you can't really expect to find a handy UEE patrol within quick calling distance. Exploration is possible closer to the center of the system (especially in ore-rich asteroids and planetary rings), but most exploration will probably take place way out there. And those areas are gonna be Security Risk 3 to 5, even if the central system is a 1.

This was just the first time that players had a chance to choose between transporting a cargo for someone else (fixed payoff) or buying the goods at Point A and selling them at Point B (variable payoff, including the chance of losing money, but on average, a higher payoff). I think I'll keep the payoffs the same for another session or two, to see if anyone becomes inclined to buy/sell (rather than transport), before trying to fiddle with those numbers.

Speaking of keeping things the same: it'd probably be good to keep most of the rules the same for this next session, so that we can get more than 10 turns in (less time spent explaining and figuring out what you want to do to get started).

And one completely tangential thought that came up during the session: I'd like to see a system, or perhaps just one location in a system,



BEHIND THE SCENES

SHIP REGISTRY OF _____

Ship Designation _____

	Base	50K	100K
Attack Dice (A)	3	4	5
Shields Dice	3	4	5
Structure Pts. (S)	3	4	5
Cargo Size	1	2	5
Missiles (M)	1	2 (10K)	3 (10K)
Seek Dice	3	4	5
Evade Dice	3	4	5
Mine Dice	3	4	5
Research Dice	3	4	5
Missile Evade	0	1	2

Damage location:	6 Missile
roll d10 per hit	7 Seek
1-3 Attack	8 Evade
4-6 Structure	9 Mine
5 Cargo	10 Research

nicknamed "Anthill." It is so valuable, especially to PvPers, that there is constant churn in who owns it – owning it for more than an hour would be a real accomplishment. Once your org takes it, you are having to constantly fight off everyone else, in a mass space melee.

Evan: One thing that became very clear to me was that I want to avoid combat no matter what. Combat

is expensive, risky and time-consuming. This really makes one reconsider life as a pirate or any other type of fighter. During the first play-test I felt rather gung-ho and cavalier in regard to combat, but after both sessions I think I will be playing legit and taking lots of cargo missions.

Part of the issue might be that the galaxy seems utterly saturated with pirates and even encountering one group at the wrong time can cost you everything. This would be a shock for players expecting to play more combat-heavy roles in the 'verse. During the second playtest I was running four cargo ships and trying to stick to lawful systems. Eventually I had to travel through Cathcart, which was fairly devastating.

We need to be careful not to make the game too punishing for players who want to lead quiet lives mining, salvaging, running cargo, etc., but also not make combat something

that players just want to avoid. Lowering the overall strength of the pirates could turn them into the game's equivalent of "mobs" that are more annoying than a real threat, which I think is more suiting considering the sheer number of encounters a player is going to have. Rather than have a swarm descend upon you that wipes out your ship, it would be smaller groups that hound you and remind you that you need to get back to base before you are overwhelmed.

Maybe an escalating pirate system would work. First, the little pirate ships find you and the longer you stay the bigger and meaner the pirates coming at you become. That way legit actions could be fairly low-key activities, but once a pirate found you and forced you to engage it, the event-noise signature would increase due to the combat, which would draw larger predators. This would add an element of strategy and allow smart players to know when it is time to leave. Another way to accomplish this would be scanners. Having scanners could allow the players to detect incoming predators a turn or two before they arrive, and escape.

Nathan: I think we're already offering a lot of options to the player, in SC, to allow them to lead a relatively, but not completely, quiet life. But certainly these are valid concerns. Also, I would imagine (but maybe this isn't true?) that fleeing in game will be a lot easier than in the board game. Maybe?

TWO SIXES =
TWO CARGO BAYS
FILLED WITH ORE OF
THE HIGHEST QUALITY!



BEHIND THE SCENES

SPECIALTY RUNS		
1 Castra	Stanton: ArcCorp	Cathcart
2 Cathcart	Stanton: ArcCorp	Castra
3 Croshaw	Fora	Nyx
4 Davien	Magnus	Pyro
5 Ellis	Magnus	Cathcart
6 Fora	Stanton: Hurston	Castra
7 Goss	Nyx	Fora
8 Kilian	Cathcart	Nyx
9 Magnus	Cathcart	Davien
10 Nexus	Cathcart	Fora
11 Nul	Croshaw	Stanton: Crusader
12 Nyx	Oso	Ellis
13 Oso	Nyx	Cathcart
14 Pyro	Stanton: Crusader	Kilian
15 Sol: Moscow	Magnus	Pyro
16 Sol: Shanghai	Nyx	Sol: Moscow
17 Stanton: ArcCorp	Magnus	Nyx
18 Stanton: Crusader	Cathcart	Nexus
19 Stanton: Hurston	Nexus	Sol: Shanghai
20 Terra	Castra	Davien

^ The second session introduced specific specialty runs (with higher payoffs). This sheet shows the randomly determined specialty runs for that session.

For each session, I also created a randomly determined list of ore sources.

The two black columns were known sources, and required two dice-roll successes (for a level 1 material) or six (for a level 2 material) to find a vein.

The two blue columns list known materials that could provide the listed buff, but whose location is currently unknown. They require more successes to find the ore before you could start mining it.

The red columns list ores that have never before been discovered; they require the most mining successes before you could even start mining the material (and of course you found nothing unless you were analyzing the right location).

THIS IS THE FIRST PAGE OF A MASTER SESSION LIST.

ORE SOURCES FOR MINING

LEVEL 1	LEVEL 1	LEVEL 1	LEVEL 2	LEVEL 2	LEVEL 2	LEVEL 3
+1, 50K	+1, 50K	+1, 50K	+2, 100K	+2, 100K	+2, 100K	+3, 200K
2 to find	4 to find	6 to find	6 to find	8 to find	10 to find	15 to find
Castra	Oort (A)	Free.Resrch				
Castra	Oort (C)			Hor.Shield	Hor.Seek	
Castra	Oort (E)	300i.Resrch			300i.Shield	
Castra	Oort (G)			300i.Seek		
Cathcart	Oort (A)	300i.Seek		300i.Attack		
Cathcart	Oort (C)	Hor.Attack	Cut.Shield			Cat.Shield
Cathcart	Oort (E)					Cut.Shield
Cathcart	Oort (G)	Cat.Attack	Cat.Evade	Cat.Mine		
Croshaw	Oort (A)	Cut.Shield			Free.Attack	
Croshaw	Oort (C)	Hor.Shield		Free.Seek		
Croshaw	Oort (E)	300i.Evade	Cat.Attack			
		Free.Shield				
Croshaw	Oort (G)					Hor.Attack
Davien	Oort (A)	Hor.Resrch				
Davien	Oort (C)		Cat.Mine			300i.Evade
Davien	Oort (E)	Hor.Evade	Cut.Shield			
Davien	Oort (G)					
Ellis	Oort (A)		300i.Mine		300i.Shield	
Ellis	Oort (C)	300i.Shield	Free.Resrch			
Ellis	Oort (E)				Hor.Mine	
Ellis	Oort (G)				Hor.Resrch	Cut.Seek
Ellis	Ellis XIII (H)			Cat.Resrch		
Fora	Oort (A)	Free.Seek				
Fora	Oort (C)	Cat.Attack			Cut.Attack	Hor.Mine
Fora	Oort (E)				Cat.Seek	
Fora	Oort (G)	300i.Mine				
Fora	Ast Belt (S)			Free.Attack		
Fora	Ast Belt (T)	300i.Seek				Hor.Evade
						Cat.Mine
						Hor.Attack
Fora	Ast Belt (U)	Hor.Seek				
Goss	Oort (A)	Cut.Shield	Cut.Seek		Free.Attack	
Goss	Olympus Pool					
Goss	Oort (C)				Cut.Resrch	
Goss	Oort (E)					
Goss	Oort (G)					
Kilian	Oort (A)	300i.Evade			Cut.Resrch	
Kilian	Oort (C)	Cut.Shield				Hor.Attack
		Free.Resrch				
Kilian	Oort (E)	Free.Attack				
		300i.Evade				
Kilian	Oort (G)	Cat.Shield				
		Cat.Mine				
Magnus	Oort (A)				Cut.Resrch	300i.Seek
Magnus	Oort (C)		Hor.Attack		Cut.Seek	Cut.Shield
Magnus	Oort (E)					300i.Mine
Magnus	Oort (G)	Hor.Mine				
		Cat.Seek				
Magnus	Magnus III	Hor.Attack			Hor.Resrch	
					Free.Resrch	

PLAYERS ONLY GOT THE INFORMATION IN BLACK.



BEHIND THE SCENES

Third Debrief

[Not a lot changed, so no new rules page.]

This time, we significantly reduced the combat mechanism, so that we could concentrate on mining, buying, selling, transporting and getting in lots of turns. That worked – we ran 30 turns, rather than 10.

Running contraband involved a scan at each UEE jump point. Even though contraband paid off twice as well, it wasn't a good investment because of the risk of detection by UEE monitors, especially in the highest security sys-

tems. Next time, we'll make the UEE scans less accurate.

I would expect that long runs are the most interesting, but it's also turning out that they're seriously dangerous, given that there's any risk at all in each system. The danger (and subsequent damage) accumulates, especially since it's hard to travel any distance without going through a pirate system. We might want to re-analyze our pirate system placements – it's looking like they'll have a far greater impact on gameplay than I had originally thought.

Jump point placement within a system will be important. (We knew that, but the game is really rubbing it in.) If two



BEHIND THE SCENES



JPs are across the system from each other, it can be quicker to go around, through an additional system or two, than to spend the time transiting the system. This isn't necessarily a bad thing – it's one more consideration that players can take into account when planning a trip.

In the same vein, systems with JPs close to a primary Landing Zone are likely to be more valued (that is, they're likely to see more system-to-system traffic) than systems with LZs distant from their JPs.

Some players will run the risk that their ships will be destroyed, rather than paying insurance money to stay safe. (This was protection money, not actual insurance: you could pay $\approx 2K$ a turn in bribes to keep your ship from being

attacked, rather than paying $\approx 5K$ per point of damage to have it repaired. And enough damage (3 to 5 points) would destroy your ship, so it's not just repairs you were protecting against.) In "safe" systems, the odds of damage were much lower, and so bribes weren't as useful, but in high-risk systems, some players still chose to take their chances rather than pay the bribe.

This was a playtest, not an actual game, so there was a certain amount of "let's try this, even though I'd never do it in actual play," but the willingness to fly unprotected, with both a ship and tens of thousands of credits in cargo at risk, surprised me.

Next time, I'm going to format mining to more closely match the mechanism being developed by Dash (etc.).

Nathan: When one of my ships got destroyed, it brought up an interesting scenario. Assuming my pilot safely ejected and was floating around waiting to get picked up, in SC we need to balance how much oxygen an EVA suit can hold vs. the average time we might expect someone to come to their rescue. Obviously, the latter can vary wildly, but if we want "rescuing stranded pilots" to be a valid job/action in the game, which I think we should, then we need to make sure the pilot has a chance of surviving until rescue. Otherwise, stranded pilots will just suicide to teleport back to their home planet.

Evan: Depending on the time/cost, players might just choose to suicide anyway. Personally I wouldn't give it more than a few minutes of floating in space before pulling the trigger. Although if it was an NPC you hired to fly one of your ships or a crewmate lost in space I could see a compelling reason to attempt rescue.

Nathan: It all depends on what the repercussions are for "suiciding." You essentially take permanent damage if you do that, right? That's a pretty big downside to waiting it out. We need to make incentives for players to want to rescue / be rescued. But we may find through testing that it's just not feasible enough for players to do.



BEHIND THE SCENES

Fourth Debrief

Using this rule sheet. >

We kept the combat mechanism simple, still concentrating on making money, and we got through 40 turns. That gave people time enough to try a strategy, abandon it, and switch to something (hopefully) more profitable.

We discovered that a good strategy plus good luck can result in a seriously high return. (Yes, we're looking at you, Evan.) Everyone started with four ships and \approx 50K. He had bought an additional two ships by the end of the game, at \approx 100K per ship. In general, with more turns playing out, everyone started investing in upgrades and additional ships.

No one was interested in running contraband or taking other similar risks. There was very little traffic through high-risk (lawless) systems.

In general, it's tough to be a pirate, and I'm not sure of a way to make it much easier while staying within SC parameters. A major consideration is that if you're a law-abiding Citizen, you've got the support of UEE patrols throughout UEE space. On the other hand, if you're a pirate, you can probably build a high reputation with

SHIP DESIGN

Easy this time: All ships have the first column. Spend 2 points per ship; each point shifts a column for one stat.

Structure:	4	5	6
Cargo:	1	2	4
Mining:	3	4	5
Speed:	-	6	5-6 (roll needed for an extra space)
Evade:	1	2	3

**ATTACK WAS ACCIDENTALLY OMITTED:
1 2 3**

\$6K to repair a point of damage.

\$2K *before* a Pirate Evade roll to avoid damage.

\$30K to purchase a new point for your ship.

MAKING MONEY

Multiply all results by the number of cargo spaces the cargo fills.

Maintenance: \$100 per phase for each ship.

Buying, selling and repair take one phase (combined).

Squirt

You can carry information from one system to another any time you transit a JP. (This does not take cargo capacity.) You receive **\$200 per jump** (at any JP, in either direction).

Mining

At this point in the game, everything that you find can be used to buff a specific part of one type of ship.

At any location where mining is possible, roll your mining dice. You fill one cargo space for each 6 you roll. Then go to any LZ to refine/determine value.

* roll your mining dice. Count \$100 for each 4-6.

* reroll each 4-6 (previous roll). Count \$1K for each new 4-6.

* reroll each 4-6 (previous roll). Count \$10K for each new 4-6.

* reroll each 4-6 (previous roll). Count \$40K for each 6.

You may sell at primary LZ (where ship is made) for full value. You may sell at any other LZ for half value.

Transport

Generic. You can load and carry a generic cargo from any LZ to any other LZ (in another system). Payment = **\$300 per system** (counting shortest route).

You can carry a generic cargo within a system that has multiple LZs for **\$300**.

Specialty. Roll a die. Add one for each level of cargo (+1, +2, or +3). You receive a contract to carry a specialty cargo on a 6. You can carry a specialty cargo from

the list for **\$1000 per system**. If you fail your specialty die roll, you can wait till next phase and try again, or (this phase) you can take any other action instead.

Specialty-Contraband. Double the value of a normal specialty (**\$2000 per system**), but you are scanned by UEE patrols at each JP (so sometimes twice in a phase). Make a UEE Evade roll: [Security + 1 PLUS Evade or less]. If you fail to evade, the UEE has detected your contraband and orders you to surrender it.

SURRENDER: pay \$30,000 fine.

RESIST: Combat (take a hit), and UEE *will* attempt to pursue. At every subsequent location: roll an Evade check (-1 if you failed the last check). If found, take 1 damage.

If you can reach a pirate LZ and wait a turn, UEE will drop the pursuit. However, you are tagged as a pirate for the rest of today's play session; jumping into a UEE system will trigger pursuit again.

Buy/Sell

Buying and selling a cargo yourself is like Transport, but pays more, at a higher risk. (Who knows for sure what a cargo will be worth when you deliver it?)

Generic. Pay \$3000 (per cargo space). Sell for:

Base: \$2000

Distance bonus: \$200 per system

Variable price: Roll 1 die. Add \$500 per pip.

So for example, carrying a generic 1-space cargo from Sol to Terra, with a variable roll of 4, costs \$3000 and pays: \$2000 (base) + \$1200 (6 systems) + \$500 x 4 (variable roll) = \$5200.

Specialty. Roll to see if you can get one (as with transporting specialty cargoes). All costs and payments are double the generic amounts. Pay \$6000.

Base: \$4000

Distance bonus: \$400 per system

Variable price: Roll 1 die. Add \$1000 per pip.

Specialty-Contraband. Double-double. Pay \$12K.

Base: \$8000

Distance bonus: \$800 per system

Variable price: Roll 1 die. Add \$2000 per pip.

If you surrender, the fine is \$100K.

Combat

At each location where you end a phase (but not at LZs), make a Pirate Evade roll: [Security MINUS Evade or less]. If you fail to evade, take one point of Structure damage.



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one pack, or even a few packs, but (in general), you'll have most of the UEE and most of the packs willing to attack you.

The new mining mechanic seems to more closely mirror what we're likely to have in SC. You have to spend time trying to find usable ore, and then when you do, you have to take it to a refinery to find out exactly what you've got. At the refinery, you start checking on more common ores first; the more of a particular common ore that you have, the better the chance of having uncommon ore, and the more uncommon ore that you have, the better the chance of finding the related rare ore.

Fifth Debrief

Using this rule sheet. >

This time I tried to drive interaction, especially pirate/UEE interaction. I reduced the universe to six systems in a single row (Pirate-UEE-UEE-Pirate-Pirate-UEE) and required everyone to cross through at least a couple of unfriendly systems to make a delivery. You could buy favor with a pirate clan or with the UEE as part of each ship's initial design. Some players chose to buy both types of favor (spending 3 of their 5 upgrade

SHIP DESIGN

All ships have the first column. Spend **5 points** per ship; each point shifts a column for one stat.

Structure:	4	5	6
Cargo:	1	2	4
Mining:	3	4	5
Speed:	-	6	5-6 (roll needed for an extra space)
Evade:	1	2	3
Attack:	1	2	3

UEE Favor (Crosshaw, Davien, Nemo) 2 pts.

Cathcart+Taranis Favor: 1 pt. Nul Favor: 1 pt.

Favor = no security check in the system(s).

\$6K to repair a point of damage.

\$2K before a Pirate Evade roll to avoid damage.

\$30K to purchase a new point; **\$150K for new ship**

MAKING MONEY

Multiply all results by the # of cargo spaces the cargo fills.

Maintenance: \$100 per phase for each ship.

Buying, selling and repair take one phase (combined).

At any UEE LZ, pay 10% of any income in taxes/fees.

Mining

All runs and mining are delivered past two unfriendly systems. Pick any LZ for delivery beyond those systems.

At any location where mining is possible, roll your mining dice. You fill one cargo space for each 6 you roll (after rolling two 6s to find the ore). Determine value as you mine; you may discard any cargo.

* roll your mining dice. Count **\$1K** for each 4-6.

* reroll each 4-6 (previous roll). Count **\$2K** for each new 4-6.

* reroll each 4-6 (previous roll). Count **\$3K** for each new 4-6.

* reroll each 4-6 (previous roll). Count **\$10K** for each 6.

Transport

Generic. You can load and carry a generic cargo from any LZ to any other LZ (in another system). Payment = **\$300 per system** (counting shortest route).

Specialty. Roll a die. Add one for each level of cargo (+1, +2, or +3). You receive a contract to carry a specialty cargo on a 6. You can carry a specialty cargo from the list for **\$1000 per system**. If you fail your specialty die roll, you can wait till next phase and try again, or (this phase) you can take any other action instead.

Specialty-Contraband. Double the value of a normal specialty (**\$2000 per system**), but you are scanned by UEE patrols at each JP (so sometimes twice in a phase). Make a UEE Evade roll: **SUCCESS** = [Security + 1 PLUS Evade or less]. If you fail to evade, the UEE has detected your contraband and orders you to surrender it.

SURRENDER: pay \$30,000 fine.

RESIST: Combat (take a hit), and UEE will attempt to pursue.

At every subsequent location: roll an Evade check (-1 if you failed the last check). If found, take 1 damage.

If you can reach a pirate LZ and wait a turn, UEE will drop the pursuit. However, you are tagged as a pirate for the rest of today's play session; jumping into a UEE system will trigger pursuit again.

Buy/Sell

Buying and selling a cargo yourself is like Transport, but pays more, at a higher risk. (Who knows for sure what a cargo will be worth when you deliver it?)

Generic. Pay \$3000 (per cargo space). Sell for:

Base: \$2000

Distance bonus: \$200 per system

Variable price: Roll 1 die. Add \$500 per pip.

E.g., carrying a generic 1-space cargo from Sol to Terra, with a variable roll of 4, costs \$3000 and pays: \$2000 (base) + \$1200 (6 systems) + \$500 x 4 (variable roll) = \$5200.

Specialty. Roll to see if you can get one (as with transporting specialty cargoes). All costs and payments are double the generic amounts. Pay \$6000.

Base: \$4000

Distance bonus: \$400 per system

Variable price: Roll 1 die. Add \$1000 per pip.

Specialty-Contraband. Double-double. Pay \$12K.

Base: \$8000

Distance bonus: \$800 per system

Variable price: Roll 1 die. Add \$2000 per pip.

If you surrender, the fine is \$100K.

Combat

At each location where you end a phase (but not at LZs), make a Pirate Evade roll: **FAIL** = [Security MINUS Evade or less]. If you fail to evade, take 1 pt. of Structure damage.

If PvP, make successive combat rolls in one phase - [Attack - Evade + d6 - 3 = Structure hits], each ship attacks one ship - until one side is destroyed or a deal is reached. For each hit sustained, there is a 10% chance that the cargo has been destroyed.

PvNP: like PvP, but add surrender rule:

Transport: roll one die. Add # of pirates and # of hits sustained - # of friendlies. Surrender on a 6+.

Advocacy: Surrender on an 8+.

Pirating & Bounties

Pirates: Roll d4. That's how many levels of notoriety you have achieved before today's play. Bounty = 1: \$5K / 2: \$15K / 3: \$30K / 4: \$50K. For each ship the pirate captures or destroys, add 1 to notoriety.

Subsequent levels: 5: \$75K / 6: \$105K / 7: \$140K

Pirate bounty on UEE patrol ships: \$20K per ship.

Go to any appropriate LZ to collect your bounty.



BEHIND THE SCENES

points), with the result that they didn't have to make any security checks at any time. They couldn't carry much, but they didn't need combat ability. (Yes, you'll still be at risk in a system even if you have favor with the Powers That Be of that system; I didn't try to include that risk in this session.)

Everyone had to purchase pirate favor with at least one ship, but they used that for nothing but flying through pirate systems safely. Every pirate-favored ship had a bounty on it, but the bounties were set too low (around 5K to around 75K, when it costs around 150K to replace a ship) and no one made any effort to attack a ship for the bounty. In general, players didn't want to attack other PCs since their own investment (their ship) was likely to take damage.

Players were willing to attack when odds were very much in their favor (fewer and/or weaker opponents), but never each other.

They were also not much interested in vigilante tasks – protecting JPs, chasing bounties: bounties are going to have to be pretty high for players to go after them. They've got to be in the neighborhood of the cost of a ship, since there's a good chance you'll lose your ship while pursuing a bounty. You can chase a bounty in a group, but that seriously reduces the payout



you're receiving, since you're having to share it. And players are reluctant to gang-attack a ship, even if they're pretty sure they can take it down, if it means there's a decent chance your own ship will be damage/destroyed.

Escort missions were either not worth the trip (repair costs outweighing prospective payment), or nothing happened, which was boring.

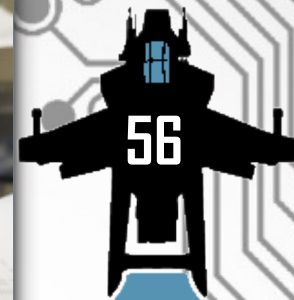
Even with insurance, players aren't happy about risking their ships – they're still losing gear, special mods, neural network, etc., if a ship is destroyed.

Contrarily, insurance also could discourage players from taking out griefers – if a griefer could be back in his ship within a short time, why

bother taking him out?

Players definitely didn't want to take missions through unfriendly systems; they didn't feel like they were worth the risk. But I'm having a hard time justifying easy mission payoffs that are close to the value of an entire ship.

And that's where it was left. Work continues on the economy, and all the things related to the economy – occupations, ship costs, insurance and so forth – but we're not using boardgame play to get there for now. If we get back into the boardgame, we'll be sure to let you know, and we're definitely giving you details on how the economy functions as we get those worked out – but we've still got plenty of work to do in that respect before it's ready for prime time.



BEHIND THE SCENES

OSO SYSTEM



Discovered in 2861 by amateur explorer Errol Navis, the system that he named after his daughter featured six distinctive worlds orbiting a white Type-F main sequence star. Oso was quickly set upon by survey teams and corporate groups seeking to lay claim to the latest worlds potentially ripe for terraforming. However within the year, interests changed dramatically. The discovery of higher life forms on Oso II forced the government to issue it protectorate status under the Fair Chance Act. The declaration immediately locked down the system, but some of the less-than-scrupulous surveying corporations leaked their planetary assessment findings. They attempted to make a case to the UEE Senate that Oso II could potentially be terraformed for Human habitation without destroying all of the indigenous life. The question of 'uplifting' began to circle the Empire. Ultimately, a slim majority in the Senate chose to adhere to the tenets of the Fair Chance Act. They established a permanent garrison near the system's initial

jump point to let the species develop without outside interference. Despite this, travel to the system to engage in black market trade opportunities remains significant.

Oso I

The system's first planet is a tidally locked world that features one of the most impressive 'day and night' differences in the explored galaxy. The side locked towards the sun is an endless sea of lava while the dark side is a stark, black iron-rich landscape too cold to ever sustain Human life (though a landing with proper equipment is possible). Extensive mineral surveys of Oso I's night side were conducted before the system was placed under the Fair Chance Act, but little of value was ultimately discovered. Today, the planet is best known for its impressive visual display (viewed remotely) rather than for anything worth extraction.

ELIHUWVW

Oso II

A lush biosphere with a variety of distinct regions and climates, Oso II boasts an increased gravity much higher than Earth's. The planet is mostly known as the home to the most developed primitive species ever encountered by the UEE. Known as Osoians, this multi-limbed race actively communicates with one another using patterned flashes of color generated by head-mounted chameleon cells. The Human scientific community extensively lobbied for the chance to communicate with an emerging life form, and Osoian communication studies are ongoing today (within the limitations of the Fair Chance Act).

Beyond the Osoians, the planet is also home to a great deal of lesser species, most of which have evolved to be entirely unlike anything discovered elsewhere to date. Though direct study is a violation of the Fair Chance Act, some scientists are able to receive permission from the UEE to establish off-world research platforms to attempt to study the species from a distance. These platforms are carefully supervised and are allowed only for short periods of time.

HEARD IN THE WIND

"To look into the eyes of an Osoian is to look into our own past and see the potential to evolve and grow that lies within us all. For every species we encounter who we shadow with our advancements, you must ask, is there yet still a species out there by whom we ourselves will be overshadowed?"

– Professor JT Collins, *A Step Onto the Precipice*

MIDDLE PLANETS

The third planet in the Oso system is a gas giant. Oso III began life as a rogue Jupiter that fell into rotation around the system's star. The planet is distinguished by slight

green and white color variations generated by its silicate clouds. From a scientific standpoint, Oso III would be largely uninteresting save for its proximity to Oso II. As such, it's frequently cited as evidence to support the theory that gas giants can act as 'comet shields' which allow higher forms of life to evolve. Unmanned scientific monitoring stations are positioned at the planet's Lagrange points to track and catalog meteor impacts.

Oso IV is an uninhabited coreless planet which once boasted a surface rich in gems and mineral resources that were likely exposed due to some sort of planetary catastrophe. These resources were very quickly (and quietly) picked clean by rogue mining operations shortly after the system's initial discovery. Oso IV has no atmosphere and there is an ongoing (but not especially vehement) argument in the scientific community as to whether or not an atmosphere ever existed. Today, there is nothing to argue for a landing on Oso IV.

STATION CHIMERA

Observation Base Chimera is home to Oso's rotating military contingent charged with protecting the system from outside interference. While its intention is noble, the effectiveness of that intention has been under fire recently as allegations of negligence caused a Senate inquiry into the daily operations of the base. This review revealed consistent average and below average performance reports for nearly all Army personnel assigned to the station, as well as evidence of corruption, bribery and even extortion. Despite a regular crew rotation, internal Army station reports, previously kept hidden, have corroborated the Senate's findings and have made public Chimera's internally well-known reputation of hosting burnouts and failures. While the situation says little for the Army's reputation, the Senate report painted a myriad of opportunities for any businessmen willing to work outside the law. At any time desired, it was possible to pay off the local crews to avoid interception, visit Oso II and escape the system unharmed (and unscanned).



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The effects of this inquiry are still being felt today. The Emperor cited the findings in his decree to High Command to immediately restructure Chimera's operating policy and implement consistent checks from civilian auditors to make sure it was operating ethically.

Note that the edict against travel to Oso is actually only enforced against those approaching the inner planets. A high volume of legitimate transports and other ships transit through the system on unrelated routes, to the point that a Covalex shipping hub has been established in the outer reaches.

OUTER PLANETS

The fifth and sixth planets in the Oso system are generally uninteresting and have largely been avoided since the initial glut of scientific surveys. Oso V is an ice giant, nothing more than a churning mass of ammonia vapor that cannot

sustain Human life. The most distant planet in the system, Oso VI, is a dwarf planet offering little of value. The only mining report ever conducted erroneously claimed the presence of concentrated iron ore. This was the result of a later-corrected sensor intolerance and not actual evidence of valuable minerals on the surface, as can be attested by unsuccessful miners unaware of these errors.

HEARD IN THE WIND

"An Osoian walks into a bar and orders a drink. The bartender says I'm sorry, but I'm not allowed to serve you because your culture hasn't discovered alcohol yet. The Osoian thinks for a second and then says, if you leave a bottle on the counter, I'm pretty sure I'll be able to discover it myself."

– Jimmy Snart, *Laugh Till It Hurts*



EDITH HAYWARD





Brothers In Arms

by Andy Rogers

Part 1

The heads-up display on Gavin Rhedd's Cutlass dimmed at the edges. Green triangles representing the members of his security team distorted to form horizontal spikes of flickering static. He smacked the side of his helmet into the Plexi canopy of his cockpit. It was a practiced move, and one that had snapped the HUD back into focus in the past. This time, the display flickered, faded and then died.

A heavy breath sent a thin veil of vapor climbing the visor of his helmet. Condensation obscured the view of black, empty space ahead.

Empty like the dead heads-up display.

Empty just like it had been for weeks.

There were brigands and marauders plaguing every planet

in the 'verse and he couldn't find one damned gang. Nothing was working out like he'd planned.

On the navsat, the other three members of Rhedd Alert Security fanned out to either side. His brother Walt was locked into position directly to port. Jazza and Boomer were painfully out of position.

Sloppy.

Everyone was getting bored and careless.

Boomer was the first to break radio silence this time.

"Hey, guys?"

"What's up, Boomer?" Walt was the first to respond.

"I'm cold."

CHRONICLES

Jazza didn't follow orders better than any of the others, and her banter had the comfortable cadence of friendly rivalry. "Then put on a sweater."

"Hey, Jazz?" Boomer fired back at her.

"Yeah?"

"Take your helmet off for a tick."

"Why's that, old man? You want a kiss?"

"Nope. I'm hoping you get sucked out and die when I shoot a hole through your cockpit."

Gavin sighed into his helmet before triggering his mic. "Come on, gang. I want comms dark. The miners on Oberon hired us to take care of their pirate problem. And the three of you chattering on an open channel won't help us find them any faster."

"I'm starting to hate this system," Walt muttered.

They were all tired and strung out from weeks of long hours and no action. But Walt was killing their morale by giving voice to that frustration. This whole thing – Rhedd Alert Security, abandoning smuggling to go clean, applying for Citizenship – was something they'd agreed to do together. Gavin and Walt. Brothers. Going legit and starting a business.

It seemed a good idea when they were dodging system alerts and dumping a fortune into forged tags. But some things don't change, and Walt was the same old Walt – all talk and no follow through. It wouldn't be long before he came up with some excuse to move on to clearer skies.

"What's wrong, Boomer?"

"Cold, Gavin. Think the heat's out."

Wonderful. Something else to fix. Maybe Walt wouldn't be the first to quit after all. Dell would leave if Gavin let her father freeze to death over this rock.

Jazza barked a laugh, "Yep. That sounds about right for this outfit."

"Jazza, will you shut up already? Which part are you having trouble with? Comms or dark?"

"Yes sir, Big Boss Man."

"Jesus. I got more respect from you guys when we were criminals. Boomer, by all the Banu gods, why didn't you tell me you were having trouble before we left the hangar?"

"I, uh . . . I figured to keep quiet until after the mission. Until we got paid, you know?"

This should have been a quick in and out job. But after weeks of fruitless hunting, even if they eventually drove off the pirates, the job would be a net loss.

"Hey, guys?" Jazza was really starting to get on his nerves. He told her as much. "Shut your hole, Gavin. I just wanted to let you know I found something."

Gavin quickly studied the navsat console. The area looked empty other than the four of them, so whatever she'd found wasn't showing up on any of his feeds. He smacked his helmet again in mute hope that the HUD would spring back to life.

"It's a hull," Jazza said. "Big one. Looks like a stripped Idris. Looks dead."

"I'm not seeing you on . . . crap," Walt said. "There you are. How'd you get way the hell out there?"

"Easy, folks," Gavin said. "Boomer? You head toward Jazza. Walt and I will hold position."

"Copy that."

An Idris represented a fair chunk of Creds as salvage. Strange that no one had claimed it. They were in Oberon to chase off pirates, but a little scrap job on the side was a welcome bonus.



"Jazza," Gavin said, "I've got nothing near you on sensors. You think it's just some floating junk?"

"I think so," she spoke slowly, uncertain. "I thought I saw a heat trace, but I'm not seeing it now. Going in for a closer – Jesus!"

"Jazz," Boomer's voice was flat. The old man was all business. "Break right, I'll pull this one off you and lead them back to the boys."

"Can't shake him."

The navsat showed three new ships. A 325a with scrambled tags closed in on Jazza. Walt streaked past, already accelerating toward the fray, and Gavin turned to follow.

"Pull up hard," Boomer said. "Bring him back around – Damn it."

"Talk to us, Boomer," Walt said.

"Jazza took a big hit. These guys are each sporting a Tarantula – the big one."

"Hold tight," Gavin said. "We're nearly there. Walt, my HUD's out. I need visual to fight, can you engage?"

"On it."

"Hold on, Boomer. We're coming."

Walt was an incandescent streak ahead of him. The nearby space seemed deceptively empty without the visualizations that his HUD instrumentation would normally project. Only Oberon IV, looming angry-red and overly large beneath them, gave him any sense of perspective.

Walt's voice crackled into the oppressive silence. "Boomer. I'm coming in low at your three o'clock."

"Copy that."

"I'm going to strafe with the repeaters to get their attention. You give that 325 a broadside he can't resist. I'll shove a missile somewhere the sun don't shine."

"Hurry, Walt. I'm too old for a three-on-one."

"On you in five. Four. Three. Break now!"

Up ahead, razor thin beams of red slashed across space. The lasers streaked straight and then abruptly fanned out as Walt yawed around a pirate ship.

"Boomer!" Walt's words tumbled out in a rush. "I can't take a missile shot with you between us."

"Can't shake him."

"Well that Tarantula is going to shake you plenty if you don't."

A missile streaked toward one of the pirate ships. Gavin saw a stuttering series of small flashes inside the cockpit, then the 325 vented a blazing ball of burning oxygen and went dark.

Gavin dropped into the swirling tangle of ships and added his own laser fire to the melee. Rippling blossoms of dispersed energy glowed against a pirate's shields.

"That's done it," Walt said, "they're gonna run."

He was right. Realizing they were outnumbered, the remaining pirates turned together and accelerated past Jazza's drifting ship.

And with them would go any hope of a profitable job.

"Pen them in and stitch them up, guys."

"Screw that," Walt pulled up, quickly falling behind. "Let them run. They won't operate here once we steal their hideout. We win, Gav."

"This job won't even cover our fuel costs, Walt. We need those ships."

"I got 'em." Boomer yawed around to pin the fleeing ships between them.

"Boomer," Walt cried, "don't!"



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The pirate pair turned nose to nose with Boomer. Their guns sparked twice, muzzles flashing, and Boomer's Avenger bucked from the impact. Most of the starboard wing spun away in a blaze of erupting oxygen. The pirates flew straight through the floating wreckage and streaked away at full acceleration.

Gavin cursed and slowed. Without his HUD, the fleeing pirates quickly faded from view. "Boomer? Talk to me, buddy."

Boomer's Avenger drifted slowly away toward the black. Then it burped, venting air and Boomer's survival suit out into open space.

A new, flashing red icon reflected up and off the canopy of Gavin's cockpit. He didn't have to check the console to know it was Boomer's recovery beacon.

He let his hands fall away from the controls, closed his eyes and let his head slump backwards. His helmet struck the cockpit frame with an audible clunk. Colored lights sprang up to swim in front of his closed eyes.

Resigned, he cracked one heavy lid to peek out at the intruding light source. His HUD had decided to grace him with a reappearance.

"What. The hell. Was that?" Walt pronounced his words biting precision.

"Tarantula GT-870 Mk3," Gavin recited in detail.

"I know about the damn guns, Gavin. I mean sending Boomer after them. We won. We had them on the run."

"These ships don't repair themselves, Walt. Maybe you haven't done the math, but we're broke. We need the salvage."

"Salvage is nice, but Dell is going to kill you if Boomer is hurt again."

"I'll deal with Dell." Gavin rolled his shoulders and settled his hands back on the controls. "Put a call in to Oberon. Let

them know we took care of their pest problem and that we'll tow away the clever little base the pests were hiding in to block scans. Then get Jazza patched up. Assuming the pirate survived, the two of you can drop him off before towing the salvage home."

"Got it," Walt's voice was caustic, "money first. Good job keeping our priorities straight"

"Damn it, Walt. Will you stow the lip for two minutes so we can pack up and get everyone home."

"Fine."

"I'll get Boomer. Can you please go see if you can get Jazza back up and running?"

"You're the boss, little brother."

Gavin pushed his family troubles to the back of his mind. Prioritize. First things first, take care of the crew. Get Boomer home. Repair the ships. Pay down some debt. He rattled off a painfully long list of critical next steps and one item kept rapidly, forcefully climbing its way to the top.

They really needed to get another job.

* * *

Walt beat the others back to the hangar. He matched rotation with Goss System's Vista Landing and drifted along its length until he reached the Rhedd Alert hangar. He slowed and then stopped at three sets of wide double doors, each painted an alarming shade of red.

Hazard beacons floated in front of the first set of doors. Short bursts from tiny thrusters kept them in place a dozen meters out while a work crew applied high-pressure, ghost-grey paint over stencils of the Rhedd Alert logo.

Walt drew in a proud breath that pressed his chest against the confines of his flight suit. It looked cool having their name up in big letters on the side of the complex.



CHRONICLES

Then the moment soured.

The hangar and support staff were dead weight around their necks. The painting crew and logo were all part of the lease agreement with the station, but they served as a pointed reminder of the permanence of the commitment. Walt gnawed at his bottom lip, uncomfortable with the weight of the obligation.

He tried to put the sense of buyer's remorse aside, but it sat heavy and rekindled his anger at Gavin. His brother wanted this company so much. Dell did, too.

Success – legit success – meant they could leave the old routines behind, forever. No more hiding. No more flipping tags every couple weeks to stay ahead of the Advocacy. Starting a company and working toward Citizenship was a big deal, but at what price?

Employing folks and applying for Citizenship was fine, but it started to lose luster in a hurry if success meant getting someone killed. Walt had to make sure Gavin saw that. They were all tired, but this was too important to wait.

"Knock knock, Dell," Walt said. "Open up."

D'lilah's voice came over the comm immediately. She'd been waiting. "Bay 3, Walt. And mind the paint crew."

"I see 'em. Glad to be home, Dell."

* * *

Gavin touched down last, and Walt was waiting at the foot of the ladder when his brother slid down to the deck.

"Don't start with me," were the first words out of Gavin's mouth.

"Listen," Walt said, "Maybe I was out of line to second guess you during a fight, but we need to talk about what happened out there."

"We won, okay? Right now I need to get Boomer to the

med techs, and then contact Barry about another job."

"Barry got us this job, Gav. I'm not sure if you noticed, but it really didn't end so well."

"We got sucker-punched by some thugs. That's what happens when you get sloppy."

He was talking about procedures and performance. Two of their ships got shot up, Boomer wounded and Gavin was grumbling about tight flight formations. Walt stretched his fingers, willing them not to form fists. His brother tucked his helmet under one arm and stepped to the side to move around him.

"Damn it, Gavin," Walt grabbed the shorter man's shoulder and pressed him back against the ladder. "Would you slow down for two seconds?"

He'd caught Gavin by surprise, but his younger brother was fast. Gavin slapped the hand from his shoulder, threw his helmet to the hangar deck and planted a two-handed shove of his own into Walt's chest. "What's your problem, Walt?"

The hangar grew quiet. A quick glance to either side showed the rest of the staff looking very hard for something productive to do, as far from the brothers as possible. Walt leaned in and hissed, "I'm trying to keep you from getting someone hurt. What's the point of Rhedd Alert if we get everyone killed for one crappy job?"

"One crappy . . . ?" Gavin's eyes were wide, showing white all around the edges. "You need to wake up, Walt. This was our *only* job. I got half the ships in the squad with parts falling off. I got Boomer freezing his junk off in nothing more than his flight suit. We can't jump systems to hijack the next ship that comes along any more. This is what we signed up for, man."

Walt was getting hot again. He knew he should walk away, but Gavin was still missing his point. "I know what I signed



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up for.” He knew that they had to make good on jobs, but why die trying just to pay the bill collectors? “And I remember *why* I signed up, too.”

Gavin stepped in again. Closer. “Oh yeah? And why’s that?”

“You, Gavin.”

“So everything’s my fault? Because I *made* you join up.”

“That’s not what I mean.”

“I know I screwed up the bid on this job. I should have priced it higher. But guess what? I didn’t. And this is all we had.”

Walt lowered his voice, getting right in Gavin’s face. “That’s not what I meant and you know it. I’m here because *you* want this.” He jabbed a stiff finger into Gavin’s chest. “You want it for Dell. Because you’re afraid she’ll leave if you can’t pull it off.”

And then Gavin was on him.

They went down hard and Walt’s head cracked against the deck when they landed. Gavin was compact and built like a Sataball defenseman, but Walt had length and leverage. It was a dichotomy they had put to the test a hundred times since they were boys, with nearly uniform results. But Gavin just didn’t know when to give up.

The tussle was short and ugly. In seconds, Walt had one forearm jammed into the back of his brother’s neck, with the other propping himself up off the deck. Gavin’s face was pressed into the cold steel of the hangar floor.

Then the scuffed toe of a black work boot crunched down painfully on Walt’s fingers. His stranglehold on Gavin relaxed, and the smaller man started to squirm free. That was, at least, until the socketed head of a heavy wrench dropped on Gavin’s shoulder, pushing him back down, face first and flat onto the deck.

“Oomph.”

“Now, now, boys,” Dell said. “What are the neighbors gonna think?”

Walt winced, gritting his teeth as she ground his fingers against the steel deck. He craned his neck around to look at her. D’lilah’s boots were cinched tight by pink laces with a white skull-and-crossbones pattern stitched into them. She wore worn, canvas coveralls that hugged strong legs, pockets bulging with tools and spare parts. Her dark hair was pulled back into a ponytail that hung over one shoulder, and she’d dyed the last couple inches a bright, electric blue. The color was new since they’d left for Oberon. It was a playful accent that wasn’t echoed in the angry blue of her eyes.

“Oh. Hey there, Dell.” Walt struggled to keep a pinched note of pain from his voice. “Hello to you, too.”

“Unless the next words out of your mouth tell me where my dad is, you’re going to be working your stick left-handed.”

Gavin answered her. “Ease up, Dell.”

“Who’s got him?”

“I do.” Gavin nodded back toward his ship.

“Well then.” She lifted her foot and Walt yanked his hand back to rub at aching knuckles. He glared at her, as sour a look as he could manage while kneeling on the deck. Her smile feigned a sweetness that did nothing to thaw the frozen fury in her eyes. “I’ll fetch the buggy. If you two are done snuggling, it sounds like my dad has a date with the techs in the med center.”

Dell swung the wrench up to rest over one shoulder, spun on the balls of her feet, and strode away.

Gavin rolled over onto his back with a groan. “That woman is going to kill us one of these days.”

“Think we could outrun her?”



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“You, maybe. There’s not a dark enough hole in the ‘verse for me to hide.”

“Yeah, well,” Walt pushed himself to his feet with a grunt, “that’s your own damn fault for marrying her.”

* * *

Several systems away, on a station much larger and better appointed than Vista Landing, Morgan Brock scowled at a set of numbers on her mobiGlas. She lifted her eyes, shifting her gaze over the top edge of the screen to stare at Riebeld. The salesman sprawled casually in what Brock knew to be an uncomfortable chair. She made sure that it was uncomfortable, so no one felt confident when sitting opposite her desk.

Riebeld somehow pulled it off, though. It was that braggadocio that made him such a good breadwinner for her company. Irritating, yes. But good for business.

She powered down the mobiGlas. “The net profits on this estimate are based off a twelve percent commission.”

“Yes, ma’am.”

“I think we both know that your negotiated commission is ten, Riebeld.”

“And I think we also both know that this job could double the size of the company within two years.” He sat forward then and leaned on her desk. “I want twelve if I bring it in.”

“And you think I’m going to just give it to you?”

“I know you will.”

It was her turn to lean forward. It put her too close to him, and he should have backed off. He didn’t. “And why,” she asked, “is that?”

“Because I know that you’re not going to let principle stand in the way of profit.” His toothy grin was bright enough to deflect lasers. She was used to predatory smiles from

men, but with men like Riebeld, it only meant there was money on the line. His mobiGlas chirped beside them. Riebeld had an incoming call.

He ignored it.

She waited for the incoming alert to stop.

It did.

“You get twelve,” she said. “But anyone who helps bring it in gets paid out of your cut, not mine. And I want three options for one-year extensions. Not one. Bring it to me with three or I won’t sign it.”

“Done.”

“Fine. Now get out.”

He did and Brock leaned back in her chair. She was going to need more ships. Riebeld would get the extensions or he wouldn’t. They gave him something to work toward, and he’d get sloppy if he didn’t have a challenge.

Good sales guys were like racehorses, high maintenance and temperamental. Most days, they were nothing more than a pain in the ass. Come race day, though - you always wanted one in your stable.

There was a quick knock on her door. Riebeld didn’t wait for her to answer before he shoved his head in.

“I won’t budge on the options, Riebeld. I want three or no deal.”

“No,” he said. “It’s not that. Navy SysCom just put our Tyrol contract up for rebid.”

“What?”

“Yeah. We’re allowed to rebid, but they’re putting it out for open competition.”

“Why the hell would they do that?” Escorting UEE scientists to the research facilities in Tyrol wasn’t their biggest job, but she’d put a lot of work into it. They’d spent years



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clearing the shipping lanes in the Min and Charon systems – lucrative years, admittedly – and now the missions were pure profit and promised future growth.

“I don’t have the full story yet, but apparently they are trying to push low-risk contract work out to local companies. Some brainiac in accounting identified the Tyrol run as a candidate and boom, Major Greely pulled the contract.”

“See what you can find out,” she said. “And get to work on the rebid.”

“Already got it covered.”

“And Riebeld?”

“Yeah?”

“Find me the name of that accountant.”

* * *

It was late when Gavin left the station. By way of apology, he invited Walt to join him on the short trip to Cassel to meet with Barry Lidst. Whether Walt came along as reconciliation or simply to avoid another run-in with Dell was unclear. Regardless, he didn’t seem inclined to talk about the argument as they flew, and Gavin saw no reason to bring it up.

Barry, a Navy SysCom accountant by trade and freelance rainmaker by inclination, had grown up with the brothers. He had left Goss to join the Navy while the Rhedd boys stayed to work the smuggling routes with Boomer and their father before he passed.

Officially, Barry was responsible for negotiating contracts between the UEE Navy and private vendors, but he also managed to broker a few off-the-record jobs on the side. He was, if anything, an opportunist, and Gavin trusted him about as much as he trusted any of the shady characters they’d worked with in the past. Which is to say, not at all.

The fact that Barry was involved with Dell before leaving

to join the Navy didn’t factor into his opinion at all. Nope, not in the slightest. Still, Barry had come through with their first legitimate job. With luck, he’d have more.

Gavin swallowed hard, focusing on the fact that they needed work. Walt kept quiet. By the time Cassel swelled, massive, blue and inviting against the gold and turquoise bands of the Olympus Pool, Gavin could feel his brows drawing down into a scowl.

The brothers landed and made their way to a club that catered to the resort world’s local crowd. It was busy, of course, but Barry was waiting and had managed to find an open table.

“I was beginning to think you two bought it in Oberon.” Barry’s naval uniform was cut from some shiny material that was either freshly pressed or engineered to be wrinkle-free. It looked tragically uncomfortable, but did a reasonable job of hiding a rounded gut.

“Oberon took a bit longer than we thought,” Gavin forced a smile, “but we got them.”

“Everything go okay?”

“Absolutely.” He injected confidence into his words and hoped it sounded genuine. Walt looked at him sharply, but Gavin ignored him. They had to appear capable or better jobs were going to be in short supply. “Pirates are not a problem.”

Barry motioned them to sit and his voice took on a somber note. “Word is that Dell’s dad got busted up. He okay?”

“Jesus, Barry,” Walt said. “How’d you even hear about that?”

“I’m the government. We’ve got our eyes and ears everywhere.” Gavin stared at him and raised an eyebrow, waiting. “Yeah. Well,” Barry shrugged and took a sip of his drink, “those miners on Oberon might have mentioned something.”



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"Boomer's fine. Our ships took more of a beating than he did," Gavin turned the subject away from his team getting shot up on the job. "I was surprised to hear you were in Goss System."

"Mom retired here on Cassel," Barry cast a sour glare around the room when he said it. "I'm just here visiting. Can't stand it with all the tourist traffic, but she loves the shows and exhibits and stuff. Anyway, I'm glad you guys were able to help out in Oberon."

"Happy to."

"Stuff like this comes up from time to time," Barry said. "It's not like we don't want to take care of it ourselves or anything. We do. But the Navy can't send troops after every brigand and thug in the 'verse, you know? There's competing deployments, equipment requisitions, system politics . . . forget about it. So, yeah. No one minds if we feed these jobs to indies like you guys."

"Well," Gavin said, "we're light on work right now. Got anything for us?"

"I might have something – not UEE work, but still a decent job. And I know the client will be happy with your rates."

Gavin's heart sank a bit, but maybe they could increase their price without chasing Barry away. He encouraged the accountant to keep talking.

"The job is close, just a couple hops away. It's hard work, but I can hook you up if you're interested."

"What's the job?" Walt asked.

"You ever heard of molybdenum?" Gavin's face must have looked as blank as Walt's. "No? It's a rare metal used in electronics and stuff. You find it near copper deposits. You know what? Doesn't matter. A friend of mine knows a guy who just got his hands on the mining rights to a moon."

"Mining," Walt muttered. "Why is it always mining?"

"I guess the whole moon is riddled with tunnels and caverns. Apparently there used to be a bunch of copper there, but now all that stuff is gone. The only thing left is the molybdenum. This guy, he's got three weeks to start producing or he loses his lease to the next prospector in line."

"Barry," Gavin said, "if you're looking for a team to wear hardhats and swing pickaxes, you've got the wrong guys."

"Naw, it's nothing like that. They're empty now, but someone set the caves up as a fortified base. Smugglers, probably. They put auto-targeting turrets in there. My guy told me they're all over the place. Around every corner. Anyway, it's all Banu tech. A group of them must have hopped over from Bacchus."

"So what's the job?"

"They need someone to comb through the whole thing and take out the turrets. They can't send mining equipment and operators in there until it's clear. Those guys don't have shields."

"That's it?" Gavin asked.

"Yup. That's it."

Walt watched Barry across the table with a bemused tilt to one eyebrow. "That's the most boring job I've ever heard of."

"Hey," Barry said, "if you want something with a little higher chance of combat, I've got a UEE escort contract up for bid. We were getting absolutely fleeced by the incumbent contractor. I finally convinced the major to rebid the job."

Now that sounded exactly like the job Rhedd Alert needed.

"Tell me more about that," Gavin said. "About the escort job, I mean."

"I, uh . . . listen," Barry said. "I wasn't really serious about that. No offense, but that is an armed escort through some pretty rough systems."



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This was it. The chance they needed. “Our guys can do it,” Gavin said.

“It’s a small job now, but it’s scheduled to mature into something big. I don’t even know if you have enough ships to meet the contract requirements.”

“Give us a shot. If we perform, I’ll find the extra ships and pilots.”

“The outfits that sign on for gigs like this are generally ex-military. Highly trained. Lots of contacts in Navy SysCom. Most of the contractors we use are actually based right next to the Navy in Kilian System. I was joking, guys. Forget I mentioned it.”

“No, we can do this. What’s the run? How many —”

“Gav,” Walt interrupted, “we’re talking naval flight formations and tactics. Superior weapons systems. Maybe we should get more info on the turret thing in the mulberry mine.”

“Molybdenum.”

“Whatever.”

“Come on, Walt. This sounds perfect for us. And I’d put you or Jazza up against an ex-Navy pilot in a heartbeat. Any system, any time.”

“Fellas . . . hey, listen,” Barry said. “The UEE is trying to push local work to local contractors. The big defense companies are fighting it. If you feel like sticking your hand in the middle of that fire, I’ll forward you the RFP. Good enough? In the meantime . . . about my buddy with the moon mine?”

Gavin half-heartedly followed along while Walt and Barry discussed the turret job, but in his mind they were already escorting UEE ships through hostile space. Walt startled him out of his reverie when he hushed a surprised Barry into silence.

“Wait,” Walt said, “back up a second. These Banu weapon systems. Did you say this stuff came out of Bacchus?”

“Probably. Why?”

“This moon . . . Barry, where is it?”

“Oberon VI, why?”

Gavin’s heart sank again. A glance at Walt did nothing to reassure him. His brother’s smile looked fantastically strained.

“Ah, come on,” Barry said. “You’ve already done good work for these guys.”

“They’ll kill us,” Walt said.

“Naw,” Barry waved at them dismissively, “They love Rhedd Alert.”

“No,” Walt said, “not the miners.”

“Who?” Barry looked concerned now. “Who’ll kill you?”

Gavin answered. “Our team is going to kill us if we drag them back to Oberon.”

“Hey,” Barry relaxed, “it’s a small ‘verse. You’re going to end up passing through there sooner or later. Might as well get paid for it. Am I right?”

“Yeah,” Walt said, “but Oberon?”

“I did mention it pays, didn’t I?” Barry keyed something up on his mobiGlas. He turned it so they could read the projected display. At the bottom was a number. A not-insignificant number. Gavin stared at his hands as Walt absorbed the figures.

Walt’s head made an audible clunk when it struck the table. He groaned something muffled and to the effect of, “I can’t believe we’re going back to Oberon.”

To be continued



CHRONICLES