

JUMP POINT

A ROBERTS SPACE INDUSTRIES PUBLICATION ISSUE 02.09

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GREETINGS, CITIZENS!

I had thought sitting in a hotel was a bad way to spend **Jump Point Friday**, but curled up with the flu is even worse.

I'm sorry I wasn't able to get it done on time this month, and I appreciate your patience in giving me a few more days to get it done.

Reading through the "what do you think **JP** will have this month" threads, there are a couple of things that consistently show up. First, some subscribers want to see sneak peaks of ships that no one else can see. That's not going to happen. I wish it were, just to make you happy, but Cloud Imperium made a promise at the very beginning: everyone gets to see the new stuff at the same time, whether you're an original backer, a subscriber, a concierge-level buyer, or you've just bought your first ship. To keep that promise, **JP** will show you (our wonderful subscribers) lots of interesting screens of ships as they went through development before anyone else can see them, but it won't show you the new stuff — you find that in our news releases, along with everyone else.

The second thing many subscribers want is a schedule of upcoming developments, or at least a status report on ships and other key developments. We've got a very open development process, and the transparency is really refreshing, even here on the inside, but there's a downside to it as well. Every time we say something like "we're halfway done" with this or that, some folks (not everyone) draw the obvious straight line and extrapolate when it'll be done. And much more often than not, the extrapola-



tion turns out to be incorrect. Sometimes it has overestimated how long it'll take us, but usually it's an underestimation. I've been watching games in development for 25 years, and it's obvious that software development, especially game development, is thoroughly unpredictable.

So if we post a schedule, it'll be wrong, often before it's actually posted. If we post a status report, it will be more discouraging than encouraging (ref: under- and over-estimations, above). Now, if we could put that report just into the hands of the Reasonable People like you and me, we would all find it interesting, and something to politely discuss. But it will inevitably fall into the hands of the Unreasonable People also, who will react as expected. And we've got much better things to do than constantly explain why this month's status report is different from last month's — like design a game. (For the record, I'm not identifying subscribers and non-subscribers as the two types of people mentioned above; I think we can all confess to having been Unreasonable People from time to time, especially when something for which we care deeply is the topic of discussion.) Bottom line: these are both reasonable requests, but not something we'll be doing.

Meanwhile, our definition of the month: **Bone IK** (Inverse Kinetics). This is the software code that gives a skeleton (and thus a character) its structure and makes it move like a real person.

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

David

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COVER: FOUNDRY 42
PAGE 36: RYAN ARCHER
PAGE 54: ELIJAH McNEAL
PAGE 57: DENNIS CHAN



FROM THE HICKORY

Gladius



WORK IN PROGRESS

This month's work in progress, Aegis's Gladius light fighter, was designed by freelance concept artist Gavin Rothery (GR), and directed by Paul Jones (PJ), F42 Art Director. All the notes to Gavin came through Paul, so his name is on them all here, but other contributors include F42's Bjorn Seinstra (Lead Vehicle Artist), Phil Meller (Lead Designer), Neil McKnight (Senior 3D Artist), along with Chris Roberts.

Let's start with the original design concept:

UEE Light short-range patrol fighter. Single seater (I'm thinking we grab the whole cockpit from the Avenger). Ticks all the boxes for a light fighter ... fast and manoeuvrable and capable of punching way above its weight. Built for purpose, not looks ... its main advantage is its simplicity ... cheap to produce and easy to repair. It's an Aegis Dynamics ship, so it's old school military spec and coming to the end of its lifespan.

We currently have two different variants based off the same chassis:

Military Spec. Light fighter that has extra armour-plating and more support for weaponry and ammo.

Stealth. Spec scout with low-emission drives, low-draw weapons and void armour tech.

The details below are for the military spec:

Manufacturer. Aegis Dynamics

Old military ships that have fallen out of public favour due to their prominence during the oppressive Messer Era. Still in UEE service but in the process of being pensioned off.

Keywords. Intimidating. Old War Machines. Heavy.

Crew. 1

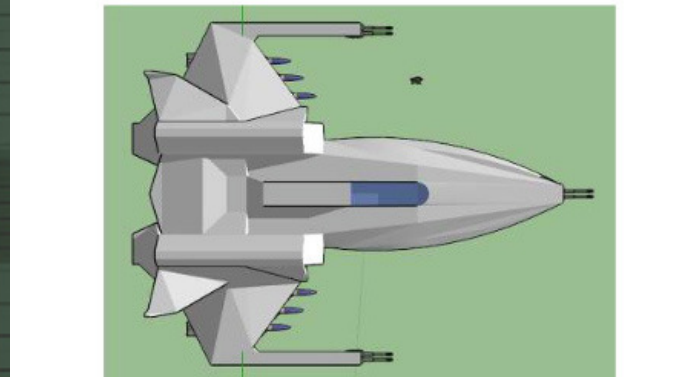
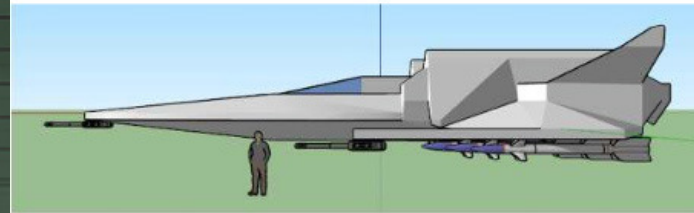
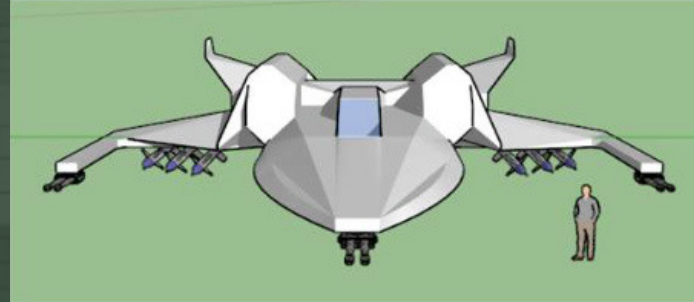
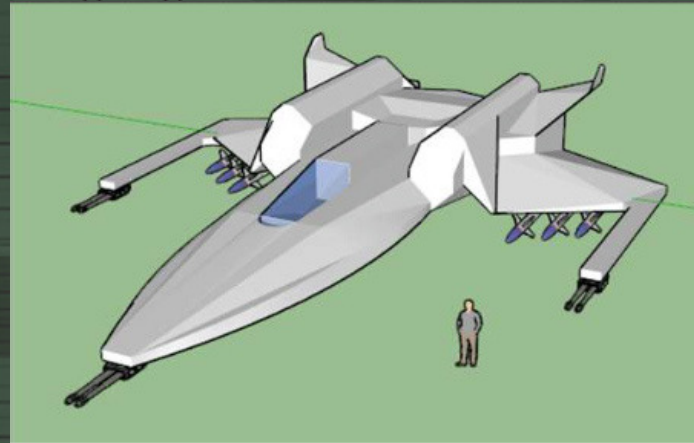
Approximate Exterior Dimensions

Length / Beam / Height: 20m / 16m / 4m/5m (gear up/down)

Approximate Cockpit Interior Dimensions

Length / Beam / Height: 3.5m / 2m / 1.5m

These images are a sketch-up interpretation of a Gladius prototype. The purpose is to clearly show where the weapons may be positioned on the military spec fighter, and also to show what a version may look like without the huge thrusters and nose-piece.



WORK IN PROGRESS

GR: Here's where I am at the moment with the beginnings of a concept for the AEG Gladius light fighter vehicle [this and next two pages]. I've gone for a lightweight aspect to the superstructure with a V-wing that could feature some variable geometry if desired that will also suit itself to a rework into a stealth design with many cues from modern existing vehicles to help "sell the stealth," primarily the B2 Spirit bomber and some near-future drone prototypes that are currently undergoing flight testing. In the spirit of a light fighter, I was going for a shape suggestive of speed and I also put in some "clunkier" forms such as the bulked up cockpit to suggest older military equipment (I'm seeing this as being somewhat similar to an Apache gunship cockpit which should give it that military retired "vintage" look compared to the Avenger).

When we last spoke you mentioned sketches, but as I always do rough models at the start of concept phases anyhow, I thought I'd send them over as I currently had them – I just find it helps me to get a sense of the overall volume of the vehicle much faster than any other way of working. Apologies for taking a few days to get this over to you – I set about researching Star Citizen as part of my acclimatisation to the project and was stunned by the amount of stuff out there. I've never seen such a candid, open approach to development before. All good stuff. ;)

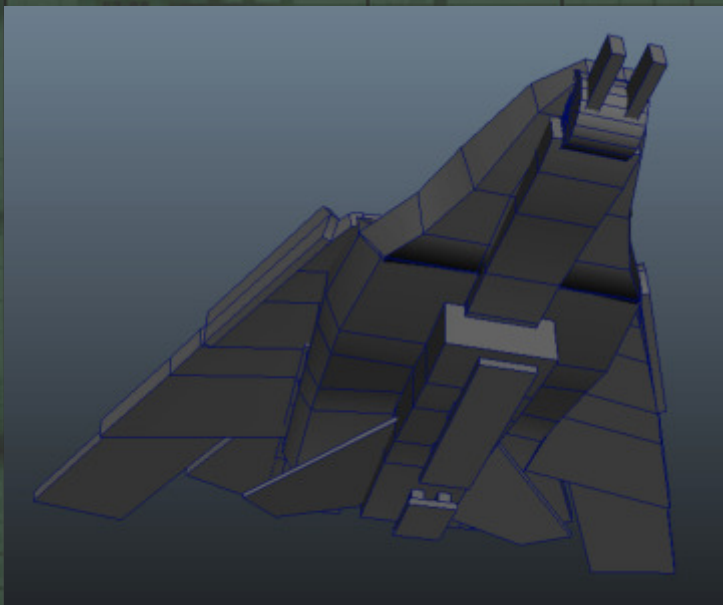
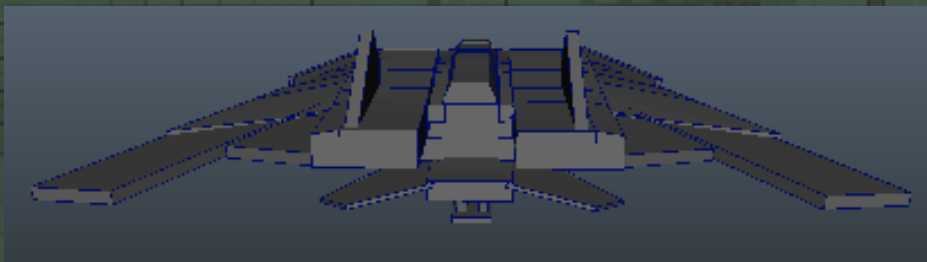
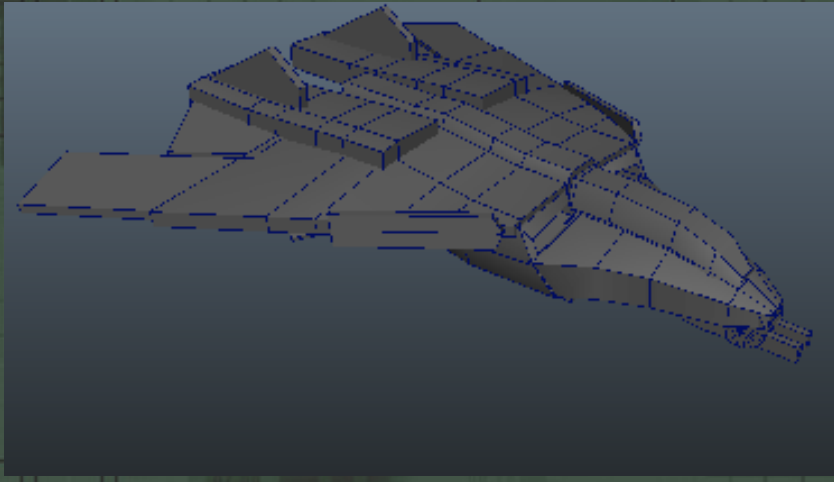
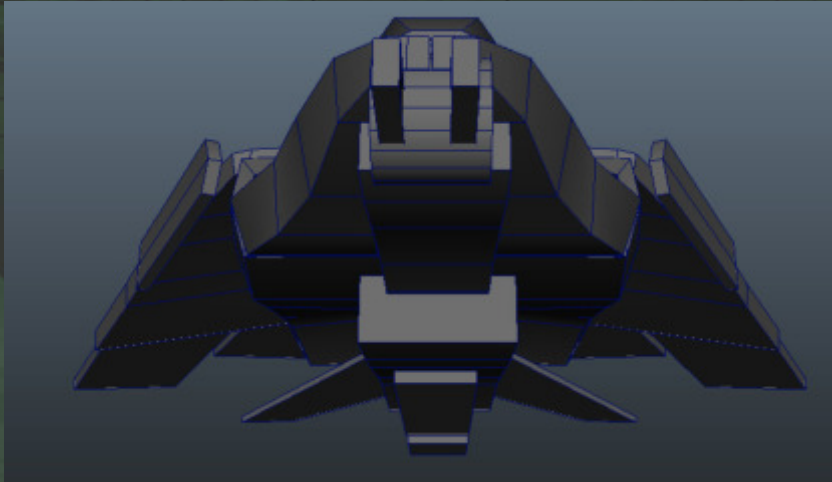
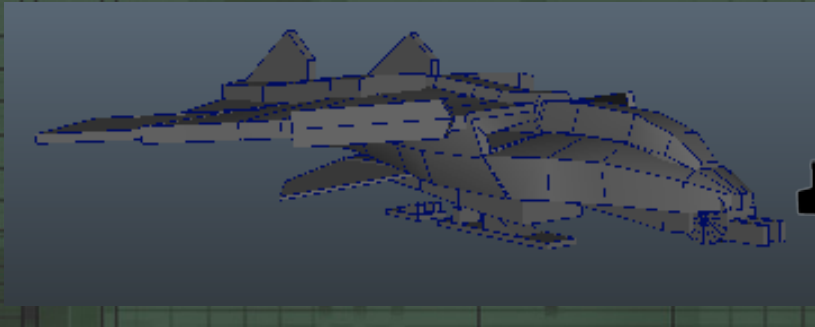
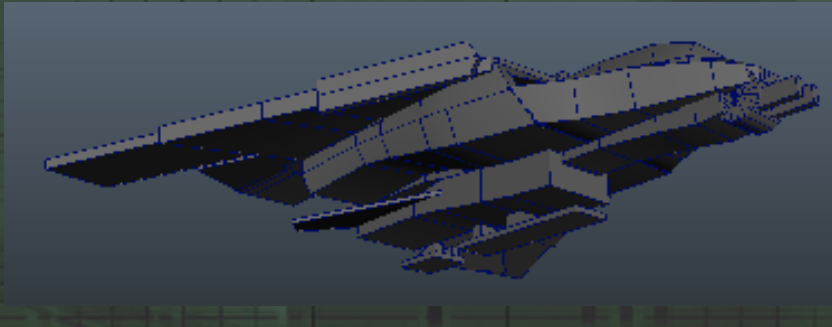
Hopefully there's enough here for us to take the conversation to the next level – I've included my working Maya file as well as an OBJ export in case you're using another package. Actually, it'd be handy to know what software you're standardised in as I'm on Maya over here – I'm sure we won't have any problems going back and forth but it'd be good to check in case I have to migrate my 3D work for you.



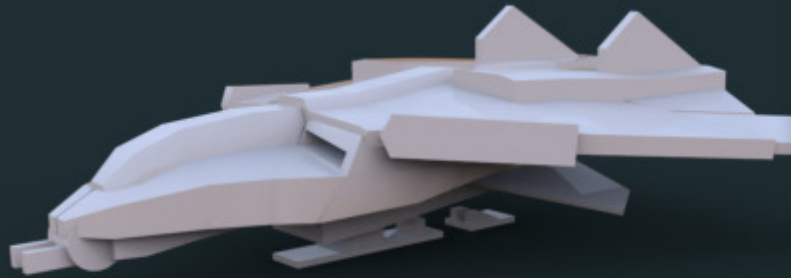
AEG Gladius concept - work in progress



WORK IN PROGRESS



WORK IN PROGRESS

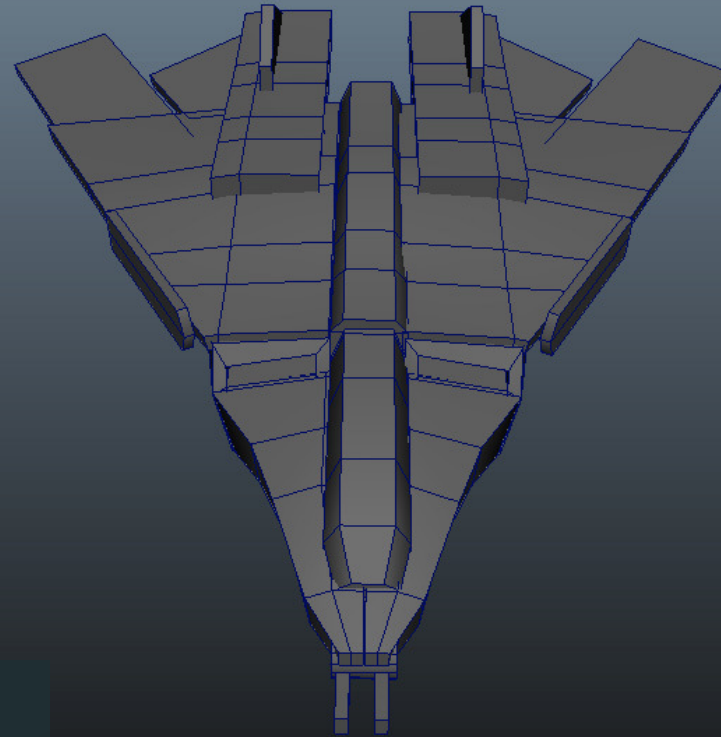
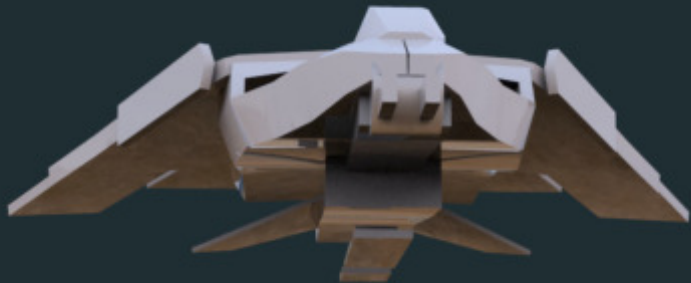


PJ: In its current form, I think it's too conventional feeling – go more fighter version of the Retaliator and less B2, also go with something more stable looking than a central skid.

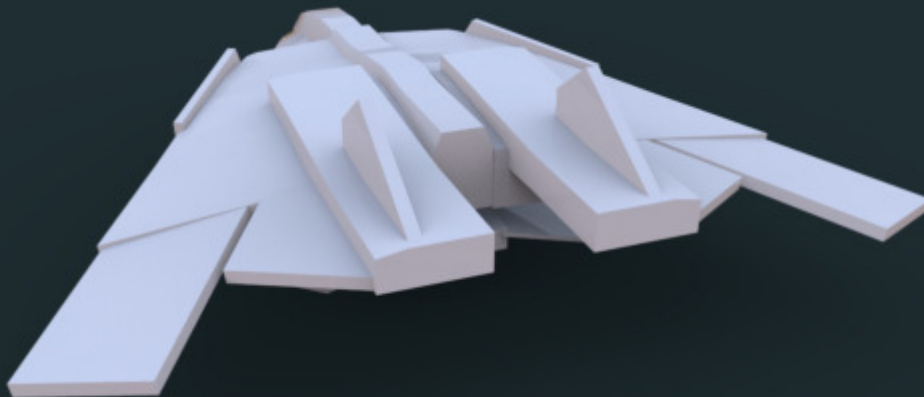
For its paint job, keep closer to military than police.

We are using 3dsmax mainly but we do also use Maya. :D

Holler if you need further info and we can get it to you.



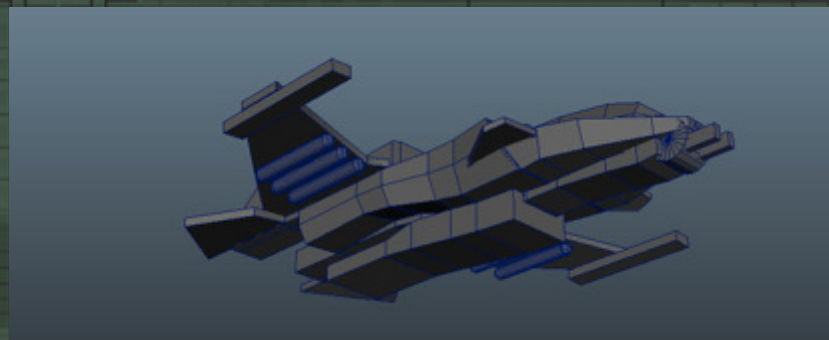
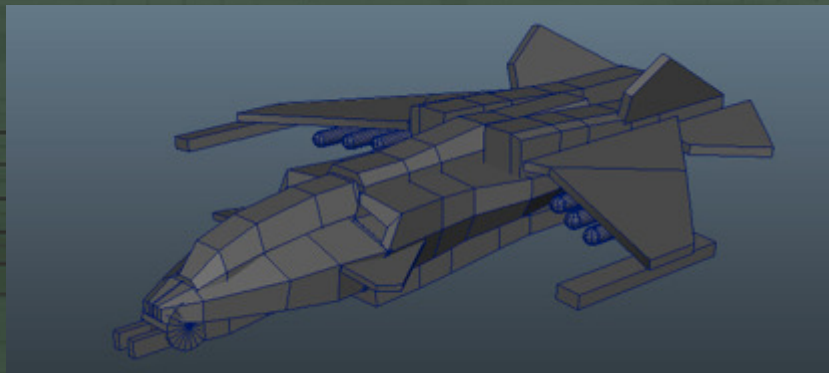
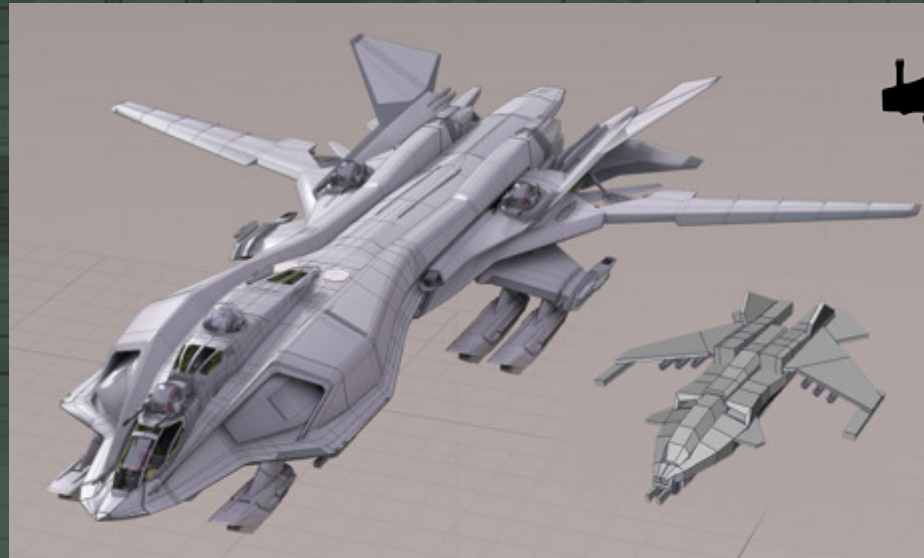
WORKING IN PROGRESS



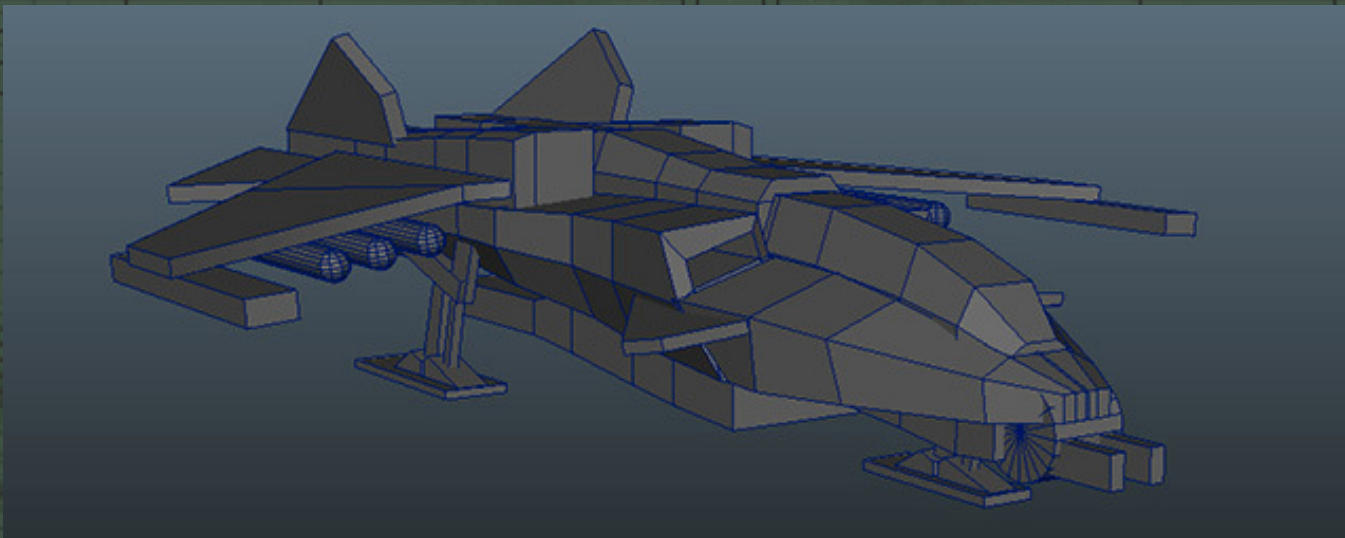
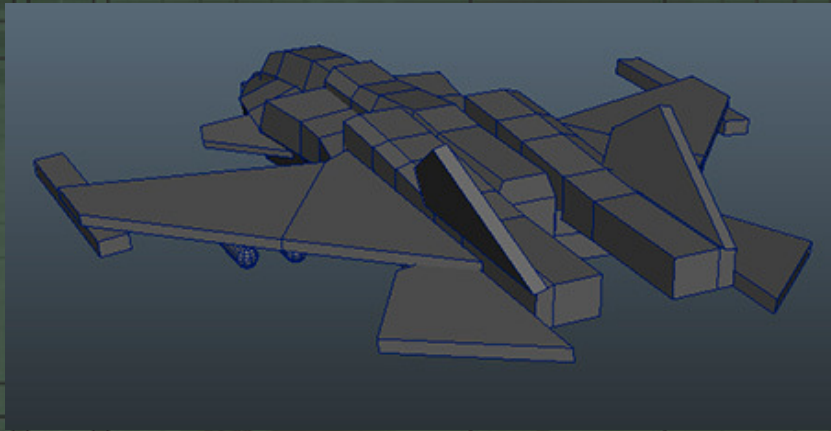
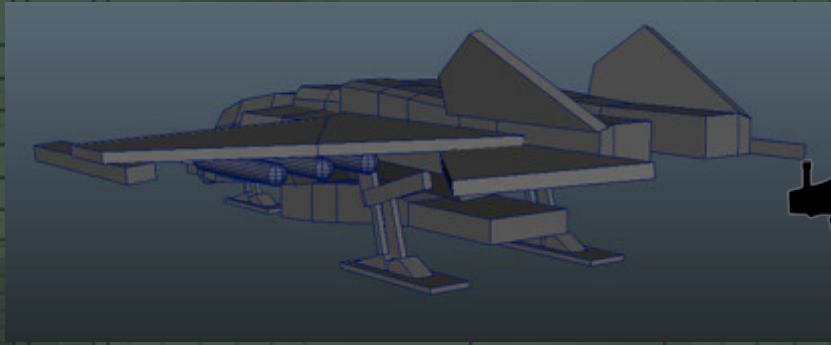
GR: Thanks for the feedback. I was taking my cues from the Avenger, so I'll have a look at a design based around the design of the Retaliator – it's a cool-looking ship. ;) I'll get something worked up and over to you.

If anything comes up and I need any additional info I'll be sure to hit you up, but in the meantime I'm going for a light fighter that fits with the Retaliator in military markings.

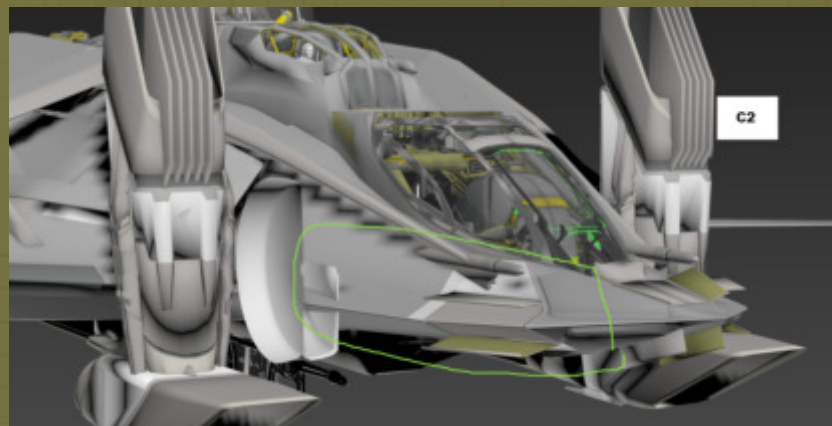
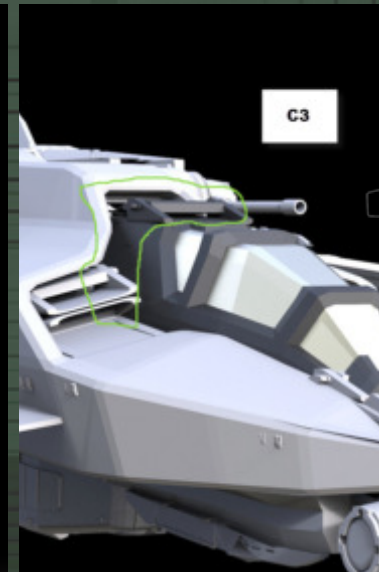
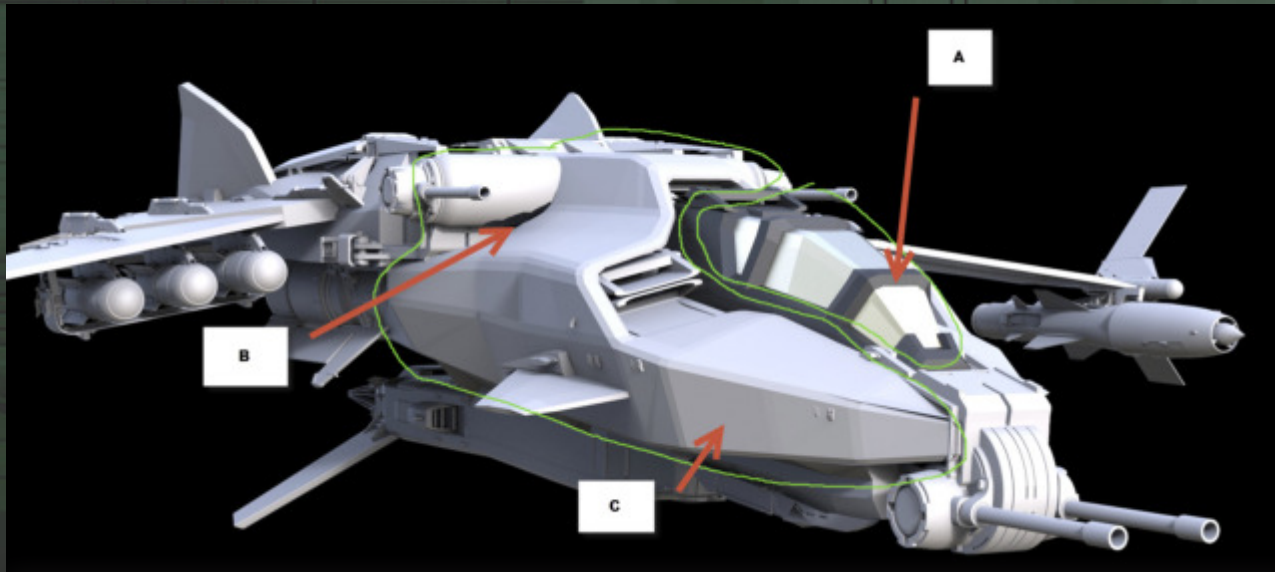
GR: Here's where I am at the moment with the AEG Gladius light fighter concept. Paul, as you suggested, I've gone for a design that can sit nicely alongside the Retaliator. I'm not exactly sure of the relative scale of these two vehicles, but I've mocked up a rough example of how I'm currently seeing it as it might look as an escort fighter [image to right]. I've also kept closer to the spirit of the original images in the briefing docs, and so hopefully this piece is pretty much in the middle of the two reference points. I've enclosed some images below and also the Maya file if you fancy loading it up and having a look in 3D. [this page and next page]



WORKING DRAFTS



WORK IN PROGRESS



GR: I've been working up the Gladius concept with some rough sketchy 3D to give you more of an impression of how I see the vehicle translating from the early rough shape to a more realised design. There's no real attempt at any colours or paint yet, apart from a little on the cockpit to separate it. Next steps would be to get into Photoshop and keep working once you're happy with the basic shape of the vehicle.

Let me know if this is a direction you're into; it feels to me like it could sit nicely alongside the Retaliator and has a nice, fast, light feel with some older looking parts immediately suggestive of ex-military equipment as outlined in the brief. I also think this design could hold some nice potential for next steps in paint-jobs.

Hope it's all going well in Manchester – the weather's getting nice and sunny down here in London. Perfect for those long nights at the computer. ;)

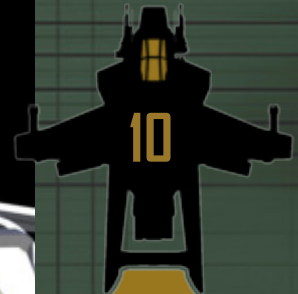
PJ: Hey Gavin, here's some feedback that will need to be addressed before moving onto stuff like paint/split lines etc.

Loving the overall feeling of it. The team was impressed.

So you know, we'll get this to a certain point and then pass

to Chris Roberts for review. Hopefully any changes would be minimal but we can never be sure!

- A. Remove this support and reduce the thickness to as thin as possible.
- B. Resolve this area; can you blend it in more?
- C. Like this, but can you try a version that's a bit to the sharper to the Retaliator (image C2), probably not as sharp though.
- C3.Reduce the gap between parts to make it more snug and fitted, less for air to catch on.



WORK IN PROGRESS

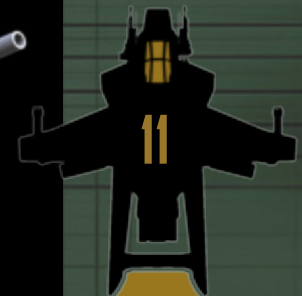
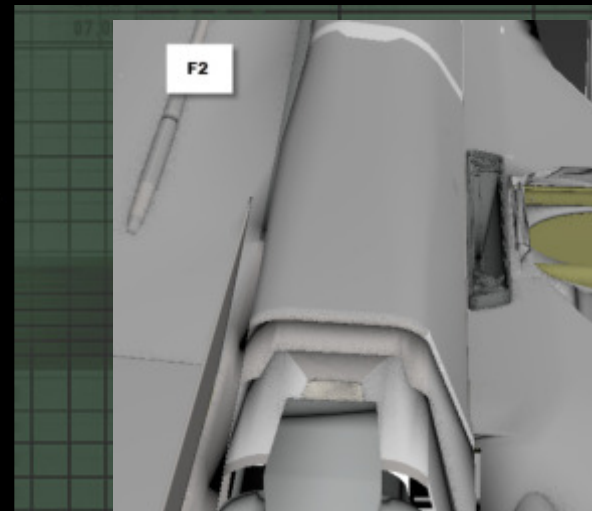
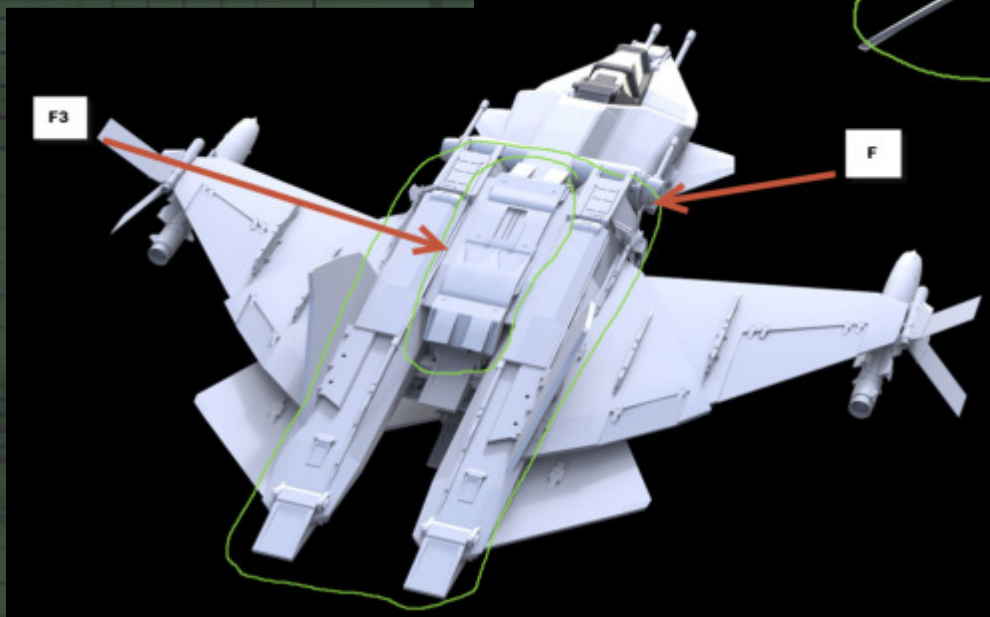
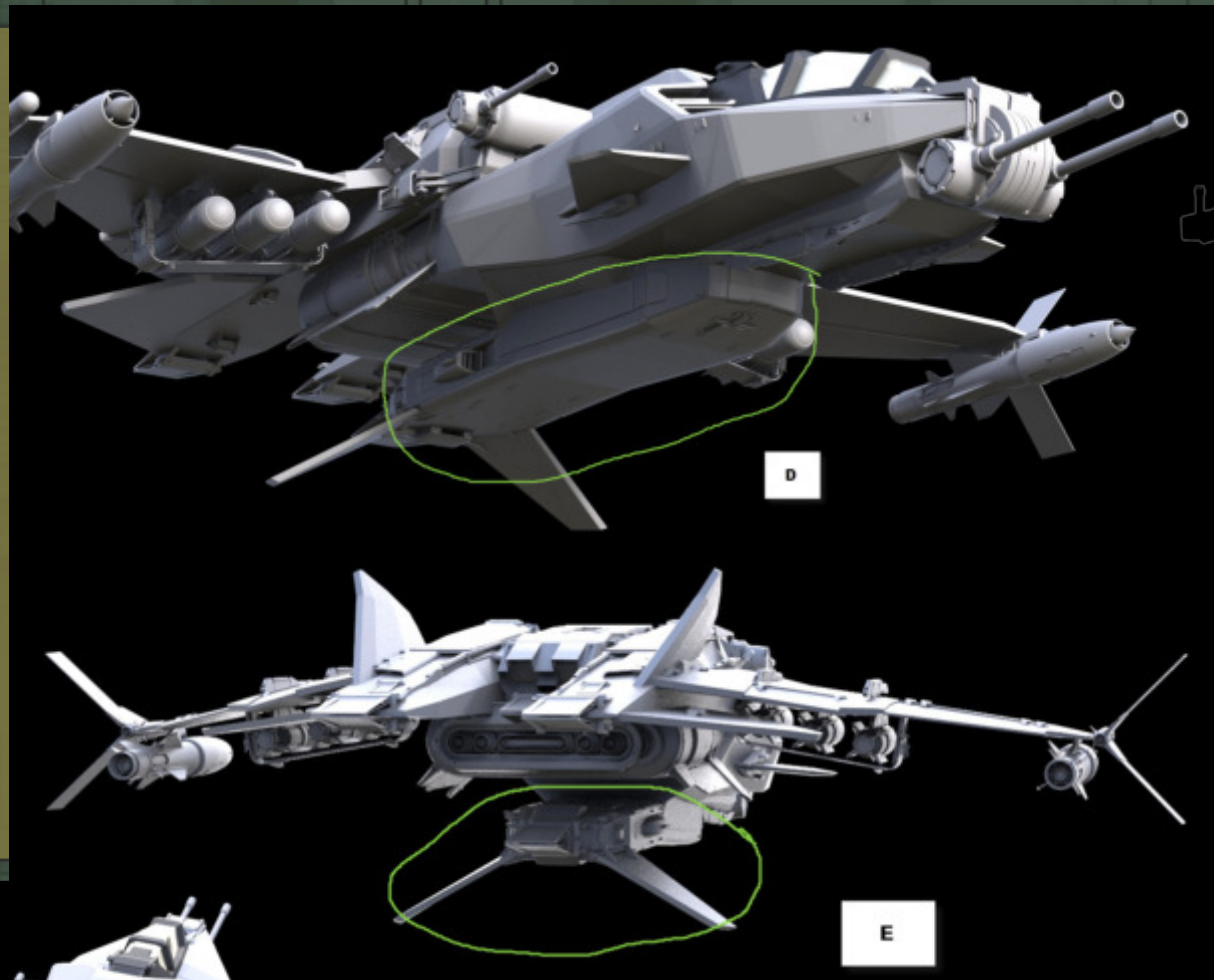
D. Like this pod as it could house a lot of equipment, chaff, flares, radar etc. However, can you integrate it into the body to reduce its overall bulk? Taper the cross-section so it's less boxy.

E. Like above, pull up into the body more – maybe 50%?

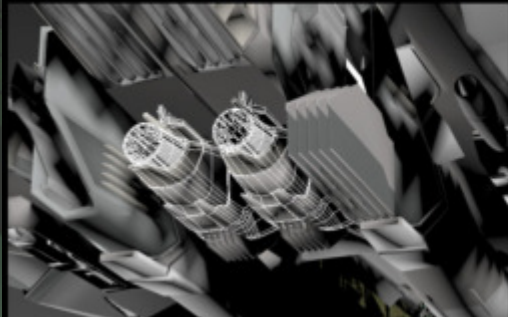
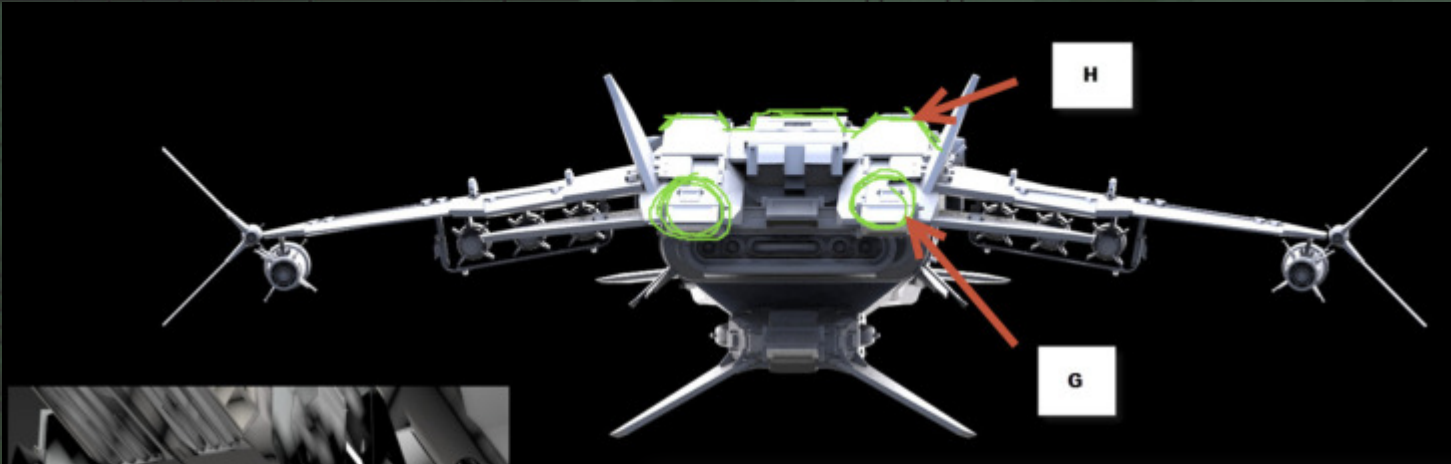
What is the vent flap thing at the back?

F. Feels too boxy, like the complexity though. Needs some shapes closer to the Retaliator in terms of the cross section of the 'tubes' – See F2 to give an idea.

F3. Needs to be less boxy; like the complexity though.

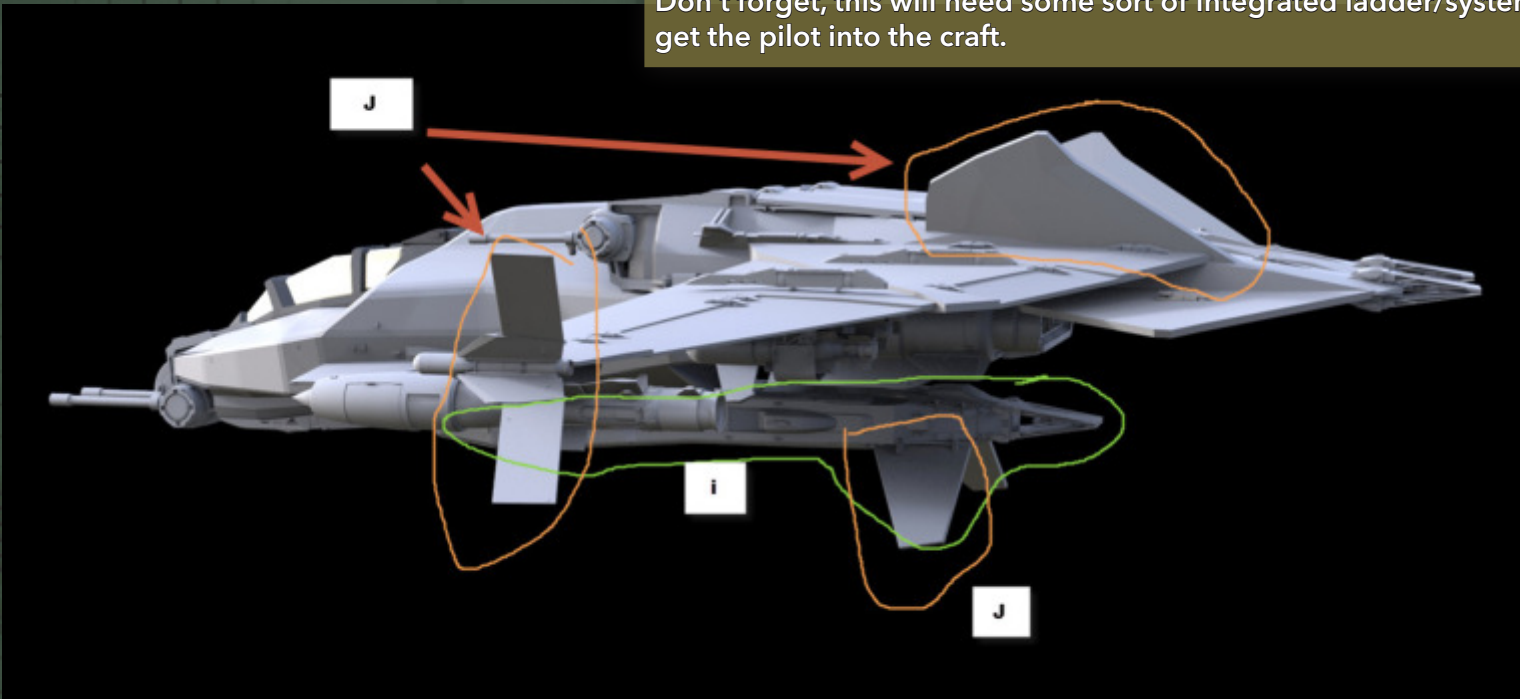


WORK IN PROGRESS



- G. Would expect to see engine exhaust ports here, though I feel the lower wider version you have would burn off part of the aircraft! ;P
- H. Example of profile shape.
- I. Clarification of section to be raised/integrated more.
- J. Flaps need additional work to profile/cross section.

Don't forget, this will need some sort of integrated ladder/system to get the pilot into the craft.



WORK IN PROGRESS

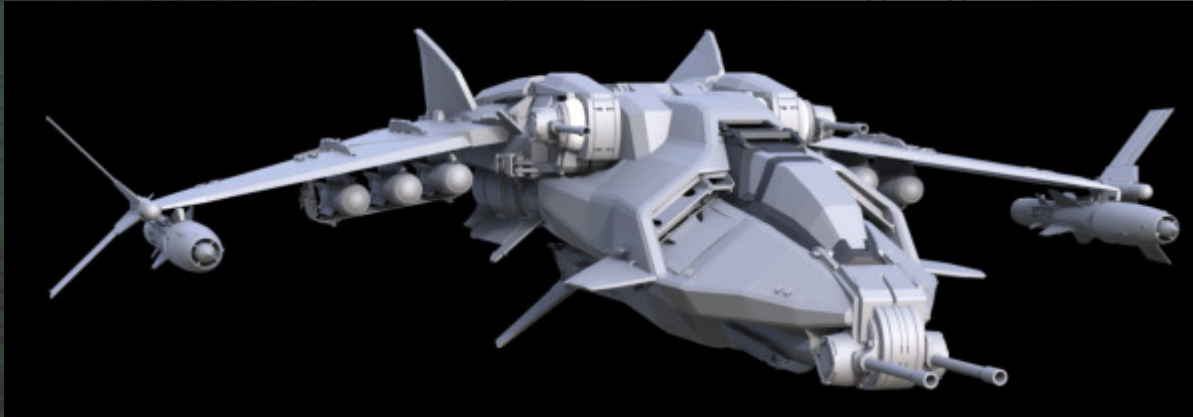


GR: Here's some renders of the revised Gladius Light Fighter with attention paid to the specific notes – please let me know how you find this version. I still need to address the landing skids and the cockpit ladder, but these should be easy enough to integrate into the design once the key shape is settled. I'm right here for any further tweaks you feel might be necessary ;)

[This page and next two pages]



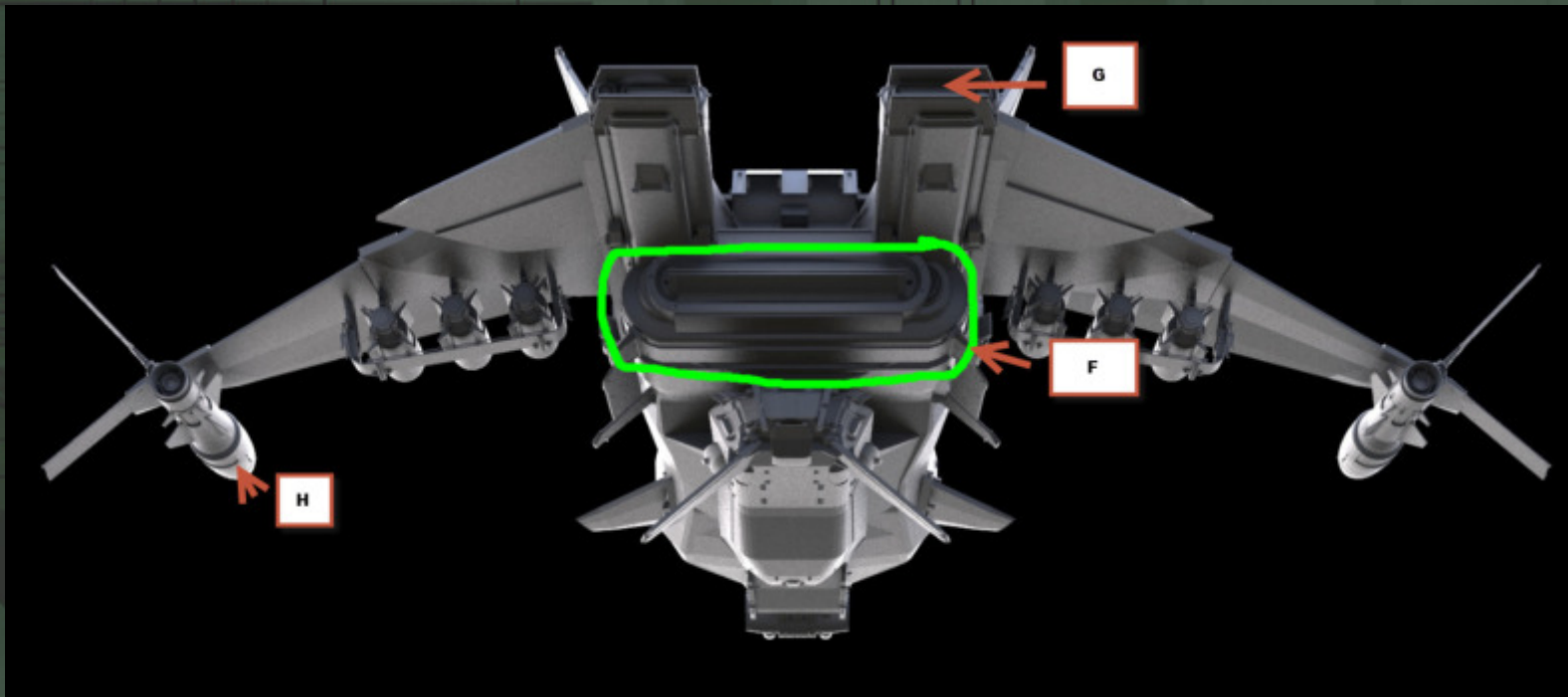
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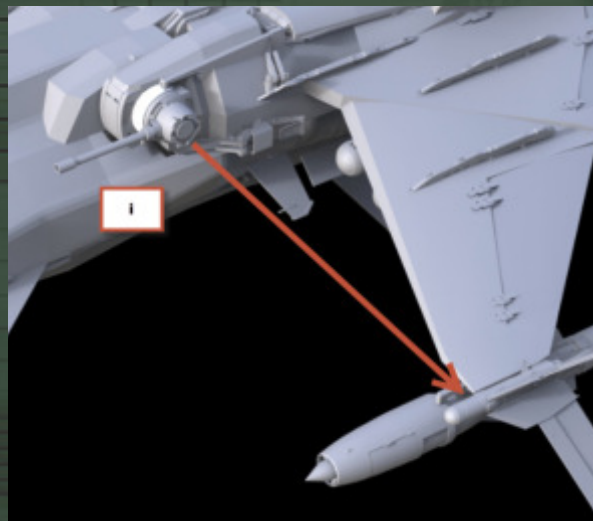
WORK IN PROGRESS



WORK IN PROGRESS

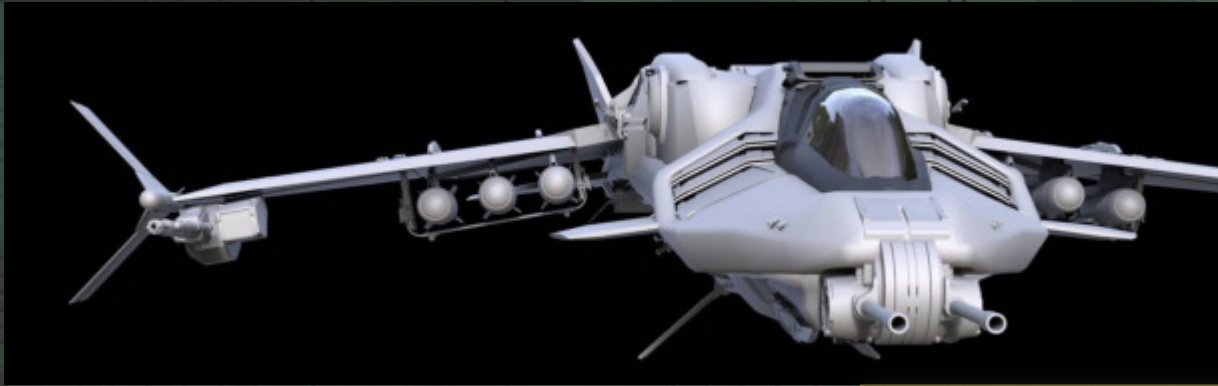


WORK IN PROGRESS



PJ: I had some feedback from Chris Roberts and I've tacked mine onto it. Overall, he likes the style and the fidelity.

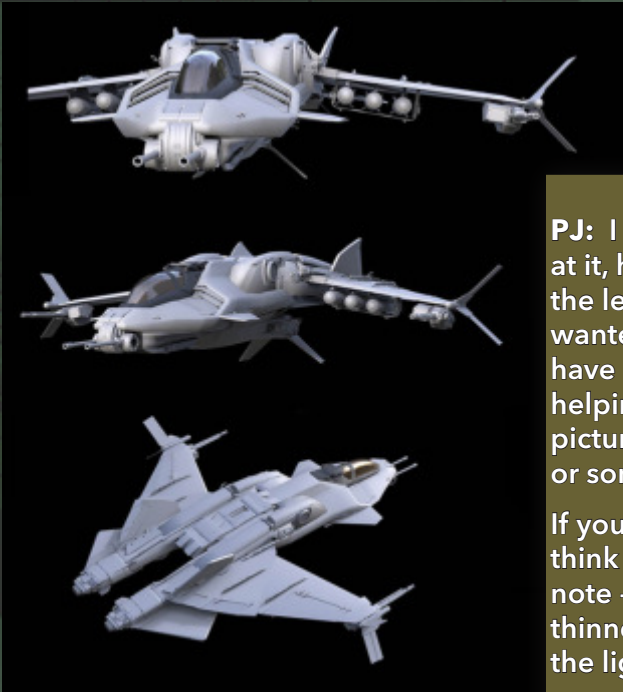
- Fighter feels too heavy, needs to lose some weight
 - Cockpit canopy to be sleeker in shape and framework
 - Feels like a brawler rather than a sleek fighter. Components to be sleeker rather than chunky hard edged.
 - Lines to flow more – Retaliator, though big, still has areas of sleekness.
 - He's happy with the quality and modelling though!
- F. Not sure what this is, but it's giving the fighter a lot of bulk.
- G. Can you make sure you can fit a round thruster in here?
- H. Remove these.
- I. We'd like to see a version with the shoulder laser cannons moved to the wing tips, it will give broader cover. I think you can still have some nice techy feature where the shoulder cannons used to live if you want.



GR: Here's the latest renders of the concept model for the AEG Gladius ship. I've rounded off a lot of the shapes and taken a lot of weight out of the vehicle as suggested. I've removed the whole original "engine block" that was at the lower middle of the main body, as the engines are now at the end of the stanchions right at the back – it's taken a lot of mass out of the model. I've gone for slightly off-circular nozzles on the engines as I thought they looked good; I can set them to perfectly round if you like, just let me know. I've attempted to retain a bit of the "ex-military" aspect of the brief by having some redundant equipment on there, most notably the "shoulders." I've removed the guns from here and put some nicer looking ones on the ends of the wings, but I left some elements of these "shoulder" guns to suggest that this vehicle has had some equipment removed – ex military vehicles tend to be armed up as much as possible, and often when these vehicles make their way into the civilian sphere there are tell-tale elements to their former history, such as weapon mountings that remain on the vehicle. If it's too much, it's easy to dial back, I just wanted to explain my thinking. But overall, this version is sleeker, lighter and I think it also looks faster because of it.



WORK IN PROGRESS



PJ: I thought it's a good shot at it, however it wasn't making the leaps in the direction Chris wanted - I took the liberty to have one of my guys give a helping hand, as they say one picture saves a thousand words or something like that!

If you can make the changes I think we'll be on a winner. (Also note - the missiles are smaller, thinner and this also helps sell the lightness of the fighter.)

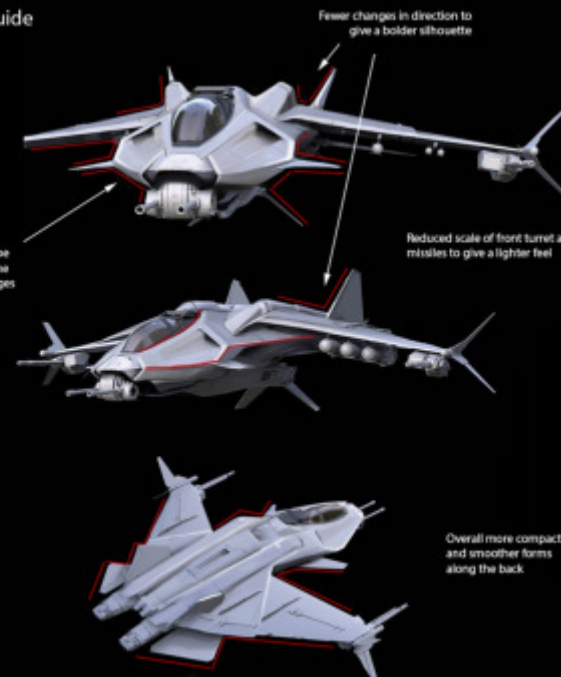
Aegis Form Guide

Current Gladus notes

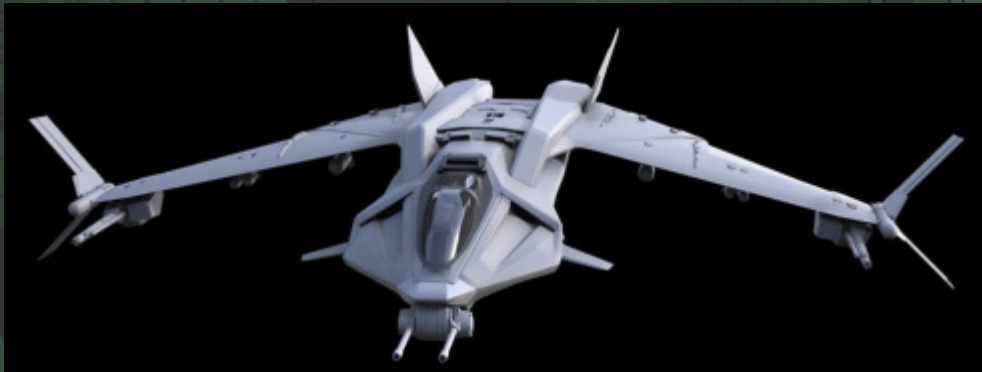
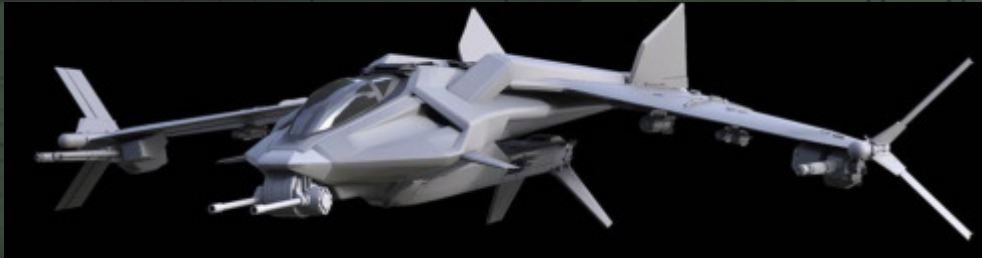


Aegis Form Guide

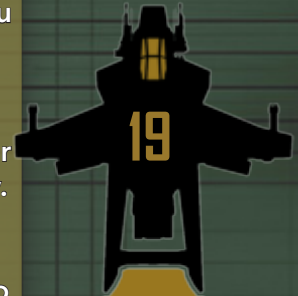
Painter Notes



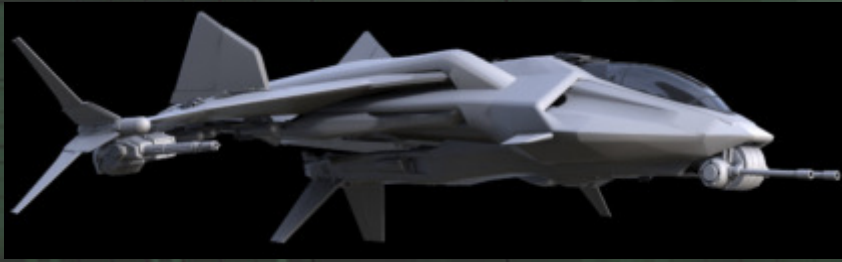
WORKING DRAFTS



GR: Here's the updated Gladius concept model for you to have a look over. As you can see, I've changed the model significantly to work the new lines in there – I think the last feedback was particularly useful, as I feel like I've got a much better handle on the branding of the ships now. There's still a couple of areas that I'd like to work into a little more on the underside, but as the landing gear are going to be there and so much has changed since the last version, it seemed prudent to get it across to you now.



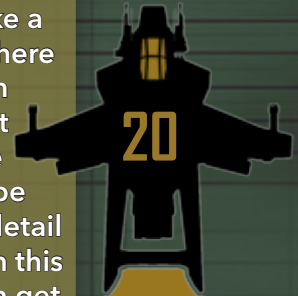
WORKING IN PROGRESS



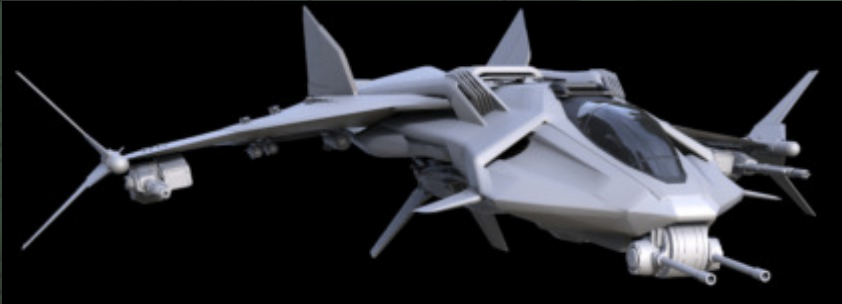
GR: I've been working up the Gladius fighter concept model to attend to the last round of feedback and it seemed like a good time to fire over some renders so you could see where I am at the moment. There are a few tweaks needed with smoothing groups here and there and the odd corner that needs a little nip and tuck (such as the leading wing edge meeting the side of the intake), but otherwise it should be pretty close. The one thing I'm not 100% sold on is the detail on the back "hump" – I have a feeling that what I have in this version might be too detailed, but let me know and I can get it attended to easily.

There are three versions of the model below and the image flow is as follows:

Model 1: The next version of the concept model as you've already seen it, with the last round of feedback attended to.



WORK IN PROGRESS

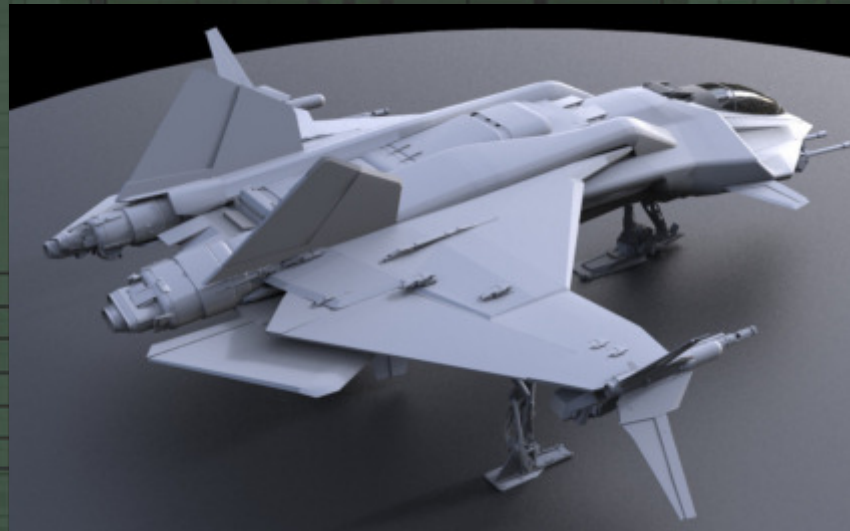
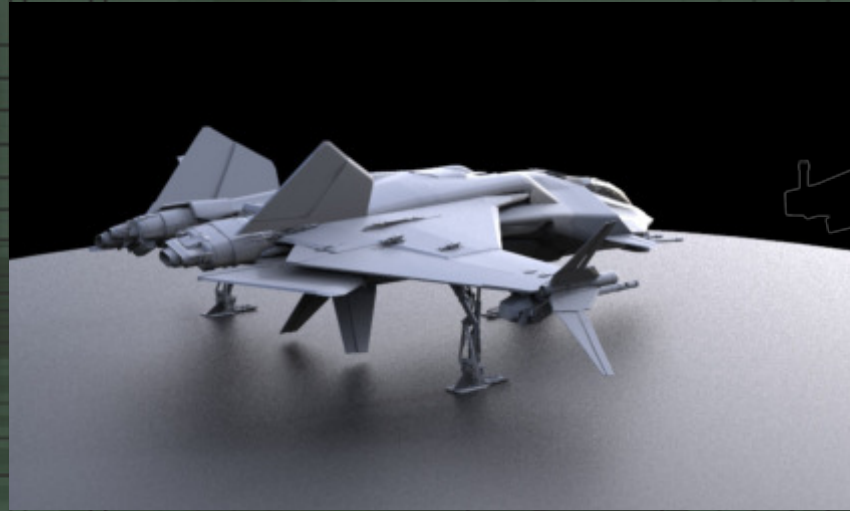
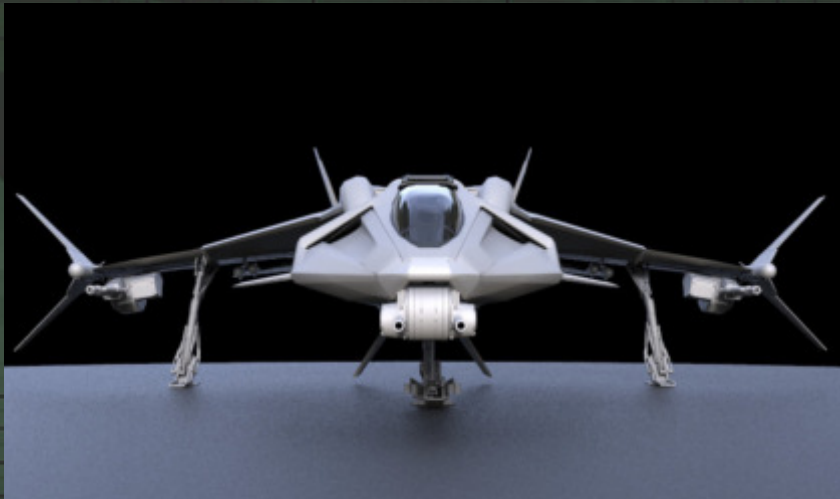


Model 2: The same as above, but with the alternate version of the air intakes with the vertical fins in.

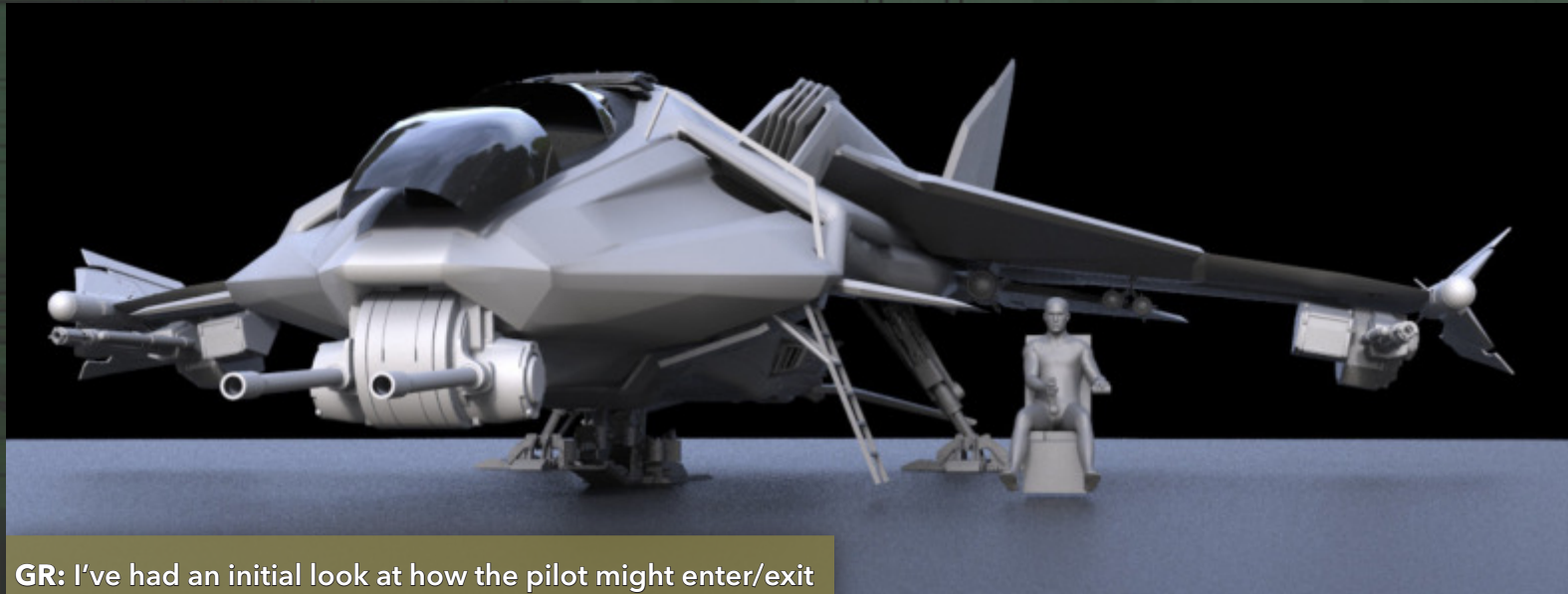


WORK IN PROGRESS

Model 3: Same as version 1, but with landing gear deployed. This is an initial attempt at landing gear size and placement, so I haven't worked in any recessed areas for them to tuck away into the body of the ship yet – it's more to gauge a feel for where it needs to go. I've made the landing gear quite spindly to emphasise the light feel and the intention for the skids on the wings is for them to fold back in flight, much like the AV8/Harrier planes do, with most of the weight being taken on a larger central skid. Anyhow, like I say, it's early days with this, so let me know what you think and we can take it from there.



WORK IN PROGRESS



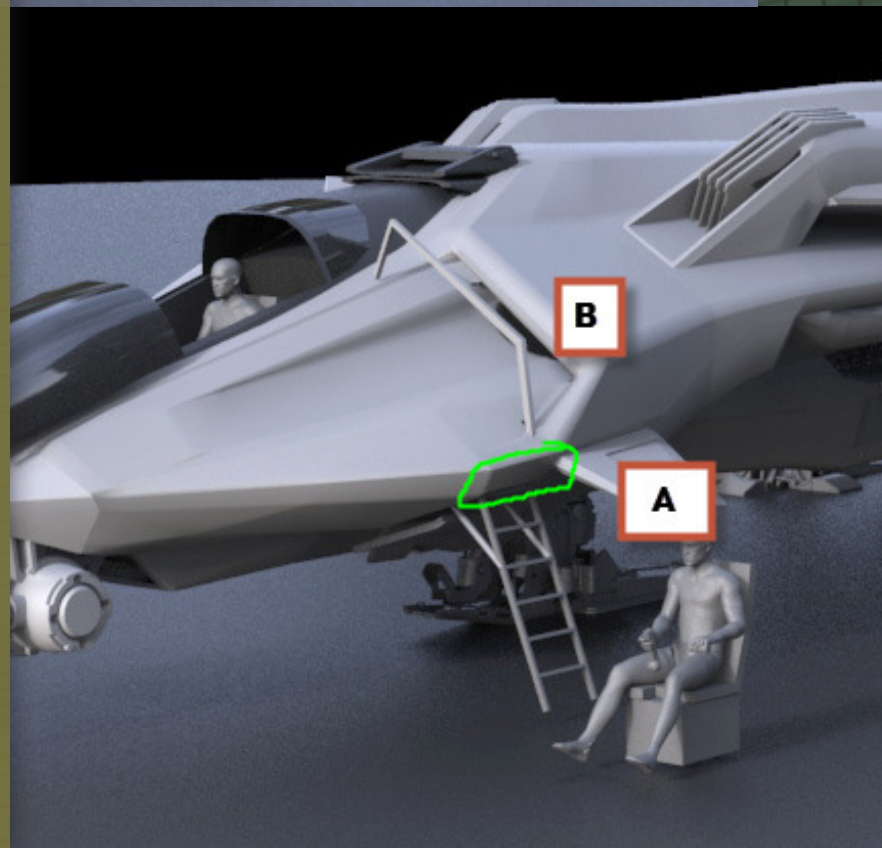
GR: I've had an initial look at how the pilot might enter/exit the Gladius fighter and have enclosed some renders. It's a two-part system where a hatch opens in the underside of the cockpit extending a small ladder towards the ground, and a bar swings up from a recess over the engine intake so pilots can steady themselves as they walk up the sloped side of the vehicle to the cockpit.

I wasn't sure how the character animation would work for this – will you have bespoke [custom] animations for each vehicle? If there's a template for hands and feet it might be a bit tricky as we have the sloping sides leading directly up the side of the cockpit. Let me know if this might be a problem so I can get thinking about possible solutions. I imagine there will be "walk/no walk" type graphics on the side of the intake similar to those found on contemporary fighter aircraft.

PJ: Ladder feels like there will be too much of a step at point A.

B. I See where you are going, but could do with a solution that's less OAP and more cool tech. :D

For the animation, we'll capture something specific, but once I've a solution I'm happy with, I'll run it past our Animation Director.



WORK IN PROGRESS

GR: Cheers for the prompt feedback; I'll get working on another pass at it. Do you think we need a guard rail right the way up? I was thinking if there was a set of pull-bars at the top of the ladder, would you be okay with the pilot walking up the sloped bit unaided?

PJ: I'm thinking something more elegant like this ... the panel lifts and moves back, the bottom part folds down (not shown).

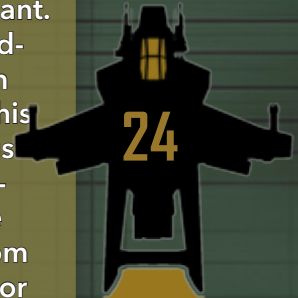
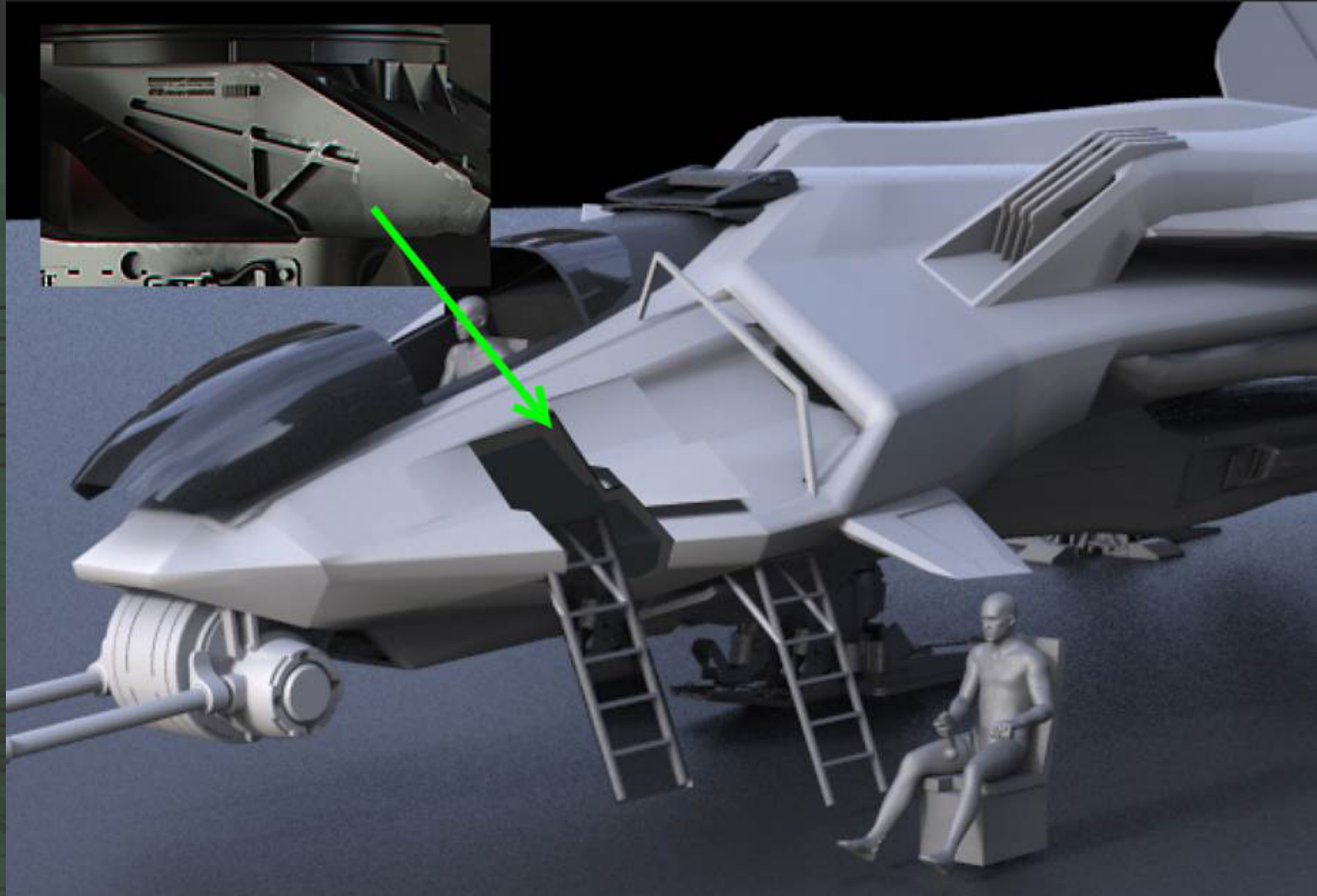
GR: I've been working up the method of entry/exit for the Gladius fighter and thought I'd send you over some renders so you can see where I am with it. I've tried several variations of the move-

ment of the skin of the ship to facilitate the hole, and I think this three-way split is the most elegant. I tried a few things with the bottom section folding down, but the angles were all fighting each other and it just didn't look neat at all. I think this separation into three segments will keep things nice and clean and the intention is that the ladder telescopes up and lowers itself down once the panels have opened. I think there's still room to work out some more attachments and interior detailing for the ladder itself possibly.

Let me know what you think of this approach when you've got a minute. Hope you had a nice weekend up in Manchester – the weather down here in London has just become amazing ;)

PJ: Ideally, there needs to be an inner shell, as you can see the ladder sort of moulds itself around it.

If you can find a way, I'd prefer the panels to split into 2 rather than 3, as I think the 3 looks too complex.

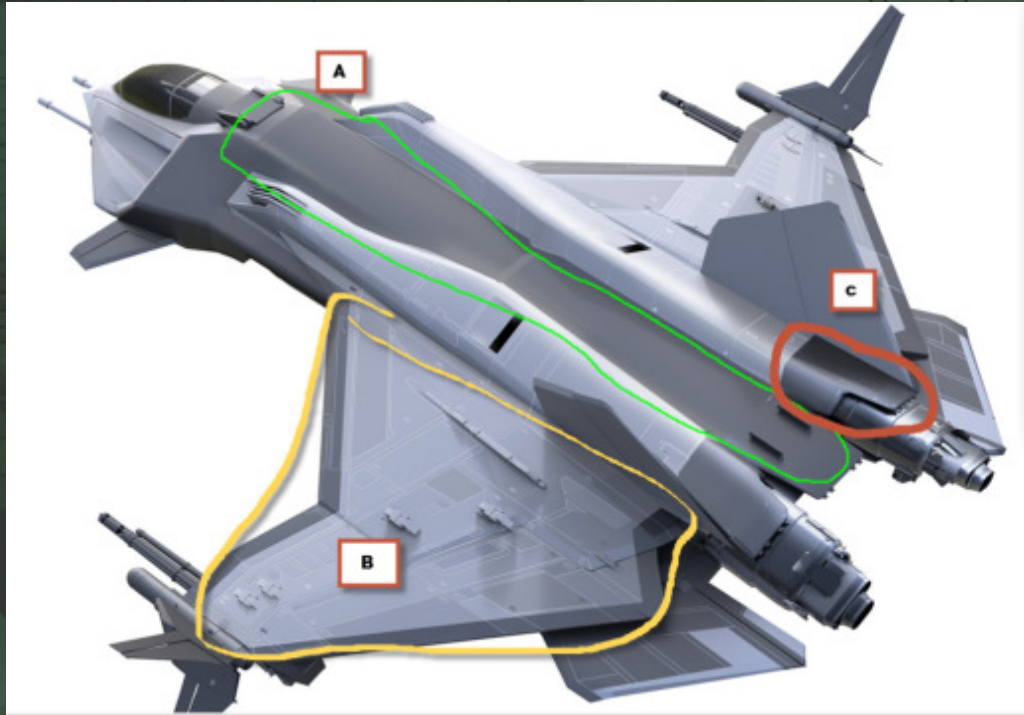


WORKING IN PROGRESS

GR: Here's where I am with the first concept piece at the moment. There's still a bit to do on it, but I thought it would be worth sending over to see what you think about the look and feel and level of detail on the panel-work. The overall colour scheme is a first go at blocking and is an easy thing to tweak. I've been looking at the Retaliator and Avenger ships and taking some cues from there. My natural instinct on something like this would be to put some bold graphics on there such as numbers on the vertical stabilisers, but I'm not sure how "neutral" the surface graphics need to be. It's easy to put these sort of details in, so let me know if that's okay. Any pointers or steer, just let me know; right now I'm pushing forwards with the rest of the surface detail work.

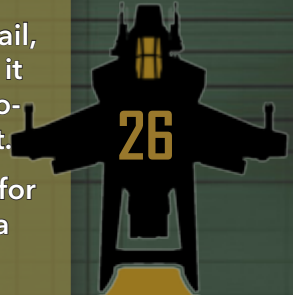


WORK IN PROGRESS



PJ: Looking good but I have some pointers.

- A. This central panel needs some more detail, geometry for sure, and I also don't think it should be separated out by colour; it's totally drawing my eye to it at the moment.
- B. Reduce the detail (see images included for real world examples). Less is more with a few areas of concentrated detail.
- C. This shape is too basic on the left hand edge; it feels very truncated at the moment.



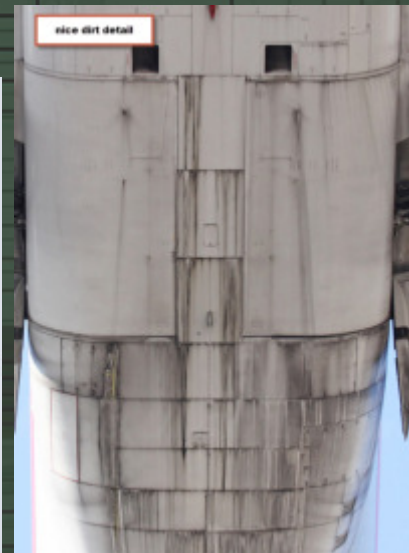
nice spot details



some nice panel lines in here too - no rivets though :D

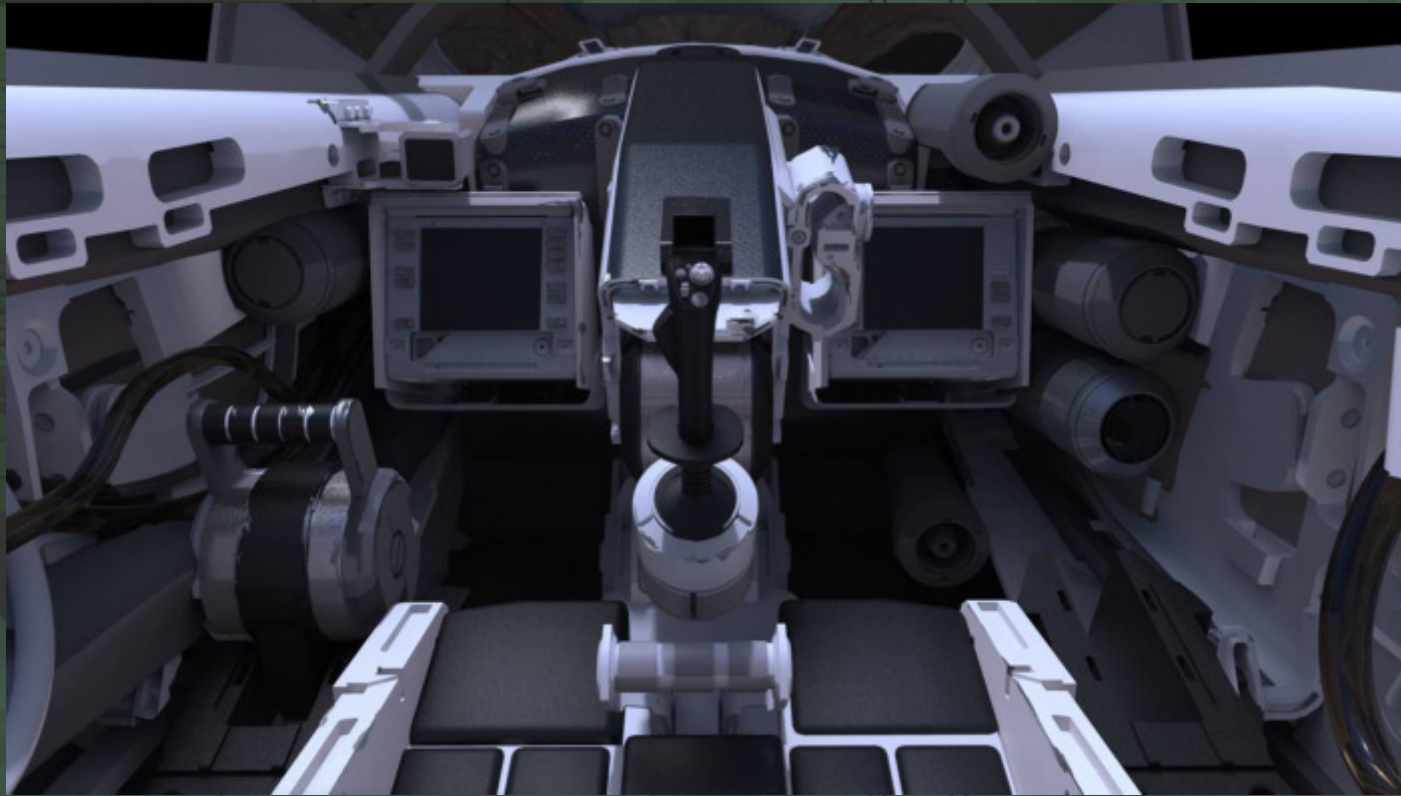


minimal panel lines



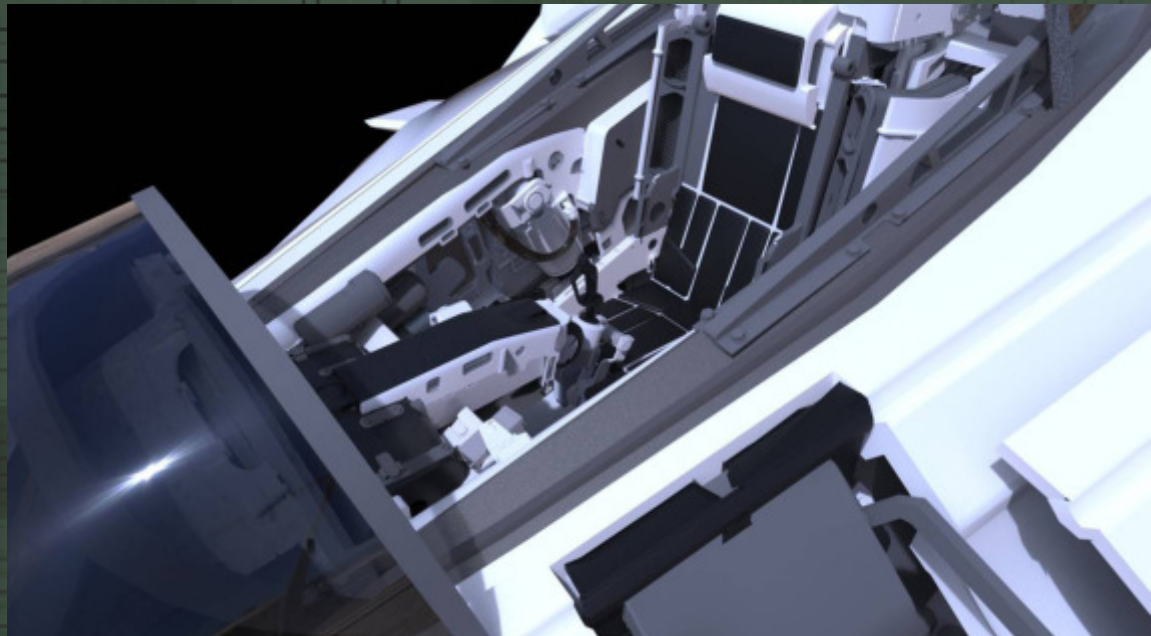
nice rivet detail

WORKING DRAFT

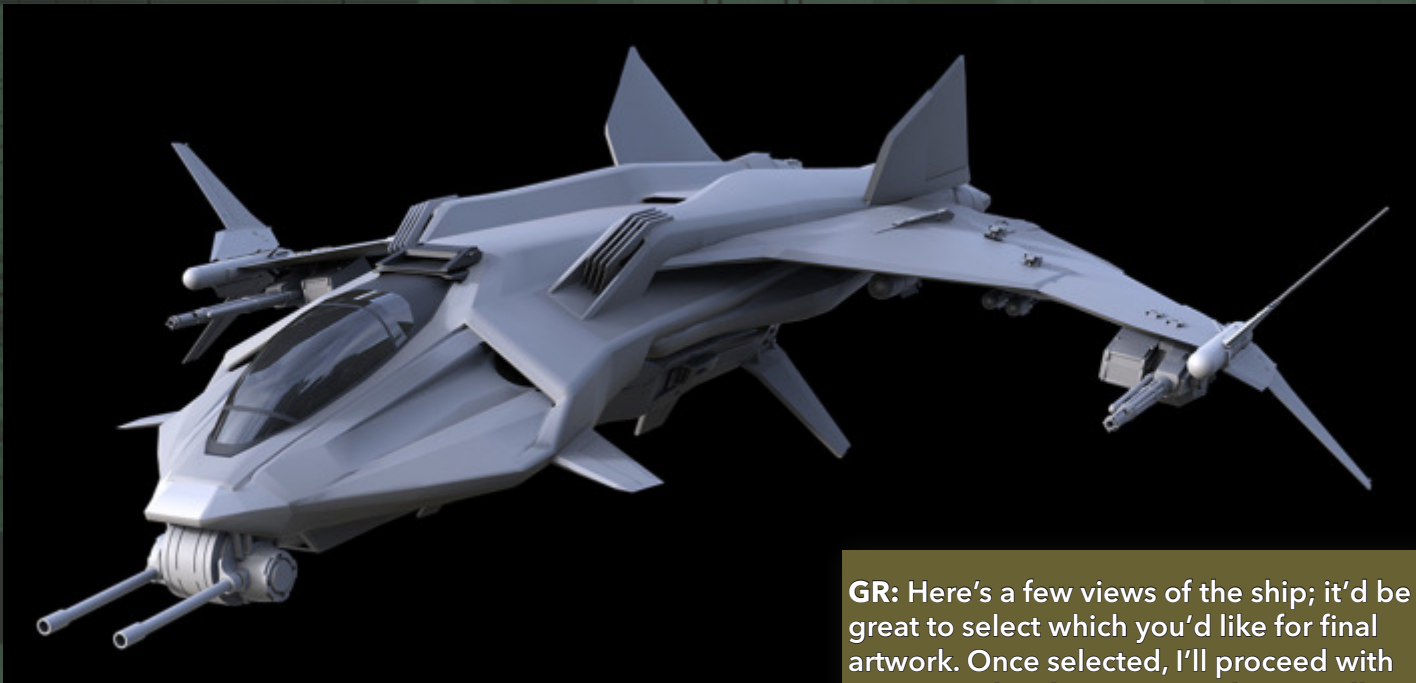


GR: I thought it might be a good idea to send you over WIP images of the two concept pieces of the Gladius cockpit to have a look at. I still have a bit of work to do weathering, adding detail such as decals and screens and also introducing spot colour (such as a yellow and black hazard striped ejection handle, coloured labels on buttons, etc.).

Let me know if there's anything specific that strikes you. I would normally have gone for a bright orange seat, but as that's already featured in the Avenger, I thought I'd be more subtle with this one.



WORKING IN PROGRESS

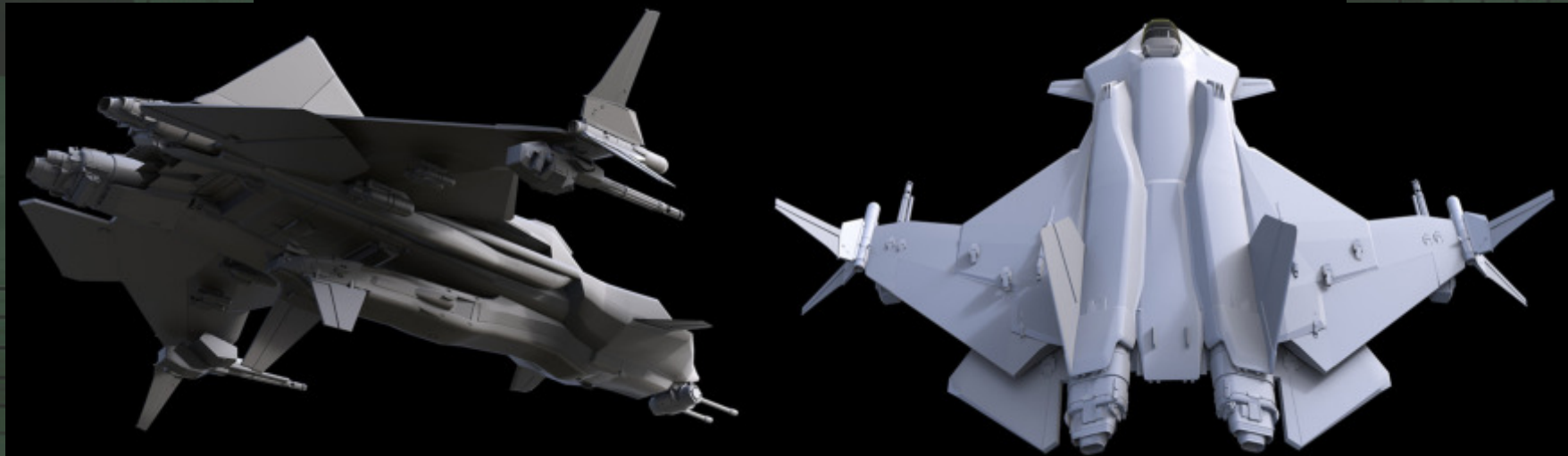


GR: Here's a few views of the ship; it'd be great to select which you'd like for final artwork. Once selected, I'll proceed with some rough colouration work so you'll get a clear idea of the paintwork before I spend too much time on them. ;)

[this page and next page]



WORK IN PROGRESS



WORKING IN PROGRESS



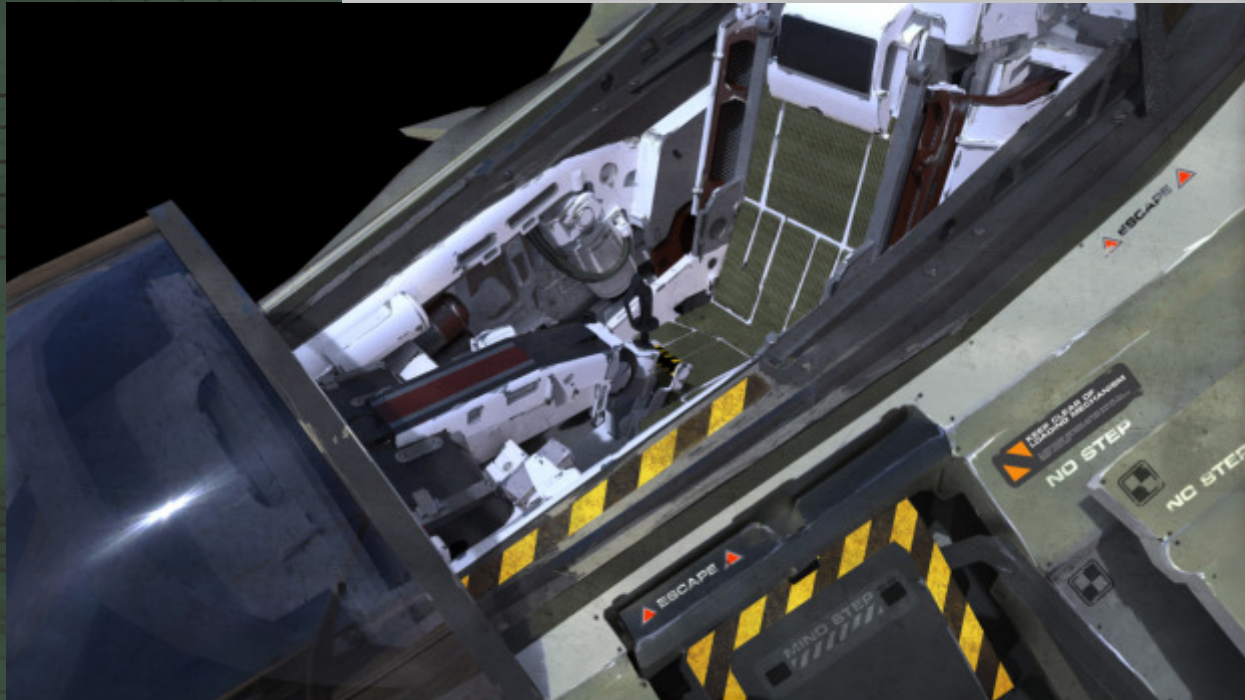
GR: Here's a couple of initial variations on the grey/green colour scheme – the 60-40 mix will mean we have to be quite bold, of course. Let me know what you think of this kind of direction when you've got a minute.



WORKING IN PROGRESS



WORK IN PROGRESS

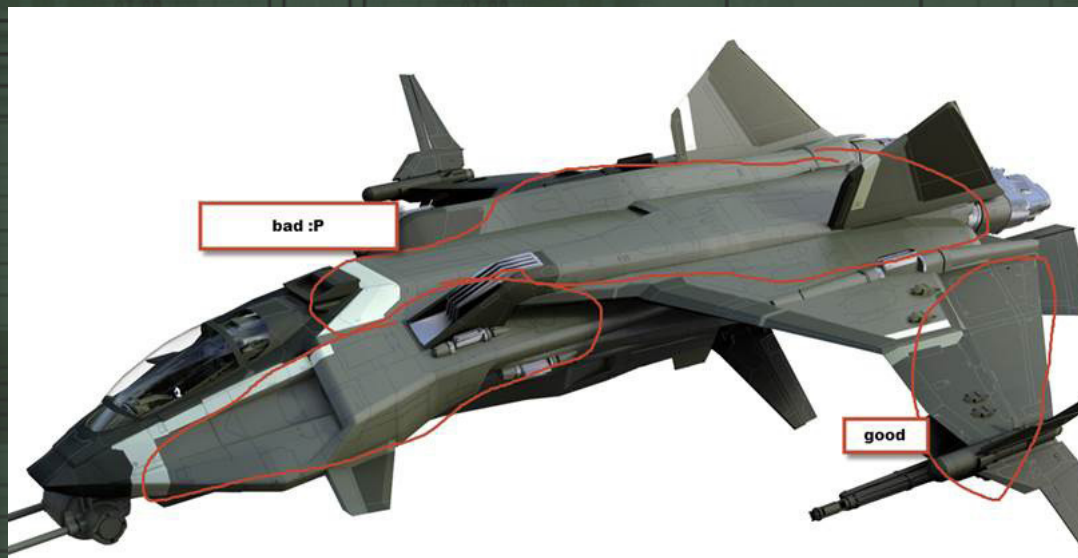


GR: Here's where I am with the Gladius fighter at the moment. I've got a solid base surface down and it seemed like a good time to fire it over to you so you can let me know if it's the kind of thing you're after. I'd like to work into it some more with spots of colour as surface graphics here and there, and also work in some exhaust ports for the additional boosters. I'm still not 100% clear on where these should go to balance the ship.



GR: I've got the latest version of the Gladius at a stage where the panel-work is blocked in and it seems like a good time to get a steer on whether this is the sort of thing you're after or not. There's still more work to do on this piece such as weathering, detailing, etc., but I want to make sure you're into the panel forms before I push on with the rest of it. Let me know what you think when you've got a minute.

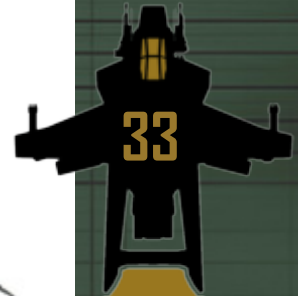
PJ: Looks good; can you provide an updated version with 30% fewer panel lines? (Too many small panels at the moment, more logical placement needed in places.)



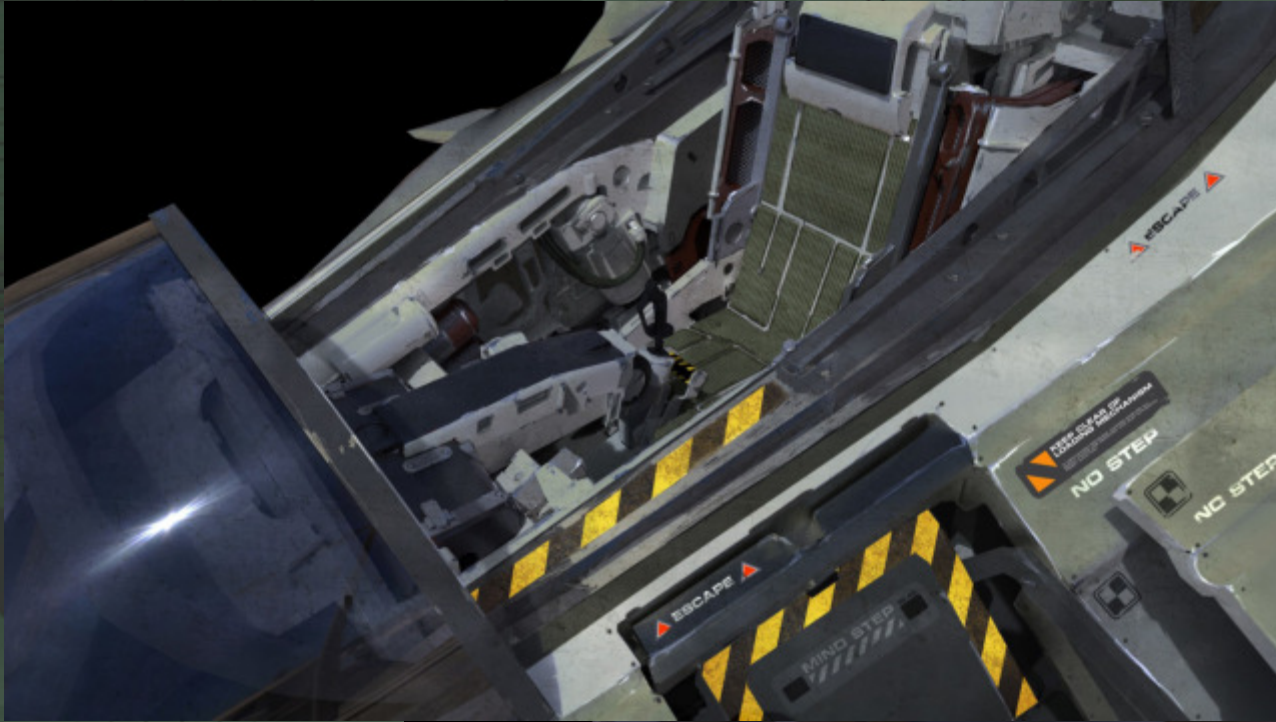
WORK IN PROGRESS

PJ: These are the final concept images from Gavin; let me know if you want them tarted up a little – borders, name tags, etc. – and we can get that done.

[this page and next page]



WORK IN PROGRESS



WORKING PRIORITIES



WORK IN PROGRESS



The 36th Fighter Squadron is the United Empire of Earth's premiere active-duty Gladius unit. First bloodied against the Tevarin, the 36th has seen action in every significant Human conflict in the past three hundred years.

Fallen *Olympus*

The 36th has its origin in one of the most embarrassing military disasters in Earth history. In 2571, the battle car-

rier UEES *Olympus* pursued a band of pirates and rebels home to their hiding place in the undeveloped Nul system. The carrier's complement vastly outmatched their foe, but the admiral in charge wanted in on the kill personally. He ordered the *Olympus* into a pass that was too close to the system's fifth planet, Ashana. The *Olympus* was caught in the planet's gravity, impacted on the world's surface and lost with only a few survivors.

Those survivors included the carrier's Combat Air Patrol: four Stiletto interceptors, the immediate predecessor to the Gladius, belonging to the carrier's defensive complement, plus two others who managed a scrambled launch as the ship went down. Taking quick advantage of their unbelievable shift in fortune, the rebel forces rallied to eliminate the remaining ships and lifeboats. The battle that followed was spectacular: the six light fighters were able to hold off their attackers for almost an hour, scoring an astounding 37 confirmed space-to-space kills, including a pocket destroyer, with only their surviving energy weapons.

All six UEEN fighters were ultimately eliminated, as were all who escaped the initial crash, but the black box recorder belonging to Lt. JG Jasmine Tuttle was ultimately recovered by an enterprising pirate and sold to her family on Earth. Seeing an opportunity to cover the embarrassing and costly loss of the Olympus, Naval High Command's propaganda machine broadcast the recording and made martyrs of the fighter pilots. The result was a series of patriotic advertisements about doing your duty, a melodramatic government-sponsored holo-vid (Star Heroes) featuring an array of D-list actors as stereotypical fighter pilots and the establishment of the 36th Fighter Squadron in honor of the pilots who fought the last stand at Nul.

Tevarin Wars

The 36th Fighter Squadron formally came online on January 1st, 2579, equipped with the first production run of Gladius fighters. Fast and maneuverable but carrying a light weapons load, the Gladius was the UEEN's first choice for interception duties. Prior to the unit's establishment, patrol units were generally considered second-class citizens. Taking a back seat to better-equipped 'jack of all trades' units, these squadrons were generally assigned draftees and

OCS pilots rather than academy graduates and volunteers. The first charge to the 36th was changing this standard, by grouping the best-of-the-best interceptor veterans to train the patrol elements of other squadrons.

That charge changed drastically with the start of the second Tevarin War in 2603. Within hours of the formal declaration of hostilities, the wing had received orders to the front. Quickly transitioning to an active combat role, 36 FS found itself dispersed among four escort carriers charged with providing cover for Messer's main battle force. Despite early Tevarin successes against Human capital ships, none of the warships assigned Gladius coverage from the 36th suffered a single torpedo strike during the full course of the seven year war.

Against the Vanduul

With combat success under their belts, the squadron never resumed their training role. Since the rise in Vanduul attacks, the 36th has found itself cycling through assignments on the frontier regularly. It was a 36 FS Gladius element commander, Captain Jordan "Toothpick" Hamton, who first developed the three-fighter 'carry and leap' technique for countering the more muscular Vanduul Scythe, and it was a 36 FS replacement pilot who first noticed the slight infrared scanner irregularity that allowed UEE pilots to target early Scythes hidden in asteroid fields.

While high-powered Hornets can steam roll through Scythe squadrons today, this was not the case in the early days of the conflict. For roughly the first decade of Vanduul raids, destroying or disabling a Scythe took both extreme maneuvering and a high degree of communication among wingmen. The first was a specialty of the Gladius' design, and the second something well ingrained in the highly trained men and women of the 36th.



THE
MILITARY

The squadron's most celebrated (known) action against the Vanduul took place relatively recently, on August 3, 2940. A force of twelve Gladius fighters was ordered to provide close escort for a civilian Hull C transport ferrying survivors from a recent Vanduul strike. During the course of the planned escort run, the group improbably wandered into the largely undefended rear of a Vanduul supply fleet. By managing fire control through the Hull C and operating as a cohesive unit, the lightly armed force of Gladius was able to quickly eliminate nine fully laden Mule transports and their light escort screen. The incident, coming on the heels of several disastrous Vanduul raids, was played up heavily in the media.

The Future

Elements of the 36th Fighter Squadron are presently forward deployed aboard the UEES *Sebek*. Little information is available about their current missions against the Vanduul, although the consistency with which 36th FS pilots appear in weekly casualty lists indicates that battle is joined frequently. The wing has also been essential in anti-piracy operations, with a number of these opera-

tions better known. (An oft-reproduced photo shows the nose of a Gladius bearing the patch of the 36th and two dozen Drake Cutlass outlines.)

Despite the military's highly-publicized "Battle Ready" campaign to revitalize older spaceframes, observers are unanimous in believing that the ship has less than a decade of active service remaining. The final Gladius 'service pack' was issued eight months ago, improving weapons systems and control surfaces, and no additional upgrades have been contracted. With the Gladius being increasingly assigned to reserve wings, guard units and home defense squadrons, the era of these acrobatic light fighters serving as the tip of the sword is coming to an end.

High-level scuttlebutt suggests that the 36th may be one of the first elite units to transition to the F8A Lightning heavy fighter. It's a prospect the squadron's pilots aren't exactly happy about: after generations of proving that a great deal can be accomplished with the simplicity of a light fighter, few are eager to adopt the most complex piece of military equipment in Human history.



MEMORIAL

JUST BEFORE INITIAL
IMPACT, THE CREW GOES
ABOUT ITS NORMAL DUTIES.

GAMESCOM MULTI-CREW DEMO

This month, we go behind the scenes with Kami Talebi to see how the first demonstration of a multi-crewed ship came together for Gamescom:

The Script

The heart of the demo was an unscripted firefight between a PC-manned Constellation and three AI Hornets. But to get to the point where this exchange began, we wrote a script and

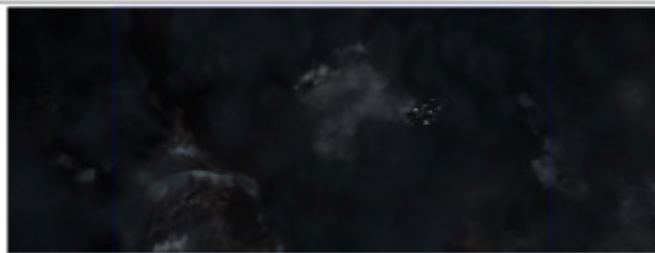
recorded a brief intro, which Chris Roberts narrated at the show. The next few pages show the storyboards for that intro.

David Haddock wrote the script after the first "Constellation Gamescom Demo" was brainstormed in the LA Office with Dan Tracy, Calix Reneau, Forrest Stephan, Sean Tracy, Patrick Salerno, Chad Zamzow, Brandon Evans and myself. This kept the intro demo "story" on track without steering off and not making sense.



BEHIND THE SCENES

Shot 1 Panel 1/1



Slugging:EXT. SPACE - CINEMATIC
Action Notes:Pitch black screen for a few moments. There's a low DRONE indicating that something is going on.
There's a pulse of light in the darkness, like lightning flashes buried behind layers and layers of clouds.
Suddenly the clouds part to reveal...
We're in the middle of some kind of nebula, but basically it looks like a lightning storm in space.

Distant flashes illuminate the depths of the nebula.
A CONSTELLATION is there. Alone, like a ship lost at sea, against the tumultuous clouds.

Dialogue:CHRIS
So this doesn't look good. Seems our ship's having power plant issues, losing power to its Quantum Drive and shields. Normally they could just use base thrusters to get to a local mechanic, but they're in Nyx System which is a ... less than hospitable environment.

Shot 2 Panel 1/1



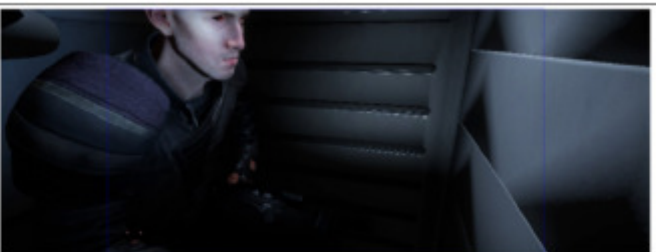
Slugging:EXT. SPACE - CINEMATIC
Action Notes:CLOSER: Beauty shot approaching the Constellation (Event Horizon shot).
Dialogue:CHRIS (CONT'D)
A lawless system, compounded by the fact that its almost completely encapsulated by a black nebula.

Shot 3 Panel 1/1



Slugging:INT. CONSTELLATION - COCKPIT - CINEMATIC
Action Notes:The CAPTAIN stands at the front of the ship, looking out at the churning clouds and distant flashes.

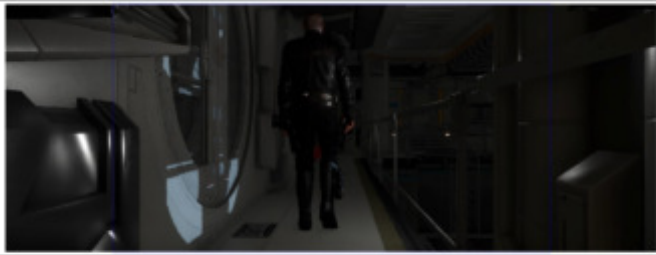
Shot 4 Panel 1/1




Slugging:INT. CONSTELLATION - BATHROOM - CINEMATIC
Action Notes:CREWMAN #1 is blowing up the spot.
Dialogue:CHRIS
Here's one of the crewmen who is... temporarily indisposed.



BEHIND THE SCENES

Shot	Panel
5	1/1
	
<p>Slugging:INT. CONSTELLATION - CARGO HOLD - CINEMATIC</p>	
<p>Action Notes:CREWMAN #2 walks through the cargo hold toward the back of the ship.</p>	
<p>Dialogue:CHRIS This guy's on it. He's heading back to the power plant to try and fix the problem...</p>	

Shot	Panel
6	1/1
	
<p>Slugging:CINEMATIC</p>	
<p>Action Notes:Second shot of CREWMAN #2 walking back to the back.</p>	



WHAT IS YOUR NAME?

Kami Talebi – (Pronounced Cahhmi Tal – ley – bee)

WHAT IS YOUR QUEST?

I am coming up on my 7th year in the video game industry (previous companies include Sony, Treyarch, and Neversoft). I am currently working on the Ship Pipeline with Travis Day (Ship Producer) to make sure that the ships are going smooth without any hiccups. I also am the studio motivator and get the spirits up during the trenches of overtime. I hope to officially cement my career in the video game industry by looking 10 years down the line with CIG and saying “Yeah I was there when we dominated the video game industry.” In the future, I hope to run my own video game development company that can break the boundaries between movies and games.

WHAT IS YOUR FAVOURITE COLOUR?

My favorite color is Black & Red – it’s a great combination when used in minimalist style of art, Other interesting facts:

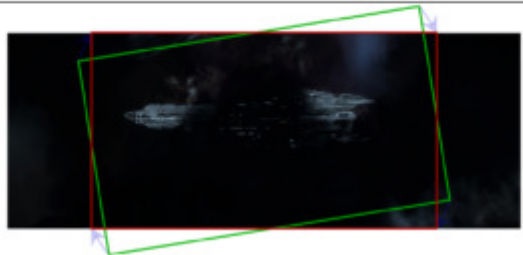
- I started the video game industry at 19 and did full-time work and full-time school.
- I play the drums (in a family of musicians).
- I have two of the coolest dogs, Einstein and Edison.

I would like to thank my parents, Zarik & John, as well as my brother Kaveh, sisters Linda & Adrien, and supporting friends Jermaine & Michael – without all of their love and support, I wouldn’t be here!



BEHIND THE SCENES

Shot 7 Panel 1/3



Slugging:EXT. SPACE - CINEMATIC

Action Notes:The Constellation drifts through the dark nebula. The lights can be seen from this distance....

Dialogue:CHRIS
Things will probably be alright
until they get the drive fixed...

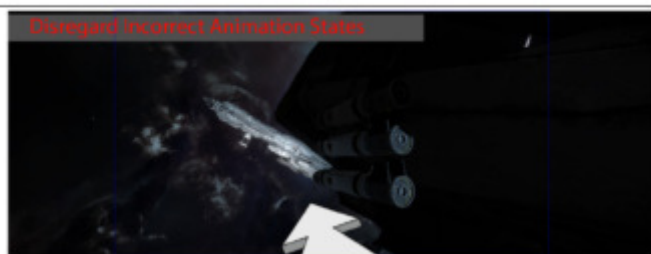
Shot 7 Panel 3/3



Slugging:EXT. SPACE - CINEMATIC

Action Notes:CAMERA races along with the missile as it arcs toward the unsuspecting Constellation. The missile's headed straight for the port access hatch.

Shot 7 Panel 2/3



Slugging:EXT. SPACE - CINEMATIC

Action Notes:A FORM slowly inches into frame, it's a SUPERHORNET. Patched up and tagged with pirate graffiti, it hovers for a moment, watching the Constellation.

CAMERA drifts down to the missile rack on its wing. One of the missiles launches.

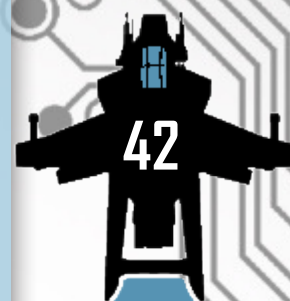
Dialogue:CHRIS
...maybe not.

Shot 8 Panel 1/2



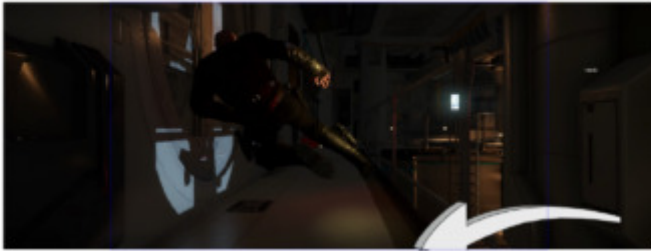
Slugging:INT. CONSTELLATION - CARGO HOLD - CINEMATIC

Action Notes:The explosion blasts through part of the wall...



BEHIND THE SCENES

Shot 8 Panel 2/2



Slugging:INT. CONSTELLATION - CARGO HOLD - CINEMATIC

Action Notes:CAMERA PANS OVER AS ... and launches CREWMAN #2 against the opposite wall. Almost immediate, air starts getting sucked out of the hold, venting into space. The cargo begins to whip around.

Dialogue:CHRIS
Hull breaches are going to be incredibly dangerous if you aren't prepared.

Shot 9 Panel 1/1



Slugging:PLAYER CONTROL

Action Notes:The crewman quickly activates their magboots and carefully pulls themselves along the wall to get out of the cargo hold.

Dialogue:CHRIS
Thankfully, this one is.

SHIP SYSTEM
Oxygen levels at 30%.

Shot 10 Panel 1/2



Slugging:INT. CONSTELLATION - FORWARD SECTION - PLAYER CONTROL

Action Notes:CREWMAN #2 seals the door behind them. They race forward and...

Dialogue:SHIP SYSTEM
Oxygen levels at 5%.

Shot 10 Panel 2/2



Slugging:INT. CONSTELLATION - FORWARD SECTION - PLAYER CONTROL

Action Notes:... jump into the turret seat as the CAPTAIN slides into their chair.

WE FOLLOW THE CREWMAN UP TO...



BEHIND THE SCENES

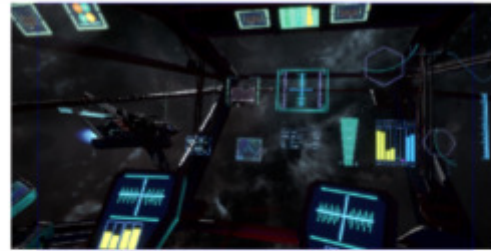
Shot 11 Panel 1/1



Slugging:INT. CONSTELLATION - TOP TURRET - PLAYER CONTROL

Action Notes:Third person camera as their turret deploys.

Shot 14 Panel 1/1



Slugging:INT. CONSTELLATION - COCKPIT

Action Notes:In time to see the SuperHornet take off into the nebula.The CAPTAIN hits the thrusters and pursues.

The Captain pilots via scans, made much more difficult due to the black nebula while...

Shot 12 Panel 1/1



Slugging:INT. CONSTELLATION - BOTTOM TURRET - PLAYER CONTROL

Action Notes:Third person camera as CREWMAN #1's turret drops out of the belly of the Constellation.

Dialogue:CHRIS
It's on now.

Shot 15 Panel 1/1



Slugging:INT. CONSTELLATION - TOP TURRET

Action Notes:...the turret gunners open fire at the fleeing ship.



BEHIND THE SCENES

Shot 16 Panel 1/1



Slugging:INT. CONSTELLATION COCKPIT

Action Notes:The Captain pilots via scans, made much more difficult due to the black nebula while the turret gunners open fire at the fleeing ship.

Shot 18 Panel 1/2

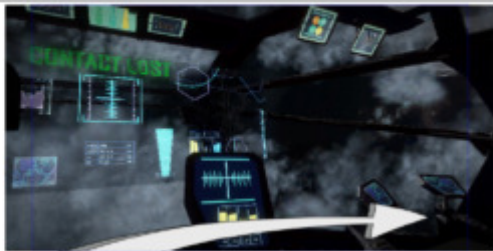


Slugging:INT. CONSTELLATION - BOTTOM TURRET

Action Notes:That's when three blips appear on the radar.

Dialogue:CHRIS
... nothing's perfect.

Shot 17 Panel 1/1



Slugging:INT. CONSTELLATION - COCKPIT

Action Notes:The nebula parts to reveal another clearing. The SuperHornet's nowhere to be found.

Dialogue:CHRIS
Like everything else in the Star Citizen universe, each component of your ship has strengths and weaknesses. As good as your scans are...

Notes:POV searches but doesn't see anything.

Shot 18 Panel 2/2



Slugging:EXT. SPACE - CINEMATIC

Action Notes:The SUPERHORNET is joined by two other PIRATE HORNETS who form up into attack positions.



BEHIND THE SCENES

What To Fix

We're not yet to the point where we can simply point and shoot, especially with a new ship (the Connie) involved. All of the animations had to be completed, and then tested, and then fixed, and then tested again, and then modified to make them work better, and then tested again, and then ... you get the idea.

The **What To Fix** board was a daily board we used to track tasks, but the main purpose it served was to get the team talking about things that needed to get done and stay in

sync, so that when someone finished a task that needed to be handed off the next person was ready to take it. (For example, when Bryan Brewer finished and locked the animation, Stefan knew he could start on audio for it.)

Kami grabbed a photo of the white board detailing What To Fix, about three weeks before Gamescom.

Black indicates tasks, red the person responsible for each task, green marks due dates, and circles with arrows are sync-ups, where people need to coordinate what they're doing. **Follow Ups (FU)** note steps and processes that need to be checked to make sure they're good to go.



SENEHSERHINDHER

Function Demo - 7.25

Gameplay

- Anim - New location set **WED Bryan B**
- Mag boots (dash animation) **back up**
- Distressed movement (play off - mobi glass) **back up**

Design

- Mag Boots light up **FU Calix (2h) Stefan R.**
- Sounds
- Environment - **Forrest/Sean**

Map

- AI Spires **Calix**
- Cloud
- Interior Physics **CR/Dan**
- Flight Camera - **Calix**

Connie

1) Damage States -

- SFX - Groaning (Structural) **Stefan**
- Turrets
- Code
- Multiple part parent - **Mark**
- XML **Calix**
- VFX
- Ship integration - **Mark**
- Exterior
- Interior (Capt Pilot) **Forrest**
- Turret seats
- Art
- Exterior - **Calix** → **FU DAN Patrick SEAN**
- Glass Break
- Interior Noise (Stretch) **Calix**
- Wedge lights - **Roman** → **Forrest**

2) Items

- Turret Weapon - **Calix**
- Thrusters/Flight - **Dan**
- Countermeasure - **Dan**
- FP IK - **Dan/Dan**
- Powerplant/General items **Dan**

Super Hornet (AI)

- loadout **Dan**
- Pirate Paint **make black** **Chris Smith**
- Hornet
- Pirate Paint **Dan/Forrest**

Hardware

- 4 PCs
- 3 - Connie
- 1 - Server (dedicated)

Legend:

- ★ - low priority
- 2 - Need Date
- Due Date
- Assignee
- ↻ - sync up

Timeline:

- Gamescom Special Aug 16th
- Fri - Pre-Demo level scripting
- TUE - EOD - Test Bed - **Dan**
- ★ Damage ↑ over time for AI - **Dan**

Other:

- UP Res Turret geo - **ZANE/Calix/Patrick**
- A.I - **FU Chad** Ready to work Thurs/Fly

Implementation

With the demo completed (mostly) and ready to run (almost), the Gamescom team headed to Cologne.

White boards left behind, the demo was tracked through email in the final three days:

Kami Talebi Chris has noticed the player in the top and bottom turret do not place their hands on the joystick and feet on the rotor pedals.

Vineet, I am asking you because you will be there with Dan to help guide you on what is needed for the Constellation demo.

Daniel, I am asking you because you set up the new pose for the bottom turret, so you would know the animation best. However, we would need to be in constant sync as nobody in ATX is working on the Constellation demo for Gamescom.

Ricky and Jake, please follow up with one of these animators as to who can work on this task. Please reply to this email when an animator has been selected for this task.

Thanks!

Jake Ross Bryan Brewer is taking care of the animation of the weapon itself, not the player animations.

Four options:

- 1) Bryan, can you take care of the player animations as well while you are at it?
- 2) If not, can you call Daniel to see if he can come in and take care of it?
- 3) If he is unavailable, Ricky will need to call in Vineet.
- 4) Rather than waiting for Bryan or Daniel to respond, Ricky can go ahead and call Vineet to see if he can come in.

KT The tasks we have left:

- The multiplayer logic to play the cut scene into game-play isn't consistent. (The demo is playing fine in sandbox, however the launcher is popping up issues that are not occurring in the sandbox, this is not super accurate.)
- Still unable to leave the turrets properly.
- The spectator camera outro needs to be completed.
- Hand IK still needs to be fixed for the turrets (Calix will fix tomorrow).
- Constellation interior lighting needs to be completed.
- VFX for the cargo bay needs polish.
- FPS teaser solution to playing after our demo has not been resolved.
- Turret HUD needs remaining bugs fixed (right panel missing info).

Here is what is completed:

- All cinematic are completed.
- Super Hornets and Hornet pirate versions are completed.
- HUD flicker has been resolved in the cinematics.
- Render to texture works.

Paul Reindell Remaining multi-player issues:

- AI logic is not triggered (no AI to fight!)
- Can 'glitch' thru interior physic proxies; (however we have a recover functionality).
- Different 'outfits' not working (the co-pilot outfit has a weird helmet geometry error).
- After leaving seats we can spawn on top of the ship (work-around via recovery functionality).
- Spectator mode broken.



BEHIND THE SCENES

- Missing HUD bone on the bottom turret causes the HUD to be rendered 2D when using bottom turret.
- IK bones wrong in the turrets.
- The light FG broken in MP.

Most of the issues are flowgraph issues Dan and I should be able to sort out in one day if we can sit together.

Calix should focus on getting remaining bone setup issues solved.

Charles is working on getting the video for the outro working.

Dan Tracy I noticed the interior physics issues late last night falling through the cargobay area. Is this due to the change in the .cga with the damage states perhaps?

Leaving the seats and spawning on the top of the ship is due to the seat not updating the player on the seat helper when exiting and performing a waitfor action. Either we need a quick code fixup to keep the player updating to his seat when the turrets retract, or we have an animator help us out with creating an animation for the upper and lower turret retracting. Since I am already using the seat up and seat down animations, all we need is the deploy/retract anims for the character.

Chris Roberts The exit animations for the turrets should be #1 for the team. Seems like it should be simple to do it the same way the enter animations work.

Also interior physics sounds like the CGAs have lost the proxies in all the work — there needs to be an overlap between interior and exterior pieces (for instance on the nose elevator platform and the front cockpit glass/struts). Again this should be relatively simple to set up ...

Couple of other things I noticed when looking at the videos:

- 1) Can we skip the HUD boot-up when we enter game mode? Seems weird that we are booting up when we are mid flight.
- 2) There is no ITTS on the turret HUD — we need the ITTS tracking (use the fixed weapon version) so you know where to shoot to hit! Otherwise it may be a longer demo than we want!
- 3) Why does the captain have a helmet on (with an opaque visor to boot!)?

Bryan Brewer I just looked in the Character editor and all the turret animations are there and working on the character. Who is hooking this up for the demo? If we need to change something I would be happy to help. If Dan is hooking this up he is in the UK and can get help from Uisdean and Vineet.

CR Do they have the seat movement translation in them too? That is what Dan was saying was missing.

DT I'm in Germany now helping setup the demo machines. We have Max on these machines, so if we need to do any work on the Connie we can re-export. As Chris said, we will need the animation-driven motion on these turrets if we're going for an animation fix, but since we don't have the rig in Max we will need it exported from Maya. Bryan, could you coordinate with your guys or with Ricky to get the guys in the UK to do these anims for the gamescom2014 branch?

PR Why is exiting an issue? I thought in the demo we will enter them, then blast the Hornets and the demo is done (no need to exit at all).

Getting the AI working and remaining IK/Bone/physics issues sorted out seems more important to me, so please focus on this!



BEHIND THE SCENES

CR I agree bone IK and AI are higher priority, but it sounds like exiting is an animation fix which is done by people (Like Bryan) who aren't working on the IK and AI. So let's see what we can get done ...

BB I got the 2 animations done and checked in. I'll get Jason to push it into the GamesCom branch.

PR Dan, can we make sure that at least two machines with

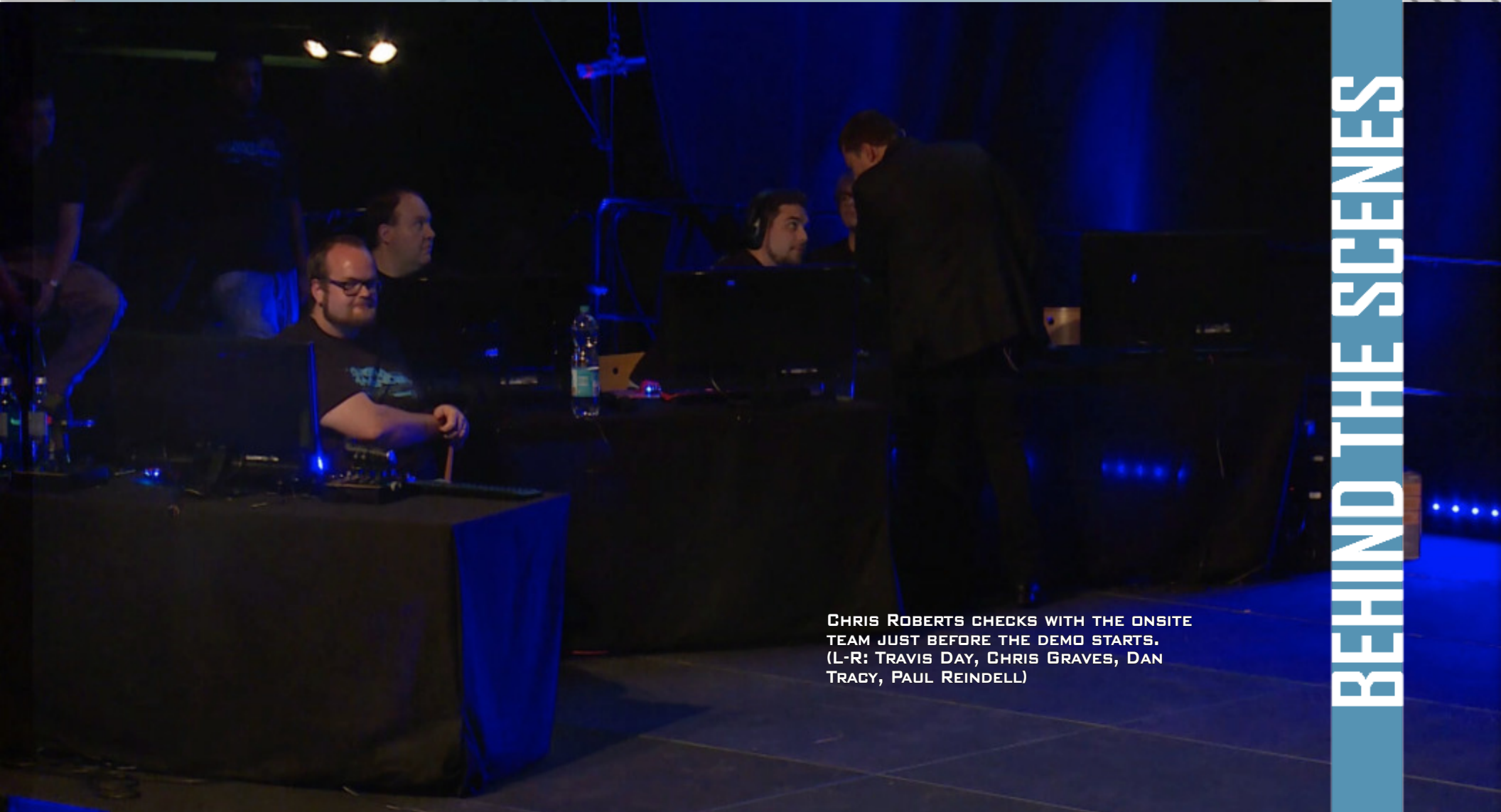
dev setup that are at Gamescom can be synced to latest?

Hassan Kamran We have all PCs set up with the dev environment. All 4 PC are up to date with gamescom2014keep and gamescom2014-programmers. If you need anything else, let me know.

And the demo was ready to roll ...



BEHIND THE SCENES



CHRIS ROBERTS CHECKS WITH THE ONSITE TEAM JUST BEFORE THE DEMO STARTS. (L-R: TRAVIS DAY, CHRIS GRAVES, DAN TRACY, PAUL REINDELL)

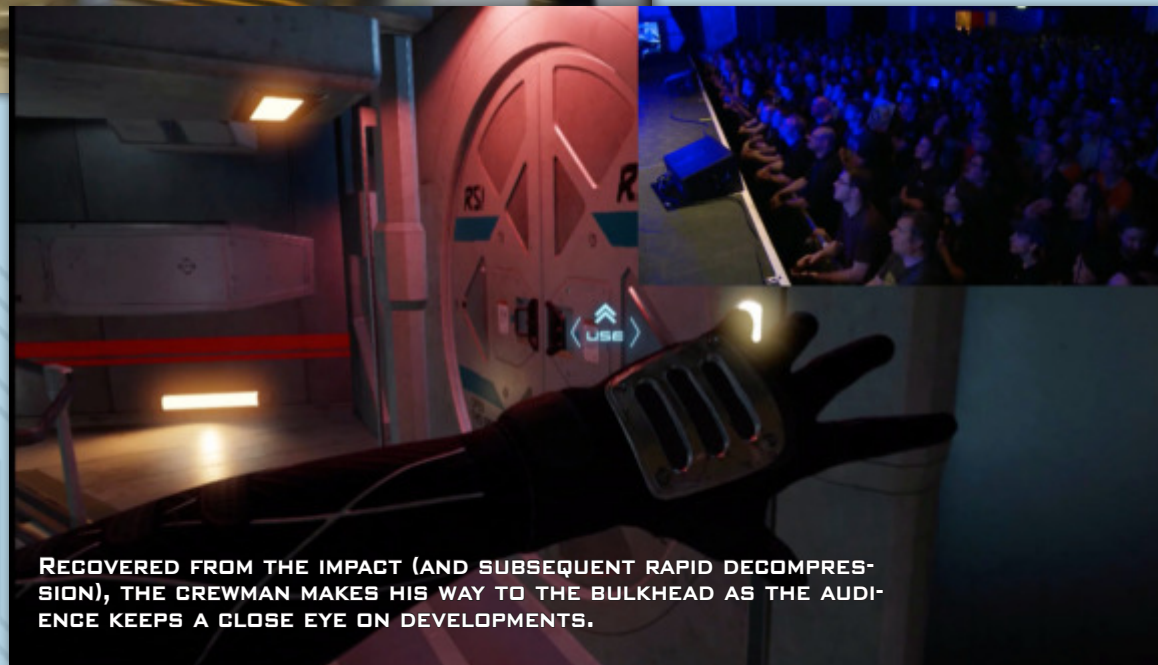
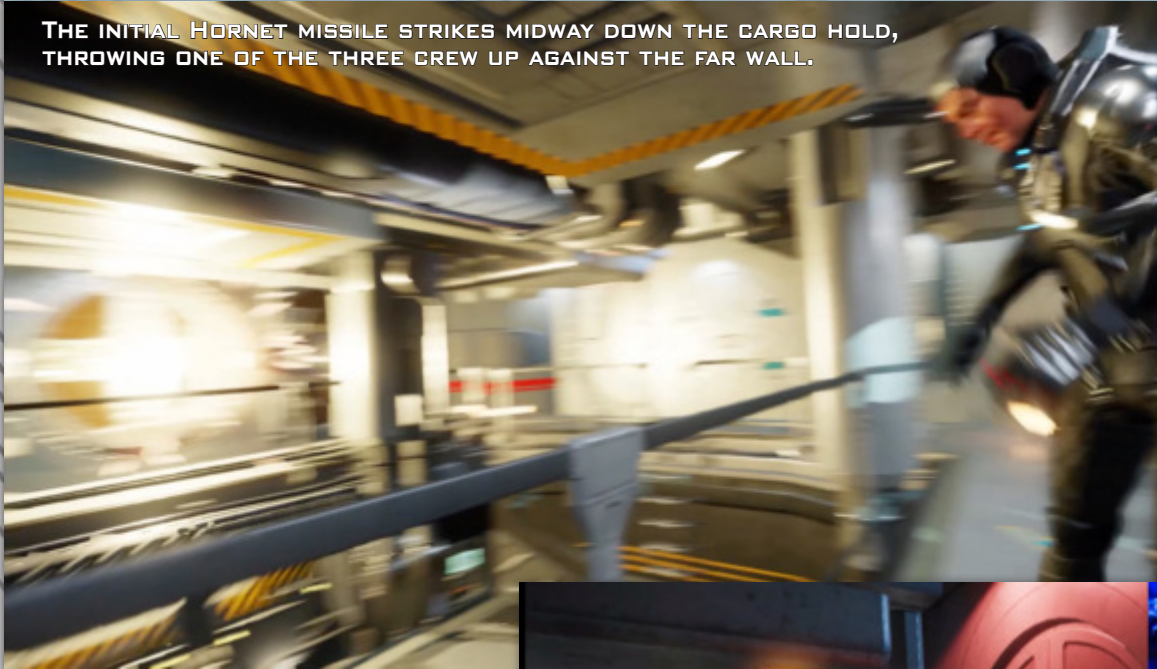
The Fight

Up to this point, the demo was pre-recorded, to get all of the ships into position and ready to fight. But from here

on, it was all up to the three crewman of the Constellation to survive the pirate attack.

The crewmen included Dan Tracey (Pilot), Paul Reindell (bottom turret), and Travis Day (top turret).

THE INITIAL HORNET MISSILE STRIKES MIDWAY DOWN THE CARGO HOLD, THROWING ONE OF THE THREE CREW UP AGAINST THE FAR WALL.



RECOVERED FROM THE IMPACT (AND SUBSEQUENT RAPID DECOMPRESSION), THE CREWMAN MAKES HIS WAY TO THE BULKHEAD AS THE AUDIENCE KEEPS A CLOSE EYE ON DEVELOPMENTS.



BEHIND THE SCENES



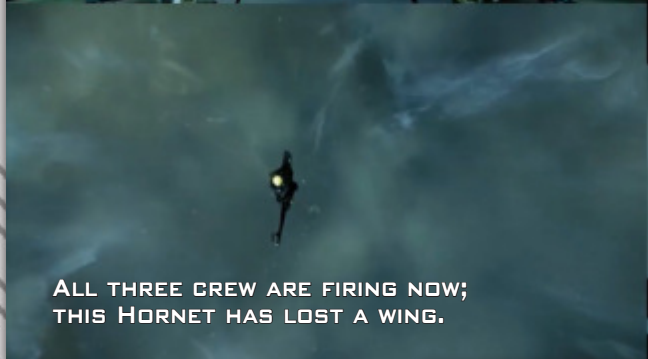
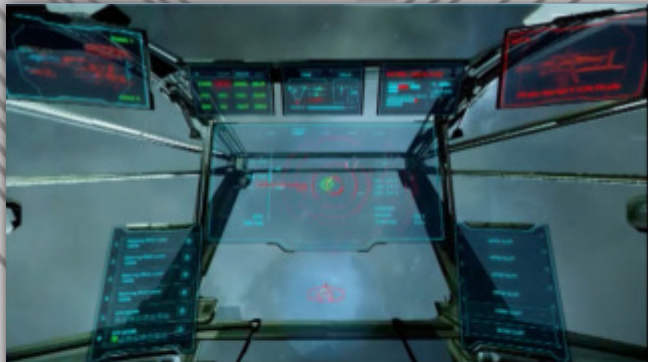
THE SCREEN SPLITS INTO FOUR, ONE EACH FOR THE CREW, PLUS AN EXTERIOR CAMERA. THE PILOT (UPPER LEFT SCREEN) BEGINS FIRING WHILE THE OTHER TWO CREW MAKE THEIR WAY TO THEIR TURRETS. THE HORNET COMPLETES ITS PASS AND BEGINS TO TURN BACK.



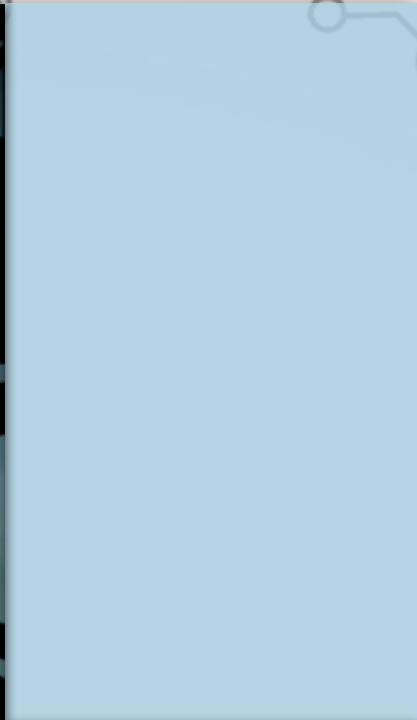
THE BOTTOM TURRET (UPPER RIGHT SCREEN) IS MANNED, AS MORE HORNETS APPEAR.



BEHIND THE SCENES



ALL THREE CREW ARE FIRING NOW;
THIS HORNET HAS LOST A WING.



CONGRATULATIONS ALL AROUND —
THE CONSTELLATION HAS SURVIVED (BARELY)
AND THE HEAVENS ARE CLEAR OF HORNETS.



BEHIND THE SCENES

NUL SYSTEM COLE, ASHANA



Want to get as close as Humanly possible to a UEE battle carrier without joining the Navy or committing terrible acts of piracy? Nul is the place! One of the earliest systems charted by Humans, Nul was discovered in 2290 by NavJumper Antoine Lebec. Contemporary (and oft-disputed) folklore claims that the system's name comes from a misunderstanding, where Lebec replied "nul" — he had not found anything interesting in the system. Nevertheless, it remains the sole star credited to Lebec, despite his noted proficiency with early jump drives.

Nul is a Classical Cepheid star, a yellow supergiant that swells as much as 10%-15% its standard size at times. While it is an easy system to transit, the nature of the star makes habitation extremely difficult. The inner planets are com-

plete write-offs with regards to terraforming, and the outer planets have resultantly terrible seasons that prevent the development or import of even the simplest vegetation.

In the centuries since Nul's discovery, Humans have made three separate pushes to attempt terraforming operations. None have ever exited the study phase, with the immediate reaction of terraforming scientists being that the system is untenable for any sort of Human habitation. The most recent attempt was in 2619, and the system has faded into relative obscurity since then. Most analysts familiar with the system believe that there is no reason to visit its barely inhabited settlements and, given the danger presented by the star itself, no reason to even transit through the system.

EDITH HILLMAN VA

ASHANA

Nul's high point, if any portion of the system can be so-called, is the fifth planet, **Ashana**. Ashana is home to the single thing that might someday transition the system from slaver hell to tourist attraction: a city built out of a wrecked Human battle carrier. In 2571, the UEES *Olympus* pursued a group of rebels and pirates back to their makeshift base on Ashana. The ship's commander directed the *Olympus* to make a run at the base that took it too far into the atmosphere. The drag slowed the *Olympus* below its sustainable speed at that altitude and it was unable to recover, resulting in its loss with all hands.

The *Olympus* crashed to the planet's surface, where it impacted in the desert wasteland. The crash quickly attracted scavengers, who began to pick the ship clean . . . until they realized that it was a more pleasant environment than the windswept deserts they had previously called home. When the navy did not dispatch another force to eliminate the wreckage, squatters moved in and turned the *Olympus* into a town of the same name.

While the UEE offers no formal view on the settlement, visiting the *Olympus* is fairly easy. The carrier's corridors and bays are now home to everything from a Tevarin marketplace to a warren of hotly contested individual homes for those living on the planet. Today, Olympus is a semi-dictatorship, with a Tevarin named Nescus running the entire show (and patrolling the ship's halls personally). Black market goods are exchanged here, but only in limited quantities: the carrier's inhabitants know better than to give the UEE an excuse to bomb the wreckage into oblivion.



TRAVEL WARNING Perhaps you weren't paying attention. Don't go to Nul unless you're tougher than the pirates. And you aren't.





The Knowledge of Good and Evil

by Allen Russell

CHRONICLES

Part 1

Street make you rat, no choice i' give. Know tha' truth, an' live.

Tha' first rhyme 'm learn on Bazaar street. Truth is, street don' owe null thing ta no one. Jus' livin' is debt ta the street. Street come ta collect whenever i' will. Null stop it. Rat like me got start tha street young. Real young. Innocent? Maybe. Ain' null long till know 'm poor. So learnin' suits and comp. Gear 'm fixin is stole most-like, sold on tha Black. My work done clean? Maybe. Know what a know neve' gone get me none place. Know 'nough ta stay live. Null know ta much cause that kill rat. 'm rat, an street owns me.

Got bitter in hole like Bazaar Street slum. Got come out tunnels and face sky. Got "practical" after ticks. Me? Got two skills that gear rats has: one skill ta learn tech as 'm take i' apart, two skill an 'magination an guess how supposed ta work as a put thing back right. Tha' suit come from 'facturer ain't never heard of? 'Sure Boss, can fix.' Tha' be the way, ta live on Bazaar streets. Or ya die.

Only best like 'm get be "gear rats." Bazaar bosses won' get rats in if you ain' good at business. Rats no' good at business if 'em null learn gear. An 'em can' none learn tha gear if 'em weren' into tha Bazaar. So how ta got good, make an 'mpres-sion an get be gear rat? Break rules, none get caught, an make good on i'.

Wasn' gonna be "nothing" workin' scrap or debt slave. Rats got risk some. Hav' ta. Get caught' breakin' rules an be off ta slavers null time. Find way pass guards an through holes ta watch from corner an learn business. Them bosses knew we's there, sure. Them know how Bazaar work. Got caught once time. Guards a'most gave me ta pack creepers ta watch. "Pay due and the street might none eat you."

Doin' a'right as gear rat. Got clients who know me. Some who want more out o' me ain' gon' give em. An' 'm only 10 ticks. Sick like creepers them, bu' pay creds for fixin'. So 'm 'fix' ta bazaar shop 'bout now. Null work fa full rotate. Boss gon'a rage some maybe.

Glint this lady. She been in eve' fix shop and hack stand down da line, b'for she get ta Boss Dirk shop an me in i'.

"I'm looking for a fixer." Da lady say.

"Ya found one. Hells lady, you found dem all. Glint i' all down tha row. Some'n tells you need special fixer an 'm best here 'round. Wha' you need?"

She look 'round, "Shouldn't I speak to the shopkeeper, young one?"

Lady don' know then. First time in Bazaar, maybe. EZ creds.

"Boss is out. 'm here, an 'm you fixer. You want somethin or just gawkin' at street rats? 'm best fixer in Bazaar. None need proof. You got need lady or jus' suckin' O2?"

She come up with an old comp glass out her clothes. Almost like lady dress from fash vids but coat like. 'm got good eyes an ain' seen no place big 'nough ta hold that comp. Take scan on it quic'.

"Tha' oldie? Ain' even none facture mark on i'. Deal ta sells ya newa one Dirk has in shop."

Craz oldie none bite. "No, young one. I need this exact device repaired. So I suppose I'll have to go elsewhere if all you can do is sell and not fix."

That some barter talk. From this Oldie? None first time in Bazaar, locked on that now.

"Don' work for none-names or 'nonymous. What you tag you-self?" Put out my hand to seal i'.

"I'm called Mother Superior by most."

"Got." said me an grabbed her hand to seal le-git deal. "'m can fix your comp Mom Super. Hold one."

So went on i' and done. Lady watchin' whole time. Like street rat tryin' ta learn tech. Simp damge on one board. Old damge some. Othe's fixe's prob look lock at i' an done miss i'.

Lady look an' gawk some. "I looked a hundred times and never saw that. How did you see such a small thing and know to fix it?"

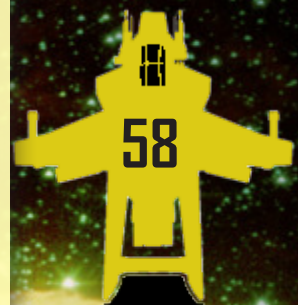
"Seen once on board like i' some 'bout one tick back. Null forget wha' got once. 'm bes' fixer here lady. Know i' truth." 'm got hand out ta get paid.

Lady pays, real creds. An she made outbounds real slow. Glint her spottin tha shop few count. More an once. Craz Oldie that. Boss say late'a tha' Mom Super is'a Sis-ter. Info Trader. Neve seen one trade none. Sis-ters trade kine'a info Rat don't need. Thin's like got rats killed. Things maybe boss gon' need know.

Craz oldie, white some in da head hair. 'm think she know 'm got fixin for wha' she gots broke. All razy show ta go all dem other shops. Knows she gonna get me to work in and on i'. Ain' null rhyme ta tha razy show she do. Wha' ain' no rhyme for is dead danger. So I glint an lock her in my head. Gon bring Craz with her sum tick. Rat's gotta sure gut on dat.

She come back aft' seven day. Got bring me comp, buying favs maybe.

"Wha' 'm do with tha' old comp lady?" Oldie comp, better than I ever had. Old like some comps and gear I fix on.



CHRONICLES

"Whatever you wish I'd suppose. You seem to have a knack for such things." Oldie gab like Up's do. Lookin at me as 'm null take it.

"Got paid for fixin' tha comp ya brought last. What this buyin'?"

"An investment in your talents is how I see it."

Boss Dirk got tell me once tha' investment means long time debt. Some neve' collec'. Some collect on i' big. Null know which when i' come. Them got risk some. Got profit? Maybe.

Aft' long think 'm take i'.

Mom Super don' say null else. Jus' smile. Know risk when got some, but lady rub i' in with tha smilin'.

Casey Gang glint tha comp an Mom Super makin outbound aft'. Should'a 'magine them ta come an take tha comp. Boss Dirk only protect his gear rats when tha shop's open. Nights long som'times. Near snuffed me when Casey boys took i'. Tha chunk one ben' ove' me ta gab some.

"You should know better than to try and have nice things." 'm got spat on then. "You'll never be an Up. You've got a debt to pay and this street owns you. You'll always be a street rat."

Half swole, dim eye an hungry 's how got to bosses shop nex' light up. Boss Dirk don' say no-thin'. Night business, that. Rat business. Think some 'bout Mom Super "investment" an' long debt 'm got. 'm know it when 'm take tha comp. Turned on me boost quick tha risk.

Why tha hell can' craz Up leave rat like me 'lone?

Stop tha' b'for i' got bigger. Why's get a rat killed if 'm look deep. 'm try an clean in tha sink an' snatch glint of me in tha reflec.

"The color blue and black on bruise look shiney." 'm think.

Think then, tha' blue on black look shiner on them. Smile'n

hurt. Tha' didn' stop it. Twistin' trouble back on itself 'nother skill rats got know no matter what. Learnin' tha' figures ta how long ta live ya might got. Slum luck, razzzy Up in RSI gear come in tha shop jus' then. 'm face all bust an hard ta gab. Up see an went an called out Boss man 'bout roughen rats.

"wasn' Boss" 'm say.

Up's none copy wha' rat saying. Got rage some aft' look me. Up walk out on Boss Dirk. Boss Dirk don' ev'n look at me, "Go on walkabout and I don't want to see you till you make it right."

Like hearing death, that.

None be in the shop cause 'm lost him creds. Maybe big creds. Know what game Bazaar boss playin'. Got make up the creds, street debt that, or null work shop more. Work is Safe-ty. Gets rat trade bits, tools. Gear rats snuffed if got null shop an boss. So got 'magine ta make cred back, boost fast.

'm got system ta make good. Priorities. Lock wha' work pays an' who 'm owe wha'. Neve owe none long. Nose out 'thers business until them got in mine. Neve' start fight. Finish 'em hard if them come.

Got debt ta street an know tha' good. Know null ask questions. Know ta dodge tha creeper. Know drugs kill some, but bein' desperate be better at killing. Know ta steal fast, run an null fight, cheat fair, deal double an null trus'. Trus' sa kinna deal get you killed while 'em all smiles. Slums got say, "Killed by kindness." Learn tha' boost quick.

P'rent leave them crier kid on tha streets at five ticks old. Mine did. Tha' when a 'come rat an could beg 'n steal my live. Same tick p'rent don' have ta take tha crier ta Gov medics none more. Gov Medics give shots and make sure rats got ID. Gov Blues got to know who they arresting is. Gov cares bout lookin like they care. Lookin like Up's don' ignore packs a rats 'round Bazaar.



CHRONICLES

When 'm five ticks them camp up and in 'gether. Crawl tunnels. Oldies be too big ta get through. 'S when my learn tha rhymes. Street rat learnin' them. "Learn tha rhymes, live long times." Youngie's makes safe camps in tunnels. Safe nights, mostly. Seen my first murder at seven ticks, over pride. Honor worth killin for when rat got null else.

When 'm nine ticks, beat some seven tick with mu slag cause them stole my las' food. Two ticks or three more an seven, you gettin' too big too ta get in tunnels. Ones dat stay, after them "grow up"? Them dead. Might find 'em after. Maybe long aft'. Ones dat got stuck tryin to get out da wors'. Ain' none soul in 'em eyes. Null.

Rats ride rails some time. Mos' runners on Up business. Gov Blues that glint rats 'll lock on an then drop off long as ya don' spook. Been here rails most two hours null-stop. Even seen one Sister, like Mom Super. Jus' two Up's on this rail now. One look'n like them wanna live Bazaar style, but like Up mus' think i' like.

Ain' found null mark ta pick till this ripe come on. Up punk got loose pocks an 'm scan cred chit on him. Bad idea them chits. Thems way ta buy easier on the Black an no get flagged by central. Or get picked.

Nex rail stop come up now an make my pick. Least try ta. Hands in tha marks pock an gots pain on my wrist. Aint none feel like it. Know quick what is. Honey pot. Gov Blue sting, an fell for honey. Blue grab me an latch on my shirt.

"Well what do we have here? And why is your hand in that pocket do you think?" He gabbed.

Got my words workin pas' pain. "Glint lock ya chit gonna fall out an gon make sure i' don' Mr. Up."

"Mr. Up is it? Not Mr. Blue? I'm out here to catch scabs like you. Either you're a dumb street rat or you think I'm a sap." Him eye scan'n me at that. "You know I've caught you red handed. That's a conviction right there." Lookin' a my hand.

Stuck in the Blue's pock. Made ta catch a snatch like 'm be.

Know solid 'm on lock down. Null shake Blue's Vid and Gab. Ticks in pris. Pris means knowin' too much. Neve' come back, rats tha' got pris ticks.

Got try juke this. Heard some Blues barter. "What i' take ta not be red handed."

Blue come real close. "Well now, since you ask." he say in hush say. Real close.

Don' eve' think as I hit tha Blue. Ain't got my slag, none on rails. Hit him same as any creeper. Then pain come. Blue's suit lights come on. He din' have his Vid rig capt'ing till now. Think 'm deep in now. An he shocks me with his spark-stick. An world goes black.

* * *

Got none lock on how got ta Judge time. Most blur. Shock? Maybe. Craz Oldie come outa none-where. Like lady didn' do 'nough ta rat like me 'ready. Thinkin' maybe like she know how street works. She come in an on it.

"Wha' else you wan' from me, Oldie? Ain' got none else!" Aft' I say it Judge tell me null ta "out-burst" 'gain.

Mom Super only look me once. 'm stand there cuffs on an Judge gabbin at her like 'm understan'. Craz oldie goes on i' hard. "This child has rights, Your Honor, and though guilty of a petty crime, this one is the victim of a crime much more heinous . . ." Gabbed in Up talk for me ta Judge. Fel' like hours she gab at him. An got some Vid too. Can' jist half it. An Judge got quiet some. Rats know when an Up got quiet some' bad wrong.

Then i' come, "The child is remanded into your custody and an investigation will be opened."

Krac Krac

Courthouse Blue got my cuffs off. 'an Mom Super take my hand like sealin' deal. Leg-it.



CHRONICLES

"Come along, young one." She say. An I got go with her Blue say.

Understand sealed deals. Le-git. Some-else callin' shots an 'm jus' rat.

* * *

Neve' been this deep in bad 'fore. "Ride the wave, you be okay. Don't fight back, or be dead fas'" Got ride i' an' Trip ta tha Hall 's all blur an flashes some. Think nev been this far from Bazaar 'for. Got ta i' an all I has 's me and gov clothes. Indust kind door closin behind us. More like wall movin. 'Bout time i' close looked like just wall. Hallway we in 's dim lit. Tried lock where door is an what's 'round. So I won' lose it. Doin' i' maked me stare.

Lady catch me at it.

"The only way in or out of here, young one." She say.

Lady know how ta make you feel "at home." That what she'd called it. On the rails ride. Said it's "home." Cage? Maybe. I'm in deep grav well. Null booster. I got the one-in one-out as challenge an half threat. Well, would call i' threat if didn' think tha oldie was tellin' truth. From tha look, place been built out the hull an old cryo-sleep. Kind ta carry all the gear, raw mat'erial an people ta build station an colony tha world. Some these been used. Once, long time gone. Jump tech made 'em dead tech 'fore some reached their destin.

Is'n small hallway. Got be least five meter tall an three wide. Hall's brown an dus'y. Dus' floatin' the air. Light come from clear roof an some non-stan wall tech. Eve'y two meters pillar come out the wall some. Lady starts down hall leavin me. I ain' realize till 'm left some. Cause I starin' more. Got catch ta her an made I didn' lose lock to tha door in my head.

"I'll show you to your room and where the meal hall and necessary are." Mom Super sayin' like tour Vid or some.

"Is 'm prisoner here? An guards?" Got ask. Got get tha lay here.

Craz Oldie 'most choked on laugh.

"Ha! A prisoner are you?" Lookin at me over her shoulder. "No, young one. No guards to bribe here. No chains. Not even a mean look from your fellow inmates, as there are none. Just me and my fellow Sisters."

Like she read minds 'bout bribes the guards. I got quick feel wrong for asking. Why's she lookin at me tha' like? Got my eye out a lookin' at hers. Eye scanned blank wall I could find. "Ain' this punishment, right? I got caught bustin' up that Blue an now I gotta delta."

"None of that street slang here, young one. The word is 'change,' not 'delta.' The magistrate owed me a favor and released you to me under the condition that I maintain custody of you until your majority. So you are under my watch, yes. A prisoner? Hardly. You will find all the things here you will need to live and, if you so choose, learn."

She don' say more for 'while. I got some wha' she gabbed but i' don' copy.

"Ahh here we are." She stop nex' ta door look like metal sticking out. She pull on the metal with her hand an i' opened. A'hind i' 's room with chairs an table. Walls right an left got four more doors.

"The second on the left will be yours, young one." She said.

"Mine wha'?"

"Your room, of course."

"Like shop?"

Some' mus'a mean somethin' ta tha craz old lady. Like she got dus' blinked an rubbed her eyes.

"Of course. How could I be so foolish. This is obviously not something you're used to. Each one of us here has our own place to sleep and have our own things." She smiled like hidin' think.



CHRONICLES

We walk to the second left door an open it. I glint in the place. Rooms bright. None like tha hall. Pair stan' lights on ceilin'. Desk, chair at tha desk, an comp on tha desk. Jus like the one Casey Gang got took from me. Mom Super point ta 'nother short table.

"This will be your bed. I hope you find it to your liking." She say i' smiling at me. Big think 'hind them eyes now.

"You mean I get cot like tha Up folk?"

Why I got feel wrong for asking 'nother question? Null tryin' ta make craz oldie cry. She just was. I'm none gonna let this get beyond me. "Get out your depth, get dead." That the way things work an look like gettin' close. Got get handle on it. Old lady sittin on the cot an just lookin at me walkin around. Makin I got what this oth' small room for. Two doors on i' an pipe at the top. Some things hanging from tha pipe. Strange hook things. Trying not ta look close at 'em an get caught starin'. Made over ta tha comp on the desk. Wanted lay hands on i' an over since I locked on it. Don wan'a giveaway that too fas'. Gear rat knows tha' much abou' business. Neve give too much 'way. Is'n old as i' look. Tap tha switch ta turn i' on. Got greet by blinkin error lights 'long the edge. Know this types, local fab. Lights come same order, 'lways. Pre-boot got stuck. I go in an on it.

Pop tha case secure clip on tha left edge.

Run finger 'long tha top an add pressure as I twist tha top half counter-clock.

* * *

My hand reached ta my tool belt. Lookin for contact bridgers pass tha anti-tamp sec switch. Hand missed. Got stop. Don feel the tab metal. My hand nev miss.

Look down ta my left hand. Ones supposed to got that tab tool I need. Ain' got my belt. Come ta me realz I ain' eve' in my own clothes. 'm in somewhere wreck old ship . . .

An someone behind me.

Scream comes, null stoppin' it. Long an hard an made old lady jump. i' was tha lady a'hind me. She come up ta see what I'm doing. Got caught in wantin' ta work on i' an lost my 'ware-ness. Los' track surroundin's. Let someone get 'round behind. Wasn' her wrong. I broke street rule an rhyme. "Back ta wall or them take all." So you don get mugged, or creeper on you, or get got by slavers or just 'cause.

Jump up from tha chair leavin tha begin' work behind an ran tha three steps ta tha' smaller room. Duck in an close tha door. Dark. Dark can be good an can be bad. This is good. Got four walls an only one vector in. I know what was 'round me. I'd knew when I saw i' that this was my 'secure' when things went. A'ways gota have secure. If the Gov come on round up. If gangs got bad war. If druggies got them hands on some new. That when eve' rat who knows street goes secure. Sometime you go ta secure an find som else there. Some secure ain' good an you get caught out an'ways. A'ways got have at leas' one.

This is mine. Now I need ta stable an find out. I tried to get my breath down. Don' want pass out. Breath hard an you pass out on street. All the CO2 dump from tha scrapworks were at the streets near Bazaar street. Breath hard an ya pass out sure. Tha' level tha odds 'tween tha street rats an tha oldies in fight or chase.

Null thing do but wait till pain come. A'ways does. I got fast breath. Stupid me ta got that way. CO2 hurt 'll kill fast some. Tha zone, fog CO2 tha' collects 'round tha' cluster shops an alleys tha' are all I know.

Pain neve' comes. Tha' means I'm pas' tha zone. Tha' hits me square an hard. I'm shiverin' but i' wasn' cold. For dark as i' is, like in tha hall i' warm dark with red and orange colors too.

"Are you all right, young one?" Oldie ask through tha door.

"Fine, lady!" I got shout back.



CHRONICLES

"That's good, dear." She say back through tha door. "And you can call me Mother Superior whenever you like."

I don' remember fallin sleep.

I waked up screamin though.

Tha' happen twice in week one bein' here. Sleep in tha closet-room got so warm feels like was somethin' on top me. Aft' second time like tha' I left tha door open some bit, i' let me see out into tha room too.

"Seeing what way someone could come at you from was good." 's what I thought.

Sometimes I scream so loud i' wakes all tha Sisters near with me. Maybe i' woke more othe's but I don' leave ta find out. Neve asked. Didn' care, what I told myself. Can' say 'm 'mbarrassed an didn' wan'a look weak.

Got clothes now that didn' itch. Can sleep night an null wake up coughin. Got food 3 times day.

I'm in deep slag.

Tha angle hasn' come yet. Can' eve' see tha angle them Sisters playin' to. Been 'while an i' start ta come clear tha' Mom Super an 'em Sisters want me in debt deep so I never get out. "Honor slave" like, cheap an EZ. So debt tha' work for rest my life won' pay back my owed.

'm got 'most dead screwed.

Mom Super come 'fore an walk me ta tha meal hall. Theres chairs 'nough for 'round hundred in tha meal hall. Sisters only fill 'bout three fourths it. Mom Super got me sit by her 'cause that way I wouldn' be crowd-in with some Sister or come up on like she had on me. Clothes 'm got eve' got pocket 'nough ta snatch food back ta room. Mom Super neve' caught me. Rat neve' know when food gone got rare.

Tried count eve' time I ate food. i' got more an more. Couldn' pay that much back. Couldn' not eat it. Real food hard got mos' times. Breakfast some toastbread an paste an cheese.

Soup lunch with cracker an' plate real vegetable cooked in oil. My first real vogs that. I ate food paste sometime on at meal hall but eve' tha' was paste with flavor in i' an came with cracker an cheese. Tha real food got tha kick though. Only fool rat turn down real food. If they gon' hit me with bill I couldn' pay, i' gon' be on full stomach.

Full stomach. "'m got soft." Had say i' out ta make i' real.

On street rats only got full stomach on spec days. Like when Gov paste dispenser malfunctioned. Or cargo food crashed near. Couldn' sell tha goods no more so we rats got eat real tha' time. Sick for days aft'. Couldn' handle all that real food.

Now I got real eatin' eve' day. Warm of i' gone out. Or may jus' didn' have ta fight chill here. Don' matter none way. "Loss ya edge an you got dead." 'm get soft an got ta fight.

Got my plan to make good too. First got grab up tha bits tools made out some scrap, tha food got hid under tha bed, an all the clothes. Second gotta outbound my room got pas' them doors an then to tha wall door. Or where I'm lock i' ta be. Got tools ta get pas' it. Got find tha control box. Null hard. Simp that. Pop tha door an out.

None need detail figured. 's long as got 'magination I'm gon' got this. An got my honor back mine aft'. 'm none gon' be prisoner an neve' slave. Let 'em take my rep an say I don' pay debts. I'm gon' be free.

Time make my out.

A'most 'sleep when I figure late i' is. Gettin' up an an got my things out 's lot more work than my practice. Opened tha door ta my room null makes sound but tha' one into tha hall 's tricky.

Got i' jus' open 'nough ta squeeze an pull my gear through. Risky ta try an close tha darn door 'gain. If I wrong, it might wake up tha whole place. Jus' lef' i' part open tha' way. Gon' be obvious ta a'one tha' scan it. I'm be long gone then.



CHRONICLES

Sneak-move down tha halls. Heart pound'in like hammer. I come up on tha scratch an ding tha' give 'way where door come out in tha hall. Scan tha wall ta find control box. Foun' place where control should be. Near tha floo. All's in i' relay module. Like for remote. Ain' doin' much ta help 'less I got tha code or find tha oth' end tha link.

Tha's bad news. Could be an'where. Like tha library that I couldn' go in or outside where'm tryin' go but can' get. Got search eve'where an tha' means 'm gon' get caught sure. An I ain' eve start tha work ta bypass secure tha' be on it! 'm deeper in i' an null way out, lock sure.

I jump 'cause tha door start open all on 's own. Rumbled an rack some an stop 'bout half open. Blink tha dus' out eyes tryin ta figure how tha' happened. Null one outside. Blink mo' dus an thought abou' it. Miracle? Maybe, but rats none got tha' luck.

Out my instinct I turn 'round.

Mom Super standing three meters 'way. She got MobiGlas on an up. Prob'y use ta open tha door. Craz Oldie lookin' right at me.

"I wondered when you would make your first try for the door, young one. I'm actually quite surprised it took so long." Mom Super voice cut air like glass now. "You look prepared. That's good. You may even have a plan. Planning and patience. Strong qualities for one so young to have."

"Wha' you wan'?" I ask like she some kin'a spook.

"To give you a choice, young one. Choosing is a sacred thing to us; In it we are free. It is obvious you have not felt as free as you truly are." She say back.

"Wha' deal you got?" I say more sure 'm in barter now. Barter 'm got, solid.

"I mean that you have a choice. You may leave and make the 20 kilometer trek back to the scrap yards and Bazaar and that life which you know, or you may stay and learn what

the streets cannot teach you. What they do not want you to know."

's not real deal, that. Thought tha' get ta here been long but ain' thought i' 20 k-meters. I had 'nough food for day, maybe two. Got caught by null knowing 'nough. Rookie mis'ake that.

20 k-meters. Trouble still with Boss Dirk in tha bazaar when got there. An empty stomach.

"None much choice." I said out aft' I think i'. Mom Super smile sad a' me.

"But it is a choice. One I offer you because I am a Sister of this Hall before I am your caretaker." She say i' slow like.

'm none buyin' it. "You haven' show me wha' angle ya playin'. Maybe ya jus' makin' me fat an you high dollar slaver an' all. How 'm know!"

"You must be free to choose or I am not worthy to be a Sister, let alone the Mother Superior of these many here. We can give you what you need and more if you stay."

"I know right. Debt 's debt." Eve' rat know that.

She stop cold. "You think that you are incurring a debt by staying here?"

"Ain' I? Wha' I'm suppose think? An I see one an' 'm null gon' jus' be here an' . . . null tha' . . . I won' be your slave!" Start lookin for way out tha hall ta secure.

I stop cause Mom Super raise her hand. Slow like. Like she do ta quiet tha meal hall 'fore meal. Hadn' expected her ta be calm like tha'.

"If I gave a way to repay your debt, would you stay?"

To be continued

