

# FRONTIER EXPLORER



**ISSUE 32**  
**SPRING 2021**

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## LOOKING FOR SUBMISSIONS

Do you have material you'd like to see published in the Frontier Explorer? We accept submissions of any fan material for Star Frontiers, FrontierSpace, or any other sci-fi role-playing game whether it is new races, equipment, vehicles, setting material, play reports, or anything else.

If you have something you'd like to share, head on over to the [Frontier Explorer website](#) and hit the gold "Submit New Content" button. We'll help you get the material ready for publication and into a future issue of the magazine.

## GETTING THE RULES & BACK ISSUES

The published rules and modules for Star Frontiers and FrontierSpace, as well as all back issues for the Frontier Explorer and the Star Frontiersman (including print-on-demand physical copies of the Frontier Explorer) are available for purchase or download on DriveThruRPG.

All the old issues of the fan magazines, as well as print-on-demand versions of the Frontier Explorer can be found at [the Frontier Explorer page](#). These products are offered as pay-what-you-want. You can grab them for free, but this provides a way for you to make a donation to help support the magazines if you so desire.

Wizards of the Coast offers the Star Frontiers rules and modules on their [Star Frontiers page](#).

FrontierSpace products can be found on the [DWD Studios page](#).

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# LETTER FROM THE EDITOR

Hello Explorers!

Welcome to issue 32 of the Frontier Explorer. We have so many great articles again this time around that I nearly ran out of room on the table of contents page again. We start off with a "Blast from the Past" and a play report of an old Star Frontiers game from decades ago. The "Blast from the Past" series presents articles found on dead Star Frontiers websites or other places from before the magazine started and the early days of the game. This issue has three such articles, the already mentioned play report, a system for resolving investigation of alien technology (or any complex task, really), and an in-setting card game you can bring to your table.

We have two articles on aircars and new flying vehicles by Jerry Boucher and Oscar Rios. Oscar also gives us a look at the life of a typical, non-adventuring vrusk.

The big article this issue is the first of a two-part series that looks at using radiation effects in the game by Joe Cabadas. The second half will be in issue 33.

Tom Verreault gives us a bevy of articles including reviews of a sci-fi map designer and Star Frontiers compatible miniatures, another character archetype, several bits of equipment, and finally, a detailed look at the published material on the Scree Fron system and its implications/extrapolations.

We round out the issue with our usual comics by Scott Mulder. Unfortunately, due to some unexpected events, Jurak Hangna was unable to transmit an article for this issue, but we should expect one from him next time. Which reminds me, I should check in with Alex Stone to see if he has any new adventures to report.

I want to give a big shout out to my co-founder, Tom Verreault, as he did the bulk of the heavy lifting on the editing on this issue. I've been really burnt out since January and he stepped up to the plate and edited all the articles. I did a final editing pass as I was putting everything into layout but there weren't a lot of changes needed and that saved me a bunch of time.

Changing topics, here's an update on the print on demand versions of magazine. As we were finishing up the last issue, we got word that Lightning Source, the printer DriveThruRPG uses to produce the POD versions, was changing their formats discontinuing the saddle-stitched format we

have used for the Frontier Explorer and only offering the PerfectBound format (think paperback books). Which would require all publishers to convert all of their titles and re-order print proofs.

Luckily, enough people had been purchasing the Frontier Explorer issues that DriveThruRPG did the conversion automatically for all 30 currently available as print as well as both Technical Manuals. Thank you to everyone who has been buying those, you saved me a lot of work.

Because of my burnout, as well as the need to wait until the printing format switched over at the beginning of March, I never did the POD version of issue 31. I'll be submitting that when I do this one.

For the Star Frontiersman, I do need to reorder print proofs of the first 5 issues, but issue 6 is still available as it was already in the correct format. Those first 5 issues are already in the proper format, I created them that way from the start. I just need to reorder a proof since the default at the time was saddle-stitched for that size of a book. That will happen as I get the print version of this issue ready to go as well.

I'll be honest, this issue of the magazine almost didn't happen as the burnout I was suffering was really bad. I had zero motivation to work on it and I got started really late. If it wasn't for Tom V's work on editing, I don't think I would have made it. I think I'm over the burnout now, but it may take some time to get back up to speed.

We put the magazine out each quarter but hear very little feedback on the articles or issues in general. There are typically 600-1000 downloads from DTRPG in the first month and I hear feedback from less than a dozen people. If you want to let us know what you think, ask questions, or add commentary, feel free to drop us a line at [editors@frontierexplorer.org](mailto:editors@frontierexplorer.org). If I start getting regular submissions, I might even start a "Letters to the Editors" section. And, if you're getting this from DTRPG, please rate and review each issue. And comment and share on social media. Or support our Patron campaign at <https://www.patron.com/frontierexplorer>.

That's enough from me. Sit back, settle in, and enjoy this issue of the Frontier Explorer. And as always, keep exploring.

- Tom Stephens  
Senior Editor

# PLAYING THE BAD GUYS

## GAME REPORT

BY ALBIN JOHNSON

**Editor's Note:** This article resurrects our "Blast from the past" efforts as it was saved from a lost website on the Internet Archive. There is another article later in the issue from the archive and you can probably expect to see more in the future.

I remember the LAST official game of Star Frontiers ever played by my old group back home. It was a riot, because we'd all been to college for a year and SF was a thing fading fast in our interests as 'grown-ups'. James McCameron had a nice, normal scenario for us to play. Jim was so bitter at having spent all those years as a 'medic' character to my 'military' character (remember when military guys were the only ones who mattered? we were such doofuses!) that he re-wrote his entire character to be even more of a killer than my legendary Yalua the Yazirian.

Anyways, halfway into the intro of the game, everyone rebels and says: "Hey, let's do something fun like take over the ship, be pirates, or just raid Port Loren!!!!" Well, James was put off at the idea of his game plot being ditched and protested that he didn't have the stats rolled up if they wanted to go 'robbing banks' in Port Loren. So I just snickered and said 'aw, it's easy, James, just come up with some rough stats that make sense ... here, let me do it and you control Yalua. Mind his backpack, though, he's got a full sack of TD-19!"

Well, the boys were happy. I plopped them down in the middle of Port Loren where they proceeded to that little cluster of buildings in the middle (see map that

comes with game) and began heisting the jewelry store at gunpoint. Joe's Dralasite and Ola's Vrusk didn't like the idea and got nervous about Star Law so they leave. Jim, Dave, and Don relish in the idea and start shooting everything. It was great! James just sulked in the corner, mad that his game had been hijacked (I was such a jerk! :)

Anyways, the law arrives in no time and in force - vehicles ring the entire block, closing it off from escape. Jim, Dave, and James bolt out the store, firing at everything in sight, blowing away pedestrians, shooting at the cars, etc. Joe's dralasite makes use of the panic and climbs one of the buildings and accesses a pedestrian walkway to cross into non-surrounded territory. Ola is smart, too, and as a Vrusk tech. runs over to one of the elevators to descend into the parking garage below. Don the human sees Ola's retreat and figures his is a better plan than sticking around and follows. Jim and Dave scurry about, Yazirian and Osakar, laughing like Beavis & Butthead and enjoying the whole 'Butch Cassidy and the Sundance Kid' affair. At one point, Jim sees James (controlling Yalua) standing off to one side looking for police to come storming in. Jim mutters something to me, the GM: "Heh heh - well, so much for your legendary Yalua, Al!!!" He fires his laser pistol at the backpack at the 10 SEU setting - the TD-19 explodes in a bright burst of flame and all that's left of Yalua is a greasy spot on the sidewalk! I was crushed! Jim and Dave high-fived.

Meanwhile, Joe makes like Lee Harvey Oswald. His Dralasite clears the street, pursued by law enforcement that see him on the elevated walkway. He runs into a darkened holothheater, where he somehow loses them. Ola and Don, at the same time, enter the underground garage, Ola successfully opens and hotwires a car,



IMAGE BY TOM VERREAU

and the two of them somehow manage to bust through the roadblock above. A fast car chase follows, and out of the hail of gunfire their car is hit and the steering goes out. They crash outside Port Loren and escape on foot.

The rest isn't pretty, but it's the stuff of stories. Jim and Dave are the only living members still caught in the blockade, and there's NO escape. They dive into store after store, shooting customers and dodging gunfire from the police that sit outside each shop's window. They take hit after hit, but somehow keep going. Finally, Jim and Dave grin at each other, look out one of the windows and said "I'll take the human over there" "Okay, I want to go down with that Vrusk over there". The two of them go crashing out a picture window, guns blazing, and after a hundred dice rolls simulating the police gunfire, the two are history....

What a rush. What a nice game to end the legacy on....



IMAGE BY TOM VERREAU

# FRAG MAPS

## REVIEW

BY TOM VERREAUULT

The Frag Maps “Crash Site” map turned up in several sci-fi RPG related Facebook groups recently. Immediately, I thought of the crash site in the classic “Crash on Volturus” module and had to investigate deeper.

Frag Maps is a content creator with a Patreon campaign. There are 4 levels of patronage with the lowest starting at \$1. He produces 1-3 sets of maps per month in the sci-fi and cyberpunk genres. He is very engaged with his patrons via Discord and displays excellent customer service skills.

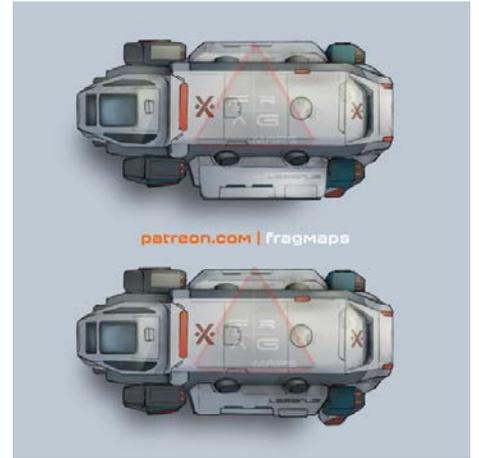
A typical map set comes with print and virtual tabletop files both for daytime and night. His VTT maps are compatible with Fantasy Grounds Unity, Foundry, Astral and Roll20.

“Crash Site” is the first map set where he collaborated with VFX artist, WildMagicSurge, and this map set has animated VTT maps with fires in the wreckage and a sandstorm. Note: an animated VTT won't work on Roll 20 due to that site's lack of support.

Other map sets I've downloaded were the Corporate Lobby, Cyber Diner (a Ramen Bar really), Cyber Car Park, Cyber Slums, Cyber Warehouse, Hacker's Lair, Market Street, Skyscraper Helipad and a Computer Server Room as well as a bonus air ambulance. Despite the fact that many of his map sets are labelled “cyber” they completely fit the Frontier.

The artwork is impeccable, and his mission is to produce maps that are unique

and useful to the RPG community. I have no criticism, love the product, and it is so versatile and usable, and he's doing his part to support the sci-fi RPG fan community, so I'm going to give 5 out of 5 dralsite thumbs up for Frag Maps. I highly recommend supporting his Patreon campaign: <https://www.patreon.com/fragmaps/posts>.



# HAVE AIRCAR, WILL TRAVEL . . .

BY JERRY BOUCHER

Although *Alpha Dawn* and *Zebulon's Guide* include descriptions and stats for aircars and air transports, those designs represent a kind of default for these special kind of aircraft. However, there may be circumstances where players would like to acquire and use some other aircar-like vehicles.

## COMMON FEATURES

All aircars in the various forms as described below share certain features, based around a common power and propulsion source. All of them require one more parabatteries of some type for power, and this power source drives two or more propulsive jets. These jets are not fuel-fed, hot exhaust types (known as *turbojets*) but instead use highly efficient *turbofans*.

Turbofans use a parabattery power source to drive a fan (a kind of propeller) that draws in air through a cylindrical chamber and vents it at very high speed. This in turn creates thrust, which is directed by nozzles, and the various aircar-type vehicles have two or more of these.

Air for the jets is drawn in through one or more vents placed around the vehicle bodywork, and these vents are protected by mesh screens to prevent debris and other objects being sucked into the fans.

The exhaust from this process is cold, and therefore aircars and other vehicles

using turbofans can land on tarmac, concrete, and other surfaces without damaging them.

In order for these vehicles to hover and perform other maneuvers, the nozzles use *vectored thrust*. This means that the nozzles are moveable and steer the vehicle in the direction the driver wishes to travel. Smaller nozzles placed at various points around the vehicle assist in making adjustments whilst hovering. Robots, flitboards and other objects that are cable of flight and hovering have a similar version of these features.

The exhaust from vehicles and larger robots can throw up large amounts of dust and debris from untreated surfaces, and in populated areas they are usually allotted their own landing and parking areas. Many cities and large towns have multi-level towers where aircars can be parked for a time-based fee. Air vehicles have pads and reinforced areas that bear weight when landing and resting, although airbikes usually deploy small legs with pads.

All air vehicles use a vehicle computer (VC) which receives commands from the driver controls and then vectors the thrust from the nozzles accordingly. The process of flying, landing/takeoffs, braking and hovering can be largely controlled by the computer, unless the driver decides to handle such maneuvers directly. Flying

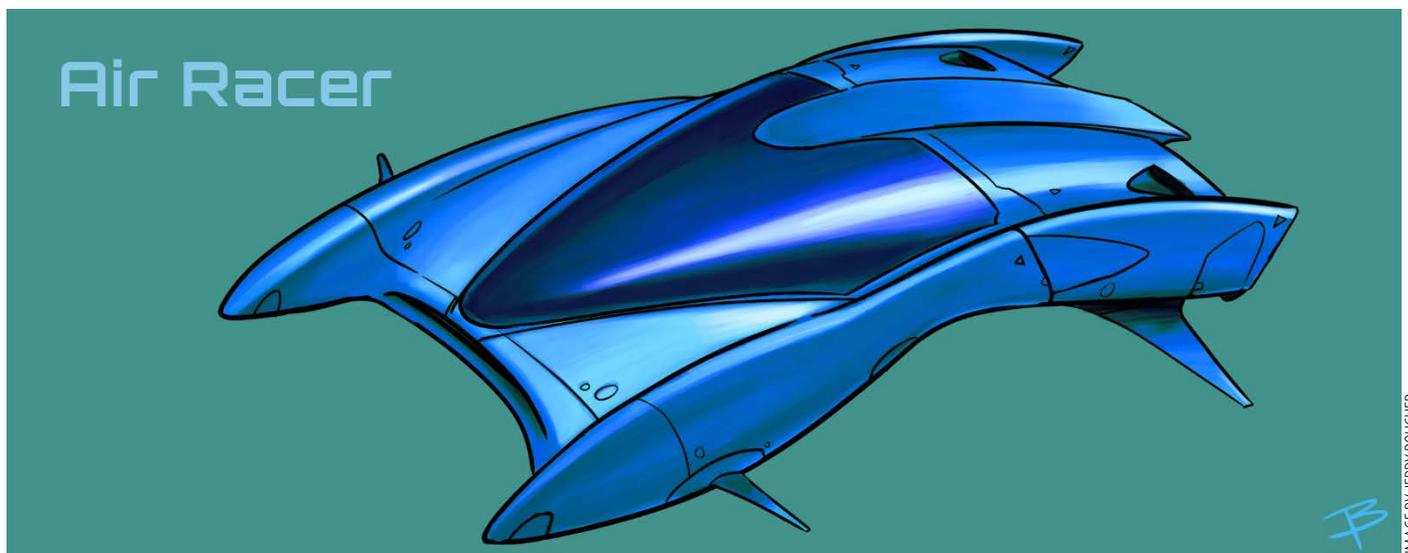
and operating an aircar or similar vehicle in this way requires the necessary skill.

However, for simple journeys between one or more points, a passenger or driver can instruct the VC to follow a given route at a preferred speed. The VC will then assume control for the takeoff and landing as well as any maneuvers enroute. No skill or roll is required for this kind of flight.

The VC also prevents the driver making maneuvers that push the vehicle over its design limits, from contravening local speed and/or altitude limits, and handles the *electronic handshake* (see below). However, it can be modified or altered if required. The VC also controls 'life support' for the vehicle: air conditioning, oxygen supply, cabin pressure, and escape procedures.

For various legal and practical reasons, air vehicles are usually restricted to following certain routes and flying at certain altitudes for normal travel in populated areas. Ostensibly these 'airlanes' work in much the same way as highways on the ground, although vehicles can pass up and down bands of lanes at different altitudes. Mass transit system computers interact with the VC in such a way that passengers rarely notice delays when changing direction or altitude, and information from the system is relayed to the driver via the HUD. In most areas, there is a maximum speed limit of 250kph, although local laws may increase or reduce this limit.

Air vehicles have a wide variety of roles and are used by commuters, corporations, haulers, security firms, and law enforcement. Airbikes and some types of aircar



have been developed as racing machines, either for an overall lap time or for pole position. Morgaine's World plays host to the annual airbike and aircar Frontier Championship races. Both follow a 500km circuit in the sky at varying altitudes over the course of the race. This is mapped out by a computer which the racing vehicles can track with their onboard systems. Rumors suggest that a similar race, although in a more basic form and with a smaller circuit, is occasionally held on Outer Reach in the Dramune system. Aircars involved in this race are armed and drivers are expected to fight as well as fly.

Despite the fact that the VC helps maintain stability and safety during flight, aircars are not strictly aircraft in the sense of being capable of sustained aerobatics and similar extreme maneuvers (loops, rolls, etc.). The VC will not allow them to be performed and overriding the VC in these instances will merely result in the aircar rapidly losing height and becoming uncontrollable unless the pilot is very highly skilled.

Because of this, military use of air cars is limited to smaller types for scouting/reconnaissance and some larger types for transportation. Racing aircars are more dedicated to straight line speed, although recent developments have led to more maneuverable designs, some aspects of which may lead to improvements for conventional aircars.

## VEHICLE COMPUTER

The vehicle computer (VC) is as described in *Zebulon's Guide*, and all forms of aircar and similar vehicles cannot operate without one. It is powered by the vehicle's parabattery, and should it be disabled or destroyed, the vehicle will not operate and flight is impossible.

Information from the VC is provided by a HUD (heads up display) projected onto the inside of the windscreen and/or via one or more screens within the vehicle. Essential flight, life support/emergency control, and electronic handshake progit are hardwired into the VC and are Type D, whereas the Type A progit *AudioAct* and *CompTalk* are fitted as standard and are usually activated by microphones within the vehicle or via a throat/helmet link.

They are only removable or adaptable by persons possessing the required computer skills. Otherwise, the VC has 12 ports which can accept a variety of vehicle-based progit.

## ELECTRONIC HANDSHAKE

In populated areas, aircars and similar vehicles are not usually permitted to land anywhere the driver chooses. In order to prevent a vehicle landing in a certain area (i.e. part of a street, a roof, restricted airspace, etc.) an electronic barrier can be extended around and above it, up to a predetermined height. No aircar or similar vehicle can land on or pass through this space unless the vehicle computer possesses the correct electronic 'handshake'. This is an encrypted signal stored within the VC that passes to and from the vehicle and the barrier, and access is only granted if the barrier accepts the handshake.

A driver trying to land in or on an area or building will usually be queried or warned by the barrier as they approach within 20-100 meters of it, and then asked to send the required handshake signal. Otherwise, it will seem that an invisible closed box or dome surrounds the area, and the driver will not be able to steer the vehicle into it.

The barrier will force the vehicle to stop at a hover in midair, overriding any inputs made by the driver, and will provide verbal warnings via the VC and HUD. Even attempts at passing through the barrier at high speed will bring the vehicle to a complete hovering stop in a very short distance without crossing it, and could cause injury to the driver, passengers and cargo.

Police, security, and other specially designated vehicles may be able to override the barrier, and the handshake may be hacked or acquired by other means.

The handshake system itself is a self-contained computerized unit which has an encrypted radio link to the local mass transit system computer, should one be present.

The system includes a scanner/detector that has a range of up to 10km. Aside from storing a list of permitted vehicles, the owner has various adjustable options. These include the size of area (length/breadth/altitude) covered by the

handshake, the distance at which the system sends a warning to an approaching aircar/aircraft, and the message the system sends to it. Another option allows it to disable vehicle offensive progit such as *CrashWish* and *VehicleSight*.

The standard system is capable of handling up to 10 simultaneous approaches, although larger systems (used, for example, by aircar parks) can greatly increase this number. Local laws will also stipulate the maximum allowable extension of the handshake's field and altitude around any given area/building.

The standard system described above is widely available and is the equivalent of a level 3 computer program. It weighs 10kg, and costs 4000 Cr.

## INERTIA SCREEN

As an added extra, any type of aircar can be fitted with an inertia screen. This is part of a Type A *ImpactProtect* progit that can be installed into the VC. The screen is automatically activated by sensors included with the system and absorbs half the damage to any occupants within the vehicle.

Inertia screens worn by the occupants are not added to this, but skeinsuits are. The screen includes its own power supply, which works independently of the parabattery/batteries and has enough charge for a single use. It can be recharged at a cost of 100 Cr. The cost for the system is 1000 Cr for airbikes and 2000 Cr for all other types of aircars.

## LIFE SUPPORT

Most aircars and similar vehicles are capable of flying at high altitudes (to a height of around 5000m, although this may vary with the local planetary environment), and so must have some form of cabin pressurization and other measures to ensure passenger comfort.

This also means that ordinarily all versions are airtight. However, these measures may be omitted from any type if the purchaser so wishes and can be removed as an option when buying a new vehicle. This reduces the purchase price by 1000 Cr. Should an owner wish to remove the option at some later stage, the cost is usually 1000 Cr, depending on local market conditions and capabilities.

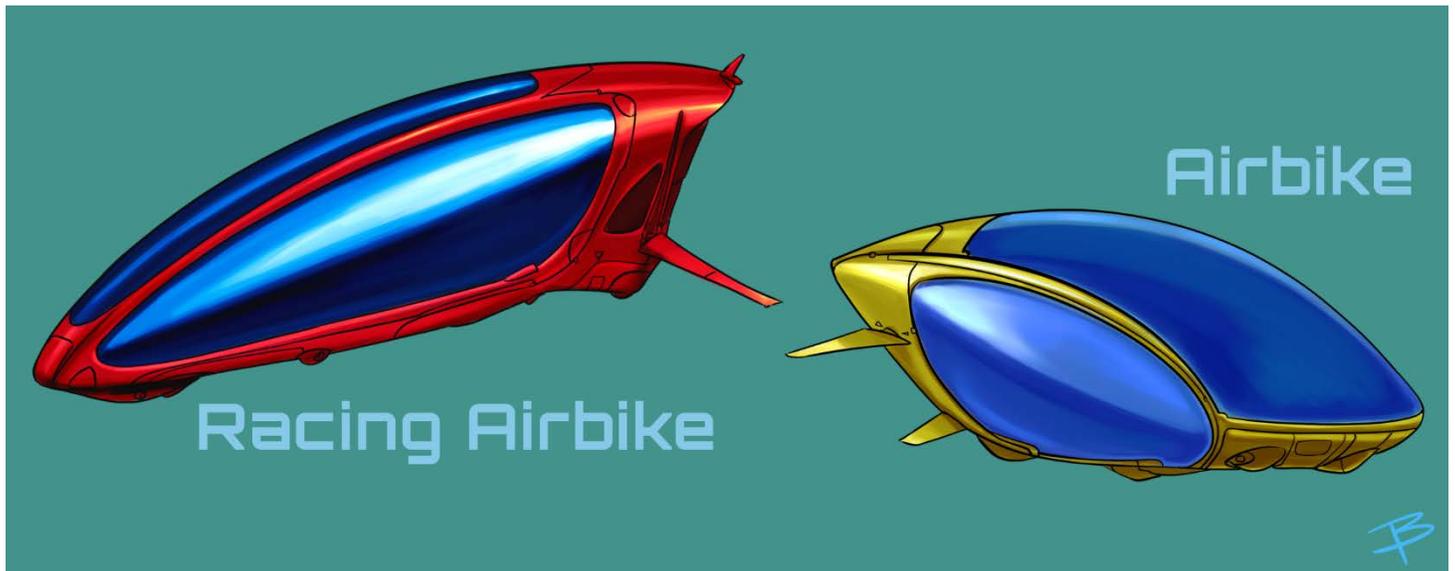


IMAGE BY JERRY BOUCHER

Of course, aircars and other designs that lack pressurization cannot not be used above 3000 meters without protective clothing and an oxygen supply.

All aircars and similar vehicles are legally required to be fitted with equipment of some kind which allows the passengers to escape or recover from an emergency in safety.

Various options are available and can be chosen when the vehicle is first purchased, at no extra cost to the purchase price. Depending on the situation, these measures will be automatically activated by the VC, or it will provide a warning and suggest that the system be activated. Alternatively, they can be activated manually by the crew or passengers, although this option involves several distinct steps in order to prevent accidental use.

Examples of emergency measures include:

- **Parachutes** – One or more small parachutes are deployed automatically from spaces within the vehicle by the VC or by passenger action. These are most common on smaller aircars and all airbikes. Larger versions are only fitted to standard and compact airplats.
- **Ejector seats** – Usually found on larger vehicles and military types, these seats are operated by passenger action. They can be deployed both at ground level and from a stationary vehicle, as well as at altitude (although not above 3000m if the passenger lacks protective clothing and an oxygen supply). In order to prevent serious injury, those using the seats

must prepare themselves before activating them.

- **Escape pod** – Pods can be used by all aircars, but not airbikes. They are self-contained unit, essentially a detachable part of the vehicle containing the seating area. This is launched away from the main body of the aircar with small rockets and remains pressurized and climate controlled. The detaching of the pod can be activated by the vehicle computer or by passenger action. Once deployed, the pod releases one or more parachutes which allow it to land safely.

## TYPES

Aircars and other air vehicles vary widely in design and form. Some resemble their ground-based cousins but are usually larger. Most use the lifting body principle combined with the brute force of the vectored thrust to stay airborne, sometimes aided by other lift-generating shapes or surfaces.

Similarly, their interiors differ in form and function from one design to the next. Some designs are tailored to suit the needs of one particular Frontier race, while others are more universal.

Various commuter and 'sport' aircars can be flown with some windows and parts of their roof retracted into the bodywork, although this reduces their top speed by 50kph and restricts flight to below 2000m. Unless otherwise stated, all types have a range of 1000km.

## AIRBIKE

- Cost:** 5,000 Cr (1 person)  
7,000 Cr (2 person)  
(rental – 30 Cr plus 30 Cr/day)
- Top/Cruise Speed:** 350kph/250kph
- Passengers:** 1
- Cargo Limit:** 10 kg, .35 cubic meter
- Parabattery:** Type 2
- Structural Points:** 60

The airbike is the smallest type of vehicle classified as an aircar and earned the name 'bike' because the earliest models seated the driver in a prone position. The name stuck, and various modern designs still feature this way of sitting within the vehicle.

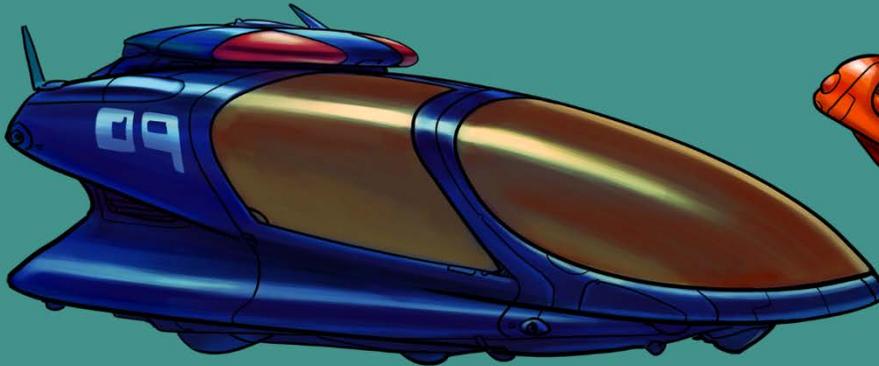
It has an enclosed body resembling an elongated pebble or almond, with a door panel on both sides which usually folds up in some way for access/egress. Some owners choose to remove these (temporarily or permanently) although this reduces the Top/Cruise Speed to 220/150kph and requires that the driver and passenger wear protective clothing and have an oxygen supply if travelling at altitudes above 1000m.

Small winglets unfold from either side of the body when the airbike travels above 80kph.

## RACING AIRBIKE

- Cost:** 10,000+ Cr
- Top/Cruise Speed:** 450kph/300kph
- Passengers:** 1
- Cargo Limit:** 10 kg, .35 cubic meter
- Parabattery:** Type 2

## Compact aircar



## 'Urban' aircar

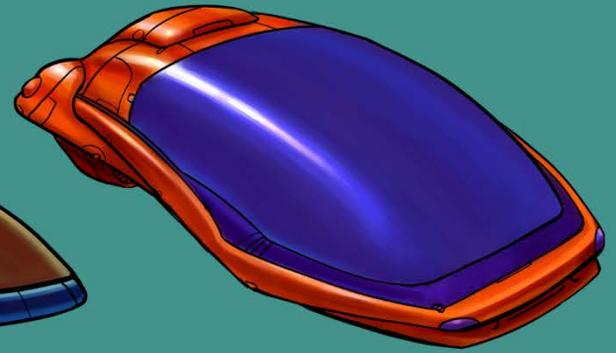


IMAGE BY JERRY BOUCHER

### Structural Points: 60

Racing airbikes for non-professional use are quite popular, although their top speed is very restricted over urban areas. They resemble their professional brethren only in general styling and appearance. Professional airbikes can reach speeds of 700kph and cost up to 75,000 Cr, but their range is limited to 350km.

### COMPACT AIRCAR

**Cost:** 10,000 Cr (1 person)  
12,000 Cr (2 person)  
(rental – 40 Cr plus 40 Cr/day)

**Top/Cruise Speed:** 350kph/200kph,  
450kph/250kph 'Sport' version

**Passengers:** 1 or 2

**Cargo Limit:** 50 kg, .5 cubic meter

**Parabattery:** Type 2

**Structural Points:** 75

Compact aircars are usually used as personal transports for commuting and joy-riding with either tandem or (more commonly) side-by-side seating for two-seat versions. The 'Sport' version is a generally faster, sleeker design inspired by certain types of Air Racer and usually costs 1000 Cr (1 person) or 2000 Cr (2 person) more than the standard version.

### 'URBAN' AIRCAR

**Cost:** 20,000 Cr  
(rental – 60 Cr plus 60 Cr/day)

**Top/Cruise Speed:** 400kph/220kph

**Passengers:** 4-6

**Cargo Limit:** 100 kg, 1 cubic meter

**Parabattery:** Type 3

**Structural Points:** 90

These represent a wide variety of designs used for commuting and general

light transport. Designs capable of carrying 6 passengers can usually be found in use as taxis.

### AIRVAN

**Cost:** 45,000 Cr  
(rental – 100 Cr plus 100 Cr/day)

**Top/Cruise Speed:** 300kph/200kph

**Passengers:** 1-2 (van), 1-8 (bus)

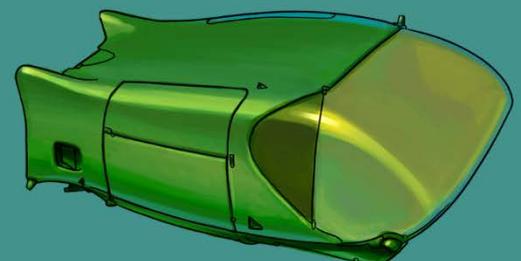
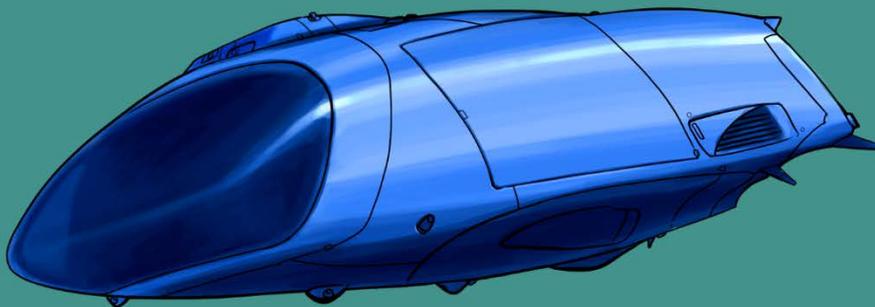
**Cargo Limit:** 1000 kg, 10 cubic meters

**Parabattery:** Type 4

**Structural Points:** 100

Airvans resemble smaller versions of ground and hover transports and are usually used for hauling light cargo. Various versions also exist that act as buses capable of carrying up to 8 passengers, although their cargo limit is reduced to 500kg (5 cubic metres).

## Airvan



## Compact Airvan

IMAGE BY JERRY BOUCHER



It is supplied with a 20-meter long cable that can be attached to its underside, which allows loads of up to 300kg to be carried distances of up to 50km at speeds up to 200kph.

### COMPACT AIRVAN

**Cost:** 30,000 Cr  
(rental – 80 Cr plus 80 Cr/day)  
**Top/Cruise Speed:** 350kph/250kph  
**Passengers** 1-2  
**Cargo Limit:** 500kg, 5 cubic meters  
**Parabattery:** Type 4  
**Structural Points:** 80

Compact airvans are often used in urban areas as delivery vehicles, but can also be found in a wide variety of other roles, especially with utility and security companies.

### AIR RACER

**Cost:** 200,000 Cr  
**Top/Cruise Speed:** 1200kph/600kph  
**Passengers:** 1  
**Cargo Limit:** no available space  
**Parabattery:** 2 x Type 4  
**Structural Points:** 80

Rarely if ever available for private use, the Racer is included here to illustrate the cutting-edge types currently being used at various circuits around the Frontier. As it is a relatively young sport, there is not yet any commonality of form from one design to another aside from interior details set out by the ruling body. Both private and corporate-sponsored teams vie for the coveted Frontier Championship title, and strict rules on budgetary restrictions has helped to keep a level playing field.

### AIRPLAT (AIR PLATFORM)

**Cost:** 80,000 Cr  
(rental – 100 Cr plus 100 Cr/day)  
**Top/Cruise Speed:** 150kph/100kph  
**Passengers:** 1-10  
**Cargo Limit:** 5000 kg, 20 cubic meters  
**Parabattery:** 2 x Type 4  
**Structural Points:** 120

Airplats are essentially a 'no frills' design in which the turbofans, parabatteries and VC are placed within a square or rectangular platform and surrounded by a basic bodywork shell.

Despite being capable of flight, they are usually flown short distances as a kind of prime mover, used most commonly on farms and other large facilities as a means of transporting materiel from one place to another. It is rare to see them at altitudes above 1000m, although they are capable of reaching 2000 metres but only in ideal weather conditions.

The crew cabin (which seats 2) can be open or closed and fold-down seating along the inside of the platform can accommodate another 8 passengers, but these lack any form of cover.

In emergencies, large parachutes can be deployed which are capable of supporting the vehicle and a 5000kg payload. Some passengers and crew choose to wear glijets, although this is not mandatory.

It is supplied with a 30-meter long cable that can be attached to its underside, which allows loads of up to 1000kg to be carried distances of up to 25km at speeds up to 100kph. The cargo area of the platform is usually an open space, although

covered, partially streamlined rigid covers are available and cost 2000 Cr.

### COMPACT AIRPLAT

**Cost:** 45,000 Cr  
(rental – 75 Cr plus 75 Cr/day)  
**Top/Cruise Speed:** 175kph/120kph  
**Passengers:** 1-8  
**Cargo Limit:** 2000 kg, 10 cubic meters  
**Parabattery:** 2 x Type 3  
**Structural Points:** 100

A smaller version of the standard airplat, these are commonly seen at spaceports and similar planetary facilities being used as light transports.

Usually there is only space for a 2-person crew within the covered or uncovered cabin, although if no cargo is being carried there is provision with basic seating for 6 passengers. However, for every 2 passengers not carried 300kg of cargo can be transported instead.

In emergencies, large parachutes can be deployed and these are capable of supporting the vehicle and a 2000kg payload. Some passengers and crew choose to wear glijets, although this is not mandatory.

It is supplied with a 15-meter long cable that can be attached to its underside, which allows loads of up to 500kg to be carried distances of up to 10km at speeds up to 120kph.

The cargo area of the platform is usually an open space, although covered, partially streamlined rigid covers are available and cost 1000 Cr. As with the standard airplat, these vehicles are usually flown at altitudes up to 1000m, although they are capable of reaching 2000 meters but only in ideal conditions.

# ZOOMERS

## A NEW CLASS OF AERIAL VEHICLE FOR STAR FRONTIERS

BY OSCAR RIOS

In a joint venture between Pan Galactic Corporation and Wartech, we present to you today our latest offering: a dual coaxial rotor configuration for atmospheric aerial vehicles - the Zoomer. The Zoomer is proving popular with a wide variety of customers and organizations. Faster than a jetcopter, more agile than an aircar and with most models being able to operate with lower power requirements, Zoomers are creating their own distinct niche in the market.

Zoomers get their name from the sound their engines make as they come up to speed. The vehicle uses a dual-coaxial, ducted-fan, rotor system mounted on the sides of the vehicles. Each one consists of two large nine rotor blade fans, moving in opposite directions, mounted one atop the other in a disk pod. Each engine has a wide range of motion, providing not only vertical lift and hover abilities, but propulsion and outstanding maneuverability. These make Zoomers some of the fastest and nimblest aerial vehicles operating to date.

### STANDARD MODELS

#### DUAL-ROTOR POD (ZOOMER POD)

**Cost:** 30,000 Cr

**Top/Cruise Speed:** 1,200 kph / 500 kph

**Passengers:** 1

**Cargo Limit:** 150 kg, 1.5 Cubic Meters

**Battery:** Type 3 Parabattery

This smallest model of Zoomer has incredible speed and is very cost-effective with a high power-to-weight ratio. Designed for a single pilot, most models have a transparent plexisteel bubble cockpit design, granting the operator an incredible degree of visibility. They are idea for long range patrol, news reporting, reconnaissance, and search and surveillance duties. On some worlds they are also being used for racing.

#### DUAL-ROTOR SCOUT (LIGHT ZOOMER)

**Cost:** 45,000 Cr

**Top/Cruise Speed:** 400 kph / 150 kph

**Passengers:** 1 or 2

**Cargo Limit:** 250 kg, 2.5 cubic meters

**Battery:** Type 3 Parabattery

This model comes in a one- or two-seater cockpit configuration, with the two-seater available in both a side-by-side or tandem layout. Light Zoomers are a step up from the Pod, and lighter, faster, and more maneuverable than a standard Zoomer. They have a lower power-to-weight ratio, allowing for modifications to the standard chassis. They are used for scouting, light ground support, and as general transport.

#### DUAL-ROTOR SUPPORT (STANDARD ZOOMER / ZOOMER GUNSHIP)

**Cost:** 55,000 Cr

**Top/Cruise Speed:** 600 kph / 150 kph

**Passengers:** 8 or 2

**Cargo Limit:** 1,000 kg, 3 cubic meters

**Battery:** Type 4 Parabattery

This standard model of the Zoomer line is proving quite popular with exploration teams, military, and law enforcement units, as well as search and rescue teams everywhere. With a wide chassis able to house up to six passengers, in addition to the pilot and co-pilot, this doubles the room for personnel over both the aircar and jetcopter. It has a high power-to-lift ratio and a modular mounting pod option, giving it a wide array of modification options. It is quickly becoming a favorite with Landfleet and planetary militia forces for use as an air cavalry transport.

It also comes in a two-seater configuration, giving it even more room for modifications. This model of chassis has a lower front-on profile, making it an ideal platform for gunship operations.

#### QUAD-ROTOR LIFT / TRANSPORT (HEAVY ZOOMER LIFT / HEAVY ZOOMER TRANSPORT)

**Cost:** 70,000 Cr

**Top/Cruise Speed:** 350 kph / 75 kph

**Passengers:** 8 / 24

**Cargo Limit:** 15,000 kg, 45 cubic meters  
800 kg, 8 cubic meters

**Battery:** Two type 2 Parabatteries

This large Zoomer has four large rotor pods, giving it outstanding lift capabilities. It comes in two varieties.

The lift configuration allows it to transport up to six passengers in addition to the pilot and co-pilot, as well as 45 cubic meters of cargo. They can be deployed for emergency relief missions to disaster areas, delivering medical supplies, equipment, and teams of doctors. They can also be employed to land a combat squad of six and their vehicles, either one or two ground or hovercars, or a single explorer. This configuration is also used in construction, moving building teams, generators, and building materials to remote locations not accessible by road.

In the transport model, this Zoomer can transport up to twenty-two passengers and their equipment. It is most often used as a troop transport but can be used for rescue and mass evacuations duties. In a few cases this chassis has also be configured as a mobile areal hospital ship, with sixteen beds and facilities for 8 medical personnel.

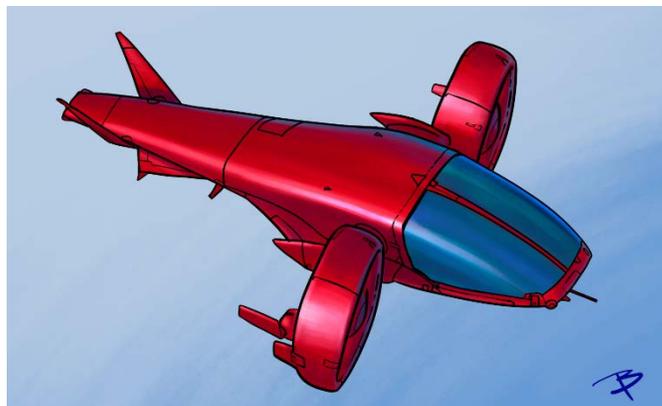


IMAGE BY JERRY BOUCHER

## MILITARY MODELS

Zoomers are often modified for military use. For those with access to the Dragon magazine article *Tanks A Lot!* (issue #99) and *Tanks Again!* (issue #103), below are the specifications for the various models of Zoomer.

For each model, the following characteristics are specified:

**Max Coats/Concealable** – The maximum number of armor coats and maximum number of concealed armor coats

**Cost/Coat:** The cost of each coat of armor and cost of a concealed coat of armor.

**Screen Cost:** The cost of an Albedo or Inertia screen for the vehicle.

**Spaces:** The number of weapon spaces that can be mounted on a vehicle.

**Maximum Turrets:** The number and sizes of turrets that can be mounted on a vehicle.

### DUAL-ROTOR POD (ZOOMER POD)

**Max Coats / Concealable:** 2 / 0

**Cost/Coat:** 2000 cr. / n.a.

**Screen Costs:** n.a.

**Spaces:** 1

**Maximum Turrets:** 1 SM

### DUAL-ROTOR SCOUT (LIGHT ZOOMER)

**Max Coats / Concealable:** 6 / 3

**Cost/Coat:** 4000 cr./6000 cr.

**Screen Costs:** 10,000 cr.

**Spaces:** 4

**Maximum Turrets:** 1 SM

### DUAL-ROTOR SUPPORT (STANDARD ZOOMER)

**Max Coats / Concealable:** 8 / 3

**Cost/Coat:** 4500 cr. / 7,000 cr.

**Screen Costs:** 10,000 cr.

**Spaces:** 6

**Maximum Turrets:** 1 SM

### DUAL-ROTOR SUPPORT (ZOOMER GUNSHIP)

**Max Coats / Concealable:** 15 / 5

**Cost/Coat:** 10,000 cr / 12,000 cr.

**Screen Costs:** 10,000 cr.

**Spaces:** 16

**Maximum Turrets:** 2 SML

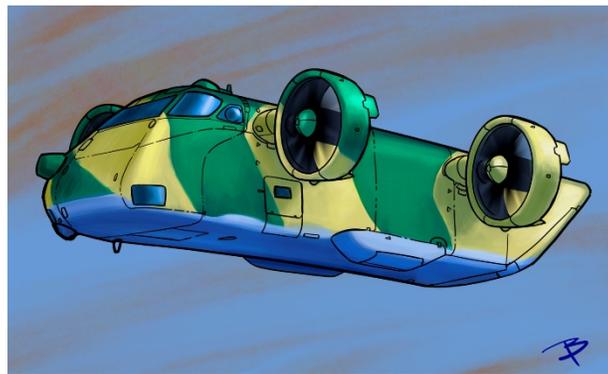


IMAGE BY JERRY BOUCHER

### QUAD-ROTOR LIFT (HEAVY ZOOMER LIFT)

**Max Coats / Concealable:** 12 / 3

**Cost/Coat:** 4000 cr. / 6,000 cr.

**Screen Costs:** 25,000 cr.

**Spaces:** 4

**Maximum Turrets:** 1 SM

### QUAD-ROTOR TRANSPORT (HEAVY ZOOMER TRANSPORT)

**Max Coats / Concealable:** 25 / 5

**Cost/Coat:** 11,000 cr. / 13,000 cr.

**Screen Costs:** 25,000 cr.

**Spaces:** 6

**Maximum Turrets:** 1 SM



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# THE VRUSK HUSTLER

## ARCHETYPES

BY TOM VERREAUULT

With an unparalleled ability to read a mark or victim, the vrusk hustler makes his way by grift, confidence games, and duping the unsuspecting. His comprehension enables him to spot a “tell” or manipulate social situations to his advantage. His crimes are his artform.

## CHARACTER CONCEPTS

### THE CARD SHARP/SHARK

This character uses his comprehension ability to read other players and their “tells”. He is looking to take advantage of less astute beings for financial gain. He may not even be seen as doing anything wrong provided he is not employing cheating methods like false shuffles, false cuts, bottom dealing or second dealing (dealing the second card from the top).

His comprehension ability allows him to maximize his winnings and limit his losses at the card table. Because he has honed his ability to bluff, he can also use his comprehension score to modify attempts at bluffing. He’s stoic and gives nothing away at the table.

*Note: if using the classic Alpha Dawn character rules bluffing is not a skill. Just make a PER ability check and modify by the comprehension score of the vrusk hustler.*

He can usually find a game and has the poise to fit into any social setting. He may be a criminal or a legitimate player, but he always spots who can be fleeced.

### THE CONFIDENCE BUG

This character is a flimflam specialist, a grifter, and a cheat. Whether he plays the long game, as depicted in the movie *Oceans 11*, or the short game like 3 Card Monty or the shell game, he is always looking to con someone. He uses his comprehension ability to identify and exploit characteristics of the psyche like credulity, naivete, compassion, vanity, irresponsibility, and greed. His cons and tricks are at their heart

voluntary exchanges that do not mutually benefit both parties.

If a con or confidence game ever falls apart, he is well able to flee using the greater speed of his species to outdistance most pursuers. For this reason, he likes to travel light.

## DEVELOPMENT

The DEX ability score will be important for sleight of hand maneuvers during confidence games or cheating at cards. Because a referee may call for an INT or intuition check in certain situations vrusk hustler will not want to neglect this stat. The PER ability score will be important to the vrusk hustler while plying his trade and it should not be neglected.

His species (racial) ability of comprehension must be developed beyond its starting level of 15%. As soon as possible the player will want to put at least 10 XP into this ability and raise it to 25% giving his character a 1 in 4 chance of success. For 8 XP more the character will have a 1 in 3 chance of success. Depending on the skill system being used, this is the equivalent of gaining two skill levels.

Under the Alpha Dawn skill system, psycho-social skill will aid the vrusk hustler in manipulating his marks. A level of technician skill will aid in schemes requiring

the disarming of alarms and picking of locks not to mention the ability to operate vehicles for a getaway. The vrusk hustler should also consider gaining a level of martial arts as the subskills defensive throwing and nerve combat could be crucial in escaping a sticky situation. Under the Zebulon’s Guide skill system, bluff skill will greatly enhance the hustler’s capabilities.

## EQUIPMENT

First and foremost, this archetype likes to travel light. When it is necessary to run, you don’t want to be encumbered. Thus, the vrusk hustler avoids carrying a lot of equipment that might trigger the encumbrance rules where he would be slowed to half movement. Owning a technician’s



IMAGE BY AARON O' BRIAN

tool kit could be important but it might not be carried all the time. Civilian style defensive suits that look like normal civilian clothing and won't telegraph that the hustler is ready for action will be worth the investment. A small concealable weapon or a tangler grenade can also come in handy when the heat is on.

When the hustler can afford it, a holoscreen will be a must. Holodisks that change the vrusk's appearance to another vrusk may fool observers using infrared optics into not realizing a holo-screen is in operation whereas a disk that changes the vrusk's appearance to another species or invisible will out him to IR optics. Thus, the vrusk hustler will have several holo disks that radically change his appearance to other vrusk: doctor, pilot, old, fashion model, corporate exec, etc.

Because there will be a chance that law enforcement may try to detain the hustler with subdual weapons, solvaway capsules and the anti-shock implant should also be on the hustler's must have list.

## EDGES AND FLAWS

### FLAMBOYANT ARROGANCE

This is both an Edge and Flaw at the same time.

*Edge:* Once per game session the player may invoke this edge for a +10 bonus to bamboozle an NPC by being so over the top with his lies that no one would believe an intelligent being would say such a thing without it being true. However, if the roll fails there is an automatic angry to hostile reaction by the NPC against the vrusk hustler.

*Flaw:* Sometimes the character believes their own press a little too much and must attempt a con or theft that would be best left untried. Once per session the game master can invoke this flaw. A good time might be when the player is invoking it as an edge. Example: the vrusk hustler is attempting to bluff his way past a security guard with forged papers and invokes flamboyant arrogance for the +10% bonus but the game master also invokes flamboyant arrogance and requires him to pick the guards pocket at the same time.

## OBLIGATIONS TO THE ZENK

*Flaw:* The vrusk mafia, the Zenk, knows who you are and as far as they are concerned you owe them. Once per adventure (not session) but at the game master's discretion, the Zenk will ask the vrusk hustler for a "little favor". Saying no or failing could be deadly or bring about a request for an even greater favor.

*Note: the Zenk were introduced in "Patriots, Terrorists, and Spies- More Frontier Cults for Star Frontiers gaming" by Kim Eastland Dragon Magazine, #109, pg. 80*

## NEW EQUIPMENT

In light of the fact that the vrusk hustler with a technician skill doesn't like to be weighed down by carrying his full tool kit, the following new items are presented to aid this archetype.

### LOCK PICK SET (MECHANICAL)

Purely for mechanical locks which are wide-spread in the Frontier because of their inexpensive nature, the lock pick kit is simply a set of tools for defeating mechanical locks the "old fashioned way". The weight is negligible. There is no bonus for using this item, it simply allows a character to perform his open locks subskill on purely mechanical locks without the benefit of a tool kit.

**Cost:** 20 Cr    **Weight:** n/a

### LOCKSMITH TOOL KIT

This item is not one that a vrusk hustler with technician skill would carry around but one that he would consider owning. It contains all the tools a locksmith would use to defeat a lock and create a mechanical key, card key, or baton key. It includes fine tools, a lock scanner, a mini key cutter, and encoding station for card and baton keys as well as key blanks of multiple types. The tool kit requires technician skill to use.

**Cost:** 500 Cr    **Weight:** 10 kg

### THE JERICHO DEVICE

Named for an ancient legend about walls coming down, the Jericho device is illegal on many worlds but is readily available from black market outlets and sometimes the Capellan Free Merchants.

Think of it as a hi-tech lock pick that works in less than 1 combat round. Its circuitry includes a lock scanner and weak-inertia wave field probes (for mechanical locks) and the circuitry to disable electronic locks.

These devices are sometimes disguised as other items like a file (tablet) or laptop computer. At a minimum it is the size of a file computer (Zebulon's Guide). There are 3 types: Common, Rare, and Extremely Rare. The common type carries a +5% bonus to lock picking actions. The rare type carries a +10% bonus to lock picking actions. The extremely rare type carries a +15% bonus to lock picking actions.

*Alternate rule:* if the character using this fails at their skill check but not by more than 10% the referee can simply rule that the skill check is not a failure just that the character has not succeeded this turn and may take another consecutive turn with a second skill roll. The net result is that it is one skill attempt but takes twice as long.

**Cost:**

**Common:** 250 Cr

**Rare:** 500 to 750 Cr

**Extremely Rare:** 1000 to 1500 Cr

**Weight:** 1 kg

## GENERIC SLEIGHT OF HAND AND/OR MAGIC PROP

There are host of items designed to deceive: loaded dice, specialty decks (Svengali decks), double walled bags, etc., that may be employed by the vrusk hustler that would normally be the province of a magician.

**Cost:** 5 to 25 Cr

**Weight:** n/a

## MASTER CRAFTED POOL CUE OR SIMILAR GAMING IMPLEMENT

When a hustler goes in for table type gaming like humanity's game of pool, he generally will splurge for the best pool stick or similar gaming implement he can afford. Good quality carries a 5% bonus, Better quality carries a 10% bonus, and the best quality carries a 15% bonus.

**Cost:**

**Good quality:** 250 Cr

**Better quality:** 500 Cr

**Best quality:** 1d10 X 1,000 Cr

**Weight:** 1 kg (with case)

# RADIATION HAZARDS IN THE FRONTIER – PART 1

BY JOSEPH CABADAS

As a technologically advanced society, radiological materials can be found in many places on the Frontier including the atomic drives of starships. Even ships with ion engines emit radiation in the form of highly charged particles of photons and electrons.

Part one of this series will look at radiation sickness and treatment methods. Part two will provide information about protections available against radiation, its effects on equipment and other sources.

Radiation plays a role in at least two of the original Star Frontiers modules including “Bugs in the System” and “Mission to Alcazzar.” However, the actual game mechanic of handling radiation exposure and the possibilities of radiation sickness and death were left largely unexplored.

In the Alcazzar module, when players encounter such a hazard, the referee is instructed to tell them that characters entering the affected area *“immediately take 5 points of damage and begin to feel dizzy. If they leave the building immediately, they suffer no further damage. Characters who do not leave immediately take another 5 points of damage... After they lose 25 Stamina points, they become horribly nauseated... damage continues to accumulate until they die.”*

*“Radiation damage cannot be healed during this adventure,” the module states. “Thus, points lost in this encounter have the effect of permanently lowering the Stamina of the characters involved.”*

Ship’s engineers are equipped with an inssuit, which safeguards them against radiation exposure, as part of their standard tool kit. However, exactly how much protection this suit provides is left undefined. One could assume it provides sufficient shielding for routine engine overhaul maintenance.

Zebulon’s Guide included yet another wonder drug called Neutrad. This injectable medication is used for treating radiation exposure. Zeb’s noted: *“Radiation poisoning is most commonly caused by nuclear battery or plant leakage or by a character being exposed to ancient nuclear weapons or their residue in nuked areas.”*

However, there are many other ways characters could be exposed to radiation. During ship combat, disruptor cannons, proton and electron beams and the nuclear-armed torpedo are other sources of radiation exposure.

Not only should ship engineers be equipped with an inssuit, but other crew members should wear similar gear to shield them from radiation poisoning.<sup>1</sup>

## TYPES OF RADIATION

In terms of radiation in relation to character health, two forms of radiation can be considered: non-ionizing radiation (low-energy radiation) and ionizing radiation (high-energy radiation).

Examples of non-ionizing radiation include visible light, microwaves, ultraviolet (UV) radiation, infrared radiation, radio waves, radar waves, chronocom signals and wireless computer connections. The main source of non-ionizing radiation that can affect health is UV-radiation. High levels of UV-radiation can cause sunburn and increase the risk of someone developing skin cancer.

Ionizing radiation is more likely to damage tissue than non-ionizing radiation.

The main source of exposure to ionizing radiation occurs during medical exams when X-ray or computed tomography scans are made. The amounts of radiation used in medical procedures are so small that the risk of damage is minimal.

Even when radiotherapy is used to treat cancer, the quantity of ionizing radiation used is so carefully controlled that the risk of problems associated with exposure is tiny.<sup>2</sup>

## ALPHA RAYS

Produced by fission and the decay of certain materials, the alpha particle consists of two protons and two neutrons; fast-moving, it is the equivalent of the nucleus of a Helium atom. It causes damage through electrostatic changes because it has a positive charge. Although it does not penetrate the outer layers of the skin, if inhaled it can damage the lungs.

## BETA RAYS

This type of radiation consists of free electrons that usually form a field around certain materials or high-voltage power lines. Much lighter than an alpha particle, beta rays can cause surface burns to skin tissue. It can travel a longer distance than an alpha particle before losing energy.

## GAMMA RAYS

This is a photonic (light) radiation and includes ultraviolet (UV), X-ray, and higher energy rays. The various energy levels cause varying degrees of burn damage and have variable penetrating power. For example, UV has very low penetrating power and may produce surface burn damage to skin tissues, X-ray travels readily through tissues, yet N-16 gamma radiation is severely damaging to tissues but has very short (7.1 seconds) half-life.



IMAGE BY TOM VERREULT

<sup>1</sup>Verreault, Tom (jedion357). “Radiation sickness on the Frontier,” Star Frontiersman magazine, issue 17, pp. 28-29.

<sup>2</sup> Mandal, Dr. Ananya. “What is Radiation Exposure?” <http://www.news-medical.net/health/What-is-Radiation-Exposure.aspx>. Also, some of the information for this section comes from David Close and

Lisa Ledwidge, “Measuring Radiation: Terminology and Units,” <https://leer.org/topic/classroom/>

## NEUTRON RAYS

Neutron rays are very fast-moving particles with no electrical charge. They can damage issues because of a “billiard ball” type of action that occurs when it strikes hydrogen atoms – such as water – within tissues. It will break water molecules (H<sub>2</sub>O) into OH<sup>-</sup> and H<sup>+</sup>. This effect causes various chemical and electrostatic changes at the lowest level of chemistry within the body.

Nuclear fission produces large quantities of neutron radiation. Water shielding and lead shielding is often used to block neutron rays while hafnium (a shiny, silver ductile metal) readily absorbs free neutrons.

## COSMIC RAYS

Produced by supernovas and possibly other interstellar sources, cosmic rays are high energy radiation composed of atom fragments such as protons, electrons, and atomic nuclei. Major habitable planets (Earth-like) generally have atmospheres and magnetic fields that shield the surface from any adverse effects of this radiation. In space around a star system, unshielded travelers may receive an exposure of 2.6 millisieverts per day. Fortunately, Frontier spaceships and space suits (also called vacc suits) provide enough protection where this threat to health is negligible.

In nature or a nuclear accident, rarely is radiation pure enough that it can be easily categorized into alpha, beta, gamma, or neutron rays. Often radiation is encountered in a mixed state – that is, alpha, beta, gamma and neutron radiation are all emitted to some degree.<sup>3</sup>

## HANDLING RADIATION EXPOSURE

In an effort to create a workable set of rules for Star Frontiers for dealing with radiation exposure and radiation sickness, the game “Twilight 2000” by Game

Designers Workshop (GDW) offers some inspiration. Radiation exposure in that game is measured in rads (radiation absorbed dose), which means that 1 gram of material absorbed 100 ergs of energy.<sup>4</sup>

Some terms for measuring radiation include:

- **Rem** (Roentgen equivalent man) is a unit of ionizing radiation equal to the amount that produces the same damage to humans as one roentgen of high-voltage x-rays. The name is derived from Wilhelm Roentgen who discovered ionizing radiation in 1895 at about the same time that Pierre and Marie Curie discovered radium. Although roughly equivalent to 1 rad, the rem takes into account the “quality factor” of the radiation because, for example, a 1 rad exposure to X-rays is less damaging than a 1 rad exposure to neutrons.
- The **Sievert** (Sv) is equivalent to 100 rem (100 rad). It is a measurement system that looks at the biological effects of radiation.
- **Gray** (Gy) is a unit of absorbed radiation that is equivalent to 100 rad.
- And the **Curie** (Ci) is a unit of radioactivity equal to one gram of pure radium-226.

The information above provides a simplified explanation and is not an exhaustive list. Other radiation measuring standards include the Becquerel and “Disintegrations per second,” which looks at the number of subatomic particles released from the nucleus of a given atom over one second.

Using the rad is actually an “old school” way of measuring radiation, but for game purposes this will be the standard used on the Frontier.

Twilight 2000’s rules for dealing with radiation note: *Exposure to lower levels of radiation will produce temporary illness, while higher levels can kill. All exposure is cumulative.*

*When a character’s accumulated rads reach or surpass 50, he must be checked for radiation illness. Thereafter, each time the*

*character accumulates one or more rads he must be checked for radiation illness. However, the character is checked for radiation illness only once per day, on each day that he accumulates additional rads.*

All Star Frontiers player character races are treated fairly equally when it comes to dealing with poisons, sickness, damage from weapons, etc. This rule is in effect for dealing with radiation exposure/illness, though the symptoms may vary according to each species’ biology.

Assume that most Frontier races only receive 300 millirems (each millirem is equal to 1/1,000th of a Rem) per year as normal background radiation. There are no detectable injuries or chance of illness from such exposures. Those working in and around radioactive sources – power plant workers, ship engineers, starship engine construction workers – should be exposed to no more than 5,000 millirems (5 rads) maximum per year. This is an accumulated exposure rate. Most Frontier workers would be wearing protective gear and should not reach this level.

Pirates, criminals, Sathar agents, more primitive races and the like probably do not show the same concern about radiation exposure to “expendable” slave laborers. Such workers will not receive the best – if any – protection from radiation exposure. If a player character were to become a prisoner in some pirate uranium mine, their only hope for long-term survival is a quick rescue or escape.

## RADIATION EXPOSURE CHART

In addition to keeping track of a character’s Stamina (STA), players would need to record the amount of rads that their characters accumulate during a campaign.

The Radiation Exposure Chart provides the multipliers used to determine the chances of a character falling ill or the risks of death from an exposure to radiation. The referee uses the rad level on the chart that is closest to – but not exceeding – the character’s accumulated rad level. For example, a character with a rad level of 62 or

<sup>3</sup> Chang, Andrew L. “Forum: Radiation,” [www.starfrontiers.us/node/3093](http://www.starfrontiers.us/node/3093), 15 Sept. 2008.

<sup>4</sup> Close, David and Lisa Ledwidge. “Measuring Radiation: Terminology and Units,” Science for

Democratic Action, Vol. 8, No. 4. This information was reposted on the website <https://ieer.org>; and “Rad (Radiation Absorbed Dose),” U.S. Nuclear Regulatory Agency, <https://www.nrc.gov/reading->

[rm/basic-ref/glossary/radradiation-absorbed-dose.html](https://www.nrc.gov/reading-rm/basic-ref/glossary/radradiation-absorbed-dose.html).

## RADIATION EXPOSURE CHART

RADS	MILD ILLNESS	SERIOUS ILLNESS	DEATH
50	1.9	--	--
75	1.7	--	--
100	1.5	1.9	--
200	0.75	1.7	2.0
300	0.5	1.5	1.9
400	0.25	0.5	1.5
600	0	0.25	0.5
800	0	0	0.25
900	0	0	0

even 74 would use the 50 Rads line while a character who has accumulated 802 rads would use the 800 Rads line. The dash (--) on the chart means that the effect does not apply at that rad level.

To use this chart, multiply the character's current Stamina score by the multiplier to determine his percentage chance of avoiding the effect. Possible effects are checked for in the following order – death, serious illness and mild illness.

The referee rolls a d100; if the number is equal to or less than the percentage chance, the character avoids the effect. Otherwise, he is affected. A multiplier of zero (0) such as on the 800 rad line means that the character cannot avoid that effect, which in this case would definitely mean a serious illness with a very high likelihood of death unless the character can receive some form of advanced medical treatment.

The referee checks for radiation illness for any characters that are exposed to radiation, but does not inform the player of the result. Instead, the referee should tell the player what symptoms the character begins to exhibit as they occur.<sup>5</sup>

<sup>5</sup> Adapted from "Radiation Sickness on the Frontier," by Verreault (jedion357); the "Gamma Dawn"

*For example, Thallera is a Yazarian technician who is exploring an abandoned building. She is unaware that there is a leaking nuclear battery in a nearby storage room. She is exposed to a dosage of 289 rads of radiation*

*during the encounter before she realizes the danger.*

*The referee would then check the 100 Rads line. Thallera has 40 Stamina points. There is no chance of death, but she has a 76 percent chance to avoid serious illness (40 STA x 1.9 = 76). The referee rolls a 49 and the character avoids that side effect, but then he has to go to the Mild Illness column. Here the character has a 60 percent chance to avoid mild radiation sickness.*

*This time, the referee rolls a 62 and will need to consult the Mild Radiation Sickness Table to determine how ill Thallera will get. In some instances, there is still a chance of death.*

## RADIATION SICKNESS

For game purposes, radiation poisoning is handled similarly to other poisons. For example, a radiation sickness result of S10/R20 would mean that the character suffers a 10 percent penalty (-10%) to all skill and ability checks for 20 days. The first number after the "S" indicates the intensity of the radiation and the ability/skill penalty the character suffers. The "R" followed by the number represents the duration of the radiation sickness in days. If the formula is followed by an asterisk ("\*"), the character must make a current Stamina check to avoid death at the end of the duration. An exclamation point ("!") means that the character will die after the end of the duration.<sup>6</sup>

For example, an exposure of S20/R15+3d10! would mean that the character suffers a -20 percent penalty to all ability and skill checks for duration of 18-45 days and will then die. An exposure of S50/R0! would indicate that a character received such a lethal dose of radiation that they would eventually suffer from a -50 percent penalty for all ability checks and would die within the day. Note: the symptoms of radiation sickness begin manifesting over a period of minutes to hours, with the condition worsening as time passes.

If any ability statistic, other than Stamina, drops below 0, the character would fall unconscious; he would lose 1 point in that ability permanently per day of unconsciousness. So, if a character started with a Dexterity score of 40, but went unconscious for 10 days, when he awakens his new DEX score would be 30.

If Stamina drops below zero, the character is considered dead and would lose 1 point of Stamina per turn until reaching minus 30 STA at which point freeze fields, surgery, etc. would not work to revive the character.

## MILD RADIATION ILLNESS

Use the Mild Radiation Sickness Table if the Radiation Exposure Chart indicates that a character would suffer from mild radiation poisoning. Apply any modifiers to the roll and see what illness the character contracts.

### MILD RADIATION SICKNESS TABLE

ROLL (2D10)	INITIAL EFFECTS	DEATH	NEUTRAD TREATMENT
0-3	No detectable symptoms or injury.	No	None required.
4-7	S5/R1. Onset: 3-6 hours.	No	Cured instantly.
8-10	S5/R2. Onset: 3-6 hours.	No.	Cured instantly.
11-12	S5/R10. Onset: 3-6 hours. Latent: 5%.	No	Cured instantly.
13-14	S10/R2. Onset: 3-6 hours. Latent: 10%.	No	Cured instantly.
15-16	S10/R5. Onset: 3-6 hours. Latent: 5%.	No.	Cured instantly.
17-18	S10/R5+1d10. Onset: 1-6 hours. Latent: 10%.	No	Reduce to S5/R5.
19-20	S10/R5+2d10. Onset: 1-6 hours. Latent: 10%.	No	Reduce to S5/R10.
21+	Consult Serious Radiation Illness Table.	N/A	N/A

<sup>5</sup> The following information comes from a 2008 forum discussion on Radiation on the starfrontiers.us website with contributions from the following users: SmootRK, Tom Stephens (TerlObar),

Aramis, Umungus, Rum Rogue, and FuMan Chu. [www.starfrontiers.us/node/3093](http://www.starfrontiers.us/node/3093). In this case, the verbiage is modified from the Twilight 2000 first edition rules.

<sup>6</sup> Adapted from "Radiation Sickness on the Frontier," by Verreault (jedion357); the "Gamma Dawn" rules plus other sources including a discussion on Radiation, [www.starfrontiers.us/node/3093](http://www.starfrontiers.us/node/3093).

## SERIOUS RADIATION SICKNESS TABLE

ROLL (2D10)	INITIAL EFFECTS	DEATH	NEUTRAD TREATMENT
0-3	S15/R2+1d10. Onset: 1-3 hours. Latent: 5%.	No.	Cured instantly.
4-7	S15/R5+1d10. Onset: 1-3 hours. Death: STA +10%. Latent: 10%.	STA +10%	Cured instantly.
8-10	S20/R10. Onset: 1-3 hours. Latent: 10%.	No	Cured instantly.
11-12	S20/R10+1d10. Onset: 1-3 hours. Latent: 15%.	No	Cured instantly.
13-14	S20/R15+2d10*. Onset: 1-3 hours. Latent: 15%	No	Reduce to S5/R10.
15-16	S25/R20. Onset: 1-3 hours. Death: STA check. Latent: 20%.	STA	Reduce to S10/R10. Latent: 5%
17-18	S25/R20+1d10*. Onset: 1-3 hours. Death: STA check. Latent: 20%.	STA	Reduce to S10/R20*. Death: STA +10%. Latent: 10%.
19-20	S30/R10+2d10*. Onset: 1-3 hours. Death: STA check. Latent 25%.	STA	Reduce to S10/R20*. Death: STA. Latent: 5%
21+	Consult Lethal Radiation Dosage Table.	N/A	N/A

## SERIOUS RADIATION ILLNESS

Use the Serious Radiation Sickness Table if a serious illness was rolled. Apply any appropriate modifiers to the roll.

A character that suffers from a serious illness is often incapacitated, requiring medical care similar to those who have suffered from major wounds. The sickness tables provide some guidelines on how to handle radiation exposure levels, the initial effects, whether there is a chance of death and the effects of Neutrad in treating radiation poisoning.

In some cases, the player may need to roll a current Stamina check for their character to avoid death, sometimes with a modifier. If the character is being treated in a hospital, they receive an additional +20 percent modifier to avoid death.

## LETHAL RADIATION DOSAGE

This column indicates that the character has received a lethal dose of radiation. He will undergo worsening symptoms of radiation poisoning that will lead to death, which sometimes could be within minutes to days, weeks or even months. Much of

this will depend upon the number of rads the character has accumulated. Use the Lethal Radiation Dosage Table to see how severe the illness is and whether or not the character can make a current Stamina check to avoid death.

## TABLE RESULT DETAILS

### ONSET

This refers to the period of time before a character begins to exhibit symptoms of radiation poisoning. Assume that a character's condition will normally worsen over the course of hours rather than the full effect of the radiation poisoning hitting all at once. See "Effects and Symptoms of Radiation Sickness by Race" for more information.

For example, a character suffering from an S20/R30\* sickness would suffer the onset of symptoms such as headaches and nausea after about 1 to 2 hours and the referee could impose an initial -5 percent penalty for ability and skill rolls, but an hour later, the symptoms would worsen and the ability and skill penalties increase to -10 percent, etc. This would keep the player guessing as to just how bad an illness the character has unless properly diagnosed.

### LATENT

A character suffering from radiation sickness can later develop other health problems, including cancer, as a result. If a player or referee rolls the indicated number or less, consult the Latent (Long-term) Effects subsection.

### NEUTRAD TREATMENT

Neutrad treatments are only 100 percent effective if used within the first five days of radiation sickness; if used after the sickness has run its course; it has no effect and will not revive a dead character.

If Neutrad is used on a patient who is suffering from radiation sickness, but it is after the first five days, the Medtech suffers a penalty when rolling to successfully treat the character. The penalty is a -5 percent modifier per day after the fifth day. For example, "Doc" Umungus injects Neutrad into a Dralasite who has been suffering from radiation poisoning (S10/R10). The patient has been suffering for six days,

## LETHAL RADIATION DOSAGE TABLE

ROLL (2D10)	INITIAL EFFECTS	DEATH	NEUTRAD TREATMENT
0-3	S10/R2*. Onset: 1-3 hours. Death: STA check. Latent: 20%.	STA	Reduce to S5/R2. Latent: 5%.
4-7	S15/R20*. Onset: 1-3 hours. Death: STA check. Latent: 20%.	STA	Reduce to S10/R10. Latent: 5%.
8-10	S20/R15+1d10*. Onset: 1-2 hours. Death: STA check. Latent: 25%.	STA	Reduce to S15/R15. Latent: 10%.
11-12	S20/R30*. Onset: 30 min. -2 hours. Death: STA check. Latent: 25%.	STA	Reduce to S15/R15*. Death: STA check. Latent: 15%.
13-14	S20/R15+3d10! Onset: 30 min. -2 hours. Death.	Yes	Reduce to S15/R15*. Death: STA check. Latent: 15%.
15-16	S30/R10! Onset: 15-30 min. Death.	Yes	Reduce to S20/R5*. Death: STA check. Latent: 20%.
17-18	S40/R1+1d10! Onset: 10-20 min. Death.	Yes	Reduce to S20/R5+3d10*. Latent 30%.
19-20	S50/R0+1d5! Onset: 5-10 min. Death.	Yes	Reduce to S30/R1d5*. Latent: 50%.
21+	S90/R0! Onset: 0-10 min. Death.	Yes	Reduce to S40/R1d10! Death.

so Umungus gets a -5 percent penalty to his skill check.<sup>7</sup> See the Radiation Treatments subsection for more information.

## MODIFIERS TO THE RADIATION SICKNESS CHART

Although the Radiation Exposure Table provides some general guidelines, the referee may want to take into account the fact that there are different types of radiation including gamma, beta, neutron, and alpha rays. Different types of shielding and even Star Frontiers power screens will provide various levels of protection in addition to an insuit.<sup>8</sup>

- **Low Level Radiation.** Anything above normal background radiation but below 10 rads per hour.
- **Medium Level Radiation.** Radiation between 11 and 99 rads per hour.
- **Severe Level Radiation.** Radiation between 100 and 199 rads per hour.
- **Extreme Level Radiation.** Radiation levels above 200 rads per hour.
- **Brief Exposure.** For game purposes, a brief exposure to radiation can be defined as a period of time measured in combat turns to minutes. Obviously, a brief exposure to low levels of radiation is less harmful to a character than a medium, severe, or extreme level of radiation.
- **Moderate Exposure.** This can be considered as exposure to radiation over a period of minutes to hours or even a day. Exposure to low levels of radiation is less harmful than to higher levels.
- **Prolonged Exposure.** Contact with radioactive substances over an extended period of time ranging from more than a day to weeks, months or even years. One example would be exposure to radon – this is a naturally occurring gas that is odorless and invisible. Radon emits alpha radiation and is known to contribute to the development of lung cancer in people who have been exposed to elevated levels over a lifetime. Often, radon is measured in picocuries; a picocurie is one trillionth of a curie.<sup>9</sup>

- **Acute Exposure.** A brief yet very intense exposure to radiation. This may be considered to be much more harmful to a character – or, at least, brings out radiation sickness and death much more quickly than a brief or moderate exposure.
- **Wounds, Poisoning, Etc.** A character who is already suffering from serious wounds, disease, poisoning from a toxin, and other maladies is much more susceptible to radiation illness.
- **Single Dose of 100-499 rad/500+ rad.** An intense burst of high levels of radiation causes more damage to a character immediately.
- **Intense Neutron/Gamma Radiation.** A character receives an intense burst of neutron and/or gamma radiation, which potentially causes more damage.
- **Anti-Rad Implant.** This implant helps the character’s resilience to radiation exposure.
- **Anarad Treatment.** A radioprotectant drug that a character must take prior to radiation exposure.

## REAL WORLD RADIATION EXPOSURE EXAMPLES

While the game rules try to reflect reality, here are some actual examples of what can happen to a person who suffers from acute radiation exposure, including:

- **0-25 Rad:** No observable effect.
- **25-100 Rad:** Slight blood changes.
- **100-200 Rad:** Significant reduction in blood platelets and white blood cells (temporary).
- **100 Rad:** A single dose can cause radiation sickness, but not death.
- **200-500 Rad:** Severe blood damage, nausea, hair loss, hemorrhage, death in many cases.
- **400 Rad:** Sufficient to wipe out a Human’s immune system. About 50 percent of victims die within a few days from infections, though this condition can be successfully treated with medicines.

RADIATION SICKNESS MODIFIERS	
CONDITION	MODIFIER
Low Level Radiation	-2
Medium Level Radiation	0
Severe Level Radiation	+2
Extreme Level Radiation	+4
Brief Exposure	-2
Moderate Exposure	0
Prolonged Exposure	+2
Acute Exposure	+3
Previous Mild Radiation Illness	+2
Previous Serious Radiation Illness	+4
Currently Suffering Rad. Illness	+5
Hospital Treatment	-4
Wounded (not incapacitated)	+1
Wounded (incapacitated)	+2
Character suffering from poisoning	+2
Character suffering from disease	+2
Character suffering from infestation	+2
Character malnourished	+4
Character subjected to intense neutron radiation	+4
Character subjected to intense gamma radiation	+4
For each single dose of 100-499 rad	+1
Pre-treated with Anarad-5 or -10	-1
For a single dose of 500+ rad	+2
Pre-treated with Anarad-20	-2
Anti-Rad Implant	-1

- **500 Rad:** A single dose can kill half of those exposed to it within a month.
- **More than 600 Rad:** Death in less than two months for over 80 percent of cases; this was the typical exposure of a Chernobyl worker who died within a month.
- **800 Rad:** If this is total body irradiation in a short time, causes the sloughing off of the mucosal throughout the gastrointestinal tract within a few days. Victims

<sup>7</sup> Note: this is a House Rule, much like most of the rules in this section. Zebulon’s Guide provides no guidance on how effective Neutrad is when treating a character with radiation poisoning.

<sup>8</sup> The following information comes from a 2008 forum discussion on Radiation on the starfrontiers.us website. [www.starfrontiers.us/node/3093](http://www.starfrontiers.us/node/3093).

<sup>9</sup> “Health Risk of Radon,” United States Environmental Protection Agency, <https://www.epa.gov/radon/health-risk-radon>.

suffer severe fluid and blood loss (bloody diarrhea) and die.

- **1,000 Rad:** Fatal within weeks
- **1,200 Rad:** Total body irradiation at this level causes brain swelling within a few hours. The victim will get bad headaches, go unconscious and then die.<sup>10</sup>

Other sources note that the human body can absorb up to 200 rad without fatal consequences. A dose of 450 rad is fatal in about half the cases while more than 600 rad is almost always fatal. A person can absorb and survive many thousands of rads if they are administered carefully in controlled doses over a long period of time.

Exposure to radiation can occur by inhalation, ingestion, or direct contact, according to an article on Doctor-Clinic.Org. The existence and severity of tissue damage depends on the amount of body area exposed (the smaller the better), length of exposure, dosage absorbed, distance from the source and the presence of protective shielding.<sup>11</sup>

## EFFECTS AND SYMPTOMS OF RADIATION SICKNESS BY RACE<sup>12</sup>

The following table provides lists of radiation sickness symptoms by race purely to provide some flavor for the purposes of roleplaying characters with these conditions. Symptoms that are indicative of a serious illness are designated with a (S) before the description. The tables also provide optional racial effects. Again, these symptoms and effects are largely here for variation rather than trying to be balanced or fair.

### INITIAL SIGNS AND SYMPTOMS

The initial signs and symptoms of treatable radiation sickness in Humans are usually nausea and vomiting. The amount of time between exposure and when these symptoms develop is an indicator of how much radiation a person has absorbed. After the first round of symptoms, a character with serious radiation sickness may

<sup>10</sup> "Radiation Exposure Examples," Georgia State University. <http://hyperphysics.phy-astr.gsu.edu/hbase/NucEne/radexp.html>; and "Radiation exposure: How does it compare?" Radiologyinfo.org

SIGNS AND SYMPTOMS OF RADIATION SICKNESS	
WITH HUMANS	
Headache	Nausea and vomiting
Fever	Weakness, fatigue
(S) Bloody stool	(S) Bleeding from nose, mouth, gums, and rectum
(S) Bruising	(S) Dehydration
(S) Diarrhea	(S) Fainting
(S) Hair loss	(S) Inflammation of exposed areas – redness, tenderness, swelling and bleeding
(S) Mouth ulcers	(S) Open sores on the skin
(S) Sloughing of skin	(S) Ulcers in the esophagus, stomach or intestines
(S) Vomiting blood	
WITH DRALASITES	
Bruising	(S) Skin burns – redness, blistering
Fatigue	(S) Inflammation of exposed areas – redness, tenderness, swelling and bleeding
Dehydration	(S) Optional: Extra -5% penalty when sickness results from fallout
(S) Weakness	(S) Increased time it takes to form a limb -- usually double the normal amount
(S) Sloughing of skin	
WITH VRUSK	
Changes in carapace color	Dehydration
Fatigue	(S) Pre-mature shedding of carapace
(S) Fainting	(S) Ulcers on mandibles, antennae and/or anus
(S) Weakness	<i>Optional: decrease non-fatal duration by one-fourth</i>
WITH YAZARIANS	
Bruising	Nausea
Weakness/Fatigue	(S) Bleeding from nose, mouth, gums and rectum
(S) Bloody stool	(S) Dehydration
(S) Diarrhea	(S) Fainting
(S) Hair loss	(S) Inflammation of exposed areas – redness, tenderness, swelling, bleeding
(S) Mouth ulcers	(S) Nausea and vomiting
(S) Open sores on skin	(S) Skin burns – redness, blistering
(S) Sloughing of skin	(S) Ulcers in the esophagus, stomach or intestines
(S) Vomiting blood	<i>Optional: Temporary loss of Battle Rage and too weak to glide if S10+</i>
WITH SATHAROIDS (SATHAR AND S'SESSU)	
Deep bruising	Dehydration – loss of protective slime, reduce movement rates by half
Fatigue	Inflammation of exposed areas – cracked skin, redness, tenderness, swelling
Weakness	(S) Bleeding from skin
(S) Double vision	(S) Development of physical mutations – i.e permanent blistering look to skin
<i>Optional: Exposure to radiation can cause mutagenic changes. Referee may introduce mental or physical changes to satharoid characteristics</i>	

<sup>11</sup> "Radiation Exposure," DoctorClinic.Org, [www.doctor-clinic.org/injuries/radiation-exposure.html](http://www.doctor-clinic.org/injuries/radiation-exposure.html); also from the "Radiation" discussion on starfrontiers.us. The radiation figures here have been translated from Rems and Grays to rads.

<sup>12</sup> Verreault, "Radiation Sickness," Star Frontiersman Magazine.

## SIGNS AND SYMPTOMS OF RADIATION SICKNESS (CONT.)

### WITH HUMMA

Bruising	Dehydration
Fainting	Weakness/Fatigue
(S) Hair Loss	(S) Inflammation of exposed areas – redness, tenderness, swelling, bleeding
(S) Mouth ulcers	(S) Open sores on skin
(S) Sloughing of skin	(S) Skin burns – redness, blistering

*Optional: Serious radiation sickness causes sex change from female to male or male to neuter*

### WITH OSAKAR

Bruising	Dehydration
Intermittent audio hallucinations	Nausea and vomiting
Weakness, Fatigue	(S) Fainting
(S) Mouth ulcers	(S) Inflammation of exposed areas – redness, tenderness, swelling, bleeding
(S) Open sores on skin	(S) Religious experiences

*Optional: All penalties reduced by -5 due to natural resistance to radiation; +10% STA check to avoid death*

### WITH IFSHNIT

Bruising	Inflammation of exposed areas – redness, tenderness, swelling, bleeding
Nausea and vomiting	Weakness, Fatigue
(S) Bloody stool	(S) Bleeding from nose, mouth, gums and rectum
(S) Dehydration	(S) Diarrhea
(S) Fainting	(S) Hair loss
(S) Mouth ulcers	(S) Skin burns – redness, blistering
(S) Open sores on skin	(S) Ulcers in esophagus, stomach or intestines

*Optional: All penalties increased by +5 due to low mass*

have a brief period with no apparent illness, followed by the onset of new, more serious symptoms. In general, the greater your radiation exposure, the more rapid and more severe your symptoms will be.<sup>13</sup>

## LATENT (LONG-TERM) EFFECTS

Most radiation damage is much like burn injuries, but it also harms molecular structures (like DNA or essential proteins within a cell). This sort of damage is more difficult to quantify. Latent (long-term) effects include sterility, prolonged illness and fatigue, premature childbirths, permanent loss of hair, internal and/or external bleeding, cell death in certain tissues, and various forms of cancer.

For those wishing to delve into the fanciful idea of how radiation can cause mutations in Gamma World® style, you may try

to obtain a copy of “Gamma Dawn.” This is a compilation of fan-based rules that was edited by Bill Logan and posted on places such as the Star Frontiersman magazine website. These rules were created by an unknown author and eventually posted on RPG.NET. Logan removed “obscurities and references to house rules” and “stripped it of all things ‘Zebulon’s Guide.’”

This compilation of Alpha Dawn/Zebulon’s Guide rules will not attempt to duplicate Logan’s work.

The long-term effects of radiation sickness can be a plot device for later adventures.

*For example, Garlus Tylappar is a crusty, old spacer who for 20 years has been the master of the space freighter Gullwind. Over the years he has been exposed to high levels of radiation on more than one occasion and*

*suffered from radiation sickness. Though treated several times, the damage done to his body has resulted in him coming down with a malignant form of cancer that cannot be treated.*

## OTHER TREATMENTS FOR RADIATION SICKNESS

Neutrad is not the be-all and end-all treatment for radiation poisoning in the Frontier. Other treatments include the Neutrad Supplement; Anarad drugs, which provide some resistance to radiation; Neu-TreX and Rad-TreX, which are both chemical solution treatments that bond with radiation particles and allow them to pass through a character’s system. Advanced Frontier planets also have nano-tech treatments, using nanites to correct sub-cellular damage that is caused by radiation.<sup>14</sup>

The effectiveness of these treatments depends upon how soon they are administered relative to when the character was exposed to radiation.

### NEUTRAD SUPPLEMENT

These pills are to be taken daily while a character is suffering from radiation sickness. It will reduce the intensity of the radiation contamination by 5 points for that day; intensity is the number after the “S.” Taking multiple pills has no effect other than to induce vomiting. These pills do not require medical training to administer and are available on most worlds.

**Cost:** 20 Credits for 10 tablets.

**Weight:** --<sup>15</sup>

### ANARAD-5, -10, -20

Anarad is the name for an exotic drug that lessens radiation damage to a degree. A “radioprotectant,” Anarad must be taken by a character *before* he is exposed to radiation. It works by scavenging up free radicals that are created when cellular matter is irradiated and water molecules are broken up; it also helps with DNA repair.

Anarad-5 (A-5) protects a character up to 5 rad per hour; Anarad-10 (A-10), up to 10 rad per hour; and Anarad-20 (A-20), up to 20 rad per hour. The drug can only be administered once during a 20-hour

<sup>13</sup> “Radiation Sickness,” Mayo Clinic, <https://www.mayoclinic.org/diseases-conditions/radiation-sickness/symptoms-causes/syc-20377058>

<sup>14</sup> 2008 forum discussion on Radiation on the starfrontiers.us website, [www.starfrontiers.us/node/3093](http://www.starfrontiers.us/node/3093)

<sup>15</sup> Modified from “Gamma Dawn,” p. 6.

period and guards against radiation for a 5 hour period. These drugs also provide some benefits in reducing the effects of radiation sickness (see the Radiation Sickness Modifier table).

The costs for the Anarad drugs are as follows:

- 500 Credits for a dose of A-5
- 800 Credits for a dose of A-10
- 1,500 Credits for a dose of A-20.

**Weight:** --<sup>16</sup>

## NEU-TREX

This drug is often used in conjunction with Neutrad, though it can be administered to a character up to week after the initial (or subsequent) exposure to radiation. A potent diarrhetic, Neu-TreX comes in a one-liter dispenser and must be given intravenously over a period of at least 20 hours. A character usually should be confined to bed (or immobilized) while this solution is given.

Radiation particles bond to the chemical solution which then passes out of the patient's system. It will remove 2d10 rads from a character's rad count. Neu-TreX will also reduce the effects of radiation sickness by one-fourth (round numbers down), these benefits are in addition to any help that Neutrad treatment provided. If the character needs to make a current Stamina check to avoid death, the player receives a +5 percent bonus, but it will not help if the results of an illness is death (when the duration number is followed by an exclamation point "!").

Although multiple Neu-TreX treatments can be given, it will remove no more than 50 rads total from a character during that character's lifetime. Additional treatments – after the first one – while a character is still suffering from radiation poisoning will not further decrease the character's symptoms or provide any additional modifiers when conducting a Stamina check.

*For example, the pirate Rum Rogue is suffering from serious radiation poisoning (S15/R30\*). A medic successfully administered a Neutrad treatment, which reduced the illness to a S10/R20\*. Rum Rogue would*

*still need to make a current Stamina check with a +10 percent modifier, but then the medic successfully treated the character with two Neu-TreX doses. The chemical knocked down Rum Rogue's rad count by 26 rad (a 2d10 roll of 17 for treatment one and a roll of 9 for treatment two).*

*Thanks to the Neu-TreX treatments, Rum Rogue's illness was reduced to S7/R15\*. His player can make a current Stamina check with an additional +5 percent modifier.*

**Cost:** 1,000 Credits.

**Total package weight:** 1.5 kilograms.

## RAD-TREX

A much more powerful solution than Neu-TreX, Rad-TreX must also be given to a patient in an IV fashion over the course of 20 hours and the patient must be immobilized during this time. It can be given before or after a character receives Neu-TreX and/or Neutrad.

Rad-TreX removes 4d10+5 rads from a character; it will also reduce the effects of radiation poisoning by half (round any figures down) and provides a +10 percent modifier if the character needs to make a current Stamina check to avoid death. If the results of the illness still call for death (when the duration number is followed by an exclamation point "!"), the character can make a current Stamina check, but *without* the +10 percent modifier to avoid dying.

Although multiple treatments of Neu-TreX and Rad-TreX can be administered, the combination of these drugs will eliminate no more than 150 rads from a character during that character's lifetime. Additional treatments – after the first one – while a character is still suffering from radiation poisoning will not further decrease the character's symptoms or provide any additional modifiers when conducting a Stamina check.

Rad-TreX comes in a one-liter dispenser unit.

**Cost:** 3,000 Credits.

**Total unit weight:** 1.5 kilograms.<sup>17</sup>

## NANO-RAD TREATMENT

Available at the Frontier's finest hospitals, this treatment uses microscopic robots called nanites to repair sub-cellular damage and kill mutated cells before a cancer-like growth pattern can begin. If given while a character is suffering from radiation sickness it will reduce any effects by half.

If a character has a chance of dying (when an asterisk "\*" follows the duration number), they will receive a +20 percent modifier to their Stamina rolls. If results call for death at the end of radiation sickness' duration (when the number is followed by an exclamation point "!"), the character can make a current Stamina check with a +5 percent modifier to avoid dying. This treatment will reduce the likelihood of latent effects by 20 percent. It can be administered up to a month after the character's exposure to radiation, though it will then only reduce the chance of developing latent diseases by 20 percent.

The Nano-Rad nanites must be controlled by at least a level 1 computer with a chronocom transmitter.

**Cost** (excluding computer): 20,000 Cr

**Weight** (excluding computer): N/A.<sup>18</sup>

## FINAL WORDS

Summing it up, radiation hazards can have a profound impact on characters or non-player in the forms of radiation poisoning. These rules offer a way on how to handle radiation poisoning and how to treat characters.

Part two of the story will look at other sources of radiation – such as from solar flares for characters in space – as well as ways to protect against radiation and how robots and equipment are impacted.

<sup>16</sup> The name "Anarad" and its effects were created by the user Aramis in June 2008 on the starfrontiers.us website.

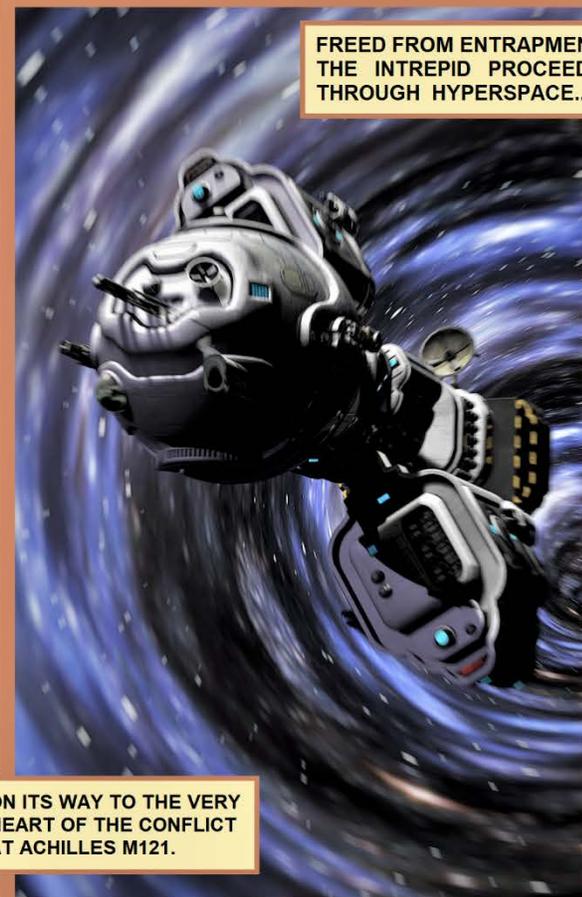
<sup>17</sup> Neu-TreX and Rad-TreX are actually based on the chemical Rad Away from the Fallout video game. It was suggested by user Rum Rogue on the starfrontiers.us website.

<sup>18</sup> The nanite treatment was suggested by user SmootRK on the starfrontiers.us website.

# TITAN RISING: 2255

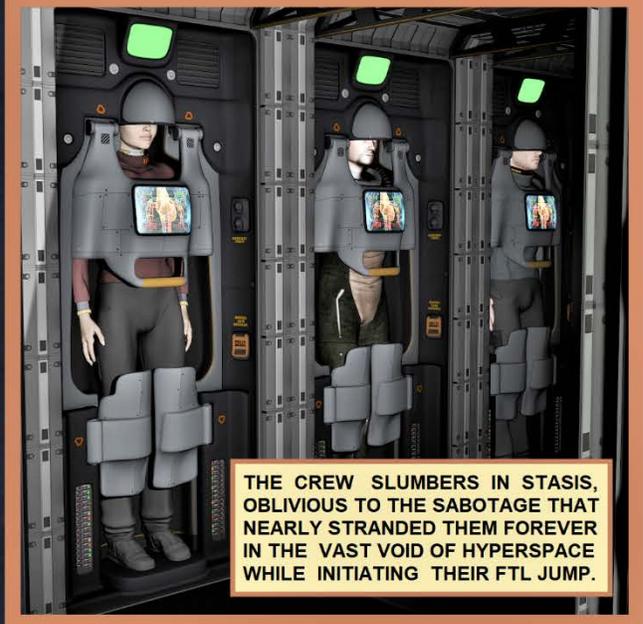
## EPIISODE #25.0: "SISTERS"

V2.0



FREED FROM ENTRAPMENT, THE INTREPID PROCEEDS THROUGH HYPERSPACE...

ON ITS WAY TO THE VERY HEART OF THE CONFLICT AT ACHILLES M121.

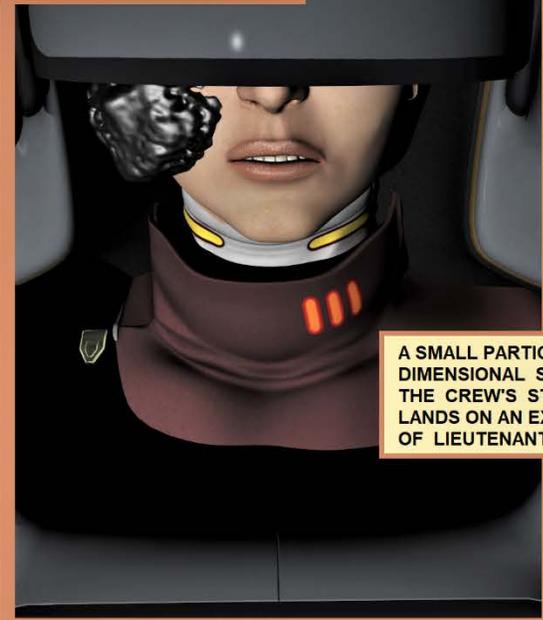


THE CREW SLUMBERS IN STASIS, OBLIVIOUS TO THE SABOTAGE THAT NEARLY STRANDED THEM FOREVER IN THE VAST VOID OF HYPERSPACE WHILE INITIATING THEIR FTL JUMP.



THEIR STASIS PODS WERE DESIGNED TO PROTECT THEM FROM HARM DURING FASTER THAN LIGHT TRAVEL...

BUT NOT FROM EXPOSURE TO THE EXTRA-DIMENSIONAL NULL PLANE OF VOID SPACE ITSELF.

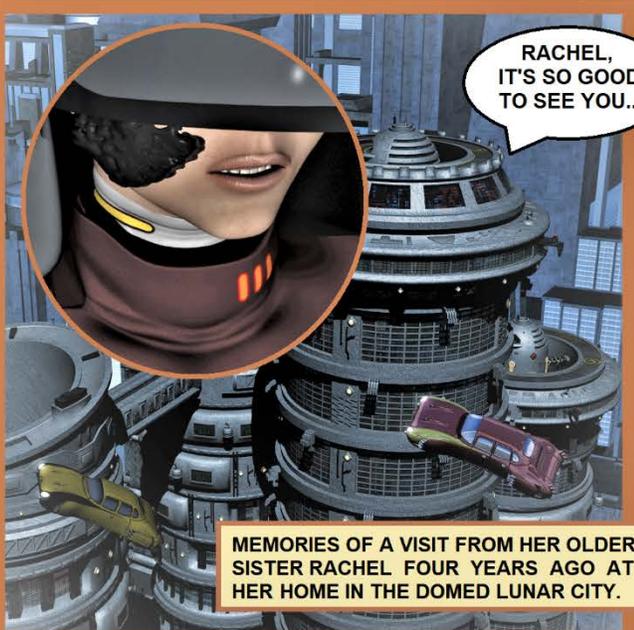


A SMALL PARTICLE OF THE INVADING DIMENSIONAL SPACE DRIFTS INTO THE CREW'S STASIS SHELTER AND LANDS ON AN EXPOSED PORTION OF OF LIEUTENANT FLYNN'S FACE.



THE LIVING BIOLOGICAL MATTER OF FLYNN'S BODY ATTRACTS THE PARTICLE OF LIFELESS EMPTY VOID SPACE LIKE A MAGNET, EVOKING A STRANGE REACTION...

TRIGGERING LUCID MEMORIES EVEN DURING THE DREAMLESS PROTECTIVE SLEEP OF STASIS.



RACHEL,  
IT'S SO GOOD  
TO SEE YOU...

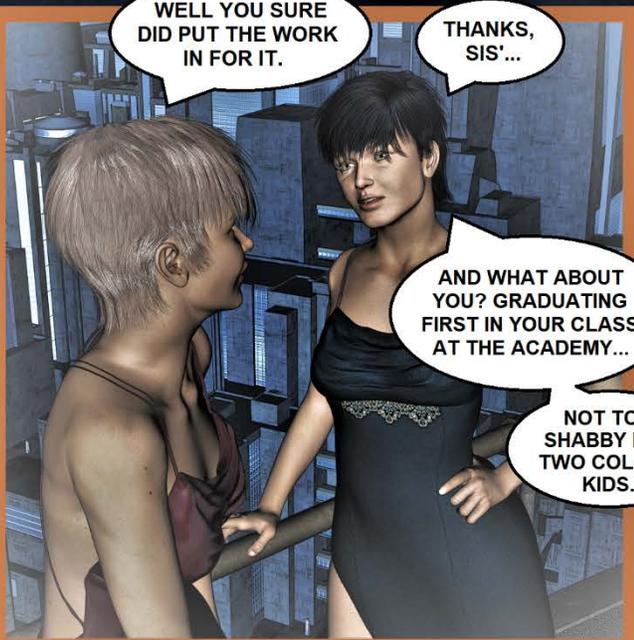
MEMORIES OF A VISIT FROM HER OLDER  
SISTER RACHEL FOUR YEARS AGO AT  
HER HOME IN THE DOMED LUNAR CITY.



WOW!  
MY BIG SISTER,  
THE FIRST OFFICER OF  
THE ALLIANCE'S NEW  
FLAGSHIP.

YEAH,  
IT'S HARD TO  
BELIEVE IT  
MYSELF.

SOMEONE  
MUST STILL  
LIKE ME AT  
'COMMAND

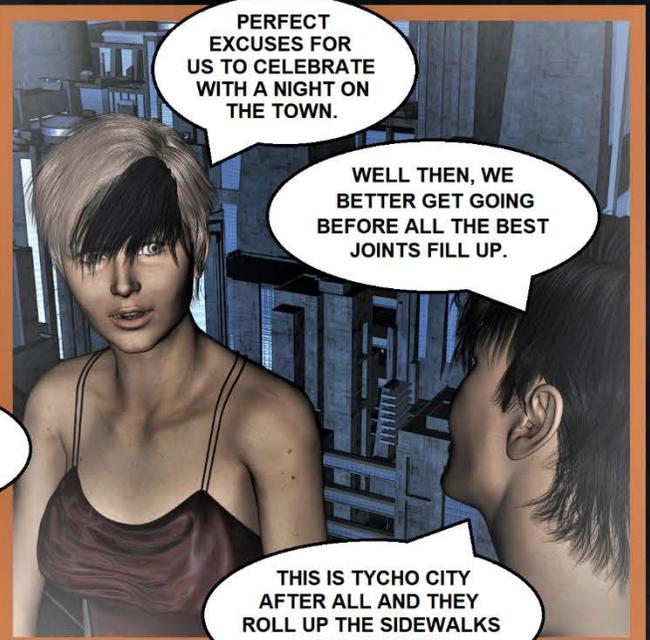


WELL YOU SURE  
DID PUT THE WORK  
IN FOR IT.

THANKS,  
SIS'...

AND WHAT ABOUT  
YOU? GRADUATING  
FIRST IN YOUR CLASS  
AT THE ACADEMY...

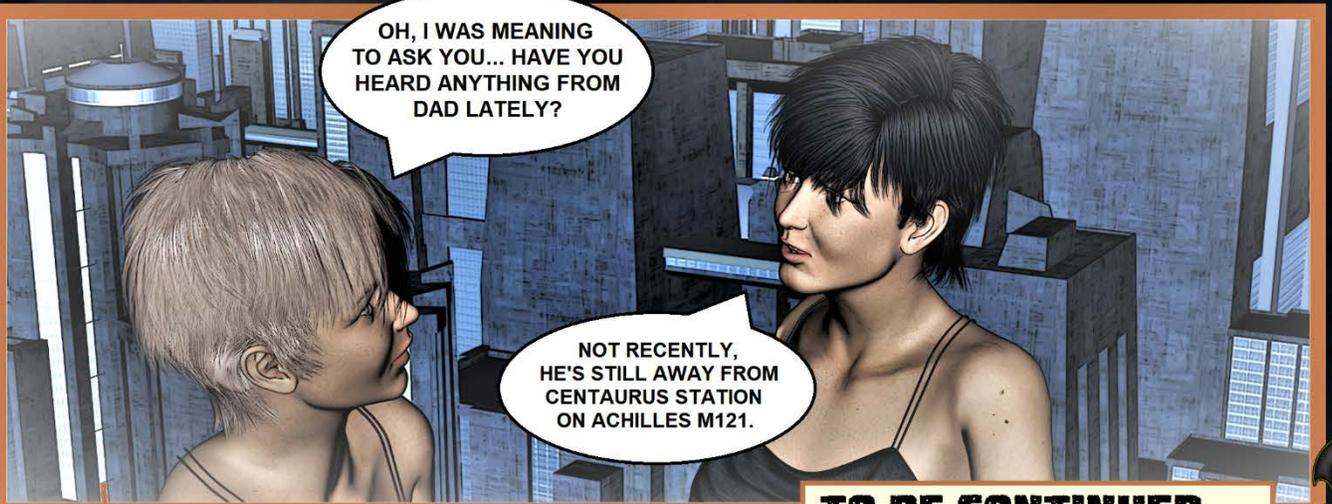
NOT TOO  
SHABBY FOR  
TWO COLONY  
KIDS.



PERFECT  
EXCUSES FOR  
US TO CELEBRATE  
WITH A NIGHT ON  
THE TOWN.

WELL THEN, WE  
BETTER GET GOING  
BEFORE ALL THE BEST  
JOINTS FILL UP.

THIS IS TYCHO CITY  
AFTER ALL AND THEY  
ROLL UP THE SIDEWALKS  
PRETTY EARLY.



OH, I WAS MEANING  
TO ASK YOU... HAVE YOU  
HEARD ANYTHING FROM  
DAD LATELY?

NOT RECENTLY,  
HE'S STILL AWAY FROM  
CENTAURUS STATION  
ON ACHILLES M121.

**TO BE CONTINUED.**



# ALIEN TECHNOLOGY FLOWCHARTS

BY FRONTIER NEWS NETWORK

**Editor's Note:** These rules for figuring out an alien technology were located in an internet archive for the Frontier News Network. The author is unknown.

## LEVELS

In the many exploits of a group of adventurers in the Frontier, they may encounter technology of an advanced or foreign nature. Depending on the type of device encountered, understanding its uses and functions may range from easy to extremely difficult. Charts are provided for four different levels: easy, difficult, very difficult, and extremely difficult.

## DIE ROLLS

The start circle is where the player will begin their journey to solve the mysteries of these devices. At each circle, a die roll is made. This roll could be against a skill or ability or just the random whim of fate.

If the roll is a skill or ability roll, then the result will end up being a Success of the roll or a Failure. If the roll was a Success, then the S path is followed. If it was a Failure, then the F path is followed. On a d10 roll, then whatever number is rolled, that is the path that is followed. This is continued until a Success, Break, or Discharge occurs.

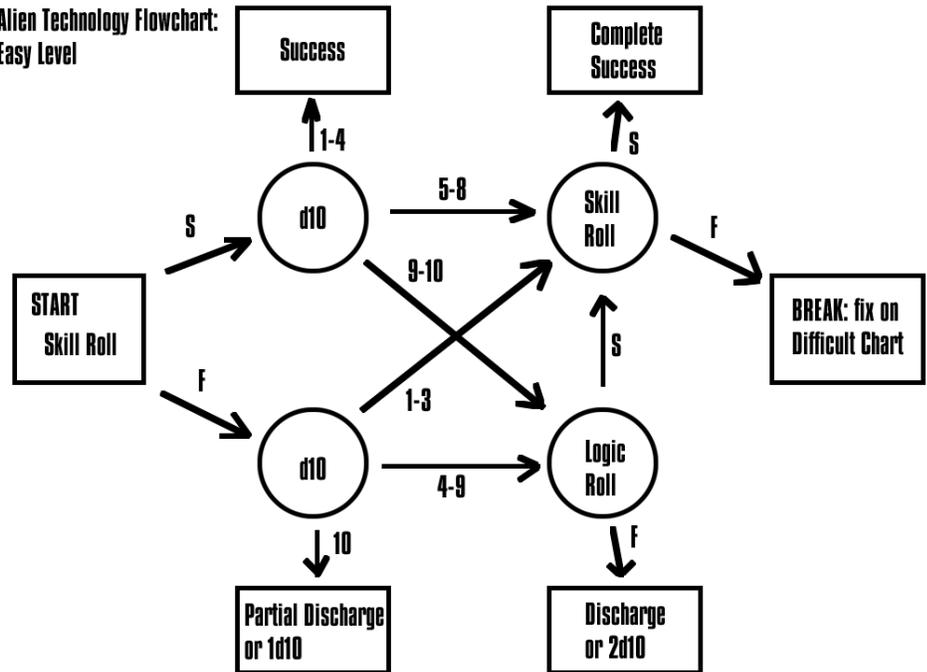
## RESULTS

Each path through the chart end in some sort of result as described in the sections below.

## SUCCESSES

There are three types of success: full, partial, or normal. For each success, a function or capability is discovered. A partial success results in a minor function, a normal success results in a main function and a complete success allows the user to understand the full functionality of the device.

Alien Technology Flowchart:  
Easy Level



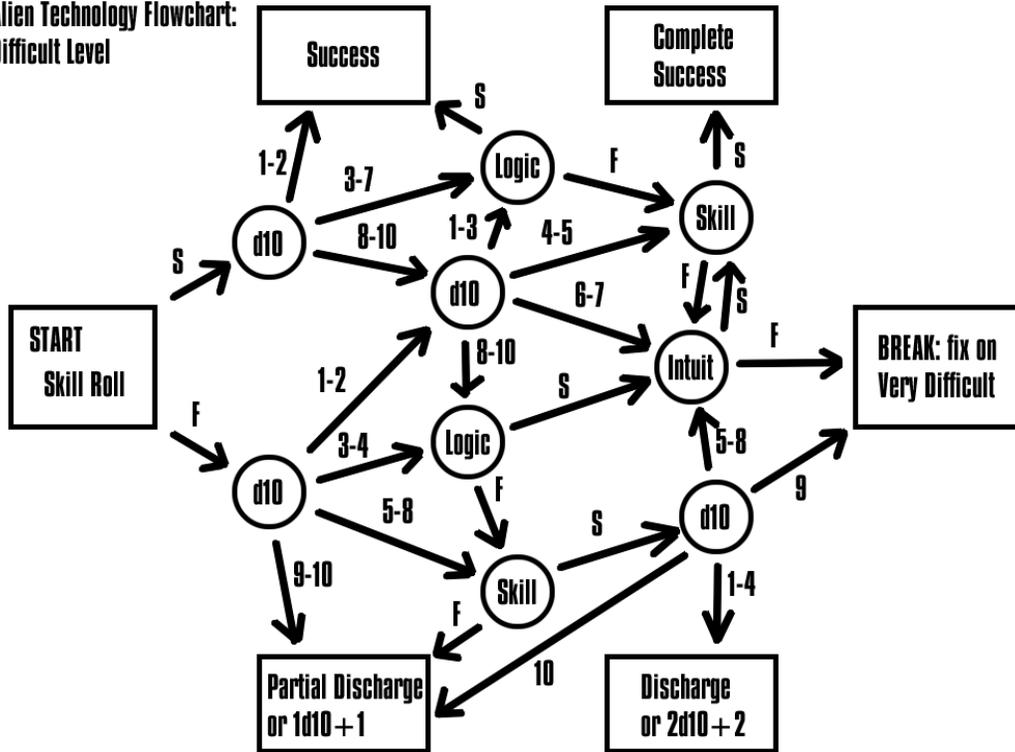
## BREAKS

During the investigation of an unknown device, it is possible to accidentally break it. At this point, the device cannot be used until it is fixed. To fix a broken device, the player must achieve any success on the next most difficult flowchart. After the

device has been fixed, you may go back to the original flowchart to attempt to uncover any of the device's secrets. If an extremely difficult device is broken, then the GM may determine that the device is permanently broken or a success on the same chart will fix the device, but not reveal anything about the device.

LEGEND	DEFINITION
<b>Break</b>	Device must be repaired on the next most difficult chart
<b>Complete Success</b>	All information about the device is now known
<b>d10</b>	Roll a d10 and follow the path of the number
<b>Dex Roll</b>	Roll a d100 vs Dexterity
<b>Discharge</b>	Damage is taken equaling that of the stated roll
<b>F</b>	Skill or Ability Failure
<b>Full Discharge</b>	Damage is taken equaling that of the stated roll
<b>Intuit Roll</b>	Roll a d100 vs Intuition
<b>Logic Roll</b>	Roll a d100 vs Logic
<b>Partial Discharge</b>	Damage is taken equaling that of the stated roll
<b>Partial Success</b>	A minor function is discovered
<b>Skill Roll</b>	Perform a skill roll for any applicable skill
<b>Stam Roll</b>	Roll a d100 vs Stamina
<b>Success</b>	A major function is discovered
<b>S</b>	Skill or Ability Success

Alien Technology Flowchart:  
Difficult Level



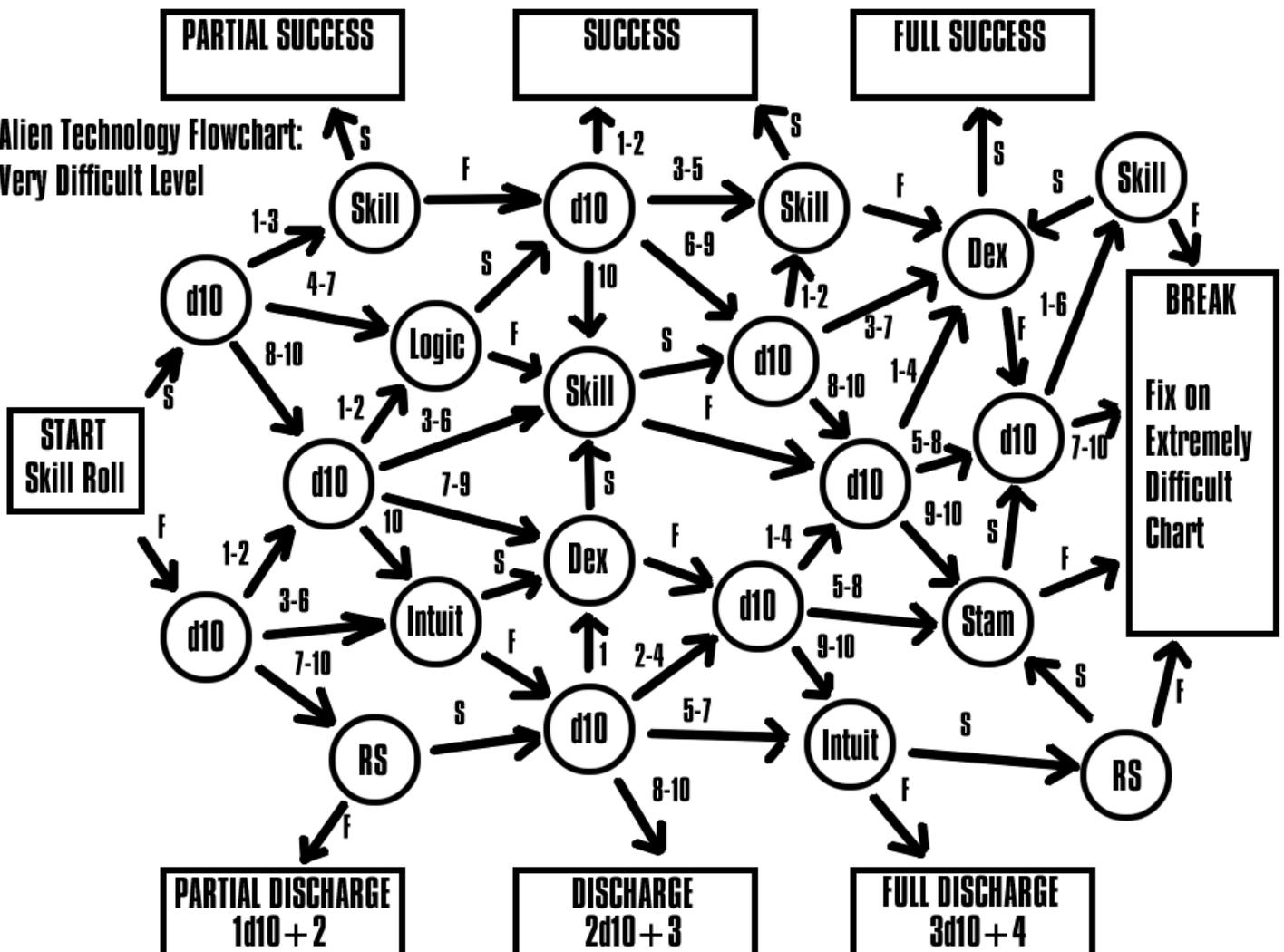
## DISCHARGES

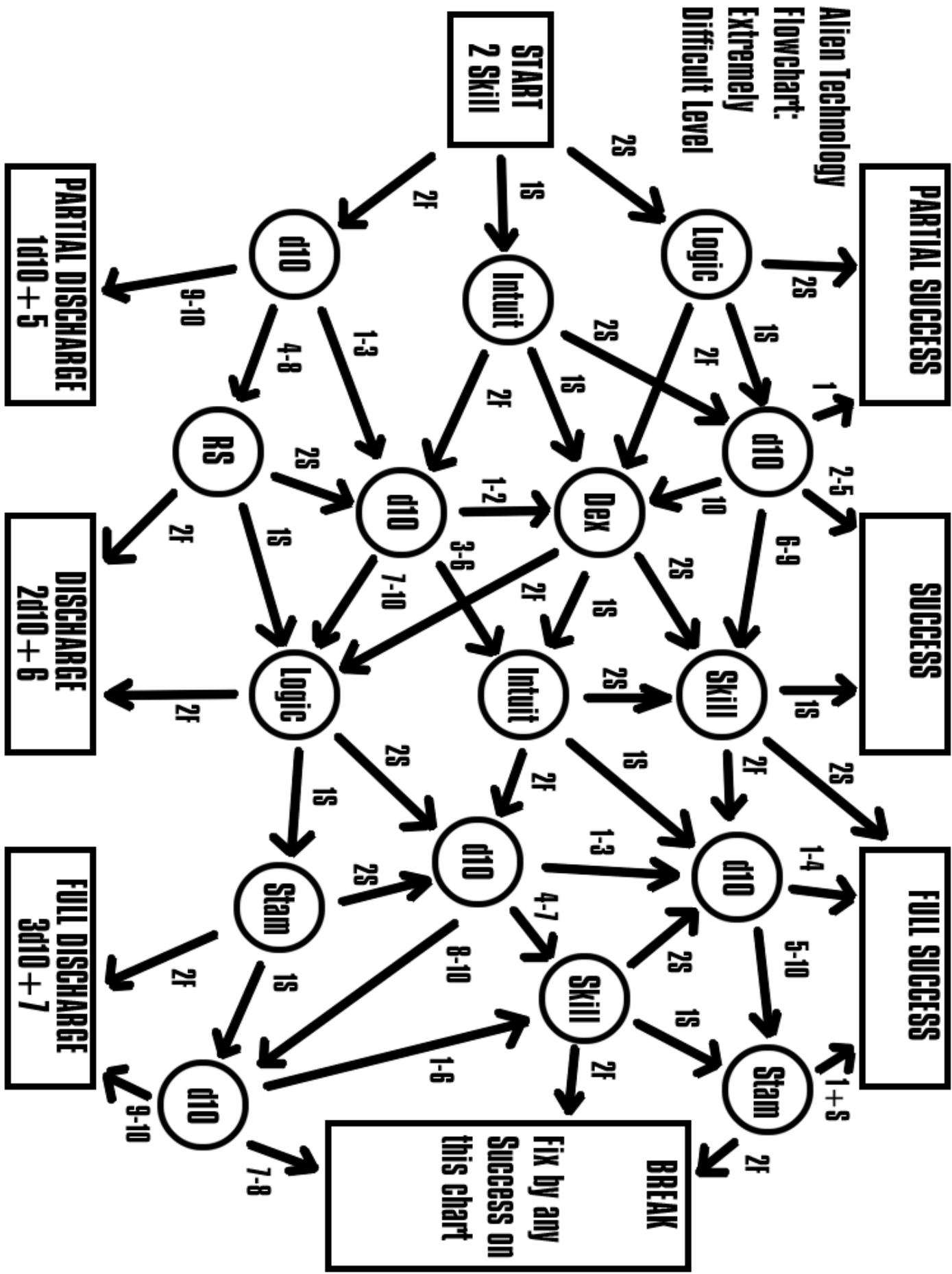
The other bad side-effect of tampering with an unknown device is the possibility of an energy discharge. A discharge of this type cannot be blocked by any type of suit or defensive shielding. The damage stated is the damage roll that they player will take.

## ADAPTIONS

There are many adaptations that these flowcharts may be used for. They are mainly designed for situations that catch a GM unprepared but can also be placed into a storyline in places where it seems a single die roll is insufficient to solve an advanced problem.

Alien Technology Flowchart:  
Very Difficult Level





# AN INDUSTRIOUS LIFE

## A LOOK AT THE LIFE OF THE AVERAGE VRUSK

BY DR. XANADOS SPAIN (AKA OSCAR RIOS)

*Across the Frontier, a number of things are commonly known about Vrusk, the hard-working sentient insect race: they are dedicated to their companies, they are pragmatic and diligent, and enjoy and often collect things of beauty while seeking serenity and balance in all things.*

*But just how does all this work?*

*What are Vrusk families like?*

*How do they get hired to these companies?*

*How do they find mates and raise their children?*

*What happens when they grow too old to work, and how do they handle and tend to their dead?*

*To most non-Vrusk, even those with Vrusk friends or co-workers, these things remain a mystery.*

*My name is Dr. Xanados Spain, I am a xenanthropologist at the University of Zebulon. While I now live on the planet Anker, in the Zebulon system, I was born on the other side of the Frontier. I am originally from Kir’Kut, in the Solar Minor system. It is one of only three planets jointly populated by Humans and Vrusk. My parents worked for a Vrusk company. I was born into their company and grew up alongside Vrusk. I went to school with them, shared important milestones in their lives and came to understand them in ways most non-Vrusk never will. In*

*today’s lecture we will cover the basic structure of a well-lived Vrusk life.*

### PREGNANCY & BIRTH

There are no unwanted or surprise pregnancies in Vrusk. This is because female Vrusk can store sperm within their bodies for up to three years at a time. This allows them to choose the proper moment for becoming pregnant. A female Vrusk can also choose to expel a male’s sperm or absorb it into her own body where it is digested.

While Vrusk can and do have sex for enjoyment, reproduction is a very serious matter. The details of reproduction are worked out in contracts, between the male parent, the female parent, and the companies they work for during their Pair-Bonding negotiations. We’ll talk more about these contracts later.

Vrusk are born alive to a Vrusk female. While Vrusk do lay eggs, these are hatched inside the mother’s body. Because of this whatever a Vrusk female eats, drinks, or otherwise takes into her body has no influence over her offspring while she is pregnant. Therefore, Vrusk females increase their caloric intake, watch their diets, and get a lot of extra sleep in the months leading up to becoming pregnant. This ensures that her young have the best, highest quality yokes within their eggs, giving them the greatest probability of being born healthy.

Gestation of a Vrusk is always four hundred days after conception. Young are born as fully formed miniature versions of their parents. They can walk and grasp objects within a day or so of their birth. Most Vrusk are able to talk within six months of birth, and fully master language around the age

of two. Cognitively, young Vrusk develop about 10% faster than humans.

### CHILDHOOD AND EDUCATION

Vrusk children are raised together in groups, in Nurturing Centers run by the companies their parents work for. Here they’re given well balanced meals, physical exercise, taught basic social skills, and receive a fundamental education (reading, writing, math, language, etc.). The workers raising these children are company employees, and often care for children in the same Nurturing Center they themselves attended. These are very important positions in Vrusk society and competition for them is fierce. Earning a job working at a Nurturing Center requires top educational marks in primary school. Those who are selected for them gain great respect and generous pay. In Vrusk society, preparing young for formal education is key to maintaining a society’s foundation.

Young Vrusk spend about half their day at a Nurturing Center, and the other half at home to be raised by their parents. Parents with children this age are granted reduced work hours to allow them to spend more time with their offspring. After five years in a nurturing center, young Vrusk begin primary school.

*In my case, being human, I didn’t graduate from the Nurturing Center until I was six. Since this was Kir’Kut, everyone learned to speak both Vrusk, Human, and Pan-Galactic. Unlike the Vrusk children, I did not graduate with the children I entered the nurturing center with, but a year later.*

Formal Vrusk education begins at the age of five and lasts between thirteen and twenty-two years depending on the career path. In the Solar Minor and Triskar systems, this is extended to between fourteen and twenty-four years, so Humans and Vrusk can graduate together. This is not a matter of a difference in intelligence, but



IMAGE BY TOM VERREAU

more of a maturing Vrusk being able to retain and absorb information faster than a maturing human. Once reaching maturity, the cognitive difference between the races vanishes.

Because of this, Vrusk from Solar Minor and Triskar have a higher rates of artistic expression, with many becoming talented artists, musicians, authors, or performers alongside their professional training. This is because the Vrusk fill the extra time at school with more formal artistic education. Vrusk from these two systems make up only 33% of the total population of Vrusk of the frontier, yet they account for 67% of Vrusk working as in the arts and entertainment industries.

Vrusk Primary Schools, like Nurturing Centers, are run by the companies their parents work for. There are open schools, for the Vrusk children of civil servants, orphans, and those who do freelance work outside of a formal company. The Vrusk education system is demanding, even for Vrusk. Much of the education includes testing to see what a student has aptitude in. Because of this testing, school curriculum is tailored to the individual Vrusk. To Vrusk, the best path is the one of least resistance. It is better to find what a child is good at and shape those natural tendencies into a suitable career path.

A Vrusk child who shows a gift for math will have their education steered in that direction, and by the time they graduate may well be an engineer, astronomer, or starship navigator. A Vrusk with a more aggressive temperament might have their education focus on self-defense and weapons training, and graduate as a soldier or as a member of the company's security force. Vrusk who show promise in social skills might be trained to become a diplomat or counselor, while those with good judgment educated with a focus on politics or management.

*For myself, my teachers reported that I "had a fascination with and a knack for understanding cultural differences and similarities between alien races," and shaped my education accordingly. Thirty wonderful and fulfilling years later, after having crossed the galaxy as a xenanthropologist, I can only be grateful for their judgment.*

## JOINING THE COMPANY

Most Vrusk accept positions in the same company their parents worked in, the same company that helped raise and educate them. For Vrusk companies, the best way to ensure high quality loyal employees is by creating them yourself. To Vrusk, a company is a family, an entity unto itself, and each employee is a cell within that body. Young Vrusk graduate from formal training somewhere between the ages of twenty-one and twenty-four, although gifted students could graduate as early as eighteen years of age. At this time, they are offered a formal contract with the company. The vast majority of them accept it.

Some negotiation is expected and even encouraged, with new hires pushing for things like higher pay, better housing, more vacation time, and so forth. In the rare case a graduating student is gifted in an area where that company has no job for them (such as a gifted botanist raised in a Vrusk mining company), the company partners them with another company willing to hire them. All graduating students of a Vrusk primary school have jobs waiting for them. While incredibly rare, some young Vrusk refuse these job offers and strike out on their own. These Vrusk are known as Ky'ki, and we'll discuss them further in a bit.

*In my graduation class of seven hundred and twenty-eight children, there was not a single Ky'ki. This is remarkable considering the class was nearly 40% human. But the education system, so in tune with our natural gifts, offered everyone a job that was very fulfilling.*

## COMPANY LIFE

This is the part of Vrusk culture most outsiders know about. Vrusk find joy and comfort in the security of their companies and the work they perform they. To a Vrusk, having purpose means having peace; having focus brings clarity to one's existence. To a Vrusk, they are what they do and who they work for; their self-worth tied to the success of

the company or trade house they work for. There is no "I" in team; to a Vrusk the only "I" is in industry.

However, this is hardly the whole story. Despite such dedication, a Vrusk still has time for personal pursuits and expressions of individuality. Such things are just kept separate from work. In a Vrusk company there are no such things as dress down, crazy socks, or ugly tie days. However, once a Vrusk's shift ends and the workday is completed they can, and do, show a whole separate side of themselves.

## LEISURE PURSUITS

When Vrusk complete their work for the day they become more informal. After work co-workers often use nicknames for one another, reflecting that their company identity and off-the-clock personality are two separate things.

After work it is common for Vrusk co-workers to attend sporting events or holo-videos, go out drinking or to dinner, find a place to enjoy live music and dance, or grab a hot beverage at a café and enjoy a poetry reading. But, unless you work for the same company, don't expect to see this side of them, especially if you are non-vrusk.

Vrusk enjoy personal time and most have several different art forms they're passionate about. These range from things like handicrafts and gardening, music and cooking, painting and sculpting, competitive games (both intellectually, with things like chess, or physically, with things like wrestling) and individual sports (like rock



IMAGE BY TOM VERREAU

climbing or fishing). Vrusk also enjoy collecting the things they are passionate about. Most Vrusk homes have things like libraries, art and sculpture collections, computers with thousands of hours of their favorite music recordings, and holovids, trophies and awards commemorating their victories in various competitions.

*Here's a tip, never play ping-pong, against a Vrusk. Don't even get me started on racquetball... I've still got scars. That quiet but hard-working office clerk by day could very well be an eight-legged demon of the court after work.*

Vrusk collections are reflections of themselves and therefore incredibly personal things. Only a Vrusk's closest friends are ever permitted to see them. If asked about these things, Vrusk are proud and happy to discuss their collections, but never brag about them. Much like no two eyes have the same pattern of facets (or in human terms - no two fingerprints are alike), no one Vrusk's collection is superior to any other's.

## CHANGING JOBS

While it is rare, Vrusk can and do change jobs. Larger companies often look to steal personnel from smaller, newer companies if an individual shows promise. Most often companies handle the exchange without the employee knowing about it. This is similar to sports teams trading players, but for Vrusk it could be anyone. New employees acquired this way are treated with a great deal of respect in their new companies. Often entire departments are acquired this way, and in extreme cases entire small companies are absorbed into larger ones, all in an effort to acquire a few valuable new employees.

## SPIRITUALITY

Very few Vrusk have a belief system which includes a divine creator governing their reality through supernatural means. This doesn't mean Vrusk lack a faith system. Each company and trading house has its own dogma, a collection of philosophies making up their mission statement.

Some can be small, like the Nine Rules of Commerce or the Seven Tenants of

Hospitality Service. Others can be quite large, contain dozens of teachings. These form numerous philosophical belief systems governing how Vrusk can lead a virtuous life.

Companies and Trade Houses have stories, passed down for hundreds, even thousands of years, detailing the deeds of model employees, the founders of their companies, or histories of when a trade house was nearly ruined but recovered through hard work and perseverance. These stories form the stories and legends of Vrusk mythology, the heroes and villains of their cultural heritage.

## PAIR BONDING AND PARENTHOOD

Between the ages of thirty and sixty (late maturity and early middle age) Vrusk are expected to pair bond and reproduce. This is how companies and trade houses ensure a steady supply of new employees. Most companies offer salary bonuses and other perks, such as extra time off and improved housing, for employees who pair bond and produce offspring.

Companies encourage partnerships between their employees, often having entire departments dedicated to making prospective matches based on similar personal interests, genetic compatibility, and job performance scores. Companies even pay for dates and Courtship Vacations while couples get to know one another to explore their compatibility. While couples can and do meet by other means it is estimated that 85% of Vrusk Pair-Bonds are formed through the actions of and incentives offered by the companies they work.

Once two individuals agree to become a couple, there is a pair-bonding ritual where the terms of their relationship and future parenting duties are clearly defined. This conference is presided over by a company official, representative mediators for both partners, the company's Personnel Resources

Manager, and a witness of honor for both parties. Terms of a pair bonding typically last for seven years, with five-year extensions filed after-wards. If offspring are produced the terms are automatically extended until the youngest offspring reaches seven years of age.

While all may seem impersonal and unromantic to outsiders, Vrusk do not find it so. Vrusk find these proceedings to be important life events, milestones on par with their first day of work. During a pair bonding ceremony both parties traditionally wear new clothing, retain the pens they sign their documents with (often becoming family heirlooms), frame their Pair-Bond contracts, and hold grand celebrations afterwards. These parties are attended by the couple's family, friends, and all of their co-workers. While it is not considered necessary for a successful union, many Vrusk who Pair-Bond do have love for one another.

*If you are ever lucky enough to be invited to a Vrusk Pair-Bonding reception, don't miss out. It's a wonderful spectacle, especially the elaborate business suites and the traditional nineteen course feast. I had the honor to stand as witness to a co-worker's pair bonding, a Vrusk classmate named Kar'Kenzit. Both her and the groom's family insisted I*

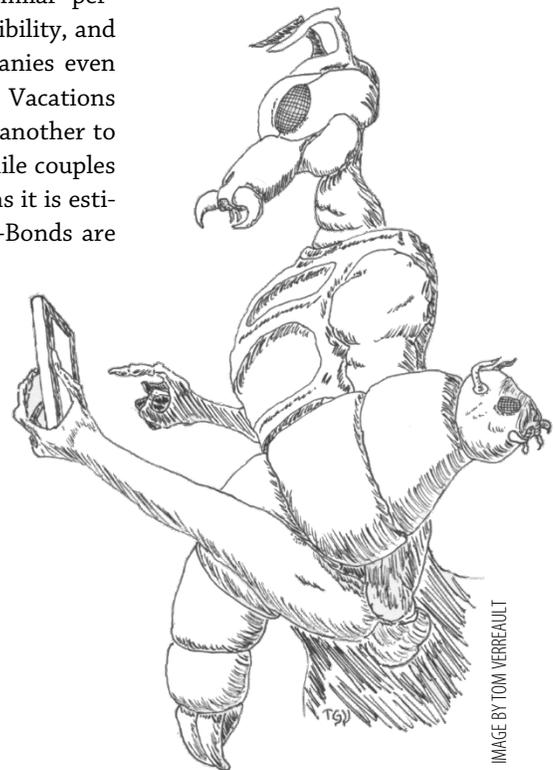


IMAGE BY TOM VERREAU

joined them for the traditional wedding dinner. I didn't think it was possible to gain so much weight in one sitting.

Both male and female Vrusk share parenting responsibilities, with clear terms laid out in their Pair-Bond agreements. Vrusk parents are typically given reduced workdays, allowing them to spend more time with their offspring, until they are old enough to attend primary school. The educational test scores of an offspring are a reflection of the couple's parenting skills. Sometimes an offspring's test scores are factored into their parent's overall employment performance reviews.

## OLD AGE AND DEATH

Old Vrusk often work as long as they're physically and/or mentally able. Companies assign their elderly employees less and less demanding work as the weight of their years settles on them. To Vrusk employers, it would be cruel and disrespectful to fire or force into retirement an elderly employee after a lifetime of service.

Most elder Vrusk work until they're no longer able to be productive, and then honorably request retirement. Very few Vrusk work so long as to become a hindrance to their companies, as such selfish an act would dishonor everything their culture stands for.

Elderly Vrusk are looked after by their companies in Tranquility Houses, beautiful communal living facilities where constant care is offered. Such Vrusk want for nothing and are given compassionate care befitting a lifetime of service. Residents are taken on seasonal outings, weekly live entertainment is brought in, and daily exercise, trivia, and puzzle games are provided to keep the venerable Vrusk both physically and cognitively sound.

When death comes to a Vrusk they're honored by their companies. While it differs from system to system, most dead Vrusk are composted, with their remains used to nourish special company parks and gardens. These sites are called Serenity Spaces, and the names of every Vrusk, along with their position in the company, is memorialized here in some fashion (often on monuments, memorials, or inscribed bricks in a wall or pathway). Such

location become places for all Vrusk working at that company to come and reflect on the course of their lives. Vrusk come to Serenity Spaces to contemplate the reality that their journey through life will one day also come to an end.

*Some Serenity Spaces can be vast and beautiful places, taking up several square kilometers. Most are truly stunning places of natural beauty, with growing and blooming things from across the Frontier. For a place to contemplate death, Serenity Spaces are celebrations of life, which I think is the whole point.*

## STEPPING OUTSIDE THE SYSTEM, THE KY'KI

The word Ky'ki translates to madness in Vrusk. When used to describe a person it means "One who is insane." Vrusk who step outside of the carefully structured social system and choose to follow a different path in life are considered insane by most Vrusk. They are pitied, as most Vrusk feel their reckless choices can only lead hard times and short, unfocused lives.

However, combined with that pity comes as hint of admiration and hope.

Most Vrusk at one time or another have wished to break out of the mold they've been cast into. If even for only for a moment, the majority of Vrusk ponder doing something daring, like following a dream that defies logic and pragmatism. Very few Vrusk ever do it, and most who do so lead lives of struggle and mediocrity. However, almost universally, every truly great Vrusk walked the dangerous path of the Ky'ki.

Every Vrusk who ever founded a new company, took a risk on a new unproven technology, started an innovative venture, labored towards making a groundbreaking discovery, or established a new fashion, music, or artistic style, was a Ky'ki.

The vast majority of Vrusk don't understand this drive, as logically they expect it leads to ruin. When it instead ends in true greatness Vrusk see it as something magical and miraculous. Such Ky'ki Vrusk become legendary, universally admired by their people as daring renegades, creators of something new, and forces which have enriched their society as a whole.



# IR MASKING SKEINSUIT & MILITARY ISSUE TOXYRAD GAUGE

## IN THE MINZII MARKEPLACE

BY TOM VERREULT

Scott just knew this new lieutenant would get him killed. The by-the-book, pain-in-the-posterior lieutenant had assured them this ambush would work flawlessly. Scott had been in the military long enough to know that assurances like that meant nothing against the law of Murphey which stated no plan survives contact with the enemy or junior grade lieutenants.

A dark cold wind passed over Scott's soul like a premonition of impending doom. He hated that feeling, it almost always preceded bad things happening. He hoped the lieutenant was right that their prepared positions along the path of regular sathar patrols would bag the entire sathar patrol. He hunkered deeper into his position and waited.

He did not have to wait long as he soon heard the distinctive "foom" of a grenade rifle launching, followed by three more, and then the crack and hiss of poison grenades. The sathar clearly had an idea of the position of the ambushade despite the IR

masking skeinsuits they were wearing since the grenades all landed along the line of prepared positions. Immediately, everyone's toxyrad gauge, which was clipped high on their combat harnesses, as ordered by the lieutenant, began flashing a light for poison.

Training took over as everyone began to

don their gas masks. Unfortunately, the sathar, who had apparently slithered close, began firing on every light from every toxyrad gauge of every trooper in the ambush.

Scott was hit several times before he even finished donning his gas mask. As his consciousness slipped away, he chuckled ironically, the damn lieutenant had indeed killed him.

### TOXYRAD GAUGE, MILITARY ISSUE

There were many incidents in previous military operations where the sathar tossed or fired poison grenades at concealed UPF forces and then targeted the light emitted from a toxyrad gauge worn by UPF troops.

Some troops quickly learned to ditch this item of equipment. In response, a military version of the toxyrad gauge was

developed with a flip-down cover and a vibration setting. Additionally, there are two small switches on the side of the device that toggle the vibration and light display settings off and on.

The goal is to not have the soldier killed because the enemy detected the automatic notification light of the device or heard its warning tone.

**Cost:** 30 Cr

**Weight:** n/a

### IR MASKING SKEINSUIT

This item functions as a standard military skeinsuit (50 pts). However, it is designed to mask the IR signature of its wearer and does so with an 85% chance of effectively making the wearer from IR sensors.

**Cost:** 450 Cr

**Weight:** 1 kg



IMAGE BY AARON O' BRIAN

# THE EXPANDED MEDKIT

BY TOM VERREULT

Special thanks to contributors on the Star Frontiers Alive and Well Facebook page: Oscar Rios, Jack David Hofmockel, David Kingsley, Ruben Rivera, Trevor Holman and to my brother who is a wicked smart and devious RPG player.

The Star Frontiers Medical toolkit was designed for role-playing game play but is it realistic? Years ago, I was picking my brother's brain about potential "field expedient" uses for items in the game's medkit. Tim was an infantry medic at the time and notorious for his non-standard use of equipment.

His reaction to the acid neutralizer was, "with enough water I can water down any acid to the point of neutralization AND since I make everyone in the unit carry extra saline solution in the same place on their equipment, I always have plenty of water around." His theory was if every man in the unit was carrying one liter of saline solution, he would always have plenty for an IV, eye wash, wound irrigation, or etc. His troops didn't like it initially but were won over with how fastidious he was about their care.

We had an interesting conversation, but I wasn't able to harness many ideas that translated well to the game. In addition, I've always felt that this tool kit has some real blind spots.

The pharmacy portion of the original med kit is thin, but it did include a limited truth serum for interrogating NPCs in a brute force sort of way. This is indicative of contents geared for game play. I did like that the telol drug was limited to 5 yes or no questions before the interrogated passed out for a long time, preventing abuse by players- "Let's just dose every NPC with telol and learn all we need."

There was "local anesthetic" but no narcotic like pain killer. The game has a pain penalty applied to all activity including movement once a character is down to 1/2 STA so the local anesthetic could be used locally to one injury to dull the pain but how long does it last? Would not a narcotic-like drug work better to keep the

character's movement from being halved and from suffering a -10 to all ability and skill checks?

Finally, the idea of injectable drugs that works as advertised on 4 distinctly different species from four different ecologies and evolutionary trees is a bit farfetched. However, there is always the "it's just a game" justification and handwavium science lets you do whatever you like.

For myself, I've grown into the idea that Frontier science developed nanite technology that, merged with pharmacology, allowed for the development of injectable drugs where the nanites adjust the drug to the desired effect in whichever member of the core four species it is injected in. After all it is just a game and tracking how much Dralasite vs Human biocort you have on hand would get tedious.

## RETHINKING THE ORIGINAL MED KIT

The water pack was not part of the medical tool kit and the rules don't go in for IVs and saline solution, but the water pack can be immensely useful. As mentioned, water dilutes an acid, so if the party is being sprayed by acid from some creature a medic will use the 1 bottle of acid neutralizer in his kit then resort to the 8 one-liter water pouches in his water pack.

Any time there is a chance that a character might contract an infection, the medic character can claim he is using one of the one-liter water pouches for wound irrigation to help prevent infection. The Referee will have to rule on this, but at the very least this action combined with the antiseptic spray should garner a bonus toward preventing an infection.



IMAGE BY TOM VERREULT

Local anesthetic was clearly intended for the medic's surgery subskills. However, it might be employed to prevent a character from feeling the pain penalty for ½ STA. This presupposes that the medic can't just do first aid or surgery to heal the lost STA for some reason. The benefits would be that a character is not hampered with slowed movement or missing shots in combat from a -10 penalty.

Another item to look at is the micro-forceps, not just modern-day forceps but "micro" forceps. I would argue for their use in picking up something small in tight situations or pulling a wire in a maze of machinery and wires.

Truth serum in the real world is a controlled substance. Many medical specialists in the real world would likely be against its use. It's a part of the game so we can't just get rid of it, but I think we can introduce an Anti-coercion Oath into the setting where individual medical specialists, due to philosophical reasons refuse to use Telol and replace it in their medkit with 10 more doses of Biocort. Biocort is far more useful and the Anti-coercion Oath smacks of the Hippocratic Oath without trying to introduce the actual Hippocratic Oath.

Plastiflesh (spray can) closes up wounds and heals burns. Yet we don't know exactly the effect it has on a burn. I would rule that one can of plastiflesh can heal 6 to 10 STA (1d5 +5) per day of burn damage. This action is limited to one can per day.

*Example: Jax has been barbecued by a flame thrower for 35 STA of damage but the medic cannot just use cans of plastiflesh until all 35 points are cured but rather just the one can for 5-10 STA and the balance of the burn damage will have to be cured by natural healing or another treatment with plastiflesh on a subsequent day.*

I would also not allow surgery for the healing of burn wounds but first aid subskill (injection of 1 dose of biocort) could be used to heal a burn.

Plastiflesh might also be used as a temporary hull patch for a small holing of a ship's hull in the 20 to 25 mm or less range. It's not permanent but could work for up to an hour (1d6 x 10 minutes) and give the PCs time to obtain proper

patching material or weld plating over the hole until proper repairs can be made.

## NEW MEDICINES AND TOOLS

### SED-DOSE

Sed-dose is a broad-spectrum sedative that is used when an NPC is agitated, upset and "psychologically disturbed". It is only administrable by a character with medical skill.

For 5 hours it will sedate and calm a disturbed character although that character can make a current STA check to reduce the effect by half to 2.5 hours.

If used in conjunction with a character with Psych-social skill attempting the Psycho-Pathology subskill, that skill attempt receives a +15% bonus.

**Cost:** 5 Cr/ dose or 10 doses for 50 Cr

**Weight:** n/a

### NARCO-DOSE

Narco-dose is an injectable pain killer that neutralizes the effects of the pain penalty for 10 hours.

It is only administrable by a character with medical skill. This is by design as many colonies in the Frontier have strict controls on narco-dose in pill form to control abuse of the drug. In addition, most medical authorities do not like the carrying of narco-dose in pill form in a medkit as it makes the medkit a target for theft. The pill form is generally found in hospitals and pharmacies.

*NOTE: the opioid crisis in the real world is a very real and ugly thing. I would not introduce this item to my game if someone sitting at the table has had their life touched by this issue and might be made uncomfortable by this. This is a game and the point is to have fun.*

**Cost:** 10 Cr/ dose or 10 doses for 100 Cr

**Weight:** n/a

### DRALASITE GENDER CONTROL MEDICATION

Dralasite gender control meds were mentioned in the dralosite player character description in the Alpha Dawn rules.

They come in patch form and work for a week.

My gut feeling is that these are the kind of thing you handwave in a game. I assume that any dralosite has access to them and keeps a one to three month supply on hand and that the cost is subsumed in the cost of living rule where ½ the character's income is consumed through taxes and cost of living.

However, if the cost of these drugs is required its 5 Cr per patch or 20 Cr for a GST month. Remember, dralosites have 3 genders: male, female, and neuter. The neuter form of the drug is probably the most common.

### OPOSSOM-DOSE

Opossum-dose is an injectable drug that allows a character to play "dead" with no "apparent" life signs. If a medic with a med scanner attempts to scan the "corpse" for life signs the skill check has a -60% penalty.

To use this drug the medic rolls a skill check to attempt to tailor the amount of dose against the biology of character and their weight and can try to get the dose to work for a specific amount of time 1-5 hours. A failed roll means the referee shifts the "wake up" time to a different hour or he can randomize the hour.

A character waking up from Opossum dose must pass a STA check to be able to function immediately. Otherwise, they need a number of rounds to shake off the effect and should be treated as if stunned. The number of rounds this stun effect last is 100 minus the STA of the character and divided by 10 with the result being the number of turns. Round down when making this calculation.

If someone is observing a character trying to shake off the effects of opossum-dose, they get an INT check to realize the character is not dead.

Additionally, opossum-dose can be instantly neutralized with an injection of Stimdose from the standard med kit. This is very much a specialty item and may not be widely available for general purpose.

**Cost:** 25 Cr/ dose

**Weight:** n/a

## TRC

TRC, or Temporary Restorative Coma dose, knocks out character for 20 hours GST. It requires medical monitoring by a medic for 20 hours, BUT the character wakes up with 4x the STA he would have gotten from just resting 20 hours.

Should the medic need to revive the character immediately, he can apply Stim-dose from original tool kit and the character is up and, as long as he has had 5 hours in TR coma, he gets the standard 1 STA for resting and forfeits the bonus STA but can function, move, and even fight if necessary.

**Cost:** 15 Cr/ dose

**Weight:** n/a

## HYPNO DETECTION SCANNER

The Hypno Detection Scanner is a tool employed by a character with psycho-social skill to detect sathar hypnotism and subversion.

It takes about an hour of questioning and monitoring a subject to make a determination. It is prone to giving a false negative (the skill check is -20). Sathar agents are known to react violently when they are unmasked.

**Cost:** 350 Cr.

**Weight:** 1 kg

## HYPNOTISM FOCUS

A hypnotism focus tool is an oscillating light or mechanical device that provides a psycho-social practitioner a +5% to their attempts at hypnotism.

**Cost:** 10 Cr.

**Weight:** n/a

## OTHER SOURCES

Star Frontiersman #18: "The Magic of the Frontier" has injectable drugs that were intended to be found treasure in the category of "potions". The same issue has the "Frontier Toxicological Report" and details 3 poisons found in the Frontier.

Frontier Explorer #11: "Medical Supplies in the Minzii Marketplace" has some medicinal creams and new high-tech medical tools. The same issue has an article called "The Power of the Poultice" which introduces rules for a medic using a

poultice when traditional medical supplies are not handy.

## NEW AUXILIARY MEDKITS

### PHYCHKIT

The Psychkit is a kit maximized to aid psycho-social skills. The kit includes: a med scanner, a hypo spray, 10 doses of Sed-dose, 5 doses Telol (note any character that subscribes to the Anti-coercion Oath will have exchanged the Telol for Sed-dose), 10 doses of Narco-dose, and a hypnosis focus tool.

A psycho-social specialist will need one level of medical skill to use the hypo spray, thus this kit is for the character with both psycho-social and medical skills. The kit is small and fits on an equipment belt.

**Cost:** 200 Cr.

**Weight:** 1 kg

## PHARMA FANNY PACK

The pharma fanny pack is small pack that can be affixed to a belt, an equipment harness, a backpack or a medical tool kit. It holds 30 doses of drugs. A medic must decide what they want to stock it with.

**Cost:** 20 Cr

**Weight:** n/a

## UNIVERSAL MEDICAL CATALOG

The table below lists all of the medical drugs that were discussed in this article as well as in the original rules or other fanzine articles. It includes the form of the drug, its cost, as well as reference for where to find more information.

PHARMACUTICAL	FORM	SOURCE	COST PER DOSE
Antibody Plus	Pharmaceutical, Injectable	Alpha Dawn	5 Cr
Antitox	Pharmaceutical, Injectable	Alpha Dawn	5 Cr
Biocort	Pharmaceutical, Injectable	Alpha Dawn	10 Cr
Omnimycin	Pharmaceutical, Injectable	Alpha Dawn	5 Cr
Staydose	Pharmaceutical, Injectable	Alpha Dawn	5 Cr
Stimdose	Pharmaceutical, Injectable	Alpha Dawn	5 Cr
Telol	Pharmaceutical, Injectable	Alpha Dawn	10 Cr
Rage Dose	Illegal Street Drug, Injectable	Star Frontiersman #18	20 Cr
Death Juice or Dose of Last Resort	Illegal Street Drug, Injectable	Star Frontiersman #18	250 Cr
Sathar Submission Serum	Illegal Sathar Tech, Injectable	Star Frontiersman #18	300 to 600 Cr
Polophromalene XT-7	Illegal Neurotoxin	Star Frontiersman #18	50 Cr
Mitocelenyne	Legal Toxin	Star Frontiersman #18	20 Cr
Void Spider Venom	Black-market Toxin	Star Frontiersman #18	65 Cr
Ikochi Venom	Illegal, Venom	Star Frontiersman #17	45 Cr
Hydro-gel	Pharmaceutical, Gel	Frontier Explorer #11	25 Cr
Traditional Yazirian Athelor Cream	Pharmaceutical, Cream	Frontier Explorer #11	8 Cr
Athelor 4	Pharmaceutical, Cream	Frontier Explorer #11	5 Cr
Sed Dose	Pharmaceutical, Injectable	This Article	5 Cr
Narco-dose	Pharmaceutical, Injectable & Pill	This Article	10 Cr
Dralasite Gender Control	Pharmaceutical, Patch	This Article	1 Cr
Opossum Dose	Pharmaceutical, Injectable	This Article	25 Cr
Temporary Restorative Coma Dose- TRCD	Pharmaceutical, Injectable	This Article	15 Cr

# STARBUCKAROOS

## A STAR FRONTIERS CARD GAME

BY ANDREW CAMPBELL

**Editor's Note:** Starbuckaroos was located in an internet archive for lost web pages.

### REQUIREMENTS

This card game is played with a 32-card deck. There are 3 ten card suits (Planets, Moons, and Comets) plus 2 trump cards (Novas). The game is played for points like Spades or Hearts, and can be played either two players or with two 2-player teams.

### RULES

A hand of Starbuckaroos starts with each player being dealt a starting hand of 5 cards. A player can draw one card per turn, with a maximum hand of 10 cards. If two teams are playing, either 2 decks can be shuffled together, or one deck is used with a player's maximum hand reduced to 5 cards instead of ten (house rules as to which).

One player or team deals, and the other player or team plays first card. The first card played must be a Planet or Moon,

which is laid face up in front of the player. The other player can take an opponent's cards (Planets and Moons) by playing a Comet of equal or higher value to a Planet or Moon, play a Planet or Moon themselves, or pass. (they can also play a trump - see below). Note that a Comet can only be played against a single Planet or Moon card, not multiple ones!

Play continues until the deck has been exhausted no further cards can be drawn. When the last card is drawn from the deck, players continue until their hands are expended or until they reach an impasse (such as both players having nothing left but Moons and/or Planets). Points are then tallied.

Trump - if a player plays a Nova (trump card), they take ALL planets and Moons on the table - including their opponents and their own. This is the only case where a card can take multiple cards.

### SCORING

Moons equal their face value (1-10) in points,

Planets equal double their face value (1-10) in points.

If teams play, they must bid for points as in Spades. If they go over their bid, they only get face value in points for all cards including Planets; if they go under their bid, they get points for what they take but at full value; if they fail to take any points (equivalent of a Spades "nello"), they get 100 points. Games are usually played to 500 points.

Use Starbuckaroos as an entertaining diversion in your Star Frontiers game.

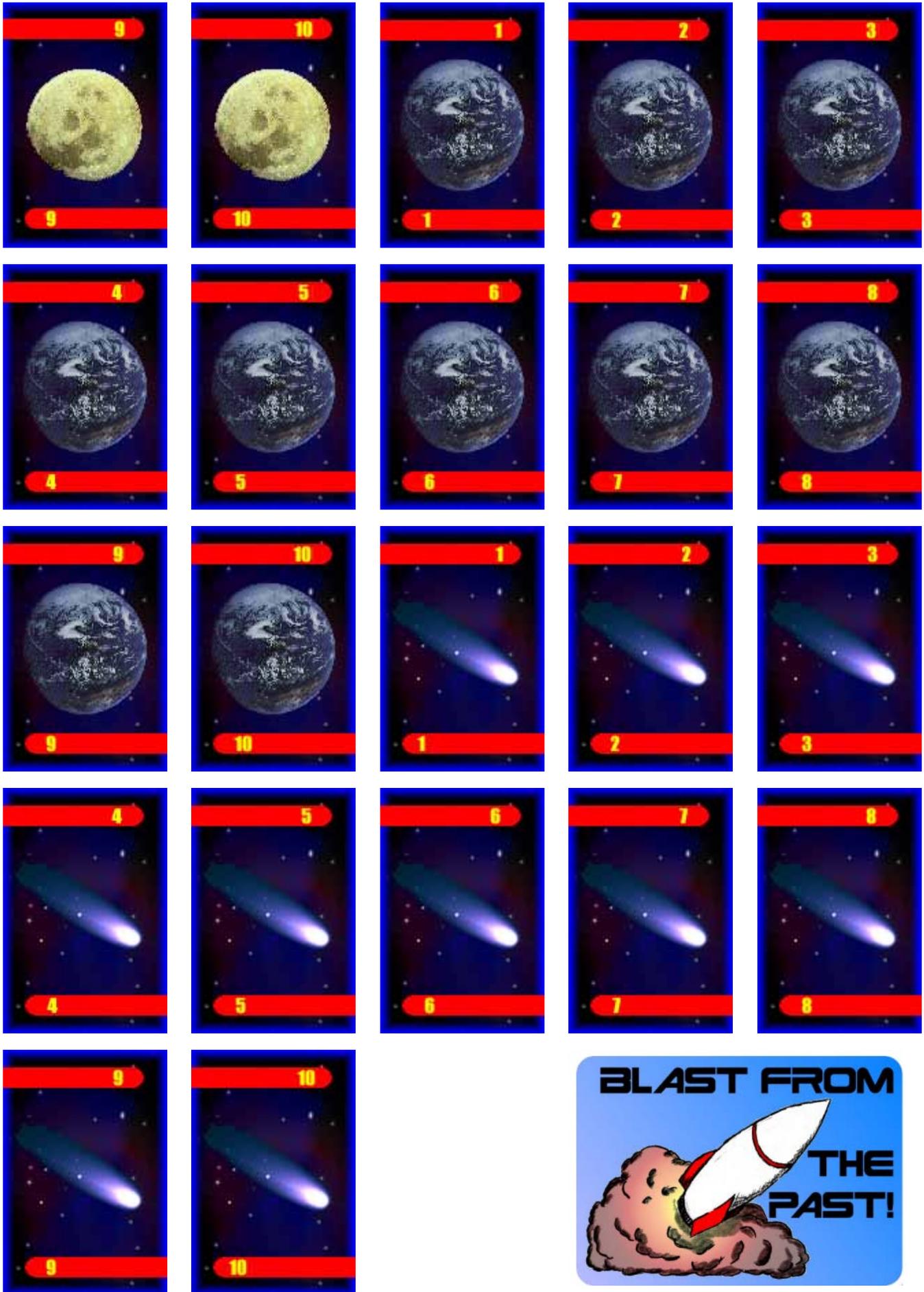
### USING AN EARTH DECK

For terrestrial players who want to play Starbuckaroos:

- Moons = Clubs
- Planets = Spades
- Comets = Diamonds
- Novas = Jokers

### CARD ARTWORK





# SOARING TO NEW HEIGHTS OF ADVENTURE AT HAKOSOAR

## EXAMINING HAKOSOAR, HISTRAN, AND SCREE FRON IN THE STAR FRONTIERS SETTING

BY TOM VERREULT

A word about canon sources: generally Alpha Dawn and Knight Hawks are widely considered definitive but Zebulon's Guide does not have the same universal respect. This is due in part because Zeb's Guide was an incomplete and rushed 2<sup>nd</sup> edition with a radically reimagined view of the Star Frontiers setting fraught with logical inconsistencies and outright contradictions. Though many of those problems crop up in the Zeb's timeline, we have provided time-line entries below for thoroughness.

### WHAT THE CANON MATERIALS CAN TELL US

Scree Fron is a red/orange star. There are some differences in the planetary catalogs between the Alpha Dawn Rules and Zebulon's Guide that are easily explained as changes representing the system at different periods in time. The table below gives the relevant data from these two sources.

### HAKOSOAR

This world is headquarters for Universal Households, the apparel, household furnishing, and housing megacorp. UniHo developed the city of Hyyay as its operations base.

### HISTRAN

This world is the location of the UPF outpost that keeps an eye on the Mechnan system, the Lesser Morass, and that sector of the Vast Expanse.

### UNIVERSAL HOUSEHOLDS

Often referred to as UniHo, this megacorp specializes in three distinct areas: textiles and clothing, household furnishings, and buildings.

Their synthetic apparel resists grime and wear and is inexpensive. Therefore, UniHo made sure it controls the fashion industry; though made to last longer, their clothing goes out of style yearly.

UniHo furnishings are usually made of plastic or plasteel and are modular in design. Any piece of valuable furniture, such as real wood pieces, are made by a sub-contractor.

UniHo buildings are prefab dwelling, offices, industrial and professional facilities, and so forth. Specialty buildings are expansive and are designed and constructed by architectural engineers.

**Headquarters:** Hyyay, Hakosoar

**Chief Executive:** K'an Ku (vrusk)

**Subsidiaries:** Two massive ones: Planetary Structures Inc., and Kotiz Fashions Inc.

### TIMELINE ENTRIES

- **94PF** - Scree Fron system discovered by Yazirians.
- **32-26PF** - Thirtytwo exploration vessels are lost trying to map the Lesser Morass. Only the area between Scree Fron and Zebulon is mapped.
- **70FY** - The Mechnan civilization on Volturnus undergoes an upheaval. The majority of peaceful Mechnans migrate into the undeveloped space between Scree Fron and Dixon's Star.

### WHAT WE CAN INFER FROM THE ABOVE

#### PLANET HABITABILITY

Scree Fron has two planets in the inhabitable zone. We can presume that Hakosoar with its agricultural economy is in the most favorable orbit for agriculture. This means that while Histran is inhabitable, it is either too hot or too cold for extensive agriculture which also explains its outpost population status.

For myself I lean toward Histran being a colder world, but my choice should not limit other referees. It has received some terraforming by GODCo supporting some yazirian plants and animals that are

WORLD	COLONIZERS	POPULATION LEVEL	ECONOMY	GRAVITY	DAY	SPACE STATIONS	MOONS & USE
<b>ACCORDING TO ALPHA DAWN</b>							
Hakosoar	Yazirian	Light	Agriculture and Industry	0.9	50 hours	n/a	5 moons
Histran	Yazirian	Outpost		0.6	25 hours	n/a	7 moons
<b>ACCORDING TO ZEB'S GUIDE</b>							
Hakosoar	Yazirian	Moderate	Agriculture and Industry	0.9	50 hours	n/a	Inti (research) Infi (mining)
Histran	Yazirian	Outpost	Education and Research	0.6	25 hours	n/a	A-G

adapted to colder climes. The two planets are close enough for regular shuttle flights to bring in food and commodities.

## JUMP ROUTES

There is almost certainly a jump route from Scree Fron to Mechano and from Mechano to Voltornus, but neither are public knowledge. The Mechanons will know both routes and the UPF military may know both or only one.

The most likely jump routes to the Starmist system (assuming you place Starmist in this part of the Frontier as the Zebulon's Guide map does and not over between White Light, Madderly's Star, and K'tsa-Kar as specified by the module itself) are through Araks or Scree Fron. Araks is not all that friendly toward non-yazirians and with the presence of a UPF outpost on Histran and its stated mission, it seems most likely that this outpost also monitors Starmist after its discovery. All official UPF traffic headed to Starmist is likely to route through Scree Fron.

## UPF PRESENCE

The UPF outpost on Histran is almost certainly a joint base involving Spacefleet, Star Law, and the UPF Exploration Service to be able to meet its assigned mission.

There is likely a strong Spacefleet presence in Scree Fron and the lack of a militia force may be in part because of the strong Spacefleet presence but also because of the low population levels in system.

## EXPLORATION

Scree Fron has been a staging area for exploration: mapping the Lesser Morass Nebula, exploring Starmist, and 32

exploration vessels lost in the area suggests that it became a nexus for exploration. The fact that there were more than 32 vessels lost suggest that there were substantially more operating in the area.

## UNIHO PRODUCTS

It is highly unlikely that UniHo overlooks the possibility of marketing prefab buildings and exploration base camps to the various exploration services operating out of Scree Fron. They will surely have a whole line of barracks, labs and base camp related structures that are modular, light weight, easily assembled and packed for interstellar shipping.

## AGRICULTURE

The agricultural side of Hakosoar's economy is devoted to yazirian foodstuffs that are shipped widely to Hentz, Hargut, and elsewhere in exchange for resources to feed the industrial side of the economy. UniHo accounts for a large percentage of the gross system product and it is the lion share of the economy.

## RECONCILING DETAILS BETWEEN ALPHA DAWN AND ZEB'S GUIDE

Zeb's Guide names two moons for Hakosoar and ignores the fact that 5 were listed in AD. The simple answer is there are five moons and Zeb's simply supplied 2 of the names. Looking at the names; Infi could be short for infinity and Inti could be short for integer which could mean that the other three names could derive from Math concepts like Sine, Cosine (Cosi) and Tangent (Tang).

Histran's moons are designated A-G, the first 7 letters of the English alphabet. Because of the theme in Star Frontiers of using the Greek Alphabet, the official names of these moons will be the first 7 letters of the Greek alphabet: Alpha, Beta, Gamma, Delta, Epsilon, Zeta, & Eta. These are not glamorous names they simply reflect a quick survey of the system that was filed and forgotten and over time the alphabetic designations stuck in the popular imagination of the inhabitants.



IMAGE BY SCOTT MULDER

UniHo, a megacorp headquartered on a yazirian colony, has a vrusk CEO? Hakosoar is a long way from any of the vrusk colonies. K'an Ku was a bit of a square peg not fitting into vrusk society. His love of beauty was expressed in the artistry of fashion and design and he left his vrusk trade house to pursue a career as a "lifestyle" designer. His business was founded in Port Loren on Gran Quivera. Hakosoar, looking to attract industry and investment to their small struggling colony, was offering free land and tax incentives which induced K'an Ku to move his business to the Scree Fron system where it would rise to megacorp status.

## MUSINGS ON HISTORY

The Family of One and the government of Hentz controls the GODCo megacorp, a large militia force, and its citizenry through with near tyrannical power. There are no sathar start circles (in the Knight Hawks campaign game) anywhere near the Araks system that would justify a large militia force and there are no historic space battles in the system (historic battles would be any Knight Hawks encounters published in the Dragon, Ares, and Polyhedron magazines taking place in Araks). This large militia force is likely meant for projecting force beyond the borders of the system. Combine that with the strict rules enforced for Hentz's society and the potential to withhold terraforming support from GODCo for struggling yazirian colonies, it is easy to see Hentz and Family of One as the heavies and bullies of the yazirian sector of the Frontier.



IMAGE BY SCOTT MULDER

Despite the fact the Family of One's belief system labels clan war as a sin, the Family has practiced clan war virtually wiping out a clan on Hakosoar but under other excuses related to religious and social issues that no one really believes. The truth was strictly avarice. This made Hakosoar leery of the government on Hentz, causing it to court friends with power to counterbalance the influence that Hentz wielded without offending the powers that be in Araks system.

With the megacorp, UniHo, to counterbalance the power of GODCo and the large Spacefleet presence permanently stationed in Scree Fron, the government of Hakosoar has effectively insulated itself against the heavy hand of Hentz without antagonizing that regional power.

Because of the need to monitor both Starmist and Mechano, Spacefleet now maintains a larger than normal patrol group in Scree Fron. It is usually led by a cruiser (large or small), and also contains a couple of frigates and a half dozen assault scouts, with 2-3 of them at the Histran outpost. From time to time there is talk of basing a squadron of fighters at Histran.

## PLACES OF INTEREST

### HISTRAN BASE

This is a joint UPF base on Histran that includes a full military starport hosting Spacefleet, Star Law, and a scout service contingent. After pathogens struck the Frontier from the Starmist system, a

major Medical Services Organization lab was added to the base.

Overall command of UPF forces in system usually resides with the commander of the Spacefleet patrol group stationed here. Command of Histran has generally been by a Spacefleet officer but could theoretically end up in the hands of a Landfleet or Scout Service officer.

### IKO'S LANDING

This is a minor little outpost on Histran which doubles as a civilian landing field (only rudimentary services), some bars, and off base entertainment for the military at Histran Base. It is the point of access for reaching the isolated yazirian monasteries and outpost on Histran.

### MONASTERIES

There 3 yazirian monasteries on Histran. To one degree or another they represent divergent beliefs to Family of One. Their opposition to the Family of One is less militaristic than what you would find on Yast in the Athor system. Their general philosophy could be summed up as "preferring peace over being right."

These monasteries strive for self-sufficiency through growing what they need but they also produce hand-crafted furniture, vessels, and yazirian brandy of exquisite craftsmanship that make their way into high end showrooms and stores that are subsidiaries of UniHo, or into the hands of Cappellan Free Merchants that land at Iko's Landing looking for rare trade items.

### THE CITY OF HYYAY

This is a major city of Hakosoar which is a company town and headquarters founded by UniHo. It features a company star port and a major industrial complex.

### HAKO'S LANDING

Hako's Landing is the seat of government for Hakosoar and the center of agricultural activity on the planet. It has a small starport and "The Spirit of Exploration" monument.

### THE LOST EXPLORERS MONUMENT

Also known as **The Spirit of Exploration**, this monument was established as a tribute to the spirit of exploration and

adventure and to the ships' crews lost in this endeavor.

It is a monumental spire styled after traditional yazirian shrines. Some yazirian explorers will come and burn incense here before launching out into the unknown as a sort of prayer for safe return.

There is an attached museum and archive making this monument a center for education and research. The museum is dedicated to the spirit of exploration and the archives house ships logs, personal logs, and such, not just from the ships based out of Scree Fron but from across the Frontier. It has made Hakosoar the epicenter for research on exploration with many researchers travel to Hakosoar to consult the archives from time to time.

### CHISHOLM DEPOT

The depot is a Landfleet base with large stockpiles of equipment maintained in stasis fields in underground bunkers to prevent the effects of entropy from degrading the equipment before it is called upon again for the defense of the Frontier.

It is staffed with a small maintenance crew and training cadre. During times of peace Landfleet does not require nor can the UPF afford to maintain a large standing army. The training cadre is ready to facilitate the rapid expansion of Landfleet should the sathar invade again and the stockpiles are ready to arm the new army formations.

Some Star Law intelligence reports suggest that the sathar will target such Landfleet facilities with sabotage as a prelude to another invasion, thus security is generally high at this facility but there have been incidents of lax vigilance in the past. The megacorp, A.I.P.S. runs a nearby nuclear reactor under contract to Ground Fleet.

## ADVENTURES IN SCREE FRON

### THE MECHANON ANGLE

#### A MECHANON DELEGATION

Delegates from Mechano are travelling through Scree Fron to the Council of Worlds on Gran Quivera (possibly on the occasion of their petitioning the UPF for



IMAGE BY SCOTT MULDER

recognition). There are elements that don't want this to happen: the sathar have had an ongoing campaign to subvert the Mechanons to their cause and the Silver Death Cult is flatly against their being recognized by the Council of Worlds. Sabotage and assassination attempts could be the order of the day in an Alpha Dawn and Knight Hawks style campaign.

### VISITING MECHANO

A Star Law expedition to Mechano is being launched from Histran Base. Can the player characters navigate the Byzantium like politics of the Mechanon society? Will they survive the secret sathar plot to subvert the mechanon leadership? This could involve AD and KHs action.

### A SUBVERTED MONASTERY

A yazirian NPC acquaintance of the player characters has invited them to accompany him for a thrill-seeking trip to enjoy gliding (or paragliding) in the 0.6 gravity of Histran.

Unfortunately, a winter storm blows up and forces them to take shelter at a monastery. Unbeknownst to them an evil mechanon, ostracized from the rest of mechanon society has taken over a yazirian monastery and turned the monks into slavebots. It is aided by a sathar co-conspirator, hence the presence of slavebot technology.

In the Sundown on Starmist module there is a list of harmless Frontier plants and animals that the sathar have secretly re-engineered to be harmful in some way as a sort of biological trap. These can be peppered throughout this mystery that should play like the famous Dungeons & Dragons module: Ravenloft. This will be an AD style adventure.

### A MECHANON ATTACK

Evil mechanons are angered at the UPF monitoring their movements and launch a strike at the Spacefleet patrol group and Histran Base (with or without sathar allies). This could be a straight up KHs encounter but could also have an AD component with Histran Base being hit by landed troops.

### OF EXPLORING AND KITTY LITTER (ERR I MEAN SANDBOXES)

An exploration campaign is usually considered a sandbox campaign. However, both of the modules Sundown on Starmist and Bugs in the System are located in the vicinity of Scree Fron. A referee can use them to support a sandbox style campaign.

Another exploration adventure seed could be that a yazirian crewed exploration ship crashed on a distant planet more than a decade ago. Recovery efforts were made but in the end the ship was written off as a total loss. A researcher at the exploration



IMAGE BY SCOTT WULDER

archives at Hako's Landing has discovered clues to a mystery and the answers could be in the ship long since abandoned on the moon. He is now looking for explorers to go and investigate.

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# REAPING NEW STAR FRONTIERS MINIATURES FROM REAPER

## THE FRONTIER IN MINIATURE

BY TOM VERREULT

I'm always on the lookout for manufacturers that do Star Frontiers miniatures "with the serial numbers filed off" allowing them to skirt the Star Frontiers IP. I came across a few from Reaper Miniatures in the Chronoscope line. They can be found by a search in Reaper's fig finder for Illyrian, Korkosan or Argamite. I bought three of these miniatures to paint and review. Reaper is a major player in the miniature's hobby, you can locate their fig finder at <https://www.reapermini.com/>.

The Chronoscope line seems to still be all metal figures which are the best at holding detail. Reaper has been converting their lines to plastic: Reaper Bones is PVC plastic and very bendy, but Bones Black is a more rigid plastic that performs better with paint than the PVC plastic. Metal of course costs more but it is my personal favorite when it comes to miniatures.

### ILLYRIANS

There are actually two Illyrian's (as pictured below).

The one with the helmet and magnifyingoggles is perhaps the easiest to press into service as a dralasite. I would file down the mouth and perhaps cover it with sculpting compound maybe creating an item of

jewelry like a necklace or a polyvox around the neck. The one with the mop of hair, I cut off the head and sculpted a dralasite's head in its place.



### ARGAMITE

The Argamite (pictured above right) is a great figure. Clearly inspired by Star Frontiers. The facial features are a little different from a dralasite but not too much. The best part is that he's wearing a space suit and no modification is necessary to use him as a dralasite. You can see my painted figure in the images to the right.



## KORKOSAN

The Korkosan is their yazirian equivalent.



Unlike yazirians, he has a full prehensile looking monkey tail. It is not a major detail and you only see it if you are looking at the back of the miniature. His pataquin wing flaps are very correct for the yazirian. The sungoggles are on top of his cap which looks like a bi-plane era flying cap which is kind of cool.

## BASES

I like all of these figures. My main gripe about them are the bases. Reaper provided them with a very plain “slotta” base which provides a miniature’s enthusiast the opportunity to do a custom base. However, these days I’ve been fairly lazy about basing, using Star Wars Legion - Premium Trooper Bases as they are excellent looking and work out to about .40 cents apiece on a package of 32 for \$13.

## SIZES

The figures conform, in size, to the 28-32mm industry standard. That means they do dwarf some of the original Star Frontiers miniatures produced by TSR (see photo below).



## FINAL THOUGHTS

These are great “in production” replacements for Star Frontiers miniatures that have been long out of production. There are quite a few figures in the Chronoscope line that can be used in sci-fi or Star Frontiers gaming, you just need to look. I give them a solid four dralasite thumbs up on this review.



# THE ESCAPE PLAN

## EPISODE #10: "CHIT CHAT"

