

FRONTIER EXPLORER



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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.

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LETTER FROM THE EDITOR

Hello Explorers!

Welcome to issue 28 of the Frontier Explorer. Hopefully it will bring you a little enjoyment during these trying times.

I'd like to start this issue with a shout out to the artist of our amazing cover image, [Pyraiker from Deviant Art](#). Check out their gallery page for a whole variety of images from fantasy to sci-fi. And thanks to Jerry Boucher for finding the image in the first place.

This issue continues the *Things that Go Boom* series by Joseph Cabadas with two articles on landmines. We've got two or three more articles and that series will wrap up.

We also have another article by Nick Landry, this time on a new combat system and action resolution rules.

Tom Verreault gives us several articles, one looking at the Choose Your Own Adventure book, *Villains of Voltumnus*, an article on whips, and a review of an adventure module written for the White Star system.

Another fun addition to this issue is the *Create a Character Codex* by Aaron O'Brian. He posted this online and then he and Brian Phongluangtham went to town drawing images inspired by the Codex. You can see a collection of their images in this issue with the Codex itself.

Finally, we have another Jurak Hangna article by Eric Winsor and our comics by Scott Mulder.

This issue represents seven full years' worth of issues and eight years of work publishing the magazine. While it was disappointing that we had to stop for a year, it was probably for the best as I was burnt out at the time.

That said, I can't believe we've kept it going this long. When Tom Verreault approached me about doing the magazine back in 2012, I had no idea it would still be going here in 2020. Or that we would have managed to keep to our quarterly cadence.

While some of that longevity is on me for continuing to put each issue together, the majority of the credit really goes to the fan community for continuing to produce content for us to publish. If it wasn't for you, there wouldn't be a fanzine. We wouldn't have any articles. I'm always surprised every time I sit down to start a new issue that my submission queue is full. Please keep those submissions coming. Again, thank you to everyone who has

submitted articles and art in the past. Our longevity is really due to the amazing community surrounding this game.

Speaking of submissions, we are looking at doing a robot themed issue in the near future, probably for issue 30. So if you have robot's you've created for your game, new rules you've invented, or just equipment for your robots to use, consider submitting them for publication.

And speaking of our community, it continues to grow. Over the last three month's our Facebook group, [Star Frontiers: Alive and Well](#), has added over 60 new members, crossing the 2600 member threshold, a growth of about 2.3%. The [Star Frontiers Discord server](#) has over 100 members. It's not as active as I wish it could be but it shows small bursts of activity from time to time which is encouraging and it continues to grow. I've also seen an uptick in the number of mentions of the game on Twitter.

Also, I've recently created a [Facebook page for the magazine](#). If you're a Facebook user, I'd appreciate it if you'd jump over and give us a like and a follow. I'm hoping to start going to conventions once they start up again and reporting a bit on those adventures here in the magazine. I might even manage to arrange some interviews with early creators. Getting enough likes and follows on that page would allow me to get a press pass to some of the cons. I'll cross post any announcements from the magazine's website to that page as well.

Finally, I just want to say that I hope everyone is doing well as the world collectively works through this COVID-19 pandemic. I know that some of you have been or will be hit fairly hard, either physically, emotionally, or financially by the events unfolding around us. You are in our hearts and prayers. Be safe and take care of yourselves and your loved ones.

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

- Tom Stephens
Senior Editor

NEW COMBAT RULES AND ACTION ECONOMY

BY NICK LANDRY

Following a 30+ year hiatus, my gaming group decided to revisit Star Frontiers, a tabletop roleplaying game we all cherished as kids and teenagers. The setting still felt evocative, memories of space adventures came flooding back to our minds, huge smiles were had as we gazed upon the iconic art that made us buy and play the game in the first place... then the rose-colored glasses came off.

As we attempted to run a mock fight, we quickly got confused by the combat rules in Alpha Dawn. *“So, if we won the initiative, they move first, but we shoot first. But wait, I haven’t moved yet; do I still get a penalty for shooting if intend to move in my turn? And how many actions per turn do I get?”* It was confusing as we dealt with the gaps, the tapestry of the combat rules quickly unraveling before our modern gamer eyes.

The goal of this article is to provide an alternative for managing actions in personal combat—also known as **action economy**—within your ongoing Star Frontiers adventures. These personal combat rules only apply to individuals, either on the ground, aboard ships, or on space stations. While some of these rules could be adapted for vehicular combat, that’s outside the scope of this article. Starship combat in Knight Hawks is also not covered here.

STAR FRONTIERS SKILLS IN ALPHA DAWN RULES

The new combat action economy rules outlined below are designed for the Star Frontiers Alpha Dawn rules. This is not a complete redesign of the combat system, merely a different way to manage actions and movement, with a few bonus rules on top. Since combat relies on specific skills, let’s quickly discuss a few variants of the Alpha Dawn rules for calculating skills and modifiers:

1. **Alpha Dawn (AD):** The eight standard ability scores are used without any changes here. While this works fine for combat skills where ranged attacks are tied to DEX, and melee attacks are tied

to STR or DEX, the base rules do not take any ability scores into consideration when performing non-combat skill checks. For that reason, you’re encouraged to use options #2 or #3 below.

2. **Skill Modifiers:** One alternative proposed in Star Frontiersman #1 is the use of skill modifiers. While this doesn’t affect combat skills, it’s a good approach to reward characters with high ability scores or penalize them for low scores when performing non-combat skill checks.
3. **A Skilled Frontier (ASF):** This article of the same name from Star Frontiersman #9 takes things further by providing a new skill system tied to ability scores and an expanded PSA list, along with more skills.

To maximize compatibility with the Star Frontiers variant used at your table, rules clarifications are presented throughout this article using [AD] or [ASF] as applicable. Note that this article is not designed to work with the revised Star Frontiers rules found in Zebulon’s Guide to the Frontier. You are free to adapt this article if you use this system instead of Alpha Dawn.

Additionally, while these rules can be adapted to be used to run combat in the Theater of the Mind (TotM), this system works best when grid maps and miniatures are used at your gaming table.

Important note: Any rule or situation not covered in this article should be defaulted back to the original Star Frontiers Alpha Dawn combat rules.

ADDITIONAL RULES

The combat rules in this article make use of additional mechanics new to Star Frontiers, including:

- Opposed Rolls (also known as contested checks)
- Rolling with Advantage
- Rolling with Disadvantage

OPPOSED ROLLS / CONTESTED CHECKS

Opposed rolls (also known as contested checks) are required when the skill of the character performing the action (initiator) is pitted against the skill of an opponent (target). Roll opposed skills using d100 (e.g. ranged attack vs dodge). If one succeeds and the other fails, the successful character wins the contest. If both fail, the attempt by the initiator fails. If both succeed, the character who rolled the highest prevails, unless one of them rolls a critical success, which automatically results in a win. Opposed rolls are a rare exception where a player wants to roll low enough, but not too low.

CRITICAL SUCCESS

Rolling doubles (e.g. 11, 22, 33, etc.) on a successful d100 attack roll, ability or skill check results in a critical success.

CRITICAL FAILURE

Rolling doubles (e.g. 99, 88, 77, etc.) on a failed check results in a critical failure. Rolling 00 (or 100 on modern d10 dice) counts as 100, which is a critical failure.

ROLLING WITH ADVANTAGE

Certain situations can create an advantage for a character, or as deemed appropriate by the referee. When rolling with advantage, the character, NPC, or creature gets the option to “swap” the two digits of the d100 result to obtain the lowest result possible, thus increasing their chance of success. For example, if a character rolling with advantage rolls “73”, they can treat it as “37”.

ROLLING AT DISADVANTAGE

The opposite situation can arise where a character is disadvantaged when attempting to attack or make a skill check. In this case, the character must “swap” the two digits of the result if it produces a higher result, thus decreasing their chance of success.

INITIATING COMBAT

Combat is executed in rounds. During a combat round, each player gets a turn to perform one or more actions. When each combatant has had a turn, the round ends and a new round begins. The order of combat is determined by the initiative roll. This new combat system uses *individual* initiative rolls, not the group initiative from AD.

ROLL FOR INITIATIVE

Each player rolls for initiative using $2d10 + \text{Initiative Modifier}$ (calculated from RS). The Player Character (PC) with the highest score goes first, with other combatants getting their turn in descending order of their respective initiative rolls. The initiative order remains the same for each subsequent round of combat.

CRITICAL RESULTS ON INITIATIVE ROLLS

Rolling a 20 (10+10) on an initiative roll is considered a critical success, which results in the PC getting +2 AP to spend during the first round of combat (see **Actions in Combat** below). A critical failure occurs when a PC rolls a total of 2 (1+1) for initiative, resulting in the PC getting -2 AP during the first round of combat. Subsequent rounds are executed normally.

RUSHING INTO ACTION

In situations where a player feels that it is imperative that they act first, they can choose to rush into action by sacrificing action points (AP) in their first round of combat. For each AP sacrificed they gain a +5 bonus to their initiative roll. The player can decide to rush into action before or after rolling for initiative, but before the first round of combat starts. The original initiative score rolled (without any rush bonus) must be used for each subsequent round of combat.

SURPRISE ROUND

If combat is initiated by one group of combatants where the opponents were not aware of their presence prior to combat, a surprise round occurs. All opponents affected by the surprise must succeed an INT ability check or be stunned for the

duration of the first combat round. Depending on the surprise conditions the referee may apply a difficulty modifier or apply disadvantage to the surprise check.

When a character is stunned:

- They cannot act and are functionally incapacitated but only temporarily.
- They automatically fail all opposed checks.
- Attackers have a +10 bonus to attack stunned creatures.

ACTIONS IN COMBAT

All characters have 3 Action Points (AP) to spend in each combat round. The **Combat Actions Cost Table** below (p. 8) shows all the primary actions that can be performed during a combat round, along with their AP cost.

MOVEMENT IN COMBAT

Characters can perform a single move, double move, or triple move by spending the assigned amount of Action Points. If a character has a base move of 10m, a single move lets them move 10m during their turn. With a double move, they can cover 20m, and with a triple move they can cover 30m. Attacking before or after moving does not incur an attack penalty for the attacker (unlike AD). If a combatant attacks an opponent in the middle of their movement, the attacker suffers a -10% penalty to hit the moving target.

Movement can be broken-up in between actions. A PC with a base movement of 10m can move 4m, shoot at an enemy, and move another 6m, which counts as a single move. Attacking in the middle of a movement incurs a -10% to hit. This penalty also applies if a PC performs a double move while attacking between each move.

ATTACKS OF OPPORTUNITY

If a creature leaves the threat zone (adjacent square) of an opponent, that opponent gets a free melee or ranged attack of opportunity against the retreating creature. The attacker must be holding a weapon at the ready to benefit from this free attack.

Creatures can use the Disengage action to move out of an opponent's threat zone without incurring any attacks of opportunity.

DISENGAGE

When using the Disengage action (1 AP), a character leaves the threat zone of their opponent but only moves 2m away. Does not provoke attacks of opportunity.

ATTACKING WITH A RANGED WEAPON

Attacking with a ranged weapon is a skill check made against the PC's DEX divided by 2, then add 10% per level trained in the associated weapon skill. The total is

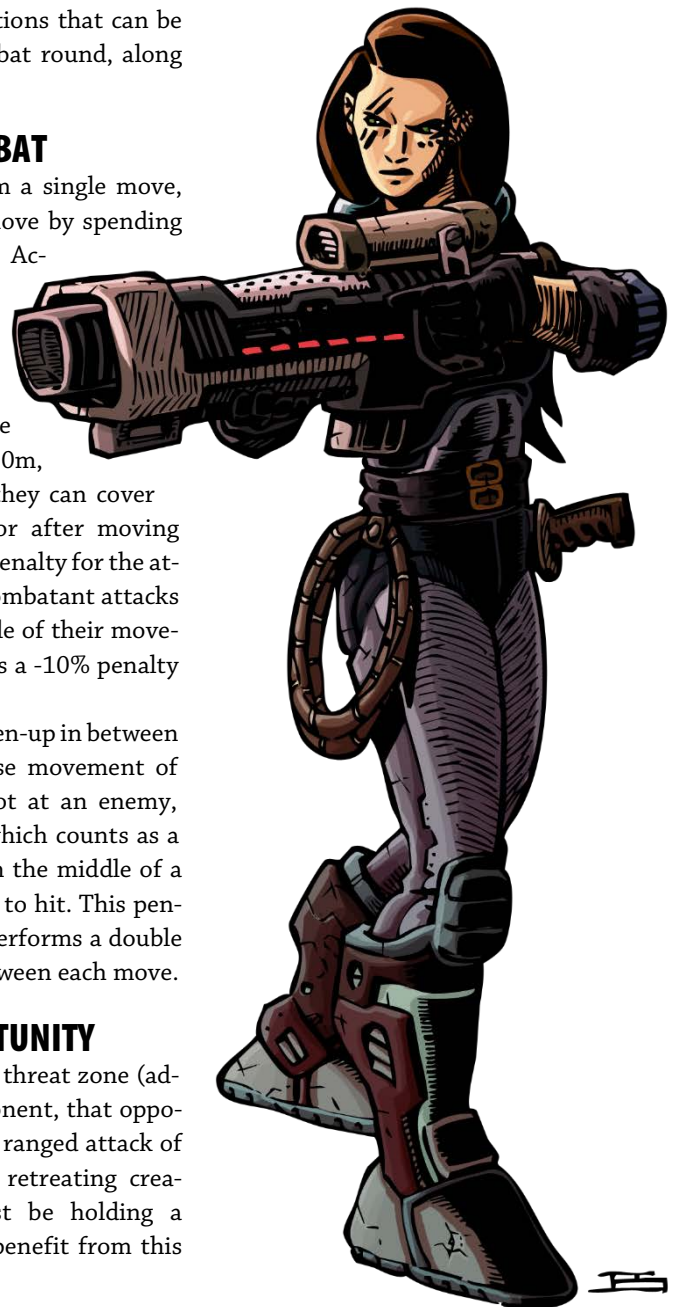


IMAGE BY JAMES SHIELDS

known as the base weapon skill. The following are the ranged weapon skills:

- Archaic Weapons [ASF]
- Beam Weapons
- Gyrojet Weapons
- Projectile Weapons
- Thrown Weapons

The base weapon skill is the base chance of success when attacking with that weapon, to which you apply one or more modifiers. Certain combat conditions improve a character's chance of hitting their target, such as taking the time to aim, shooting from point blank range, shooting bigger targets, or shooting at opponents that are immobile and unable to move. Negative conditions that hinder a character's ability to hit a target include movement, shooting at an opponent hiding behind cover, firing at smaller or prone targets, holding a weapon in the wrong hand, firing two weapons, or being wounded.

Shooting an opponent who is actively engaged in melee combat against the attacker incurs a penalty for the ranged attacker. If the opponent is retreating or disengaging, they are no longer actively engaged, and the melee range penalty doesn't apply.

Each shot requires spending an action point, superseding (but not exceeding) the rate of fire value from the AD rules.

The following table presents the most common modifiers to hit, which are applied to a character's base chance to hit with a ranged weapon. Other modifiers may apply in special circumstances as decided by the referee. The term PC is used for the attacker, though the same modifiers apply to NPCs attacking player characters.

RANGED COMBAT CIRCUMSTANCES		CHANCE TO HIT
Base Chance	Using a ranged weapon	½ DEX %
Weapon Skill	Modifier per level trained in weapon	+10% / level
Movement	PC attacks before or after moving	--
	PC attacks in the middle of a move	-10%
	Target is stationary or already moved	--
	Target is moving, normal speed	-10%
	Target is moving, fast speed	-20%
	Target is moving, very fast speed	-30%
Range to Target	Point Blank range	+10%
	Short range	--
	Medium range	-10%
	Long range	-20%
	Extreme range	-30%
Melee Range	Shooting an engaged melee attacker	-10%
Aiming	PC takes aim at the target	+10%
	PC aims carefully at the target	+20%
Cover	Target is obstructed by half cover	-10%
	Target is obstructed by ¾ cover	-30%
	Target is hidden behind total cover	Cannot Attack
	Target is protected by covering fire	-10%
Target Size	Tiny	-20%
	Small	-10%
	Medium	--
	Large	+10%
	Giant	+20%
	Gargantuan (bigger than giant)	+30%
Prone Target	Target is lying prone on the ground	-10%
Immobile	Target is standing but stunned, restrained or paralyzed	+10%
Burst	Firing a burst of 10 bullets	+10%
Handedness	Attacking with the wrong hand	Disadvantage
Two Weapons	Attacking with 2 weapons in 1 round	-10%
Wounded	PC is below ½ Stamina	-10%

CRITICAL SUCCESS ON ATTACK HITS

When rolling a critical success on a weapon or unarmed attack, the attack deals maximum damage. The attacker also rolls an extra damage die. For example, if a soldier fires a beam weapon set to power level 4, a successful hit deals 4d10 damage. On a critical success, the attack automatically deals 40 (4x10) damage with an extra 1d10 damage.

Attacks made against an unconscious creature at point blank range automatically count as a critical hit.

CRITICAL FAILURES

When rolling a critical failure, the attack automatically misses, and the referee may decide to impose a mishap to the attacker using one of the following options or by rolling 1d10:

1. Nothing happens
2. The missed attack results in a very loud noise, attracting extra attention
3. Stumble, lose remaining AP this turn or -1 AP next turn
4. Trip and fall prone
5. Dropped weapon (1 AP to pick up)
6. Ranged weapon jammed or melee weapon stuck (2 AP to recover)
7. Hit a nearby piece of equipment (something significantly meaningful)
8. Hit an ally or self (normal damage)
9. Weapon is destroyed
10. Weapon explodes or hit self (critical damage to attacker)

Critical failures should be leveraged by the GM as storytelling opportunities, not just straight out mechanical penalties for the attacker.

TWO WEAPON FIGHTING

Characters can attempt to attack with two weapons by holding one in each hand. If the character has more than two arms & hands (e.g. Dralasites, robots, other aliens, etc.) no more than two hands can be used at a time to attack with weapons since the attacker's brain cannot focus to aim adequately with more than two hands.

Attacking with a second weapon is a single free action (0* AP cost, see below).

The following penalties apply when attacking with two weapons during the same round:

- **Main hand:** *Two weapons* penalty (-10%)
- **Off hand:** *Two weapons* penalty (-10%) and *Handedness* penalty (roll attack at disadvantage)

If a character is holding two weapons but is only using one of them during their turn, the *Two weapons* penalty does not apply, but the *Handedness* penalty still applies if they attack using their off hand.

Ambidextrous characters (like vrusks) do not suffer from the *Handedness* penalty but the *Two weapons* penalty still applies if they attack with two weapons during the same turn.

DELAYING / HOLDING AN ACTION

PCs do not need to use all their action points on their initiative turn and can

“save” Action Points to be used later in the round. Delaying actions doesn't affect the initiative order for subsequent rounds. Common uses for delaying or holding an action include the following:

- Dodging or Parrying in anticipation of an upcoming attack.
- Shooting at an opponent once they reveal themselves out of cover.
- Moving after the enemy.
- Making an additional attack of opportunity (as applicable).

The player simply announces that they are delaying their remaining actions. If they are waiting for a specific event, they can let the Referee know, but this is not necessary. They can simply announce they are taking their actions when the appropriate time comes. If a character ends the round with unused, leftover AP, they can choose to spend them before the start of the next round, but they cannot carry them over. All AP must be used within the round or be lost.

DODGING AN ATTACK

All attacks, melee or ranged, can be dodged. Dodging an attack costs 1 AP and is a contested check between the attacker's roll to hit vs the defender's RS ability check. If the attacker wins the contested check, the attack still hits the target. If the defender wins, the attack misses its target and the dodging character suffers no damage.

Dodging multiple attacks is possible if the defender spends 1 AP for each, but each attack can only be dodged or parried once.

PARRYING / BLOCKING A MELEE ATTACK

Only melee attacks can be parried with a weapon. Parrying an attack costs 1 AP and requires the use of a melee weapon. Unarmed combatants cannot parry. Parrying an attack is a contested check between the attacker's roll to hit and the defender's melee weapon skill. If the defender wins, the attack was parried by the defender's weapon and no damage is suffered.

Shields can be used to block both melee and ranged attacks using the parrying rule, increasing the chance to parry by +20%. If a shield was used, the parry succeeds, and

if the difference between the two contested rolls is 20 or less, the attack hit the shield instead.

Parrying multiple attacks is possible if the defender spends 1 AP for each, but each attack can only be dodged or parried once.

PROVIDING COVERING FIRE

A character can provide covering fire by rapidly firing their weapon in the general direction of the enemy to help protect a teammate who is attempting something risky, like retreating, running across the room towards a door, reaching another point of cover, assisting a wounded teammate, etc. Providing covering fire costs 2 AP and 5 ammo units that are spent with no chance of hitting any target. The covering fire affects opponents in a 10m area (5x5 squares), providing a defensive bonus to nearby allies for the rest of the turn, imposing a -10% attack penalty on the affected opponents.

PERFORMING ACTIONS WITH HASTE

All combatants can attempt to perform more actions than normally allowed by performing actions with haste. The Combat Actions Cost Table shows which actions can be performed with haste, and which cannot, along with additional checks required for hastened actions. Hastened actions cost half their AP to perform. Fractions are preserved and a character cannot use hastened actions to spend more AP than they have in a turn. Unused fractions are discarded at the end of a turn.

Hasted attacks are typically rolled at disadvantage, while other hastened actions usually require that additional checks be performed to avoid mishaps. Consult the **Combat Actions Cost Table** for details of the specifics of hastened actions.

SETTING THE POWER LEVEL ON BEAM WEAPONS

Some beam weapons like the laser pistol, laser rifle, and heavy laser support a variable power setting to dial the damage up or down based on SEU consumption per shot fired. Changing the power setting on beam weapons is a single free action (0* AP cost, see below).



IMAGE BY JAMES SHIELDS

BEAM WEAPON OVERHEATING

When firing a beam weapon that supports a variable power setting, the weapon has a chance of overheating if the power dial is set to any SEU value higher than the minimum. After firing such a laser weapon and resolving the attack, the player must roll 2d10 if a higher setting was used. If the total rolled is lower than or equal to the current power setting of the weapon, it overheats and cannot be fired for the rest of this round and the next round. For example, a character fires a laser pistol set to power level 6 and hits. They roll 6d10 for damage, and then roll 2d10 to check overheating. If they roll a total of 6 or less, the weapon overheats.

FIRING A BURST OF PROJECTILES

Automatic projectile weapons allow firing a burst, which means firing multiple bullets at once in packs of 10. Track ammo carefully. Larger weapons like machine guns can fire multiple bursts of 10 bullets per action. Firing a burst grants a +10 chance to hit and the attacker must roll an attack for each burst of 10. On success, roll 1d10 per burst of 10 to determine how many bullets hit, applying damage for each bullet.

RELOADING A WEAPON

When running out of ammunition, characters can use the **reloading** action (1 AP), which involves pulling ammunition that is readily available and loading it in the current weapon. Ammunition kept at the bottom of a backpack is not handy and cannot be used in the middle of combat to reload a weapon. For weapons with ammunition clips, the current clip can be ejected as part of the reloading action, but the empty clip cannot be stored away, it is dropped to the ground. In the case of rechargeable power clips (see *Portable Power in the Frontier*, *Frontier Explorer #26*), characters must remember to pick them up after combat ends (if circumstances allow) or the clips are lost.

Note that if a weapon description has a rate of fire of $\frac{1}{2}$, then the reload cost is 3 AP, not 1 and it cannot be reloaded in the round it was fired. This represents the added complexity of reloading this weapon.

FREE ACTIONS

Actions marked with 0 AP in the **Combat Actions Cost Table below** are considered free actions. Most free actions are called single free actions, which means that only one such free action is allowed per combat round. Single free actions are noted with an asterisk (0* AP cost). Subsequent single free actions performed in the same round cost 1 AP.

Examples of free actions include the following actions below. Other free actions may be allowed at the referee's discretion:

- Communicate a short message to teammates or opponents
- Move through an unlocked door
- Deliberately falling prone to the ground
- Unsheathe/ready a weapon
- Change the power setting on a weapon
- Attacking with an offhand weapon
- Performing an attack of opportunity
- Drop an item to the ground
- Push a button on a console or on a wall

UNARMED COMBAT & MANEUVERS

Characters trained in unarmed combat [ASF] or martial arts [AD] can use various combat techniques to damage or control their opponents without the use of any weapons. The style of combat is up to the player to decide. Characters who rely on their STR normally use boxing or kickboxing techniques, whereas characters who rely on their DEX favor various martial arts techniques.

ATTACKING WITH A MELEE WEAPON OR UNARMED

When attacking with a melee weapon or in unarmed combat with fists or martial arts, refer to the standard rules as outlined in the Alpha Dawn expanded rules. The variant rules outlined below are alternatives to the Alpha Dawn rules for certain unarmed maneuvers.

CHARGE

A charge costs 2 AP for a single move. When followed by a melee attack (AP cost

is separate), a successful attack charge results in dealing double STR damage.

DISARMING / GRAB AN OPPONENT'S WEAPON

When attempting to **disarm** an opponent, this variant rule uses an opposed check where the attacker performs a melee attack with a -20% penalty vs the target's melee skill (1/2 STR or DEX + 10% per skill level). On success, the attacker now holds the weapon and can use it by spending the appropriate AP cost. On a critical success, the attacker gains +1 AP bonus only usable to fire the weapon that was just seized. On a critical failure, the weapon fires by accident and hits the attacker, inflicting normal damage.

WRESTLING / GRAPPLE AN OPPONENT

When **wrestling**, you can use the same general rule as outlined in the Alpha Dawn rules, except that instead of simply making a melee attack, use an opposed melee attack against the target's melee skill (1/2 STR or DEX + 10% per skill level). If successful, the opponent is grappled, following the same effect. On their turn, the grapple victim can attempt to break free using 1 AP and performing their own opposed roll as outlined above.

DEFENDING

When a melee combatant adopts a defensive stance, use the dodging or parrying rules detailed above instead of the Defending rules from Alpha Dawn.

COMBAT ACTIONS COST TABLE

The quick reference table on the following page summarizes the list of actions available in combat, including their Action Point (AP) cost, and whether each action can be hasted.

Nick Landry is a game designer and founder of Big Bald Games, a New Jersey-based indie game studio, working on tabletop and digital RPG products, including the sci-fi game SPACE KIDS RPG. His credits include content for Frontier Explorer magazine, Kobold Press, and self-published material on DriveThruRPG. Twitter: @ActiveNick

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INITIATIVE AND ACTION POINTS			
Initiative	2d10 + RS	Rush into Action: +5 bonus to initiative roll for each AP sacrificed during first combat round	
Action Points (AP) per round	3	Critical success on Initiative roll: +2 AP in first round. Critical failure: -2 AP in first combat round	
Hasted actions	Half AP cost	Roll at disadvantage or requires extra skill/ability check. See details below. Action must support Haste	
Free actions	Cost 0 AP	Only one 0* action per turn, subsequent free actions cost 1 AP. Some can be hasted as outlined below	
COMBAT ACTIONS: MOVEMENT	AP COST	HASTED?	DETAILS
Walk/jog (single move)	1	No	Move base speed in meters
Run (double move)	2	No	Move base speed x2 in meters
Sprint (triple move)	3	No	Move base speed x3 in meters
Disengage	1	No	Move 2m away from opponent. Does not provoke attacks of opportunity
Charge	2	No	Single move, deal double STR damage on melee attack
Stand up	1	Yes	Hasted: Succeed DEX check or fall back down
Take cover	1	Yes	Half-move + crouch behind partial cover. Hasted: Succeed DEX check or mishap (fall prone, etc.)
Drop prone	0*	No	Character lies down on the ground, becomes prone
COMBAT ACTIONS: ATTACKS	AP COST	HASTED?	DETAILS
Melee attack (standard/unarmed)	1	Yes	Base ability score: ½ STR or DEX + skill. Hasted: Disadvantage
Melee attack (two-handed)	2	Yes	Base ability score: ½ STR + skill. Hasted: Disadvantage
Ranged attack (standard)	1	Yes	Base ability score: ½ DEX + skill. Hasted: Disadvantage
Ranged attack (heavy weapon)	2	Yes	Base ability score: ½ DEX + skill. Hasted: Disadvantage
Thrown weapon attack	1	Yes	Base ability score: ½ DEX. Hasted: Disadvantage
Attack with 2 nd offhand weapon	0*	No	Offhand attack roll at disadvantage. Both hands attack at -10
Attack of Opportunity	0*	No	Free attack against a creature when it leaves the attacker's threat zone
Take aim / Aim carefully	1 or 2	No	+10 / +20 (respectively) on next attack roll
Provide covering fire	2	No	5 ammo units spent, affects opponents in 10m area, provides defensive bonus to nearby allies
COMBAT ACTIONS: MANEUVERS	AP COST	HASTED?	DETAILS
Activate an Item	1	Yes	Hasted: Succeed DEX check or miss / drop the item
Disarm / Grab target's weapon	1	No	Contested melee attack at -20 penalty vs target's melee skill
Dodge (melee or ranged)	1	Yes	Contested attack against target's RS check. Hasted: Attack at disadvantage
Parry (melee) or block (shield)	1	Yes	Contested attack against target's RS check. Requires melee weapon or shield. Hasted: Disadvantage
Wrestle / Grapple an opponent	2	No	Contested melee attack vs target's melee skill
COMBAT ACTIONS: INTERACTIONS	AP COST	HASTED?	DETAILS
Talk/Yell	0	N/A	Call out a few words to teammates, can be overheard by enemies
Moving through unlocked door	0*	No	Assumes the door is either automatic or has a simple handle/latch
Unsheathe / ready a weapon	0*	Yes	Hasted: Succeed DEX check or drop item
Change weapon power setting	0*	Yes	Hasted: Succeed DEX check or mishap (drop weapon, use wrong setting, etc.)
Drop an item	0	No	Item is dropped to the ground and is lost unless recovered after combat
Reload weapon/change clip	1 or 3	Yes	Unless weapon description says otherwise. Hasted: DEX check or failed to reload, dropped clip
Sheathe weapon/put away item	1	Yes	Hasted: DEX check or drop weapon/item
Apply First Aid (biocort)	1	Yes	Hasted: Roll First Aid skill check with -40% penalty
Pickup an item (1H or 2H)	1 or 2	Yes	Pickup an item with one hand (1AP) or two (2AP). Hasted: DEX check or drop item
Pickup injured/unconscious (N)PC	2 or 3	Yes	Costs 2 AP if target is smaller size, otherwise 3 AP. Hasted: STR check or both fall down

THINGS THAT GO BOOM!

PART 5: DON'T STEP ON LANDMINES

BY JOSEPH CABADAS

Primarily used as a defensive weapon, landmines – along with primitive devices including caltrops and traps – have been used over the centuries to help protect a position or direct an enemy to another spot where they will be at a disadvantage.

Hidden, stationary bombs, mines are a type of area effect weapon that can be a hazard to characters in the Star Frontiers game universe.

Some of the types of mines introduced in Zebulon's Guide included mine kits, which convert a grenade into a mine, along with moving mines such as the grasshopper and the leapfrog. Other types of mines have appeared in issues of Star Frontiersman and Frontier Explorer magazines.

Characters could also employ improvised explosive devices (IEDs) using explosives, bombs, or warheads without using an official mine kit.

If they are buried, landmines do not have secondary blast areas. They use motion, pressure, proximity, time delay, voice, photon, or other activation mechanisms.

A HISTORY OF TRAPS AND COMBAT

Outnumbered by Gaul warriors at the town Alesia in 52 B.C., Julius Caesar's army deployed spikes in the fields to slow the advance of the enemy. Known as caltrops, these are devices made of several spikes that are arranged so that one point will always face upward while the other ends anchor it into the ground.

Using a combination of caltrops and traps aided the Romans in winning the battle. With the glory from this battle, Caesar would set out to turn the Roman Republic into the Roman Empire.

These "lilies of the field," caltrops became widely used by Roman armies. They are still used today because of the ease of their design to manufacture.

Other ancient, but still effective land traps include pits and punji sticks – sharpened, poisoned bamboo spikes – that were used by the Vietcong against American troops during the Vietnam War. Though these traps did not use explosives, they created a number of casualties, as noted in an article by Kyle Falcon, "A Brief History of Landmines Part I, Pre-Modern Uses: Traps, Spikes and Caltrops," that was published by the Canadian Landmine Foundation.



The Chinese are believed to use the first explosive landmines around 1277. Europeans began using them by the 1500s. But the first modern landmines – with gunpowder, a detonator and wrapped in a metal container to create shrapnel – was invented by American Gabriel Rains in 1840.

From North Carolina, Rains joined the Confederate Army, becoming a general. The Confederates deployed Rain's "subterra shells" to impede the advance of Union cavalry and troops. They also began using some of the first improvised explosive devices (IEDs). These weapons were devastating to those who stepped on them, noted writer Lorraine Boissoneault in a 2017 article in Smithsonian Magazine, "The Historic Innovation of Landmines – And Why We've Struggled to Get Rid of Them."

By World War I, the British deployed landmines filled with poison gas against the Germans at the Battle of the Somme in

July 1916. The use of mines by military and guerilla forces continued to spread. They were used in World War II, the Korean War, the Vietnam War, and other regional conflicts. By the 1990s, it was estimated that 26,000 people were the casualties of landmines each year.

According to the Federation of American Scientists, about one of every 236 people in Cambodia is an amputee as a result of landmines from old wars. An estimated 10 million mines are believed to still be in the country, which has a population of 8.6 million.

By the 2010s, landmines were causing an estimated 500 deaths or injuries a week – about 15,000 annually – with the victims being overwhelmingly civilians and many of them children. "Unlike other weapons, landmines continue killing and maiming long after the war has ended," noted a report by the Federation of American Scientists.

The United States eventually developed a so-called "safe" landmine that would self-destruct after a designated period of time.

In the Star Frontiers universe, it is doubtful that landmines would be eliminated, but their possession and use outside of the military – especially lethal designs – would probably be illegal on the more civilized worlds such as Gran Quivera.

LANDMINES IN THE FRONTIER

Landmines are uncommon items and their ownership, use, or possession may be outlawed on most civilized worlds except for designated military or paramilitary units. Yet explorers have found them to be useful for protecting a campsite against large predators, pirates, or Sathar war parties.

Minefields are death traps and a referee should use them with care against player characters. Only characters with the



Demolitions skill should be able to purchase mine kits or specialized landmines.

The demolition expert should have the knowledge of how to set them up – at least with any degree of reasonable safety. An exception would be a weapon such as the claymore landmine.

The number of turns needed to set up a mine is the character's skill level subtracted from seven. At first level, a character needs six turns to set a charge, but at sixth level they need only one turn. Note: the time to set the mine does not include the time it takes to conceal it! This could take 1d10 turns to bury and hide a mine.

If a character fails the skill check to set up mine, it will not explode when tripped. It then must be re-set. The referee should feel free to have the mine explode prematurely or late if the skill roll resulted in an automatic failure roll of "00." Usually, the mine will not explode on the setter.

In some cases, if the player character is trying to set the landmine just before an enemy comes into sight – such as when the PC is conducting an ambush – the referee can delay the skill check roll until the time the mine is supposed to be triggered. That way, the PC will not know ahead of time if they set the mine properly.

There are several types of landmines available to characters in the Frontier. The most popular are mine kits that can convert a grenade or missile warhead into a mine. Other types of mines include the claymore, grasshopper and leapfrog mines, but there are other unusual or exotic explosives.

All mines will need some sort of sensor, whether it is a simple trip wire, a pressure plate, radio detonator, or some other device. Many times, these sensors need to be purchased separately. If a land mine does not have a sensor, it will remain inert.

ENCOUNTERING LANDMINES

Many landmines are buried, though it is possible that some might be lying openly on the ground. Most of the rules that follow – which are influenced by those of the Twilight 2000 game that was produced by

Game Designers Workshop (GDW) – assume that the mine is buried.

DETONATION

A character walking through a minefield with tripwire or pressure plate sensors has a 10 percent cumulative chance of triggering a mine per 5 meters traveled. For example, a character has walked 20 meters; they now has a 40 percent chance of triggering a mine.

In a party of several characters, unless they are following a marked trail and going single file, the referee should check for each one to see if they set off a mine.

Ground vehicles have a 20 percent chance of triggering an anti-vehicle pressure mine per 5 meters traveled. Note, hover vehicles will not set off mines that are only equipped with pressure sensors!

"A hovercar or 'skimmer' is a car that floats on a cushion of air 30 centimeters above the ground," according to the Alpha Dawn rulebook. "A pair of turbo fans propel it through the air."

In the real world, hovercraft are used to travel over water. They produce a lot of lift force, but it is dispersed downward over a wide area. According to a number of sources – including military publications to a segment on the old TV show "Myth Busters" – it appears that the pressure to raise the hover vehicle off the ground is about two orders of magnitude less than is required to detonate a typical pressure activated mine.

Mines with other types of sensors including proximity and motion detectors will have a higher chance of detecting a character or vehicle and detonate. For example, a vehicle traveling into a minefield that has magnetic sensors has a 50 percent cumulative chance of triggering a mine for every 5 meters traveled.

A character entering an area where a mine has a motion sensor has a 20 percent cumulative chance of setting it off for every 5 meters traveled; or a 50 percent chance if the mine is equipped with either a proximity or voice sensor.

ANTI-VEHICLE MINES

Some mines are specifically designed for anti-vehicle use. They will not detonate when a character or size 0 vehicle is

encountered. (See "Things that go Boom! Part 3: Expanding the Demolition Skill" in Frontier Explorer issue 27 for more information about vehicle sizes).

Anti-vehicle mines will only detonate when a pressure of 160 kilograms or more is applied. Characters can set an anti-vehicle mine for a specific size range. Since hover vehicles will not set off pressure mines, many anti-vehicle mines are often fitted with magnetic or motion sensor clusters.

LANDMINE BLAST AREAS

Unless otherwise stated, as per Zebulon's Guide, landmines generally only have an immediate blast area. For example, if a character is using a mine kit to turn a Type II high explosive warhead into a landmine, it only has a blast radius of 6 meters (note, this is based on the revised figures given in "Things that go boom! Part 2: Looking at Rockets and Missiles" that was published in Frontier Explorer Issue 26). Ignore the secondary blast area that is supposed to extend out to 9 meters.

LANDMINE TO-HIT AND INITIATIVE LEVELS.

When a landmine detonates, roll to-hit for all characters within the blast radius. The chance to hit is based upon the sophistication level of the weapon's sensor cluster.

For example, most improvised explosive devices (IEDs) would be considered to be level 1 mines and would have a 40 percent chance to hit.

When the mine does not hit the character who set it off, the referee could assume the character made a successful avoidance check – if possible. Or the mine went off prematurely or late, allowing the character to leave the blast area. The referee should use his best discretion on the exact outcome if there was no realistic way the



mine's blast would have missed. For example, if the referee rules that a mine malfunctioned and is a dud – then no other characters within a blast area should need to roll to avoid damage because there would be none to avoid.

Most static mines do not need to roll for initiative; they just explode. An exception would be if the character detects the mine during the same turn it would detonate. The character can then roll for initiative versus the mine to see if they can dive for cover.

Static mines are not affected by movement, size, or environmental conditions such as whether it is dusk or nighttime.

Moving mines such as the grasshopper, leapfrog, etc. have an initiative level based upon their sensor level. Always roll for initiative when it comes to these weapons. A moving mine is affected by the target's movement modifiers, but it is not impacted by its own movement. The moving mine also ignores modifiers for the target's size and ignores environmental conditions such as for dusk or darkness.

LANDMINE SENSORS

Landmine sensors act as the method to detect targets and detonate the grenade or warhead in the mine package. Thirteen types of mine sensor clusters are listed below, and a number are based on the article "Mine Kits," by Larry Moore that was published in Star Frontiersman Magazine, issue 5.

TRIPWIRE

The tripwire is a 3-meter-long, monofilament nylon cord or metal wire, which costs 1 credit. Whenever a tug occurs on the cord, or the tension is released on the wire, it will trigger the landmine's detonator. It is a level 1 sensor and is a fairly inexpensive.

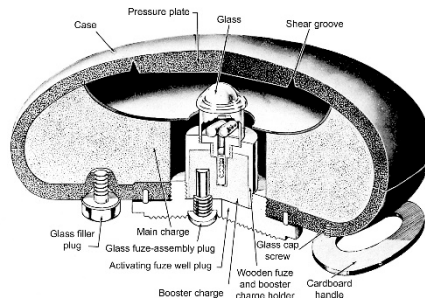
Characters who are actively looking for such booby trap wires receive a +10 percent bonus to their Intuition checks. A bright light or simple line laser – similar to a laser pointer but projects a visible laser beam – provides an additional +10 percent modifier to find tripwires. Line lasers cost 1 credit and are powered by a 1 SEU battery with 100 hours of life.

PRESSURE/TRIPWIRE SENSOR

This is a level 2 standard mine sensor. It is activated in one of two ways – either by the pressure plate or via a tripwire mechanism; the tripwire sold separately.

The pressure/tripwire sensor is for landmines that are buried in the ground or under debris. If used as a tripwire, it has the same drawbacks as the basic tripwire sensor – characters receive a 10 percent bonus when actively searching for such devices and an additional 10 percent bonus if they supplement their search with a bright light or line laser.

When used with just the pressure plate, the sensor has a simple weight cell that relays analog weight levels back to the con-



trol unit, which could either have a computer chip or it could be mechanical. The control unit compares the detected weight against the sensitivity adjustment set during the setting of the charge.

Any creature equaling or exceeding the weight setting will detonate the weapon. If desired, the mine's detonation can be delayed 2 turns after the weight is released, in an attempt to attack a larger group being followed by a party's scout who set it off.

MAGNETIC SENSOR

Using magnets, this level 3 sensor triggers a mine when it detects large metal objects entering its immediate area.

MOTION SENSOR

Using multiple different technologies including detecting vibrations, sending out micro- and ultrasonic waves this sensor can measure reflections off of a moving object.

It can be calibrated to ignore repetitive motions in the area (such as rotating satellite antennae). The character can even

program filters to define minimum and maximum speeds and sizes of detected motion. That way, when the proper sized object or creature moves at the proper speed, it will detonate the landmine.

It takes 2 additional turns to set and calibrate a filter array for a mine equipped with a motion sensor cluster. This is a level 3 sensor.

PHOTON SENSOR

This type of sensor is set to detect either light or lack thereof, depending on the presence or lack of light in the turn directly following the turn in which it is set.

For example, if it is dark when the mine is set, the sensor will detonate the explosive as soon as light becomes present. If it is light when the mine is set, it will blow up when darkness is detected.

This can be used as a booby trap: simply place in a dark room near the door, and when the door is opened and the light in the hallway pours in, the person opening the door will be surprised. It takes only one turn to set a mine equipped with a photon cluster. This is a level 3 sensor.

PROXIMITY SENSOR

This level 4 sensor comes in one of two forms: electromagnetic proximity sensor or laser-eye sensor.

The electromagnetic sensor detects the presence of an electric field, either a bioelectric field generated by a living being or an activated defense screen – including a sonic screen that conceals the noises of an approaching intruder!

The laser-eye sensor has a beam projector and a receiver. The sensor wirelessly reports data safely back to the mine central processor through a simple radio frequency transmitter/receiver pair. The mine will detonate if it detects the light beam is broken or the signal is somehow

LANDMINE TO-HIT TABLE		
SENSOR LEVEL	IM	TO-HIT
1	4	40%
2	5	50%
3	6	60%
4	7	70%
5	8	80%

LANDMINE SENSOR TABLE

SENSOR TYPE	LEVEL	COST (CR)	WGT (KG)	TURNS TO SET	TRIGGERING % PER 5 M TRAVELED
Tripwire	1	20	1	3	10
Tripwire Cord	--	1	--	--	10
Pressure	2	35	1	5	10
Magnetic	3	40	1	3	50
Motion	3	40	1	2	20
Photon	3	20	1	1	N/A
Proximity	4	45	1	2	50
Time Delay	2	25	1	1	N/A
Voice	5	150	1	1	50
Remote Control (wire)	4	5	--	+2	N/A
Radio Beam (Basic)	4	10	--	+2	N/A
Radio Beam (Mid)	5	20	--	+2	N/A
Radio Beam (Advanced)	5	30	--	+2	N/A

interrupted. It takes 2 turns to properly set and calibrate a mine equipped with a proximity-sensor cluster.

TIME DELAY

Instead of a sensor, this cluster simply comes with a series of dials and buttons used to set a desired countdown. It can be set from 0 to 999 and can have hours, minutes, or seconds selected. This feature is particularly good for limpet mines.

Once selected and the “Initiate” button is pressed, the countdown begins. When the time runs out, the mine detonates. It takes only a single turn to set a mine equipped with a time delay delivery cluster. This is considered a level 2 detonator.

VOICE RECOGNITION CLUSTER

One of the most advanced sensor clusters (level 5), it has a programmable logic controller that is set by simple voice commands. Although expensive, this cluster is destroyed by the mine’s detonation – as are all sensor clusters.

The character setting the mine simply speaks his command set to the mine. For example, a character can dictate: “Mine. Activate. Motion Sense. One meter movement size. Ten meter minimum movement rate. One hundred meter maximum movement rate. Initiate.”

The sensor cluster combines the operations of most other sensor types; these

include pressure, magnetic, motion, proximity, photon, and time delay sensors but it does not use a tripwire.

It is also possible for a character to program the voice recognition cluster with exclusion rules, such as using identification of friend or foe (IFF transponders) to prevent allies from tripping the mine.

Voice recognition clusters are quite difficult to defuse because they require programming knowledge to identify how they’ve been set. It takes only a single turn to set a mine equipped with a voice recognition cluster.

REMOTE CONTROL UNIT

This is a simple plug-in addition to a normal mine sensor. It permits a character or robot or computer to set off a mine by remote control. Each mine still requires a sensor cluster of some type (tripwire, pressure, etc.). The most basic type of remote-controlled detonator is connected by a wire to the triggering device.

Several mines could be strung together to one central triggering device, which in turn could be connected to a landline or a radio receiver. That way, a character many kilometers away from the site can detonate the mine. The wire is sold in spools of 10, 50, or 100 meters, costing 1 Credit per meter in length. A spool of wire weighs 1 kilogram for each 10 meters of wire. It

takes two additional turns to set a mine that can be remote detonated.

RADIO BEAM UNIT

BASIC

Instead of using a wired remote-control unit, a radio beam unit can receive a radio beam from a signaling device. This is a plug-in unit that must be used with another sensor cluster to work. The receiver has a 100-meter range.

MID-RANGE

Similar to the basic model, the mid-range radio beam unit is sensitive enough to detect the detonation signal from up to 5 kilometers away.

ADVANCED

The advanced model can accept a signal from a radiophone, 500 kilometers away. Or, in space, it can receive a signal from a spaceship communication system from 100,000 kilometers away.

RADIO BEAM SIGNALING DEVICES

The basic signaling device for a radio beam unit only has a 100-meter range. Another option is a chronocom-based signaling device has a 5 kilometer range. The advanced signaling device has a 500 kilometer range.

Note: radio beams can be jammed by opponents, which would prevent the mine from receiving the proper detonation command signal.

LANDMINE LIFESPAN

Mines do not last forever. At least the sensors and detonators don’t. Under the best of conditions, mines might last 10 to 20 or even 50 years in the field before they become inert. The explosives will still be dangerous, and some errant child or vehicle could still set off an erratic old weapon.

Many Frontier mines are designed with a mechanism to cause their detonators to go inert when they reach the end of their predicted lifespan – which is typically 1 month to 10 years – unless they are reset. For this reason, many militaries and paramilitary units will have dedicated robots or personnel to maintain minefields and deactivate old ones.

STATIC MINES

Star Frontiers landmines come in several different sizes and types the most common are mine kits, which are static mines that stay in one place.

SUB-TERRA SHELL

This is a primitive contact mine similar to the type that was invented by Gabriel Rains. It has a mechanical, level 1 pressure plate and a charge of black powder. It will do 4d10 points of fragmentation damage.

A character with the Demolition skill could construct something like this. The price provided represents the material costs to construct such a device, not an actual antique mine.

MINE KITS (SMALL, TYPE I, II, OR III)

Depending upon the size, mine kits will turn normal grenades and Type I, II and III warheads into mines. These still need some sort of sensor cluster – even if it is a tripwire – to detonate them.

CLAYMORE MINES

Named after a large Scottish medieval sword, this is a class of anti-personnel mines that are activated by remote control. A claymore mine has a level 4 sensor and directs its energy outward, in one direction, mostly in a 60 degree arc.

Star Frontiers claymores come in five models – with fragmentation, electrical discharge, sonic, sonic stunner, and tangler warheads. These mines have a primary blast range of 50 meters and a secondary range of 75 meters.



Anyone or anything within the 60-degree arc may be caught by the mine’s blast zones – a 50 percent chance, and a 30 percent chance in the secondary zone. Its effects are mitigated by terrain – those not in a line of sight from the mine will not be affected. For example, a character could be hiding behind a log or around the corner of a building.

Characters who are prone but exposed have a 30 percent chance of being affected if they are in the primary blast zone, but no chance of being hit in the secondary zone.

Although most of the blast is focused in one direction, defenders using claymores with the explosive, sonic, and sonic stunner warheads are instructed to place something such as sandbags behind the mine to protect themselves.

1. **Fragmentation Claymore.** This mine will do 8d10 points of damage to targets in the primary blast zone, and 2d10 points in the secondary zone. Characters can make a Reaction Speed check to take half damage.

2. **Electrical Discharge Claymore.** This acts as a type I electrical discharge warhead to any targets in the primary blast zone. It can short out electrical equipment while also acting as an electrostunner set to damage for every bioform in the primary blast area. This mine does not have a secondary blast zone. (See Part 2 in Issue 26 for more information.)

3. **Sonic Claymore.** A sonic weapon, its power decreases the farther a target is away from the detonation point. It will do 10d10 points to anyone or anything within 10 meters of the mine, 8d10 points to targets within 15 meters, 6d10 to targets within 20 meters, 4d10 to targets within 30 meters, and 2d10 points to targets out to 50 meters.

Sonic Stunner Claymore. Anyone within the primary blast zone must make a Stamina check or be stunned for 1d100 turns. In the secondary blast zone, a character receives a +30 percent bonus to avoid falling victim to the stunning effect, which would only last 1-50 turns.

4. **Tangler Claymore.** These munitions throw out hundreds of strong, sticky polymer threads. These threads stick to everything within the primary blast

zone. Characters can make a Reaction Speed check to avoid the threads. This weapon does not have a secondary zone.

EMP FIELD GRENADES

These are specialized, level 5 mines rather than grenades. The E.M.P. (Electro-Magnetic Pulse) field grenades are designed by and for military use. They are expensive but having a pack of these could mean the difference between life and death when facing robotic or computer-augmented enemies.

This unit comes with a special carrying pack containing three identical-looking field grenades that must be used together. If used separately, they are simply useless. To use an EMP Field Grenade pack, the user must place them from 5 meters to 15 meters apart in a triangular-shaped field. It is in this triangular area where the EMP effect will take place.

It takes one character one turn to set a single EMP field grenade. So, it takes three turns for one person to properly prepare this defensive weapon, but a party of three characters can do it in a single turn.

Once all three grenades are placed, the EMP Field is set. Detonating the grenades is done either through voice command or purposeful activation.

If the last of the three grenade-disks is set for voice command, the character who activates it speaks a word while setting it. This will be the command word to

TYPES OF MINES	COST (CR)	WEIGHT (KG)
Sub-terra Shell	20	5
Small Mine Kit	20	1
Type I Mine Kit	40	2
Type II Mine Kit	50	3
Type III Mine Kit	60	4
Claymore, Fragmentation	100	2
Claymore, Elec. Discharge	200	2
Claymore, Sonic	100	2
Claymore, Sonic Stunner	120	2
Claymore, Tangler	80	2
EMP Field Mine Kit	750	1
S-Mine	50	4
Grasshopper Mine	80	5
Leap Frog Mine	80	5

detonate the field. If the character speaks that word again within 10 meters of a grenade, detonation occurs.

Whether or not a command word was spoken during final grenade activation, anyone can detonate the field by simply slamming their hand (or an object) down on a button located in the center of any of the grenades; this is called purposeful activation.

When the field detonates, all electronic items caught within the triangular-shaped field will be struck with an intense electromagnetic pulse field that will cause it to be rendered inert, disabled, and difficult to repair. The field is harmless to living beings. (See the information about electrical discharge warheads in Part 2 in Issue 26 for more information on how to handle this type of weapon. Treat it as a type I ED warhead.)

An EMP Field Grenade kit weighs 1 kilogram and comes with a shoulder-slung pack to carry it. (This weapon was created by Bill Logan in the story “EMP Field Grenades,” from Star Frontiersman, issue 7.)

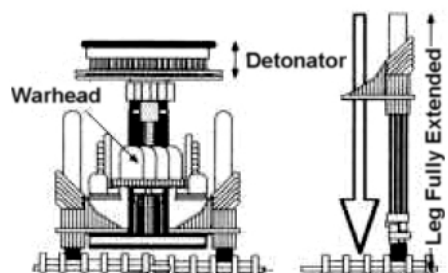
MOVING MINES

These are mines that move toward their targets to inflict damage. This category includes Bouncing Mines (also known as the “Bouncing Betty”), plus the Grasshopper and Leapfrog mines from Zebulon’s Guide.

Some of these mines use a propelling charge – which is a small amount of explosive placed at the bottom of the weapon – so it can spring toward targets before the warhead detonates.

INITIATIVE

Because they move, roll for initiative when a moving mine attacks a character. The mine’s initiative level is based on its sensor level (please see the Landmine To-



Grasshopper Delivery System

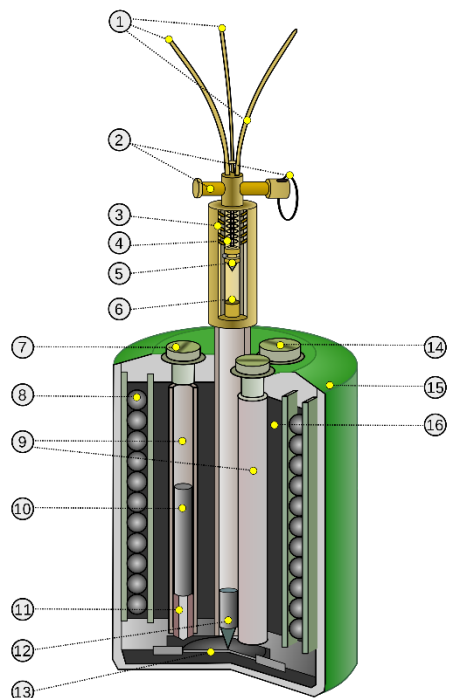
Hit Table-link). If possible, a character can attempt to dive for cover.

It would be very difficult for a character to shoot a mine with a ranged weapon before the warhead explodes. If a referee permits this option, the character must win the initiative roll and then will only be able to get off one shot before the warhead explodes.

The target would be considered moving Very Fast (-30 percent to-hit), The target size is Small (-5 percent). And all other combat modifiers would apply including whether or not the character was surprised by the attack (-20 percent). The character would have to do 15 points of damage to disable a mine.

S-MINE

This is an obsolete, anti-infantry mine that was created by the Germans before World War II. Nicknamed the “Bouncing Betty” by the Allies, it uses a mechanical pressure/tripwire sensor. When triggered, it will spring 1 meter into the air before detonating. It causes 6d10 points of fragmentation damage.



GRASSHOPPER MINES

These weapons will fling themselves up to three meters straight up in the air before detonating, which can help them attack low flying or hovering targets. If it hits an obstacle on its way up, it will be deflected two meters in a random direction

before detonating. Use the Grenade Bounce Chart to determine a random direction.

The grasshoppers in Zebulon’s Guide only accept grenades as warheads, though a referee could design larger, anti-vehicle mines. Such a landmine **would have** a secondary blast area.

LEAPFROG MINES

This landmine is made to jump up to 5 meters toward its target. If it misses, use the Grenade Bounce Chart to determine where it lands. The trigger system is usually a magnetic, motion, proximity, or voice sensor cluster, as it must know which direction to leap toward the target.

The leapfrogs shown in Zebulon’s Guide only accept grenades as warheads. A referee could design larger, anti-vehicle mines. Such a landmine **would have** a secondary blast area.

TYPES OF WARHEADS

Grenades, bombs, artillery shells, and mines have different types of ordinance. Most common are the explosive type (fragmentation) that send out shrapnel, but there are also electrical discharge, field crusher, foam, gas, incendiary, sonic stunner, and tangler munitions.

The descriptions of these types of munitions were mostly covered in parts one and two of this article series (Frontier Explorer issue 26). They can also be found in the Alpha Dawn and Zebulon’s Guide rulebooks, so only brief descriptions are provided here. Except where noted, most landmines only have an immediate blast area.

ELECTRICAL DISCHARGE

Releasing a high charge of electrical energy when it strikes, the electrical discharge warhead short-circuits every device in the blast radius including computers, chronocoms, and other normal electronics. It can stop an unshielded vehicle, warbot, etc., dead in its tracks, requiring extensive repairs.

The ED warhead acts as an electrostunner set to damage for every bio-form in the primary blast area.

STANDARD AND HIGH EXPLOSIVE

Standard explosives will cause normal damage to people, structures, robots, vehicles, and other objects within their primary and secondary blast radii.

High explosive warheads are more designed to inflict maximum damage to “soft targets” – i.e. people, animals, and light structure buildings. But, when used against armored robots, vehicles, buildings, spaceships, etc. the amount of damage they inflict is similar to a standard explosive bomb.

FIELD CRUSHER

This warhead only damages force fields and other energy screens such as inertia, albedo, gauss, light shift, simp, sonic, shimmer, etc. Otherwise, these munitions have no other effect on bioforms or electronics.

FOAM

Foam munitions include acid, chemical defoliant, dye, extinguish, irritant, slick, solid, and rad-blast. Within the secondary blast radius, cut its effects in half.

GAS

Gas munitions include doze, dusk, nightfall, poison, and smoke.

INCENDIARY

This warhead causes fire damage, with the flames continuing to burn long after the initial explosion, which causes more even burning damage.

SONIC

- **Marble** – The Small Mine Kit was not designed to handle sonic marble grenades, so these are incompatible with that device.
- **Polyhedron** – The Small Mine Kit will accept a sonic polyhedron grenade.
- **Boomer** – These grenades can be used in the Small Mine Kit.

SONIC STUNNER

Anyone within the blast radius must make a Stamina check or be stunned for 1d100 turns. In the secondary blast radius, a character receives a +30 percent bonus to avoid falling victim to the stunning effect, which would only last 1-50 turns.

TANGLER

Tangler munitions throw out hundreds of strong, sticky polymer threads. These threads stick to everything within the blast radius.

DAMAGE TO CHARACTERS AND VEHICLES

Buried fragmentation and similar mines will generally cause injuries to a character's feet and legs, a robot's lower half, or the underside of a vehicle.

The type of damage that a landmine causes depends upon the type of warhead. While most 20th and 21st century mines are the explosive/fragmentation type, Star Frontiers offers a variety of different munitions including stun, sonic, electrical discharge, incendiary, tangler, and other warheads that can cause either nonlethal or other types of injuries.

For fragmentation landmines, the explosion has similar effects of other blasts – such as causing knockdowns, fragmentation damage, and maybe even stunning.

Much of this damage will normally hit one of the character's legs (determine the leg randomly).

Moving mines – such as the grasshopper, which jumps up in the air, or the leapfrog, which leaps towards a target – will cause general damage to a character, robot, or vehicle.

Consider any damage **from a buried mine** that is equal to one-fourth (25 percent) or more of the character's Stamina points enough to hobble the individual, similar to impairment (see the Alpha Dawn combat rules for wounds). The character is reduced to one-half movement. Additionally, all of the character's attacks have a -10 percent penalty and the wounded person can fire only one shot per turn.

If the character's STA score falls below half due to the landmine's detonation, assume that the individual's lower body has been badly mangled. The person is gravely injured.

The character will only be able to crawl (one-fourth walking speed) if they make a current Strength check each turn. All of

MINES	DAMAGE	BLAST RADIUS	ROF	DEFENSE	EFFECT
Sub-terra Shell	4d10	3 meters	1	Inertia	Anti-person
Small Mine Kit	As per grenade	As per grenade	1	Varies	Anti-personnel
Large Mine Kit Type I	As per missile I warhead	As per missile I warhead	1	Varies	Anti-vehicle
Large Mine Kit Type II	As per missile II warhead	As per missile II warhead	1	Varies	Anti-vehicle
Large Mine Kit Type III	As per missile III warhead	As per missile III warhead	1	Varies	Anti-vehicle
Claymore, Fragmentation	8d10/2d10	50/75	1	Inertia	Damage in fwd 60-degree arc
Claymore, Elec. Discharge	Electronic Short Circuit	50	1	Insulation	Damage in fwd 60-degree arc
Claymore, Sonic	10d10/8d10/6d10/4d10/2d10	10/15/20/30/50	1	Sonic	Damage in fwd 60-degree arc
Claymore, Sonic Stunner	Stun, 1d100 turns	50/75	1	Sonic	Damage in fwd 60-degree arc
Claymore, Tangler	Entanglement	50	1	RS check	Damage in fwd 60-degree arc
EMP Field Grenades	Elect. Short	10	1	Insulation	--
S-Mine	6d10	3 meters	1	Inertia	Anti-personnel
Grasshopper Mine	As per grenade	As per grenade	1	Varies	Leaps 3 meters up
Leap Frog Mine	As per grenade	As per grenade	1	Varies	Leaps 5 meters

the gravely wounded person's attacks, skill, and ability checks (such as STR) are cut in half. Again, the character can only fire one shot per turn.

DEFENSES

As with any other type of damage, the type of armor the characters are wearing may help avoid or reduce damage from a landmine. For example, if a character is wearing a skeinsuit, it will absorb one half of the damage from a fragmentation landmine, but not from a sonic or incendiary device. A sonic screen will shield a character from the effects of a sonic mine, but not from a foam weapon, etc.

If a character is wearing powered armor, mine damage will impact the suit's legs.

MEDICAL TREATMENT

Anesthetic drugs, which reduce pain, will cancel out the modifiers for impairment. For the gravely injured character, two doses of anesthetics are required. This will trim the penalty for skill and ability checks to a -10 percent penalty.

A dose of anesthetic lasts five hours.

When a gravely wounded character's Stamina is restored above one-fourth, they will be considered impaired. Once an impaired character's Stamina is restored to a 90 percent level, they will no longer suffer impairment penalties.

FOR DRALASITES

Just like how a Dralasite can absorb a "broken limb" and grow a new one, the character can absorb a mangled limb(s) and replace it/them. This will cut the movement penalties, but the Dralasite would still be impacted by the damage, such as loss of Stamina and penalties due to pain unless they receive medical treatment.

DAMAGE TO VEHICLES AND ROBOTS

For contact damage to a vehicle – from a static explosive landmine – roll on the vehicle damage table and ignore the "No Effect" result unless you are using the rules for structure points for vehicles. In that case, the explosion damages the structure.

Robots will receive damage to their legs or lower half. If the damage is equal to 25 percent of the robot's stamina points, its movement will be reduced by half. If the damage is equal to 50 percent or more of its STA, the robot will be reduced to one-fourth speed. Repairs will negate these effects.

DAMAGE TO CHARACTERS RIDING IN VEHICLES

Assume that a portion of the damage caused by an anti-vehicle mine will pass through to injure characters riding inside. To determine this damage, roll a 1d10 – separately for each character inside the vehicle.

A result of 1-4 means the character takes no damage, a 5-6 means that the character will take 10 percent damage, a roll of 7-9 means the character takes 25 percent damage, while a roll of 10 means the character takes 50 percent damage.

MINE-RESISTANT VEHICLES AND ROBOTS

Some armored vehicles and warbots may be specifically designed with a V-shaped body and armor to reduce the damage caused by landmines exploding beneath them. This protection adds 50 percent of the cost of a robot body style or a base vehicle (without other modifications). Such protection will reduce damage to vehicles and robots by 75 percent while negating any pass-through damage to characters riding inside a vehicle, or atop a warbot.

ELECTROMAGNETIC PULSE SHIELDING

Electromagnetic Discharge (ED) warheads or other electromagnetic pulse (EMP) weapons can cause short-circuits that will shut down robots, vehicles, computers and other electronics that have not been properly shielded. This shielding is not a power screen, but rather an extensive hardening of circuitry that is much more comprehensive than installing an electric shock implant.

If EMP shielding is included as part of a vehicle's or robot's initial construction, the cost is only an additional 50 percent of its base cost (or the body style in the case of

robots with a 10 percent boost in weight). If this shielding is installed later, the modification is an added 90 percent of the vehicle's base cost or 90 percent of a robot body style's cost while increasing the body weight by 20 percent.

Effects: an anti-shock implant is only 10 percent effective against an ED or EMP weapon. A gauss screen is only 20 percent effective. EMP shielding is about 70 percent effective. It can be combined with an anti-shock implant and/or gauss screen to theoretically provide 100 percent shielding (an automatic hit by an EMP weapon will overcome any protection).

While most unshielded vehicles and robots will need extensive repairs if they suffer an EMP attack, those that have EMP shielding have a cumulative 5 percent chance per turn of "rebooting" and being able to resume operations.

DETECTING MINES

When entering an area with mines, characters without mine detection equipment should make an Intuition check to notice the device(s). Characters with a demolitions skill and technical skills, such as detecting alarms and defenses, should make a skill check.

Since mines are normally concealed, those relying strictly on an Intuition check might receive penalties of -5 to -10 percent to notice and avoid a mine. Conditions that reduce visibility – such as smoke, fog, dusk, nighttime, rain, etc. – will also impact a character's efforts to discover mines, providing penalties ranging from -5 to -20 percent.

Characters can use tools – such as a knife or mine sticks – to probe for mines, providing a 10 percent bonus, though it does risk triggering weapons that use motion and proximity detectors. A package of 200 mine probing sticks costs 5 Credits; these sticks can extend out to a meter.

The other way characters detect a mine is when a hapless individual encounters one that explodes. Once the characters know they are in a minefield, they receive a +10 percent bonus for checking around.

Advanced detection equipment, such as the Demolitions-Computer Access

Scanner (Demolitions-CAS), will help in detecting mines before they explode.

DEMOLITIONS-CAS

A Demolitions-Computer Access Scanner can check for explosives, bombs, or mines within two meters. Its detection equipment can look through all materials except federanium. It can indicate what type of explosive it is, what detonation devices are attached, and give suggestions on how to defuse it.

The Demolition-CAS provides a +15 percent bonus when trying to detect hidden landmines and a +15 percent bonus to characters with a Demolitions skill when they are trying to defuse an explosive.

Cost: 300 Credits

Weight: 2 kilograms

MARKING AND REMOVAL

Once a minefield is discovered (either by detection as described above or by someone setting off a mine), characters who have successfully detected a mine can mark its location for removal. Only a demolition specialist – or a specialized robot –

stands any chance of successfully deactivating a mine.

The ease of disarming a mine depends on its sensor type. A demolition specialist receives a +15 percent bonus for disabling a tripwire sensor or a +5 percent bonus for disarming mines with a time delay sensor. The character receives a normal skill check for deactivating mines with pressure, magnetic, and photon sensors.

The character has a -10 percent penalty when trying to disarm a mine with a proximity sensor and a -15 percent penalty for one with a voice sensor cluster. When the demolition specialist disables the primary sensor cluster, it will also incapacitate any remote-controlled detonation devices.

Failure of the skill indicates that the character has accidentally triggered an explosion.

In a typical anti-personnel minefield, each 5-by-5 meter square will have an average of 10 mines. If supplemented by anti-vehicle mines, there will be an average of 2 anti-vehicle mines per square (these are in addition to the 10 anti-personnel mines).

Marking mines allows characters to crawl or walk through the minefield without hazard. Trotting through a marked minefield will require a Dexterity check. A character will receive a -10 percent penalty if they try to run through a marked minefield.

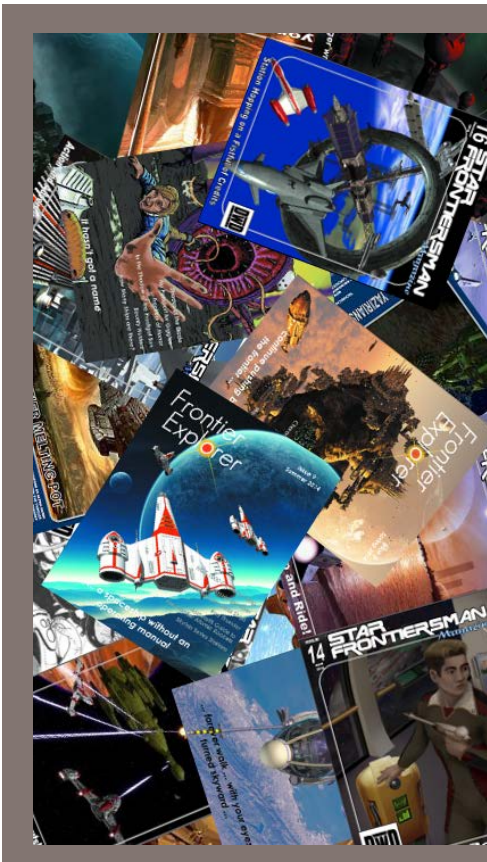
Marking a minefield does not reduce its hazard to vehicles.

Removing mines allows vehicles and personnel to move through the minefield without hazard. Paths marked or removed must be 1 meter wide for walking characters or 5 meters wide for vehicles.

IN CONCLUSION

Several other ways to detect landmines include the use of ground penetrating radar, bomb sniffing dogs, or even insects.

Additional information about detecting mines, bomb disposal equipment, and specialized robots will be covered in a future installment of “Things that go Boom!”



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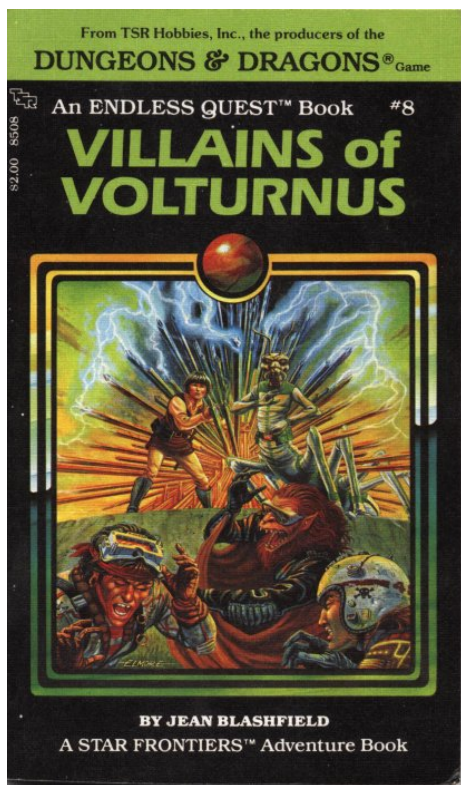
EVALUATING VILLAINS OF VOLTURNUS FOR CANONICITY

BY THOMAS VERREULT

Villains of Volturnus by Jean Blashfield was published in 1983 as Endless Quest Book #8. It was one of only three Endless Quest books written for the Star Frontiers setting. Being published by TSR during the time that Star Frontiers was still in print means that it may have something to say about the beloved setting.

My primary purpose in reviewing Villains is to glean setting details for use in game. For example, the Ul-mor species update from Crash on Volturnus mentions that the Ul-mor herd a creature called kwidges but beyond supplying the name it tells us nothing about them. In Villains there is an illustration of the kwidge and we learn a few more details.

My secondary purpose is that as a fan of all things Star Frontiers, I wanted a good understanding of this adventure out of sheer fan nerdiness. To fully review this adventure, one could carefully bookmark each path divergence where you make a choice and turn to page X or Y as per your choice and go back and explore all choices.



This can get tedious and complicated, so I opted for a different method. I simply read the book cover to cover, page by page and noted significant details as I went. This, admittedly, is a disjointed method of reading this book but you eventually gain an understanding of the overall story arc and it has the benefit of hopefully not missing any details. At least I hope I have not missed any details because there was a list of equipment the protagonist has on the first page of the adventure (page 5) and every item was used at least once somewhere in the book except the argonstick of which I was curious about since it is not in the game's equipment list. I never saw it mentioned again and I'm left wondering if I glossed over it.

THE NATURE OF THE ADVENTURE

I've developed a theory or explanation concerning this story to explain its level of canonicity or authority over the Star Frontiers setting. It does provide some details that we don't have anywhere else in published Star Frontiers materials, and some details that contradict well established setting information. Villains of Volturnus represents an "in setting" holo-drama produced by the Star Play megacorp and marketed to a youthful pre-teen audience. This is based on my evaluation of contradicting setting details, wonderous and kid exciting happenings, the nonviolent presentation of a story in a fairly violent setting, and typical writing conventions for juvenile entertainment.

First of all, a new unknown megacorp is presented in the story called Universal Minerals. We don't know that it's a megacorp at the beginning and could muse that it's a subsidiary of an existing megacorp until we begin to see not only does UM owns the exploration ship that the protagonist starts out on, but dozens of other

star ships and one is even identified as a starliner. UM further has mercenaries that the head of the company is going to dispatch to deal with the pirates. These features actually bespeak of megacorp status in the setting and not a subsidiary corporation owned by a megacorp.

We can infer that UM's headquarters is in the Truane's Star system from the story and the only known megacorp headquartered there is the well-known Streel megacorp. My feeling on this is that as a holo drama, the writers may not have wanted to antagonize a megacorp or promote an existing megacorp in a fantastical fiction movie, so they simply invented a megacorp called Universal Minerals. The audience understands that while it is called UM in the video, at the back of their minds, they are all thinking Streel and Pan Galactic Corporation.

Another contradictory detail is the duration of space travel. The protagonist, a boy called Kyiki, is on a field trip with his tutor on a company ship owned by his father. The closest inhabited system is Truane's Star and it only takes one day travel to reach Volturnus? The mechanics of plotting an interstellar jump and accelerating to jump speed then decelerating to achieve orbit around Volturnus argue against this. However, it's easy enough to explain if we view the story as a holographic video in setting. It did not suit the writers to slow down the story by presenting space travel according to the setting's laws of physics, so they simply sped up the action.

Kyiki's friends being helpful and pet-like, validating his decisions and actions, are a feature of action adventure stories marketed to the youthful audience. He has a Compu-Pal named Ting which is a sightless, bodyless, robotic brain that plays chess with him and reminds him to think twice before making a decision that Kyiki must carry around and look after. Ting is very reminiscent of Freddy the talking magic flute in the H. R. Pufnstuf Saturday

morning TV show from the 70's. In that show Jimmy has a talking flute that the character Whitchiepoo wants to steal. In Villains the pirates are always trying to deprive Kyiki of his Compu-Pal.

Kyiki's tutor is presented in some storylines as a wise adult that validates and listens to Kyiki but in others he turns out to be one of the pirates using a holo screen for disguise and was the cause of the ship crashing. In one encounter Kyiki engages in a very Tolkien-esque joke battle with this pirate, wins, and is allowed to leave. It goes like this: you challenged me that you could make me laugh in three jokes, you did and I am now honor-bound to let you leave as agreed despite being a pirate in the employ of the dastardly sathar. This sort of thing is only explainable in a kid's action drama.

Finally, Kyiki befriends and adopts a lovable, furry, frog-faced flying creature he names Pongo that follows him around and acts like an exuberant puppy. Pongo makes him laugh and occasionally causes trouble for Kyiki of the, "Oh, Pongo!" sort but above all loves and validates Kyiki throughout the story.

On several occasions Kyiki manages to dupe the pirates which is another feature of this genre of entertainment. He also finds a wonderous artifact left by a near extinct civilization that he quite accidentally



discovers how to operate by a method as simple as turning a knob. But the dirty, rotten, and non-curious pirates never discover this despite the artifact sitting in plain sight. The artifact is a time travel device. Considering that the aesthetic of Star Frontiers is that of a setting slightly more advanced than the modern world, we are virtually forced to rule the time travel artifact as a wonderous magical creation in a child's adventure story.

I'm not trying to trash the story; I'm simply setting up a premise that will allow me to explain away some of the contradictory details. These sorts of contradictions turn up because a writer was commissioned that may not know the setting as is the case of the convention module "Trouble on Janus" where it seems obvious that the author was far more familiar with the Traveler RPG setting than the Star Frontiers game setting. In the case of Villains, I think the author actually displays a substantial familiarity with the setting material and just took certain liberties like creating her own megacorp to suit the purposes of her story. Ruling that this story is an adventure video designed to entertain children in setting allows for harmonization of contradictions and does no violence to the story or to more authoritative setting sources.

To play devil's advocate there are plenty of features in the Volturnus campaign modules that are on the wonky side and strain credulity. However, in the rest of this article, I am going to take the position of explaining away silly and contradictory details rather than compound the problems a game master faces running games in this setting.

EARTH THE HOME WORLD OF HUMANITY?

During Kyiki's joke battle with a pirate (mentioned earlier), he tells a joke referring to Earth and its moon. The actual joke is this, "Why don't humans go to Earth's moon for vacation? Because it has no atmosphere." The joke is quite corny and right up the alley of the audience in story which happened to be a dralasite, who as a species love corny jokes. His reaction to it

belies some knowledge of Earth and its moon.

This is a problem since the inside front cover of the Basic Game rules explicitly states, "Near the center of a great spiral galaxy, where the stars are much closer together than the Earth's sun and its neighbors, a human race developed. They were not identical to humans of Earth, but they were not very much different either." Here, in the founding document of Star Frontiers, it clearly states that this setting is not the Milky Way and Earth is not present. This has been a debated topic in the Star Frontiers community for a long time. It has been noted that a later publication (a Dragon Magazine article) updated elements of the Star Frontiers setting to the Alternity game setting and that article affirmed the existence of Earth. My purpose is not to reopen that debate but simply note that here is a document from the very early days of Star Frontiers that affirms the existence of Earth.

I suspect that the author simply glossed over the basic game rules which were designed to instruct in game play and moved right on to the expanded game book and delved into the setting from there. This would account for her assumption that Earth existed in setting.

Gygax himself is noted for treating rules as a framework and each game master is the authority on his particular game. We as a fan community joined by our love for this game are free to make our own rulings but we cannot assume that our rulings on a particular issue are valid for everyone. For this reason, I always treat the original material as canon, note where I differ, and leave it to each to decide for themselves. I generally rule that Earth does exist but for a number of reasons cannot be communicated with or reached by regular interstellar voyage.

FATE OF THE EORNA

The Volturnus campaign has several possible endings. This adventure gives us a window to a possible "canon" outcome. It presents an outcome where the eorna egg ship does not seem to have been discovered at the conclusion of "Starspawn of Volturnus". The eorna are not seen at all

during the adventure although a pristine deserted underground city of theirs is setting for some of the action. On page 139 of Villians it states that there are only a few eorna left on the planet and that the rest were killed by the sathar. As a writer and editor for the community's fan magazines, I've gone ahead and taken the approach of the egg ship was found and the eorna species gets its rebirth through the 50,000 eggs present on that ship. It is a "Hollywood" ending but doesn't change much in setting whether the eorna number 150 or 50,150 individuals.

Having reviewed this adventure and thought about it some more I am now considering a change of viewpoint. It makes more sense that the UPF would appoint a governor for Volturnus if the eorna are essentially a dying race with an insufficient gene pool to survive. The primitive races that they engineered to inherit their world would need looking after and this supports the governorship of Volturnus by the UPF as well.

Note the eorna city that the pirates are using as a base of operations is not Volkos of the Volturnus campaign modules. I believe it was referred to in the book as Eorna but that would be a name ascribed to it by one of the pirates who lacked knowledge of its actual name. It seems to have NOT suffered the same destruction as Volkos and it is not generally known being hidden and underground. This would make it a great "dungeon crawl" set on Volturnus.

THE KURABANDA WILL INHERIT

The fate of the primitive races was the center piece of the eorna's Great Mission: that life would continue and one of these progeny species would replace them in the universe. With the fate of the eorna in this book being that of a dying race, which of the primitive species will inherit Volturnus? The ul-mor and the edestekai are presented in Villains in much the same manner as they were in the Volturnus campaign: primitive nomads and primitive farmers. However, the kurabanda in Villains are presented as beginning to embrace Frontier society and technology.

Without really debating the merits of the kurabanda over the ul-mor and the edestekai there is a certain logic to this. Which species will be drawn to the modern technological society of the Frontier? The ul-mor are telepathic nomads with herds, what would they desire, steel tools and weapons? The edestekai are highly religious, live in villages, and grow crops so what do they desire, metal farm implements? While the ul-mor and edestekai will desire and trade for some items from the Frontier's advanced culture, their own culture will more or less remain intact. These few items will not disrupt their societies in a measurable manner.

The kurabanda live in trees a hundred or more meters tall and love to hang glide. What is going to attract them in Frontier society? Flight will. They are going to want to try gli-jets and helicopters and these technological marvels will draw the kurabanda deeper and deeper into Frontier society as they begin to learn and master the skills that give access to advanced flight and even spaceflight.

The kurabanda will be the primitive species that whole-heartedly embraces advanced technology. This will make them ideal local muscle for hire as is seen in Villains. They are portrayed wearing what looks like the same skeinsuits as the pirates and carrying laser rifles. They speak Pan Gal and operate advanced equipment. No doubt these kurabanda hired out to the pirates in the desire to obtain more and better Frontier technology.

Will there continue to be traditional kurabanda societies with elders deploring the youth forsaking the old ways? Most likely. There will also be "monkey towns" in amongst corporate enclaves and starports on Volturnus. You will see kurabanda hiring out on starships; not in high numbers at first, but they will be there. I can envision Capellan Free Merchants with a token kurabanda in the crew. The end result will be that the kurabanda will become a dominant species on Volturnus and the ul-mor and edestekai will struggle to make advances in their shadow. Although the edestekai are perhaps better positioned to thrive in that shadow than the nomadic ul-mor.

The remaining sane eorna may become concerned for the ul-mor and the edestekai and advocate for them. I can see the UPF governor having an eorna advisory council. Some eorna may play "missionary" with the primitives trying to teach and advance their societies.

In the end it will still be the kurabanda that effectively join the Frontier as a technologically literate species. Their only problem will be that the mega corps will already have carved up and exploited their homeworld long before they could develop the infrastructure and industry to do so themselves. For a century or more the wonders of technology and flight will seduce them into being a worker class before they begin to raise up modern metropolises as "a city on a hill" and develop a unique and modern society with art and culture the equal of art and culture elsewhere in the Frontier.

Until that time in the 150s FY, kurabanda player characters should be an option to players. The species should have a racial ability of +10 to flying maneuvers.

VOLTURNUS FLORA

We get comments in the story affirming an analog to grass and trees and in the "Volturnus Planet of Mystery" module we see bachanda trees and shard grass although what is presented in Villians is clearly not those plants. Rather they seem like plants that would fit right in on Earth.

We also get a giant leaf blowing on the wind that the protagonist jumps on and uses to float away from one of the pirates. It seems a bit fantastic that an 11-12-year-old boy might be able to float away on a giant leaf, so my ruling on this is that it's one of the liberties taken by the writer of the holo drama.

There is a small plant that grows low to the ground and its "flower" or "fruit" is a dangling blue crystal. It is not named but picks up the theme of crystals in the Volturnus environment: Rogue crystals as a creature, glowing crystals on the heads of the mechanons, the crystal bridge over the magma in the caves, and so on. For a name I would propose the Volturnian bean crystal.

One plant that I would introduce to the setting from Villains is the “quick fungus”. It’s a mat of brown fungus that grows over a river giving the river the appearance of having disappeared. It can be walked on and the experience is much like walking on a mattress. It generates a gas similar to laughing gas that causes a victim to be euphoric and not care that as they venture further onto the mat of fungus, they become stuck.

VOLTURNUS FAUNA

As mentioned earlier we are introduced to kwidges in “Crash On Volturnus” but not provided any detail about them. In Villains we learn they are a featherless, flightless, avian type of creature that the ul-mor herd and enjoy roasted. We also get an illustration of them. They are also mentioned in “Crash on Voltunus” alongside the cactus womper.

The herd hopper is introduced as an ul-mor creature. They are a two-legged, small creature that yips excitedly like a dog. I’m of a mind to rule it an invention of the holo drama writers since it is clearly an analog to dogs and yet another pet-like creature introduced to the story. However, they are mentioned, and some referees might like to introduce them as a potential “adventure pet”. There is no illustration of them,



so I imagine they look like a miniature version of the looper.

There is a box like creature that totally feels like a kid’s show invention that I refer to as a cubix. They are a cube with four short stubby legs and a face and run away from a fire honking. The scene is almost comical. The question here is do we treat them as real or explain them away? I feel like I already have enough to explain with some of the wonky creations in the modules that have a greater claim to canonicity than the cubix.

TECHNOLOGY

There are small wrinkles in technology like escape pods being called personal safety pods (PSP). If you remove a panel you can locate a small supply of “pure water for use in starting the fuel cell”. This is a tidbit for a savvy player to gain extra water in a survival situation. The question is how much water does it take to start a fuel cell? I’m for making it a random 1d5 liters and it being in a tank that weighs 1 kg more than the weight of the water. A PSP also has a radio beacon that broadcasts upon landing.

The protagonist has items not on the equipment list like the Unipen, firecell, and the argonstick. The Unipen is clearly a writes anywhere permanent marking device. While the everflame is obviously a sci-fi version of the cigarette lighter, it was probably considered taboo to equip a 12-year-old boy with a smoking product. Thus, we get the firecell which is an alternative fire starter to the everflame much like the flint and steel I bought at the summer camp trading post as a kid. The consensus of conjecture on the argonstick is that it’s a rechargeable glow stick. There is a compu-pal that should be a new class of robot.

Nutrijuice is a survival item found in the escape pod. It is liquid sustenance but with the benefits of the Vita-salt pills and can replace the need for food and water for one day.

Radios and crystal keys are a major feature in the setting. The radios in the story seem to be used as a regular radio and sometimes as a sub-space radio and no distinction is made as to which they are. The



protagonist carries a crystal key that when he plugs into a radio, automatically aligns it and causes it to broadcast to his father who is the corporation’s CEO. It’s a bit of “hand-wavium” that a writer might use for the sake of moving a story along, but it also might be something a game master might use to speed interstellar communication. The key is coded for a specific radio set. It can be plugged into any sub-space radio and will cause it to align and broadcast on the right frequency to a specific set. The limitations are that the receiver set must remain dedicated to the purpose of receiving the signal and cannot be used for anything else. Also, the more time that passes from when the key was encoded, the higher the likelihood that the key will not work since the galaxy is continuously in motion. They will work for 1 GST week then every day there is an accumulative 15% chance per day of failure.

There is a special holo disc that I believe is of sathar origin. The book does not spell this out but hints at it. This special holo disc is compatible with Frontier holo screens and through the holo screen with Frontier power sources. It also has its own power source, a time delay activation feature, and seems to be even harder to be seen through than the standard Frontier holo screen. It is used by the “Boss” that the author hints at being a sathar.

SOCIETY

There were four new standout features concerning Frontier society in Villains: youth organization, hard currency, a planet we've never heard of, and the megacorp activity on Voltornus post Battle of Volkos. The youth organization is referred to as the Cadets. It's obviously an analog to the Boy Scouts. We can presume that it is the popular youth organization on Pale and New Pale. It could be Frontier-wide or there could be other "scouting" organizations on other colonies unrelated to this one. It practically begs you to have some fun with it and call them Space Cadets. It amounts to background fluff used for a PC or an NPC but could be developed into more.

Perma Plastik credit coins are a hard currency that appears in the story. A hard currency for the Frontier has been often discussed with in the Star Frontiers community and here is an obscure reference to just that. No doubt it is very popular for transactions on the black economy.

Then there is the planet Hydros that the protagonist remembers taking an underwater vacation on. The planet is known for its forest and waterfalls. The implication is that Hydros is not a complete water world but does have underwater cities that are tourist destinations. Where might it be located? It could be one of the ill-defined and quarantined plague worlds of Zebulon's Guide, or it could be an inhabitable moon of a canon world in the setting. There are only a few known details and it's largely a blank canvas for a game master to run with in his game.

Universal Minerals has made a major investment on Voltornus in the story. There are dozens of prospecting teams roving the mountains and hills. Ships coming and going back and forth from Truane's Star moving materials and personnel. This all speaks of the megacorp having a base of operation on Voltornus.

I would propose that Streel or a subsidiary has done what UM is described as doing. Deployed numerous prospecting teams, built a corporate compound at a landing facility, established labs with scientist, and has begun an organized exploitation of the planet. There may be other

megacorps like CDC and PGC doing similar things. In fact, the Voltornus Incident in Dragon #95 is a KHs encounter where a fleet of PGC corporate privateers defends the PGC private space station in orbit around Voltornus. This could reflect Streel gaining the main foothold on the planet and PGC is trying to compete with a space-based presence.

CONCLUSION

I'm actually excited about Villains of Voltornus simply because it caused me to think about the setting in different ways. Some of its setting details are very intriguing. It supplies new information we didn't know and suggests some plot hooks.

APPENDIX A: FLORA AND FAUNA UPDATE FILE

KWIDGES

KWIDGES	
TYPE:	Small omnivore
NUMBER:	Wild 2d10, Domesticated 4d10
MOVE:	Medium
IM/RS:	8 / 60
STAMINA:	10
ATTACK:	35
DAMAGE:	1d10
SPECIAL ATTACK:	Flock Fury: if one kwidge successfully attacks a target all other kwidges within 3 meters are emboldened and gain + 10% to their attack that round
SPECIAL ATTACK:	Swarm: if a womper knocks an opponent prone all up to 8 kwidges will swarm the prone opponent and attack with flock fury advantage
NATIVE WORLD:	Voltornus: desert and hills

They are a small flightless and featherless bird with leathery skin. They typically enjoy a symbiotic relationship with the cactus womper, eating the pest and flies that plague that creature while also eating the cactus that the womper smashes open with this thick tail. In the wild they aggressively defend wompers as if the lizard like

creature is part of the flock. Up to 4 kwidges can surround and attack a standing character but if a womper knocks an opponent prone, up to 8 kwidges will surround the prone opponent and attack with flock fury advantage until the prone opponent is dead or stands up.

Along with the womper, they are domesticated and herded by the ul-mor nomads of Voltornus. Roasted kwidge is a staple of their diet.

CACTUS WOMPER

The cactus womper is a lizard-like creature resembling a terran gila monster. They have a thick, club-like tail that they use to smash open tough Voltornian cactus to eat the succulent insides. They live symbiotically with the kwidge, which eats the insects and pest that can plague a womper. They will aggressively stand their ground and fight cooperatively with their kwidge flock.

They are likewise raised by the nomadic ul-mor who only eat a womper on special occasions.

CACTUS WOMPER	
TYPE:	Medium herbivore
NUMBER:	Wild 1-2, Domesticated 1d10
MOVE:	Medium
IM/RS:	6 / 55
STAMINA:	50
ATTACK:	55
DAMAGE:	3d10 for tail or 1d10 for bite
SPECIAL ATTACK:	Leg sweep: successful tail attacks require a large or smaller 2-legged creature to RS save vs being knocked prone
SPECIAL DEFENSE:	Thick hide: immune to needler weapons and cactus spines
NATIVE WORLD:	Voltornus: desert and hills





HERD HOPPERS

HERD HOPPERS	
TYPE:	Small omnivore
NUMBER:	1-10
MOVE:	Fast
IM/RS:	6 / 60
STAMINA:	5-20 with 10 being typical but a well fed "pet" will top out at 20
ATTACK:	50
DAMAGE:	1d10
SPECIAL ATTACK:	Herd hoppers instinctively pack hunt and will seek to surround and take down a target therefore they often seek and gain the +20 bonus for attacking from behind
SPECIAL DEFENSE:	n/a
NATIVE WORLD:	Volturnus

Herd hoppers are a domesticated pet of the ul-mor. Their behavior is similar to a terran dog and they are easy to train.

PONGO AND THE CUBIX

As stated before, I view these two creatures as creations of the Star Play megacorp entertainment division for a kid's action adventure drama set on Volturnus. If you need stats to use them in your game,

use the Average Herbivore table in the Alpha Dawn rules (page 36) and treat Pongo as a small herbivore and the cubix as a tiny herbivore.

QUICK FUNGUS

QUICK FUNGUS	
TYPE:	Fungal growth
NUMBER:	1 (special)
MOVE:	n/a
IM/RS:	n/a
STAMINA:	10 / square meter
ATTACK:	Special
DAMAGE:	1 STA / hour
SPECIAL ATTACK:	Euphoric laughing gas: STA check or become euphoric and wander randomly (use grenade table) until stuck
SPECIAL ATTACK:	Victims must make a strength check to move each turn, on the turn they fail this check they become stuck and the fungus begins digesting them 1 STA/hour.
NATIVE WORLD:	Volturnus: on top of bodies of water

Quick fungus grows over bodies of water and deceptively looks like solid ground. Walking on top of it is akin to walking on a mattress. It can be destroyed with fire and has 10 STA per square meter for this



purpose, but it can cover hundreds of square meters of water. Anyone who becomes stuck on the fungus may be cut free in one turn but blades and sonic weapons and tools do no effective damage to the life of the fungus. Solvaway is effective like fire but will not burn a trapped victim. One vial of solvaway will destroy 1 square meter of fungus and victim will fall through into the water beneath. If there is a current the freed victim will be swept under the fungus for a fate similar to being trapped under ice.

VOLTURNIAN BEAN CRYSTAL

This is a plant that deposits minerals in its flower/fruit creating a quartz like crystal up to 15 cm long. They are unique in the Frontier and have exciting industrial potential. Harvested bean crystals are worth 500 Cr / kg.

APPENDIX B: NEW EQUIPMENT

UNIPEN

The UniPen is a write anywhere permanent marker that will write on wet or oily surfaces and in vacuum. They are given out free across the Frontier as advertising with a company's name and logo on them. PCs can start with one for free (50% chance).

cost: 1 cr

weight: n/a

ARGONSTICK

The argonstick is a rechargeable glow stick. It holds 1 SEU until activated and then provides dim illumination in an area up to 3 meters diameter for 4 hours. It can be recharged from a belt or power backpack or recharge station.

cost: 5 cr

weight: n/a

NUTRIJUICE

Nutrijuce is a survival item. One liter of nutrijuce replaces 1 quart of water intake, a day's worth of food, and has the properties of vita-salt pills. The empty container can be used to carry water after use.

cost: 10 cr/liter

weight: 1 kg

SUBSPACE RADIO CRYSTAL KEYS

Subspace Radio crystal keys are specially encoded keys that can be plugged into any subspace radio. They align the radio and cause it to broadcast to a specific subspace radio on an established frequency. The “receiver” radio must be dedicated to listening and cannot be used for any other purpose.

The information in the key becomes stale over time since the galaxy is continuously in motion. It will work for 1 GST week then it has an accumulative chance of failure of 15% per day. Which means it's useless 18 days after its been encoded. On the first time it fails to align a subspace radio, it also becomes useless. It was developed for special ops mercenary teams to be able to communicate with their commanders from the field.

The procedure for encoding takes one hour of the key being plugged into the “receiver” set. Once it is pulled from the “receiver” set the clock is ticking.

cost: 1000 cr

weight: n/a

SATHAR HOLO DISC

Sathar holo discs are illegal for private ownership as per Star Law regulations covering all sathar technology. The disc has a rechargeable internal power source of 4 SEU but it also is compatible with standard Frontier produced holo screen technology and will operate off of the screen's power supply. The disc can be stuck to an unsuspecting individual and set for delayed activation, but the individual will not realize that his appearance has been changed by hologram. Unlike the standard holo screen, the sathar technology has a 90% that observers won't see through its illusion.

cost: unknown

weight: n/a

PERMA PLASTIK COINS

Perma Plastik credit coins were developed by one of the subsidiary banking operations owned by Streel. The technology has also been licensed to Star Play for the Perma Play credit coins used in all Star Play resorts and casinos. These are two of the primary hard currencies and are popular for black market transactions. PGC has lobbied to ban Perma Plastik coins where

it is influential but has failed due to their popularity. Star Law has also lobbied for greater regulation, but while some politicians play lip service supporting legislation, nothing ever seems to be passed.

The coins come in 1, 10, 25, 50, 100 and 1,000 credit denominations. There are rare larger denominations, but these don't circulate widely. Their values were originally set to the electronic credit but currency manipulation and trading can cause the value to fluctuate. A referee can establish an exchange rate suitable for his campaign or randomly determine one. To randomly set an exchange rate roll two d10 with the first generating a whole number between 1 and 10 and the second generating a decimal between 0 and 9. Cashing in credit coins means the character receives in his electronic account an amount of credits equal to his credit coins times the exchange rate rounded down to the nearest whole number. Many institutions apply an exchange fee of 1-5% (1d5). Most individuals like to hang on to credit coins as back up money and wont cash them in.

APPENDIX C: PLOT HOOKS

DUNGEON CRAWL!

It's time for an old-fashioned dungeon crawl. The PCs catch wind of an abandoned underground city complex of the eorna. What artifacts, riches, and dangers await in the lost city of the Eorna?

SATHAR MANIPULATION

A sathar, using holo screen technology, has hypnotized and suborned a group of pirates and hired kurabanda locals to steal some critical material from the local megacorp operation. They are perfectly willing to crash starships and kill innocents. Their base of operation is an abandoned underground eorna city. The “Boss” often leaves to confer with the sathar - which is simply the undercover sathar returning to his secret outpost elsewhere on Volturnus, possibly to report to higher authority or soak in a mud bath.

Note this plot hook can be mixed with #1 and with the Hepplewhite sample adventure in the Alpha Dawn rules.

New Release!

Adventure Module

You watched helplessly from port viewers as the shuttle, Norigar, strained to reach breakaway velocity. Fire streaming from her seams and small pockets of hydrogen erupting around her. “She's not going to make it,” spouted a crewman standing beside you.

You could hear the station's commander trying desperately to communicate with the crippled ship and issuing orders for the station to brace for impact.

A few moments later the Norigar had somehow managed to find itself gliding slowly towards the station, fires gone.

“Norigar, what's your status,” asked the station commander.

“Systems seem to be normal,” replied Norigar's pilot. His tone echoing his relief. “It was probably gremlins,” he continued with a laugh.

“Roger that,” smiled the commander.

A moment later, warning lights blare. Blinding plasma blasts shoot by the station, slamming into Norigar's hull followed by a terrific explosion. The station shudders as debris pelts her hull. All is chaos.

The station's meager defenses trigger as the crew around you scrambles for the coming action, but you know it's not enough. It will happen just like before if your team doesn't intervene, you were brought here for a purpose. To stop the Maelstrom.



MISSION FOR BANK 2-3 CHARACTERS

NFO02

FRONTIERSPACE

GREMLINS

HDC HOLLAND DESIGN GROUP

AVAILABLE NOW

DriveThruRPG

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Harvest Moon is not a complete game and requires the **FrontierSpace** Roleplaying Game. **FrontierSpace** and the **FrontierSpace** logo are trademarks of DwD Studios and Bill Logan and used with permission.

STAR FRONTIERS

CREATE A CHARACTER CODEX

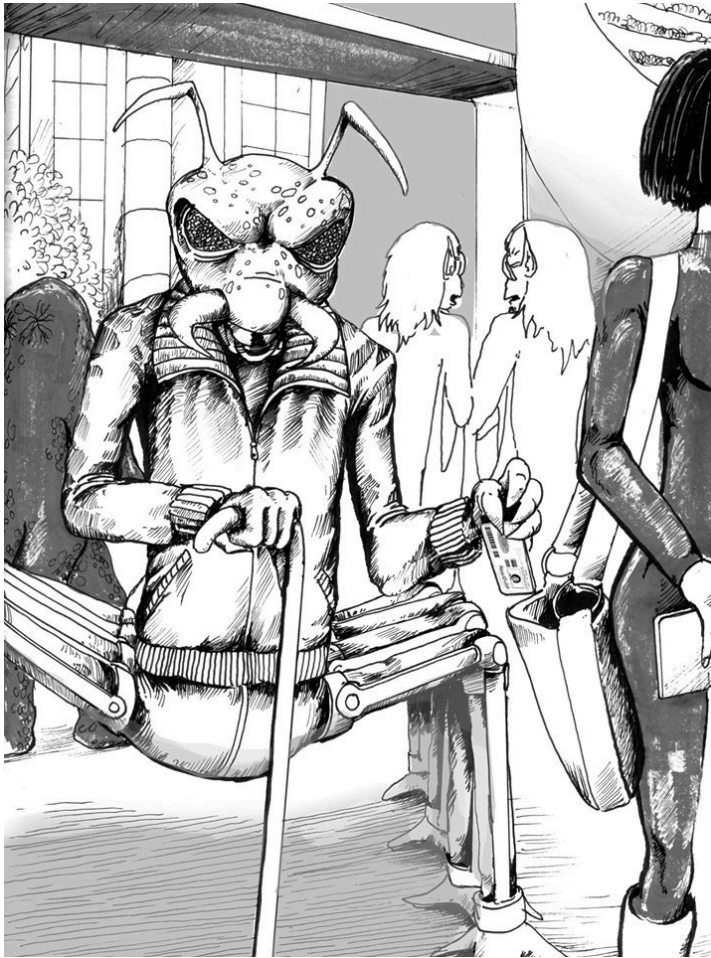
Adjectives	Class/ Profession	Race	What Will You Need?
1 1. Slimy 2. Strong 3. Old 4. Weak 5. Dead 6. Young	1 1. Royalty 2. Diplomat 3. Bureaucrat 4. Martial Artist 5. Sniper 6. Space Marine	1 1. Dralasite 2. Human 3. Combat Robot 4. Vrusk 5. Sathar 6. Humma	1-2D6 Dice 2-Paper 3-Ink 4-Time to draw
2 1. Crooked 2. Thin 3. Metal 4. Fat 5. Beautiful 6. Aggressive	2 1. Star Soldier 2. Weaponeer 3. Pilot 4. Astrogator 5. Ship's Engineer 6. Ship's Gunner	2 1. Cybernetic Robot 2. Human 3. Yazirian 4. Vrusk 5. Ifshnit 6. Mechanon	Roll 2 D6 for each column, the first roll is for the block and the 2nd is for the word.
3 1. Elegant 2. Dusty 3. Fossil 4. Sexy 5. Scales 6. Nightmare	3 1. Metabolic Control 2. Psychokinesis 3. Telepath 4. Thief 5. Street Gang 6. Terrorist	3 1. Osakar 2. Service Robot 3. Dralasite 4. Vrusk 5. Yazirian 6. S'sessu	Roll for each column. Then draw
4 1. Ice 2. Aquatic 3. Sinister 4. Hero 5. Regal 6. Bloody	4 1. Bounty Hunter 2. Environmentalist 3. Medic 4. Psycho-Sociologist 5. Computer Operator 6. Robotacist	4 1. Nagana 2. Human 3. Yazirian 4. Security Robot 5. Dralasite 6. Boon'sheh	Example 1st Roll 6 2nd Roll 4 Word - Awful
5 1. Mad 2. Sad 3. Strange 4. Bizzare 5. Hollow 6. Dark	5 1. Technician 2. Police 3. Detective 4. Hacker 5. Scientist 6. Assassin	5 1. Zuraqqor 2. Dralasite 3. Maintenance Robot 4. Yazirian 5. Vrusk 6. Edestekai	Awful, Scavenger, Vrusk
6 1. Colossal 2. Muddy 3. Shiny 4. Awful 5. Antique 6. Broken	6 1. Scavenger 2. Space Monk 3. Cyberneticist 4. Stow Away 5. Beggar 6. Pirate	6 1. Eorna 2. Heliopie 3. Zethra 4. Saurian 5. Slavebot 6. Slither	Now Draw!

This fun little tool was created by Aaron O'Brian. To use, roll 2d6 in each column to

determine the descriptor. The first die determines the box and the second the entry

within the box. The images on the following pages were all inspired by the table.

The images on the following pages were drawn by Aaron O'Brian who created the codex, and Brian Phongluangtham. The two of them had a run of daily drawings right after Aaron posted the codex on the Star Frontiers Facebook group. Each picture is labeled with the description that was rolled and the name of the artist.



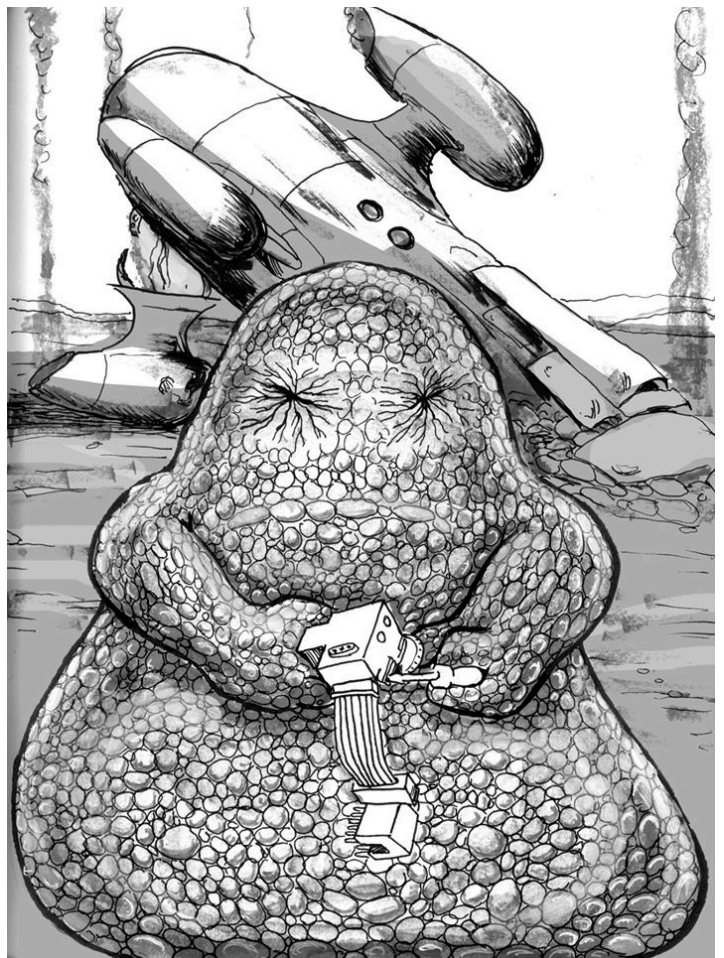
Old Vrusk Thief – by Aaron O'Brian



Aggro Space Monk Dralosite – by Brian Phongluangtham



Bloody Environmentalist Combat Robot by Brian Phongluangtham



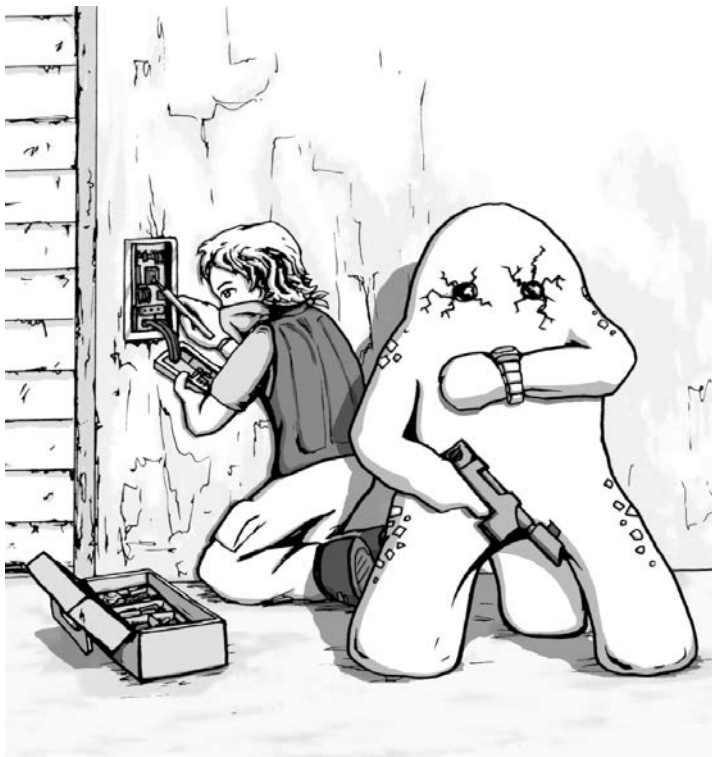
Sad Dralosite Technician – by Aaron O'Brian



Fossil Pilot Ifshnit – by Brian Phongluangtham



Nightmare Psychokinesis Vrusk – by Brian Phongluangtham



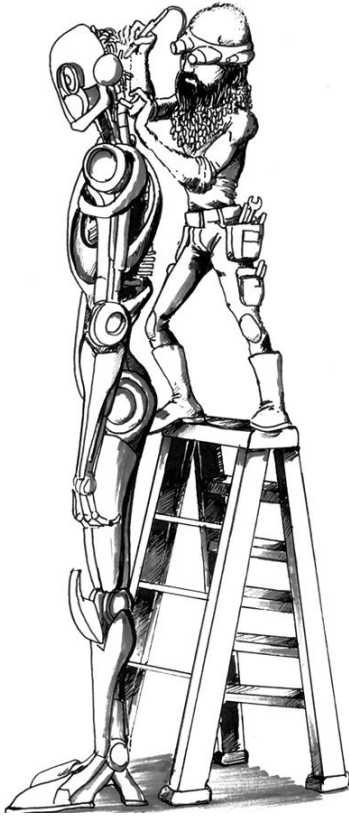
Young Technician Human – by Brian Phongluangtham



Slavebot Ship's Gunner – By Aaron O'Brian



Strange Human Telepath – by Aaron O'Brian



Thin Ifshnit Roboticist – by Aaron O'Brian



Mad Sniper Eorna – by Brian Phongluangtham



Sexy Pirate Yazirian – by Brian Phongluangtham

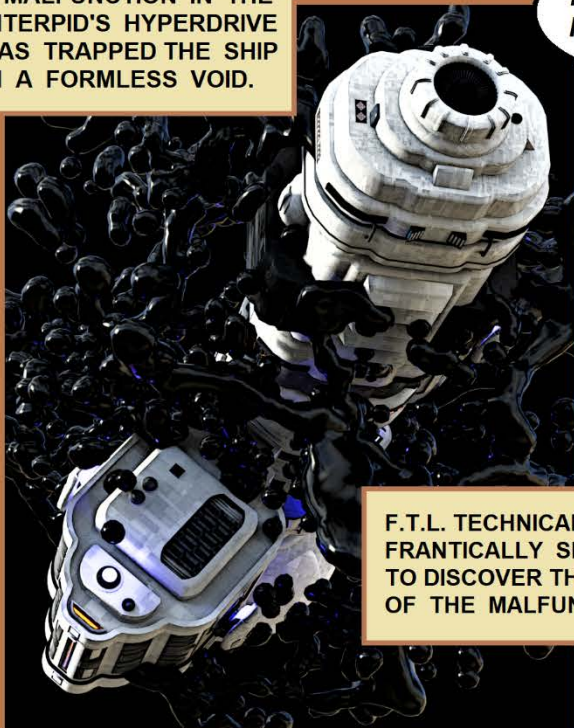


Metal Bounty Hunter Yazirian – By Brian Phongluangtham

TITAN RISING: 2255

EPISODE # 21.0: " COSMIC QUAGMIRE "

A MALFUNCTION IN THE INTERPID'S HYPERDRIVE HAS TRAPPED THE SHIP IN A FORMLESS VOID.



THIS IS NOT POSSIBLE!

EVERYTHING CHECKED OUT.

SYSTEM DIAGNOSTICS INDICATE NO PROBLEMS.

WHAT AM I MISSING HERE?

F.T.L. TECHNICAN NE'SPIR FRANTICALLY SEARCHES TO DISCOVER THE CAUSE OF THE MALFUNCTION.

I PERSONALLY DOUBLE CHECKED EVERY INCH OF THIS ENGINE.

NO ONE IN THEIR RIGHT MIND WOULD CONSIDER TAMPERING WITH A STARSHIP'S HYPERDRIVE...

SMALL PARTICULATE MASSES OF THE NULL SPACE BEGIN TO FILL THE FOREIGN REALITY.

THINKING OUT LOUD TO HERSELF, NE'SPIR CAREFULLY EVALUATES THE SITUATION. FULLY AWARE THAT THIS DARK DIMENSION IS SLOWLY ABSORBING THE SHIP PULLING IT DEEPER INTO THE VAST ABYSMAL EMPTINESS.

IT WOULD BE INCONCEIVABLE ...SUICIDAL!

JUST THE SORT OF THING A BRYND MIGHT DO!

LEADING TO A SUDDEN REALIZATION THAT THE INTREPID'S HYPERSPACE ENGINE FAILURE WAS NO MERE MALFUNCTION.



A DELIBERATE ACT INTENDED TO STOP THE INTREPID FROM REACHING ACHILLES.

SO THAT'S WHY THE SNEAKY BASTARD WAS ON OUR SHIP!

HE WASN'T SENT HERE TO ASSASSINATE ME

...HE WAS SENT HERE TO SABOTAGE OUR MISSION!

THE REPTILIAN FREAK DID A DAMN GOOD JOB OF IT TOO.

IF I CAN'T FIND WHAT HE DID TO OUR HYPERDRIVE SOON WE'LL BE ABSORBED BY THE VOID.

TO BE CONTINUED...

PERIL AT THE POD AUCTION

PRODUCT REVIEW

BY THOMAS VERREAULT

W1 Peril at the Pod Auction was produced by Creation's Edge Games as part of their Astro Adventures line. It is billed as a mini adventure for characters levels 1-3 and as White Star Compatible. I'm unfamiliar with the White Star rule system, but it's a D20 clone and therefore easy and familiar enough to convert and use. I will largely ignore the D20 rules and focus on evaluating this module for use or conversion to the Star Frontiers or FrontierSpace RPGs. It is available through DriveThruRPG as a watermarked PDF for a \$1.50 (I caught a sale and mine cost \$1.01).

The cover evokes classic B/X Dungeons and Dragons module covers. The cover art, while slightly cartoonish, has a Jim Hallway/Paranoia RPG vibe that I rather like. The overall production values are good. There is a full-color cover, followed by a document cover page, then 13 pages of content. There are 6 pieces of art with only two of them being black and white plus a simple two-color map.

One feature that I especially like is that there are three symbols that are used to communicate to the game master critical information throughout the document. The symbols indicate that a creature or creatures are present, something of value is nearby, or a challenge/obstacle exists in the current location. It's handy to have that information at a glance. The document also employs boxed text for reading area descriptions to the players. Clearly the author, Mark E. Kline, is attempting to produce a game master friendly product.

The premise of the mini module is the auctioning off of abandoned cargo containers or storage units sight unseen. You might get something good, something bad, or something dangerous. It's an idea that could be revisited on a regular basis.

The adventure is predicated on ships passing through a faulty jump gate and being forced to dump cargo. Interstellar travel in the Frontier is far different in mechanism. These would simply be abandoned storage containers and cargo units

being auctioned off. Some would be cargo that the owner couldn't pay for and the carrier had no choice but to abandon it or consign it to auction. Jak's Good's Emporium could be used on almost any colony in the Frontier with a significant spaceport.

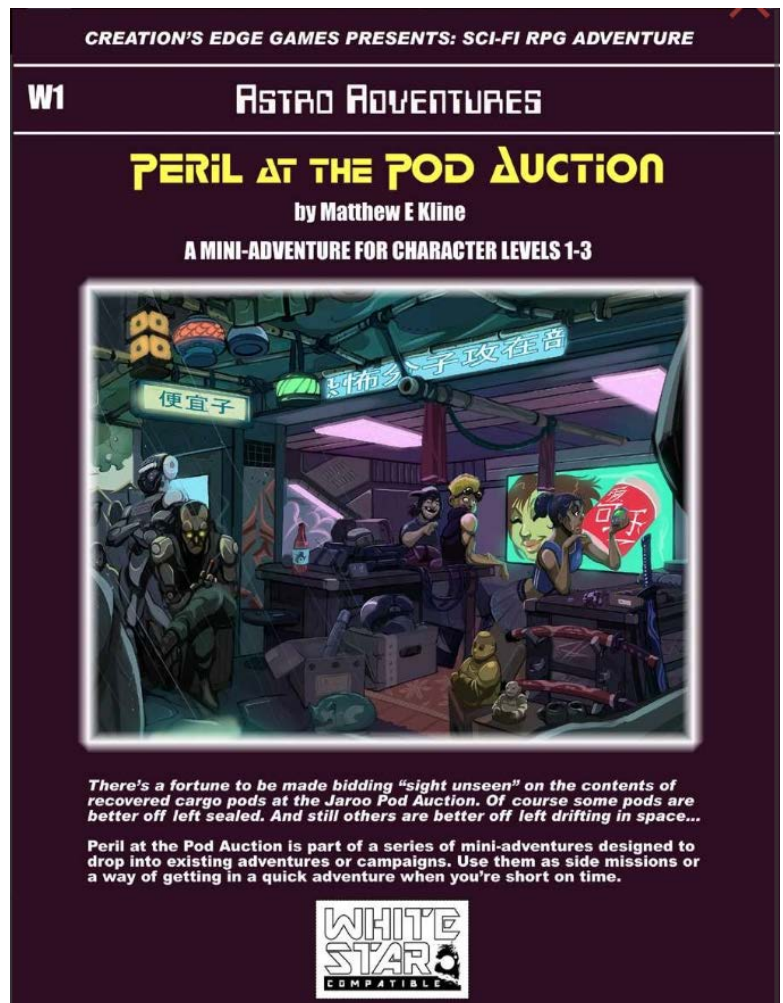
The adventure also introduces alien nanotech assemblers that strip parts and put together makeshift robotic servants called revengeoids but one might integrate the nanotech assemblers into the Frontier setting as being of Mechanon origin and springboard into a whole mechanon story arc.

The rest of the module is 8 plot seeds for continuing the adventure, 2 new creatures, and 1 new equipment item. The new item is called a Transcorp Code Burner and I think it's something worth incorporating into the Frontier's megacorp dominated environment.

The code burner is for bypassing a Transcorp lock and prevents disgruntled employees or forgetful execs from locking the company out of a cargo pod or location. They are the property of Transcorp, whose security people will endeavor to confiscate any in the possession of non-Transcorp

personnel. The PCs can loot an unused one during the adventure and it can be sold or used by them. There is a lot of potential for this item and technology in a corporate espionage or criminal campaign in the Frontier. There would be tremendous scope for the item's inclusion into the game setting for all megacorps.

Peril at the Pod Auction is a simple, straightforward mini-adventure with lots of potential for continuing the adventure at a very inexpensive buying price. The adventure is presented in a linear fashion but the players can certainly tackle it from other routes. It's ideal for a gamemaster short on prep time. The price is also hard to beat. I would recommend it for almost any sci-fi game as it is a flexible idea. I give it four dralasite thumbs up out of five.



TWO SECONDS WITH A SLURKER

BY ERIC WINSOR

We traveled home from Timeon via Prenglar, Athor, and Belnafer to Scree Fron. Bowzer was in the hold under lock and key guarded by Master Ranger Theodore Percival of the Morgaine's World Conservation Corps. Ranger Percival is an old friend of mine and Frontier-wide big game hunter who joined the Conservation Corps in his retirement from hunting. We meant to meet on Timeon for our gazelle hunt, but Percival was engaged in a hunting assignment on Morgaine's World. When Percival heard of Bowzer's murder he insisted on joining us on our trip home to Hakosoar. So we rendezvoused in Prenglar. Percival boarded in full uniform and with an odd gift in tow which also put Bowzer under Federation protected status the whole way home to the JHF.

SCARY BAGGAGE

Percival brought a dead Morgainean Swamp Lurker preserved in a freeze field. These creatures are scary, dangerous, and extremely rare as the residents near the few northern swamps that are their habitat are eradicating them out of fear. And, there are a few reasons to fear swamp lurkers.

The locals have many names for these creatures, slurker being the most common. They are also called steeches, garzords, and grabbers. Percival and Dwain explained that humans like to contract words together to make names. Percival says that slurker is short for swamp lurker. Steech comes from combining stretch and leech because the swamp lurker is stretchy having few bones, a slimy texture to its skin, and sucks when it bites. Garzord is a play on the word zord often being used in monster names of human antiquity and the major swamp they inhabit is called Gar Swamp. Gar Swamp is the largest of a dozen or so swamps clustered together in the northern territory. Grabbers is the name most often used when scary stories are told to human children on Morgaine's World. The stories usually follow a plot of lone or small groups of human youth

exploring into the swamps and the grabbers reaching out of the mists, grabbing someone, pulling them under the water to drown, and devouring them.

Having the swamp lurker onboard afforded Bowzer's corpse an official protection seal and customs permits as Percival wrote his official customs papers to cover two corpses of Morgaine's World Government Property. This helped Dwain feel better but also begged the question: Why?

MORGAINEAN SWAMP LURKER – ENDANGERED!

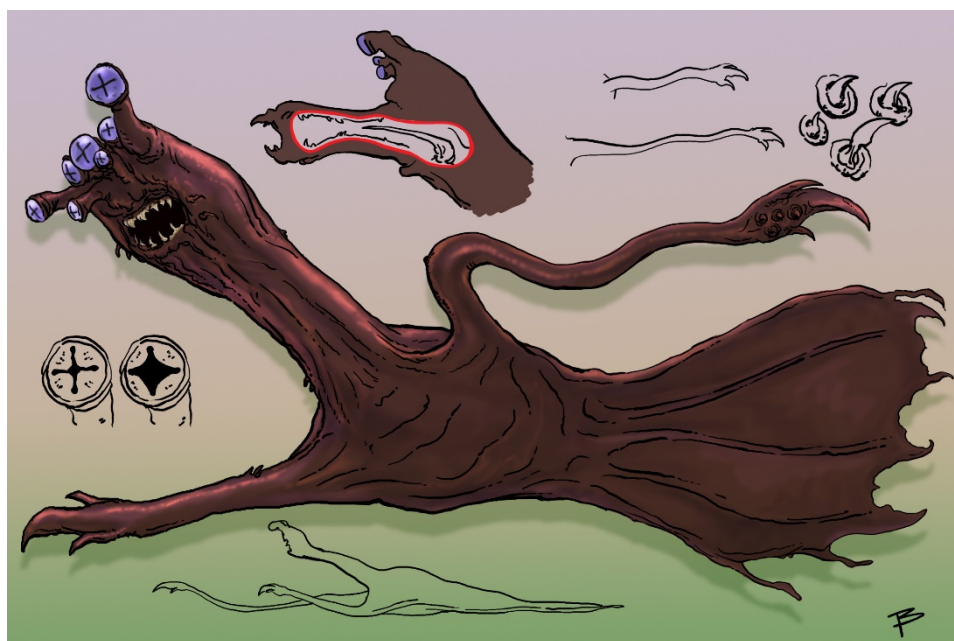
The Northern Territories are free and wild. Some Morgaineans have taken to the remote life of the Northern Territories to establish family ranches. They raise grains as foodstuffs and to provide feed for a growing cattle industry. Some remote communities border the Gar swamps.

The first explorers took up residence near the Gar swamps long before the first sathar war. These rustic outdoorsmen were the first to bring stories and reports of the swamp lurker. They told of hunters venturing into the swamps and being attacked by a creature that floated above the water concealed in the thin layer of mist

rising from the warm water. The only clue to the creature's presence being a cluster of eyes poking above the mists moments before it would rise up and grab unsuspecting explorers, cover them, and plunge them into the water to drown. Once or twice a decade, a story would come out of another explorer or hunter lost to the garzord.

Thirty years after the first sathar war, the first pictures were produced to corroborate the descriptions and validate the existence of the swamp lurker. Two hunters were tracking an animal along the edge of Gar Swamp. It was wounded and they were trying to get it before it. They were using a tracer implant on the round that had struck their prey and a motion tracker to scan the surroundings. They detected the motion in the direction that matched the tracer implant. Turing on their video recorders they hurried forward into the swamp and caught sight of their game.

The shooter was about to fire a kill shot when his companion announced a second motion signal right next to the target. Suddenly a swamp lurker rose out of the water and enveloped the wounded animal, plunging with it back down into the water. The hunters watched and recorded while the swamp lurker drowned the animal



Morgainean Swamp Lurker Basic Anatomy

IMAGE BY JERRY BOUCHER

then devoured the creature whole. It then sank back into the swamp and was lost to the hunters who could not pick it up on the motion tracker but could track its distance as it retreated back into the swamp due to the tracer implant in its digestive system. They pursued the slurker for two days until they found the regurgitated remains of the animal and picked the tracer bullet out of the mostly digested flesh and bones. Their video documentary made them local celebrities for a short time.

A few decades later the ranches had expanded close enough to the swamps that locals started losing calves in the swamps and the primary suspect was the garzord. Garzord hunting became a rationalized necessity and local pastime. A stretched and preserved garzord mounted on a wall became a Northern Territories trophy.

This brought the first dead specimens into the scientific community. The anatomy of the Morgainean Swamp Lurker, as it was officially named by the government and university scientists, is a bit unique.

This creature has very few bones. The teeth, claws, jaw, and skull are the only boney portions of its body. There is cartilaginous material along the major muscle structures, but these cartilage sections are free to separate and move with the muscles that attach to them. The swamp lurker is mostly skin and muscle and can stretch tentacled arms, torso, and neck three to four times its relaxed size and length to grasp and cover its victims.

The tentacle arms are terminated with three long sharp claws and four smaller retractable claws in the palms. These arms can stretch to about three times their relaxed length to encircle and constrict prey.

The seven eyes on the head of the creature are all supported by muscular stalks allowing the eyes to move for independent views. The three central eyes are adapted to visible light and use above water. The two large side eyes on the larger stalks are adapted for underwater use. The two front-facing smaller eye stalks are adapted to infrared light. Around the eyes are small pores for scent detection above and below the water. The eye stalks, neck, and arms are covered in sensitive hairs that the creature uses to sense motion. The creature has no auditory organs.

The diet of the creature baffled scientists. Its stomach fills the majority of its torso. The organs of the swamp lurker are very simple, allowing the creature to flatten itself out quite thin. The stomach is a very large sack with very strong digestive juices, allowing it to swallow and quickly digest large meals.

However, the creature has no anus so it must process one meal at a time. Anything not digested must be regurgitated. None of the specimens investigated held the remains of creatures stated to have been consumed in the circulating stories of swamp lurkers eating calves, dogs, and other mid-sized mammals or any mammals for that matter.

What was found was large numbers of small amphibious creatures called morffans common to the swamps. Even the eggs of these amphibians are on the menu for the swamp lurker. Yet there is the video documentary from the hunters of the swamp lurker eating large boney prey. Morffans reproduce prolifically and the dominance of them in the diets of swamp lurker specimens alerted one bright scientist to an impending ecological disaster.

The hunting and fear of garzords became such a cultural element of the Northern Territories that the swamp lurkers were soon hunted to near extinction and the morffans reproduced in exponential numbers.

The swamps had a constant loud cry of *morf-morf-morf* as millions of morffans took over the swamps and invaded the neighboring ranches seeking food. The ranchers erected endless lines of electric fences and went on flame-thrower marches into the swamps to eradicate the morffans.

Then came the swarms of insects that prospered from the destruction of the morffan population. The insects devoured the crops of the ranchers and the ranching industry crashed in the Northern Territories.

The government responded by establishing a sector office of the Morgaine's World Conservation Corps, upgrading the overtaxed field office. Hunting of swamp lurkers was banned at all levels. Morffans were placed on the endangered species list.

Swamp flame-thrower marches were made illegal.

The sector office commenced a multi decade program of rehabilitating the swamps and stabilizing the populations of swamp lurkers and morffans. Yet documented reports of swamp lurkers taking large boney creatures, including calves, returned with the rehabilitation of the swamp lurker population and fear of the garzord resurged.

The swamp lurker is still considered endangered with its numbers barely sufficient to help control the morffan population. Ranchers still have endless lines of electrified fences along their borders with the swamps.

PERCIVAL'S HUNT

During the recent sathar incursion reports picked up of a garzord devouring animals on ranches bordering the swamps. With each report, the animal sizes devoured increased. Initially the reports were dismissed due to lack of evidence. Then a beloved pet, a cat, was lost and the owners found the regurgitated remains and collar at the edge of the swamp – inside one of the electric fence lines. The creature had found a way into the ranches.

Video surveillance by the rancher went up. A week later a neighboring rancher found the remains of one of his calves regurgitated on the banks of an irrigation canal. Soon reports and regurgitated remains of small livestock were arriving at the sector office from all along the swamp boarder.

The ranchers pressed for the sector office to patrol and capture the beast. The rangers trapped and relocated three small swamp lurkers along the border in the swamps. They found signs of one or possibly two large swamp lurkers all along the border.

Loss of ranch animals and livestock continued with the size of the animals devoured increasing. Then Jane disappeared. Jane, a little girl on the Crescent Star Ranch, was out playing boats in the fishpond on the east side of the ranch. Her mother was at the nearby grain silo when she heard Jane scream. From the top of the silo she saw the garzord rise out of the

water with a clawed tentacle wrapped around Jane's leg. The beast pulled Jane into the water and wrapped around her.

Jane's mother began firing laser bursts into the spot where the garzord had dropped below the surface. A ranch hand ran to the pond and dove into the water. The Garzord leapt from the far end of the pond and scrambled clumsily across the surface, its belly fat with Jane inside, to the irrigation canal and escaped. Surveillance cameras recorded the entire event in holo-vision. The community erupted in anger. Illegal hunting of swamp lurkers commenced immediately. Within a week two men were devoured.

The rangers calmed the populace and started a systematic hunt to appease the people. More livestock were lost, and the rangers turned to baiting the swap lurkers to catch the offending creature. They placed a calf at the canal edge tied to a post in a cage. Surveillance cameras caught a very large swamp lurker swimming around the canal examining the cage. After night-fall, it reappeared on the ground testing the bars seeking an entrance. One of the hunters snuck out to the site and walked up to the beast with a shotgun.

As he walked toward the creature, it crawled behind the cage to get away from the hunter. The hunter walked around the cage past the canal to get a point-blank shot. When he passed closest to the canal another swamp lurker leapt out of the water and engulfed his head pulling him backward into the canal. The other swamp lurker scrambled forward and engulfed him from the legs. The creatures ripped the man in half and swallowed the remains. The rangers rushed to the scene but the two garzords escaped through the canal back to the swamps.

Morgaine's World was in a frenzy. The headlines were reading, "*Sathar Attack The-seus*" alongside, "*Man Eating Garzords Terrorize Northern Territories*". People were calling for military intervention to eradicate the two man-eaters. Of course, no military personnel were to spare and police were sent in substitution to supplement the rangers and hunters. The pair of garzords continued their attacks striking at random, unpredictable spots all along the swamp boarder.

Another hunter died pursuing the pair into the swamp after they had devoured a pair of sheep with tracer implants. He videoed his hunt to a lair deep in the swamp in a thick area of Morgabanyan trees. He explored their lair and discovered the bones of multiple humans before fleeing from an ambush by the two. He fired upon one of them with an auto rifle and appears to have struck it. However, while slogging his way out in the darkness they attacked again as a pair and he was devoured. His remains were found regurgitated on a grassy lump near the edge of the swamp.

This resulted in the police and the hunters breaking off from the rangers to venture into the swamps to discover the lair of the man-eaters and kill every garzord seen. The rangers countered by calling in Master Ranger (and Famed Frontier Wide Big Game Hunter) Theodore Percival. The race was on to bag the man-eaters before hunters killed all the swamp lurkers and each other.

Percival had been following the man-eating swamp lurkers since the beginning and offering his advice to the sector commander. The commander was against turning the trapping exercise into a big game hunt for Sir Theodore Percival to gain media attention and further his fame. He denied allowing Percival on site until he was ordered to after the death of the hunter and his discovery of the lair.

Percival, however, was not in search of fame. He selected five rangers and formed three two-man teams. He briefed them on gear and tactics and announced they would leave the next morning. The media was enthralled and had an expedition send-off planned for live holo broadcast the next morning.

Percival and his team left in the middle of the night without telling even their families. By morning they were deep in the swamp forest with transponders muted and the media in the black. The media compensated by covering an impromptu departure of police and hunters.

The men on Percival's team were Rangers Thomas Angle, Clifford Starr, Andrew Hightower, Jerry Artist, and Richard Morgaine. At dawn Percival called a halt to their march and ordered two hours of rest. He closed the visor to his helmet, turned

on the O₂ and dropped full into the swamp until he was submerged in the sludge and out of sight.

Cliff asked Hightower, "What's he doing?"

Jerry interrupted, "Taking on the smell of the swamp," lowered his visor and followed suit.

Hightower looked over towards Richard Morgaine as he was already slipping under the sludge. Cliff and Hightower looked back over to Thomas. The three shrugged and lowered their visors, turned on O₂ and took a nap in the muck.

Two hours later the six men were pushing deep into the swamp visors up and O₂ off to preserve their supplies. Cliff had tissue stuffed in his nostrils to keep the stench down. As they trudged along Percival snatched edible insects from the air and chewed them, spitting out the shells. "Gotta have swamp breath too!", he commented idly.

Percival paired Richard Morgaine with Thomas, Jerry with Hightower, and took Cliff himself. They walked spaced fifty meters apart with motion trackers on one man and visual search by his mate. Percival had studied the video of the dead hunter and matched up landmarks as best he could with satellite and drone reconnaissance images. Intuition and hunting experience did the rest, he was making straight for his estimate of the lair's location.

Along the way they were catching every morffan they passed and stuffing bags on their backs full of the little amphibians. That night they suspended the noisy lot in a net in the center of a circle of Morgabanyan trees and spread around to cover the kill zone.

They were rewarded with a small slurker which poked and prodded at the net throughout the night causing individual morffans to fall from the net which it gobbled up. The hoped-for man-eaters never materialized.

The next morning, they learned why the man-eaters had not come for bait. The hunters and police had set a trap with a calf in the middle of a mound rising out of the swamp. A cage had been suspended above the mound to drop on the garzords. Late into their watch, one of the police

officers was pulled under by one of the garzords and drowned. The other officers rushed to the rescue, frightening the garzord away before it could feast.

This caused a chaotic scene and the second garzord grabbed a hunter unseen by his companions. Then another hunter rushed to the calf to secure its rope and someone dropped the cage upon him. The hunter screamed and others reacted thinking he was being set upon by the garzords and they fired on the cage. The hunter was killed with multiple wounds. A fight then ensued, and the police had to enforce order.

With a hunter and an officer dead they took a head count and discovered that the other hunter was missing. They spread out searching for him and found him a few hours later ripped to pieces and his entrails missing. Half of the hunters quit the expedition and some of the officers had to leave to transport the bodies back.

The next day another hunter who had stopped for relief behind the retreating party was pulled under the swamp waters. The others searched for him for hours but never found him. Percival received this news privately. He pressed on seeking the lair of the slurkers. They checked several morgabanyan circles that were potential matches to the lair, but all were empty. They repeated their morffan trap again that night but with no reward.

On day three of the expedition the remaining hunters and police were attacked again during the night. Four hunters went down, pulled under the water and drug away without recovery. The police called an end to the hunt and ordered a return. Three hunters refused to return.

The others proceeded with the group to leave the swamps. Then they lost a police officer before the aircars could arrive to extract them. She was pulled under and whisked away quickly. They switched to searching from aircars after this and all signs of the garzords vanished.

The police changed the operation to search and recovery of the missing. Percival's team remained out of contact searching every morgabanyan circle they passed. Their evening was another morffan bait trap. They captured and released another small slurker.

On day four of the expedition, one of the media outlets put a reporter down in the swamps at the location of the failed calf trap. He was grabbed on a live feed and pulled from the mound into the swamp. The recorder drone followed the wake of the submersed garzord for almost 500 meters. By evening dozens of drones were scouring the swamps for signs of the garzords. The media was in a frenzy.

That afternoon Percival and his team found the lair. The lair was full of regurgitated human remains. The missing hunters, police officers, and reporter were among them. The digestion was incomplete and the bodies torn apart.

Percival could tell these creatures were not hunting for food. No records or studies ever suggested that the slurkers were territorial. This appeared to be hunting for the sake of hunting.

Jerry voiced the thoughts that Percival feared spoken, "These beasts are hunting for sport!"

Percival's responded, "We end this here tonight!" He ordered no communications back to alert anyone about the discovery of the lair. Drones, media, police, and hunters would surely come and the slurkers would flee to the swamps and another lair. They set their trap for the night.

Percival stood in the middle of the lair knee deep in the water and algae. He was the bait. His five companions took positions in the trees covering the entrances to the morgabanyon circle lair.

The night was deadly silent. There were no sounds of morffan here. Nothing but the six rangers lived here. The air was thick with the smell of swamp muck and the decaying body parts littering the lair.

All instruments were muted and covered so no light escaped. The morgabanyan trees covered the sky above so thickly that the moons were exiled from sight. The mists rose up from the water to shoulder height and clouded their visors.

Hours crept by with sickening anticipation. There was a noise in the distance. Sloshing water and splashing. Something, not a slurker, was approaching. Richard Morgaine caught a glimpse of red light in the distance, the readout from a laser rifle. One of the three hunters was approaching. He stopped dead in his tracks. The sound

of his sloshing water fading to ripples against the trees.

The hunter let off three shots, to his right, front, and left, and stood motionless. Minutes of silence passed then he flipped on his head lamps. He scanned about the surrounding waters then began fumbling with his SEU pack to change connections to a belt pack over his shoulder and chest.

His head lamps illuminated the water behind the hunter and Richard caught sight of a long, tentacle claw reaching towards the hunter's leg. He judged the distance beyond the hunter into the darkness where he suspected the slurker was reaching from and fired a burst from his auto rifle over the hunter's head.

The hunter screamed and dropped down into the swamp pulling his knife. Behind him something began thrashing about in the water.

Percival called out, "Lights!" and all the rangers switched on their lights in the direction of the splashing. The largest slurker they had ever seen was thrashing about in its death throws. The hunter spun in his place and was cowering before the sight.

On the hunters back, tied to the frame of his SEU pack, were the heads of his two companions. Jerry and Hightower came to the hunter's aid while Richard and Thomas approached the beast and finished it off with a round to the brain.

One of the man-eaters was dead. One of the hunters was saved. Percival stood motionless contemplating the next strike of the missing slurker. These creatures were willing to track men with weapons and risk their lives for the kill. Percival was sure the other man eater would strike again. The second man eater would track them and attack when they least expected it.

Jerry began searching the swamp water around the dead slurker. Nearby were found the dismembered arms and legs of one of the hunters freshly regurgitated right before the attack moments before. The sound of regurgitation must have been the sound that had stopped the hunter in his tracks. Jerry reported his find to the team and Percival pondered on the meaning of it.



IMAGE BY JERRY BOUCHER

Percival senses the slurker behind him.

Everyone was sweeping the surroundings with their head lamps assessing the situation. An arm from one of the corpses in the lair floated past Percival distracting his pondering. The arm was oozing blood and fresh in color.

Percival froze! Cliff turned his head light upon Percival and began chattering his teeth. Percival saw the terror wide in Cliff's eyes. He knew instantly that the second man eater had risen up silently behind him to envelope him and pull him down for the kill.

Seconds divided. His perception heightened. He could smell the creature. He instinctively assessed his preparedness. His O₂ breather was off. The plunge into the swamp muck would be fatal. Muck would

be sucked into his lungs and the crushing muscles of the slurker would wrap around him squeezing out his life. The swallowing and tearing would begin from his head. He would be lucky if his head stayed attached.

This was not going to happen without a fight. He dropped to his knee spinning. Time was slowed. He saw the swamp lurker's head lunge forward. The creature stretched wide to envelope him. Richard started a scream of warning, "WWWaaa".

Percival's right hip hit the sludge while he spun to the left. The slurker was in front of the muzzle of his auto rifle. His finger pulled at the trigger. Rounds started reporting. Richard's scream continued, "tttccchhh ...". Bullets struck flesh. Percival jerked the rifle back to the

right. Richard completed, "OOuuuttt!!!". More bullets struck flesh. The creature crashed down upon Percival. Percival thrust his rifle forward in defense, finishing the clip. The contractions of the slurker's muscles started around Percival's body and then stopped!

Percival's head was barely above the swamp water and algae. The slurker was over him. There were twittering movements in its flesh as it tried to gather the strength to grapple him. Moments drew out with the stretching of the slurker.

Then there was a loud bang and the twittering stopped. Jerry had fired a round through the slurker's brain as he held its head up by its eye stalks.

Cliff and Thomas were then pulling the bag of the creature from around Percival. Percival was happy to be alive. He asked who had fired the last round and Jerry reported what he had done. Percival began thanking Jerry for saving his life, but Jerry interrupted, "You littered that creature with so many holes it was dead when it hit the water. I just put one last round in its brain for good measure." Richard Morgaine added, "That's true sir, you bagged the last man eater."

GM NOTES

Slurkers are the top predators of the Gar Swamps. They function much like lions. There are other slurkers on Morgaine's World in other far away swamps that have not yet been discovered.

MORGAINIAN SWAMP LURKER (SLURKER, STEECH, GARZORD, GRABBER)	
TYPE:	Carnivore
SIZE:	Large: 2.0m / 70kg
NUMBER:	1
MOVE:	Fast, 90 m/turn
IM/RS:	6/65
STAMINA:	85
ATTACK:	65
DAMAGE:	3d10
SPECIAL ATTACK:	Crush and drown
SPECIAL DEFENSE:	Can stay submerged indefinitely
NATIVE WORLD	Morgaine's World, Preglar



IMAGE BY JERRY BOUCHER

THINGS THAT GO BOOM!

PART 6: MORE ON LANDMINES

BY JOSEPH CABADAS

The last installment of “Things That Go Boom!” (page 9) looked at some of the basic types of landmines available in the Frontier.

This article will add a few more nasty surprises for characters – everything from small “tablet” mines that are more designed to hinder an opponent, to wolf mines that charge at a target, and an exotic alien mine that causes disintegration damage.

Other landmine detection methods will be explored including ground penetrating radar – and rules for using them. The ideas for some of these weapons came from contributors to various discussions on the starfrontiers.us website including user SFAndroid, Tom Verreault (jedion357), Deryn_Rys, KRingway, and Gergmaster.

There are two basic types of landmines – static mines, which stay in one place, and moving mines that travel toward a foe to ensure it is within the blast radius. These types of mines can be equipped with lethal or non-lethal warheads for use against people, animals, robots, or vehicles. Normally, a mine is set to act as either an anti-personnel mine or an anti-vehicle mine.

Anti-personnel mines will not detonate if the object detected is heavier than a standard size robot or lighter than 20 kilograms. Anti-vehicle mines will not detonate for anything lighter than 100

kilograms – which means that they will also detonate when a standard size or larger robot crosses them.

Some mines are rather simple, meaning that anyone can set them off. Others have more sophisticated identify friend or foe (IFF) sensors and/or can be remotely detonated or deactivated by the side that set them.

Just like other characters, robots, and animals, mines have a to-hit number. The chance to hit is based upon the sophistication of the mine’s sensor.

Only moving mines – such as the grasshopper or leap frog – have an initiative number. The mine’s IM is based upon the sensor level.

Many mines only have an immediate blast area. For example, if a character is using a mine kit to turn a Type II high explosive warhead into a landmine, it only has a blast radius of 6 meters. Ignore the secondary blast area that is supposed to extend out to 9 meters.

However, there are exceptions to this rule, which will be detailed further on.

ANTI-HANDLING DEVICES

Anti-handling devices are attachments to, or even a basic part of, aerial dropped bombs, landmines, or improvised explosive devices (IEDs). These booby-traps are designed to discourage anyone from tampering with a bomb, causing it to explode and kill or injure anyone within the blast area. Characters can purchase these items for their own mines and bombs. Several anti-handling devices include:

ANTI-LIFTING FUSE

This device would be screwed into an auxiliary fuse pocket located underneath an anti-vehicle landmine. If the mine is lifted or shifted, this fuse triggers a detonation – that is a 40 percent chance since anti-lifting fuses have level 1 sensors.

ANTI-HANDLING DEVICES	LEVEL	TURNS TO SET	DISARMING MODIFIER	COST (CR)	WEIGHT (KG)
Anti-Lifting Fuse	1	3	-10	40	1
Anti-Magnetic Fuse	2	2	-20	60	1
Anti-Radar Detector Fuse	2	2	-20	60	1
Anti-Mine Clearing Fuse	2	3	-30	100	1

ANTI-MAGNETIC/RADAR DETECTOR FUSES

The anti-magnetic fuse detects the magnetic field generated by many mine detectors. The auxiliary anti-radar detector senses ground penetrating radar (GPR) waves that are generated by the Demolitions-CAS and other GPR units. When the fuse detects such units in operation within 3 meters of the mine, it will cause it to explode. This is a level 2 device, so its chance to hit is 50 percent.

ANTI-MINE CLEARING FUSE

Anti-mine clearing fuses can identify mine clearing operations including the use of line-clearing explosive charges, flails, and plows to prevent a mine from exploding. But the mine will detonate when the weapon is handled by demining personnel.

GAME USE OF ANTI-HANDLING DEVICES

These booby-traps provide an additional negative modifier when a character is attempting to find and/or defuse unexploded bombs or landmines.

MORE STATIC LANDMINES

FOUNTAIN OF DEATH (FOD)

The Fountain of Death is the Frontier's nickname for a Sathar landmine that was first used during the First Sathar War. Many of the resistance fighters on the planets of Pale, New Pale and Laco began calling it a "fod," which is pronounced "ph-ah-duh." It gave birth to the UPF Landfleet's phrase, "it's been foddied up," to refer to anything that has been ruined.

When it goes off, the FoD mine spits out either two dozen sonic or explosive micro-grenades to all adjacent squares within a 3-5 meter radius. Use the Grenade Bounce Chart for each group of three mines to determine where they land.

The FoD often uses a simple level 1 pressure sensor, which gives it a base chance to hit of 40 percent but it can be equipped with a level 2 sensor. Assume the targets are at short range. Three micro-grenades are fired at each adjacent square. This type of mine has a lifespan of 30 years and apparently the Sathar can set them off by

TYPES OF MINES	COST (CR)	WEIGHT (KG)	SENSOR LEVEL
Fountain of Death (FOD)*	200	2	1-2
Tablet (bag of 40)	300	1	1
Umbrella	1,000**	5	4
Hhrach Tkah (Dishonor)	20	0.5	1-2
Dropper Mine Kit	20	1	2-5
Sticky Bomb	varies	varies	1-3
Limpet Grenade Kit	20	1.5	2-4
Limpet Mine Kit Mk. 1	100	4	2-4
Limpet Mine Kit Mk. 2	150	6	2-4
Limpet Mine Kit Mk. 3	200	10	2-4
Locust Mine Kit Mk. 1	100	7.5	2-4
Locust Mine Kit Mk. 2	150	10	2-5
Locust Mine Kit Mk. 3	175	12	2-5
Scorpion Mine Kit	100	5	2-4
Wolf Mine Mk. 1	150	10	2-4
Wolf Mine Mk. 2	175	14	2-4
Wolf Mine Mk. 3	200	18	2-4
Roller Grenade Kit	150	6	5-6
Roller Bomb Mk. 1	200	12	5-6
Roller Bomb Mk. 2	250	16	5-6
Roller Bomb Mk. 3	300	20	5-6
Mole Grenade Kit	120	8	4
Mole Mine Mk. 1	170	14	4
Mole Mine Mk. 2	200	18	4
Mole Mine Mk. 3	250	22	4

*Note: this is the cost of a Frontier replica of a FoD with the micro-grenades. An actual Sathar artifact may cost more than double this price.

**This is the black market price of this alien weapon.

remote control radio signal. Characters with the right equipment could jam this signal.

The Sathar sonic grenades are similar to the Frontier's sonic marble grenades (1d10+6) while each explosive micro-grenade does 1d10+5 points of fragmentation damage. Characters can make a RS check to take half damage. This mine has been replicated by WarTech and other manufacturers, so characters purchasing one are likely not getting one of Sathar origin.

TABLET MINES

These small explosives are the size of an aspirin tablet used as an area-denial ordnance. A character can take a handful of them and scatter the five tablets across a

2-by-2 meter square or a bagful of 40 tablets across a 5-by-5 meter square.

They have a simple type 1 pressure sensor which triggers a 3-second delayed detonator whenever anything heavier than 40 kilograms steps on them. The time delay allows an unwary victim to be well within the improvised minefield before the explosion. They have a 40 percent chance to-hit.

Each tablet only does 1d5 points of damage which is concentrated at the victim's foot (or wheel or tread, etc.). These mines do not have a blast radius, but there is a 40 percent chance that other mines within the same 2-by-2 meter area will also detonate, causing half damage to the target.

Due to the up-close-and-personal nature of the explosion, skeinsuits and partial polyplate armor only provide one-fourth

protection from the explosive force. Inertia screens and full polyplate armor will provide normal protection.

A character can scatter five tablet mines per 2-by-2 meter square or 40 tablets in a 5-by-5 meter square. These mines do not require the setter to have any kind of demolition or weapon skill.

For those moving through an area where tablet mines have been set, the character can make an Intuition (INT) check to discover the explosives. If the character is walking and only casually observing, the INT check is at ½ INT or a full INT check if the character is walking at half speed and carefully looking.

The mines are available in several different camouflage variations, to match the area of denial including a light sandy color, asphalt, olive drab, white, etc. This gives a character an additional 10 percent penalty for detecting the tablets.

Of course, if the dark colored tablet is used on a light surface – or a light colored tablet on a dark surface – these mines would be very easy to see. Provide a character trying to detect them with a 20 percent bonus.

Each batch of 40 tablet mines has a specific code so they can also be set off by

radio remote control, usually from a chronocom. This code will activate all the mines in that batch at once! So it is important for the setter to make sure they no longer carrying any of the tablets or they will be injured as well.

(This grenade created by user SFAndroid on the starfrontiers.us website:

<http://www.starfrontiers.us/node/4524>)

UMBRELLA/DISINTEGRATION MINES

This is an exotic, alien weapon – possibly from a mysterious insectoid race called the “Klikk” or “Klikk.” It unleashes a high-energy particle beam that affects everything within the 3-meter blast radius.

This insidious weapon has been nicknamed an “umbrella” mine based on its appearance. When deployed on the ground, the mines are half-a-meter in diameter with a 40-centimeter long power core and proximity sensor that protrudes from its base.

The mine’s level 4 proximity sensor head cannot be covered by more than 3 centimeters of material. It is powered by the equivalent of a 10 SEU battery that allows

the mine to function in sleep mode for two decades before it self-destructs.

The sensor system can detect vibrations up to 5 meters from the mine, causing the weapon to “awaken.” The mine can be set to go off if any person or animal weighing over 20-50 kilograms steps within three meters of the umbrella mine. It has a 70 percent chance to hit.

Witnesses to the mine’s detonation have described seeing a flash of nearly blinding blue-white energy erupting and smelling ozone in the air. The beam causes the electrons in the victim’s cells to destabilize and slough off into a grayish dust.

The victim can make a half Reaction Speed check, otherwise they will take an immediate 4d10 points of damage. If the victim survives the initial blast, they must make a Stamina (STA) check or permanently lose two out of every five STA points they possesses along with losing the limb that had initial contact with the mine. A gauss screen will reduce damage by half.

The source of these mines is believed to have come from an undisclosed alien cache, but some were used during the Second Dramune War. Causing horrific injuries, umbrella mines were quickly banned by the UPF. Several crates of these weapons were never recovered. Reportedly some of mines were acquired by one or more of Dramune’s shadowy crime bosses.

Untriggered umbrella mines appear to have a failsafe device installed. When they are almost out of power, the mine will explode with effects similar to a half strength fragmentary grenade.

(This mine was created by user Deryn_Rys on Jan. 1, 2011, on the starfrontiers.us website:

<http://www.starfrontiers.us/node/4524>).

DROPPER MINES

Dropper mines are a class of weapons that can be mounted in the ceiling of a corridor, on tree branches, cliff sides, roof overhangs, or other high places. They can be set to bomb opponents below or offer a nasty surprise to a gliding yazirian who lands next to them.

MINES	DAMAGE	BLAST RADIUS	ROF	DEFENSE	EFFECT
Fountain of Death (sonic)	1d10+6/ grenade	1	1	Sonic	Anti-personnel
Fountain of Death (blast)	1d10+5/ grenade	1	1	Inertia	Anti-personnel
Tablet Mine	1d5/mine	Immediate	1	Inertia	Anti-personnel
Umbrella Mine	4d10+special	5	1	RS/Gauss	Anti-personnel
Hhrach Tkah (Dishonor)	3d10	3	1	Inertia	Anti-personnel
Dropper Mine	As grenade	As grenade	1	Varies	Anti-personnel
Limpet Grenade	As grenade	As grenade	1	Varies	Anti-personnel
Limpet Mine Mk 1-3	As per missile warhead	As per warhead	1	Varies	Anti-vehicle
Sticky Bomb/ IEDs	As per charge	Varies		Varies	Anti-vehicle
Locust Mine Mk 1-3	As per missile warhead	Varies	1	Varies	Anti-vehicle
Scorpion Mine	As per grenade	Varies	1	Varies	Anti-personnel
Wolf Mine Mk 1-3	As per missile warhead	Varies	1	Varies	Anti-vehicle
Roller Grenade	As per grenade	Varies	1	Varies	Anti-personnel
Roller Bomb Mk 1-3	As per missile warhead	Varies	1	Varies	Anti-vehicle
Mole Grenade	As per grenade	Varies	1	Varies	Anti-personnel
Mole Mine Mk 1-3	As per missile warhead	Varies	1	Varies	Anti-vehicle

HHRACH TKAH (“DISHONOR MINES”)

Dropper mines are an outgrowth of yazirian weapons called the “hhrach tkah,” which roughly translated into Pan Gal means “dishonor mines.” These are hanging bombs, placed in trees or on ledges. Their purpose is to deny or discourage enemy warriors from rival Yazirian clans from gaining an advantageous perch from where they could launch an attack.

They were called dishonor mines because they are considered a sneaky tactic; however, they were quickly adapted by all clans during the Clan Wars. These weapons use a simple mechanical tripwire/pressure sensor that triggers the bomb whenever anything larger than 20 kilograms disturbs it.

A true hhrach tkah does not drop, but rather is a stationary bomb that will explode, causing 3d10 points of damage to anything within a three meter blast radius. It can accept level 1 and 2 sensor/detonators.

DROPPER MINE KIT

This kit turns an ordinary grenade into a dropper mine. Any average character can use it without needing a demolition skill to set it up. It is meant to be used as a short-term trap. The user must set a timer for it to go inert – generally from 4-20 hours.

After it goes inert, it can be collected and reused. Or the user can purchase a radio remote control receiver for the mine. This will allow the user to either switch off the mine, cause it to drop/detonate on command, or to reset the deactivation timer via a simple chronocom. Each mine has its own radio code to prevent an adversary from easily taking control of the mine.

Equipped with a combination proximity/motion sensor, it can detect objects (characters, robots, vehicles, etc.) that come within 10 meters below. If the target meets the unit’s parameters, it will drop. The bomb’s chance to hit is based on its sensor/detonator level, which can range from levels 2-5. The target is considered to be at short range.

For each 5 meters beyond 10 meters, start using range modifiers. For example, if the mine detects a target from 10-15 meters, it will be at medium range, 16-20

meters is long range, 21+ meters is extreme range. Dropper mines cannot take careful aiming or opportunity fire. Adverse weather conditions, such as high winds, will also throw off its aim! The referee could give it an additional negative modifier of -5 to -25 percent.

A dropper mine can also act like a hhrach tkah. If someone comes within three meters of where the mine is perched – such as a yazirian landing on a branch where the mine has been set – it will also explode!

The dropper mine attaches to a branch or ceiling thanks to a resin backing that is similar to tangler threads, but it dissolves after 30 days. Solvaway can be used to remove the backing. A new resin backing must be installed (the mine kit comes with two spare backings) or a character needs to jerry-rig a mount for the kit to be reused.

LIMPET MINES AND STICKY BOMBS

Limpet mines originated as a naval weapon that a saboteur attached to a target ship with magnets. Its name is derived from the limpet sea snail that clings to rocks and other surfaces.

First used in World War I by Italian divers, limpet mines are credited with sinking an Austro-Hungarian dreadnaught and a freighter on Nov. 1, 1918. Using a timer detonator, limpet mines were also successfully used during World War II.

Various government special forces have used limpet mines during peacetime in several notorious incidents. In one such event in 1985, French DGSE agents used limpet mines to sink a Greenpeace ship known as the Rainbow Warrior while it was in harbor in New Zealand.

Sticky bombs were anti-tank hand grenades that were made by the British during World War II. For those who have seen the movie “Saving Private Ryan,” American soldiers used an improvised explosive device (IED) as a sticky bomb to destroy a German tank. It is called a sticky bomb because it is a “bomb that sticks,” as one character in the movie proclaimed.

The British sticky bombs used an explosive gel with 680 grams of nitroglycerin. The gel was placed in a glass container

(later plastic). A sock of woven wool covered with a sticky substance wrapped the container. A primed bomb would be thrown at a tank, lighting a five second fuse.

In the Frontier, the term “limpet” is used beyond naval warfare. It refers to any mine with a magnetic sensor and a delayed timer that can latch on and stick to a vehicle or robot or even the steel framework of a building.

STICKY BOMB

This is an anti-vehicle (or robot) IED weapon that a character with a demolition skill may be able to create, if the proper materials are available. It would typically have a sensor level of 1-3. The damage would depend upon the type of explosive material used.

LIMPET GRENADE/MINE KITS

These kits turn normal grenades along with type I-III missile warheads into anti-vehicle and anti-robot limpet mines. As noted, it uses a combination of a magnetic sensor, a delayed timer detonator, and something to make the bomb stick to a surface.

Often the grenade/mine is activated by a user, who attaches it to the target. The bomb can be attached either via a magnet that is powered by a 1 SEU microdisc or has a tangler adhesive. When equipped with a magnet, it can only stick to an object with ferromagnetic metal properties, such as steel alloys, iron, nickel, cobalt, dysprosium, and gadolinium.

They could be placed or buried on the ground so when a vehicle or robot runs over them, the mine would attach to the underside, starting the time delayed detonator. A big drawback is that magnetic limpet mines will not adhere to other surfaces, which led to the creation of the “sticky” limpet.

An adaptation of tangler thread technology, the sticky limpet has a tangler adhesive pouch. The user peels off the pouch’s backing to expose the tangler adhesive to air, which activates it.

The mine can be attached to any surface. It will remain stuck in place for 60 minutes before the adhesive decays and the mine drops, setting off the mine.

Typically, limpet mines have a variable timer. The user will set the timer to detonate the mine within 10 seconds to 60 minutes after the mine is activated.

(The idea for this mine comes from Tom Verreault.)

IMPROVISED EXPLOSIVE DEVICES (IEDS)

As shown in the Afghanistan and Iraq wars, IEDs can be deadly. Assume they are not as accurate as a purpose-built mine. The most basic IEDs would have a level 1 pressure sensor, giving it a 40 percent chance to hit. Otherwise, consult the previous article about the expanded demolition skill (reference) to figure out what kind of sensor/detonator such a weapon has, which would determine its to-hit number.

IEDs can be detonated by timer, radio signal, weapon fire, or other devices. A timer lets the character set a time when the charge will explode. The timer can be adjusted to delay from 1 second to 60 hours.

If a chronocom or subspace radio is available, charges can be set to explode when a particular signal is beamed at them. The chance to explode a charge with a radio beam is 10 percent less than normal.

Demolitions experts also can set off a charge with a laser. If the expert hits the charge, it explodes, according to the Alpha Dawn Expanded Game rulebook.

Demolitions experts can use type I missile warheads as improvised mines. Referees may allow a character with this skill to manufacture small explosives one-tenth the strength of TD-19 for around 12 Credits.

MORE MOVING MINES

The moving mines covered in the last article included the S-Mine, which was also called the “Bouncing Betty,” along with the Grasshopper and Leap Frog mines that were introduced in Zebulon’s Guide. These will now be joined by several other moving mines including the Locust Anti-Vehicle

Mines, which are enlarged versions of the Grasshopper.

LOCUST MINE KITS

These weapons will fling themselves up to five meters straight up in the air before detonating, which can help them attack low flying or hovering targets. If it hits an obstacle on its way up, it will be deflected five meters in a random direction before detonating. Use the Area Effect Weapon Miss Diagram to determine a random direction.

There are three types of Locust Mines. The Locust Mk. 1 accepts type I missile warheads. The Locust Mk. 2 can mount one type II missile warhead while the Mk. 3 version accepts a type III warhead. Because they bounce up into the air, these landmines have a secondary blast area.

SCORPION MINE KITS

Also called a “charger mine.” After this anti-personnel weapon detects an approaching foe, it springs up from the ground and rushes toward the target on its six legs to bring its warhead within range.

Scorpion mines accept most grenades – except sonic marble grenades – as a warhead. These mines use level 3 and 4 sensors, usually motion or proximity detectors with a 20 meter range. When rushing at a character, they move at 30 meters per turn (slow) and are considered a tiny target. A character can shoot at it. Each mine takes 5 STA points of damage before it is disabled.

A drawback of this mine is that it can only make one 45-degree course correction per turn. If a target gets behind it, the scorpion loses track and will then rush at the nearest object, whether it is a rock, a tree, or another character and then detonate. Also, a character or robot can try escaping by put a large object between them and the mine – say a tree, boulder, wall, etc. The mine will then attack that object.

Or, if the character can keep moving, they may be able to outrun the mine. Scorpions will travel a maximum of 120 meters before returning to standby mode.

WOLF MINE KITS

Similar to scorpion mines, these are anti-vehicle moving mines that come in

three sizes, the Mk. 1, which accepts a type I missile warhead; the Mk. 2, for a single type II warhead; and the Mk. 3, which accepts a single type III missile warhead.

Because it is not buried in the ground, the warhead does have a secondary blast area.

Wolf Mines are usually equipped with a level 3-5 sensor. Once they detect a foe, they spring up and run toward the target on four legs. They are considered to be medium size targets and have a medium movement rate (50 meters per turn). If they have time, characters can fire at the wolf mine; they would need to inflict 15 STA points of damage to disable it.

These mines also have several weaknesses including being only able to make one 45-degree course correction per turn. If a target gets behind it, the wolf mine loses track and will then rush at the nearest object, whether it is a rock, a tree, or another vehicle.

Also, the vehicle or robot can try escaping by put a large object between them and the mine – say a tree, boulder, wall, etc. The mine will then attack that object.

Or, if the vehicle or robot can keep moving, it may be able to outrun the mine. Wolf mines will travel a maximum of 500 meters before returning to standby mode.

ROLLER GRENADE/BOMB KITS

Instead of using legs, roller bombs are spherical-shaped moving mines. They have the advantage of being able to make 180-degree turns and are faster than either scorpion or wolf mines and are limited to sensor levels 5 and 6.

Roller bombs come in four different sizes. The roller grenade kit accepts all grenades, except for sonic marbles. The Roller Bomb Mk. 1-3 accepts a missile warhead of the corresponding size. These mines do have a secondary blast area.

Roller grenades/mines are considered to be small targets while their movement rate is fast (100 meters per turn). A character would need to inflict 10 STA points on the roller grenade or 25 STA points on a roller bomb to disable one.

A character, vehicle or robot can try escaping a roller bomb by putting a large object between them and the roller bomb. The mine will then attack that object.

Or, if the target can keep moving, it may be able to outrun the mine. Roller bombs will travel a maximum of 800 meters before returning to standby mode.

MOLE GRENADE/MINE KITS

This is a borrower type of mine that remains just under the surface of the ground but can change position to get into the path of an oncoming target, whether that is a person, animal, robot, or vehicle.

Mole mines come in four basic kit styles. The smallest, called a mole grenade, accepting most grenades (except sonic marbles) as a warhead. The Mk. 1-3 models accept one missile warhead corresponding to the size of missile. They use a level 4 combination vibration and motion detection sensor.

Once it detects a target coming into sensor range, which is 20 meters, the mine will burrow toward its foe, while attempting to remain at least 5-10 centimeters below the ground. It moves at a slow rate, 20 meters per turn. It can only make one 45-degree turn.

Rocky ground may decrease its travel rate by half and it cannot tunnel through solid rock. If it encounters solid rock, it will pop out of the ground to scuttle on the surface, but it can tunnel under a roadway.

A character that detects a mole mine approaching – seeing a ridge of ground rising up, for example – and can try to fire at it to disable it. If the mine is underground, treat it as having hard cover. Its target size is tiny (for the grenade model) or small for the mole mines that accept missile warheads. The mole grenade will take 10 STA points of damage before it is disabled while the Mk. 1-3 will take 20 STA.

If a target gets behind it, the mole mine loses track and stops. If it acquires another target, it will pursue that instead. Also, target can try escaping a mole mine by dodging behind a large object between them and the mine. The mine will then attack that object.

Or, if the target can keep moving, it may be able to outrun the mine. Mole mines will travel a maximum of 50 meters before returning to standby mode.

MORE DETECTION METHODS

The people who locate, excavate, and deactivate landmines are called deminers. Characters can search for the telltale signs of mines with their eyes, carefully probe the ground with knives or marking sticks, or use Demolitions-Computer Access Scanner.

Characters can use probing sticks, knives, and the Demolitions CAS (all which are mentioned in Part 5: Don't Step on Landmines) to help find mines. Other equipment is available for this task including metal detectors, ground penetrating radar sensors, and flying drones or robots with visual and laser sensors. Trained bomb-sniffing animals and insects have varying degrees of success to detect landmines.

MINES LYING OUT IN THE OPEN

Most of the rules assume that landmines are camouflaged in some fashion. Yet, if a mine is lying openly exposed on the ground – which may happen in the case of some moving mines if they lose track of their target and go inert – then a character may easily spot them. Provide a character with an Intuition or Logic check with a 20 percent bonus to notice such a mine. This should certainly warn characters that they are in or near a potential minefield.

Environmental changes may also expose old minefields. For example, during Laco's War, a band of Streeel soldiers sowed mines around their basecamp to defend against a pending attack by Pan Galactic forces. The next day, a fierce dust storm whipped through the area. When the PGC mercenaries finally made their move, a number of the mines were exposed. This made the deminers' job a bit easier.

DEMOLITIONS-MAGNETIC

DUO-CAS

This computerized analysis scanner combines the functions of a demolition and magnetic CAS into one unit. As per the Zebulon's Guide rules, this duo-CAS costs 20 percent more than the separate units but is especially useful for detecting mines

and bombs with magnetic, motion, and proximity sensors before entering their range. It improves the character's mine detection chance by 30 percent. It is powered by a 20 SEU pack and uses 1 SEU per hour of operation.

cost: 540 cr

weight: 3 kilograms

DEMOLITIONS-CHEMICAL

DUO-CAS

Combining the demolitions and chemical CAS units into one device, this duo-CAS provides the Demolition specialist with a 30 percent bonus for disarming mines, bombs, charges, and other unexploded munitions. It is powered by a 20 SEU pack and uses 1 SEU per hour of operation.

cost: 540 cr

weight: 3 kilograms

METAL DETECTORS

Among its capabilities, the Demolitions-CAS has a metal detector (size AA), which can detect tiny pieces of metal up to four meters deep. Separate handheld units have about the same performance. One problem is that metal detectors will pick up all metals in the ground, leading to false positives. Sweeping an area with a metal detector alone is a slow, onerous process.

A character using a metal detector receives a 10 percent bonus for detecting landmines, but they can only check a one-by-one meter area per turn. When used in conjunction with ground penetrating radar, the character receives an additional 5 percent bonus (for a total of 15) to detect mines and can sweep a two-by-two meter area in one turn. It is powered by a 5 SEU Microdisc with a 20 hour lifespan.

MAGNETIC SENSORS

Measuring magnetic fields, magnetic sensors can help detect landmines that are mostly made out of plastic, but they cannot distinguish scrap metal near the ground's surface and mines that are deeper underground. A character using this sensing system alone receives a 10 percent bonus for detecting mines.

Handheld models are size AA, detecting surface or near surface objects up to 10 meters away, down to a depth of 4 meters.

DETECTION EQUIPMENT	COST (CR)	WGT (KG)
Mine Probing Sticks (Qty. 200)	5	--
Demolitions-Magnetic Duo CAS	540	3
Demolitions-Chemical Duo CAS	540	3
Handheld Metal Detector	150	1
Handheld Magnetic Sensor	175	1
Ground Penetrating Radar (see description)	varies	varies
Bomb Canines	5,000	varies
Hero Rats (10)	5,000	varies
Bomb Insects	varies	varies
Bacteria Detection	500	1
Bacteria Sprayer, personal	1,500	5
Vehicular Bacteria Sprayer	2,000	10

It is powered by a 5 SEU Microdisc with a 20 hour lifespan.

GROUND PENETRATING RADAR

A ground penetrating radar (GPR) system sends a series of tiny pulses of energy into material. Sensors record the strength and time it takes for signal to be reflected back. This reflection is caused when the energy pulse enters a material that has dissimilar electrical conduction properties than the material it just passed through.

GPR systems are also useful for other applications including checking structural concrete roadways and bridge decks for damage, examining the composition of shallow soils, looking for archaeological

artifacts, or creating a regional geological profile. The units have ranges from 0.3 meters to greater than 30 meters.

For Star Frontiers, assume that the Demolition-CAS has a GPR unit, but more advanced detectors are available for robots, drones (issue 19 of Frontier Explorer magazine for drone types), and vehicles. The GPR's base cost is 200 Credits for the AAA size, which is the replacement cost for that found on the Demolition-CAS. See the chart below for more information.

The GPR units require a power source, whether it is an internal battery, plugged into a belt or power backpack, a parabatery, a generator, etc. The power usage needed begins doubling starting with size B. Assume that the size AAA can run off of a 5 SEU microdisc for 5 hours. The size AA and A models can operate off of a 20 SEU powerclip, using 1 SEU per hour. Size B units use 2 SEU per hour; size C/4 SEU per hour; size D/8 SEUs per hour; size E/16 SEU per hour; size F/32 SEU per hour; and size G units use 64 SEU per hour.

BOMB CANINES

Human colonists brought a number of domesticated animals with them when they came to the Frontier. Among them were numerous breeds of dogs (see the story "Terran Fauna" by Tom Verreault in issue 3 of Frontier Explorer). With a nose that is about 40,000 times more sensitive than the typical Core Four races, some breeds of dogs were well-suited for training as bomb detectors.

They can detect the odor of explosive chemicals and then perform a specific

action – normally sitting – to indicate the presence of a bomb or even a landmine. The typical bomb detecting K9 is a medium carnivore with the following statistics: Movement: Fast (90 m/t), IM/RS: 6/55, STA: 40, Attack: 75, Damage: 2d10 (bite and clawing).

It costs 5,000 Credits to train a bomb K9 (or another suitable creature). They initially have a 60 percent chance to detect a hidden explosive or a 50 percent chance to detect a buried mine. Their abilities can improve with additional training and experience. Keeping a bomb K9 trained costs 1,000 Credits per year. With each successful mission, their detection rate could improve by 3-5 percent.

A bomb K9 will give a Demolition specialist an additional 15 percent bonus for detecting hidden landmines. Some drawbacks of bomb K9s are that they can get bored and are affected by adverse weather conditions and illnesses. On the plus side, due to breeding and genetic engineering, the typical terran canine has an average lifespan of nearly 30 years before they become too old and infirmed to operate.

BOMB RATS

Humans also trained a terran rodent, the rat, to sniff out land mines. These creatures are much lighter than dogs, meaning they have a far less chance of tripping an explosive and causing it to detonate. Often called "hero rats," they do not become bored easily with repetitive tasks, but they do not bond with their trainers.

It costs 5,000 Credits to train 10 hero rats (or similar Frontier rodents). They will initially have a 60 percent chance to detect a hidden explosive or a 50 percent chance to detect a buried mine. Their abilities can improve with additional training and experience. Keeping an individual hero rat trained costs 100 Credits per year. With each successful mission, their detection rate could improve by 3-5 percent.

Each hero rat will provide a Demolition specialist an additional 5 percent bonus for detecting hidden landmines. Like bomb K9s, rats can be affected by adverse weather conditions and illnesses. They only live up to five years.

Their statistics are: Tiny Omnivore; Movement: Medium; IM/RS: 7/70; STA: 5; Attack: 45; Damage: 1d5 (bite). Unlike

GROUND PENETRATING RADAR SCANNERS				
SIZE TYPES	RANGE ABOVE GROUND (RADIUS IN METERS)	DEPTH RANGE (IN METERS)	WEIGHT (KILOGRAMS)	COST (CREDITS)
AAA	0-10 meters	0-2 meters	0.25	200
AA	0-10 meters	0-4 meters	0.5	500
A	0-15 meters	0-8 meters	1	1,000
B	0-20 meters	0-10 meters	10	1,500
C	0-30 meters	0-20 meters	15	2,000
D	0-50 meters	0-40 meters	20	3,000
E	0-100 meters	0-50 meters	30	4,000
F	0-200 meters	0-100 meters	80	8,000
G	0-500 meters	0-1 kilometer	500	10,000

wild rats, hero rats have been inoculated against spreading most diseases. Adult male rats weigh 350-450 grams while adult females are 450-650 grams.

BOMB INSECTS

Certain insects can also be trained to sniff out explosive materials. Again, like hero rats, they will not cause most land mines to detonate. These insects might be trained with a sugar-coated explosive. When they are released into an area with a suspected minefield, they will cluster together in spots where they detect the explosive odor.

The training typically takes only 1-2 days. Humans have used honey bees, which have a detection rate of 97-99 percent and a false positive of less than 1 percent. However, bees do not fly at night and are affected by adverse weather conditions. For example, they will not fly in rain or high winds. They also need constant retraining (see below).

The Yazarians use a pet insect called a Dzelt (see "Creatures of the Frontier" by Daron Patton, Star Frontiersman magazine issue 19). The creature is a tiny carnivore that is native to Exib, one of the two moons of Yast (Athor).

Dzelt help keep sting fly and other annoying insect populations in check. As bomb detectors, they are about as good as honey bees, though they only need retraining every month. The statistics for the dzelt are: Number: 1-10; Movement: Fast (flying, 90 meters/turn); IM/RS: 9/90; STA: 15; Attack: 90; Damage: 1d5 (bite); Special Attack: none; Special Defense: None.

It costs about 1,000 Credits to initially train a swarm of insects and about 100 Credits for each retraining session. If using terran bees, Retraining is needed every four weeks because the typical individual bee lives for only six weeks and half of that time is spent in the hive. A typical hive had 50,000 bees. While a natural hive might weigh about 5.5 kilograms, a proper beekeeper hive can weigh between 18-40 kilograms! That would include the weight of any honey. Beekeeper hives cost between 100-400 Credits.

Deltz are more intelligent individually than terran bees and live far longer. Ten deltz are trained at a time for 1,000

MINE CLEARING EQUIPMENT	COST (CR)	WGT (KG)	HP
Anti-Mine Heavy Laser	1,500	15	1
Tiller Machine	5,000	5,000	10
Flail Machine	5,500	5,500	12
Rakes and Blades	6,000	6,000	12
Inertia Screen Plough	8,000	20	1
Mine Clearing Line Charge (jetcopter/aircar)	20,000	400	N/A
Mine Clearing Charge Deployer (jetcopter/aircar)	1,500	100	4
Anti-Mine Heavy Laser	1,500	15	1
Sandflee Drones Type I & II	650	5	N/A
20 SEU power clip for drone	100	--	--
Anti-Mine Laser Drill	900	2	1
50 SEU battery for laser drill	250	4	--
Qty. 20 TD-20 Charges (100 grams each)	200	2	--
Drone Controller	200	1	--

credits. They live for five years and need retraining once a month (100 Credits).

BACTERIA DETECTION

Bacteria have been bio-engineered to detect specific explosive materials, TNT or Tornadium, ammonium nitrate fuel oils, or plastid, etc. Large quantities of bacteria can be sprayed over a wide area in a short time. The bacteria can grow for several hours and then release fluorescent signals if it detects that specific explosive.

While this technique is 90 percent effective, it does have drawbacks. The bacteria in question may have to be specifically bred to operate on a certain planet, for example. Portable bacteria dispersal units are basically a modified version of the Acid Sprayer found in Zebulon's Guide. For Alpha Dawn, it can carry 10 squirts – with each squirt capable of covering a 5-by-5 meter area. It has a rate of fire of 1 per turn.

The ranges are: PB 5/S 15/M 30/L 60/E 100. **Cost:** 1,500 Credits. **Weight:** 5 kilograms. **Ammo Cost:** 500 credits. **Ammo Weight:** 1 kilogram.

A vehicle sprayer can cover a 20-by-5 meter area per turn and can be mounted on a ground or hover vehicle or robot. Jetcopters and aircars can have even larger sprayers and tanks to cover a wider area.

Cost: 2,000 Credits. **Weight:** 10 kilograms. **Hardpoints:** 2. **Range:** PB --/S 20/M 40/L 60/E 100. **Ammo:** 20 shots.

Ammo Cost: 4,000 Credits. **Ammo Weight:** 8 kilograms.

MINE CLEARING TECHNIQUES

Besides having a character going out into a minefield to clear it of dangerous weapons, an assortment of mine clearing methods can be used including mine clearing machines and robots, plus mine-clearing line charges.

MINE CLEARING MACHINES

Numerous demining machines have been created over the years. This equipment is heavy and constructed to withstand multiple blasts. It can be mounted on armored ground trucks or special heavy-duty robots – hovercraft are too fragile for this purpose. Quite often, it is mounted on armored vehicles such as ground tanks. As noted in Part 5, the robot or vehicle should be armored and specifically made to be mine resistant.

One type of mine clearing machine uses tillers. It has heavy drums fitted with spikes that are meant to destroy or blow up mines near the surface. It will destroy about 80-90 percent of all the mines in its path. Sometimes, however, landmines will be pushed deep underground, but may still be active.

Some drawbacks of tillers are that they may just push mines farther down into the

ground. These types of machines have problems with rocky ground, steep slopes, and heavy vegetation.

Another demining machine uses flails. Using an arm-like apparatus, flails have rotating drums with chains and weights. Pounding the ground, flails either smash mines (40 percent of the time), damage them to the point where their firing mechanisms malfunction (20 percent of the time), throw them up onto the ground (10 percent of the time), or cause them to explode (30 percent of the time).

Armored vehicles or heavy-duty robots can be equipped with rakes and blades to plough through the ground, pushing mines off to the side, exposing them most of the time for deminers. This can clear a path for other vehicles, troops and robots to move through the minefield. While 95 percent effective, this method of clearing mines can destroy fertile land. The landmines are moved but are not deactivated.

In many cases, mine clearing machines will miss several land mines, leaving hazards that might not be found until years later by a hapless colonist. As a result, the Inertia Screen Plough was invented. When used in conjunction with traditional mine clearing machines it is estimated to be 99.9 percent effective at exposing buried mines, but it consumes 50 SEU per 5-by-5 meter area that is cleared.

The prices provided in the Mine Clearing Equipment List are for mine clearing machines that can be fitted to a ground truck or heavy duty robot. They can clear a 5-by-5 meter square each turn. Larger versions are available for tanks and such, but those are not provided for in these rules.

MINE-CLEARING LINE CHARGES

Basically, this is similar to the fireline explosive provided for in part 4 of “Things that go boom!” (Frontier Explorer issue 27) In this case, a large artillery rocket (a weapon that is much larger than a Type III missile and will need to be detailed later) is fitted with a line charge. The rocket is fired over the minefield and the line charge with 400 kilograms of Tornadium D-19 is deployed.

When the line charge explodes, it should clear a path that is 100 meters long and 8

meters wide. Conversely, a line charge could be deployed by a robot or jetcopter, though at the risk of setting off mines such as the grasshopper or locust types. The cost and weight provided in the Mine Clearing Equipment List is for the air vehicle deployed charge using a deployer, which essentially is a large spool that the line-charge wraps around.

ANTI-MINE HEAVY LASER

This is a heavy laser that has been modified to detonate underground explosives from up to 300 meters away. Its maximum range has been shortened to increase its power so it can more easily burn through soils.

It does 2d10 points of damage per SEU. Normally it is set to fire at 5 SEU, which will detonate most mines with a hit. In this case, the laser can be operated by someone other than a Demolition specialist.

Cost: 1,500 Credits; **Weight:** 15 kilograms; **Damage:** 2d10 per SEU; **Ammo:** 100 SEU pack or larger; SEU: 5-20; ROF: 1; **Defense:** Albedo; **Range:** PB --. Short 0-100, Medium: 101-300, Long: --, Extreme: --.

MINE CLEARING DRONES

Drones are fairly inexpensive, remote-controlled robots that are much cheaper than standard Frontier robots. These qualities make drones excellent platforms to detect and clear mines. They can be equipped with various sensors and anti-mine lasers or an ECM Rifle. Some drones may fly while others may operate on the ground.

See the story “Drones for Star Frontiers” by Tom Verreault in issue 19 of Frontier Explorer magazine for more information on how to create one.

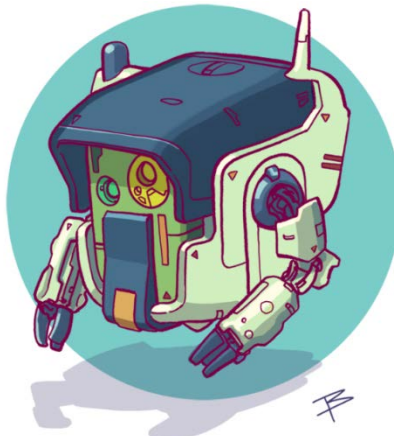


IMAGE BY JERRY BOUCHER

SATHAR SANDFLEE DRONES TYPES I AND II

Used by the Sathar, these are small drones with a 5-kilogram body and six legs. Although they are called type I and II, they are actually modular units that can be equipped with either a laser drill (the type I) or explosive charges (the type II). The sandflee drone moves at a Slow speed, up to 10 meters per turn.

All Sandflees are equipped with a Type AA GPR scanner, which is used to detect mines buried up to 4 meters deep. They have two small manipulator arms and are powered off of a 20 SEU clip and use 1 SEU per hour.

The Type I has an anti-mine laser drill that can burrow into the earth up to 5 meters and is used to set off a mine. It has two 2 SEU clips and uses 2 SEU per charge, which does 5d10 points of damage. Ammo: rechargeable 50 SEU pack. Its range brackets are: PB 2, S 5, M --, L --, E --.

The Type II carries 20 shaped charges with the equivalent power of Tornadium D-20. Each charge is 100 grams. This drone travels to the spot over a buried mine and then drops off whatever number of charges it will take to blast into the ground before leaving. When the shaped charge detonates, the blast is directed toward the mine, which should destroy it.

Creative Sathar commanders have sometimes used these drones in offensive capacities to attack enemy positions, even though they were apparently not designed for those purposes. These Sathar drones are not found on the open market as Star Law and the Landfleet would confiscate any that are found.

As with the Fountain of Death mine, the sandflees' design has been copied by Frontier manufacturers.

IN CONCLUSION

These rules, including “Part 5: Don't Step on Landmines,” provide some general ideas on how to handle such weapons in your game. Hopefully, low level characters are not going to try to cross a minefield! It is something to be avoided.

Instead, characters might be using a mine kit or face only a couple mines set up by an adversary to impede their progress.

WHIP IT GOOD!

BY THOMAS VERREAULT

The whip invokes images of Indiana Jones but since it does 1d10 points of damage you don't typically see it used in a Star Frontiers game. It's on the equipment list for 20 Cr and weighs 1 kg but it can be difficult to locate its stats since those were merged with chains on the melee weapons table. Yet in adventure fiction, we see it heroically used as a weapon, to disarm, to grab an item, or to swing from a beam. No doubt Hollywood whips are far more effective than real world whips. However, role playing games are intended for players to be heroes and do heroic things, so why not a whip in Star Frontiers?

Star Frontier's whips are certainly not as versatile as a Hollywood whip and they probably don't compare to real world whips very well either. They do the lowest expression of damage in game and suffer from a melee modifier of -5. Anyone in their right mind would switch to a knife for the same damage and a +5 melee modifier, not to mention the really glamorous weapons like a sonic sword or electric sword.

If only an in-game whip could be used in much the same way as a Hollywood whip, then it might be a real option for a player character despite its poor melee stats. The



following optional rules are offered to create greater versatility for this overlooked weapon.

REACH

In issue #17 of the Star Frontiersman (<http://starfrontiersman.com/data/issues/SFMan17-redacted.pdf>), Larry Moore described a whip as having a 3 meter length. This gives its user quite a reach. Typically, a game map's squares or spaces are 2 or 3 meters in size. Referees should allow characters to strike opponents in melee that are one square away. Normally, opponents must be adjacent to each other to use melee weapons in combat. Otherwise they must resort to ranged combat. The character using a whip has the flexibility to attack someone up to one square away depending on the map scale. Obviously, if the map scale is 10 meters/square then this would not apply.

DISARMING

In the rules, disarming is covered under special actions with wrestling, pinning, and defending. It's obviously intended to be a feature of unarmed combat. However, a classic whip motif is the hero disarming an opponent.

Disarming with a whip: A character must declare this action otherwise roll damage as normal for the whip. A successful hit does no damage but knocks the weapon from the opponent's hand and causes his next action with that hand to have the -10 pain penalty. This pain

penalty is only for the very next action with the hand that the weapon was knocked from unless the character already suffers from the -10 pain due to ½ STA, in which case the penalties do not stack. The disarmed opponent may make a PER save to exert their force of will to not drop the weapon but will still suffer the -10 pain penalty for the next action with that hand.

PULLING OPPONENTS PRONE

The classic example is the white-hatted cowboy using the whip to snag both legs of an opponent and pull him off his feet. Characters who are already in combat will be in a fighting stance and it will be impossible to snag both legs with the whip. This action may only be performed during the first round of combat on a surprised or stunned opponent AND if the user of the whip wins initiative. It may only be performed against beings with 2 legs: humans, yazirians, or dralasites presenting only 2 legs.

With a successful attack the whip does no damage but winds around both legs and the target is pulled prone. A prone opponent can free his feet automatically by doing nothing else that turn.

GRABBING SOMETHING

Typically, it should be something large like a beam or tree trunk, but a referee can apply a difficulty penalty for attempts to grab objects that are small like a small statuette from off a table: -10 or -15. The basic procedure is to make a DEX check with the whip and the character should have no problem grabbing a beam or tree trunk with the whip.

ITEM	DAMAGE	MODIFIER	DEFENSE	MASS	COST
Whip, standard	1	-5	inertia	1	20
Whip, superior	1	+0	inertia	1	50*
Whip, master crafted	1	+5	inertia	1	100**

*Represents local purchase but mail order can cost 100-500 Cr and take up to 30 days to arrive. Superior whips represent an item crafted by craftsmen and may not be available for direct purchase on every planet in the Frontier. The referee will need to determine availability.

**Represents local purchase but mail order can take 500 to 1000 Cr and take up to 45 days to arrive. Master crafted whips represents an item crafted by master craftsmen and may not be available for direct purchase on every planet in the Frontier. The referee will need to determine availability.



Once a beam or tree limb is grabbed with a whip the character can then swing on the whip as if it is a rope. The caveat is that the whip is not tied like a rope but merely grips the item by friction. If multiple characters are to swing on the whip there is a cumulative 10% chance per character that the whip will let go and the character will fall. Allow a DEX save to avoid the fall.

FINAL THOUGHTS

In Larry Moore's article the high-quality whip is of such craftsmanship that it has a +5 modifier. I would change the name to Master Crafted and add another level of quality between that and the standard whip.

STUN WHIP

This weapon is a cross between a

standard whip and a stun stick. The whip delivers 1d10 worth of inertia damage and like the stun stick it has a stun and shock setting. The shock setting delivers 2d10 electrical damage. Alternately the stun setting renders the opponent unconscious for d100 turns. A successful attack uses 2 SEU. A character can resist the stun effect with a STA save or an anti-shock implant. Gauss defenses help against the electrical shock.

cost: 100 cr

weight: 1 kg

ITEM	DAMAGE	MODIFIER	DEFENSE	POWER	SEU USE
Stun Whip	1d10/2d10/stun	+0	Inertia/Gauss/A-5	20 SEU clip	2

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**THE
ESCAPE
PLAN**

EPISODE #6

"MISSING PERSON"

YES,
ZEMP.

ALRIGHT,
LET'S HAVE A
LOOK AT THIS
ANNA CALDWELL

OOOH-KAY...
WHERE IS SHE?

WE CONTROL
THE ENTIRE
STATION...

THIS IS THE
RIGHT ROOM?

???

WHAT!

...HOW COULD
YOU LOOSE TRACK
OF ONE UNARMED
COLLARED CADET?

