Tanks a lot!

Vehicle combat in STAR FRONTIERS® gaming

by Alex Curylo

Simba the Yazirian and Dandel the Dralasite crested the second-to-the-last dune before the Streel outpost — and almost bumped into a perimeter guard. Simba's sonic sword cut the man in half before he even raised his weapon.

"As I was saying," the unrattled Dandel continued, "the problem with this war is that it's boring. We watch Streel, they watch us, and occasionally somebody gets shot. What we need is some excitement. We need something like—"

Suddenly, the stutter of a machine gun sounded ahead. Simba and Dandel hurriedly climbed the last dune and unslung their magnigoggles. All was clear at the base, but a firefight was in progress along the base highway.

A hover transport with Streel markings was trying to reach the base as an Explorer with GTF insignia gained on it. A jet of oil splashed from the truck; the Explorer fishtailed through the slick, barely keeping control. Slowing down, the Explorer released a guided missile from its roof rack. The transport driver tried to dodge, but the missile hit and the truck rolled over twice under the blast, landing upright but flaming.

As the Explorer approached, one of the truck's turrets turned to face it. Fire from a heavy flamethrower licked over the Explorer's roof, setting off the three remaining guided missiles in a red ball of fire and light.

"Now that," said Simba, "is exciting!"

The STAR FRONTIERS® combat rules are excellent, but some areas were omitted — the most unfortunate omission being vehicle-mounted weapons and armor. Armed and armored vehicles would be used extensively by the Frontier mega-corps, Star Law and other law-enforcement agencies, explorers of planets with hostile native life, and those earning a living by illegal means. Since these categories include virtually all player characters, the need for vehicle combat rules is obvious. This article attempts to rectify that problem.

Defenses

The basic vehicle defense is armor. Its effectiveness depends on its composition, method of fabrication, location, thickness, and angle of slope. For the game, all these considerations (as well as details like bulletproof windshields and wheelguards) are neatly integrated into *coats of armor*. Each coat provides a -2 modifier when rolling on the appropriate Vehicle Damage Table (Expanded Game Rules book, pp. 32-33). Every 5 coats will reduce crash injuries to occupants by -1 point per die. The cost per coat and the maximum coats applicable vary for each vehicle type; these are noted on the Vehicle Table below. Also noted (after the slash) are the number of coats that are concealable (i.e., that an observer will not notice as armor on the vehicle). Likewise, the price after the slash is the price for a concealed coat.

A vehicle can be painted with reflective paint. This costs the same as an armor coat and provides an additional modifier of -10 from vehicle damage rolls due to laser attacks. Note that these coats are not concealable.

A defensive screen can also be added to a vehicle. There are two types of vehicle screens:

Albedo: This screen uses 1 SEU per minute of operation, and it absorbs all laser damage at a cost of 2 SEU per die of damage absorbed.

Inertia: This screen uses 1 SEU per minute of operation, and it reflects half the dice of damage done by ballistic attacks (and crashes) at a cost of 1 SEU per die of damage reflected.

Example: A hovercar and a jetcopter are slugging it out. The car's universal turret fires a heavy laser (set at 20d10 damage) straight up and hits the jetcopter. The jetcopter's albedo screen absorbs it at a cost of 40 SEU. The jetcopter then drops a heavy bomb (50d10 damage) which hits the car. The hovercar's inertia screen reflects half the dice (25) at a cost of 25 SEU. Its driver now rolls on the Damage Table with a +25 on the dice.

Power screens are powered by the power econopack — 250 SEU, 25 kg, 1250 Credits; 4 weapons adapters, 1 screen adapter, 5 miscellaneous adapters. The cost for a screen varies with the size of the vehicle, as shown on the Vehicle Table.

Weapons

Many new weapons are available to mount on vehicles, as detailed on the Weapon Table below. All headings are the same as found in Expanded Game Rules statistics (p. 271, save for spaces and *mounting fee*, described below.

Spaces: Each vehicle's capacity to carry weapons is rated in spaces, as shown on the Vehicle Table. All weapons mounted in the vehicle's body or in turrets have their space rating subtracted from this number. When a vehicle's rating reaches 0, no more mounted weapons can be added to it.

Mounting fee: This is the cost to mount this weapon on a vehicle. All mounts are recessed, and it must be decided when mounting whether a

weapon faces the front, back, right, or left side of a vehicle.

Descriptions and notes for these weapons are presented below.

Portable weapons: These include heavy lasers (HL), machine guns (MG), recoilless rifles (RR), and rocket launchers (RL). They can also be mounted on a post or swivel mount; this only costs 150 Credits, but these weapons cannot be fired by a gunner inside the vehicle. Normal ranged combat is used if somebody hangs from a hatch to use one of these, but anybody doing that and wearing a screen will interfere with the vehicle's defensive screen (if any). Post-mounted weapons are not charged against the vehicle's space total — but reasonable limits should be placed on this by the referee.

Flamethrowers: These were omitted from the rules. The version here is the one-man backpack sort. Vehicle-mounted versions should not face the front of the vehicle. If fired while the vehicle is traveling faster than 40 meters/turn, the flamethrower will subject the vehicle to an attack from its own flame.

Vehicle MG: A larger calibre (12.7 mm) weapon with a greater muzzle velocity than a portable MG. Baffles surround its barrel so that the muzzle flash is not visible at night.

Vehicle RR: This is similar to the version in the Expanded Game Rules book, but it has a larger calibre.

Vehicle RL: This uses longer, larger rockets than the Expanded Game Rules version. Note the different rocket calibres; one vehicle RL cannot fire both. Also note that in jetcopter and aircar weapon pods, the rockets are each mounted in a separate tube; any number of rockets may be fired in a single turn.

Vehicle HL: Lacking a clear prototype, the heavy laser statistics were designed to keep it competitive with other weapons. It runs off the same powerpack as sceens.

Vehicle FT: The tank version. Remember the caveat above about front-mounting flamethrowers.

Cannon: This is your basic 30 mm cannon.

Howitzer: This tank weapon is included for the sake of sheer overkill.

Guided missiles: GM platforms come in four sizes. The smallest holds 1 missile, takes up 1 space, and costs 300 Credits to mount. The largest holds 4 missiles, takes up 4 spaces, and costs 1200 Credits to mount. All GMs available can be fired in one turn if so desired. They are an exception to normal combat rules. The cheap missile 1000 Credits/30d10) is guided by joystick movements of the gunner and finalizes its own aim with infrared sensors. The basic chance to hit is the gunner's DEX +20, as a percentage. All modifiers are applicable; range modifiers are reduced three categories if the gunner is wearing magni-goggles. The expensive missile (3000 Credits/60d10) is programmed with a target before launching, and is totally self-guided. Programming takes three turns during which the gunner can take no other action. The chance to hit is 95%, and no modifiers are applicable. Missile acceleration is 150 meters/turn/turn, top speed 1500 meters/turn; a jetcopter or aircar with a head start might be able to outrun a missile for its 10 km range.

Bomb: This is a dropped weapon, mounted on jetcopter or aircar pylons. Statistics for light and heavy bombs are given.

Minedropper: A shot from this weapon drops 5 mines on the road behind the vehicle. Distribution is determined by speed and maneuvers during the dropping turn. If any vehicle subsequently passes over them, the mines will detonate on a 50% activation roll. The 5d10 damage figure is per mine. This is a generally useless weapon for flying vehicles; the mines spread too much when dropped and explode on impact if dropped over 5 meters.

Sprayer: Various vile substances can be loaded into this. The most useful three substances are smoke, paint, and oil. A smokescreen forms a 50-meter-diameter cloud, blocking vision and IR sights but not radar. It lasts 5 turns; any vehicle going through it is sightless for 1 turn.

Paint sprays cover an area 10 meters x 3 meters behind the vehicle, and they block vision (but not IR or radar) by coating windows with paint. The paint lasts until scrubbed off. Paint will also completely ruin a coat of reflective paint; it cannot be removed without also removing the reflective paint beneath it.

Oil jets form a 20 meter x 2 meter slick. The driver of a vehicle traveling faster than its Turn Speed who encounters a slick must make a Reaction Speed check or lose control of the vehicle. An Explorer has a +20 on the control roll. Hover vehicles are not affected at all,

A limitation of recessed mounting is that weapons can only face one direc-

Equipment Table

item	mass *(kg)*	*cost (Cr)*
Cyberlink	5	5000
Ejection seat	15	500
IR cameras	8	800
IR jammer	4	500
Radar	10	1500
Searchlight	8	500

Turret Table

size	*spaces*	*cost (Cr)*
Small	1	2000/2500
Medium	2	4000/5000
Large	4	8000/10000

Vehicle Table

vehicle type	*maximum coats*	*cost/coat(Cr)*	*cost (Cr)*	*screen spaces*	*maximum turrets*
Hovercycle	2/0	1500/n.a.	n.a.	1	1S
Groundcycle	3/0	1500/n.a.	n.a.	2	1SM
Hovercar	6/3	4000/6000	10000	4	1 SM
Groundcar	8/3	4500/7000	10000	6	1 SM
Hover transport	15/5	10000/13000	25000	16	2 SML
Ground transport	18/5	11000/15000	25000	20	3 SML
Explorer	15/5	7000/9000	15000	12	1SML
Jetcopter	12/3	8000/10000	15000	2	1 SM
Aircar	20/5	11000/13000	25000	4	1 SML

Weapon Tables

weapon type	*spaces*	*mounting fee (Cr)*	*damage*	*ammo*	*SEU*	*rate*	*defense*
Flamethrower	1	500	3d10*	10	–	1	none
Vehicle MG	2	750	15d10	20	–	1	inertia
Vehicle RR	2	750	18d10	15	–	½	inertia
Vehicle RL	2	750	20d10	20	–	½	inertia
	2	750	30d10	10	–	½	inertia
Vehicle HL	2	750	1d10/SEU	500	5-30	1	albedo
Vehicle FT	2	750	8d10**	10	–	1	none
Cannon	4	1250	25d10	15	–	½	inertia
Howitzer	8	2500	75d10	10	–	¼	inertia
Guided missile	1-4	300-1200	30d10	1-4	–	1-4	inertia
	1-4	300-1200	60d10	1-4	–	1-4	inertia
Bomb	1	50	25d10	1	–	1	inertia
	2	50	50d10	1	–	1	inertia
Mine dropper	2	500	5d10/mine	10	–	1	inertia
Sprayer	2	500	variable	10	–	1	variable

Range (meters)

Weapon type	*PB*	*Short*	*medium*	*long*	*extreme*
Flamethrower	0-10	11-20	21-30	31-45	46-70
Vehicle MG	–	0-100	101-350	351-750	751-1500
Vehicle RR	–	0-200	201-1250	1251-3000	3001-5000
Vehicle RL	–	0-200	201-500	501-1000	1001-2000
	–	0-200	201-500	501-1000	1001-2000
Vehicle HL	—	0-150	151-750	751-1500	1501-3000
Vehicle FT	–	0-25	26-50	51-100	101-150
Cannon	–	100-1000	1001-2000	2001-3000	3001-5000
Howitzer	–	—	250-3000	3001-7000	7001-15000
Guided missile	50-500 ***	501-1000 ***	1001-2000 ***	2001-5000 ***	— ***
Bomb	0-10	11-30	31-60	61-120	121+
	0-10	11-30	31-60	61-120	121+
Mine dropper	n.a.	n.a.	n.a.	n.a.	n.a.
Sprayer	varies	varies	varies	varies	varies

Ammunition

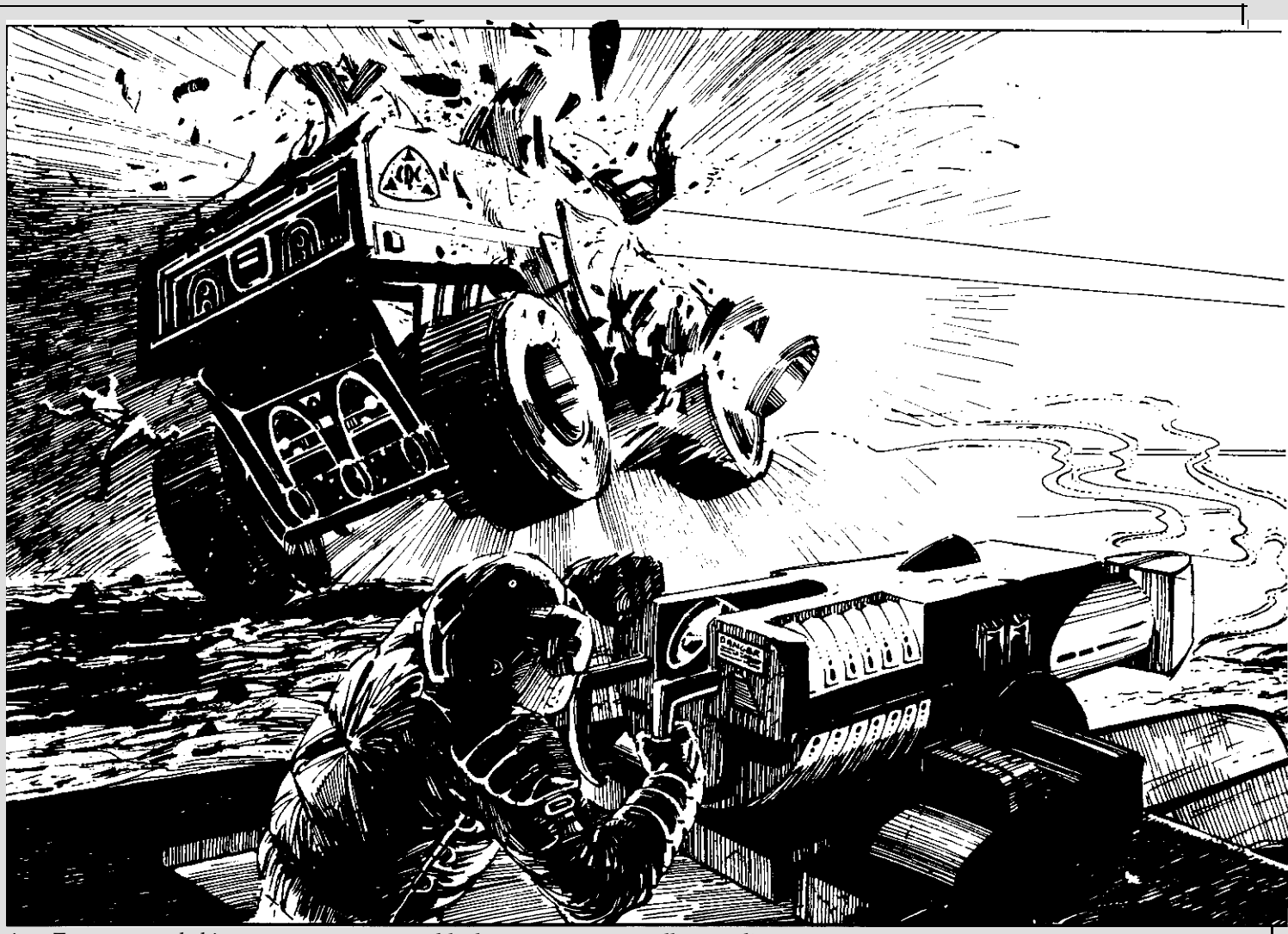
Weapon type	*cost (Cr)*	*mass (kg)*	*type*	*cost (Cr)*	*mass (kg)*	*rounds*
Flamethrower	3000	15	napalm	50	10	10
Vehicle MG	3000	22	bullet belt	125	12	400
Vehicle RR	5500	20	shell	15	2	1
Vehicle RL	6000	17	rocket	25	6	1
	8000	20	rocket	40	10	1
Vehicle HL	7500	25	pack	1250	25	500
Vehicle FT	5000	25	napalm	150	30	10
Cannon	10000	100	shell	50	5	1
Howitzer	25000	350	shell	200	20	1
Guided missile	200-800	5-20	missile	1000	30	1
	200-800	5-20	missile	3000	60	1
Bomb	n.a.	n.a.	bomb	50	15	1
	n.a.	n-a.	bomb	100	30	1
Mine dropper	750	10	mine	250	25	50
Sprayer	1000	20	varies	100	10	10

Note: Any portable weapon may be mounted in a turret; it will take up one space, and will have a mounting fee of 500 Credits. All other statistics are as per the Expanded Games Rules.

* — Fire from a portable flamethrower will do 1d10 damage/turn to a target for the next three turns after the turn in which it was fired.

** — Fire from a vehicle-mounted flamethrower will do 1d10 damage/turn to a target for the next five turns after the turn in which it was fired.

*** — The second kind of guided missile has no range modifiers, and is goad out to a 10 km range.



tion. To get around this, weapons are installed on turrets. Turrets have a 360° field of fire, and can spin the full 360° and still fire each turn. Universal turrets can also elevate from -15° to +90° (straight up). Turrets have a minimum range of 10 meters due to their elevation from the ground (this does not apply to universal turrets).

Turrets come in three sizes, as shown on the Turret Table. The second price (after the slash) is for a universal turret. These prices include the mounting of a turret in a vehicle, but the regular weapon mounting fee must still be paid to mount a weapon in a turret. Concealing a turret costs double the price shown, but weapons in the turret are automatically concealed.

The maximum number of turrets on each vehicle type and their possible sizes are shown on the Vehicle Table. Note that cycle turrets are actually sidecars, and only have a 180° field of fire on one side. Also note that putting weapons in a turret does not add to the spaces in a vehicle.

Example: Simba is mounting a turret on his groundcar. According to the table, he can mount a small or medium turret. He chooses a medium universal turret (2 spaces) and decides to mount a vehicle machine gun (2 spaces) in it. It costs 3000 Credits to purchase the vehicle MG, 750 Credits to mount it in the turret, and 5000 Credits to buy a turret and mount it on his car. If he wants a pop-up turret, it will cost him another 5000 Credits. (The vehicle MG is automatically concealed.) Either way, he now has 4 spaces left to mount a cannon (or whatever in his car.

Jetcopters and aircars are a special case. Their weapons are most commonly mounted not in the body or in turrets, but in weapon pods attached to pylons. These pods add space to a vehicle. A jetcopter can have two pods, each holding 2 spaces worth of weapons, while an aircar can have 4 pods, each holding 4 spaces of weapons. A small (l-space) pylon with post costs 200 Credits; a medium (2-space) one costs 400 Credits; and, a large (4-space) one costs 800 Credits. (Of course, regular weapon-mounting fees must still be paid.)

Example: Dandel is arming his aircar. He mounts a vehicle MG and a vehicle FT coaxially in a large, underbody turret. This fills up the vehicle's body spaces (as shown on the Vehicle Table). However, he can still add up to 4 pylons of up to 4 spaces each, under the wings, so the total weaponry on his aircar could be 20 spaces.

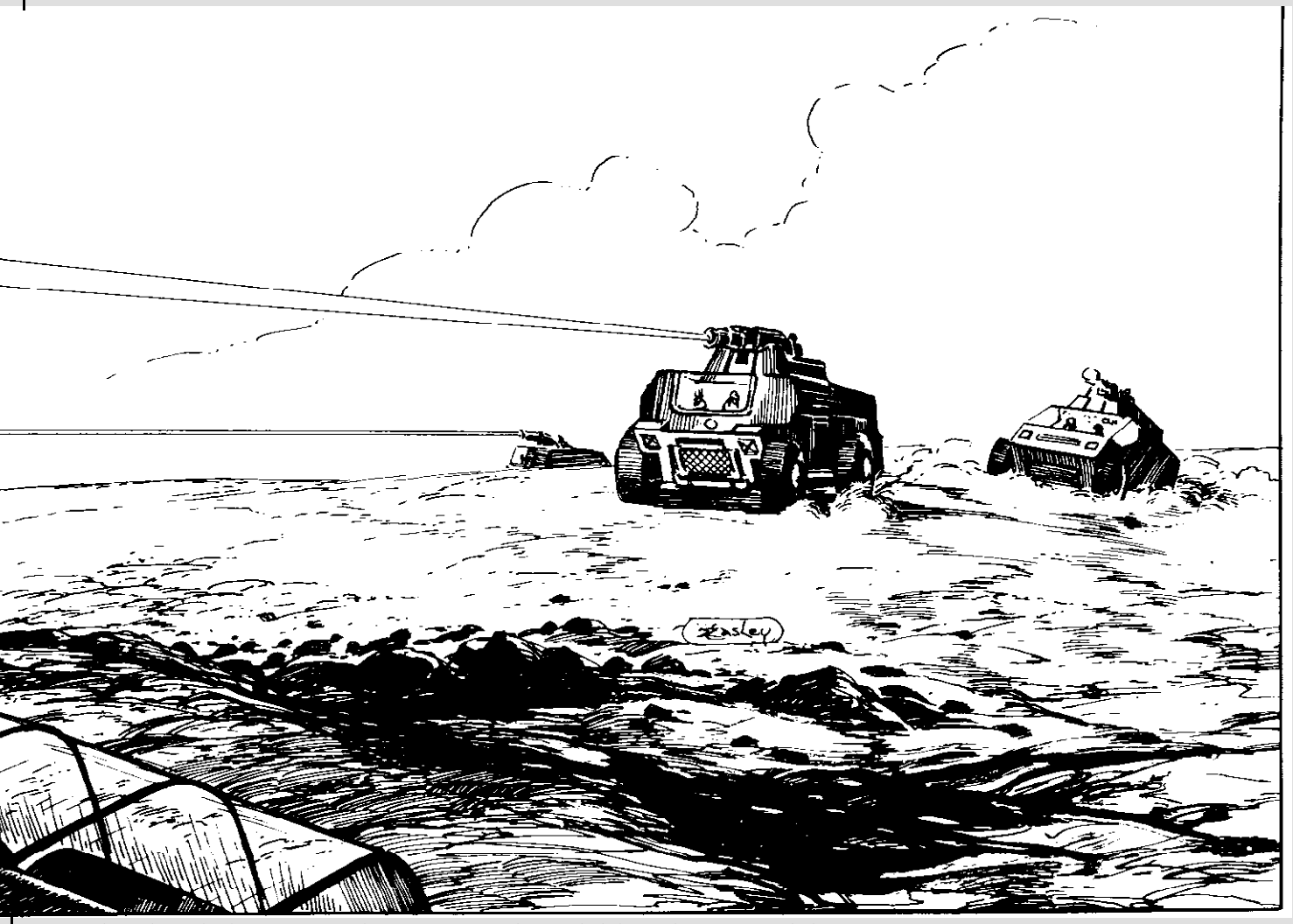
Note that pods are fixed, forward-firing weapons.

Equipment

Other pieces of equipment that are useful in vehicle combat are given here. These are listed on the Equipment Table and described below.

Cyberlink: This is a direct mental hookup (by computer) to a weapon to control its firing. Up to 5 weapons can be controlled by one person (3 by a driver) at no penalty for firing multiple weapons, but each weapon requires a separate link. Each link also guzzles 2 SEU per turn of operation.

Ejection seat: Upon manual activation, this slides back a roof panel and ejects the seat 20 meters straight up, where a para-wing opens to carry the passenger to safety. Safety features prohibit activa-



tion when the vehicle is not upright.

Infrared cameras: IR cameras project a 360° image of heat sources around the vehicle, to permit driving without lights at night and seeing through a painted windshield. They use 1 SEU per minute of operation.

Infrared jammer: IR jammers make the vehicle invisible to IR sensors, and they give guided missiles a -20 modifier to hit. They use 2 SEU per minute of operation.

Radar: Radar enables sight through any interference, but objects show up only as blips on a screen. It uses 1 SEU per minute of operation.

Searchlight: One can be mounted in a turret for 200 Credits (using 1 space) and can be used as a weapon to blind opponents. Blindness duration is 1d10 turns, or 1d10-3 if the searchlight is over 500 meters away. Light range is 1 km. SEU use is 3 per minute.

Combat

The Combat Sequence for vehicle combat is the same as for all other STAR FRONTIERS combat, the only difference being in the procedure used to determine hit probability. This is given below.

1. 1/4DEX / 1/2 DEX. The basic percentage chance to hit is 1/4 the gunner's Dexterity, since he has no control over the aim (only when to fire). If he is controlling a turreted weapon, the base percentage chance increases to 1/2 his Dexterity.

2. + 5% / Tech level. If the vehicle is moving, 5% is added for each Technician level of the driver, since he can position the vehicle for the most favorable shots.

3. + 5% / skill level. 5% is added for each skill level the gunner has with the weapon being fired.

4. -x% range. See Expanded Game Rules book for range modifiers.

5. +x% size. Cars, Explorers, air vehicles: + 5% (Large). Trucks: + 10% (Giant).

6. -x% movement. -10% if speed is 10. 150 meters/turn; -20% if speed is over 150 meters/turn. This applies to both attacker and target.

7. -x% cover. See Expanded Game Rules book for cover modifiers.

8. -x% dodging. The driver can weave and otherwise try to present a harder target. Subtraction is -5% per Tech level of the driver. This applies to attacks on and by his vehicle, and it eliminates modifier #2 above.

9. -10% / extra weapon. If firing multiple weapons, a gunner has a -10% penalty "to hit" per weapon, for every extra weapon over and above the one weapon he considers his main weapon. A driver has a -10% penalty "to hit" per weapon on each weapon he fires.

Example: Simba and Dandel are trying to bring down a Streel jetcopter. Simba (the driver) is firing two weapons; he has a -20% on each roll. Dandel (the gunner) is firing three weapons; he also has a -20% on each roll.

Once an attack succeeds, apply screen effects (if any), and find the number of dice of damage caused by the attack. Roll 2d10, add the number of dice, and subtract 2 for each coat of armor the vehicle has. Finally, add vehicle modifiers (+ 2 for cycles; -2 for Explorers), and consult the appropriate Vehicle Damage Table (pp. 32-33, Expanded Game Rules book).

Best wishes in your dueling, and may you never find yourself staring down a howitzer barrel.