

TRAVELLER

Referee's Screen

™



*Sufren Confederation Scout
Gregory Fontenot in the
asteroid belt at Gamov.*

TRAVELLER Referee's Screen

What's the maximum to-hit number when calling in orbital artillery fire?
While you're at it, what's the initiative of a Veteran NPC?
And what's the trotting movement rate of a K'kree?
Oh yeah, and how many power level points do
you need for a stage 5 psionic success?*

A referee has to process a lot of information really fast in order to stay ahead of a group of players bent on conquering the universe. How fast is this? How far is that? How difficult is the other thing? And now that so many players have the **Traveller Players' Forms**, enabling them to keep even more hare-br—I mean, devious schemes at their fingertips, a referee could get in over his head real fast...

Okay, we've modified the air raft so it looks like a giant grasshopper, and my character is hanging upside down from a rope ladder beneath it with his laser rifle at the ready, he's wearing his IR goggles, and he has a bag full of concussion grenades. What he's going to do is...

Face it, it's tough to stay ahead of your players, but we're here to help. The **TNE Referee's Screen** is six colorful panels including four packed with the data and tables you need, and all of the **Traveller** fire charts.

- Three of these panels are for the referee, while one faces the players and shows the most common combat tasks, with difficulty levels, damage, and fatigue penalties.
- Also for the referee, a 16 page booklet collecting the most important tables from **Traveller: The New Era** into a handy, easy-to-use resource.

Just think—if you can keep the important travel, combat, and task information before your eyes at all times, that's that much more time you have to keep your adventures fresh, challenging, and, well, player-proof.

All right, we've got our rifles disguised as fumigators, and we're all in mouse suits. We knock on the office door and tell him we're from the extermination company, and then start yelling, "Mouse! Mouse! Mouse!" to confuse him. While he's on the phone trying to figure it out, we're into his file cabinets...

The other good thing about a ref's screen is that it gives you something to hide behind while you collect your thoughts and pretend to roll dice. Behind this cardboard bulwark you still reign supreme. Flip through the 16 page charts book. Bluff. Stall for time. Look confident. You will emerge refreshed, and with the answers you need to keep your adventure from bogging down in unexpected traps. But the players might not like this new weapon in your arsenal, so we've included something for them:

- A set of character generation player aids cards. These distill the important skill lists and career entry requirements from **Traveller: The New Era** onto two double-sided cards, and make it easier for a group of players having to share a book.

What do you mean that's not enough?

Okay, we've also included an eight-page New Era adventure introducing a pocket empire: the Covenant of Sufren. And if there's one thing the people of the Covenant have learned, it's this: Once you've met Virus, grasshoppers and mice don't scare you anymore.

All right, you referees. Strap up, take charge, and show your players a universe worth getting worked up about. New eras don't get started every day.

**Traveller Referee's Screen:
Because refereeing is tough
enough even when you *do*
have all the answers.**



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*The answers, by the way, are: 16, 4, 30, 37, people in Diaspora aren't afraid of grasshoppers, and sorry, they don't sell mouse suits on this planet.

COMMON TASK SUMMARY

Unarmed Melee

Attack Type	Difficulty	Asset	Effect
Hand Strike	Difficult	Unarmed Martial Arts	Damage UCDR*
Kick	Difficult	Unarmed Martial Arts	Damage UCDR*×1.5
Block	Formidable	Unarmed Martial Arts	Avoid Strike/Lose Action
Aimed Strike	Formidable	Unarmed Martial Arts	Damage Chosen Location
Leaping Kick	Difficult	Agility**	Damage 2×Atr's CON
Avoid Leaping Kick	Difficult	Agility**	Avoid Attack/Lose Action
Grapple	Average	Agility**	Controlling "Hits" UCDR*
Grapple Escape	Average	Agility**	Remove Controlling "Hits" UCDR*
Strangling	Average	Agility**	Damage UCDR*
Strangle Block	Average	Agility**	Avoid Attack/Lose Action
Combat Throw	Formidable	Unarmed Martial Arts Damage	2×Defender's CON
Limit Throw Damage	Difficult	Agility**	Damagex ¹ /2
Diving Blow	Auto if not avoided		([Atr's CON×2]+1D6) – (Dfndr's STR+CON)
Avoid Diving Blow	Average	Agility**	Avoid Diving Blow

*UCDR = character's unarmed combat damage rating

**Plus Acrobatics skill, if any

Armed Melee

Attack Type	Difficulty	Asset	Effect
Attack	Difficult	Armed Martial Arts*	Damage by Weapon
Block	Formidable	Armed Martial Arts**	Avoid Strike/Lose Action
Aimed Attack	Formidable	Armed Martial Arts*	Damage Chosen Location

*Some weapons have die modifiers.

**Must have object to block with.

Thrown Weapon

Attack Type	Difficulty	Asset	Effect
Throw	Difficult	Thrown	Weapon Damage STR+1D6*
Throw, Long Range	Formidable	Thrown Weapon	Damage STR+1D6*

*For most objects. Throwing knife is always 1D6; grenades do explosive damage

Task Difficulty Levels

Difficulty	Asset
Easy	×4
Average	×2
Difficult	×1
Formidable	× ¹ /2
Impossible	× ¹ /4

Direct Fire Combat

Attack Type	Difficulty	Asset	Effect
Aimed Fire, Short Range	Average	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Medium Range	Difficult	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Long Range	Formidable	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Extreme Range	Impossible	Appropriate to Weapon	Damage by Weapon
Quick Fire (any range)*	+1 Level*	Appropriate to Weapon	Damage by Weapon
Fire, Target Obscured	+1 Level	Appropriate to Weapon	Damage by Weapon
Fire, Automatic	Impossible**	Appropriate to Weapon**	Damage by Weapon

*Modify difficulty level based on Aimed Fire, not possible at Extreme Range

**See Automatic Fire rules (TNE rulebook, page 276)

Indirect Fire Combat

Attack Type	Difficulty	Asset	Effect
Conventional	Formidable	Forward Observer*	Explosive Damage
Hand-Held	Impossible	Grenade Launcher*	Explosive Damage

*Or appropriate weapon asset of the firing character, whichever is lower. Bonuses for repeated fire.

Fatigue Effects on Fire

Range	Additions to Die Roll per Fatigue Level
Short	3
Medium	2
Long	1
Extreme	1

Note: see page one of charts and table booklet

Terrain Effects on Movement

Unit	Open	Wood	Swamp	Hill	Mountain	Snow	Water
Humans	N	N	N	1/2	1/4	x1/2	—
Animals	N	N	1/2	1/2	1/4	x1/2	—
Vehicles	N	1/2	1/4	1/2	1/6	x1/2	—
Hovercraft	1/2	1/2	N	1/2	—	N	N
Boats	—	—	1/2	—	—	—	N

N: Normal

—: Prohibited. Rates for snow are multiplied by other prevailing terrain.

Travel Movement

Unit	Move (in km per 4-hour period)
Human	20/20
Horse	20/20
Mule	20/20
Wagon/horse (or equivalent)	20/5
Wagon/ox (or equivalent)	10/5
Very small open boat	4/4
Small sailing boat	8/8
Small motorboat	16/16
Medium motorboat	12/12

For vehicle movement rates, see the charts booklet

Personal Hit Location

Die	Biped	Multiped
1	Head	Head
2	Right arm	Forequarter
3	Left arm	Forequarter
4	Chest	Forequarter
5	Abdomen	Chest
6	Abdomen	Chest
7	Right leg	Abdomen
8	Right leg	Hindquarter
9	Left leg	Hindquarter
10	Left leg	Hindquarter

Biped: Table assumes front/rear shot.

Side Shot: Far side hit equals near side hit.

Prone Biped: Table assumes top shot.

Side Shot: Far side hit equals near side hit.

Front Shot: Leg or abdomen hit equals miss.

Rear Shot: Head, arm, or chest shot equals miss.

Multiped: Table assumes side shot.

Front Shot: Hindquarters or abdomen hit equals miss.

Rear Shot: Head or forequarters hit equals miss.

Shotgun and Flechette Characteristics

Type of Round	Maximum Range	Danger Zone Begins
Shotgun Buckshot	Medium	Medium
Small Arms Flechette	Long	Medium

Automatic Fire Range Attenuation and Recoil Penalties

Burst Size (rounds)	Dice lost per range band beyond Short	Dice lost per point of extra recoil
3	1	1
5	2	1
10	3	2

NPC Stats

Level	Initiative	Attributes	Asset	Damage
Elite	5	8	15	5
Veteran	4	7	13	4
Experienced	3	6	11	3
Novice	1	6	9	1

Combat Movement Rates (in Meters per 5-second Turn)

Race	Crawl	Walk	Trot	Run
Human	2	10	20	30
Vargr	2	10	20	30
Aslan	2	10	20	30*
Hivers	2	10	20	—
Droyne	2	10	20	30
K'kree	—	10	30	60

*May sprint at 60 one out every six turns.

"—" indicates that this rate is not available for this race.

Psionic Base Difficulty Levels

Situation	Task	Difficulty
Relaxed Environment		Average
Normal Stress		Difficult
Great Stress, Combat		Formidable
Incredible Stress		Impossible

Stages of Psionic Success

Power Level	Stage
0 or less	No Effect
1-9	Basic Success
10-18	Stage Two
19-27	Stage Three
28-36	Stage Four
37-45	Stage Five
46-54	Stage Six
55 or more	Stage Seven

Power Level = Psion's PSI Attribute + Skill Level + 1D10 - (Target's Willpower Skill Level + INT)

If Outstanding Success, final power level is doubled.

Task Difficulty Levels

Difficulty	Asset
Easy	x4
Average	x2
Difficult	x1
Formidable	x1/2
Impossible	x1/4

Telepathy Stage of Success Reductions

Description	Stages of Success Lost
Non-intelligent animal	1
Separate evolutionary path	1*
Very alien evolution	2*

*One or the other only, not cumulative

Indirect Fire Deviation

Type of Weapon	Deviation multiplier (meters)	Maximum To-Hit Number	Max. Dev. and Con. Reduction
Grenade launcher, rifle grenade	5	10	3
Mortars, guns, howitzers, mass drivers, meson guns	10	14	5
Artillery rockets	20	14	5
Orbital fire	20	16	7

Grenade Deviation

Range	Deviation
Effective	×1 meter
Long	×2 meters

SAMPLE BURST DIAGRAMS

(Ten-Meter Grid)

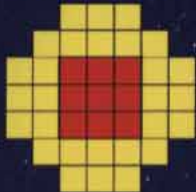
■ Primary

■ Secondary

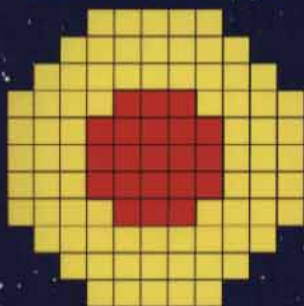
Five-Meter Burst



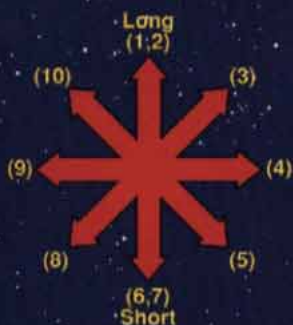
15-Meter Burst



25-Meter Burst



SCATTER DIAGRAM



Submunitions Attack Table

Round	Close	Adjacent	Concussion	Burst	Pen
Light Arty HE	1-3	1-2	3	15	Nil
Light Arty DP	1-3	1-2	3	15	4C
Med Arty HE	1-4	1-3	3	15	Nil
Med Arty DP	1-4	1-3	3	15	4C
Hvy Arty DP	1-5	1-4	3	15	4C

Submunitions Direct Hit Chance: Personnel, 1; Vehicle, 1-5 on 1D10

Guided Submunitions Direct Hit Chance: Personnel, 1-3 or Vehicle 1-7 on 1D10.

Fragmentation Attack Table

Burst Radius	Range	1D6 hits	1 hit	No hits	Dam	Pen
Primary	1 × Burst	1-3	4-6	7-10	2D6	1
Secondary	2 × Burst	1-2	3-4	5-10	1D6	Nil

Spotting Modifiers

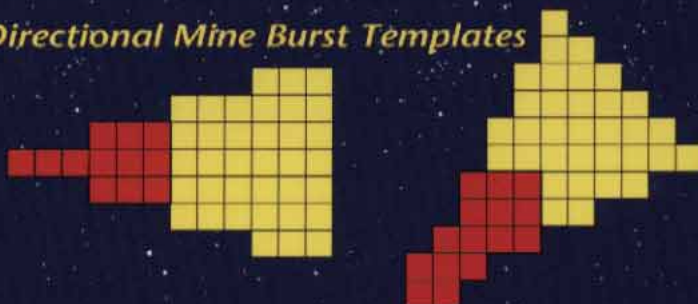
Visibility Conditions	Difficulty	Modifier Notes
Night	+1 to +3*	Applies to unaided eyes, image intensifiers (at -2, min 0), and light amplifiers (at -2, min 0)
Poor Weather	+1	Does not apply to thermal viewers
Very Poor Weather	+2	Affects all vision aids
Smoke	+1 or more	Affects all vision aids
Target moving	-1	Applies to all
Each halving of Short Range	-1	Applies to all

*Diff mod is equal to the background light level.

Target and Spotting Size Table

Size	Displacement		To-hit Diff Mod	Spotting Diff Mod
	(tons)	(cubic meters)		
Sub-Micro (SM)	0-1	0-13	—	+2
Micro (Mc)	1-9	14-139	—	+1
Very Small (VS)	10-99	140-1399	-1	—
Small (S)	100-999	1400-13,999	-2	-1
Medium (M)	1000-9999	14,000-139,999	-3	-2
Large (L)	10,000-99,999	140,000-1,399,999	-4	-3
Very Large (VL)	100,000-999,999	1,400,000-13,999,999	-5	-4
Gigantic (G)	1,000,000+	14,000,000+	-6	-5

Directional Mine Burst Templates



Target Movement Difficulty Modifiers

Speed in meters/turn	kph	Diff Mod
30-59	22-42	+1
60-119	43-85	+2
120-239	86-171	+3
240-479	172-343	+4
480-959	344-687	+5
960-1919	688-1375	+6
1920-3839	1376-2751	+7
3840-7679	2752-5503	+8
7680+	5504+	+9

Spotting Task Short Ranges

Vision Device	Short Range
Unaided eyes	1000 meters
IR Goggles	100 meters
LA Goggles	100 meters
Image Intensifier	250 meters
Thermal Viewer	400 meters

Burn Damage Table

Source	Damage
White Phosphorus	2D6
Thermite	2D6
Fuel	1D6
Structure/grass fire	1D6
Plasma/fusion gun debris	2D6

All damage dice are per second, except for structure/grass fire, which is per turn.

Armor Equivalency Table

Material	Toughness	Centimeters per armor value of 1
Coherent Superdense	40	0.025
Bonded Superdense	28	0.035
Superdense	14	0.07
Crystaliron	8	0.125
Composite Laminates	6	0.167
Light Composites	4	0.25
Armor Plate	2	0.5
Sheet Steel, Light Alloy	1.7	0.6
Reinforced Concrete	0.4	2.5
Concrete and Bricks	0.3	3.3
Stone, Packed Dirt, Wood	0.2	5
Loose Dirt, Sand	0.04	25

Vehicle Hit Location

Die	Vehicle	Vessel	Aircraft
1	Hull	Hull	Wing
2	Hull	Hull	Wing
3	Hull	Hull	Wing
4	Small Turret	Superstructure	Hull
5	Turret	Superstructure	Hull
6	Suspension	Waterline	Hull
7	Suspension	Waterline	Hull

+1 to die roll for side shots

Suspension Damage: Minor damage cuts speed in half; major damage immobilizes. Two minor damage results equal major damage.

Water Vessel Damage

Waterline		Hull		Superstructure	
Die	Minor Result	Die	Minor Result	Die	Minor Result
1	Waterline hull	1	1 crewmember	1	1 crewmember
2	Waterline hull	2	1 crewmember	2	Radio/radar
3	Waterline hull	3	Auxiliary mach.	3	Sight/vision
4	Waterline hull	4	Auxiliary mach.	4	Secondary
5	Cargo	5	Secondary	5	Secondary
6	Major waterline	6	Major hull	6	Major s'tructure

Die	Major Result	Die	Major Result	Die	Major Result
1	2 crewmembers	1	Main armament	1	2 crewmembers
2	Rudder/screw	2	Main armament	2	2 crewmembers
3	Engine	3	2 crewmembers	3	Fire
4	Fuel	4	2 crewmembers	4	Fire
5	Ammo	5	Ammo	5	Ammo
6	Minor hull	6	Fire	6	Major hull

Vehicle Damage Resolution

FPV-AV	Result
0 or less	No effect
1-10	1 minor damage
11-20	2 minor damage
21-40	1 major damage
41-60	2 major damage
61+	3 major damage

FPV = Final penetration value of weapon

AV = Armor value of target

Vehicle Damage

Turret		Hull	
Die	Minor Result	Die	Minor Result
1	1 crewmember/loader*†	1	1 crewmember
2	1 crewmember/sensor†	2	Loader*
3	Sensor	3	2 passengers**
4	Traverse	4	2 passengers**
5	Secondary	5	Radio
6	Major turret	6	Major hull

Die	Major Result	Die	Major Result
1	2 crewmember/main arm.†	1	Engine
2	2 crewmember/main arm.†	2	Engine
3	Main armament	3	Fuel
4	Main armament	4	Fuel
5	Ammo	5	Ammo
6	Minor hull	6	Ammo

Aircraft Damage

Hull		Wing	
Die	Minor Result	Die	Minor Result
1	1 crewmember	1	No effect
2	Controls	2	No effect
3	Controls	3	Controls
4	2 passengers**	4	Controls
5	Radio	5	Controls
6	Major hull	6	Major wing

Die	Major Result	Die	Major Result
1	Engine	1	Controls
2	Engine	2	Fuel
3	Instruments	3	Fuel
4	Instruments	4	Fuel
5	Weapon/ammo	5	Fuel
6	Minor wing	6	Fireball

*Loader is either a hit on the auto-loader mechanism or the actual crewmember loading the gun. This becomes a driver hit if neither are present.

**2 passengers becomes a 1 crewmember hit if this is not a passenger-carrying vehicle. If it is a passenger-carrying vehicle but no passengers are present, the hit has no effect. Cargo destroyed may be substituted for this result at the referee's discretion.

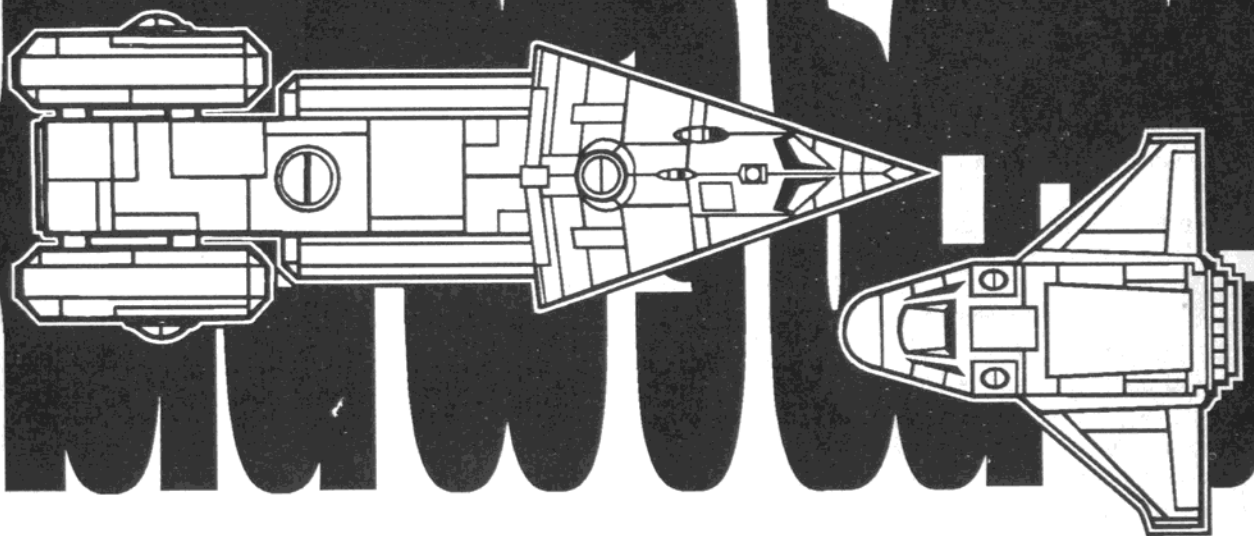
†if turret is an unmanned remote turret, use the result after the slash.

TRAVELLER

The New Era

TRAVELLER

Referee's Screen



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(Design and Adventure, Art Direction, Cover Painting, and Copyediting, respectively)

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0307/T1

The **Traveller Referee's Screen** and this booklet are both updated to the second printing of **Traveller: The New Era** (which can be recognized by the notation "Mark I Mod 1" on the credits page). Players who own first printing TNE may notice a few minor changes in the tables printed here. Some of these changes, such as changes to the travel times and combat moves, were made in order to be fully compatible with the **Fire, Fusion, & Steel (Traveller Technical Architecture)** design rules.

Fatigue Effects on Fire

This table is changed somewhat from that on page 199 of **TNE** first printing. There the numbers are treated as subtractions from the target number. We have revised this to a die modifier on the roll made against the character's asset, as adjusted by difficulty level. The results are identical, but we prefer to do away with the concept of changing the "target number" by anything other than a difficulty level modifier.

Indirect Fire Deviation

As with fatigue effects, above, this has also been changed so that modifiers are made to the task die roll, and not to the difficulty level based "to-hit" number. Thus fire correction is handled as a -Die modifier to the task roll, not as an increase to the "to-hit" number. The table therefore lists "Maximum Deviation and Correction Reduction" (abbreviated as "Max Dev. and Corr. Reduction"), where the number is the maximum reduction to the deviation die roll, and the maximum reduction to the to-hit roll allowed by correction.

Submunitions Attack Table

This table has added hit chances for guided submunitions, in accordance with the **Fire, Fusion, & Steel** design rules.

Shotgun and Flechette Characteristics

The line for large-caliber flechettes is gone, as these rounds are now treated as "bursting flechette rounds." Small arms flechettes continue to function as shotguns, but their penetration and damage performance is rated with each weapon (these are rated according to the **FF&S** small arms design sequence). Bursting flechettes have a primary burst area listed width × length in meters. The secondary burst area has the same dimensions, and begins at the end of the primary area. Targets within this areas roll for hits as for fragments in explosion burst areas.

A direct fire task is made for a bursting flechette round to fire it so that the intended target is exactly centered in the primary burst area. Failure at this task indicates that the round bursts high (missing the target completely, roll of 1), bursts low (missing the target completely, roll of 2), to the left of the target (3-4), to the right of the target (5-6), short of the target (7-8), or burst long (9-10, which, depending upon the length of the round's primary burst area, might still leave the target in the burst area). Roll 1D10 (multiply by 5 if Catastrophic Failure was rolled) to find meters of deviation measured from the target point.

Again, bursting flechette rounds and the weapons that fire them are all designed in accordance with the **FF&S** rules.

Spotting Tasks

Spotting tasks are now rolled for as tasks using the Observation asset, or Intelligence attribute, whichever is available. Vision devices (including the naked eye) are given a short range in meters. Task level difficulty to spot a target is based on range to the target just as if the vision device were a small arm firing an aimed shot (i.e., short range is Average, medium range [2×short] is Difficult, etc.).

Difficulty modifiers are applied based on the condition (roll 1D3 for visibility at night, where 1 is brightest, 3 is darkest) and the vision device. Night modifiers do apply to image enhancement and light amplification gear, but these disregard 2 night Diff Mods, thus only darkest night affects them at (3-2=) +1 Diff Mod.

"Each halving of short range" is for targets within the vision device's short range. For example, a target within 1/2 the device's short range is at -1 Diff Mod, within 1/4 (half of half) is at -2, within 1/8 (half of half of half) is at -3 and so on.

Difficulty modifiers are also applied according to the size of the target to be spotted. Find these modifiers on the consolidated **Target and Spotting Size Table** on the screen's center panel.

TNE Upgrade Booklet

Owners of first printing TNE do not need to buy the second printing. This **Ref's Screen** packet contains the revised tables as noted above. Other changes, including new ratings for the TNE small arms and vehicles updated in accordance with the **FF&S** design rules, are available in the **TNE Upgrade Booklet** included in **FF&S** or from GDW with a SASE (29¢ postage).

Additions and Corrections to TNE 2d Printing

When preparing the second printing of **Traveller: The New Era**, some adjustments were inadvertently omitted, and are included here.

Page 19: When rolling attributes, make seven 2D6-1 rolls and discard the lowest. Assign the remaining six rolls in whatever order desired to STR, AGL, CON, INT, EDU, and CHR.

Page 31: Under "Effects of Age," the instructions for 1D15 should read: "D15 number are generated by rolling 1D20 and rerolling results of 16-19. A roll of 20 is treated as 0."

Page 308-9: Under hovercraft performance, delete the material about hovercraft movement rates being multiplied by 1.5 in dense atmospheres and by 2 in Exotic, Corrosive, and Insidious atmospheres.

Page 343: The Tactical Thermal Viewer should have a short range of only 300, not 400.

Page 351: LAG Flechette short range damage should read: 2×9 hits***, and add the note ***9 hits, each with a damage value of 2.

Page 352: The medium range ROF for the TL-4 pump shotgun should read PA (10), and the medium range for the TL-7 auto shotgun should read SA (10).

Page 364: Price of the grav tank should be 1,945,420, empty mass should be 26 tonnes, and loaded mass should be 42.2 tonnes.

TRAVEL

COMBAT AND TRAVEL MOVEMENT RATES

Unit	Combat Move (meters per 5 seconds**)	Travel Move (km per 4-hour period)
Human	10/20/30*	20/20
Horse	10/30/60*	20/20
Mule	10/20/40*	20/20
Wagon/horse (or equivalent)	10/2	20/5
Wagon/ox (or equivalent)	5/2	10/5
Heavy cargo truck	25/5	110/20
Ground car	75/15	325/65
Hovercraft	185/140	800/605
Tracked ATV	25/20/3	110/85/13
Range truck	70/30	300/130
Wheeled ATV	40/20/5	175/85/20
Air raft (open)	56/6**	1200/240
G-Carrier	88/21**	1890/900
Enclosed air raft	88/22**	1890/945
Grav tank	100/24**	2160/1020
Speeder	167/26**	3600/1140
Grav bike	56/6**	1200/240
Very small open boat	1†	4/4
Small sailing boat	1D6+2/1D6+4††	8/8
Small motorboat	4	16/16
Medium motorboat	3	12/12

Note that all vehicle combat speeds are their *safe speeds*. Ground vehicle entries with two entries are road speed/off road speed, vehicle entries with three entries are road speed/off-road speed/water speed.

Hovercraft uses off-road rate for water. Motorboats have only one speed for water.

*Walk/trot/run

**Aircraft speeds are High mode/NOE mode, in 10-meter grid squares per 5-second turn.

†Safe speed. Maximum speed is twice this rate

††Downwind safe speed/upwind safe speed. Maximum speed is twice this rate.

Area	FORAGING			
	Winter (kg)	Spring (kg)	Summer (kg)	Fall (kg)
Wood/scrub	1	3	6	6
Meadow/swamp	0	1	2	2
Field	0	0	25	50
Fishing (1D6x)	1/2	2	1	1

Kg of wild food found per square kilometer per successful foraging attempt (requires 4 person-hours). On Outstanding Success, double the listed amount. See TNE, page 200.

FOOD CONSUMPTION

Human	1.5 kg survival rations or 2 kg domestic or 3 kg wild
Horse	15 kg grain and graze 8 hrs
Mule	10 kg grain and graze 8 hrs
Ox	Graze 8 hrs

FUEL ENERGY

Fuel	CM
Hydrocarbon	1
Hydrogen	2
Alcohol	3

CM = Consumption Modifier, see TNE, page 201.

Note: These are Terran-equivalent animals. Entries are required quantities of food per day. See TNE, page 199.

ANIMAL ENCOUNTERS

ANIMAL ENCOUNTER TABLE CREATION

See *Traveller®: The New Era*, pages 207-214, for full discussion.

1. World Size and Atmosphere

Using information about the world for which the animal is being produced, determine the world size and atmosphere from the world's UWP. This information is used later in step 6.

BASIC WORLD DATA

UWP digit	Size	Atmosphere
0	Asteroid	Vacuum
1	Small	Trace
2	Small	Very Thin
3	Small	Very Thin
4	Small	Thin
5	Medium	Thin
6	Medium	Standard
7	Medium	Standard
8	Large	Dense
9	Large	Dense
10+	Large	Exotic

2. Terrain Types

Determine the terrain types on the world through which the PCs will be travelling. Many worlds have most or all of the terrain types shown below in step 3, but not all are needed when only one region is explored.

One animal encounter table should be generated for each terrain type in the region being explored. Remember that a planetary ecosystem has tremendous diversity, and the animals found in the plains on one continent may differ dramatically from those found on another.

4. Animal Encounter/Category Table

This step is used only in rolling encounters. It is not used when generating encounter tables (rather, it is *filled in* when generating encounter tables). To find out what category of animal has been encountered, roll 1D20 and consult the following table. The result shows which table to roll on in step 5.

D20	Animal Category	D20	Animal Category
1	Herbivore	11	Omnivore
2	Herbivore	12	Omnivore
3	Herbivore	13	Omnivore
4	Herbivore	14	Carnivore
5	Herbivore	15	Carnivore
6	Herbivore	16	Carnivore
7	Herbivore	17	Carnivore
8	Herbivore	18	Scavenger
9	Herbivore	19	Scavenger
10	Omnivore	20	Scavenger

3. Animal Type and Weight DMs

Determine the animal type and weight DMs from the table below. The type DM is applied to the die roll in step 5 (Animal Type). The weight DM is used in step 7 (Animal Size). These DMs show a propensity for the animal to be larger or smaller based on the terrain type they inhabit.

ANIMAL TYPE AND WEIGHT DMs

Terrain Name	Equivalent Terrain	Type	Weight
Glacier	Ice Cap	—	-1
Clear	Road, Open	+3	+1
Prairie	Plain, Steppe	+4	+1
Rough	Hills, Foothills	—	—
Broken	Badlands, Lava Field	-3	-2
Mountain	Alpine	—	-2
Forest	Woods	-4	-2
Jungle	Rain Forest	-3	—
River	Stream, Creak	+1	-1
Swamp	Bog	—	—
Marsh	Wetland, Moor	—	-1
Desert	Dunes	+3	-2
Beach	Shore, Sea Edge	+3	+1
Surface	Ocean, Sea	+2	+3
Shallows	Ocean, Sea	+2	+2
Depths	Ocean, Sea	-4	+3
Bottom	Ocean, Sea	-2	+1
Sea Cave	Sea Cavern	-2	—
Sargasso	Seaweed, Kelp Bed	-4	-2
Ruins	Old City	-3	—
Cave	Cavern	-4	-1
Chasm	Crevasse, Abyss	-1	-3
Crater	Hollow	—	-1

5. Animal Type and Quantity

This table is used in two ways. When generating animal encounter tables, it is used to decide the type of animal that is to be generated and placed in a slot in the step 4 table above. When generating an encounter on the fly, it tells the sort of animal that has been encountered and must be generated with the tables further below.

The types of animals within each category are intended to correspond to their relative abundance, but the particular type that results from each die roll and the group size may be altered to fit the needs of the referee. Roll 2D6 and consult the following table after applying the animal type DM from step 3.

Several animals of each of the four categories (herbivore, omnivore, carnivore, scavenger) should be produced for each terrain type, of various of the niche types listed below. However, to get started, only one creature of each category is required.

If several of each category are created, the referee may assign each one a unique encounter roll on the table. For example, the referee creates three omnivores for the forest terrain type, and decides that one of them, a hunter, is quite common, while the others, a gatherer and an eater, are relatively scarce. The hunter is assigned the numbers 10 and 11, while the other two receive the numbers 12 and 13, thus filling up all four omnivore slots in the table in step 4.

ANIMAL TYPE AND QUANTITY

2D6	Herbivore	Omnivore	Carnivore	Scavenger
0-	Filterer (1D)	Gatherer	Siren	Carrion-Eater (1D)
1	Filterer	Gatherer	Pouncer	Carrion-Eater (2D)
2	Filterer	Eater	Siren	Reducer (1D)
3	Intermittent	Gatherer	Pouncer	Hijacker (1D)
4	Intermittent	Eater (2D)	Killer (1D)	Carrion-Eater (2D)
5	Intermittent	Gatherer	Trapper	Intimidator (1D)
6	Intermittent	Hunter	Pouncer	Reducer
7	Grazer	Hunter (1D)	Chaser	Carrion-Eater (1D)
8	Grazer (1D)	Hunter	Chaser (3D)	Reducer
9	Grazer (2D)	Gatherer	Chaser	Hijacker
10	Grazer (3D)	Eater (1D)	Killer	Intimidator
11	Grazer (2D)	Hunter (1D)	Chaser (2D)	Reducer (1D)
12	Grazer (4D)	Gatherer	Siren	Hijacker
13+	Grazer (5D)	Gatherer	Chaser (1D)	Intimidator (1D)

6. Special Attributes

Certain terrain types suggest animals with special attributes. Roll 2D6 to determine what, if any, special attribute the animal has, and possible DMs for use in step 7 (Animal Size).

Die Roll Modifiers: World Size = Large, DM -1; World Size = Medium, DM +1; World Size = Small, DM +2; Atmosphere = Thin, DM -1; Atmosphere = Dense or Exotic, DM +2.

Die	Beach	Marsh	Swamp	River	Sea	Other
2	S+1	S-6	S-3	S+1	S+2	—
3	A+2	A+2	A+1	—	S+2	—
4	A+2	A+1	A+1	—	S+2	—
5	—	—	—	—	A+2	—
6	—	—	—	—	A	—
7	—	—	—	—	S+1	—
8	—	—	—	—	S-1	—
9	—	—	—	—	T-7	—
10	—	—	—	—	T-6	F-6
11	F-6	F-6	F-6	F-6	F-6	F-6
12	F-5	F-5	F-5	F-5	F-5	F-3
13	F-4	F-4	F-4	F-4	F-4	F-2
14	F-2	F-2	F-2	F-2	F-2	F

Results

A = Amphibian; F = Flyer; S = Swimmer; T = Triphibian.

Numbers are additional animal weight DMs for use on table 7 (Animal Size).

8. Animal Weaponry

Roll 2D6 and consult the following table to determine the weapon with which the animal attacks. DMs: -3 if Herbivore, +3 if Omnivore, +5 if Carnivore, +7 if Scavenger.

Die	Weapon	To Hit	Damage	Pen	Range	Treat as Melee Attack
-1	Hooves & Teeth	—	1D6	Nil	Short	Armed melee attack
0	Trample	-3	(1D3)×D6	Nil	Short	Diving blow
1	Hooves & Teeth	—	(1D3)×D6	Size+10	Short	Armed melee attack
2	Trample	-3	1D6	Nil	Short	Diving blow
3	Hooves	-2	1D6	Nil	Short	Armed melee attack
4	Horn & Hooves	—	2D6	Size+9	Long if size = 10+	Armed melee attack
5	Horn	-1	2D6	Size+7	Long if size = 10+	Armed melee attack
6	Quills	-2	1D6	Nil	Short	(Defense only)
7	Tail	-2	1D6	Size+7	Long if size = 10+	Armed melee attack
8	Projectile	—	(1D6-2)×D6*	Nil	1D6×Size+2**	Thrown weapon attack
9	Tail	-2	1D6	Nil	Long if size = 10+	Armed melee attack
10	Acid	-1	1D6	1D6-4	Short	Armed melee attack
11	Claws & Teeth	+2	(1D6)×D6	Size+8	Long if size = 9+	Armed melee attack
12	Coils	+1	1D6	Nil	Short	Strangle
13	Claws	+2	(1D6-1)×D6*	Size+9	Long if size = 9+	Armed melee attack
14	Teeth	+1	(1D6)×D6	Size+10	Short	Armed melee attack
15	Poison***	***	XpN***	Nil	Short	Armed melee attack
16	Tentacle†	+4	1D6†	Nil	Long if size = 6+	Crapple
17+	Claws	+1	(1D6)×D6	Size+9	Long if size = 9+	Armed melee attack

*If damage result is 0×D6, basic damage is 1D3 points.

**Range equals effective range in meters, and is calculated by rolling 1D6, multiplying the result by the rolled animal size number, and dividing by 2 (rounding fractions up). For long range, double this figure.

***Poison may be delivered by teeth, claws, quills, or a specialized stinger organ. Roll 1D6 for delivery weapon, then roll 1D3 for poison strength. The Delivery Weapon Table at right provides the damage by the means of poison delivery, which goes in place of the "X" in the damage column. The number rolled for poison strength goes in place of the "N," and indicates the number of D6 that are rolled for poison damage on each subsequent combat turn.

7. Animal Size

Roll 2D6 for animal weight and the effects of that weight. Use the weight DMs obtained from steps 3 (Animal Type and Weight DM table) and 6 (Special Attributes table). Record the weight number, which is the same as the final adjusted die roll, as this will be used again in step 8 (Animal Weaponry) to determine penetration and range.

The Damage column is the size modifier used with the basic damage generated in step 8 (Animal Weaponry). The Initiative modifier is used in step 9 (Animal Initiative), and the Armor DM is used in step 11 (Animal Armor).

Die	Weight	Hits	Damage	Initiative	Armor DM
1	1	1	×1/2	+1	—
2	3	1	×1/2	+1	—
3	6	1D3	×1/2	+1	—
4	12	1D6	—	+1	—
5	25	1D10	—	—	—
6	50	1D20	—	—	—
7	100	2D20	—	—	—
8	200	3D20	+1	—	—
9	400	4D20	+2	-1	+1
10	800	5D20	+1D6	-1	+1
11	1600	6D20	+2D6	-2	+1
12	3200	7D20	+3D6	-2	+1
13	Roll again, but with an additional +6 DM (reroll further rolls of this result)				
14	6000	8D20	×1D6	-2	+2
15	12,000	9D20	×1D6	-3	+2
16	24,000	10D20	×1D6	-3	+2
17	30,000	11D20	×2D6	-3	+3
18	36,000	12D20	×2D6	-4	+3
19	40,000	13D20	×2D6	-4	+3
20	44,000	14D20	×3D6	-4	+4

DELIVERY WEAPONS

Die	Weapon	Delivery Damage	To Hit Modifier
1-2	Teeth	1D3	+2
3	Claws	1D3	+2
4-5	Quills/ barbs/spines	1	N/A (defensive only)
6	Stinger	1	+1

†Damage is controlling hits only (see Grappling, page 270). On a result of Tentacle, roll 1D6 for the additional weapon which is used after the target has been subdued.

Die	Weapon
1	Acid
2	Poison
3-6	Teeth

Notes

Damage is base damage, and is modified by the modifiers from step 7 (Animal Size table).

Penetration is the animal's rolled size number divided by the number shown. Round to the nearest whole number.

9. Animal Initiative

Roll 1D6 and apply the DMs listed below and those from step 7 (Animal Size). The result is the animal's Initiative number used in the combat turn.

Animal Type	DM
Herbivore	-2
Scavenger	-1
Omnivore	+1
Carnivore	+2

10. To-Hit Number

This number serves as the animal's asset when to-hit skill task rolls are made for it by the referee. Roll the indicated number of dice and then apply any DMs for weapon type from step 8 (Animal Weaponry).

Animal Type	D6
Herbivore	2
Scavenger	2
Omnivore	2
Carnivore	3

11. Animal Armor

Determine what armor, if any, each individual animal has by rolling 2D6 and consulting the following table. DMs are added from step 7 (Animal Size) and the listed DMs below.

Die	Armor
1	(+6)
2	—
3	—
4	1/2
5	—
6	—
7	—
8	—
9	—
10	1/2
11	—
12	(+6)
13	1/2
14	1/2 (Head 1)
15	1/2 (Head 1)
16	1/2 (Head 1)
17	1 (Head 2)
18	1 (Head 2)
19	2 (Head 3)
20	3

12. Animal Behaviors and Speed

Determine the range of animal behaviors and reactions that are possible.

Type	ANIMAL BEHAVIORS		
	To Flee (F)	To Attack (A)	Typical Speed (S)
Herbivore			
Filterer	1D6	If possible	1D20
Intermittent	3D6	2D6	2D20
Grazer	3D6	2D6	3D20
Omnivore			
Gatherer	2D6	2D6	2D20
Hunter	2D6	3D6	3D20
Eater	1D6	2D6	2D20
Carnivore			
Pouncer	If surprised	If surprise	3D20
Chaser	2D6	If more	4D20
Trapper	2D6	If surprise	1D20
Siren	2D6	If surprise	1D20
Killer	1D6	3D6+2	3D20
Scavenger			
Hijacker	2D6	3D6	3D20
Intimidator	2D6	3D6	2D20
Carrion-Eater	3D6	2D6	3D20
Reducer	1D6	1D6	1D20

In some cases above, a description is given in place of dice to roll for a behavior, and indicates that an animal will always behave in a certain way according to the situation. These cases are:

If Possible: A filter will attack if it possibly can. Use the code Ap.

If Surprise: The animal will attack if it has surprise. Use the code As.

If Surprised: The animal will flee if it has been surprised (as soon as it realizes this fact). Use the code Fs.

If More: The animals will attack if there are more of them than there are of potential prey (that they can see). Use the code Am.

Die Roll Modifiers

If carnivore, -1.

If herbivore, +2.

If scavenger, +1

A result of (+6) requires a reroll with an additional DM of +6 (in addition to any others). An additional (+6) result triggers another reroll, but without an additional +6 DM.

SPACE TRAVEL

STARSHIP OPERATING PROCEDURES

See *Traveller®: The New Era*, pages 218-224, for full discussion.

1. Starship Operations

Determine the ship type being operated, its capabilities, and the characteristics of the star system being travelled to.

The following steps illustrate the procedures for travelling to another world with a jump-capable starship.

2. Power Up

Normally a ship must be powered up gradually (taking 1D6×10 minutes). Successful startup is an Average task using Ship's Engineering. In an emergency the engineer may attempt to cold start the power plant. Task difficulty increases to Formidable while time decreases to 1D6 minutes.

In the event of failure, the task may be re-attempted in 1D6 minutes. Catastrophic Failure indicates damage which prevents additional cold start attempts and increases normal startup time to 1D6×20 minutes. In addition, the power plant is treated as past due for annual maintenance (until maintained/repaired).

3. Prepare Maneuver Drive

The maneuver drive must be prepared, an Easy task using Ship's Engineering and taking 1D6×10 seconds.

Desperate Jump: A desperate jump can be attempted at this point; go to step 7.

4. Travel To Orbit

If the ship is not already in orbit, take it from the world's surface to orbit, an Average task using Pilot (Interface/Grav). The Travel Time To Orbit table shows the expected travel times and fuel expenditure required.

TRAVEL TIME TO ORBIT

World Size	Acceleration						Fuel G-Hrs
	1G	2G	3G	4G	5G	6G	
0	6m	5m	4m	3m	2m	1m	0.1
1	13m	9m	8m	7m	6m	5m	0.2
2	19m	13m	11m	9m	8m	8m	0.3
3	23m	16m	13m	12m	10m	9m	0.4
4	27m	19m	15m	13m	12m	11m	0.45
5	30m	21m	17m	15m	13m	12m	0.5
6	33m	23m	19m	16m	15m	13m	0.55
7	35m	25m	20m	18m	16m	14m	0.6
8	38m	27m	22m	19m	17m	15m	0.64
9	40m	28m	23m	20m	18m	16m	0.67
A	42m	30m	24m	21m	19m	17m	0.7

Starship Encounters: Check for a starship encounter during this journey (if referee desires).

Desperate Jump: A desperate jump can be attempted at this point; go to step 7.

5. Travel To 10 Diameters

Take the ship to 10 diameters out from the world. This is an Easy task using Astrogation. Consult the 100 Diameters Travel Times table in step 6, below. The time to 10 diameters is one-tenth of that shown as the time to 100 diameters.

Starship Encounters: Check for a starship encounter during this journey (if referee desires).

Dangerous Jump: A dangerous jump can be attempted at this point; go to step 7.

6. Travel To 100 Diameters

Take the ship to 100 diameters out from the world. This is an Easy task using Astrogation. Consult the 100 Diameters Travel Times table, but subtract any time already spent travelling to 10 diameters.

100 DIAMETERS TRAVEL TIMES

Burns G-Hours	Planet Size Code												
	0	1	2	3	4	5	6	7	8	9	A	SG	LG
0.1	47m*	12.6	25.2	37.8	50.4	63.0	75.6	88.2	100.8	113.4	126.0	314.9	708.6
0.2	24m*	6.3	12.6	18.9	25.2	31.5	37.8	44.1	50.4	56.7	63.0	157.5	354.3
0.3	16m*	4.2	8.4	12.6	16.8	21.0	25.2	29.4	33.6	37.8	42.0	105.0	236.2
0.4	12m*	3.2	6.3	9.5	12.6	15.8	18.9	22.1	25.2	28.4	31.5	78.7	177.2
0.5	10m*	2.5	5.0	7.6	10.1	12.6	15.1	17.6	20.2	22.7	25.2	63.0	141.7
0.6	8m*	2.1	4.2	6.3	8.4	10.5	12.6	14.7	16.8	18.9	21.0	52.5	118.1
0.7	7*	1.8	3.6	5.4	7.2	9.0	10.8	12.6	14.4	16.2	18.0	45.0	101.2
0.8	6*	1.6	3.2	4.7	6.3	7.9	9.5	11.0	12.6	14.2	15.8	39.4	88.6
0.9	5*	1.4	2.8	4.2	5.6	7.0	8.4	9.8	11.2	12.6	14.0	35.0	78.7

Times followed by the letter "m" are in minutes. All other times are in hours. Times are calculated for average sizes within each code. Referees may re-calculate for minimum/maximum diameters using the equation: (diameter in km x 100) + (G-hours x 127,008) = travel time in hours. Size 0 is assumed to be 100 km.

*Specified time or time to expend the G-hours, whichever is greater.

To reach a distance of 10 diameters, divide travel times by 10.

For larger expenditures of G-hours of thrust, divide time by the multiple of G-hours spent. (2 G-hours of thrust spent will reduce travel time to 100 diameters of a small gas giant to 23.62 hours.)

For smaller expenditures of G-hours of thrust, multiply time by the divisor of G-hours spent. (.02 G-hours of thrust spent will increase travel time to 100 diameters of a small gas giant to 2362 hours.)

Starship Encounters: Check for a starship encounter during this journey (if referee desires).

Safe Jump: A safe jump can be attempted at this point.

7. Prepare For Jump

Preparing for jump consists of computing the jump coordinates and preparing the jump drive. This is an Average task using Astrogation. The astrogator also designates whether the destination in the system is the mainworld, a gas giant, or some other world.

If the ship is past annual maintenance, the task becomes Difficult.

8. Engage Jump Drive

Engaging jump drive is an Average task using Ship's Engineer. This task can be attempted once a successful jump preparation has been accomplished.

Safe Jump: A ship at least 100 diameters out from all massive bodies, using the proper fuel, and with properly maintained drives can make a safe jump with no chance of a mishap.

Dangerous Jump: If the ship is within 100 diameters of a massive body, this task is Difficult.

Desperate Jump: If the ship is within 10 diameters of a massive body, this task is Formidable.

If the ship is using unrefined fuel (without a fuel-purification plant), increase the difficulty level by one.

If a failure occurs, go to step 15.

9. Jump Space

The vessel enters jump space and travels to the world which the astrogator designated. This ship remains in jumpspace for about one week (under normal circumstances).

Determine how much time the ship spent in jump space by rolling 1D6.

Roll	Result
1	6 days
2-5	7 days
6	8 days

10. Emerge From Jumpspace

The ship emerges from jumpspace. The ship emerges at the limit of the gravity well (at about 100 diameters out) of the destination world that the astrogator designated in jump preparation. The ship must be taken from 100 diameters in to 10 diameters. Any residual vector may be used to accomplish this, provided the astrogator positioned the jump exit point correctly.

Positioning the exit point correctly is a Difficult task using Astrogation, and is rolled at this time. Outstanding Success indicates that exit point is positioned so that the ship's velocity will take it to within 100 diameters of the destination world; no course correction required. Regular success indicates the need for a course correction equal to 10% of the fuel spent to achieve the craft's current velocity. Failure indicates the need for a course correction equal to 50% of the fuel cost of the current velocity. Catastrophic Failure indicates need for a course correction equal to 150% of the fuel cost.

Making the required course correction is an Easy task using Astrogation, with failure requiring additional minor course corrections.

11. Travel to Orbit

This is an Easy task using Astrogation. Consult the 100 Diameters Travel Times table used in step 6 above. Fuel must be spent to achieve acceleration equal to that of the residual vector, but in this case the fuel spent is used to slow the ship down once it reaches orbital distance.

Starship Encounters: Check for a starship encounter twice during this journey, once at 10 diameters and once at orbit (if referee desires).

14. In-System Transfer

A ship may need to move from a world to a gas giant or from a gas giant to a world. After moving out to 100 diameters, a ship can transfer within a system. This is an Average task using Astrogation, with failure adding 10% to the travel time and Catastrophic Failure adding 50%.

Distances from one world to another in a system vary based on the orbits occupied by the worlds and where the worlds are in their orbital tracks. Actual distance between any two worlds is calculated using the Interplanetary Distance Matrix.

INTERPLANETARY DISTANCE MATRIX, PART 1

	1	2	3	4	5	6	7	8	9
0 (10)	100	250	400	700	1300	2500	4900	9700	19,250
1 (20)	X	150	300	600	1200	2400	4800	9600	19,150
2 (35)	X	X	150	450	1050	2250	4650	9400	19,000
3 (50)	X	X	X	300	900	2100	4500	9300	18,850
4 (80)	X	X	X	X	600	1800	4200	9000	18,550
5 (140)	X	X	X	X	X	1200	3600	8400	17,950
6 (260)	X	X	X	X	X	X	2400	7200	16,750
7 (500)	X	X	X	X	X	X	X	4800	14,350
8 (980)	X	X	X	X	X	X	X	X	9550

INTERPLANETARY DISTANCE MATRIX, PART 2

	10	11	12	13	14	15
0 (10)	38,400	76,700	153,300	306,500	612,850	1,225,600
1 (20)	38,300	76,600	153,200	306,400	612,750	1,225,500
2 (35)	38,150	76,450	153,050	306,250	612,600	1,225,350
3 (50)	38,000	76,300	152,900	306,100	612,450	1,225,200
4 (80)	37,700	76,000	152,600	305,800	612,150	1,224,900
5 (140)	37,100	75,400	152,000	305,200	611,550	1,224,300
6 (260)	35,900	74,200	150,800	304,000	610,350	1,223,100
7 (500)	33,500	71,800	148,400	301,600	607,950	1,220,700
8 (980)	28,700	67,000	143,600	296,800	603,200	1,215,950
9 (1935)	19,150	57,450	134,050	287,250	593,600	1,206,350
10 (3850)	X	38,300	114,900	268,100	574,450	1,187,200
11 (7680)	X	X	76,600	229,800	536,150	1,148,900
12 (15,340)	X	X	X	153,200	459,550	1,072,300
13 (30,660)	X	X	X	X	306,400	919,150
14 (61,300)	X	X	X	X	X	612,750

(continued next page)

12. Travel from Orbit

The ship is in orbit. Unstreamlined ships deliver cargo to orbiting stations if the world has a type A or B starport. Small craft and streamlined ships can descend to the world surface. Descent from orbit is an Average task using Pilot (Interface/Grav). Times from orbit to the surface, and the fuel needed to decelerate, are the same as those shown in the Travel Time to Orbit table in step 4.

13. Refueling

The ship may be refueled when fuel is available.

Gas Giant Refueling: If the ship is streamlined or airframe and is in orbit around a gas giant, it can skim the gas giant's atmosphere for fuel. This takes about 10 hours and is an Average task using Pilot (Interface/Grav), with failure indicating a longer refueling time due to atmospheric turbulence. Catastrophic Failure indicates damage due to lightning strikes, pressure, excessive radiation exposure, collisions with debris, or heat damage to the hull.

Ocean Refueling: If the ship has reached the surface of a world with a non-0 Hydrographics percentage and an atmosphere of Dense or lower, it can obtain fuel from an ocean. This takes about two hours and is an Average task using Pilot (Interface/Grav).

Starport Refueling: Starports offer refuelling services. Refined fuel (at type A and B starports) costs Cr500 per ton (14 kiloliters); unrefined fuel (at type A, B, C, and D starports) costs Cr100 per ton (14 kiloliters).

INTERPLANETARY SPEED

G-Hours and Travel Time
per 1 Light-Second

Burns	Time
G-Hours	Minutes
1	142
2	71
3	47
4	35
5	28
6	24
7	20
8	18
9	16

Note: The chart above treats G-hours as a speed; i.e., the final velocity after those G-hours are spent.

The distance travelled while burning those G-hours is not incorporated in those numbers as it is insignificant over large distances.

INTERPLANETARY DISTANCE MATRIX, PART 3

	16	17	18	19
0 (10)	2,451,100	4,902,100	9,804,150	19,608,200
1 (20)	2,451,000	4,902,000	9,804,050	19,608,100
2 (35)	2,450,850	4,901,850	9,803,900	19,607,950
3 (50)	2,450,700	4,901,700	9,803,750	19,607,800
4 (80)	2,450,400	4,901,400	9,803,450	19,607,500
5 (140)	2,449,800	4,900,800	9,802,850	19,606,900
6 (260)	2,448,600	4,899,650	9,801,650	19,605,700
7 (500)	2,446,250	4,897,250	9,799,250	19,603,300
8 (980)	2,441,450	4,892,450	9,794,500	19,598,500
9 (1935)	2,431,850	4,882,900	9,784,900	19,588,950
10 (3850)	2,412,700	4,863,750	9,765,750	19,569,800
11 (7680)	2,374,400	4,825,450	9,727,450	19,531,500
12 (15,340)	2,297,850	4,748,850	9,650,850	19,454,900
13 (30,660)	2,144,650	4,595,650	9,497,700	19,301,700
14 (61,300)	1,838,250	4,289,250	9,191,300	18,995,350
15 (122,570)	1,225,500	3,676,500	8,578,550	18,382,600
16 (245,120)	X	2,451,000	7,353,050	17,157,100
17 (490,220)	X	X	4,902,050	14,706,100
18 (980,425)	X	X	X	9,804,050

15. Jump Mishaps

If a failure occurs when the jump drive is engaged, handle it as follows:

Failure: A jump relativity error occurs. The ship remains in jump space 1D6+4 days (from 5 to 10 days) before emerging at the plotted destination point, otherwise unharmed.

Catastrophic Failure: A jump relativity error occurs, but when the ship emerges in the destination system, it is 2D6x100 diameters from the destination world, rather than only 100.

Aggravated Catastrophic Failure: If a Catastrophic Failure occurs while using unrefined fuel, when in need of maintenance, or when suffering from the effects of damage to the jump drive, a major jump relativity error occurs. When the ship emerges from jump, it discovers that it has misjumped.

Roll 1D6 for the number of dice to throw. Then roll that number of dice for the distance (in parsecs or map hexes) the ship travelled. Roll 1D6 for the direction of the misjump on the hex grid. The ship arrives at a random point within the system. Roll 1D20-1 for the orbit number at which the ship emerges.

16. Crew Settlement

The crew of the ship is paid every month. The following are typical salary schedules. Payment below is based on skill level, not asset.

ORN is the Officer Rank Number from character generation: O-1 rank is ORN rank 1. Any E-level rank counts as ORN 1 for purposes of payment.

Bridge Crew: Cr500 times ORN plus 5% for each level of Pilot (Interface/Grav), Astrogation, or Leadership skill above 1.

Engineering Crew: Cr500 times ORN plus 5% for each level of Ship's Engineering skill above 1.

Maintenance Crew: Cr500 plus 5% for each level of Admin/Legal, Mechanic, or Electronics skill above 1.

Command Crew: Cr1000 times ORN plus 5% for each level of Pilot (Interface/Grav), Astrogation, or Leadership.

Gunners: Cr500 plus 5% for each level of any applicable Gunnery skill above 1.

Flight Crew: Cr1000 plus 5% for each level of Pilot (Interface/Grav) skill above 1.

Ship's Troops: Cr500.

Stewards: Cr500 times Service skill above 1.

Medical Crew: Cr500 times Medical skill above 1.

The orbit numbers down the left side are the orbit numbers closest to the star; those across the top are those farthest from the star. The distance shown at the intersection of the two is the base distance in light-seconds. Multiply the parenthetical number shown beside the inner orbit number by 4D6-4 and add it to the base distance to find the total distance.

For example, the distance from orbit 4 to orbit 8 is 9000 light-seconds. The distance from an object in orbit 4 to an object in orbit 8 is 9000 plus [(4D6-4)x80] light-seconds.

Once actual distance is known, travel time is a function of G-hours of acceleration spent. The Interplanetary Speed table shows the travel time per light-second for from 1 to 9 G-hours of acceleration spent.

If greater acceleration is spent, find an acceleration value on the table which is an easy fraction of the actual acceleration and divide the corresponding travel time by that value. For example, a ship spends 55 G-hours of acceleration. The referee uses the 5 G-hour entry because it is one-eleventh of 55. Dividing 28 minutes (the time for one light-second) by 11 yields a value of 2.55 minutes per light-second. If the distance travelled were 100 light-seconds, the total travel time would be 255 minutes.

If less acceleration is used than the values shown on the chart, reverse the above process.

Note that ships which accelerate to reach a destination must then decelerate when they reach it. As the table shows only the acceleration required to reach the speed, this same acceleration must also be spent at the other end of the voyage to decelerate, and so fuel expenditure should be planned accordingly.

STARSHIP ENCOUNTERS

These Starship Encounters tables are an aid to the referee's imagination, not a replacement for it. The referee should never allow the result of a table to supersede his or her concept of or intention for a stellar system. However, the tables below provide a random element that can fuel the referee's imaginations when he isn't quite sure what to do next. Feel free to expand on the thumbnail mission characterizations that result from the tables. For example, the Distress result can mean that the vessel itself is in distress, or that it is responding to a distress call.

1. Encounter Likelihood

Determine whether an encounter takes place.

ENCOUNTER (1D6)	
D6	Result
0-4	Encounter
5+	No Encounter

DMs

A Starport: DM -2
 B Starport: DM -1
 E Starport: DM +1
 X Starport: DM +2
 Pocket Empire: +1
 Wilds: +2

2. Ship Type

Determine the ship type being encountered.

SHIP TYPE (1D6)

D6	Type
0	Nonstarship (go to 3)
1	Merchant (go to 4)
2	Nonstarship (go to 3)
3	Naval (go to 5)
4	Merchant (go to 4)
5	Civilian (go to 6)
6+	Scout (go to 7)

DMs

A Starport: DM -2
 B Starport: DM -1
 E Starport: DM +1
 X Starport: DM +2
 Pocket Empire: +1
 Wilds: +2

3. Nonstarship

NONSTARSHIP TYPE (2D6)	
2D6	Type
1	System Defense Boat
2	Bulk Transport
3	System Defense Boat
4	Tug
5	Launch
6	Shuttle
7	Shuttle
8	Cutter
9	Fuel Shuttle
10	Ship's Boat
11	Pinnace
12	Ship's Boat
13+	Ship's Boat

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

NONSTARSHIP MISSION (2D6)	
2D6	Type
1	Quarantine Enforcement
2	Quarantine Enforcement
3	Smuggling
4	Charter
5	Patrol
6	Courier
7	Courier
8	Transport
9	Transport
10	Transport
11	Distress
12	Piracy/Privateer
13+	Vampire

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

6. Civilian Type Ship

CIVILIAN SHIP TYPE (2D6)	
2D6	Type
1	Yacht
2	Liner (1000+ tons)
3	Yacht
4	Mercenary Cruiser
5	Yacht
6	Lab Ship
7	Detached Scout
8	Seeker
9	Lab Ship
10	Seeker
11	Free Trader
12	Free Trader
13+	Free Trader

Note: If system inaccessible by jump 2, substitute Far Trader for Free Trader. In Old Expanses, Pocket Empire, and Wilds, feel free to substitute converted model ships for specialized designs, such as Lab Ships, Yachts, etc.

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

4. Merchant Type Ship

MERCHANT SHIP TYPE (2D6)	
2D6	Type
1	Freighter (5000+ tons)
2	Freighter (1000+ tons)
3	Freighter (1000+ tons)
4	Subsidized Liner
5	Subsidized Merchant
6	Subsidized Merchant
7	Free Trader
8	Free Trader
9	Far Trader
10	Far Trader
11	Free Trader
12	Free Trader
13+	Merchant Modified Scout

Note: If system inaccessible by jump 2, substitute Far Trader for Free Trader and Subsidized Merchant.

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

MERCHANT MISSION (2D6)	
2D6	Type
1	Quarantine Enforcement
2	Smuggling
3	Trade
4	Trade
5	Trade and Transport
6	Trade and Transport
7	Trade and Transport
8	Transport
9	Transport
10	Transport
11	Distress
12	Piracy/Privateer
13+	Vampire

Note: If ship type is Seeker, replace Transport with Prospecting.

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

5. Naval Type Ship

NAVAL SHIP TYPE (2D6)	
2D6	Type
2	Battleship
3	Carrier (100,000 tons)
4	Cruiser (100,000 tons)
5	Cruiser (50,000 tons)
6	Cruiser (20,000 tons)
7	Fast Courier
8	Fighter
9	Patrol Cruiser
10	Close Escort
11	Escort (1000 tons)
12	Escort (5000 tons)
13+	Cruiser (50,000 tons)

DMs: +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

NAVAL MISSION (2D6)	
2D6	Mission
1	Quarantine Enforcement
2	Patrol
3	Escort
4	Escort
5	Courier
6	Training
7	Patrol
8	Patrol
9	Transfer
10	Maneuvers
11	Distress
12	Piracy/Privateer
13+	Vampire

Notes: Patrol received in Regency includes Quarantine enforcement

DMs: -1 in Regency, +3 in Old Expanses, +5 in Pocket Empire, +7 in Wilds; all results other than Fighter, Fast Courier, Patrol Cruiser, and Close Escort receive an additional +8 DM if encountered in the Old Expanses, Pocket Empire, or Wilds.

7. Scout Type Ship

SCOUT SHIP TYPE (2D6)	
2D6	Type
1	Scout Tender
2	Scout Cruiser
3	Scout Cruiser
4	Scout Surveyor
5	Scout Surveyor
6	Scout Courier
7	Scout Courier
8	Scout Courier
9	Scout Courier
10	Scout Courier
11	Scout Courier
12	Scout Courier
13+	Scout Courier

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

SCOUT MISSION (2D6)

2D6	Type
1	Patrol
2	Patrol
3	Smuggling
4	Patrol
5	Courier
6	Courier
7	Exploration
8	Transfer
9	Exploration
10	Exploration
11	Distress
12	Piracy/Privateer
13+	Vampire

Note: If Scout Surveyor, replace Patrol with Survey.

DMs: -1 in Regency, +1 in Old Expanses, +2 in Pocket Empire, +3 in Wilds.

8. Ship Disposition

SHIP DISPOSITION (2D6)	
2D6	Disposition
2	Hasty Departure
3	Hasty Departure
4	Leaving
5	Leaving
6	Standing By
7	Standing By
8	Standing By
9	Arriving
10	Arriving
11	Hasty Arrival
12	Hasty Arrival

TRADE

PASSENGERS AND CARGO

See Traveller®: The New Era, pages 230-235, for full discussion.

1. Sourceworld Details

Determine sourceworld's population and tech level.

2. Destination World Details

The ship captain must select and designate a destination world within jump range. Determine destination world's population, tech level, and travel zone.

3. Passengers

Determine how many passengers are available for the ship.

Roll once on the High column, once on the Middle column, and twice on the Low/Steerage column (once for Low, once for Steerage). Steerage not allowed in Regency, roll for Low only.

PASSENGER TABLE

Pop Digit	Available at Sourceworld		
	High	Middle	Low/Steerage
0	—	—	—
1	—	1D-2	2D-6
2	1D-1D	1D	2D
3	2D-2D	2D-1D	2D
4	2D-1D	2D-1D	3D-1D
5	2D-1D	3D-2D	3D-1D
6	3D-2D	3D-2D	3D
7	3D-2D	3D-1D	3D
8	3D-1D	3D-1D	4D
9	3D-1D	3D	5D
A	3D	4D	6D

Die Roll Modifiers

If destination world Population 0-4, DM -3. If destination world Population 8+, DM +1.

If any crewmember has Service skill, apply half of it (rounding fractions down) as a +DM on the roll for high passengers.

If any crewmember has Admin/Legal skill, apply half of it (rounding fractions down) as a +DM on the roll for middle passengers.

If any crewmember has Streetwise skill, apply half of it (rounding fractions down) as a +DM on the roll for low and steerage (where applicable) passengers.

DM+(sourceworld TL minus destination world TL).

If destination world is a red zone, DM -8, and no middle or low passengers.

If destination world is an amber zone, DM -4. Passengers may not exceed the passenger capacity of the ship.

This table may be consulted once per week.

Income: Credit the ship with Cr10,000 per high passenger, Cr8000 per middle passenger, Cr1000 per low passenger, and Cr2500 per steerage passenger.

4. Freight and Cargo

Freight consists of paid shipments of goods. Cargo is purchased at the sourceworld and sold at the destination world. Determine the available lots from the table. Roll once in the Major column, once in the Minor column, and once in the Incidental column. For each lot, determine its size by rolling the lot size.

AVAILABLE LOTS

Pop Digit	Available at Sourceworld		
	Major	Minor	Incidental
0	—	—	—
1	1D-4	1D-4	—
2	1D-2	1D-1	—
3	1D-1	1D	—
4	1D	1D+1	—
5	1D+1	1D+2	—
6	1D+2	1D+3	1D-3
7	1D+3	1D+4	1D-3
8	1D+4	1D+5	1D-2
9	1D+5	1D+6	1D-2
A	1D+6	1D+7	1D

Lot Sizes

Major Cargos: 1D+10.

Minor Cargos: 1D+5.

Incidental Cargos: 1D.

Lot size is stated in displacement tons. To convert to kiloliters, multiply by 14.

Die Roll Modifiers

Apply these DMs for number of available lots.

If destination world population 0-4, DM -3.

If destination world population 8+, DM +1.

If any crewmember has Liaison skill, apply half of it (rounding fractions down) as a +DM on the roll for minor cargoes.

DM+(sourceworld TL minus destination world TL).

If destination world is a red zone, freight is calculated normally, but at five times the normal rate of pay (Cr5000 per ton).

If destination world is an amber zone, freight is calculated normally but at twice the normal rate of pay (Cr2000 per ton).

If the goods are freight (carried for a fixed fee per ton) and their identity does not matter, ignore further steps.

The sum of cargo and freight cannot exceed the cargo hold capacity of the ship.

This table shows the limit of freight available to a ship in a period of one week. A crewmember with Marketing skill may consult this table again once (to find last-minute cargo, but not freight).

EXCHANGE RATES

TL	Starport Type					
	A	B	C	D	E	X
15	1.00	.95	.90	—	—	—
14	.95	.90	.85	.80	.75	—
13	.90	.85	.80	.75	.70	—
12	.85	.80	.75	.70	.65	—
11	.80	.75	.70	.65	.60	—
10	.75	.70	.65	.60	.55	.45
9	.70	.65	.60	.55	.50	.40
8	.65	.60	.55	.50	.45	.35
7	.60	.55	.50	.45	.40	.30
6	—	.50	.45	.40	.35	.20
5	—	.45	.40	.35	.30	.10
4	—	—	.30	.25	.20	barter
3	—	—	.20	.10	.05	barter
2	—	—	—	.05	barter	barter
1	—	—	—	.01	barter	barter
0	—	—	—	—	—	barter

5. Sourceworld Trade Classifications

Determine the trade classifications of the sourceworld.

TRADE CLASSIFICATIONS

Code	Size	Atmo- sphere	Hydro- graphic	Popula- tion	Govern- ment	Law Level	Code Definition
Ag	—	4-9	4-8	5-7	—	—	Agricultural
As	0	0	0	—	—	—	Asteroid
Ba	—	—	—	0	0	0	Barren
De	—	2+	0	—	—	—	Desert
Fl	—	A+	1+	—	—	—	Fluid Oceans
Hi	—	—	—	9+	—	—	High Population
Ic	—	0-1	1+	—	—	—	Ice-Capped
In	—	2-4,7,9	—	9+	—	—	Industrial
Lo	—	—	—	4-	—	—	Low Population
Na	—	0-3	0-3	6+	—	—	Nonagricultural
Ni	—	—	—	0-6	—	—	Nonindustrial
Po	—	2-5	0-3	—	—	—	Poor
Ri	—	6,8	—	6-8	4-9	—	Rich
Va	—	0	—	—	—	—	Vacuum
Wa	—	—	A	—	—	—	Water World

Determine all possible trade classifications. An Asteroid Belt (As) is automatically a Vacuum World, and does not have the Va code.

7. Nature of Cargo

More information can be determined about cargo (and about freight, if desired).

Cargo and freight are broadly classified as one of the following types:

- Natural Resources
- Processed Resources
- Manufactured Goods
- Information
- Novelties

For each shipment of cargo or freight, note the trade classifications in its identifier and consult tables 8a through 8f in order until one of the trade classifications in its identifier is matched. Roll on the first table that matches to determine the broad nature of the goods.

Worlds with no classification use 8f.

8a. Ag Goods

Any goods with Ag (Agricultural) in its identifier may use this table.

Die	Trade Good Category
2	Natural Resources
3	Natural Resources
4	Natural Resources (organic)
5	Natural Resources (organic)
6	Natural Resources (organic)
7	Processed Resources (organic)
8	Processed Resources (organic)
9	Manufactured Goods
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1.

8b. Wa, Ri Goods

Any goods with Wa (Water World) or Ri (Rich World) may use this table.

WATER AND RICH WORLD GOODS	
Die	Trade Good Category
2	Natural Resources
3	Natural Resources
4	Natural Resources
5	Natural Resources
6	Processed Resources
7	Processed Resources
8	Manufactured Goods
9	Information
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1. If population

8c. As, Va, De, Na Goods

Any goods identified as As (Asteroid Belt), Va (Vacuum), De (Desert), or Na (Nonagricultural) may use this table.

ASTEROID, VACUUM, DESERT, OR NONAGRICULTURAL GOODS	
Die	Trade Good Category
2	Natural Resources (inorganic)
3	Natural Resources (inorganic)
4	Natural Resources (inorganic)
5	Natural Resources (inorganic)
6	Natural Resources (inorganic)
7	Processed Resources (inorganic)
8	Manufactured Goods
9	Manufactured Goods
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1. If population 9+, DM +1. If Barren World, DM -5.

6. Identify Cargo and Freight

Create a standard identifier for each shipment of cargo and freight.

Freight: If the shipment is freight, its identity may not matter. The referee may assume that freight is a standard, safe, nonperishable shipment properly packaged. Its tonnage is already known. No further information is required.

Cargo: If the shipment is cargo, it should be given a standard identifier, which consists of:

1. Sourceworld starport type.
2. Sourceworld tech level.
3. All possible sourceworld trade classifications.
4. Cost.

For example, a cargo from a world with a type A starport, a tech level of 12, and a Rich world which costs Cr7000 would be identified as:

A-C Ri Cr7000

8d. Ni Goods

Any goods identified as Ni (Non industrial) may use this table.

NONINDUSTRIAL GOODS	
Die	Trade Good Category
2	Natural Resources
3	Natural Resources
4	Natural Resources
5	Natural Resources
6	Natural Resources
7	Processed Resources
8	Manufactured Goods
9	Manufactured Goods
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1. If Barren World, DM -5.

8e. In Goods

Any goods identified as In (Industrial) may use this table.

INDUSTRIAL GOODS	
Die	Trade Good Category
2	Natural Resources
3	Natural Resources
4	Processed Resources
5	Processed Resources
6	Manufactured Goods
7	Manufactured Goods
8	Manufactured Goods
9	Manufactured Goods
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1.

8f. Ba, Fl, Hi, Ic, Lo, Po Goods

Any goods identified as Ba (Barren), Fl (Fluid Oceans), Hi (High Population), Ic (Ice-Capped), Lo (Low Population), Po (Poor), or no trade classification may use this table.

ALL OTHER GOODS

Die	Trade Good Category
2	Natural Resources
3	Natural Resources
4	Natural Resources
5	Information
6	Processed Resources
7	Processed Resources
8	Processed Resources
9	Manufactured Goods
10	Information
11	Information
12	Novelties

DMs: If government 9+, DM +1. If law level 9+, DM +1.
If population 9+, DM +1. If Barren World, DM -7.

9. Nature of Cargo and Freight

Determine the specific nature of the goods. The referee is encouraged to select a specific cargo or freight appropriate to the worlds of origin and destination, or to the adventure being played. Absent from any specific requirement, the referee may determine the nature of the cargo by rolling 2D6 and consulting the appropriate table. The columns to the right on the tables show the 2D6 roll to determine if the cargo has any special handling characteristics. The columns are Corrosive, Flammable, Explosive, Radioactive, and Perishable. On the Manufactured Goods, Information, and Novelties tables, Fragile appears in place of Flammable. "Auto" indicates that the cargo automatically fulfills that criterion.

If Natural Resources, go to step 9a.

If Processed Resources, go to 9b.

If Manufactured Goods, go to 9c.

If Information, go to 9d.

If Novelties, go to 9e.

9a. Natural Resources

D66	Trade Good	Cor	Fla	Exp	Rad	Per
11-13	Ferrous Metal Ore	—	—	—	—	—
14-15	Nonmetal Ore	10+	—	12+	—	—
16-21	Radioactive Ore	—	—	—	6+	—
22-23	Nonferrous Ore	11+	—	11+	11+	—
24-26	Raw Crystals	—	—	—	—	—
31	Raw Precious Gems	—	—	—	—	—
32-33	Nitrogen Compounds	10+	—	9+	—	—
34-36	Raw Hydrocarbons	11+	9+	11+	—	—
41-42	Plants (wood)	11+	9+	—	—	11+
43	Plants (bales)	11+	9+	—	—	10+
44	Plants (fibers)	11+	6+	—	—	9+
45	Plants (herbs)	11+	6+	—	12+	9+
46	Wild Plants (living)	11+	6+	12+	—	11+
51-54	Food Plants (living)	11+	11+	—	—	Auto
55-56	Animals (living)	11+	—	—	—	Auto
61-64	Livestock (living)	11+	—	—	—	Auto
65	Rare Plants (living)	11+	11+	—	—	Auto
66	Rare Animals (living)	11+	—	—	—	Auto

9b. Processed Resources

D66	Trade Good	Cor	Fla	Exp	Rad	Per
11-16	Composites	11+	9+	10+	—	—
21-24	Special Alloys	12+	10+	—	—	—
25-26	Precious Metals	—	—	—	—	—
31	Crystals	—	—	—	—	—
32-34	Radioactives	—	—	—	5+	—
35	Rare Earths	11+	12+	12+	12+	—
36	Isotopes	—	—	—	3+	—
41-46	Foodstuffs	11+	9+	12+	—	8+
51-54	Petrochemicals	10+	7+	8+	—	—
55	Textiles	—	9+	—	—	11+
56	Explosives	12+	10+	3+	—	10+
61-63	Polymers	—	9+	—	—	—
64-66	Fertilizers	10+	9+	9+	—	9+

9c. Manufactured Goods

D66	Trade Good	Cor	Fra	Exp	Rad	Per
11-13	Pharmaceuticals	11+	10+	—	—	9+
14-15	Spice	—	11+	—	—	10+
16	Gourmet Food	—	11+	—	—	10+
21-23	Alcoholic Beverage	11+	8+	—	—	9+
24-26	Nonalcoholic Beverage	—	10+	—	—	8+
31	Consumable Teas	—	11+	—	—	12+
31-32	Exotic Fluids	—	8+	—	—	9+
33-36	Aromatics	—	10+	9+	—	11+
41-42	Clothing	—	12+	—	—	—
43	Protective Gear	—	9+	—	—	—
44-46	Weapons	—	9+	—	—	—
51-52	Electronic Parts	—	10+	—	—	—
53	High-Tech Parts	—	10+	—	—	—
54-55	Tools	—	11+	—	—	—
56	Vehicles	—	12+	—	—	—
61-63	Entertainment Equip	—	10+	—	—	—
64	Computers	—	11+	—	—	—
65-66	Robots	—	11+	—	—	—

9d. Information

This category includes a modified meaning of the category Perishable. This indicates whether the information is of a time-sensitive nature so that it becomes useless if not delivered in a timely fashion.

D66	Trade Good	Cor	Fra	Exp	Rad	Per
11-12	Writings (paper)	—	—	—	—	8+
13-14	2-D Still Pictures	—	10+	—	—	8+
15-16	Computer Software	—	—	—	—	11+
21-22	Robotic Software	—	—	—	—	—
23-24	Starship Software	—	—	—	—	—
25-26	3-D Still Pictures	—	10+	—	—	8+
31-33	Artistic Images	—	9+	—	—	11+
34	Audio Recordings	—	—	—	—	8+
35	2-D Video Recordings	—	10+	—	—	8+
36	3-D Video Recordings	—	10+	—	—	8+
41	Raw Data (paper)	—	—	—	—	8+
42-43	Raw Data (data)	—	—	—	—	8+
44-45	Raw Data (inanimate samples)	9+	10+	11+	11+	9+
46-53	Raw Data (biosamples)	11+	Auto	—	—	Auto
54-56	Records (paper)	—	—	—	—	11+
61-66	Records (data)	—	—	—	—	11+

9e. Novelties

D66	Trade Good	Cor	Fra	Exp	Rad	Per
11	New Natural Resources	10+	—	11+	10+	12+
12	New Processed Resources	—	—	11+	—	—
13-14	New Manufactured Goods	10+	7+	11+	—	—
15-16	New Information	—	—	—	—	Auto
21-26	Natural Curiosities	12+	9+	12+	12+	—
31-36	Handmade Artifacts	—	6+	—	—	—
41-46	Living Creatures	12+	Auto	—	—	Auto
51-56	Starving Artist Reproductions	—	—	—	—	—
61-66	Counterfeit Knock-Offs	—	—	—	—	—

PURCHASE COST OF CARGO

1. Cargo Cost

Cargo cost is the amount of money that a shipment is sold to the speculator or starship captain for.

Start with base cost of Cr4000 per ton.

3. Starport Cost Modifiers

The type of starport involved in the transaction influences the cost of the goods.

Consult the Starport Effects table using the sourceworld starport type.

STARPORT EFFECTS

Starport	Cost Modifier
A	-1000
B	+1000
C	+1000
D	+2000
E	+3000
X	+5000

Add sourceworld's starport cost modifier to base cost.

2. Trade Cost Modifiers

Trade cost modifiers are determined from the sourceworld characteristics.

TRADE COST MODIFIERS

Code	Trade Class	Cost Mod
—	No Class	0
Ag	Agricultural	-1000
As	Asteroid Belt	-1000
Ba	Barren World	+1000
De	Desert World	+1000
Fl	Fluid Oceans	+1000
Hi	High Population	-1000
Ic	Ice-Capped	0
In	Industrial	-1000
Lo	Low Population	+1000
Na	Nonagricultural	+1000
Ni	Nonindustrial	+1000
Po	Poor	-1000
Ri	Rich	+1000
Va	Vacuum World	+1000
Wa	Water World	0

If As, ignore the effects of Va.

Total all modifiers and add to base cost.

Tech Level Modifier: Multiply sourceworld's tech level by Cr100 and add to base cost.

4. Delivery

Normal delivery to the ship is four days. Add 10% to the final cost for each day of advance delivery to the ship.

For example, instant (same day) delivery costs 40% extra.

SALE PRICE OF CARGO

1. Cargo Price

Cargo price is the amount of money that a buyer is expected (on the average) to pay for goods when delivered at a world. Cargo price is applied to the Actual Value table (page 240) to determine the final price for which the goods are actually sold.

Start with a base price of Cr5000.

3. Tech Level Effects

Subtract destination world tech level from sourceworld tech level and multiply by 10%. This value may be a positive or a negative number. Multiply this value by the adjusted price.

2. Cargo Price Modifiers

Total all intersections between sourceworld and destination world codes and multiply by Cr1000. Add to base price.

Source Code	CARGO PRICE														
	Destination Code														
—	Ag	As	Ba	De	Fl	Hi	In	Lo	Na	Ni	Po	Ri	Va	Wa	
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Ag	—	+1	+1	—	+1	—	+1	+1	+1	—	—	+1	—	—	
As	—	—	+1	—	—	—	+1	—	+1	—	—	+1	+1	—	
Ba	—	+1	—	—	—	—	+1	—	—	—	—	—	—	—	
De	—	—	—	+1	—	—	—	—	+1	—	—	—	—	—	
Fl	—	—	—	—	+1	—	+1	—	—	—	—	—	—	—	
Hi	—	—	—	—	—	+1	—	+1	—	—	—	+1	—	—	
Ic	—	—	—	—	—	—	+1	—	—	—	—	—	—	—	
In	—	+1	+1	—	+1	+1	+1	—	—	+1	+1	+1	+1	+1	
Lo	—	—	—	—	—	—	+1	—	—	—	—	+1	—	—	
Na	—	—	+1	—	+1	—	—	—	—	—	—	—	+1	—	
Ni	—	—	—	—	—	—	+1	—	—	-1	—	—	—	—	
Po	—	—	—	—	—	—	—	—	—	—	-1	—	—	—	
Ri	—	+1	—	—	+1	—	+1	—	+1	—	—	+1	—	—	
Va	—	—	+1	—	—	—	+1	—	—	—	—	—	+1	—	
Wa	—	—	—	—	—	—	+1	—	—	—	—	+1	—	+1	

If the destination world is Ba, goods may not be sold. If the sourceworld is As, ignore its Va classification.

4. Brokers

One character may act as broker if he has Marketing skill. He applies his skill to the transaction as a DM (equal to half of the Marketing skill, not asset) on the Actual Value table in step 7, and receives 2.5% (per skill level applied) of the final market price (of which half of that is spent as expenses for the transaction).

A broker may be hired at a starport to assist in the transaction.

BROKERS AVAILABLE

Starport	Broker Available
A	Marketing 6 or less
B	Marketing 4 or less
C	Marketing 2 or less
D	Marketing 1

A broker receives 2.5% (x.025) of the final market price for each level of skill he applies to the Actual Value table.

6. Bribery

Characters may attempt bribery to gain a special merchant kickback. The base amount of the bribe should be Cr1000, but the referee may adjust this up or down based upon the value of the cargo, the local law level, and modifications to the task difficulty. (Higher bribes lower the difficulty level.)

Make a Difficult (but modified as noted above) task roll using Bribery. Success allows a +1 modification to the table; Outstanding Success allows a +3 modification. Failure results in no modification, and Catastrophic Failure results in possible arrest or fine (and at the very least loss of the bribe).

5. Alien Trade Effects

When a cargo has an alien source, there may be an effect on the price. Determine the source of the goods (locally manufactured unless otherwise noted) and the market for the goods. Consult the Alien Trade Effects table and apply any price alteration to the calculated price of the goods.

ALIEN TRADE EFFECTS

Buying Race	Selling Race							
	Aslan	Droyne	Hiver	Former Imperial	K'kree	Solomani	Vargr	Zhodani
Aslan	—	—	—	—	-2000	—	+1000	—
Droyne	—	—	—	—	—	—	—	+2000
Hiver	+1000	—	—	-1000	—	—	—	—
Form. Imp.	—	—	—	—	—	—	—	-1000
K'kree	—	—	—	—	—	—	-2000	—
Solomani	—	—	+1000	-1000	—	—	—	—
Vargr	—	—	—	—	-4000	—	—	—
Zhodani	+1000	+1000	—	-1000	—	—	—	—

This table indicates the effects of local taste, prejudice, and novelty in the evaluation of goods by a market. For example, Zhodani goods are generally poorly received in former Imperial (Regency) markets and well-received in Droyne markets.

7. Actual Value

The actual value of a cargo (and thus the final market price paid for it) is determined only at the moment of sale using the Actual Value table.

ACTUAL VALUE

Die	Percentage
2	40%
3	50%
4	70%
5	80%
6	90%
7	100%
8	110%
9	120%
10	130%
11	130%
12	170%
13	200%
14	300%
15	400%

Results of less than 2 are treated as 2; results of more than 15 are treated as 15.

DMs: +one-half Marketing skill (not asset; round down). Maximum DM is +4.

If the players rolled one die in advance (allowed for Bargaining skill), remember to use the prior roll on this table.

Once goods are offered for sale and the Actual Value table is consulted, the goods must be sold at the price indicated. A sale may be stopped at any point before the final die is rolled on the table. If a sale is stopped, another sale cannot be attempted on the current world in the current week.

PSIONICS

See *Traveller®: The New Era*, pages 245-258, for full discussion.

PSIONIC SKILLS CLUSTER

Telepathy (cascade) (PSI)	Teleportation (PSI)
Telempathy	Self (cascade) (PSI)
Project Emotion	Suspended Animation
Project Thought	Orientation
Willpower Drain	Psionically Enhanced Strength
Life Detection	Psionically Enhanced Constitution
Shield	Regeneration
Probe	Arcana sub-cluster
Assault	Computer Empathy (PSI)
Teleperception (cascade) (PSI)	Psionic Healing (PSI)
Sense	Prescience (PSI)
Clairvoyance	
Clairaudience	
Telephysics (cascade) (PSI)	
Cryokinesis	
Pyrokinesis	
Telekinesis	

PSIONIC TALENTS

Psionic Talents	Required Roll
Telepathy	5+
Teleperception	6+
Telephysics	6+
Self	7+
Teleportation	9+
Arcana	9+

Roll 2D6 for each talent to achieve ability in that area. Player may roll for talents in any order desired. Die modifiers are applied to each roll as follows:

Roll	DM
First roll	-1
Second roll	-2
Third roll	-3
Fourth roll	-4
Fifth roll	-5
Sixth roll	-6

COMBAT

See *Traveller®: The New Era*, pages 263-310, for full discussion.

SMALL ARMS SKILLS

Skill	Weapons
SW (Slug Pistol)	Revolvers, automatic pistols, snub pistols, submachineguns
SW (Slug Rifle)	Carbine, rifle, automatic rifle, assault rifle, ACR, gauss rifle, accelerator rifle, submachineguns, shotguns
EW (Energy Pistol)	Laser pistols
EW (Energy Rifle)	Laser rifles and carbines, plasma and fusion rifles
Early Firearms	Crossbows, muskets, arquebus, all black-powder firearms
Archery	Short, long, and composite bows

DIRECT FIRE HEAVY WEAPONS SKILLS

Skill	Weapons
Autogun	Automatic cannon or grenade launcher, machinegun, VRF gauss gun
Heavy Gun	Large-caliber direct fire guns including mass drivers
Energy Artillery	Carriage- and vehicle-mounted plasma guns, fusion guns, and lasers
Grenade Launcher	Nonautomatic grenade launchers and unguided antiarmor rockets
Tac Missile	Guided tactical missile launcher

DEMOLITIONS

DP	Concussion/Penetration*
1	3
2	4
3	6
4	7
5	8
7	9
8	10
9	11
11	12
13	13
15	14
18	15
32	20
50	25
72	30
96	35
128	40
162	45
200	50

*Penetration value is modified by emplacement. *Tamped*: Pen×2. *Laying on or Leaning Against*: Pen+2.

DP: Demolition Points

To figure amounts not on this table,
 $C = 5(\sqrt{DP+2})$
 $DP = 2[(C+5)^2]$

C: Concussion
 DP: Demolition Points
 See TNE, page 303.

INDIRECT FIRE WEAPONS SKILLS

Skill	Weapon
Grenade Launcher	All grenade launchers and mortars
Energy Artillery	Battlefield meson guns
Heavy Artillery	All indirect fire field guns, howitzers, mortars, mass drivers, and rocket launchers
Archaic Artillery	Black-powder cannon, catapults, bombards, etc.
Gunnery (cascade)	Starship-mounted weapons

RDM DENSITY

Type	Density	Dimensions of Mined Area
RDAAM	0.01	250m (25 squares) by 250m
RDADM	0.04	250m (25 squares) by 250m

Remote-delivered mines. See TNE, page 305.

ATMOSPHERIC ADJUSTMENTS TO WEAPONS PERFORMANCE

Atmosphere	Weapons Effects
Vacuum, Trace	Use short range penetration at all ranges
Very Thin	Use penetration from one range band closer
Thin, Standard, Dense	Use normal values
Exotic, Corrosive, Insidious	Use penetration from one range band farther, but no effect at short range

This table applies to slug weapons and plasma/fusion weapons only. Lasers have their own adjustments listed with them. Use listed range to determine to-hit tasks, use table to find range band to use for penetration and damage performance. See TNE, page 308.

ATMOSPHERIC MAINTENANCE POINT ADJUSTMENTS

Atmosphere	Maintenance Multiplier	
	Unsealed Hull	Sealed Hull
Exotic	1.5	Unmodified
Corrosive	2	1.5
Insidious	4	2

Modification to maintenance points to equipment/vehicles in these atmospheres. See TNE, page 309.

ENCOUNTER RANGES

Terrain	Range
Open	1D10×300m
Hill	1D10×100m
Swamp	1D10×30m
Woods	1D10×10m

Range at which PC group notices other group. In poor weather, divide ranges by 2. In very poor weather, divide by 4. At night, divide encounter ranges by 3 times the background light level, then adjust them for weather. Encounter ranges are never adjusted in woods. See page 2 of this booklet and/or TNE, page 310.

BOAT/WATER NAVIGATION HAZARDS

D6	Result
1	Boat aground. 10 miles travel lost pulling it off.
2	Boat aground. One full travel period lost pulling it off.
3	Screw or rudder damaged. Speed halved until repaired.
4	Hull damaged. 1D6+3 flotation hits.
5	Hull damaged. 1D6+2 flotation hits.
6	Hull crushed. Vessel is grounded to avoid sinking. Cannot be refloated unless a large work crew and vessel are brought to the site.

See TNE, page 293.

COMMON TASK SUMMARY

Unarmed Melee

Attack Type	Difficulty	Asset	Effect
Hand Strike	Difficult	Unarmed Martial Arts	Damage UCDR*
Kick	Difficult	Unarmed Martial Arts	Damage UCDR* \times 1.5
Block	Formidable	Unarmed Martial Arts	Avoid Strike/Lose Action
Aimed Strike	Formidable	Unarmed Martial Arts	Damage Chosen Location
Leaping Kick	Difficult	Agility**	Damage $2 \times$ Atkr's CON
Avoid Leaping Kick	Difficult	Agility**	Avoid Attack/Lose Action
Grapple	Average	Agility**	Controlling "Hits" UCDR*
Grapple Escape	Average	Agility**	Remove Controlling "Hits" UCDR*
Strangling	Average	Agility**	Damage UCDR*
Strangle Block	Average	Agility**	Avoid Attack/Lose Action
Combat Throw	Formidable	Unarmed Martial Arts	Damage $2 \times$ Defender's CON
Limit Throw Damage	Difficult	Agility**	Damage $\times 1/2$
Diving Blow	Auto if not avoided		([Atkr's CON \times 2]+1D6) - (Dfndr's STR+CON)
Avoid Diving Blow	Average	Agility**	Avoid Diving Blow

*UCDR = character's unarmed combat damage rating

**Plus Acrobatics skill, if any

Armed Melee

Attack Type	Difficulty	Asset	Effect
Attack	Difficult	Armed Martial Arts*	Damage by Weapon
Block	Formidable	Armed Martial Arts**	Avoid Strike/Lose Action
Aimed Attack	Formidable	Armed Martial Arts*	Damage Chosen Location

*Some weapons have die modifiers.

**Must have object to block with.

Thrown Weapon

Attack Type	Difficulty	Asset	Effect
Throw	Difficult	Thrown	Weapon Damage STR+1D6*
Throw, Long Range	Formidable	Thrown Weapon	Damage STR+1D6*

*For most objects. Throwing knife is always 1D6; grenades do explosive damage

Direct Fire Combat

Attack Type	Difficulty	Asset	Effect
Aimed Fire, Short Range	Average	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Medium Range	Difficult	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Long Range	Formidable	Appropriate to Weapon	Damage by Weapon
Aimed Fire, Extreme Range	Impossible	Appropriate to Weapon	Damage by Weapon
Quick Fire (any range)*	+1 Level*	Appropriate to Weapon	Damage by Weapon
Fire, Target Obscured	+1 Level	Appropriate to Weapon	Damage by Weapon
Fire, Automatic	Impossible**	Appropriate to Weapon**	Damage by Weapon

*Modify difficulty level based on Aimed Fire, not possible at Extreme Range

**See Automatic Fire rules (TNE rulebook, page 276)

Indirect Fire Combat

Attack Type	Difficulty	Asset	Effect
Conventional	Formidable	Forward Observer*	Explosive Damage
Hand-Held	Impossible	Grenade Launcher*	Explosive Damage

*Or appropriate weapon asset of the firing character, whichever is lower. Bonuses for repeated fire.

Task Difficulty Levels

Difficulty	Asset
Easy	$\times 4$
Average	$\times 2$
Difficult	$\times 1$
Formidable	$\times 1/2$
Impossible	$\times 1/4$

Fatigue Effects on Fire

Range	Additions to Die Roll per Fatigue Level
Short	3
Medium	2
Long	1
Extreme	1

Note: see page one of charts and table booklet

TRAVELLER Referee's Screen

What's the maximum to-hit number when calling in orbital artillery fire?
While you're at it, what's the initiative of a Veteran NPC?
And what's the trotting movement rate of a K'kree?
Oh yeah, and how many power level points do you need for a stage 5 psionic success?*

A referee has to process a lot of information really fast in order to stay ahead of a group of players bent on conquering the universe. How fast is this? How far is that? How difficult is the other thing? And now that so many players have the **Traveller Players' Forms**, enabling them to keep even more hare-br—I mean, devious schemes at their fingertips, a referee could get in over his head real fast...

Okay, we've modified the air raft so it looks like a giant grasshopper, and my character is hanging upside down from a rope ladder beneath it with his laser rifle at the ready, he's wearing his IR goggles, and he has a bag full of concussion grenades. What he's going to do is...

Face it, it's tough to stay ahead of your players, but we're here to help. The TNE Referee's Screen is six colorful panels including four packed with the data and tables you need, and all of the **Traveller** fire charts. •Three of these panels are for the referee, while one faces the players and shows the most common combat tasks, with difficulty levels, damage, and fatigue penalties. •Also for the referee, a 16 page booklet collecting the most important tables from **Traveller: The New Era** into a handy, easy-to-use resource. Just think—if you can keep the important travel, combat, and task information before your eyes at all times, that's that much more time you have to keep your adventures fresh, challenging, and, well, player-proof.

All right, we've got our rifles disguised as fumigators, and we're all in mouse suits. We knock on the office door and tell him we're from the extermination company, and then start yelling, "Mouse! Mouse! Mouse!" to confuse him. While he's on the phone trying to figure it out, we're into his file cabinets...

The other good thing about a ref's screen is that it gives you something to hide behind while you collect your thoughts and pretend to roll dice. Behind this cardboard bulwark you still reign supreme. Flip through the 16 page charts book. Bluff. Stall for time. Look confident. You will emerge refreshed, and with the answers you need to keep your adventure from bogging down in unexpected traps. But the players might not like this new weapon in your arsenal, so we've included something for them:

•A set of character generation player aids cards. These distill the important skill lists and career entry requirements from **Traveller: The New Era** onto two double-sided cards, and make it easier for a group of players having to share a book.

What do you mean that's not enough?

Okay, we've also included an eight-page New Era adventure introducing a pocket empire: the Covenant of Sufren. And if there's one thing the people of the Covenant have learned, it's this: Once you've met Virus, grasshoppers and mice don't scare you anymore.

All right, you referees. Strap up, take charge, and show your players a universe worth getting worked up about. New eras don't get started every day.

Traveller Referee's Screen:
Because refereeing is tough
enough even when you do
have all the answers.



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*The answers, by the way, are: 16, 4, 30, 37, people in Diaspora aren't afraid of grasshoppers, and sorry, they don't sell mouse suits on this planet.

Science Fiction Roleplaying Game
TRAVELLER
The New Era

0307

TRAVELLER Referee's Screen



Sufren Confederation Scout
Gregory Fontenot in the
asteroid belt at Gamov.

Terrain Effects on Movement

Unit	Open	Wood	Swamp	Hill	Mountain	Snow	Water
Humans	N	N	N	1/2	1/4	x1/2	—
Animals	N	N	1/2	1/2	1/4	x1/2	—
Vehicles	N	1/2	1/4	1/2	1/6	x1/2	—
Hovercraft	1/2	1/2	N	1/2	—	N	N
Boats	—	—	1/2	—	—	—	N

N: Normal
—: Prohibited. Rates for snow are multiplied by other prevailing terrain.

Personal Hit Location

Die	Biped	Multipled
1	Head	Head
2	Right arm	Forequarter
3	Left arm	Forequarter
4	Chest	Forequarter
5	Abdomen	Chest
6	Abdomen	Chest
7	Right leg	Abdomen
8	Right leg	Hindquarter
9	Left leg	Hindquarter
10	Left leg	Hindquarter

Biped: Table assumes front/rear shot.
Side Shot: Far side hit equals near side hit.
Prone Biped: Table assumes top shot.
Side Shot: Far side hit equals near side hit.
Front Shot: Leg or abdomen hit equals miss.
Rear Shot: Head, arm, or chest shot equals miss.
Multipled: Table assumes side shot.
Front Shot: Hindquarters or abdomen hit equals miss.
Rear Shot: Head or forequarters hit equals miss.

Shotgun and Flechette Characteristics

Type of Round	Maximum Range	Danger Zone Begins
Shotgun Buckshot	Medium	Medium
Small Arms Flechette	Long	Medium

Automatic Fire Range Attenuation and Recoil Penalties

Burst Size (rounds)	Dice lost per range band beyond Short	Dice lost per point of extra recoil
3	1	1
5	2	1
10	3	2

NPC Stats

Level	Initiative	Attributes	Asset	Damage
Elite	5	8	15	5
Veteran	4	7	13	4
Experienced	3	6	11	3
Novice	1	6	9	1

Travel Movement

Unit	Move (in km per 4-hour period)
Human	20/20
Horse	20/20
Mule	20/20
Wagon/horse (or equivalent)	20/5
Wagon/ox (or equivalent)	10/5
Very small open boat	4/4
Small sailing boat	8/8
Small motorboat	16/16
Medium motorboat	12/12

For vehicle movement rates, see the charts booklet

Combat Movement Rates (in Meters per 5-second Turn)

Race	Crawl	Walk	Trot	Run
Human	2	10	20	30
Vargr	2	10	20	30
Aslan	2	10	20	30*
Hivers	2	10	20	—
Droyne	2	10	20	30
K'kree	—	10	30	60

*May sprint at 60 one out every six turns.
"—" indicates that this rate is not available for this race.

Psionic Base Difficulty Levels

Situation/Task	Difficulty
Relaxed Environment	Average
Normal Stress	Difficult
Great Stress, Combat	Formidable
Incredible Stress	Impossible

Stages of Psionic Success

Power Level	Stage
0 or less	No Effect
1-9	Basic Success
10-18	Stage Two
19-27	Stage Three
28-36	Stage Four
37-45	Stage Five
46-54	Stage Six
55 or more	Stage Seven

Power Level = Psion's PSI Attribute + Skill Level + 1D10 - (Target's Willpower Skill Level + INT)

If Outstanding Success, final power level is doubled.

Telepathy Stage of Success Reductions

Description	Stages of Success Lost
Non-intelligent animal	1
Separate evolutionary path	1*
Very alien evolution	2*

*One or the other only, not cumulative

Indirect Fire Deviation

Type of Weapon	Deviation multiplier (meters)	Maximum To-Hit Number	Max. Dev. and Con. Reduction
Grenade launcher, rifle grenade	5	10	3
Mortars, guns, howitzers, mass drivers, meson guns	10	14	5
Artillery rockets	20	14	5
Orbital fire	20	16	7

Grenade Deviation

Range	Deviation
Effective	x1 meter
Long	x2 meters

Submunitions Attack Table

Round	Close	Adjacent	Concussion	Burst	Pen
Light Arty HE	1-3	1-2	3	15	Nil
Light Arty DP	1-3	1-2	3	15	4C
Med Arty HE	1-4	1-3	3	15	Nil
Med Arty DP	1-4	1-3	3	15	4C
Hvy Arty DP	1-5	1-4	3	15	4C

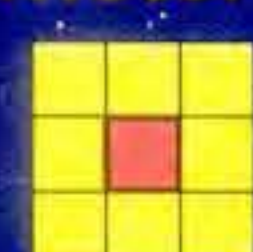
Submunitions Direct Hit Chance: Personnel, 1; Vehicle, 1-5 on 1D10
Guided Submunitions Direct Hit Chance: Personnel, 1-3 or Vehicle 1-7 on 1D10.

SAMPLE BURST DIAGRAMS (Ten-Meter Grid)

■ Primary

■ Secondary

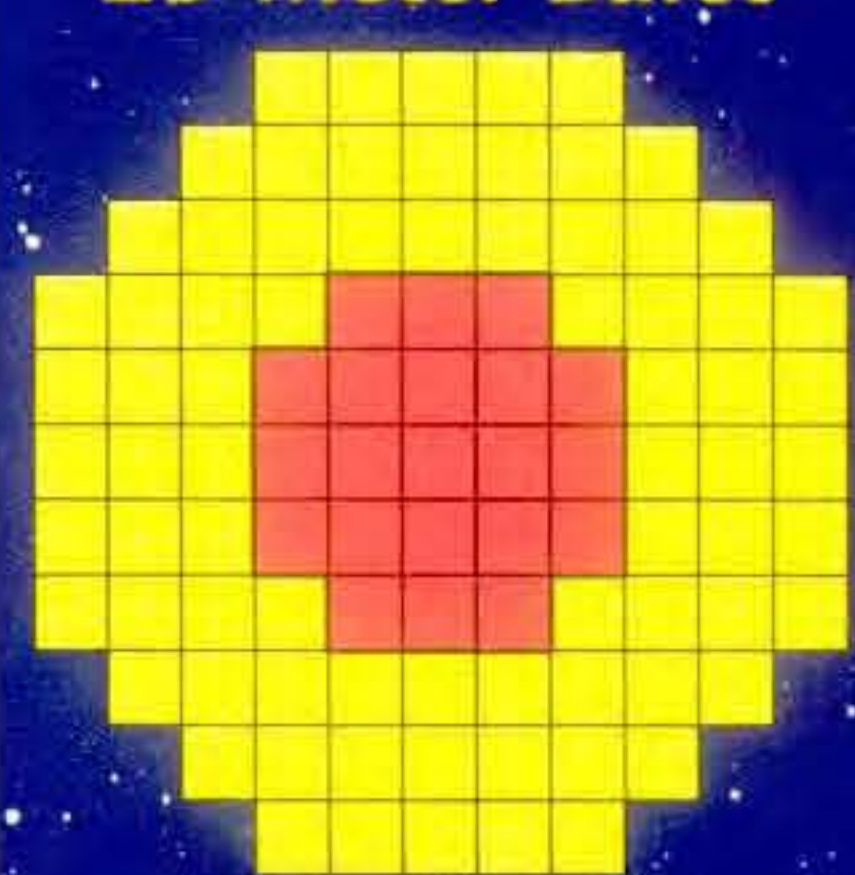
Five-Meter Burst



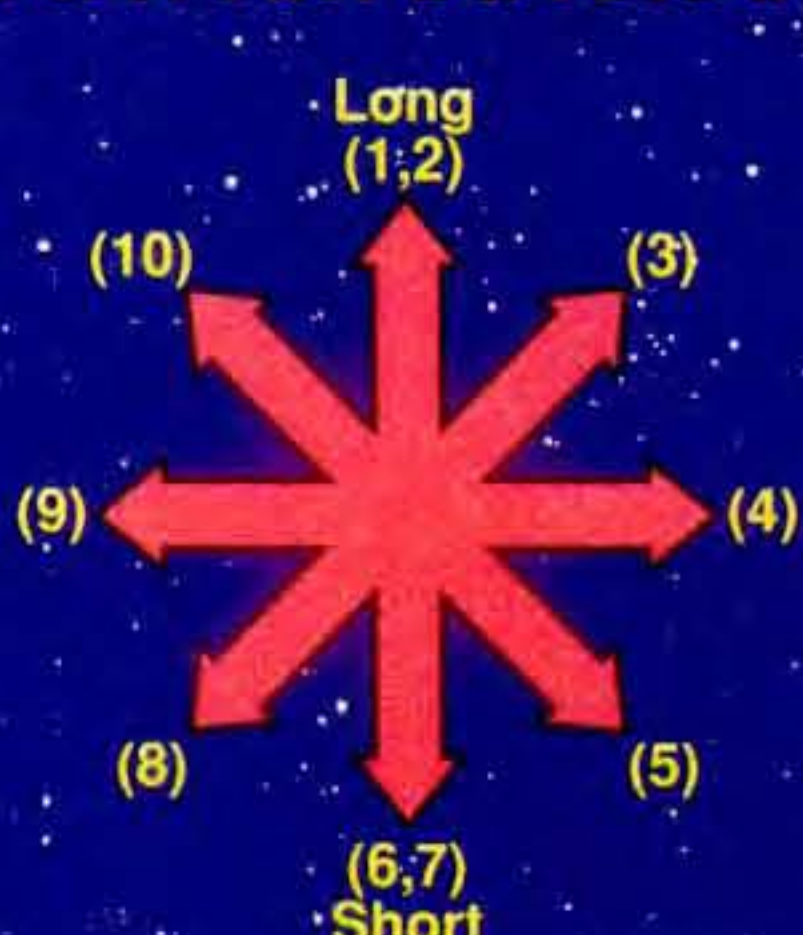
15-Meter Burst



25-Meter Burst



SCATTER DIAGRAM



Fragmentation Attack Table

Burst Radius	Range	1D6 hits	1 hit	No hits	Dam	Pen
Primary	1 x Burst	1-3	4-6	7-10	2D6	1
Secondary	2 x Burst	1-2	3-4	5-10	1D6	Nil

Spotting Modifiers

Visibility Conditions	Difficulty	Modifier Notes
Night	+1 to +3*	Applies to unaided eyes, image intensifiers (at -2, min 0), and light amplifiers (at -2, min 0)
Poor Weather	+1	Does not apply to thermal viewers
Very Poor Weather	+2	Affects all vision aids
Smoke	+1 or more	Affects all vision aids
Target moving	-1	Applies to all
Each halving of Short Range	-1	Applies to all

*Diff mod is equal to the background light level.

Target and Spotting Size Table

Size	Displacement		To-hit Diff Mod	Spotting Diff Mod
	(tons)	(cubic meters)		
Sub-Micro (SM)	0-1	0-13	—	+2
Micro (Mc)	1-9	14-139	—	+1
Very Small (VS)	10-99	140-1399	-1	—
Small (S)	100-999	1400-13,999	-2	-1
Medium (M)	1000-9999	14,000-139,999	-3	-2
Large (L)	10,000-99,999	140,000-1,399,999	-4	-3
Very Large (VL)	100,000-999,999	1,400,000-13,999,999	-5	-4
Gigantic (G)	1,000,000+	14,000,000+	-6	-5

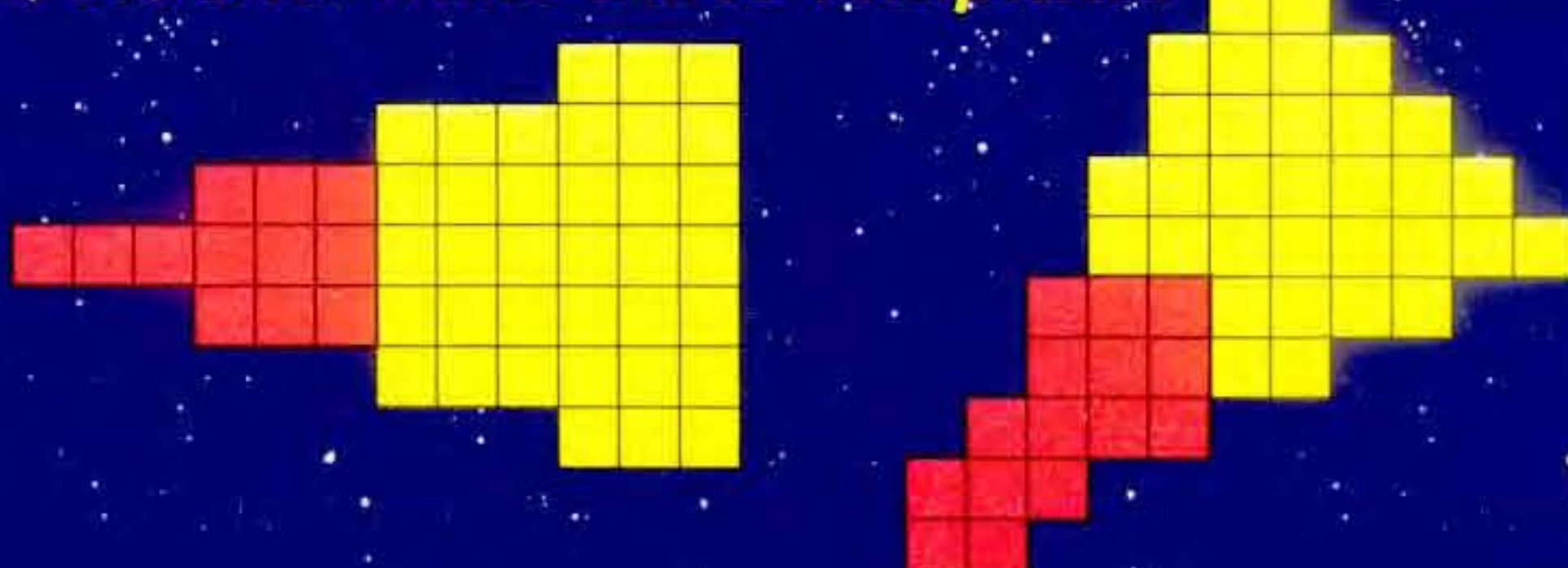
Target Movement Difficulty Modifiers

Speed in meters/turn	kph	Diff Mod
30-59	22-42	+1
60-119	43-85	+2
120-239	86-171	+3
240-479	172-343	+4
480-959	344-687	+5
960-1919	688-1375	+6
1920-3839	1376-2751	+7
3840-7679	2752-5503	+8
7680+	5504+	+9

Spotting Task Short Ranges

Vision Device	Short Range
Unaided eyes	1000 meters
IR Goggles	100 meters
LA Goggles	100 meters
Image Intensifier	250 meters
Thermal Viewer	400 meters

Directional Mine Burst Templates



Burn Damage Table

Source	Damage
White Phosphorus	2D6
Thermite	2D6
Fuel	1D6
Structure/grass fire	1D6
Plasma/fusion gun debris	2D6

All damage dice are per second, except for structure/grass fire, which is per turn.

Armor Equivalency Table

Material	Toughness	Centimeters per armor value of 1
Coherent Superdense	40	0.025
Bonded Superdense	28	0.035
Superdense	14	0.07
Crystaliron	8	0.125
Composite Laminates	6	0.167
Light Composites	4	0.25
Armor Plate	2	0.5
Sheet Steel, Light Alloy	1.7	0.6
Reinforced Concrete	0.4	2.5
Concrete and Bricks	0.3	3.3
Stone, Packed Dirt, Wood	0.2	5
Loose Dirt, Sand	0.04	25

Vehicle Hit Location

Die	Vehicle	Vessel	Aircraft
1	Hull	Hull	Wing
2	Hull	Hull	Wing
3	Hull	Hull	Wing
4	Small Turret	Superstructure	Hull
5	Turret	Superstructure	Hull
6	Suspension	Waterline	Hull
7	Suspension	Waterline	Hull

+1 to die roll for side shots
Suspension Damage: Minor damage cuts speed in half; major damage immobilizes. Two minor damage results equal major damage.

Water Vessel Damage

Waterline		Hull		Superstructure	
Die	Minor Result	Die	Minor Result	Die	Minor Result
1	Waterline hull	1	1 crewmember	1	1 crewmember
2	Waterline hull	2	1 crewmember	2	Radio/radar
3	Waterline hull	3	Auxiliary mach.	3	Sight/vision
4	Waterline hull	4	Auxiliary mach.	4	Secondary
5	Cargo	5	Secondary	5	Secondary
6	Major waterline	6	Major hull	6	Major s'tructure

Die	Major Result	Die	Major Result	Die	Major Result
1	2 crewmembers	1	Main armament	1	2 crewmembers
2	Rudder/screw	2	Main armament	2	2 crewmembers
3	Engine	3	2 crewmembers	3	Fire
4	Fuel	4	2 crewmembers	4	Fire
5	Ammo	5	Ammo	5	Ammo
6	Minor hull	6	Fire	6	Major hull

Vehicle Damage Resolution

FPV-AV	Result
0 or less	No effect
1-10	1 minor damage
11-20	2 minor damage
21-40	1 major damage
41-60	2 major damage
61+	3 major damage

FPV = Final penetration value of weapon
AV = Armor value of target

Vehicle Damage

Turret		Hull	
Die	Minor Result	Die	Minor Result
1	1 crewmember/loader*†	1	1 crewmember
2	1 crewmember/sensor†	2	Loader*
3	Sensor	3	2 passengers**
4	Traverse	4	2 passengers**
5	Secondary	5	Radio
6	Major turret	6	Major hull

Die	Major Result	Die	Major Result
1	2 crewmember/main arm.†	1	Engine
2	2 crewmember/main arm.†	2	Engine
3	Main armament	3	Fuel
4	Main armament	4	Fuel
5	Ammo	5	Ammo
6	Minor hull	6	Ammo

Aircraft Damage

Hull		Wing	
Die	Minor Result	Die	Minor Result
1	1 crewmember	1	No effect
2	Controls	2	No effect
3	Controls	3	Controls
4	2 passengers**	4	Controls
5	Radio	5	Controls
6	Major hull	6	Major wing

Die	Major Result	Die	Major Result
1	Engine	1	Controls
2	Engine	2	Fuel
3	Instruments	3	Fuel
4	Instruments	4	Fuel
5	Weapon/ammunition	5	Fuel
6	Minor wing	6	Fireball

*Loader is either a hit on the auto-loader mechanism or the actual crewmember loading the gun. This becomes a driver hit if neither are present.
**2 passengers becomes a 1 crewmember hit if this is not a passenger-carrying vehicle. If it is a passenger-carrying vehicle but no passengers are present, the hit has no effect. Cargo destroyed may be substituted for this result at the referee's discretion.
†† turret is an unmanned remote turret, use the result after the slash.