STRIKER

Rules for 15mm Traveller Miniatures
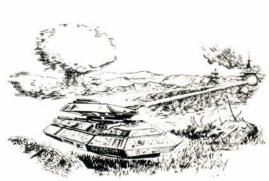
2

STRIKER

Rules for 15mm Traveller Miniatures

A Complete Adventure Game of Rules for Miniatures from Game Designers' Workshop

The Universe of *Traveller* — Communication is limited to the speed of courier ships. Remote central governments exercise only limited control over the affairs of their frontier territories. Megacorporations struggle for control of sparsely settled mineral-rich worlds. And everywhere, there are mercenaries for hire to settle disputes.

Striker fills an important place in the *Traveller* universe — rules for ground combat with 15mm figures and vehicles.

The basic combat system used in **Striker** is based on the popular *Azhanti High Lightning* game system. The movement system is simplified for use with larger forces and a ground scale of 1"=25 meters. The basic rules are written with the beginning miniatures player in mind and can easily be used as a combat resolution system for existing *Traveller* games. All weapons and vehicles covered in *Traveller* and *Mercenary* (Book 4) are rated for use in the game.

The true value of **Striker**, however, lies with the advanced rules. A complete system for designing armored vehicles and aircraft at different tech levels is presented, along with air-to-air and air-to-ground combat rules. The package contains everything a *Traveller* adventurer needs for campaigning with miniatures.

This box contains the following game components:

Book 1 — Basic Rules
Book 2 — Equipment
Book 3 — Advanced Rules
2 Dice

15mm figures and vehicles are available separately

Design: Frank Chadwick
Development: John Harshman
Art Director: Paul R. Banner

Game Designers' Workshop

P.O. Box **1646**, Bloomington, Illinois **61701**

This page is intentionally blank.

Rule Book 2
Advanced Rules

STRIKER

Rules for 15mm
Traveller Miniatures

Game Designers´ Workshop

ROLE-PLAYING

FFE

GAMES

This page is intentionally blank.

Rule Book 2
Advanced Rules

STRIKER
Rules for 15mm
Traveller Miniatures

Game Designers' Workshop

Striker is a set of 15mm miniatures rules designed for use with **Traveller**, but capable of being played separately. It is not necessary to own **Traveller** in order to play *Striker*.

STRIKER
Book 2, Advanced Rules

2 3 4 5 6 7 8 9 10 11 12 13 14 15

Although this game (as represented in Books 1, 2, and 3) envisions
a referee or umpire to supervise play and resolve questions,
the publisher is prepared to answer questions or inquiries
on *Striker* provided a stamped, self-addressed envelope
accompanies the request.

Traveller is GDW's trademark for its science fiction
role-playing game materials.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

Introduction

Book 2 of *Striker* is divided into four sections.

Advanced Rules: It is strongly advised that referee and players incorporate the advanced rules into the game as soon as they have mastered the basic rules. Not all the advanced rules will be used in every game but each advanced rule considers an important aspect of future warfare.

Optional Rules: The optional rules are, for various reasons, less strongly advised for inclusion than the advanced rules. Some of the optional rules suggest changes to basic game procedures; others are used over a very limited range of tech levels; others cover circumstances which occur too rarely to warrant treatment in the basic or advanced rules.

Campaign Rules: These rules introduce considerations important only outside the context of a single battle and provide information to aid in setting up an extended campaign.

Integration with Traveller: These rules provide information specific to the universe of **Traveller** and aid in integrating *Striker* battles into a continuing **Traveller** campaign.

SECTION I: ADVANCED RULES

Rule 34: Meson Accelerators

Battlefield meson accelerators are introduced at tech level 15. Although technically a direct fire weapon (the beam travels in a straight line), a meson gun's ability to fire through intervening obstacles and the need to know the distance to target makes it functionally an indirect fire weapon.

Meson accelerators follow the same rules as other indirect fire weapons with the following exceptions.

A. Fire Missions: Each meson accelerator is given a separate fire mission order. Because the meson beam travels at nearly the speed of light, meson accelrators suffer no delay for flight time (although they do suffer delays resulting from crew quality). The firing sheaf is a circle centered on the MPI (after deviation), with a radius equal to the weapon's burst size. For example, if a weapon had a burst size of 10 cm, every unit within 10 cm of the MPI would be affected. A meson accelerator may fire with less than its stated burst size; if so, the fire mission order must state the new burst size.

B. Effects: All personnel within the burst area of a meson accelerator are killed; all vehicles and weapons are destroyed; all buildings collapse and any smooth ground surface becomes broken ground.

C. Spotting: Meson accelerators may not be spotted by counter battery radar; they may not be spotted during a fire phase, only in a movement phase.

Rule 35: Multiple Rocket Launchers

Multiple rocket launchers (MRLs) are available at tech level 6 and above, and form an important component of most forces' indirect fire capability. MRLs are treated the same as other indirect fire weapons with the following exceptions.

A. Rate of Fire: For an MRL, the rate of fire equals the number of launch tubes in the launcher. All tubes are fired at once, and the weapon may not fire again until it is reloaded. Reloading takes 20 game turns unless extra rockets are carried on the launch vehicle, in which case reloading takes only 10 game turns. If the launcher has less than a full crew, reloading time is doubled; if it has less than half a full crew, it may not be reloaded.

B. Firing Sheaf: The firing sheaf of a single launcher is always a normal sheaf. The firing sheaf of a unit is determined by combining the firing sheaves of the individual launchers. A converged sheaf may be obtained by superimposing the sheaves of two launchers.

C. Minimum Range and Direct Fire: MRLs may not fire direct fire, and may not fire at any unit closer than 30cm.

D. Point Defense: Because MRLs fire all of their rounds in a very short space of time, and may thus overload enemy point defense weapons, divide the number of rounds destroyed by 2 (rounding fractions up) when point defense weapons fire at MRL rounds.

E. Remote Launchers: Properly equipped MRL units may be aimed and fired by communicator signal, and are termed remote launchers. Remote launchers are disposable, and cannot be reloaded once fired. Only one gunner is needed to fire any number of remote MRLs; one gunner may fire only one fire mission per turn. He must have the proper control equipment, and must be in communication with both the MRL and the unit's fire direction center (generally, he will be stationed at the fire direction center).

Rule 36: Point Defense

Point defense weapons are designed to protect a friendly unit from hostile fire by engaging and destroying incoming enemy missiles and artillery rounds. This is generally accomplished by the use of a fairly small energy weapon (although a variety of rapid fire weapons will do, from auto cannons to heavy rapid-pulse fusion guns), linked to a sophisticated computerized target acquisition and fire control system. The equipment lists in Book 3 provide the pertinent data for point defense systems at various tech levels. The following rules apply to point defense weapons.

A. Missions: A point defense weapon system may be assigned one of three missions in any game turn. If the system has a high initiative crew, the player may freely choose the mission desired during the command phase. If it has an average initiative crew, the player must follow the order procedure to assign the weapon a mission, and may change the mission only by giving a new order. If it has a low initiative crew, the crew must be led to conduct any mission. The three possible missions are target fire, overwatch, and dedicated support. Because of the high accuracy required, ground vehicles mounting point defenses may not move if they are performing overwatch or dedicated support missions; grav vehicles are under no restrictions.

1. Target Fire: When committed to target fire, the point defense system may use its weapon to engage enemy units, in the same way as any other direct fire weapon. Because of its superior fire control system, it ignores the hit DM due to target speed when firing at vehicles in terrain following or high mode.

2. Overwatch: When committed to overwatch, the point defense system may engage any incoming enemy indirect fire rounds within its effective range and

attempt to shoot them down. It makes one attempt per turn, as outlined below.

3. Dedicated Support: When committed to dedicated support, the point defense weapon is locked onto a specific friendly vehicle or stand and will follow its movement. Any missiles, rockets, grenades, or indirect fire rounds aimed at the friendly unit or at any target within 10 cm of it may be engaged by the point defense weapon in an attempt to destroy them. The weapon makes one attack against indirect fire rounds per turn, and one attack against direct fire rounds per phase, as outlined below.

B. Point Defense Against Direct Fire: Point defense weapons may engage incoming direct fire rockets, missiles, and grenades. Two conditions are required; first, the range from the enemy unit firing to the target must be 15 cm or more; second, the point defense weapon must be able to see both the target and the last 15 cm of the round's trajectory. The weapon fires once per phase; the die roll to hit incoming rounds is the same as that for conventional direct fire at that range. Each hit destroys one round; if there are multiple hits, the player firing the point defense weapon decides which rounds are destroyed.

Example: A point defense system is dedicated to support a friendly grav tank. The enemy player fires a tac missile and two RAM grenades at the grav tank, all of which can be engaged by the point defense system. The point defense system is at effective range and has an auto fire DM of +4. The player rolls a 6 which is modified to 10, indicating two hits. The point defense player chooses to destroy the tac missile and one of the RAM grenades. The remaining RAM grenade is undamaged and may roll to hit the tank.

C. Point Defense Against Indirect Fire: Point defense weapons may engage incoming indirect fire rockets and artillery rounds. Artillery rounds are any rounds fired from a mortar, howitzer, gun, mass driver, or MRL.

1. Procedure: The value of a point defense weapon against indirect fire, listed in Book 3, is stated in terms of the number of dice it rolls; for instance, if its listing reads 3D, the weapon rolls three dice. In the friendly fire phase, each die is allocated against an enemy fire mission whose beaten zone lies at least partially within the weapon's effective range; several dice may be allocated against the same mission. Each die is rolled, and receives a DM (+ or -) equal to the difference in tech level between the point defense weapon and the artillery round; the modified roll of each die may not be reduced below zero. The sum of all dice allocated against the fire mission is the number of rounds destroyed. Because MRLs fire all their rounds in a very short space of time in order to overload enemy point defense weapons, divide the number of rounds destroyed by 2 (rounding fractions up) when firing at MRL rounds.

For example, a tech level 10 point defense weapon rolls 6 dice. In one turn, two enemy fire missions fall within its range: one tech level 10 mission and one tech level 15 mission. The weapon fires 2 dice at the first mission and 4 dice at the second. Against the first mission, each die receives a DM of +2; the player rolls 3 (+2) and 5 (+2), shooting down 12 rounds. Against the second mission, each die receives a DM of -3; the player rolls 1 (-3, but not below zero), 3 (-3), and 4 (-3), shooting down 3 rounds.

2. Effects: Point defense fire does not affect the size of an artillery mission's beaten zone; it affects the type of firing sheaf, changing it to a less concentrated type and thereby reducing its chance of hitting. A converged sheaf becomes a

normal sheaf if enough rounds are destroyed to reduce the total to less than twice that required for a normal sheaf of that size; a normal sheaf becomes a dispersed sheaf if the total is reduced to less than that required; a dispersed sheaf becomes a scattered sheaf if the total is reduced to less than half that required for a normal sheaf. Of course, if all its rounds are shot down, a fire mission has no effect.

For example, suppose a fire mission consists of 60 rounds fired in a converged sheaf; it has a beaten zone equal to that of a normal sheaf with 25 rounds. If 11 rounds are shot down, reducing the mission to 49 rounds, it is reduced to a normal sheaf. If 36 rounds are shot down, reducing the mission to 24 rounds, it is reduced to a dispersed sheaf. If 48 rounds are shot down, reducing the mission to 12 rounds, it is reduced to a scattered sheaf.

Rule 37: Tac Missile Launchers

No distinctions are drawn in Book 1 among types of tac missile launchers; this rule introduces four types, with differing capabilities: launch rails, package launchers, tube launchers, and magazine launchers.

A. Launch Rails: Launch rails are mounted only on vehicles. A rail holds one missile, and must be reloaded manually. It requires two movement phases (one friendly phase and one enemy phase) to load one missile; none of the vehicle's launch rails may be fired while a missile is being loaded, or in the first fire phase after a missile is loaded.

B. Package Launcher: A package launcher is a simple man-portable system that consists of the guidance package for the missile and the missile in a container. The missile container serves as a disposable launch tube. Once a missile is fired, the empty container is discarded and a new container may be linked to the guidance package. Linking a new container to the guidance package takes two movement phases.

C. Tube Launcher: A tube launcher is a reusable launch system found on either vehicles or field mounts. It takes one movement phase (friendly or enemy) to load one missile; thus a tube launcher may fire every fire phase.

D. Magazine Launcher: A magazine launcher is a magazine-fed tube launcher. It may fire one shot per phase without being reloaded until the magazine is empty. It takes two movement phases to load a missile into the magazine, and the magazine may be loaded while the launcher is firing.

E. Crew: One gunner may fire several launchers, as explained in Book 1. The missile crew also requires one loader if the missile weighs 50 kg or less, or two loaders if it weighs more than 50 kg. If not enough loaders are available, no missiles may be loaded. One loader or crew of loaders may serve several launchers, but may load only one launcher at a time. The gunner may also act as a loader, but it takes him two movement phases (one friendly and one enemy) after he finishes loading to return to his firing position. The crew of a vehicle mounted missile launcher is considered to be inside the vehicle even while loading, and the vehicle may move while missiles are being loaded.

Rule 38: Drone Vehicles and Missiles

At advanced tech levels, semi-intelligent drones may be produced, equipped with sophisticated guidance systems which allow them to seek out and attack targets without the necessity for direct human control. There are two types of drones:

drone vehicles and drone missiles.

A. Drone Vehicles: Drone vehicles operate in the same way as other vehicles, and are constructed using the vehicle design rules in Book 3. They mount weapons which they fire at enemy units in the same manner as a crewed vehicle.

1. Orders: A drone vehicle operates under orders received from the gunner who launched it. The vehicle is given an order covering its movement and fire; orders have the same description as those given to average initiative squads/teams, as covered in rule 10. Each turn that the gunner is in communication with the vehicle, he may either control it directly (it moves and fires as he wishes) or he may give it a new order. Giving a new order takes one turn, during which time the gunner may not do anything else and the drone continues to execute its previous orders. There are some additional types of movement orders which may be given to drones.

a. A drone may be ordered to go to a position located by counter battery radar.

b. A drone may be ordered to go to a position and orbit; it will continue to move around the point in a circle of a specified radius.

c. A drone may be ordered to go to a position and begin a search pattern; it will move around the point once in a circle of a specified radius, then move to twice that distance and circle again, then three times that distance, and so on.

2. Spotting: Drone vehicles spot enemy units in the same fashion as a manned vehicle, with a DM of -1; drones are spotted in the same way as other vehicles.

B. Drone Missiles: Drone missiles are constructed using the tac missile design rules in Book 3, and attack by exploding on target in the same way as other tac missiles. However, they differ in that they may remain airborne for several turns while searching for a target.

1. Orders: Drone missiles receive orders in the same way as drone vehicles. In addition, a drone missile may be ordered to impact against a particular side of a vehicle (front, rear, deck, or side, high or low, but not the belly of a ground vehicle or grav vehicle flying NOE); an HE missile may be ordered to explode as an air burst or ground burst.

2. Spotting: A drone missile spots in the same way as a drone vehicle. It is difficult for the enemy to spot; use the popup row of the ground spotting table.

3. Movement: A drone missile moves in the same way as a grav vehicle. It ends its movement as soon as it sees a target.

4. Attack: A drone missile attacks during either fire phase, acting as a tac missile launched from the position it occupied after its movement. All attacks are at effective range, and the missile has a hit DM as specified in Book 3. Missiles ordered to hit a vehicle's deck, or any side of the vehicle which is not facing toward them, attack with a DM of -2.

5. Firing at Drone Missiles: Any weapon may fire at a drone missile in any fire phase before it attacks, with a DM of -5; point defense systems on target fire or dedicated support missions fire with no DMs. During the phase in which a drone missile attacks, it may be fired upon only by point defense systems on dedicated support missions. Any hit eliminates the missile.

Rule 39: Nuclear Rounds

Nuclear warheads are available for CPR guns, mass driver guns, tac missiles, and

MRLs. Standard nuclear warheads range from 0.1 kilotons up to 100 kilotons; their use and effects are described in A and B below. Collapsing rounds are a special type, smaller than standard warheads, and are described in C below.

A. Fire Procedure: Nuclear rounds are fired in the same way as other rounds. When firing in indirect fire, the firing player decides whether the warhead will be set to detonate in the air over the target (air burst) or impact on the ground (ground strike). All direct fire is treated as a ground strike, and automatically hits its target (or comes close enough to make no difference). Each round is considered separately. The point on the ground directly under the detonation point is called ground zero.

B. Effects: Book 3 indicates the effect radius, in cm from ground zero, of several different effects, with different listings for ground strikes and air bursts.

1. Crater: Only ground strikes produce craters. No ground unit may enter the crater of a nuclear explosion for the remainder of the game.

2. Primary Blast Radius: All targets within the inner half of the primary blast radius are destroyed. All targets within the outer half of the primary blast radius are assumed to be hit and a damage roll is made against them with a penetration value of 60.

3. Secondary Blast Radius: All targets in the secondary blast radius are assumed to be hit and a damage roll is made against them with a penetration value of 20.

4. Tertiary Blast Radius: All targets in the tertiary blast radius are hit on a die roll of 6+. Personnel under cover receive a DM of -2 to hit. All targets which are hit have a damage roll made against them with a penetration value of 5.

5. Induced Radiation: For thirty minutes after the detonation of the warhead the area of the tertiary blast radius (and everything inside it) is considered to be contaminated with induced radiation. After thirty minutes, the area of contamination is reduced to the area of induced radiation listed in Book 3. Unprotected individuals may not enter a contaminated area and, if they find themselves in such an area, must leave within 10 turns or suffer a serious wound. Protected individuals may freely move through contaminated areas. Anyone in a combat environment suit, combat armor, battle dress, or any sealed vehicle is protected.

6. Blow Down: All vegetation within the primary blast radius ignites and burns for the rest of the game. All trees and frame structures in the secondary blast radius are blown down. For game purposes, all tree areas so effected are converted to areas of dense trees and undergrowth (with the height of the trees being drastically reduced).

C. Collapsing Rounds: Collapsing rounds are much smaller than standard rounds; this is made possible by using very unstable fissionable materials, such as californium, and by omitting the reliable but bulky detonation system found in standard rounds. Instead, they rely on impact with vehicle armor or a hard structure to collapse the hollow round quickly into a critical mass, resulting in unreliable performance. Collapsing rounds may only be fired from high or hyper velocity CPR guns or mass drivers. They may only be fired at vehicles or structures. Unlike other nuclear rounds, they have a die roll to hit, a penetration value, a burst area, and a fragmentation penetration value. If a round does not hit it has no effect. If it hits, roll one die. On a roll of 1 or 2, the round has detonated properly, and the explosion has full effect. On any other roll, detonation was incomplete; subtract 8

times the die roll from the penetration, half the die roll (rounded up) from burst size, and twice the die roll from the fragmentation penetration. The explosion does damage in the same way as an HE round, except that all targets in the burst area are automatically hit. Collapsing rounds, because of their short useful half-lives, must be carried in damper boxes; see Book 3. Because of the high radiation risk collapsing rounds pose to crews, they are generally used only in drone vehicles.

D. Restrictions: For various reasons not directly affecting the immediate battle, nuclear rounds are often placed under secure use restrictions or are banned altogether. The referee must consider whether restrictions are in effect and what the consequences may be to a side which ignores these restrictions. For one possibility see rule 78.

Rule 40: Nuclear Dampers

Nuclear dampers are capable of projecting a field which suppresses the strong nuclear force, which causes nuclear warheads to decay rapidly and renders them harmless; the projector must focus on a warhead for only a fraction of a second. Dampers function as point defense weapons (see rule 36) against nuclear rounds only.

A. Configuration: A damper unit has three components: two separate damper projectors and a fire control system; these may all be on one vehicle or on separate vehicles. For details of construction see Book 3. For the damper to function, all three components must be in communication by any method other than verbal communication.

B. Range and Line of Sight: The range to target is counted from the point half way between the two projectors. At tech level 13, the maximum effective range is 100 times the separation between the two projectors; for example, if the projectors were 6 meters apart, the range of the damper would be 600 meters. At tech levels 14 and 15, the range is 1000 times the separation. However, range may never exceed the effective range of the fire control system.

Line of sight is determined from the fire control system; the target does not have to be visible to the projectors.

C. Firing: At tech level 13, nuclear dampers function exactly as point defense weapons (although against nuclear rounds only). At higher tech levels their capabilities increase, as explained in D below. However, when engaged in target fire, there is no die roll to hit; all nuclear rounds on the target vehicle or weapon are automatically destroyed.

D. Higher Tech Levels: At tech level 14, dampers roll twice as many dice against indirect fire rounds as a point defense weapon. They make two attacks per phase against direct fire rounds. They may make two target fire attacks per phase.

At tech level 15, dampers roll three times as many dice against indirect fire rounds as a point defense weapon. They make three attacks against direct fire rounds; in addition to missiles, grenades, and rockets, they may attack other rounds (those fired from CPR guns and other projectile weapons) under two conditions: the firing weapon must be at least 50 cm from the target, and the damper fire control unit must be able to see both the target and the last 50 cm of the round's trajectory; one hit destroys all rounds fired from one weapon in a phase. They may make three target fire attacks per phase. In addition, the damper may be assigned to perform the dedicated support and target fire missions at the same time; the three

allowed attacks per phase may be split between the two missions as the player wishes.

E. Radiation Suppression: Another use of nuclear dampers is to eliminate the radioactive contamination created by a nuclear weapon detonation. Instead of performing its usual missions, a damper may be assigned to eliminate the radiation from one nuclear strike per fire phase. Both the crater and the area of induced radiation are rendered permanently harmless.

Rule 41: Weapons Mounts

In the basic rules, little consideration is given to the nature of a weapon's mount. This rule goes into greater detail regarding the effects of their types and locations. There are six types of vehicle weapon mounts: chassis, turret, open, cupola, pintel, and remote. All have various design limits, as covered in Book 3.

A. Position: Weapon mounts are specified as being on a specific side of a vehicle's turret or chassis. Their ability to fire is limited by position.

1. Hull-Down: Any vehicle which is partially under cover behind a hill is termed hull-down. It may only be hit high, and only those weapons mounted on the chassis deck or on any part of the turret may fire. If a vehicle has any weapons mounted on top of its turret, the vehicle may choose to be turret-down, and only weapons mounted on top of the turret may fire or be fired upon.

2. Fields of Fire: Weapons in chassis mounts have a fixed field of fire, covering the area within 45° of a line extending from the side's center. Weapons in other mounts have wider traverse, with their ability to fire limited only by the bulk of the vehicle itself. For example, a remote mount on the left side of a vehicle would be unable to fire at targets very far to the right of the vehicle, and a turret-mounted weapon would be unable to fire at targets very far below the vehicle, although the gun would be able to be depressed a few degrees. The possible fields of fire of weapons in different mounts vary greatly, and the referee must judge if the question ever arises.

B. Vehicle Commanders: A vehicle commander may command the vehicle and operate a cupola or pintel mount weapon at the same time; however, his ability to carry out his primary function of directing the actions of the rest of the crew is curtailed to some extent. A vehicle commander is considered not to be operating his weapon (and may not fire it) unless the player states otherwise at the beginning of the friendly movement phase. If he is operating it, the vehicle may only spot targets within the field of fire of his weapon, and no other weapon mount may change facing except to face in the same direction as his weapon.

C. Firing at Weapons Mounts: Weapons mounts are affected in different ways by enemy fire. The basic rules assume a vehicle with a single main weapon, enclosed in a turret. All high hits strike the turret, all low hits the chassis. If a vehicle has only one weapon mount on the chassis deck, all high hits strike it. If a vehicle has more than one such mount, high hits strike the largest one. Surface damage results may affect smaller weapons.

The various weapons mounts are affected in different ways by hits:

1. Chassis: If large weapons are mounted in the vehicle chassis, the referee may consider inserting a weapon damage result for low hits on the minor penetration tables.

2. Open: A hit on an open mount (all high hits on a vehicle which has one) is

treated as a weapon hit; see rule 30 in Book 1.

3. Cupola: A cupola is hit in the same manner as a turret, with the same effects. A cupola's armor value is the same as the vehicle's deck armor.

4. Pintel: A pintel mount may not be hit, but the gunner (usually the vehicle commander) must be exposed to fire in order to shoot. The gunner is assumed to be exposed unless the player specifically states otherwise at the beginning of the friendly movement phase; if not exposed he may not fire. A pintel gunner may be fired upon as a separate target; he is considered to be concealed and under cover.

5. Remote: A remote mount is treated as a turret, except that crew casualties are ignored if a minor penetration occurs. If remote mounts are placed on other than the chassis deck, the referee may consider inserting weapon damage results for low hits on the minor penetration tables.

Rule 42: Encumbrance

Infantry are limited in the amount of weight they can carry. A soldier can function normally while carrying a total weight of 10 kg. He can carry up to 30 kg, but will be encumbered; an encumbered soldier walks 2.5 cm and runs 6 cm. A soldier's armor is ignored for purposes of calculating weight carried.

A soldier in battle dress may carry up to 100 kg without being encumbered, and may carry up to 200 kg while encumbered.

Rule 43: Ammunition

Any weapon which fires a projectile uses up its ammunition; the player must keep track of how much ammunition is carried and how much is used during each turn.

A. Ammunition Use: Each phase in which a projectile-firing weapon fires it uses up ammunition; weapons use ammunition at different rates, as shown below.

1. Small Arms: Each time that a small arms slug thrower fires, it uses half a magazine of ammunition (a revolver uses half its cylinder). A weapon performing automatic fire uses a full magazine.

2. Belt-fed and Hopper-fed Small Arms: These weapons fire a number of rounds per fire phase dependent on their effective range auto-fire bonuses, as shown in the table below. When keeping track of expended ammunition, it is easiest to record the number of phases of fire available or expended, rather than recording individual rounds.

Bonus	+2	+3	+4	+5	+6	+7	+8	+9
Rounds per Phase	20	40	80	160	320	640	1280	2560

3. Artillery: CPR guns and mass drivers fire a number of rounds equal to their ROF when performing indirect fire. When performing direct fire, mass drivers and autocannon fire a number of rounds equal to half their ROF (dropping fractions) in each phase. Nonautomatic fire CPR guns also fire at half their ROF, but not more than 4 rounds per phase.

B. Ammunition Supplies: Players must keep track of how much ammunition a weapon has available to fire.

1. Ready Supply: The ammunition a weapon has immediately available to fire is termed its ready supply. The ready supply of an infantryman's personal weapon

is whatever the individual is carrying. The ready supply of a crew-served infantry weapon is whatever is carried by the crew. The ready supply of a towed crew-served weapon is whatever is carried in the towing vehicle. The ready supply of a vehicle-mounted weapon is whatever is carried on the vehicle. In addition, vehicle-mounted indirect fire weapons may have one ammunition carrier each (see Book 3). Finally, any rounds which have been unloaded onto the ground at a towed or infantry-carried weapon's position are part of its ready supply.

2. Ammunition Transfer: Ammunition may be transferred into a weapon's ready supply from other storage places. One soldier may pick up or put down up to 30 kg of ammunition in one turn, or he may both pick up and put down up to 15 kg. In order to transfer it from storage to a weapon's ready supply, ammunition must be picked up from the storage position and put down in the ready supply. For example, suppose a player wishes to resupply a towed mortar with ammunition; a grav carrier with ammunition lands next to the mortar and an infantry squad is ordered to transfer ammunition. Each man in the squad picks up 15 kg of ammunition from the carrier and deposits it on the ground near the mortar in the same turn. An 8-man squad could transfer 120 kg of ammunition per turn until the carrier was completely unloaded.

Rule 44: Transport Vehicles

Ground vehicles may transport cargo (weapons, ammunition, etc.) either in their internal cargo spaces or by towing them (in trailers or as field-mounted weapons). Grav vehicles may only carry cargo, not tow it.

A vehicle's available cargo volume is listed in Book 3; its maximum cargo weight in tons is equal to its cargo volume in cubic meters. A ground vehicle may tow field-mounted weapons or trailers. When doing so its speed is reduced; determine its new speed by recalculating its power to weight ratio (as described in Book 3), taking into account the weight of towed equipment. For simplicity, a vehicle should always be considered to be carrying its full weight of interior cargo, unless players really want to bother with recalculating its power to weight ratio with every change.

Rule 45: Animals

Low-tech armies may use animals to carry or tow cargo or weapons and as mounts for soldiers. Animal capabilities vary widely, but the following is a general average.

Animals bred as draft animals can carry a weight equal to 30% of their own weight at a run, and up to 60% of their weight at a walk. Draft animals can tow a weight up to their own weight at a walk and up to half of their weight at a run. Of course, several animals can be harnessed together to tow larger weights.

An animal should be assigned a speed multiplier, the average being 3. An animal's running speed is 10 cm times the multiplier; walking speed is 5 cm times half of the speed multiplier. For example, an animal with a speed multiplier of 3 would walk at a rate of 7.5 cm per turn and run at a rate of 30 cm per turn. An animal may run at any time, for up to 20 turns; after an animal has run for a combined total of 20 turns during a game, it may not run for another 20 turns.

Draft animals cost about Cr200 to 1000 each and require about Cr1000 each per 100 kg of weight in upkeep each year.

Rule 46: Electronic Detection

A variety of electronic devices are available for detecting enemy units. The spotting rule in Book 1 assumes unenhanced visual spotting. The following devices improve the chances of spotting enemy units.

A. Target Acquisition Radar: Book 3 lists prices, weights, and power of target acquisition radars at various tech levels. The range of a target acquisition radar in kilometers is equal to its power. A unit equipped with target acquisition radar automatically spots any enemy vehicle which moves, provided the vehicle is within range of the radar and an unobstructed line of sight can be traced to it. Target acquisition radars will not function if they are jammed by enemy radar jammers; they may be jammed in the same manner as radios. Vehicles equipped with ECM are partially protected from radar spotting. Vehicles with basic ECM are detected on a roll of 7+; vehicles with extensive ECM are detected on a roll of 10+; There is a DM of -1 for each tech level by which the ECM exceeds the radar, and a DM of +4 for each tech level by which the radar exceeds the ECM.

B. Target Acquisition Ladar: Ladar (laser-based radar) has the same characteristics as target acquisition radar with two exceptions.

    1. Ladar may not be jammed.

    2. Ladar may not be able to spot through smoke or anti-laser aerosols; see rule 27 in Book 1.

C. Thermal Image: Any unit equipped with thermal image devices may spot enemy personnel at 300 centimeters and vehicles at 600 centimeters, provided an unobstructed line of sight can be traced to the enemy unit (smoke does not block the line of sight of a thermal imaging device). Thermal imaging is prevented from spotting under the following circumstances.

    1. The unit is a vehicle with extensive ECM equipment of any tech level.

    2. The unit is a vehicle with basic ECM equipment of a tech level greater than the thermal image device.

    3. The unit is a personnel unit in combat environment suits, combat armor, or battle dress from a tech level greater than the thermal image device.

    4. The unit is a personnel unit in combat environment suits, combat armor, or battle dress with a chameleon surface.

D. Image Enhancement: Computer-enhanced images increase a unit's ability to spot enemy units. All units equipped with computer image enhancement devices treat all spotting ranges as if they were half as long.

F. Passive IR: Any unit equipped with passive IR devices may spot enemy units at half the device's listed range. Passive IR has the same limitations and exceptions as thermal imaging devices.

Rule 47: Night

At night, visibility is severely reduced. The referee will have to determine the amount of background light (due to stars, moons, etc.) and its reduction due to atmospheric conditions (cloud cover, high dust content, etc.). This information should be used to determine a visibility multiple; under ideal night conditions this multiple should never be greater than 0.5, and will usually be much lower.

When spotting at night, all ranges on the spotting table are multiplied by the visibility multiple. Thus, if the multiple is 0.4, the distance at which a stationary, concealed man would be spotted on a roll of 8+ (normally 50 cm) would be re-

duced to 20 cm.

At night, there is also a maximum range at which any unit can be spotted. A stationary soldier can be spotted at a maximum distance of 100 cm times the visibility multiple; a stationary vehicle or moving soldier can be spotted at a maximum distance of 200 cm times the visibility multiple; a moving vehicle can be spotted at a maximum distance of 400 cm times the visibility multiple. In the example above the soldier could be spotted at a maximum distance of 40 cm.

A. Artificial Illumination and Vision Devices: A variety of night vision aids are available. Prices and weights are listed in Book 3.

1. Illum Rounds: Illum rounds may be fired from projectile weapons and will illuminate an area with a radius specified in Book 3. Any unit within the illuminated area is spotted as if it were daylight. Note that the spotting unit does not have to be in the illuminated area.

2. Searchlights: A searchlight will illuminate an area with a radius of 2 cm up to 200 cm away. Units within the area may be spotted as if it were daylight. A searchlight, when turned on, is automatically spotted by all enemy units within 500 cm.

3. Active IR: Active IR projects a beam of infrared light at a target and allows troops with IR vision devices to see the illuminated area as if it were day. An IR scope illuminates an area with a radius of 2 cm with a maximum range of 50 cm. An IR searchlight illuminates an area with a radius of 2 cm with a maximum range of 100 cm. Any troops equipped with active or passive IR or thermal imaging can spot the illuminated units and automatically spot the light itself at up to three times the light's range (150 cm for a scope and 300 cm for a searchlight).

4. Passive IR: Passive IR allows spotting of enemy units from their natural thermal image at night. Units are automatically spotted (if visible) out to the maximum range of the sensor (see Book 3). There are several ways to render a unit undetectable to passive IR, as explained in rule 46.

5. Radar and Ladar: Radar and ladar work normally at night.

6. Light Amplification: Light amplification techniques rely on taking the limited amount of light available and enhancing it. Thus, their effectiveness is dependent upon the amount of background light. Units equipped with light amplification count the visibility multiplier to be twice its actual value. Thus, in the example at the beginning of this rule the soldier could be spotted on a roll of 8+ at 40 cm.

7. Thermal Imaging: Thermal imaging is a very advanced form of IR and allows automatic spotting of personnel out to 300 cm and vehicles out to 600 cm, with various exceptions and restrictions as outlined in rule 46.

B. Effects of Fire: All weapons except mass drivers, gauss guns, and meson accelerators are automatically spotted at any range when they fire, if a line of sight exists to them.

Rule 48: Weather

The main types of weather affecting the game are fog and precipitation, which will affect both visibility and movement.

A. Visibility: Fog and precipitation affect visibility in the same manner as night (see rule 47). Light fog, drizzle, and light snowfall have a visibility multiplier of 0.5; dense fog, rain, and heavy snowfall have a visibility multiplier of 0.25.

Vision enhancement devices treat weather effects as night with the following exceptions.

1. IR devices (active and passive) do not work in drizzle, rain, or snowfall.

2. Thermal imaging devices may see personnel only out to 150 cm and vehicles out to 300 cm in rain. They do not work in snowfall.

3. Radar has its range cut in half in rain and heavy snowfall; all-weather radar may see normally.

4. Illum rounds, searchlights, and light amplification devices do not work in any reduced-visibility weather conditions.

B. Movement: After prolonged rainfall, normal ground will become soft ground, and soft ground will become mud. Wheeled vehicles pay double movement costs to move through snow; tracked vehicles pay 1.5 times normal movement costs.

Rule 49: Radar and Radio Location

Radio and radar direction finders may be used to locate enemy radios and radars which are transmitting. Radio direction finders locate radios and radio jammers. Radar direction finders locate radars of all types, as well as radar jammers. A radio is transmitting if it is being used to place two units in communication; radar is assumed to be transmitting continuously unless a player specifically states he is not using it. Before tech level 9, two locator sets are required to pinpoint the source of a transmission; they must be separated by at least 20 cm. At tech level 9+, only one set is required. Each direction finder unit locates one transmitter per turn; it will locate the highest power unlocated unit within its range. If the located radio or radar is within the line of sight of any friendly unit, it is spotted; if it is not within the line of sight of a friendly unit, it is not spotted, but the player is told where it is and may use the position as the target point of an artillery barrage.

Rule 50: Chaff

Antiradar chaff artillery rounds are available at tech level 7 and above. Chaff rounds have no penetration, but blind all radar and ladar trying to spot through the area covered by the chaff. Chaff rounds have no effect on radar and ladar of a higher tech level. Effects of a chaff round last six complete turns.

Rule 51: Sound and Flash Ranging

Sound and flash ranging may be used to enable the location of enemy indirect fire weapons. Weapons located with sound or flash ranging are not spotted, but the player is told their location and may use it as the target point of an artillery fire mission. Both types follow the same procedure.

A. Procedure: Each set of equipment may attempt to locate one firing unit each turn. Each set has a die roll to locate, with a DM of +2 for each turn after the first that the enemy weapon fires from the same position. The subsequent fire mission has an accuracy DM, with an additional DM of +1 for each additional turn after the first that the firing unit is located. Location die rolls, and accuracy DMs are listed in Book 3.

B. Sound Ranging: Sound ranging requires sound ranging equipment, as described in Book 3. It must be emplaced before the game begins and will generally be off the battlefield. Sound ranging may be used to locate CPR weapons other than mortars and MRLs; it will not detect mass drivers or meson guns.

C. Flash Ranging: Flash ranging is useful only at night, and does not require a line of sight to the unit being located. It may be used to locate CPR guns, mortars, and MRLs. Flash ranging equipment is listed in Book 3. In addition, any soldier capable of giving a fire mission order may attempt flash ranging without equipment. The range is 10 km, and the soldier may not do anything else during the turn. He is allowed one attempt per turn, locates the enemy unit on a roll of 10+, and has an accuracy DM of –4.

D. Multiple Locations: If several different sets of ranging equipment locate a unit, use the accuracy DM of the best one and add +1 for each different type of set that locates the unit. The different types are radar, sound ranging, and flash ranging.

Rule 52: Vehicle Smoke

A vehicle may be equipped with smoke dischargers, used to provide a quick smoke screen. A vehicle may have several smoke dischargers and may have several rounds for each. Each time a smoke salvo is fired, one round is fired from each discharger; smoke rounds must be fired in a complete salvo. Each round creates a 1 cm square screen of mist with a burn time of 2 turns. A salvo of several rounds will fall in a continuous straight line 2 cm from the vehicle, perpendicular to the direction of fire. Smoke dischargers mounted on the chassis will fire in the direction the chassis is facing; dischargers mounted on the turret will fire in the direction the turret is facing.

Rule 53: Planetary Environment

The basic *Striker* rules describe conditions on an Earth-like planet (in **Traveller** terms, size 8, with a standard atmosphere). Planets with different sizes, gravities, and atmospheres will have various effects, as explained below.

A. Planetary Size: The distance to the horizon is the upper limit on spotting and direct fire range, and depends upon planetary size. The table below gives the distance to the horizon (in cm) for a man of average height on worlds of the radius specified (in km). The number in parentheses is the **Traveller** world size code. The horizon distance is intended as a general guide to spotting distances, but it should be remembered that the greater the elevation of either the spotting unit or its target, the farther away the horizon. For particularly important terrain features, the formula at left may be used to determine the actual distance to the horizon, where R is the radius of the planet in meters and A is the sum of the altitudes of the spotting or firing unit and the target of the spotting attempt or fire.

Radius	Horizon
800 (1)	179
1600 (2)	253
2400 (3)	310
3200 (4)	358
4000 (5)	400
4800 (6)	438
5600 (7)	473
6400 (8)	506
7200 (9)	537
8000 (A)	566

$$H = \sqrt{2AR + A^2}$$

B. Gravity: Gravity affects movement of all vehicles and personnel, and the fire of all projectile (but not energy) weapons.

1. Movement: For the movement of all ground vehicles, divide the road and cross country movement rates by the G value (surface gravity) of the planet. No movement rate may be more than doubled, however. All personnel divide their movement allowances by the local gravity as well, and also may never more than double their movement. Grav vehicles require a more complicated determination of

movement. The movement rate is determined as outlined in the vehicle design rules in Book 3, but instead of subtracting 1 from the G-rating of the vehicle's drives, the local gravity is subtracted instead. At low gravities, slope effects become less stringent. In gravities below 0.5 Gs, all slope categories are reduced by 1 (steep becomes moderate, and so on), and only slopes on which the elevation change is 4 or more times the horizontal distance remain sheer; at gravities less than 0.1 Gs, slopes are reduced by 2; those on which the elevation change is 4 or more times the horizontal distance are steep and those on which the elevation change is 8 or more times the horizontal distance are sheer.

2. Weapons: The ranges of projectile weapons are affected by changing gravity. Divide the weapon's ranges (indirect and direct fire) by the world's gravity. Any range which is under 50 cm is unchanged by gravity, except for grenades and grenade launchers. A weapon without fire control (generally small arms) may not have its range increased by low gravity. A weapon with fire control may not have its range increased by low gravity beyond the limit of its fire control system.

C. Atmosphere Type: Atmosphere type has a number of effects. The atmosphere types considered here are those found in **Traveller.** Thin, standard, and dense are all breathable; tainted atmospheres are breathable after poisonous gases have been filtered out. Very thin and trace atmospheres are too thin to breathe. Exotic, corrosive, and insidious atmospheres are very dense, unbreathable, and increasingly dangerous.

1. ACVs: When determining the speed of an ACV, halve its power to weight ratio on thin atmosphere worlds and double it on dense, exotic, corrosive, and insidious atmosphere worlds. An ACV will not work on trace or vacuum atmosphere worlds.

2. Energy Weapon Fire: The listed range of an energy weapon (laser, plasma gun, or fusion gun) is multiplied by the constants shown on the table at left in the stated atmospheres. These constants affect range for the purposes of penetration only, and do not alter the range at which a weapon may hit. For example, a laser carbine on a thin atmosphere world still rolls 8+ to hit at 150 meters and 10+ at 300 meters, but has a penetration of 7 at 300 meters and 3 out to 600 meters.

Type	Constant
Vacuum	1000
Trace	100
Very thin	10
Thin	2
Standard	1
Dense	0.5
Exotic	0.1
Corrosive	0.1
Insidious	0.1

3. Protection: Personnel must be provided with protection from vacuum, trace, very thin, exotic, corrosive, insidious, and tainted atmosphere types, either by protective clothing or by remaining inside a protected vehicle. The following measures are possible.

a. Personal Protection: Troops in tainted atmospheres must wear filter masks. Troops in very thin atmospheres must wear compressor masks. Troops in vacuum, trace, exotic, and corrosive atmospheres must wear oxygen tanks, and those in other than exotic atmospheres must also wear vacc suits, combat armor, or battle dress. Troops in insidious atmospheres must wear oxygen tanks and suits, but the atmosphere will breach the suit in time.

b. Vehicle Protection: Vehicles may be closed to the outside by being sealed or by using overpressure. Overpressure is only effective against very thin or tainted atmospheres. Vehicles in other types of atmospheres must have life support. Generally, a vehicle with life support must also be sealed. However, life support may be used in an unsealed vehicle as a substitute for oxygen tanks (although the

crew must still wear any required protective suits). For a description of personal and vehicle equipment, see Book 3.

A vehicle which suffers any penetration is no longer sealed. All wounds become one level more serious if personnel are in an atmosphere requiring a protective suit. Personnel without needed protection are killed.

4. Air Breathing Engines: Air breathing engines may not be constructed for use on a world with an atmosphere type of vacuum, trace, exotic, corrosive, or insidious. They must have intake compressors to function on very thin atmosphere worlds. All pre-fusion engines, with the exception of rockets, are air breathers; a vehicle powered by batteries is not an air breather.

D. Aircraft: Airplanes and helicopters may not be used on worlds with vacuum, trace, or very thin atmospheres, and may not be used on any world of a different gravity or atmosphere type than their world of construction, except that aircraft designed for use in standard, thin, or dense atmosphere may be used on worlds with tainted atmosphere otherwise of the same type.

Rule 54: Surprise

In some games, the referee may wish to give one side the advantage of surprise. If one side or the other is caught unprepared for combat in an encampment, the following effects should be considered.

A. Vehicles: Vehicles are not usually parked with their engines running. Once the crew of a vehicle manages to reach and enter a parked vehicle, it requires two game turns to power up the vehicle and conduct a minimum of safety checks, provided the driver is an elite or a player character. For veterans, powering up requires three turns, for regulars, four turns, and for recruits, six turns. Note that a vehicle equipped with an energy weapon may not fire it until the vehicle is powered up.

B. Personnel in Quarters: Personnel in their quarters will not generally have their weapons at hand. High initiative stands require one turn of inactivity before being considered armed, average initiative stands require two turns, and low initiative stands require three turns.

C. Panic: All stands of the surprised side must take a morale check at the beginning ot the game. Stands which fail the check do not begin arming themselves or starting their engines until a number of turns pass equal to the number by which they failed the check. For example, if a vehicle crew had a morale of 10 and a regular as driver, and the morale check roll was 12, he could not begin to start the engine until turn 3 (being panicked for two turns) and would not have it completely started until the end of turn 6. It would be able to move in turn 7.

Rule 55: Engineering

There are four aspects of combat engineering that will be addressed by this rule: fortifications, water crossing, mines, and obstacles.

A. Fortifications: Fortification construction can be carried out in the field prior to the scenario taking place. All construction times are given in terms of man-hours of work, and assume supervision by a competent engineer. In the absence of supervision by an engineer, only field fortifications may be dug, and all additional reinforcing (with wood, stone, etc.) requires double the amount of time listed. Each engineer may supervise ten non-engineers. Officers may not be used for the construction of fortifications, although NCOs may be.

1. Time Required: Using hand tools, a soldier can move 1.5 cubic meters of earth per hour. When using bulldozers or explosives, a soldier can move 6 cubic meters of earth per hour. All heavier materials used in the field (wood and stone) require twice the time per volume moved and must be moved at the hand tool rate. Thus, it requires two hours to move 1.5 cubic meters of stone.

When constructing field fortifications, the amount of earth to be moved is determined by the size of unit to be sheltered. For infantry, nine cubic meters of earth must be moved to provide protection for one man. The protection provided is in the form of a basic ground-level dugout with no overhead cover. For crew-served weapons, 9 cubic meters per crew member and one cubic meter per ton of weapons must be removed to provide a basic dugout. For vehicles, a volume of earth equal to 1.2 times the volume of the vehicle chassis must be moved to provide a hull-down dugout. To provide a dugout capable of sheltering the entire vehicle, twice that amount must be moved.

To provide overhead cover for an emplacement, wood logs or timbers must be laid and, if desired, additional layers of stone or earth placed on top. The volume of material required to cover an emplacement to a specified depth is equal to the volume of earth removed from the emplacement times the depth of the overhead cover in meters, divided by 2. Thus, a four-man fireteam position (36 cubic meters of earth) would require .018 cubic meters of material for 1 cm of overhead cover. At least one third of the thickness of the overhead cover must be wood, with the remainder either earth or stone.

As an alternative to the above, prefabricated sheets of armor plate may be laid as overhead cover on a dugout. Armor plate may only be laid if a crane-equipped vehicle is used, with each vehicle emplacing armor at the rate of 6 cubic meters per hour. The formula for the required volume of the overhead armor plate is the same as for wood, earth, and stone cover.

If considerable time is available prior to the scenario, concrete bunkers may be constructed. Concrete may be poured as overhead cover in the same manner as for wood, earth, and stone cover, and also requires half that thickness of wood support under it or 5% of its thickness in armor plate. Concrete requires 24 hours to harden at tech levels 8 and below; at tech levels 9-10, it requires 12 hours; at tech levels 11-12, 6 hours; at tech levels 13+ it requires 3 hours. In the case of permanent fortifications, the referee should decide how thick the walls of concrete bunkers are.

2. Protection: The table of armor values in Book 3 lists the armor value of a given thickness of hard steel. To find the armor value for a given thickness of fortification material, multiply the thickness of the material by its armor multiple (listed in the table at left) to determine its equivalent thickness of hard steel. Armor multiples for armor plate are found in the vehicle design sequence in Book 3. Then consult the armor table to determine its armor value. For example, a concrete bunker has a thickness of 25 cm. The armor multiplier of concrete is .25, which gives it an equivalent thickness of 6.25 cm of hard steel, or an armor value of 20.

Material	Multiple
Loose dirt	.03
Packed dirt	.15
Stone	.15
Wood	.025
Concrete	.25
Reinforced concrete	.5
Masonry	.25

3. Camouflage: If the basic construction times are used for a bunker, it is placed on the board at the start of the scenario and is

automatically spotted by all enemy units. The bunker may be camouflaged by spending additional time on its concealment. This represents painting it, carrying away excess dirt, laying sod, covering it with brush or nets, etc. The time required to camouflage a bunker is equal to one man-hour per 3 cubic meters of earth moved to form the bunker. Thus, a four-man bunker, requiring 36 cubic meters of earth moved, would require 12 man-hours to camouflage. A camouflaged field fortification is treated for spotting purposes as infantry stationary under concealment. The addition of overhead cover to a field fortification does not add to the time required to camouflage it.

B. Water Barriers: While some vehicles are amphibious, others are not, and require engineering assistance to cross water barriers. This assistance can take the form of bridges, ferries, or assault boats.

1. Bridges: There are two basic types of bridges: pontoon bridges and vehicle-launched bridges; their characteristics are listed in Book 3. Characteristics for both types include the bridge's weight, the length it can span, the maximum weight it can support, and the number of turns needed to emplace it. Crossing a bridge costs vehicles four times the normal movement cost.

a. Pontoon Bridges: Book 3 lists the number of men required to emplace a pontoon bridge. Several pontoon bridges may be linked together to cross barriers wider than the span of one bridge, and two bridges may be placed side by side to allow crossing by vehicles up to twice the weight of the bridge's listed capacity. Thus, if a bridge is 2 cm long and will support 30-ton vehicles, two bridges could allow 30-ton vehicles to cross a 4 cm water barrier or 60-ton vehicles to cross a 2 cm water barrier. Whenever multiple bridges are used, they must be installed one at a time; they may not be installed simultaneously.

b. Vehicle-Launched Bridges: Only one vehicle-launched bridge may be carried by a single vehicle. The bridge requires one man, who must be part of the vehicle crew, to emplace; he remains inside the vehicle during the operation. Vehicle-launched bridges may not be linked together. Vehicle-launched bridges may also be used to cross certain obstacles, as explained later in this rule.

2. Ferries: Ferries are amphibious vehicles capable of carrying either men or equipment across water barriers. Any amphibious vehicle may be used as a ferry, carrying its designed number of passengers and weight of cargo. An amphibious vehicle may also be specifically designed as a ferry; it must be open-topped, and may carry one man per square meter of deck area (length times width), or may carry equipment and vehicles weighing an amount up to the difference between the vehicle's weight in tons and its volume in cubic meters. If a ferry is in the water and suffers either a major or minor penetration result, it and its cargo sink and are removed from play.

3. Assault Boats: Assault boats are carried on vehicles, unloaded at the edge of a water barrier, and used to ferry troops to the other side. Several types of assault boats are listed in Book 3; the listing indicates the number of men the boat can carry, its speed in the water, and its weight.

C. Mines: A variety of mines may be laid prior to the scenario, and in some cases may be delivered during the scenario by artillery fire or airdrop.

1. Types of Mines: Mines are differentiated by three basic characteristics: trigger, warhead, and construction material. In addition, mines may be made to be scatterable by artillery or airdrop. Book 3 lists a variety of mines at different tech

levels and specifies various available configurations. Three types of trigger are available: pressure, proximity, and remote. Three types of warheads are available: HEAP, HE, and flechette. Two types of construction material are available: metallic and non-metallic.

2. Emplacement: Only engineer units may emplace mines. The speed at which mines may be emplaced is determined by the weight of the mines and means of emplacement. Mines may be emplaced by hand or machine. Engineers emplacing mines by hand may emplace 100 kilograms of mines per man-hour. Minelaying machines (listed in Book 3) may emplace 1000 kilograms (1 ton) of mines per hour. The listing in Book 3 indicates how many mines must be placed to create a mine-field 2 cm wide and 2 mm deep on the battlefield. Additional fields may be placed one behind the other to create a deeper minefield.

Two types of mines are emplaced differently:

a. Remotely Triggered Mines: Remotely triggered mines are emplaced individually, at the rates given above. Flechette mines may be emplaced only as remotely triggered mines; when emplacing these mines, the player must also indicate their direction of fire.

b. Scatterable Mines: Scatterable mines are not emplaced by engineers; instead, they are fired by artillery weapons or dropped from grav vehicles or air-craft. Book 3 indicates the number of rounds or bombs required to create a mine-field 1 cm square. Additional rounds may be added to increase the chance of an enemy unit moving through the field detonating a mine (see 4 below). Scatterable mines may never be laid in boulder fields, ice, or dense trees or undergrowth.

3. Triggering: Pressure mines are triggered by ground vehicles and personnel passing through the field. Proximity mines are also triggered by grav vehicles flying NOE over the field. However, antivehicle mines are not triggered by personnel. Remotely triggered mines are triggered by a designated control team (or vehicle crew), determined when the mine is laid. The team must be able to see the mine and must be in communication with it; remotely triggered mines are listed as having a specific type of communication link. The mine is activated during the enemy movement phase.

4. Attacks: Each vehicle or man moving through a minefield is attacked once for every 2 mm crossed, with a roll to hit of 7+. Each vehicle or man moving through a field of scatterable mines is attacked once for every 1 cm crossed, with a basic die roll to hit of 10+; additional fields of scatterable mines may be laid over each other, with each additional increment of the required number of rounds adding a DM of +1. Thus, if three times the required number of rounds were used on a scatterable minefield, the roll to hit would be effectively 8+. Remotely trigger-ed HE and HEAP mines always hit if detonated while troops are passing directly over them; flechette mines attack in the same way as a flechette round.

5. Damage: Soldiers and vehicles which are hit consult the damage tables using the penetration values of the mine. A vehicle is automatically struck in the belly. A ground vehicle hit by an antivehicle pressure mine will automatically suffer a suspension damage result in addition to any other damage; a ground vehicle hit by an antivehicle proximity mine will suffer a suspension damage result half the time (roll 1 die).

6. Camouflage: A minefield may be either visible or camouflaged. If camou-flaged, its location is not noted on the board, but only on a map held by the referee.

A player would not know that his troops were in such a minefield until one of them was attacked by a mine. A camouflaged minefield may only be laid by hand, and takes three times the listed time to emplace. All other minefields are marked directly on the playing area and are visible at all times to both players.

All minefields laid in plowed fields, except scatterable mines, are considered to be camouflaged, regardless of the means used to emplace them, and require no additional time to camouflage. Mines laid in boulder fields or ice may not be camouflaged. Scatterable mines may never be camouflaged.

7. Clearance: Mines may be cleared by manual removal, explosive detonation, or contact detonation.

a. Manual Removal: Manual removal requires an engineer unit to move through the minefield, probing for individual mines and digging them out of the ground. An engineering team of four men may remove enough camouflaged mines to create a corridor wide enough for the passage of one vehicle or team at the rate of 1mm of depth every 4 turns, or may remove one remotely triggered mine every 2 turns. Non-camouflaged mines are removed at twice this rate. Scatterable mines are removed at a rate of 2 mm every turn, with 1 turn added to the time needed for every additional increment of the required number of rounds in the field after the first. The team may not do anything else while removing mines. Metallic mines are treated as non-camouflaged if the team is equipped with magnetic mine detectors, and all mines are treated as non-camouflaged if the team is equipped with chemical mine sniffers.

b. Explosive Detonation: Explosive detonation may be accomplished by fire or explosives. If any normal or converged artillery sheaf covers part or all of a minefield, the part covered is eliminated. Direct fire HE rounds will destroy any uncamouflaged minefield within their burst area. Engineer explosives are listed in Book 3, and include bangalore torpedos and line charges. One bangalore torpedo will clear a path 2 mm deep in the minefield and wide enough for one vehicle to pass. The engineer stand emplacing the torpedo must move to the minefield, spend two turns emplacing the torpedo, and then move at least 2 cm away. The torpedo explodes the turn after it is emplaced. Any unit within 2 cm of the detonation suffers a fragmentation hit (with a penetration of 1) on a roll of 8+. Up to 5 bangalore torpedos may be emplaced at a time, to clear a gap up to 1 cm deep in a minefield, with each torpedo requiring two turns to emplace.

Engineer line charges are flexible tubes of explosives fired across a minefield and then detonated to clear a path 5 cm long and wide enough for one vehicle or team to cross. Book 3 lists the line charges available and their set-up times. Line charges are fired during the fire phase and immediately clear a path through the field.

c. Contact Detonation: Any ground vehicle may clear a path through a minefield by driving through it; the path is cleared up to the point at which the vehicle is halted. Infantry can clear a path through an antipersonnel proximity minefield by walking through it, although this is seldom recommended.

D. Obstacles: Obstacles are artifically created barriers to movement of men and vehicles. Six types of obstacles are considered: ditches, wire, abatis, posts, steel and concrete obstacles, and craters.

1. Ditches: Ditches are used to prevent vehicle movement, and thus are generally referred to as antiarmor ditches. No wheeled or tracked vehicle may cross an antiarmor ditch except on a bridge. Antiarmor ditches are constructed in the

same manner as field fortifications; the construction of 1 cm of ditch requires the movement of 300 cubic meters of earth or an explosive charge of 300 demo points.

Antiarmor ditches may be neutralized or crossed through the use of vehicle-launched bridges, bulldozers, or demolitions. A vehicle-launched bridge may be used to cross an antiarmor ditch in the same manner as a water barrier. A bulldozer may create a breach in an antiarmor ditch wide enough for one vehicle or fireteam in 10 turns of work. A demolition charge with an explosive value of 100 or more points will sufficiently cave in the walls of an antiarmor ditch to allow passage of a vehicle or fireteam (see rule 56).

2. Wire: Barbed wire entanglements are impediments to the movement of troops and wheeled vehicles. 5 cm of wire entanglements, 2 mm in depth, may be laid per man-hour of work. Wire may be laid by any personnel, not just engineers. Infantry who contact a wire entanglement must end their movement for the turn; after that, it takes one complete turn to move through each 2 mm of wire. A wheeled vehicle moving through a wire entanglement must check to see if its wheels have become fouled. On a roll of 10+ the vehicle's wheels have become fouled and the vehicle may not move until and unless the crew succeeds in untangling the wheels. To do so, the crew must dismount from the vehicle and attempt to remove the wire from the wheels and axles. Roll once per friendly movement phase spent attempting to free the vehicle; it is freed on a roll of 12.

Wire entanglements may be breached by bangalore torpedos and line charges in the same manner as are minefields. Additionally, any ground vehicle passing through a wire entanglement creates a breach, any demolition charge will create a breach, any personnel team with wire cutters may create a breach after 4 turns of work, and any vehicle-launched bridge may be emplaced across the entanglement.

3. Abatis: Abatis consists of trees felled in the path of the enemy advance. Abatis may be created by the manual felling of trees or by the use of demolitions. An area of trees (either sparse or dense) may be converted to abatis. A demolition charge with a value of 50 will create an area of abatis 1 cm square. A similar area of abatis may be created by manual felling after 20 man-hours of work. Abatis is treated for all purposes as closely spaced trees with dense undergrowth.

Abatis may be cleared by bulldozer vehicles, demolition charges, or hand removal. A bulldozer can clear a 1 cm square of abatis in 10 minutes. A demolition charge or charges with a value of 500 can clear a 1 cm square area of abatis upon explosion. Personnel can clear a 1 cm square area of abatis in 20 man-hours.

4. Posts: Wooden posts of sufficient thickness provide an impenetrable barrier to the movement of ground vehicles, either wheeled or tracked. One engineer team with a pile driver can complete 1 cm of post barriers in 5 hours. Wheeled and tracked vehicles cannot move through wooden post barriers. Post barriers may be used by infantry for both cover and concealment, and have an armor value of 9.

Post barriers may be breached by use of explosives or direct fire by large weapons. A demolition charge with a value of 10 may clear a breach wide enough for a vehicle or team to pass through, as will 4 hits by an HE round, laser, or fusion or plasma gun with a penetration of at least 40. A demolition charge with a value of 20 may clear 1 cm of post barrier, as will 8 hits from a weapon.

5. Steel and Concrete Obstacles: Steel and concrete obstacles require too much construction time to be encountered on most battlefields; they make up part of permanent defense lines. Wheeled and tracked vehicles may not move through

steel and concrete barriers. Steel and concrete obstacles may be removed only by demolition charges. Any charge with a value of 100 may clear a gap wide enough to move one vehicle or team through, and 2 mm deep. Any charge with a value of 500 may clear a gap of 1 cm square. Steel and concrete obstacles may be used by infantry for cover and concealment, and have an armor value of 15.

6. Craters: Craters are used to deny the use of roads to enemy wheeled and tracked vehicles. Normal 2-lane roads may be blocked by the crater generated by a demolition charge of 200 or more points strength. A large multi-lane highway may be blocked by a charge of 400 or more points. Craters are treated as antiarmor ditches for purposes of vehicle movement, and may be breached in the same manner as antiarmor ditches. Breaching a road crater, however, does not restore the road to use; it merely allows passage of the point where the crater is at the normal off-road movement rate.

Rule 56: Explosives

There are three types of explosive charges: conventional, shaped, and TDX. A standard sized conventional explosive charge weighs 10 kg, a shaped charge weighs 20 kg, and a TDX charge weighs 1 kg. A conventional charge may be broken up into 10 one-kilogram blocks; shaped charges and TDX charges may not be broken into smaller charges.

All demolition charges have a demolition value per charge, which varies with tech level, as listed in Book 3. A conventional charge's value is divided evenly among its component blocks if it is broken down. For example, a tech level 6 demo charge has a demo point value of 10; thus each of its ten demo blocks would have a demo point value of 1. Each demo point is the equivalent in explosive power to one kilogram of TNT.

A. Emplacement of Charges: Each demo charge (conventional, shaped, or TDX) takes one man 30 turns to emplace. Larger charges are created by combining several standard charges; each component charge takes 30 turns to emplace, but if a different soldier emplaces each charge they may all be emplaced at the same time. A conventional charge may also be tamped; tamping takes another 30 turns for each standard charge. Thus, most demolition charges would have to be emplaced prior to the game. As an exception, a single, non-tamped charge (conventional, shaped, or TDX) which is not combined with any other charge may be emplaced in 2 turns; this represents a prepared satchel charge.

B. Tamping: If a conventional charge has been tamped, it explodes with twice its listed demolition value. Thus, a demo charge with a listed value of 15 would explode with a value of 30 demo points if tamped.

C. Detonating Charges: Charges may either be detonated by a time delay fuse or may be detonated by remote control. If set for delayed detonation, the charge explodes after a set number of turns, at the beginning of the friendly fire phase. If detonated by remote control, it follows the same rules as remotely detonated mines (see rule 55).

D. Effects: In addition to those effects covered in rule 55, demolition charges may be used to demolish structures, create breaches in walls, and attack vehicles and personnel.

1. Demolish Structures: The demolition penetration table in Book 3 lists the penetration value of a demolition charge of a given point value. Demolition charges

demolish buildings in the same way as artillery rounds, as explained in Book 1. Conventional and TDX charges are considered HE rounds, while shaped charges are considered as HEAP rounds.

10 demo points will destroy 1 cm of wood bridge, 20 points will destroy 1 cm of stone bridge, and 30 points will destroy 1 cm of steel girder or suspension bridge.

2. Breaches: To determine the ability of a demolition charge to create a breach in a wall, first determine the size of breach required, the thickness of the wall, and its armor value. Add the thickness of the wall to the size of breach required and multiply by the armor value of the material used in the wall to find its equivalent thickness of hard steel. Then consult the armor table (in Book 3) to find the actual penetration value required to create the breach. For example, a player wishes to create a 1 meter breach in a reinforced concrete wall which is 3 meters in thickness. In this case, the charge must blast through the equivalent of 4 meters of reinforced concrete. Since reinforced concrete has an armor equivalence of 0.5, the charge must be capable of penetrating 2 meters, or 200 centimeters, of hard steel. To do so requires a penetration of 61. The demolition penetration table indicates that the player must use either shaped charges with a total demo point value of 200, or conventional charges with a total demo point value in excess of 2000.

3. Vehicles and Personnel: Demolition charges may be used as mines, detonated either by time delay or by remote detonation. Time delay charges explode in the friendly fire phase, while remotely detonated charges explode in the same way as remotely detonated mines. A conventional charge has the same effect as an HE mine; a shaped charge has the same effect as a HEAP mine. TDX charges work like conventional charges with certain differences, explained below. A conventional charge, in addition to its contact explosion, will make fragmentation attacks on nearby units.

All units within 1 cm of the mine are hit with a penetration equal to the charge's listed penetration minus 40 (but never less than 1). For each additional cm in distance away from the charge, subtract 8 from the charge's penetration. (If the penetration falls below 1, the attack has no effect and is not conducted.)

E. Special Charges:

1. Nuclear Charges: Most demolition work can be carried out quickly and effectively with nuclear devices. Nuclear devices are available in the same sizes as tactical nuclear warheads and at the same costs. Each device has a number of demo points equal to its kiloton rating times one million.

2. TDX: TDX is a gravitationally polarized explosive. The explosive energy of the charge is not directed in all directions, as with a conventional explosive charge, but rather on a plane perpendicular to the direction of the local gravitational field. As such, TDX is particularly useful in creating and clearing abatis, demolishing structures, and creating breaches in normal structures, as reflected by its greater listed penetration on the demolition penetration table. TDX may not be used to crater roads, create antitank ditches, or breach a horizontal surface. If used as a mine, TDX has no effect on ACVs or grav vehicles, but is treated as an HE mine for all other purposes. When determining fragmentation penetration, subtract 25 from its penetration at a radius of 1 cm and subtract 4 (instead of 8) from its penetration for each additional cm of range.

SECTION II: OPTIONAL RULES

Rule 57: Melee

If this rule is used, a melee phase is inserted into the sequence of play after each fire phase; the two phases are identical, and consist of one or two melee rounds. Melee, or close hand-to-hand combat, is fought between personnel stands in contact if either player wishes to. A stand may participate in melee if it is in contact with an enemy stand or if it is in contact with a stand which is in contact with an enemy stand; all stands which are connected to each other fight as a single melee group. Each soldier in a group will engage in a melee attack against one enemy soldier in the group.

A. Procedure: Melee is resolved in the following order.

1. Allocation: The player with the most soldiers in a group must allocate at least one of his soldiers against each enemy soldier in the group. Leftover soldiers are allocated as desired against enemy soldiers who are already being attacked. Each soldier of the side with fewer soldiers attacks one of the enemy soldiers who is attacking him. If both sides have the same number of soldiers, roll a die to determine who allocates the attacks.

2. Determination of Advantage: In each melee, one soldier will have the advantage, thus allowing him to strike first. For each soldier add his skill level with the melee weapon used to the weapon's melee range. All recruits are assumed to have a skill level of 1, regulars 2, veterans 3, and elites 4. If one soldier is fighting several enemy soldiers, subtract one from his total for each enemy soldier in excess of one fighting him. In the event of a tie, roll a die to determine which soldier has the advantage.

Example: An elite soldier with a bayonet on his rifle is fighting two enemy regulars, one with a bayonet and one with his rifle used as a cudgel. The elite soldier's bayonet has a range of 3, he has a skill level of 4, and he subtracts one for fighting one extra enemy soldier. Thus, his total is 6. The regular with a bayonet has a total of 6 as well, while the regular with the cudgel has a total of 5 (as his cudgel has a melee range of 2). Since the first two soldiers have the same advantage number, a die is rolled to determine who attacks first. If the regular wins the roll, the order of attacks would be 1) regular with bayonet, 2) elite with bayonet, 3) regular with cudgel.

3. Determine Hit: The basic roll to hit with a melee attack is 7+, with DMs of +the skill level of the attacking soldier, +the attacking weapon's hit DM, -the skill level of the defending soldier, and -the defending weapon's defense DM.

Example: The regular with a bayonet rolls a 10. He adds his skill level (2) and bayonet hit DM (0) and subtracts the elite soldier's skill level (4) and bayonet defense DM (1) for a result of 7 exactly, a hit.

4. Determine Damage: When a hit is achieved, roll two dice, add the weapon's melee penetration, and subtract the target's armor value. Using the modified total, consult the melee table and implement the results.

Example: Having hit the elite trooper, the soldier rolls the dice and obtains a result of 7. Assuming that the elite trooper is wearing a flak jacket, the player subtracts 4 for the armor value and adds 3 for the melee penetration of the bayonet for a total of 6, no effect.

B. Effects of Melee Wounds: Melees are resolved in the order indicated in step 2

and melee damage is inflicted immediately. All wounds have the same effect as gun combat wounds, with a light wound causing a -1 DM to hit in melee. For every two light wounds, subtract 1 from the soldier's damage roll as well. A soldier who suffers a light wound may not attack in the same melee round after the wound is suffered. Thus, a soldier who attacks first and inflicts a light wound on his opponent may not be counterattacked by that opponent in that round. If a soldier suffers a light wound after having attacked, no restriction is placed on his ability to attack in later rounds aside from the die roll subtractions already mentioned.

C. Subsequent Phases: If, after a melee phase, there are still enemy troops in contact, they are involved in a continuing melee. There is one melee round in the initial phase of a melee, and two melee rounds per phase in a continuing melee. Troops in melee may not be fired upon by troops not in the melee. Troops in melee may not fire except to fire at enemy troops in the same melee; crew-served weapons may not fire at all, and no HE rounds may be fired. All other weapons except pistols fire with a DM of -2. If a soldier fires while in melee, he may not attack and defends with a total skill and weapon defense DM of zero in the next melee round. Soldiers may leave a continuing melee in the movement phase, but may not fire in the next fire phase. Soldiers in melee may fire at soldiers leaving melee (as may soldiers not in the melee).

Rule 58: Barrages

Often an attacker will plan his indirect fire ahead of time without the benefit of direct visual observation of the target area. Use of map fires and timetables allows the attacking player to incorporate preparatory barrages and rolling barrages in front of his troops.

A. Fire Timetable: Before the game begins, and before any enemy troop locations are known, an attacking player may prepare a fire timetable, listing fire mission orders for each involved unit over the course of several turns. The timetable must start with the first turn and may continue as far into the future as the player wants. The timetable must include all delay times, and operates just as if fire mission orders were being given. Unlike other fire missions, missions given on the fire timetable do not have to give target points visible to friendly troops. Instead, the target point is stated in terms of two coordinates: starting from a reference point at the left corner of the attacker's side of the battlefield, the order must give the distance to the right and the distance forward to the target point. Once the fire timetable starts, it may not be altered, although it may be terminated at any time by order of the side's commander; once terminated, it may not be resumed, but the artillery units are then free to fire other missions. When a mission on the fire timetable is fired, it deviates normally, but may not be adjusted.

B. Rolling Barrages: A rolling barrage is a special type of fire timetable mission. In addition to the usual information required for a fire mission order (including the coordinates), the order for a rolling barrage also gives an incremental distance. The first turn of a rolling barrage arrives normally and deviates; on each subsequent turn of the fire mission, the MPI is moved forward (parallel to the edge of the battlefield) by the incremental distance. There is no further deviation.

Rule 59: Variable Sheaf Shape

In the basic rules, all sheaves of artillery rounds are assumed to be square. If

desired, a player may specify a different shape for the artillery sheaf. The total number of rounds fired by the firing unit, along with the burst size of each round, provides the necessary information to create a sheaf of any shape desired. For example, if a unit fired 100 rounds, each with a burst size of 1 cm, the normal sheaf would be a square 10 cm by 10 cm. Instead, a sheaf could be constructed 4 cm by 25 cm, or 2 cm by 50 cm, etc. The important consideration is that the area of the sheaf as designated be the same as a normal basic game sheaf.

Rule 60: Ground Pressure

In the vehicle design procedure in Book 3, ground pressure is used as a factor in determining a vehicle's off-road speed. In addition, vehicles with high ground pressures suffer from other difficulties.

A. Movement: Whenever a ground vehicle moves into or through an area of soft ground, sand, or mud, roll to see if it becomes stuck. A vehicle becomes stuck in mud on a roll of 16+, in soft ground or sand on a roll of 18+. Add the vehicle's ground pressure to the die roll as a DM. In addition, add 1 if the vehicle is wheeled. Note that vehicles with low ground pressures never become stuck.

B. Maintenance: Vehicles with high ground pressures, especially tracked vehicles, tend to suffer more maintenance problems than others, due to suspension failures. Each vehicle's suspension requires one maintenance point (see rule 68) for each ground pressure number above 5, and breakdowns of suspensions are considered separately from other breakdowns.

Rule 61: Air Cushion Vehicles

Air cushion vehicles (ACVs) are treated in the same way as grav vehicles in NOE mode with certain exceptions. ACVs may never fly higher than NOE altitude. They pay double movement costs in broken ground or sparse undergrowth and when climbing gentle slopes. They may not enter areas of boulder field or dense undergrowth, and may not climb anything steeper than a gentle slope. ACVs must face in the direction of their travel, and back up in the same manner as a ground vehicle.

If an ACV receives a suspension damage result as a result of a minor or a major penetration, it is immobilized. If it receives one as a result of surface damage from a hit in the belly, it is immobilized; otherwise it is unaffected.

Rule 62: Aircraft

Aircraft include all fixed wing vehicles and helicopters. Aircraft operate in essentially the same manner as grav vehicles, with several exceptions. Sections B, C, and D below may also be applied to grav vehicles, at the players' option.

A. Movement:

1. Minimum Speed: All fixed wing aircraft except VTOL aircraft have a minimum speed. An aircraft which falls below its minimum speed crashes. Aircraft without a minimum speed (VTOLs and helicopters) may remain stationary in a turn if they wish.

2. NOE Mode: Only helicopters and VTOLs may move in NOE mode or execute popups. In NOE mode, they may not enter areas of trees, or move to within 1 cm of a building or structure.

3. Terrain-Following Mode: Fixed wing aircraft other than VTOLs may not travel in terrain-following mode unless equipped with terrain-following radar. Heli-

copters and VTOLs without radar move at NOE speed in terrain-following mode.

4. Turns: Fixed wing aircraft other than VTOLs, if moving at cruise speed, may make any number of turns in a movement phase, as long as the total is no more than 45°. That is, an aircraft could make one 45° turn, two 20° turns and a 5° turn, etc. Certain aircraft are noted as being highly maneuverable, and may make sharper turns; see Book 3.

Helicopters and VTOLs travelling at cruise speed may make an unlimited number of turns; each 45° of turns after the first 45° costs 10% of the vehicle's movement allowance.

Vehicles moving faster than cruise speed may not make any turns; vehicles moving at NOE speed may make any number of turns.

B. Fire by Aircraft Pilots: The pilot of an aircraft may fire certain weapons. The weapon must be in a fixed forward-firing mount (see Book 3) and may not be any missile other than a homing or target-seeking missile. The pilot may not fire while in NOE mode unless the vehicle is stationary. Fixed forward mounts have three important limitations.

1. Aiming Time: The aircraft must move in a straight line toward the target, with the target visible, during the 10% of its movement just before the point at which it fires.

2. Field of Fire: The field of fire of a fixed mount extends in a straight line toward the vehicle's front. Only targets within 1 cm of that line may be attacked.

3. Strafing: A fixed forward-firing mount may strafe. Strafing may be done with any automatic weapon (any weapon with both a hit bonus and a number of targets engaged greater than 1). When the vehicle fires, it picks an aiming point along its field of fire and within effective range. The vehicle must continue to move in a straight line while firing and the aiming point moves along with it. The weapon attacks every target within 1 cm of the aiming point until the weapon's allowed number of targets is reached.

C. Evasion: Aircraft flying in high mode may evade. An aircraft may not evade if moving at maximum speed, and may not evade at times when it is forced to fly straight (such as during an attack run). If an aircraft is evading, its agility rating is used as a DM on enemy fire against it instead of a DM for its movement speed. Point defense systems are affected by the agility DM, although they are not affected by the speed DM. Grav vehicles may also use the agility DM under the same circumstances; their agilities may be calculated as explained in the aircraft design rules in Book 3.

D. Dogfights: An aircraft in high mode may challenge any other aircraft in high mode to a dogfight, regardless of their relative positions, in either movement phase. Both aircraft are removed from the battlefield (or, if already off the field, remain there). Aircraft which engage in dogfights remain off the battlefield until they move back onto it during a friendly movement phase, and may not fire during the next fire phase; however, a challenged aircraft may decide to ignore its opponent, in which case, if it survives the dogfight, it returns to its previous position after the dogfight is over and may move and fire normally, as if it had not been challenged.

The following procedure is used in resolving dogfights:

1. Determine Advantaged Aircraft: If one aircraft is ignoring its opponent, the opponent is automatically the advantaged aircraft. Otherwise, both players roll one die and add to it the pilot's skill level and the aircraft's agility rating. Recruits

have a skill level of 1, regulars 2, veterans 3, and elites 4. The aircraft with the higher total has the advantage; in the case of ties, roll again.

2. Fire: The advantaged aircraft is placed at any range and in any direction from the other aircraft the owning player wishes; in most cases this means that the advantaged aircraft will be able to fire and the other aircraft will not. Fire is conducted as in the fire phase with certain exceptions.

a. DMs: All DMs used in the fire phase are in effect except those for speed. Additional DMs are + or −each pilot's skill, +the target aircraft's agility (unless the target aircraft is ignoring the enemy). If the attacking weapon has a gunner, separate from the pilot, his skill is added also.

b. Return Fire: In a dogfight, both aircraft fire at the same time, and effects are simultaneous. An aircraft which is ignoring the enemy may return fire, but the pilot may not fire and any gunner who fires may not fire in the fire phase.

E. Damage: The standard vehicle damage rule is not used for aircraft. Instead, each aircraft has a damage point value. When it has taken damage equal to its damage point value it is totally destroyed, although most aircraft will crash considerably before that point. Each weapon which hits an aircraft inflicts damage points equal to half its penetration value; HE rounds inflict their full penetration values. If a weapon achieves multiple hits in a fire phase, each additional hit may not inflict more than 8 points of damage.

Each time the aircraft's cumulative damage reaches 10% or a multiple of 10%, its maximum speed and agility are reduced by 10% of their original values, rounding all fractions up. An aircraft whose maximum speed is reduced below its minimum speed crashes. In addition, roll one die; on a roll of 5 or 6, the aircraft has sustained a critical hit. Roll again on the critical hit table below to determine the result.

Results are explained below. A result of *Elect.* is an electronics hit; a result of *Cata.* is a catastrophic hit.

Die	Result
1	Crew
2	Crew
3	Elect.
4	Flight
5	Flight
6	Cata.

1. Crew: A crew member has been seriously wounded. Roll randomly to determine which one. A wounded crew member may not carry out his function. An aircraft whose only pilot is wounded will crash.

2. Electronics: All electronics gear on the aircraft is rendered inoperable. This includes all radios, radar, ECM, computers, and so on.

3. Flight: The aircraft is no longer capable of flight and crashes.

4. Catastrophic: The aircraft is destroyed. All crewmembers are killed.

5. Other Damage Effects: If an aircraft crashes because of a critical hit or because its maximum speed falls too low, unwounded crewmembers may bail out and escape unharmed. If an aircraft has cockpit armor, ignore crew casualties to crew in the cockpit which result from a die roll of 1.

Rule 63: Bombing

Aircraft and grav vehicles may drop bombs. The various types of bombs are listed in Book 3. Vehicles which are bombing must be in high mode, travelling at any speed. Bombs may be dropped by a gunner or pilot.

A. Restrictions: A vehicle must move straight toward its target during the 50% of its turn's movement before the bombs are released. If the vehicle is moving slower than 600 km per hour (500 cm per turn), it must release its bombs directly

over the target. If it is moving faster than 600 km per hour, it may release its bombs without passing over the target; bombs may be released at a distance from the target equal to the vehicle's total movement distance minus 500 cm. For example, an aircraft travelling 800 cm in a turn could release its bombs up to 300 cm from the target. Obviously, a vehicle's entire bombing run will often take place off the battlefield. A vehicle may conduct either a level bombing or a dive bombing attack. In both types, the vehicle may not evade during its straight run. In a dive bombing attack, the vehicle's speed must be 500 cm per turn or less and the DM to enemy fire due to its speed is halved, rounding fractions down.

B. Resolution: Bombing attacks are resolved in the same way as indirect fire attacks. The number of bombs dropped determines the sheaf size; every sheaf is a normal sheaf. If more than 9 bombs are dropped, the sheaf size is the size of a sheaf of 9 bombs; if 18 or more bombs are dropped, the sheaf is a converged sheaf. Deviation is rolled with a total DM of +8 for a level bombing attack and +14 for a dive bombing attack. When rolling for the direction of deviation of a level bombing attack, reroll any results of 10, 11, or 12.

Rule 64: Firing Missiles at Aircraft

The following special rules apply to missiles fired at aircraft and, optionally, to missiles fired at grav vehicles.

A. Guided Missiles: Operator guided, teleguided, and target designated missiles may not be fired at aircraft which are evading or which have a speed DM of 2 or more unless the firing vehicle also has target acquisition radar or ladar.

B. High-Performance Missiles: High performance missiles may be constructed as stated in Book 3. High performance missiles have a speed DM which is subtracted from the speed DM of the target aircraft (or from the agility DM if the aircraft is evading); the missile's speed DM may never do more than cancel the aircraft's speed DM. Thus, if a missile with a speed DM of 3 were fired at an evading aircraft with an agility of 5, there would be a net DM of -2 to hit; if, however, the missile had a speed DM of 8, there would be no net DM to hit. A target-designated missile will automatically hit if its speed DM is greater than or equal to the speed or agility DM of its target, and will automatically miss otherwise.

Rule 65: Chemical Warfare

Chemical rounds are available for any weapon that has an HE round with a burst size (including CPR guns, MRLs, tac missiles, and mass driver guns). Chemical rounds create an initial gas cloud with a size determined by the number of rounds landing; the cloud will be a normal sheaf for that number of rounds.

A. Persistence: Chemical agents may be persistent or non-persistent.

1. Persistent Agents: On the turn the chemical rounds hit, the initial gas cloud appears. On the next turn, an additional gas cloud of the same size is placed immediately downwind of the initial gas cloud. That area is contaminated for the remainder of the game.

2. Non-Persistent Agents: On the turn the chemical rounds hit, the initial gas cloud appears. The cloud remains that size and drifts downwind 10 cm per turn each turn thereafter until it leaves the playing area. Drift takes place during the owning player's fire phase.

B. Effects: Vehicles with a sealed environment or an overpressure system are

immune to the effects of a chemical attack. Troops with combat environment suits, combat armor, or battle dress are immune to the effects of a chemical attack.

All other troops are assumed to have protective masks that they may be able to don in time to prevent exposure to chemical agents. The first time in a game that each such unit is in a gas cloud it must check morale. If the unit passes the check, the troops have successfully put on their protective gear; the unit is immune to chemical attack for the rest of the game, but its morale is permanently reduced by 2. If the unit fails the check, it has been affected by the gas. There are two types of agents: lethal and non-lethal. If a unit is affected by non-lethal agents, all troops are seriously wounded; if affected by lethal agents, all troops are dead.

Rule 66: Combat in Buildings

Occasionally, a scenario may call for detailed resolution of combat inside of buildings. *Striker* is not designed to cover this in any but the most abstract sense, and players should be aware that its time and distance scales are not appropriate to any such actions. Players who own *Azhanti High Lightning,* however, may find it useful to use the rules from that game to resolve interior combat situations. All rules for *Azhanti High Lightning* are used with *Striker* morale and weapon values. For each *Striker* game turn, two *Azhanti High Lightning* turns are played. To use the *Azhanti High Lightning* system in this manner, it will be necessary for the referee to make detailed floor plans of the structure on ½" grid paper. Each ½" square is equal to 1½ meters, and thus each centimeter of building on the Striker playing surface is represented by approximately seven grid squares on the floor plan.

Rule 67: Conversion to 1:285 Scale Miniatures

Although *Striker* is designed for use with 15mm miniatures to take advantage of the figures available in this scale and their visual appeal, players may also wish to use 1:285 scale. A wide variety of 1:285 scale figures and vehicles are available from a number of manufacturers, and with a little careful selection and a little conversion work these can be used to fight science fiction battles. There are two general ways to make use of 1:285 scale figures. One way is to halve all ranges and movement rates (including base sizes); this enables battles to be fought over a much larger area than the standard scale, and allows a considerably larger action to be fought. The other way is to use the 1:285 scale figures but to retain all distances as in the standard rules; this produces units which are much closer to their scale sizes than are 15 mm figures, allowing a more natural determination of spotting and line of sight.

SECTION III: CAMPAIGN RULES

Rule 68: Support Personnel

The basic organization rules are intended to represent troops in a combat unit and who are important to actual tactical combat. If playing an extended campaign, however, a variety of additional troops are necessary to keep a combat unit functioning at peak efficiency.

A. Medical Personnel: A player's force requires one medic, with a medical kit, per 30 men, plus one company casualty clearing station per company with 1 medic

for each 75 men, plus one battalion aid station per battalion, with 1 medic for each 150 men. All medics are non-combatants and may not bear arms. Failure to provide sufficient medics will cause the morale of the unit to go down after its first time in combat. Morale will drop by 1 if more than half the required number are in the unit, or by 2 if fewer than half of the required medics are provided).

B. Mechanics: All units must have mechanics to provide routine maintenance on vehicles and repairs of combat damage. There are three categories of equipment for maintenance purposes, and three categories of mechanics: vehicles, weapons, and electronics. Each piece of equipment requires a certain number of maintenance points to be maintained; each mechanic provides 50 maintenance points. If the maintenance points provided in a category by mechanics are less than the maintenance points required, equipment may break down.

1. Requirements: Each mechanic must be provided with a tool kit (see Book 3) and one workshop must be provided for each 20 mechanics. Each mechanic must also be provided with transportation; mechanics may provide the crews of their own vehicles. Equipment requires the following quantity of maintenance points. Equipment not mentioned requires little maintenance and may be ignored.

a. Vehicles: Each wheeled or grav vehicle requires 5 maintenance points; each ACV requires 6 maintenance points; each tracked vehicle requires 8 maintenance points; and each aircraft requires 12 maintenance points.

b. Weapons: Each meson gun requires 50 points; each point defense weapon requires 12 points; each laser, plasma gun, or fusion gun of 1 megawatt or greater input requires 5 points; each mass driver or tac missile launcher requires 3 points; and each CPR gun or MRL launcher requires 2 points.

c. Electronics: Each battlefield computer or fire direction center above tech level 6 requires 50 points; each nuclear damper requires 25 points; each point defense fire control requires 12 points; each indirect fire control requires 10 points; each direct fire control requires 6 points; each ECM unit, radio or radar jammer or direction finder, radar, ladar, or map box requires 5 points; each grav belt or suit of battle dress requires 3 points; each communicator (of any type) or night vision device requires 1 point.

2. Maintenance Effects: Failure to provide sufficient maintenance crews will result in a large part of the vehicles and weapon systems becoming non-operational. For each 10% shortage of maintenance points in a category, a unit suffers a 1% breakdown rate each week. The referee chooses equipment with maintenance point requirements equal to 1% of the unit's total requirements and declares them to be broken down; if he chooses, he may give a percentage chance of breaking down to a piece of equipment with a larger number of required points; giving equipment requiring 50 points of maintenance a 10% chance of breaking down is equivalent to causing a certain breakdown of equipment requiring 5 points of maintenance.

In addition, during each week of intense combat, equipment totalling 5% of a unit's maintenance points will break down, regardless of the number of mechanics. Repair of broken down equipment takes 1 week and requires the same number of maintenance points as maintaining it. There is no cost.

C. Cooks: In order to provide hot meals to troops, one cook per 50 men and one field kitchen per 100 men is required. In a combat situation, cooks will generally be expected to provide one hot meal a day to the troops in the line.

Troops who do not receive a hot meal for three consecutive days have their

morale reduced by 1 until they do receive a hot meal. Troops in cold or inclement weather have their morale reduced by 1 after the first day without a hot meal.

D. Supply Troops: Supply vehicles are used both to ferry supplies to a unit from its main supply distribution center and to carry the unit's basic load of food, ammunition and provisions. The unit's basic load of food is equal to 14 kilograms per man (two weeks rations). The unit's basic load of ammunition is enough ammunition to supply each weapon in the unit with 80 fire phases. The The unit's basic load of fuel is enough fuel to supply the power plants of every vehicle in the unit at full output for 24 hours. After determining the weight of the unit's basic supply load, add 10% to the required vehicle tonnage for ferrying supplies and restocking supply points. The actual effects of a unit having insufficient supply vehicles are largely dependent on the situation, and the above figures are provided as a general guide to the referee.

E. Veterinarians: If the unit uses animals as beasts of burden, one veterinarian must be present for each 50 animals. If insufficient veterinarians are present in the unit, the unit will lose 1% of its animals a week until the number of animals is reduced to the correct veterinarian:animal ratio. In periods of intense heat, cold, or inclement weather, the required ratio is 1 veterinarian per 25 animals and the animal attrition rate for insufficient veterinarians rises to 5% a week.

F. Force Composition: The force compositions listed in Book 1 are for a combat force. If units are to be organized to include support personnel, the player will receive 10% fewer elites, veterans, and regulars, and 10% more recruits. These represent personnel not trained for combat (although they may be highly skilled in their jobs).

Rule 69: Wounded Troops

Over the course of an extended campaign, many of the casualties suffered by a unit will be able to return to duty. At tech level 5, 65% of all lightly wounded soldiers and 25% of all seriously wounded soldiers will eventually be able to return to action. Add 5% to each of these numbers for each tech level above 5, with a maximum return rate of 90%. All lightly wounded soldiers are fit for duty after 1D days, while all seriously wounded soldiers are fit for duty after 2D weeks.

For example, a unit suffers fifteen light wounds and eight serious wounds. The unit is a tech level 8 unit, and thus 12 soldiers (80%) recover from their light wounds and 3 soldiers (40%) recover from their serious wounds. Dice would then be rolled for each soldier to determine the length of his convalescence.

For each 10% deficit in medical personnel, treat the unit as one tech level lower for recovery purposes. All medical personnel must be equipped with medical equipment as listed in Book 3 to qualify as medics for recovery purposes.

Rule 70: Combat Damage Repairs

Vehicles and weapons damaged in combat are repaired by the unit's mechanics.

A. Vehicle Damage: A vehicle damage result involves damage to a specific piece of equipment on the vehicle as well as general damage to the vehicle itself.

1. The Vehicle: A surface damage result does not damage the vehicle; a minor penetration does damage requiring twice the vehicle's maintenance points to repair; a major penetration does damage requiring 4 times the vehicle's maintenance points to repair. The vehicle may not be used until this damage is repaired.

2. Surface Damage Results: Surface damage to weapons or electronics is repaired by the appropriate mechanic; repair requires the full maintenance points of the equipment. Surface damage to all other equipment is repaired by the vehicle mechanic; repairing all surface damage to a single vehicle requires the vehicle's full maintenance points. There is no monetary cost for repairing surface damage.

3. Minor and Major Penetrations: Minor and major penetrations destroy all or part of a particular piece of equipment. There is generally a monetary cost for repair. The repair requirements of specific damage results are given below.

a. Weapon: The weapon must be replaced; this takes twice the weapon's maintenance points and requires the purchase of a new weapon.

b. Electronics: The equipment must be replaced, using twice its maintenance points and requiring the purchase of new equipment.

c. Suspension: This is repaired by the vehicle mechanic, and requires the vehicle's full maintenance points; parts equal to 10% of a new suspension must be purchased for a tracked vehicle, 25% for other vehicles (25% of the cost of its grav modules for a grav vehicle).

d. Transmission: This is repaired by the vehicle mechanic, and requires twice the vehicle's maintenance points; a new transmission must be purchased for a ground vehicle, and 25% of its grav modules for a grav vehicle.

e. Power Plant: This is repaired by the vehicle mechanic, and requires twice the vehicle's maintenance points; parts equivalent to half a new power plant must be purchased.

f. Catastrophic Hits: If a catastrophic hit occurs, the entire vehicle is destroyed; no repairs are possible.

B. Weapon Damage: A weapon which is destroyed may not be repaired. A weapon which receives any other sort of damage requires its full maintenance points to repair. There is no monetary cost.

C. Aircraft Damage: An aircraft which crashes is destroyed and may not be repaired (although the referee may allow an aircraft which crashes at low speed and altitude to survive with a large number of additional damage points). Each point of damage on an aircraft requires one maintenance point to repair. An electronics hit requires 10% of the maintenance points and price of all electronic equipment on the aircraft to repair.

D. Parts: In most cases above, parts must be replaced. These must either be carried with the unit or obtained in some other manner, determined by the referee. There may be great difficulties or delays in obtaining parts, depending on the unit's situation. Parts for equipment are purchased as if buying complete equipment. Parts may be cannibalized from damaged equipment to repair other equipment, at the discretion of the referee.

Rule 71: Experience

Each soldier learns from his battle experience. If this rule is used, it is necessary to keep track of each soldier's individual morale and his current experience point total. One experience point is gained for every battle in which a soldier participates without routing off the battlefield. A recruit adds one to his morale for each experience point he gains; a regular adds 1 for every 2 experience points; a veteran adds 1 for every 4 experience points; and an elite adds 1 for every 8 experience points. A soldier becomes a regular, veteran, or elite when his individual morale rises to

that point. For example, if a recruit (morale 4) survived 3 battles, his morale would go up by 1 after each; after the last his morale would be 7, making him a regular. After 6 more battles, his morale would rise to 10, making him a veteran, and so on.

Rule 72: Budget

A simple way for a referee to balance two sides' capabilities in a campaign game is to give each a yearly budget and allow them to purchase their own equipment. An army's essential limitation is the expense of maintaining a force, and therefore equipment may be purchased for its maintenance cost. Equipment costs 10% of its purchase to maintain each year; personnel cost (in salaries and other expenses) Cr10,000 per year for militia, Cr20,000 per year for conscripts, Cr30,000 per year for long service professionals, and Cr50,000 per year for picked troops.

SECTION IV: INTEGRATION WITH TRAVELLER

Rule 73: Military Spending

The following rule is a short description of incomes and expenses of planetary armies in **Traveller.** To find out the size of a country or world's military forces, first calculate its gross national product, and then determine how much is being spent on the army. Then equipment and manpower can be purchased and units organized.

A. Gross National Product: To determine a country or world's gross national product, multiply the per capita GNP by its population. A world's per capita GNP depends on its tech level and its trade characteristics, as shown in the tables below.

Tech	Base
5	2,000
6	4,000
7	6,000
8	8,000
9	10,000
10	12,000
11	14,000
12	16,000
13	18,000
14	20,000
15	22,000

To find per capita GNP, multiply the base GNP at that tech level by any modifiers. For example, a rich, agricultural tech level 9 world with a population of 1 million would have a GNP of 10,000 x 1.6 x 1.2 x 1 million credits or 19.2 billion credits.

B. Military Spending: The average expenditure of a nation or world on its military is 3% of its GNP; on worlds where the state of international tension is high, this may range as high as 15%; where little conflict has been experienced for extended periods of time the military budget may be as low as 1% of the GNP.

The total military budget must be divided between the army and the navy. The proportion allocated to the army averages 40% on most worlds, but averages only 6% on worlds with vacuum or trace atmospheres. Planetary defenses are jointly funded by the army and navy; the referee must decide what effect this will have on the army budget.

On Imperial worlds, roughly 30% of the total military budget goes to the Imperium for maintenance of the Imperial military. On independent worlds, the entire budget is available for local defense.

C. Expenses: An army's yearly budget is spent on three things: purchase of new equipment, maintenance of equipment, and support of personnel. New equipment prices are given in Book 3. Maintenance costs 10% of the equipment's purchase price per year

Trade Class	Mod
Rich	x1.6
Industrial	x1.4
Agricultural	x1.2
Poor	x0.8
Non-Agricultural	x0.8
Non-Industrial	x0.8

Personnel cost Cr10,000 per year for militia, Cr20,000 per year for conscripts,

Cr30,000 per year for long service professionals, and Cr50,000 per year for picked troops. This cost includes upkeep on all supporting facilities, salaries, civilian support personnel, pensions, training costs, etc.

D. Imported Equipment: It is possible for a world to purchase and import military equipment of a higher tech level than may be produced locally. However, such equipment is both more expensive and more difficult to maintain. The army budget is received in local credits, and all purchases of equipment other than imported equipment are in local credits. Imported equipment must be purchased in credits of the exporting world. In such cases, consult the table at left, which gives the value in Imperial credits of a local credit on worlds of various starport types and tech levels. Multiply the price of an imported item by the credit value of the world selling the equipment and divide by the credit value of the world buying the equipment. For example, if a tech level 6, B starport world purchased equipment with a

Tech Level	Starport Type					
	A	B	C	D	E	X
F	1.00	.95	.90	–	–	–
E	.90	..85	.80	.75	.70	–
D	.80	.75	.70	.65	.60	–
C	.70	.65	.60	.55	.50	–
B	.60	.55	.50	.45	.40	–
A	.50	.45	.40	.35	.30	.30
9	.40	.35	.30	.25	.20	.20
8	.30	.25	.20	.15	.10	.10
7	.20	.15	.10	.08	.05	.05
6	–	.08	.05	.04	.03	.03
5	–	.04	.03	.02	.01	.01

Book 3 price of Cr1000 from a tech level 8, A starport world, the cost to the purchaser would be Cr1000 x 0.3/0.08 or Cr3750.

In addition to the higher price tag, all equipment of a higher than local tech level costs 20% of its import price to maintain each year and requires twice the normal quantity of maintenance points to maintain and repair.

Rule 74: The Major Races

The basic rules cover combat between human forces. This rule gives some general guides to the other major races (including the human but unusual Zhodani).

A. Aslan: Add 2 to the morale of all Aslan soldiers, and 2 to the morale required for each initiative level, giving the Aslan higher morale than human soldiers but not higher initiative.

B. K'kree (Centaurs): All K'kree must be mounted on team bases; no individual-ly mounted figures are allowed. There are no K'kree militia units; the most commonly encountered type will be conscripts. Because of the K'kree caste system, the most experienced troops will not necessarily form the officer corps; thus the calculation of number of troops of each quality in a unit is made separately for officers and for the rest of the unit.

Because K'kree are very large and are also extreme claustrophobes, when designing K'kree vehicles multiply the interior space and weight requirements for crew and passengers by 6.

As K'kree are both extremely herd-oriented and extreme claustrophobes, all vehicle crews have a morale and initiative level determined by the average of the morale levels of the crew members, not by the characteristics of the vehicle commander. In addition, all vehicle crews suffer an adverse morale modification of -2. This modification may be avoided by allowing 12 times the usual amount of space

for crew and passengers, instead of 6.

K'kree infantry moves at the same rate as human infantry when walking, but at three times the rate when running. A K'kree is capable of carrying 4 times the amount of weight a human can, and ignores the penalties on high-recoil weapons.

C. Vargr: All Vargr recruits have a morale of 2 instead of 4; all Vargr regulars have a morale of 6 instead of 7; all Vargr veterans have a morale of 11 instead of 10; all Vargr elites have a morale of 15 instead of 13. All Vargr NCOs and officers have a morale modifier 1 greater than normal.

D. Droyne: Generally, a Droyne military unit will be made up entirely of warriors, with one leader as a supreme commander. All warriers are considered to be drawn from a long service professional army, and have the normal proportion of troops of each morale level of that force type. However, all troops, regardless of morale, will have average initiative. The supreme commander will have a morale equal to a throw of 3 dice, and has high initiative regardless of his morale level.

E. Zhodani: Since the Zhodani have a caste system the calculation of number of soldiers of each quality in a unit is made separately for officers and for the rest of the unit. However, on the average, a Zhodani force will consist of an additional 5% officers over and above normal command requirements. These officers do not function in command slots, and instead are termed "commissioned specialists", the term specialist in this case relating to psionic training. When using Zhodani forces, the psionics rules from **Traveller** Book 3 may be used as a general guide. All specialists have a psionic strength of 9 or higher, and their numbers are roughly broken down into commandos (20%), scramblers (20%), intelligence officers (20%), and recon specialists (40%).

Commandos are psionic teleporters, almost invariably in battle dress with plasma or fusion guns, who teleport to spots behind enemy lines. A commando group will always have a director present, who is a specialist with clairvoyance and telepathy. As the teleporters must have a clear mental image of the spot they are to teleport to, the director locates a suitable spot clairvoyantly and then telepathically impresses the image of the location on the minds of the commandos.

Scramblers are gifted telekinetics who are used to suppress fire from hidden enemy units in preparation for an assault. They accomplish this by telekinetically pulling pins on grenades, squeezing triggers, etc. Again, each group of scramblers is accompanied by a director who enables the scrambers to "see" what they are doing. Each scrambler has enough psionic power to suppress two enemy stands for one game turn.

Intelligence officers are very gifted telepaths used to conduct deep probes on enemy prisoners. Note that nearly all opponents of the Zhodani will routinely equip their soldiers with psi-helmets, and thus Zhodani telepaths will not be able to routinely discover enemy battle plans or orders.

Recon specialists are clairvoyants used to attempt to spot enemy units in likely areas of concealment. The average clairvoyant can locate up to three enemy concealed positions before exhausting his psionic energy.

The psi-drug double is standard issue to Zhodani officers, and thus each Zhodani specialist will have a combat psi strength 6 higher than his normal rating.

In addition to the commissioned specialists, all Zhodani officers have some limited psionic ability, most often telepathy. In game terms this manifests itself in an ability to give a stand under the officer's command a morale bonus of +6 twice

during the game, or giving a normal order in one turn twice during the game, or one of each. In either case the stand affected must be within 5 cm of the officer (medium psionic range).

F. The Hive: Hivers are very seldom encountered in ground combat, as they are psychologically unsuited to situations requiring personal violence. If Hive Federation troops are encountered they will usually consist of other member races. If an actual Hiver unit is encountered, it will consist entirely of armor and artillery; there will be no infantry. Hiver troops suffer a -1 morale modifier whenever they are able to see the enemy, and must check morale for proximity to the enemy whenever they come within 50 cm of an enemy unit, not 10 cm.

Hiver-manufactured equipment will almost always be tech level 15 (except when lower tech levels are used to save expense). Since Hivers communicate largely by sight and touch, their communicators (all types except meson communicators) have twice the weight and cost as those of other races. However, Hivers are particularly skilled at computer technology; multiply the prices of their computers, drone controllers, and drone brains by 0.6 and their weights by 0.5; multiply the prices and weights of their fire control systems and fire direction centers by 0.6.

Rule 75: Naval Vessels

Starships and interplanetary vessels may occasionally be present to provide fire support. For the most part, even a moderate-sized military vessel will have sufficient firepower to seriously unbalance a game; nevertheless, rules for **Traveller** and *High Guard* ships are included for the sake of completeness.

A. Movement: The movement rate of a spaceship is determined in the same way as that for a grav vehicle; the ship's maneuver drive rating is used as its G value. A ship with a G rating equal to or less than the planetary gravity may not take part in combat actions except from orbit.

B. Armor: A vessel's *Striker* armor rating depends on its *High Guard* armor rating, as shown on the table below. If a vessel is hit, roll damage on the *High Guard* damage table, using the weapon's penetration as a negative DM and the ship's armor rating plus 6 as a positive DM.

				Armor Rating				
High Guard	0	1	2	3	4	5	6	7
Striker	60	64	67	70	72	74	76	77

Add one to the *Striker* armor rating for each *High Guard* armor level over 7.

C. Weapons: The *Striker* equivalents of various spaceship weapons are given below. When conducting direct fire on the battlefield, ship weapons have the same capabilities and fire control limits as other direct fire weapons. When firing from orbit, a forward observer is necessary.

1. Lasers: A shipboard laser is a beam or pulse laser with an input of 250 megawatts. The pulse laser has 3 lenses.

2. Plasma and Fusion Guns: A ship's plasma gun has in input of 250 megawatts; a fusion gun has an input of 500 megawatts. Neither is a rapid-pulse weapon. A fusion or plasma gun bay is assumed, for game purposes, to contain 10 such weapons.

3. Missiles: Turret-mounted missiles have warheads equivalent to 15 cm CPR

gun rounds; bay-mounted missiles have warheads equivalent to 25 cm CPR gun rounds. There are 25 launchers in a 50-ton bay, and 50 launchers in a 100-ton bay. Ship missiles have the same guidance system types as tac missiles: they may be target designated, homing, or drone. A launcher may fire one missile per turn, in the friendly fire phase.

4. Meson Guns: Meson guns have a burst radius equal to their *High Guard* ratings in cm, with A counted as 10, etc. They are used in the same way as battlefield meson accelerators.

5. Particle Accelerators: Particle accelerators are devastating against planets with atmosphere types of trace or vacuum, but completely ineffective against other atmosphere types. If one side has a particle accelerator in orbit over a trace or vacuum atmosphere world, the other side should surrender.

6. Sandcasters: Sandcasters may be used as a sort of giant shotgun. They attack all targets within their danger space, which is 4 cm wide at effective range, 8 cm at long range, and 12 cm at extreme range. Effective range in a standard atmosphere is 50 cm with a penetration of 20 and an autofire DM of +8. Long range is 100 cm with a penetration of 10 and an autofire DM of +6. Extreme range is 200 cm with a penetration of 5 and an autofire DM of +4.

7. Forward Observers: The normal direct fire range of a ship's weapons is limited to that of the direct fire control of that tech level. However, ships high overhead (such as those in orbit), and ships with missiles and meson guns in any positions, may be guided in their fire by a forward observer. The observer must have a map box and a battle computer, and must be in communication with the ship. Each weapon on the ship may fire at a separate target, but one observer is necessary per target.

a. Lasers, Plasma Guns, and Fusion Guns: If in communication with a forward observer, these weapons may fire out to the limits of their weapon ranges, ignoring the limits of the direct fire control system. Fire is conducted as normal direct fire; the observer must see the target. All direct fire DMs apply, including the DM for concealment; in addition, there is a DM of –6 and +the level of forward observer skill of the observer; average initiative observers have a skill level of 1 and high initiative observers have a skill level of 3.

b. Meson Guns: These fire in the same manner as battlefield meson accelerators, and all indirect fire rules apply.

c. Missiles: Missiles must have fire mission orders written for them, giving a target point visible to the observer, number of turns duration, and delay time. Delay time is the same as for normal indirect fire. Missiles arrive in the enemy fire phase at the same time as indirect fire. However, there is no deviation, and each missile functions independently in the same manner as a tac missile in direct fire. Target designated missiles are directed in the same way as laser-designated artillery rounds, but may be displaced twice as far from the MPI. Homing missiles arrive at the target point and attack the closest vehicle, friendly or enemy, within 30 cm, in the same manner as a homing tac missile. Drone missiles arrive at the target point and begin to carry out their orders. Missiles, if desired, may also be fired as normal indirect fire missions; again, there is no deviation.

Rule 76: Planetary Defenses

It is not the purpose of this rule to specifically detail the multitude of data

needed to define the exact defenses of a planet, but rather to provide general guidelines for **Traveller** referees to use in conjunction with the rules. Planetary defenses are of two types: active and passive. Active systems are designed to inflict damage on enemy starships attempting to bombard the planet or land troops, while passive defenses limit the ability of enemy forces to inflict damage on the world.

The most common form of active defense in the deep meson gun site. A deep meson gun is a meson gun of ship ordnance size buried in a deep underground chamber. As the planet itself is transparent to the meson beam, the meson gun can fire at any target desired, while the site itself is effectively impossible to locate. Only when the gun site's surface sensors and target acquisition devices have been destroyed or captured can the gun be silenced, this generally requiring the use of ground troops or extensive planetary bombardment. At lower tech levels, laser and missile sites are used as well, but are much less effective and more vulnerable.

Passive defenses center on major population concentrations, and take the form of damper projectors and large (city-sized) meson screens. The atmosphere of a planet itself provides an effective shield against long-range laser and particle accelerator fire, although vacuum worlds lack this protection and thus generally surrender if an enemy bombardment force penetrates its system defense boats.

Rule 77: Jump Troops

Jump troops are lightly armed infantry, generally equipped with battle dress and whatever support weapons can be man-carried. Their purpose is to assault from orbit, penetrating the planetary defenses in small one-man jump capsules. Generally, their landings will take place before a *Striker* game begins, but occasional lanings directly into combat may occur.

Jump capsule launch facilities may be installed on any spaceship. Each launcher may launch one capsule in 30 seconds. A launch facility takes up 1 ton of displacement, costs Cr10,000, and stores 1 capsule. Additional launch-ready storage takes up ½ ton and costs Cr1,000 per capsule. Additional capsules beyond the capacity of the launcher may be carried as cargo, at ½ ton each.

There are three types of jump capsules: the basic capsule (Cr2000), the assault capsule (Cr10,000), and the high-survivability capsule (Cr50,000). The basic capsule includes only the small personnel compartment and a basic reentry package; it is used as an emergency lifeboat or for landings in areas without planetary defenses. The assault capsule includes extensive ECM equipment and generates a quantity of chaff. It has an armor value of 20 and enemy weapons (except point defense weapons) must roll 9+ to be able to fire at the capsule in descent, DM + or - the difference in tech level between capsule and fire control. The high survivability capsule, in addition to the capabilities of the assault capsule, releases a number of decoy capsules during its descent, and several of these will be present over the battlefield for each capsule. The capsule has an armor value of 28 and may not be fired upon except by point defense weapons.

Rule 78: The Imperial Rules of War

If playing *Striker* set in the **Traveller** Imperium, careful attention to the Imperial rules of war is necessary to avoid triggering Imperial intervention. Although the Imperium is, in principle, opposed to armed conflict within the realm, it realizes

that there is no practical possibility of totally eradicating force of arms as a means of resolving disputes within and between the various member and client states. To mitigate the potentially most disastrous aspects of armed conflict, the rules of war have evolved as an accumulation of unwritten concepts established on a case-by-case basis. The rules of war have not been officially codified, both to prevent them being seen as an Imperial endorsement of war and to prevent formal precedent from preventing Imperial intervention whenever the Imperium deems it necessary. The main aim of the rules is to maintain the economic and military well-being of the realm, and the Imperium will intervene only when military action threatens this. The primary causes of instability, as viewed by the Imperium, are long-term economic dislocation and excessive extra-planetary influence.

Long-term social or economic dislocation is suffered when a region suffers some permanent or semi-permanent loss in its ability to carry on at its pre-war level of economic activity. Major causes of this include large-scale civilian casualties, contamination of agricultural land or raw material deposits, wide-spread destruction of industrial facilities or transportation systems, etc. For example, the destruction of merchant shipping engaged in the transport of strategic materials is an acceptable military tactic as it is directed at choking off industrial output by denying it required raw materials. Mass destruction of merchant shipping, regardless of its cargo or use, has a good chance of triggering Imperial intervention due to such an action's long-term effects. By the same token, small-scale destruction of specific transportation facilities vital to a war effort or of immediate military importance is acceptable, while general destruction of transportation systems with the goal of overall disruption of a state's wartime economy is not.

Broad as the above 'rule' is, the excessive extra-planetary influence concept is even more vague. The Imperium tolerates the use of force as a necessary outlet for built-up political and social pressures beyond the opponents' ability to mediate. In such cases, a short war is deemed preferable to continuing tension, sabotage, political agitation, etc. However, attempts by extra-planetary forces, such as off-world governments or large commercial interests, to seize control of a world's affairs are beyond the scope of the "safety valve" rationale. Recognizing that often some community of interest exists between a faction or state on a planet and some off-planet organization, "assistance" is tolerated, so long as it is deemed appropriate to the level of legitimate interest in the affairs of the world held by the extra-planetary organization. For example, the Imperium has often tolerated the provision by megacorporations of training cadre, arms, equipment, etc. on a limited scale, and even of fully-equipped striker units to local governments. However, when it has appeared that the primary burden for the conduct of the war has been carried by an extra-planetary power, the Imperium has intervened, claiming the power is using the misfortune of a local dispute as a pretext for aggression.

Unlike the above rules, one prohibition is clear and firm throughout the Imperium: use or possession of nuclear weapons, if discovered, and regardless of size or type, will almost certainly trigger Imperial intervention. The Imperium alone retains the rights to such weapons, because of their extreme destructive powers and the possibility of great damage to the civilian population.

Rule 79: Integration with Mercenary

Striker may easily be used in conjunction with **Traveller** Book 4, *Mercenary*, to

conduct a mercenary campaign.

A. Skills: *Striker* concerns itself primarily with action on the immediate battle-field, and thus many *Mercenary* skills (such as instruction, recruiting, survival, etc.) do not directly affect the game. When using *Mercenary*-generated characters, however, the following skill rules are used.

1. Gun Combat: Instead of the generalized DM to hit depending on troop quality, *Mercenary* characters use their specific skill level and dexterity modification for the weapon being used.

2. Battle Dress: Battle dress skill and its effects should be used as outlined in *Mercenary,* page 10.

3. Combat Engineering: A *Mercenary*-generated character must have combat engineering skill to build field fortifications, and the time required to build them is reduced by 5% for each skill level over 1. Non-skilled characters may build fortifications only if supervised by a skilled character. A skilled character may supervise up to five other soldiers per skill level, with all work done at the rate specified by his skill level, or ten soldiers per skill level with work done at the rate specified in the engineer rule. All changes in the time required for work are only for work time; high skill does not allow concrete to harden more quickly.

4. Demolitions: If playing with *Mercenary*-generated characters, the rules from *Mercenary,* page 11, on demolitions mishaps should be used.

5. Recon: For each level of recon skill, add 1 to a character's die roll to spot enemy units. For each two levels of recon skill, subtract 1 from the die roll to spot a character in concealment.

6. Vehicle: A *Mercenary*-generated character should not generally be assigned as a vehicle driver unless the character has at least vehicle skill 1. In an emergency, a vehicle could be driven by such a character, but using the rules for vegicle mishaps. When determining the NOE speed of a grav vehicle or helicopter, add 10% to NOE speed for each skill level above 1.

B. Recruiting: It will probably prove desirable to dispense with the use of *Mercenary*-generated non-player characters in large mercenary units, and the use of *Striker* rules allow this to be done fairly easily. When recruiting non-player characters and using the rules in *Mercenary,* pages 25-26, treat all raw recruits as recruits, all veterans as regulars, all veteran officers as veterans, and all mercenaries as elites. All raw recruits should be treated as morale level 3 (not 4) until they have received basic training *(Mercenary,* pages 26-27).

C. Morale: The morale system used in *Striker* is completely compatible with that used in *Mercenary. Mercenary*-generated characters may be used as generated.

Rule 80: Integration with Traveller

If using the *Striker* rules to resolve combat situations in an on-going **Traveller** campaign, the characteristics already generated for characters may be transferred to *Striker.*

A. Weapons Skills: Instead of using the *Striker* troop type as a modifier to fire combat accuracy, the weapon skills and dexterity modifiers of the characters and NPCs are used. To this end, required and advantageous dexterity modifiers are included in Book 3 for all small arms, even though these are not used when playing *Striker* itself.

B. Morale and Initiative: All player characters are automatically assumed to have

high initiative and are not required to take morale rolls; it is up to the player whether he or she thinks the situation serious enough to beat a hasty retreat. NPCs have their morale rating (and thus their initiative) determined as follows:

NPCs who are veterans of the Scout, Merchant, Navy or Other branches have a morale equal to the roll of 1 D6.

Veterans of the Army or Marine branches have a morale equal to the roll of 1 D6, plus the number of terms served, plus 1. Thus, a veteran of three terms in the Marines would have a morale of 4 plus 1 D6.

C. Other Skills: Player characters and NPCs may only perform a specific function requiring a specialized skill if they have such a skill, provided the skill is available in **Traveller.** For example, a character could not be a forward observer without having a forward observer skill level of at least 1. A character with no vehicle skill assigned to be a driver would roll each game turn for a mishap, as covered by the **Traveller** rules. In the case of functions requiring a skill for which no provision is made in Traveller (such as mortar gunner) the character must have jack of all trades to enable him to perform the function at all, and is assumed to have a skill level in the function one less than his or her JOT skill level. Thus, a character with JOT-1 could operate a mortar, but it would take a JOT skill level of 2 to gain a +1 on accuracy.

Player characters and NPCs placed in a leadership position do not automatically receive the ability to apply a +1 to morale of troops under them, but instead apply their level of leadership skill (if any) as a favorable DM. Characters without any tactical skill take twice as long to issue an order as normal. Characters with tactics-1 take the normal time, and each level above tactics-2 halves the time required. (The time required will never be less than 1 turn, however.)

D. Wounds: For purposes of determining recovery time and actual damage sustained by characters, a light wound is assumed to do 3D damage and a serious wound does 6D damage.

APPENDICES

Appendix 1: Building Terrain

It is not possible to give a complete course on the construction of wargames terrain, but the following suggestions should get the novice started.

A. Hills: It is possible to represent hills in any fashion, so long as the contours are properly indicated (see Book 1, rule 4). We suggest that hills be represented by scale models of the actual hills shown on the map, if the board is taken from one. One of the easiest ways to represent hills is to build up the scale contours on the table using sheets of styrofoam, corrugated cardboard, or any other suitable or easily obtainable material. The contours used can be any height shown on the actual map used (if any) so long as the thickness of the material used is roughly the same, to scale, as the contour. That is, if the map used showed twenty-five meter contour lines, each sheet of material should be 2.5 cm thick. This gives an exactly proportional height-to-distance relationship for the lay of the land. A cloth sheet of suitable color may be laid down under the hills, or the tabletop may be painted to improve the overall appearance. Alternatively, modular sections of terrain can be built out of some suitable material (styrofoam or papier mache) laid over a plywood base, shaped as necessary, and painted or covered with artificial grass, sand,

dirt, etc. Contours can be indicated with string or striping tape. This last method is not as flexible as the others, and is more expensive, but has considerably more visual appeal.

B. Buildings: A variety of N or TT gauge buildings are available which are attractive and approximately the right scale. More modern structures can be built from balsa wood, styrene plastic sheet, or other suitable materials. It is a good idea to construct the buildings slightly smaller tham 15mm scale, to save space.

C. Vegetation: Vegetation can best be represented by lichen and model trees. Trees can be purchased or built from dowels or twigs and lichen or some other material. Unusual flora for alien worlds may be made from any material which looks alien. A few suggestions are artificial flowers and similar plant material from a florist shop, air fern, plastic aquarium plants, or natural plant material such as weed tops or hedge clippings. Since model vegetation does not represent a single plant, but a group, it should not be permanantly fixed into place, in order to permit players to move it when necessary to position a unit there.

D. Rivers, Streams, Lakes, and Oceans: These should be made of blue (or the appropriate color for the planet in question) paper or felt. If terrain modules are built out of wood and/or styrofoam, a very attractive water effect can be obtained by painting the area to be water the appropriate color, allowing the paint to dry thoroughly, and then covering it with a thick layer of white glue (such as Elmer's glue). When the glue dries, it will turn transparent and give both a glossy look and a sense of depth to the water.

Islands, shoals, reefs, and so on can be represented in a manner similar to hills.

E. Roads: These may be represented by tape or paper strips. Sunken roads should be differentiated by color or building up the terrain slightly on either side. Major roads are often on raised embankments to prevent flooding, and should be built up slightly to represent this. Roads should be from 3 to 5 cm wide.

F. Structures: Bridges, walls, fences, fortifications, and other man-made structures may be represented by models or by pieces of cardboard or heavy paper.

G. Fields and Meadows: Cultivated fields in an agricultural area can be represented in several ways. Artificial grass mats are available from a variety of sources and when cut to the correct size give a good representation of a field during late spring or early summer (some firms manufacture terrain mats for model railroaders which depict various crops such as corn or potatoes, plowed fields, stubble after harvest, fallow ground, meadows, and so on). A field lying fallow, recently plowed, or recently cultivated, can be represented by cutting a piece of corrugated card board to the correct size and removing one side of the sheet. The ridges of the cardboard give the appearance of plowed furrows, although the uniformity of the sheet should be broken up somewhat by painting and adding a textured covering. Fields may be delineated with lichen to represent hedgerows or hedges if desired.

H. Swamps and Marshes: Marshy areas should be represented as extensive pools of muddy water with occasional small patches of scrub or trees on small islands. When constructing marshes, remember that they are always located in low-lying places, usually with poor drainage, and will almost always be fed by a stream or river.

I. Other Features: Craters and other alien features can be built up out of any suitable material, in a similar fashion to hills.

Materials can be obtained almost anywhere. Plywood and styrofoam can be

had at the local lumberyard or home center. A 4' x' 8' x ½'' sheet of styrofoam (sold as insulation) can often be purchased on sale for less than a dollar. two. The model railroad section of any hobby shop will prove to be a goldmine of materials (and will usually have several books on building almost every imaginable sort of terrain).

Appendix 2: Acronyms

The following is a list of all the acronyms used in *Striker* and their translations.
ACR: Advanced combat rifle.
ACV: Air-cushion vehicle.
CBM: Cluster bomblet munitions.
CPR: Chemically propelled round.
ECM: Electronic counter-measures.
FO: Forward observer.
GNP: Gross national product.
HE: High explosive.
HEAP: High explosive, armor piercing.
IR: Infra-red.
KEAP: Kinetic energy, armor piercing.
KEAPER: Kinetic energy, armor piercing, explosive round.
MD: Mass driver.
MPI: Mean point of impact.
MRL: Multiple rocket launcher.
NCO: Non-commissioned officer.
NOE: Nap of the earth.
RAM: Rocket assisted munition.
ROF: Rate of fire.
STOL: Short take-off or landing.
VRF: Very rapid fire.
VTOL: Vertical take-off or landing.