

No. 26

CHALLENGE

GDW's Magazine of Adventure Gaming



Twilight: 2000 Air Module
by Frank Frey

Cargo: A Merchant Prince Variant
by Terry McInnes

Military Academy
by Marcus Rowland

Incorporating the Journal of the Traveller's Aid Society

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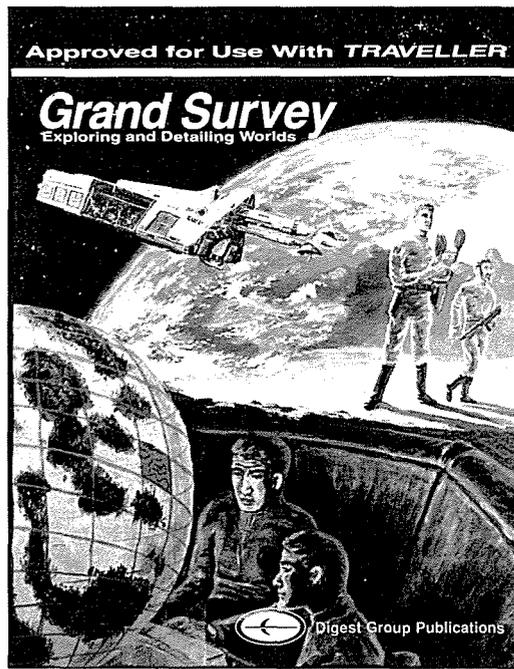
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CHALLENGE

GDW's Magazine of Adventure Gaming

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Twilight: 2000 is Game Designers' Workshop's trademark for its role-playing game of survival in a devastated world.

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Submissions: We welcome articles and illustrations for the *Challenge*. Please inquire before submitting manuscripts, enclosing a stamped, self-addressed envelope; we will send manuscript guideline and format sheets. Foreign inquiries (except APO/FPO) please include an International Reply Coupon.

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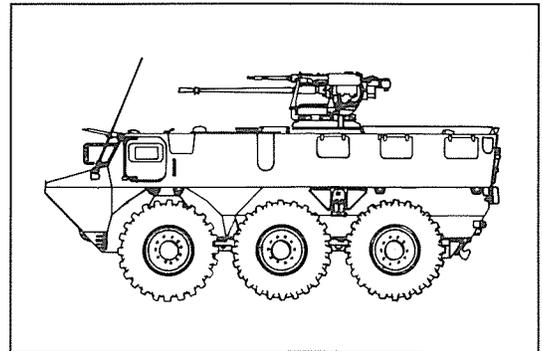
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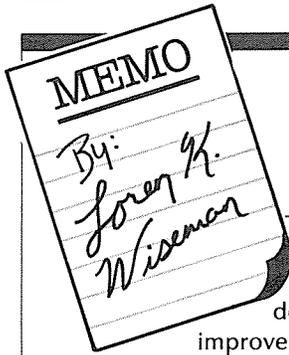
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From the Management

In this issue of *Challenge*, we've made quite a few changes in the design of the magazine. We think this improves the magazine's overall appearance, makes it easier to read, and generally gives you a better-looking product. Write and let us know what you think.

We are introducing a new feature for the *Twilight: 2000* section with this issue. It will be called *Equipment List*, and it will feature vehicles, weapons, and other items of interest to *Twilight* players.

Among other changes we will be making, I will finally be getting some help with the editorial chores, beginning next issue. Tim Brown, of the GDW staff, will be coming on board as Associate Editor, assuming many of the editorial duties connected with the JTAS section. Tim has been involved in the design and development of both *Traveller* and *Twilight* modules, and brings a great deal of knowledge and expertise with him. I will become Managing Editor, and will exercise overall control.

—Loren K. Wiseman

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JUST DETECTED

CONVENTIONS

GATEWAY 1986

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September 6-7, Lexington, Kentucky. Historical Miniatures, board games, Fantasy, SF, RPG games will be presented. The convention is sponsored by the Lexington Historical Gamers Society and the Rusty Scabbard Hobby Shop, and will be held at the Lexington Hilton Inn. For more information, send an SSAE to Lexington Historical Gamers, C/O The Rusty Scabbard, 513 E. Maxwell St., Lexington, KY 40502.

EARTHCON VI

September 19-21, Holiday Inn Cleveland. This is the Northeast Ohio Science Fiction Association's annual SF/Fantasy convention. Guests include Gordon R. Dickson and C.J. Cherryh. For information contact EARTHCON, PO Box 5641, Cleveland, OH 44101.

MAGAZINES

BETWEEN WORLDS

Issue 4 has just arrived, containing articles on Bounty Hunters as a character class and a short freelance adventure.

Subscriptions are \$7.00 per year (12 issues).

Publisher: MAFS Production, LTD.

Between Worlds, 3914 Angeles, Tampa, FL 33629.

TRAVELLERS DIGEST

Issue Number 5 is now available, containing "The Humaniti Experiment," more Vland sector data, and articles by Marc Miller and J. Andrew Keith.

See their ad in this issue for subscription data.

GDW products (including *Traveller*) are available through distributors as follows:

West Germany: GDW products are imported and distributed by Fantastic Shop, Kirchofeldstr. 143, Postfach: 3026, 4000 Dusseldorf 1, West Germany. Some titles are translated into German.

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Twilight: 2000 Air Module

These rules were designed for use in conjunction with GDW's upcoming *RDF Sourcebook*. Players who are used to campaigns set in Europe where the only things in the sky are clouds and birds should find this new dimension challenging.

Referees may wish to use the *Twilight: 2000* rules to fight pre-1998 battles (either engagements in WWII itself, or other battles using modern equipment).

INTRODUCTION

In 2000, functional aircraft are rare. The exception to this rule is the Middle East, where a few refineries still turn out a small quantity of petroleum products, including aviation fuel.

Because of the availability of aviation fuel both rotary and fixed wing aircraft still operate in the Middle East, although not at their pre-war levels. Many are the remnants of the various air forces in the region, others were civilian craft "drafted" into military service.

PRELIMINARY NOTES

Here is a short description of types of aircraft, and a brief rundown on how modern air combat is conducted.

Support Aircraft: This category covers transports and observation aircraft. These are the types that are most likely to be encountered by the players. In combat operations these are usually helicopters that fulfill these roles. The availability of these air assets should be determined by the referee based on the group's current mission. Even Medevac helicopters are hard to get because there's not that many of them.

Fixed wing support aircraft are primarily used to shuttle cargo and passengers. Transport aircraft are also used to air-drop supplies. There are a very small number of tanker aircraft that are used for in-flight refuelling. Observation aircraft are used for a variety of patrol duties.

Combat Aircraft: These are the aircraft that do the actual fighting. They come in two varieties, ground attack and air superiority. Due to the small number of aircraft available, both sides tend to limit their use of major targets and operations.

The average airstrike takes about 15

seconds to execute. The first 5 seconds are spent approaching the target (known in pilot's slang as "rolling in"). During the next 5 seconds the aircraft delivers its' ordnance (known in pilot's slang as "hitting the pickle switch" or "hosing 'em down"). The last 5 seconds are spent in evasion and escape from the target area (known in anybody's slang as "getting the hell outta there").

Helicopter gunships work differently. They hover behind hills and treelines for cover and concealment. Once a target is acquired, they climb rapidly, engage the target and drop back down out of sight before the other side has a chance to reply. This technique is called "popup".

Both sides make extensive use of controllers. On the ground these are Forward Observers or Forward Liaison Officers (FALO's). Airborne controllers are referred to as FACs (Forward Air Controllers). They fly light aircraft or helicopters. This system is used to maximize the effectiveness of the strike.

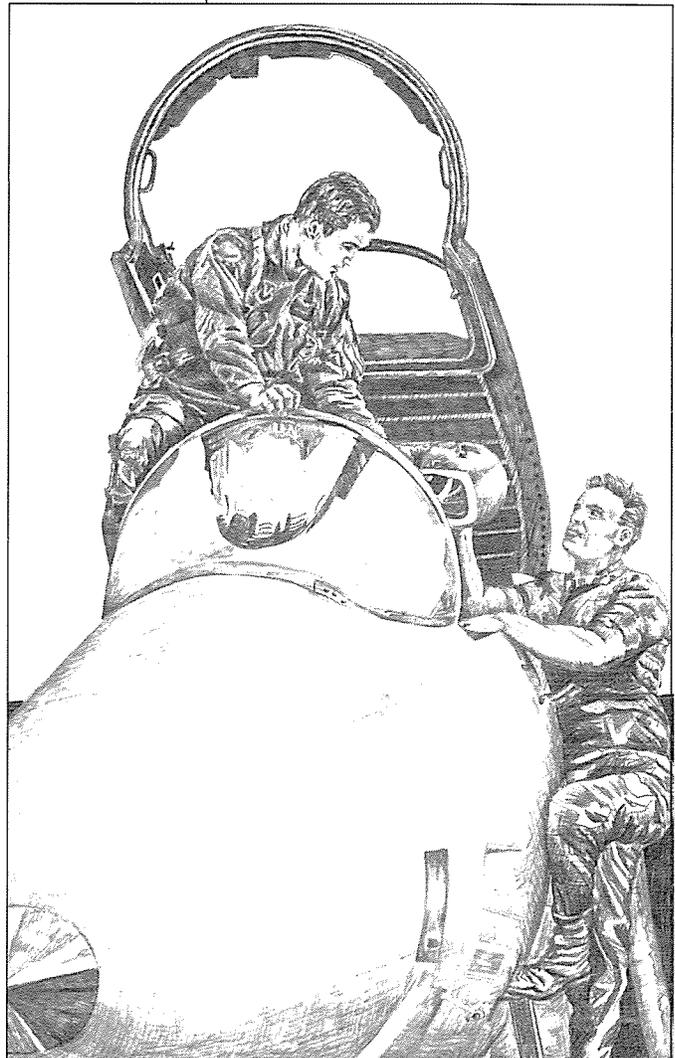
Helicopters sometimes use a different technique, called a hunter-killer team. It consists of a light observation helicopter (LOH) and one or two gunships. The LOH finds the targets and vectors in (i.e., guides) one or more gunships. While the gunship(s) engage the first target, the LOH finds other ones.

The LOH is the key to the whole operation, a fact not ignored by the opposition's anti-aircraft gunners, who single out the LOH for special attention (since the LOH's armor is only slightly better than that of a lunchbox, it takes a special kind of in-

dividual to crew one of them). On the other hand, anti-aircraft guns are a number one priority target, especially the one shooting at the LOH.

Air superiority fighters operate under basically the same guidelines. They are vectored to the general area of their targets through either a ground control intercept (GCI) system or an airborne warning and control system (AWACS) aircraft. Once there, they're on their own to accomplish their mission. Air superiority fighters also provide cover for ground attack aircraft and transport aircraft making air drops.

Multi-role Aircraft: These are aircraft that are designed for both ground attack and air superiority missions. There is debate as to their effectiveness versus aircraft specifically designed for a single task, but MRCA's are generally con-



sidered highly valuable due to the flexibility they give air commanders.

Blind Strike Capability: This is the ability to hit a target on the first pass regardless of weather or visibility conditions. This sort of strike requires very high-tech avionics equipment. The approach is usually made nap of the earth (NOE) at subsonic speeds. The target has been previously located and identified. The aircraft then jumps up to low level and acquires the target, usually with a laser designator. The ordnance is released and the aircraft drops back down to NOE level and makes its escape. The entire strike from popup to escape takes 5 seconds. This may not sound like it's too different from a regular airstrike. The thing is, a blind strike is done in conditions where visibility is virtually nil. Due to the immense technological base necessary for strikes of this type, they are very rare in 2000. The aircraft capable of them have either been shot down or their avionics have degraded to the point where such attacks are impossible.

FLYING

A new skill has been added for the purposes of this air module only. This skill is called *Multi-Engine Aircraft Pilot* or MEP. Its prerequisite is a LAP skill rating of 40. It costs double if it is purchased as a background or education skill.

The MEP skill covers the flying of medium or heavy aircraft with two or more engines. This is a separate and distinct skill from JP skill. Players who wish to be qualified on a multi-engine jet transport need a minimum of JP 10 in addition to the MEP skill.

As with RWP skill, the level of the LAP, MEP, or JP determines the number of types of aircraft a character is qualified to operate. With a skill level of 10-19, a character will be qualified on one aircraft of his choice; 20-39, two aircraft; 40-49, three aircraft; 50-59, four aircraft; 60-69, five aircraft; 70 or more, six aircraft. The aircraft must be of the type appropriate to the skill. A character may become qualified on an aircraft during the course of play by 1) having the appropriate skill, 2) conducting three successful take offs and landings and 3) having 10 hours of flight time (as pilot) in the aircraft.

Taking off or landing an aircraft on which a character is qualified is an ESY task. Taking off or landing an aircraft on which the character is not qualified, but in which the controls are labeled in a language the character speaks (LNG > 40) is an AVG task. Taking off or landing an aircraft on which the character is not qualified and in which the controls are labeled in a language the character does not speak is a DIF task.

When taking off or landing, these rolls will simulate the characters struggle to understand the controls and to get the aircraft airborne or bring it down safely. A catastrophic failure indicates a loss of control and a crash. A regular failure indicates a less serious mishap such as running off the runway while taking off, or coming in too hard while trying to land. Don't forget the ever popular sport of clipping the treetops during either of these situations. Difficulty level is increased by one if attempting to take off or land in high winds or a constricted airfield. A constricted airfield is one that is 5 to 25 meters shorter than the aircraft requires. Taking off or landing on any strip that is shorter than this will result in an automatic crash. A character attempting to take off or land an aircraft without the proper avionics will have all difficulty levels in-

creased by one.

Once airborne, skill rolls are made once per hour of flight to avoid a mishap. All flight rolls are ESY tasks, regardless of whether or not that pilot is qualified on that particular aircraft. Failure of the skill roll will indicate that the pilot believes that the aircraft is malfunctioning due to misreading the instruments or the flight characteristics. The pilot will attempt an immediate landing. A catastrophic failure results in loss of control of the aircraft and is followed by a crash.

Most multi-engine aircraft require a co-pilot in addition to the pilot. For purposes of determining the flight rolls, the following formula is used; Flight Roll = Pilot's Skill Level + Co-Pilots Skill Level/2. This is used for take offs, landings and any hazardous situation while in flight (rough weather, night flying, flying through mountain passes, and so on).

There is a certain degree of overlap between LAP and MEP skills. Characters with a high LAP score would at least have a chance of flying a larger transport plane. To determine a character's MEP score, divide his LAP score by 5. This result is used in all of the preceding equations. (Imagine trying to get a C-130 airborne from a hot landing strip when your co-pilot has only 20 hours in a Piper Cub...it can be done but it gets a bit hairy.)

The rules and procedures for flying helicopters are covered in Module 1, *The Free City of Krakow*. It is presumed the referee is familiar with these rules and procedures, and they will not be repeated here. Characteristics are provided for additional helicopter types at the end of this article.

MAINTENANCE

Like other vehicles, aircraft require regular maintenance and are subject to breakdowns. Preventive maintenance and repairs on aircraft are performed the same way as for other vehicles, except that ACM is used as the asset instead of MEC. Aircraft rely heavily on their avionics. Because of this, aircraft avionics require preventive maintenance separately. Aircraft avionics require maintenance in hours equal to 10% of their maintenance number. Example: An aircraft with a maintenance number of 40 requires 4 hours of maintenance per week on its avionics. In this case ELC is the asset used.

TRAVEL MOVEMENT

Like other vehicles, aircraft have a fuel capacity. They may not use any other fuel but avgas. The listings for travel movement are for one hour of travel, not a four hour period.

COMBAT MOVEMENT

Combat movement is listed in meters per combat round, the same as for other vehicles. However aircraft have three additional listings that relate to combat movement; *Agility, Turn Radius, and Acceleration*.

Agility is numerical rating from 1 to 10 that indicates how maneuverable an aircraft is. The higher the number the more maneuverable the aircraft. There are two ratings given. The one on the left side of the slash is for when the aircraft is fully loaded. The one on the right side of the slash is for when the aircraft is empty. Aircraft with higher agility ratings move before aircraft with lower agility ratings. For game purposes, all surface to air missiles are presumed to have an agility of 10.

Turn radius is the number of degrees an aircraft can turn



during one 5-second combat round. There are two ratings given. The one on the left side of the slash is for when the aircraft is fully loaded. The one on the right side of the slash is for when the aircraft is clean. Example, an aircraft has a loaded turn radius of 45°. In order for it to make a 180° turn, it would take four combat rounds. A Loaded aircraft is one that is carrying its full underwing stores capacity or its full cargo load. A clean aircraft is one that has dropped its underwing stores or is carrying less than 25% of its cargo capacity.

Acceleration is the amount by which an aircraft can increase or decrease its speed during a combat round.

ALTITUDE

Altitude determines at what range an aircraft will be spotted. This in turn determines how much time the people on the ground have to get ready for the incoming aircraft. For purposes of these rules, altitude levels are defined as follows:

Nap of the Earth (NOE) = up to 30m

Low Level = 31-600m

Medium Level = 601-3,500m

High Level = 3,501-20,000m

Aircraft flying at an altitude of more than 20,000 meters are considered to be too far up to have any effect on ground units.

DETECTION

Aircraft are spotted in one of two ways: electronically or visually. The following table gives the maximum detection range for radar (results are in kilometers).

DETECTION RANGE

<i>Altitude</i>	<i>Max. Range</i>
NOE	24
Low	74
Medium	177
High	427

This chart presumes ideal conditions on a flat surface. Very often terrain obstacles and bad weather will reduce these

ranges considerably. The table is based on a radar set operating at ground level.

Spotting an aircraft on radar at NOE level is DIF:ELC task. Spotting an aircraft at low level is an AVG:ELC task. Spotting an aircraft at medium or high level is an ESY:ELC task. If the aircraft is using ECM, DM -20 for Soviet built-aircraft, -30 for Western-built aircraft.

Rather than go into a lengthy discussion of various makes of radars and their merits, the generalizations given below will be used. These reflect average performance of the various classes of radars.

RADARS

<i>Type</i>	<i>Maximum Range</i>
Portable Battlefield Radar	10 Km
Vehicle-Mtd Weapon Radar	20 Km
Ground-Based Search Radar	500 Km

Portable battlefield radars are usually towed on trailers or mounted on vehicles. Vehicle-mounted weapons radars are used as fire control systems on self-propelled anti-aircraft vehicles like the ZSU-30-6 or the tracked rapier missile system. Ground-based radars are permanent or semi-permanent installations.

The maximum visual sighting range for a ground observer is 10 kilometers. This is without visual aids. Visually spotting an aircraft at NOE Level is DIF:RCN. Spotting an aircraft flying at low level is AVG:RCN. Spotting an aircraft flying at medium or high altitude levels is ESY:RCN. Characters will probably want to establish positions higher than ground level wherever possible. This will give them as much early warning as possible and allow them more time to react. To simulate the effect of added height, add one kilometer to the maximum visual sighting range for each meter that the observer is above ground level.

Another tactic that characters can use is to designate an air watch. The air watch is a character or characters whose only job is to watch for approaching aircraft. Usually each vehicle has at least one crewman or passenger on air watch. A character on air watch adds 20% to their rolls for spotting aircraft but they subtract 50% from their rolls for spotting ground targets.

Aircraft can spot ground targets. In order to do so, they must be at either low or medium altitude levels. The speed of the aircraft determines the difficulty level of the task. For aircraft moving at less than 200 kph the task is ESY:RCN, from 201 to 400 kph the task is AVG:RCN, and from 401 to 800 kph the task is DIF:RCN. Aircraft moving at speeds in excess of 800 kph cannot spot any ground target except for large formations of vehicles or men (6 or more vehicles or 100 or more men in column formation). They can also spot large clusters of buildings or medium or large installations in the open. This is an ESY:RCN task.

A man-sized target or small vehicle (5 tons or less) is spotted at double the normal encounter range. Vehicles larger than 5 tons are spotted at triple the encounter range. Fixed installations are spotted at four times the encounter range. Moving vehicles are spotted automatically at four times the encounter range.

Aircraft can spot each other while in the air. Aircraft at high altitudes can spot each other at 90 kilometers. Aircraft at lower

