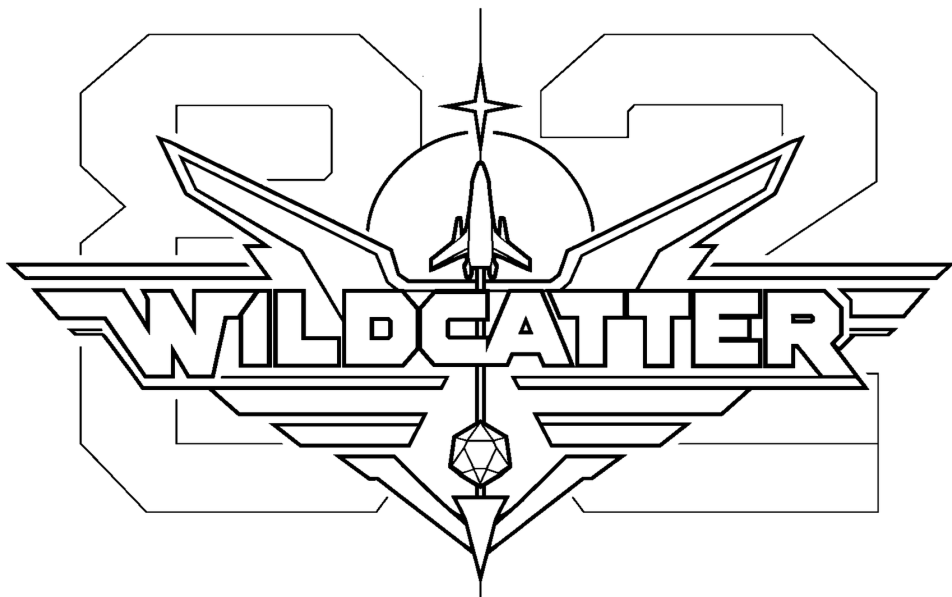




Wildcatter's Flight Manual



Wildcatter's Flight Manual

Issued with every Kestrel on the Charter's books

Program and documentation
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First edition 1982

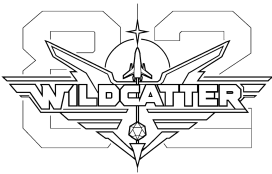
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Wildcatter '82 is a work of fiction. The sector it describes, its peoples, its powers and every person named in it are imaginary, and any likeness to a real place or a living person is accidental.

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CHAPTER ONE

Introductory Data

Welcome aboard the Kestrel. The ship has been issued to you by the Harbour Office at Lorsel Gate, by arrangement with the Charter Survey Board, as it is issued to every pilot who takes the Charter's patrol on their own account. The small flight manual supplied with the craft is designed to familiarise you with the ship, the sector and the work, and we hope that you will find it of use. The ship is drawn in Fig. 1.1.

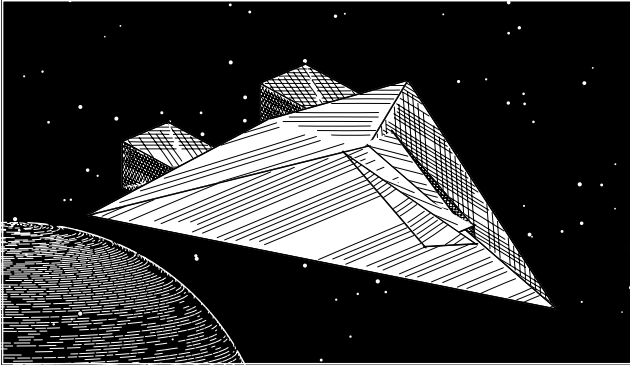


FIG. 1.1

The Kestrel is the Charter's light patrol hull: a flat delta with two drive pods aft, a forward pulse gun, a cable and reel for towing, four passenger berths and a hold for eight units of cargo.

You begin your career with a stock Kestrel, three hulls, 350 credits (CR) and a full tank, docked at Lorsel Gate, the Charter's harbour over the world Lorsel in the Vespara system. You have no jump drive. The harbour yard lists a short drive at 900 CR, and the work that will pay for it is close at hand. The Charter keeps its watch over Vespara from this station, and Commander Hale, who runs it, will speak to you as you leave. This is the Charter patrol, the start every pilot has. A pilot who has seen the sector through may find the title offering other places to begin, in other systems, with the home left behind them changed; the Harbour Office has no more to say about that than the pilot has found out.

The Charter's word for a pilot who works on their own account, with no fleet behind them and no house to pay them, is *wildcatter*. A wildcatter is paid by the job. They answer to the books that each side of the sector keeps on them, they may be asked for anything by anybody for a price, and what they do with the Kestrel is their own affair. This manual is written for them.

"A wildcatter is a pilot with no one to blame."

HARBOUR OFFICE SAYING

WHY THE CHARTER KEEPS A WATCH

On Oroven, the outermost world of the Vespara system, an object fell out of the sky and began to build. The Charter calls it the Starfall. It raised masts, guns and plants, and the machines that came out of them have given the sector its present trouble. They are called the Tide, because nothing yet raised against them has held them back for long. Where the Tide is thickest it makes cores, and the plants of every settled world run on cores. How the Tide makes them, and for whom, nobody on the Charter's side has been able to say.

The sector is larger than the Charter. Twenty-six stars lie in clusters joined by corridor stars, and four peoples keep them, more or less: the Charter, the Free Ports, the Ossuan and the Varr. Pirates work the lanes between. Beyond the settled clusters, where a jump that falls short leaves a ship, there are hunters that answer to none of these. Chapter 5 sets out what is known of them.

Interior of a Kestrel

The Kestrel is the best of the Charter's light patrol hulls, and an honest ship for a first career: it does everything and excels at nothing. It is quick to turn, light on the controls, and strong enough (the hull is rated at 100) to take a few hard knocks and one bad landing. Its tank holds 100 units of fuel. Top speed is 60 units a second, and 135 under boost, at the price of fuel and of every weapon aboard. Its plan, with every compartment named, is Fig. 1.2.

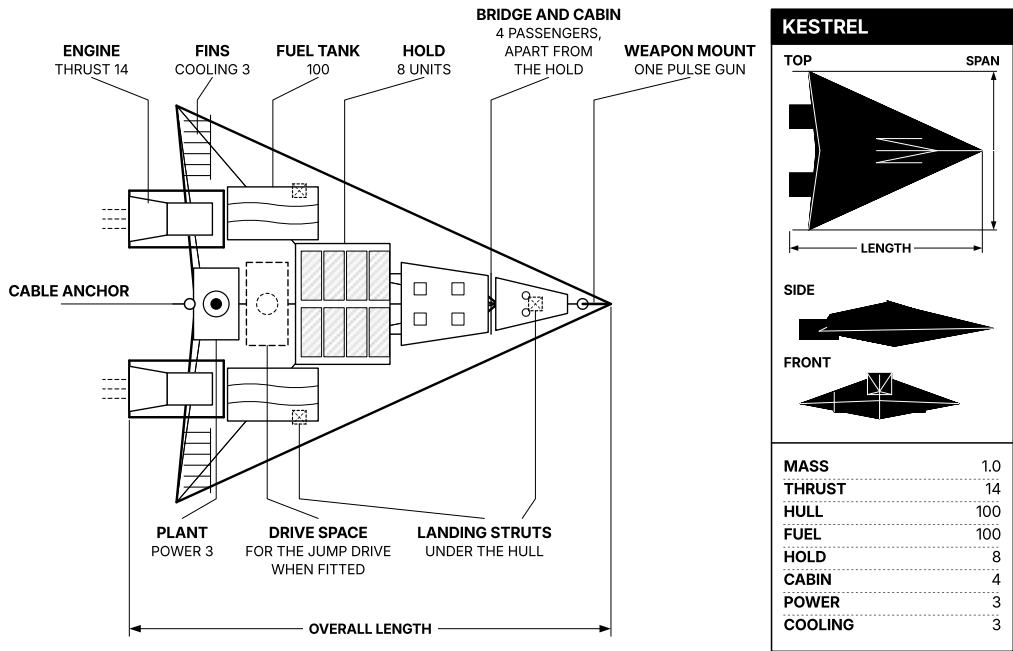


FIG. 1.2 Plan of the Kestrel: the compartments named, and the three views.

The ship consists of five main areas.

The bridge has a single seat for the pilot, the console and the main screen. Everything the ship tells a pilot is shown here, and chapter 2 describes each reading. The air is kept at a comfortable temperature, but when the ship overheats the cabin is the first to know (see Heat).

The cabin has four berths, apart from the hold. They are meant for fares: a colony will pay to put a person on a station, and a station will pay more to put them on another. People on a Kestrel are carried at the pilot's risk, and they do not enjoy a hard landing.

The hold fills the middle of the ship and takes eight units of cargo or of anything else that will go in a Kestrel's hold: ore, crystal, parts, grain, cores, alloy, relics, survey records. Each unit adds 0.03 to the ship's

mass, and a full hold climbs out of a gravity well a quarter slower. Beneath the keel is the reel for the cable, which carries what the hold cannot.

The drive section houses the main engine and its two pods, the fuel lines and the space for the jump drive when one is fitted. Main thrust burns one unit of fuel a second, boost three and two-tenths, retro thrust and the lateral jets half as much. With the tank empty there is no thrust at all, and the screen says so: GRAVITY WINS.

The equipment level runs through the whole ship. Every module has a mass, a power draw and a heat term, and a hull carries what its plant and its fins allow: in a Kestrel, three points of power and three of cooling. A fit that draws too much power will not fit; a fit that sheds too little heat will be fitted, but the ship will run hot. Chapter 3 lists the modules.

Starting out



FIG. 1.3

The title screen. ENTER begins a new career. F2 continues the saved one. F1 shows the flight manual, which is a shorter version of this book.

On the title screen, ENTER begins a new career and F2 continues a saved one. Two fields can be changed before you begin. The first is the **seed**: a word, or any run of letters and figures up to sixteen characters, which builds the sector. The same word always builds the same sector, with the same stars in the same places, so that two pilots who fly the same seed can compare notes; a different word builds another. The word STARFALL builds the sector described in this manual. TAB moves to the second field, the **call sign**, which may be up to twelve characters long and which the stations will use when they speak to you. The screen itself is Fig. 1.3.

The career is saved automatically every time you dock and every time you arrive in a new system. There is no other way to save, and no way to load an earlier save: the sector is as you left it, including the damage you did to it.

HARBOUR OFFICE NOTICE 1

A hull is issued, not owned. The Office replaces a lost hull twice, and does not make a habit of it.

FIG. 1.4

The career page: the three ratings, and what each side thinks of the pilot.

Lives

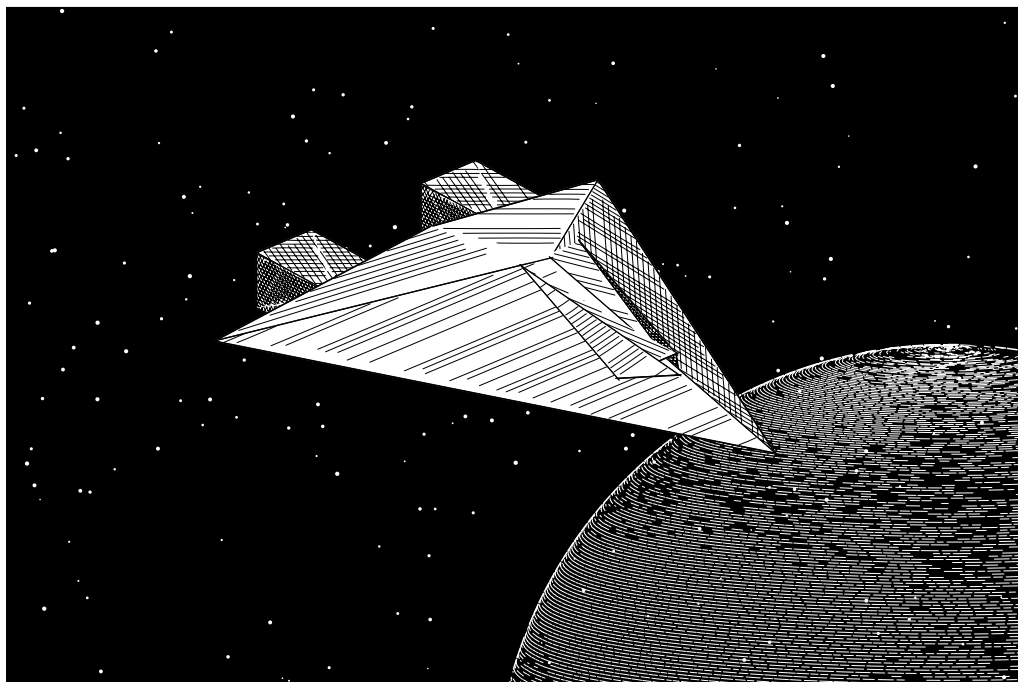
You are given three hulls. A hull is a life. When a ship is lost (to a crash, to the star, to the Tide or to anything else) the pilot is put back in a Kestrel at the last station docked at, with the credits, the record and every module that fits a Kestrel, and without the cargo, the passengers and anything that was on the cable. The third hull lost ends the career. Promotions bring spare hulls, as chapter 5 explains. What the record says of the pilot is shown on the career page, Fig. 1.4. TAB turns the career page: the record, the people the pilot has met and what each wanted, and the places the pilot is tied to (a home port, a plant lit, a favour owed).

CAREER	
RECORD PEOPLE PLACES	
THE FALLEN STAR STILL BURNS.	
COMBAT	HARMLESS
	KILLS BY THEIR THREAT, BOMBS AND CORES
SURVEY	UNCHARTED
	FIRST SIGHTS: SYSTEMS, WORLDS LANDED ON, PLACES FOUND, DOCKED TO THEIR DEPTHS, STATIONS
TRADE	PEDDLER
	PROFIT OVER WHAT THE GOODS COST YOU WANT YOU FOUND COST NOTHING
THE CHARTER	CIVILIAN
	116 SYSTEMS, SITUATIONS RESOLVED, PEOPLE SAVED, BOMBERS KILLED, 116 CIVILIAN KILLED COUNT AGAINST
THE FREE PORTS	STRANGER
	116 PORTS: PROFIT MADE THERE, CORES SOLD, SITUATIONS RESOLVED, 116 PEOPLE KILLED COUNT AGAINST
THE OSSUAN	OUTSIDER
	THEIR SPACE, CHARTS AND FIRST SIGHTS BROUGHT TO THEM, 116 PEOPLE SAVED, SITUATIONS RESOLVED, THEIR PEOPLE HARMED CO
THE VARR	UNKNOWN
	THEIR EXCHANGES: PROFIT MADE THERE, THEIR COURTESY AND THINGS HARMED COUNT AGAINST
THE LANES	PREY
	THE POWERS: HULLS KILLED, STOLEN GOODS SOLD TO A TENDR, THEIR OWN KILLED COUNT AGAINST
KILLS	SHIPS DESTROYED
RECORD	PLACES FOUND
	QUANTITIES PAID
	OR

Your rating

Three ratings measure what you do. Each begins at the bottom and climbs by points, and each is scored separately: a pilot may be ELITE in combat and a mere PEDDLER at trade. The ratings do not tell the pilot what to do. They record it.

Combat rates the ships you bring down, each by its threat, and the bases and cores you destroy. **Survey** rates first sights: a system, a place found, the deepest room of a cave, a landing, the first docking at a station. **Trade** rates profit, at about one point for every twenty credits over what the goods cost you. What you found costs nothing and so counts in full.



A Kestrel making for the day side of Lorsel. The Charter's light patrol hull has no pretensions to beauty.



CHAPTER TWO

Navigation and Flying

Here you are introduced to all the controls which will eventually be useful to you in flying the Kestrel between the worlds of a system and, once you have a drive, between the stars. Fly well. Gravity is not your enemy. It is the game.

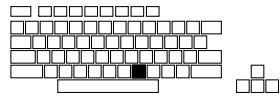
Navigation

A system is a star and its worlds: rock, ice, desert, volcanic and crystal worlds, gas giants and their moons, with belts and rings of rubble between. Everything in it moves, and everything in it pulls. Gravity is real around every world and deep near the star, and between the worlds it is very nearly nothing, so that a thing left in orbit stays in orbit. The flight is Newtonian: a ship that is moving goes on moving until something stops it, and the only thing which stops it is another push in the opposite direction.

You will want to know where you are going before you fly there. The Kestrel's screens give you two charts of the sector, and a third on the console itself.

SYSTEM MAP

M opens the system map: every world of the system on its orbit, every station, and every situation the Charter's watch has called in. The star is at the centre. Worlds are circles; the marks beside a world show what is on it, as the key at the head of the screen explains: each has a shape as well as a colour: a plain tick for a colony, a tick barred across its end for a mine, a broken one for a derelict, one ending in a ring for an outpost, a cross for an enemy site, a diamond for a situation (with a cross inside where it is a fight), a square for a station. Move the cursor (the map takes a mouse or a trackball, and the arrow keys pan it) to a world or a station and it gives a short note of how that place stands: what is so there now, and what is likely next. Press 1 to 5 to set a course to the situations listed at the top right. Fig. 2.1 shows Vespara in the manner of the map: the star at the centre, the worlds on their orbits, the stations and the belt.



M opens the system map.
V there switches to the sector chart.

THE VESPARA SYSTEM

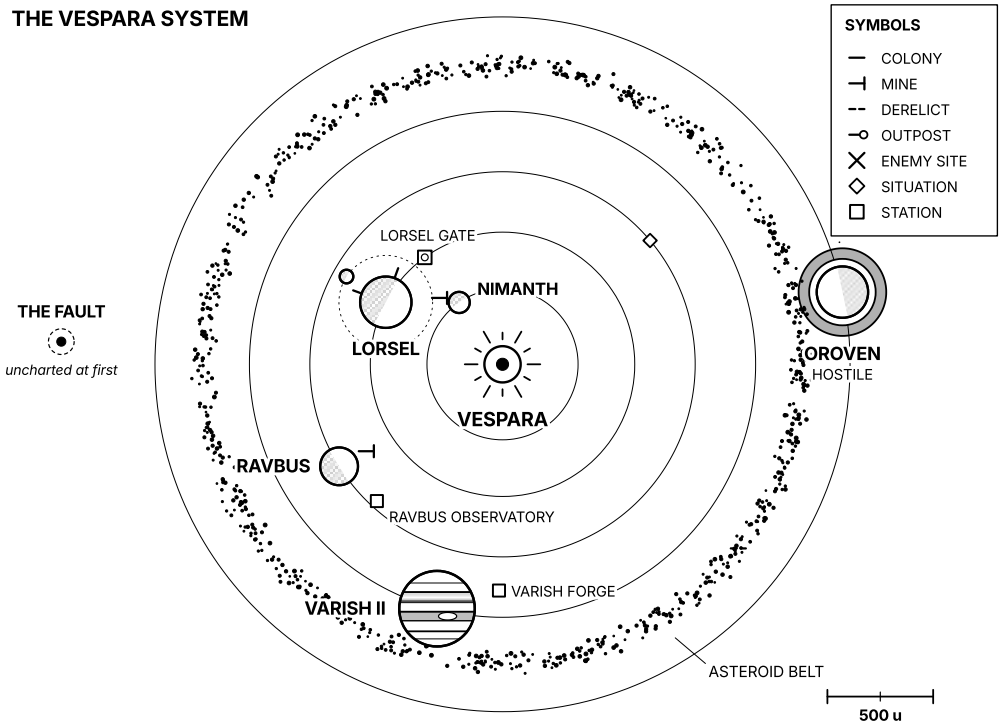


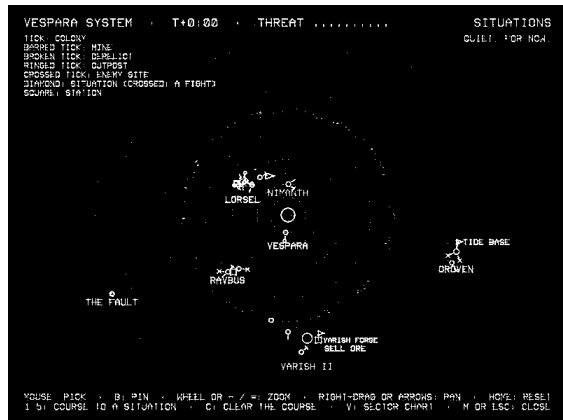
FIG. 2.1 The Hellor system as the map draws it: the star, the worlds on their orbits, the stations and the belt.

A course is a bearing, not an order: a marker at the edge of the flight screen points to the target and names it. TAB cycles the course from one situation to the next and then to the stations; C clears it.

Pins. B on the map or the chart pins what is under the pointer and asks for a short label (typed, ENTER): a world's ground at that angle (a pad, a cave), a station, a point in space, or a star on the chart. B over a pin lifts it. Pins are kept with the career, across jumps and saves, and show in flight as small flags with their labels, or as marks at the screen's edge when they are out of sight; any of them may be made a course. Fig. 2.2 shows two of them on the system map.

FIG. 2.2

The system map with two pins, and the shapes of its marks.



SECTOR CHART

V on the system map opens the chart of the whole sector: its twenty-six stars, the lanes between them, and what is known about each. Until a system has been visited, or its chart bought from a research station or a Free Port, a star is marked UNCHARTED and little more. A visited star shows its name, a ring for the power that holds it and a word for what it is like: GARDEN WORLDS, HOLLOW WORLDS, CROSSROADS, FLARE STAR, GRAVEYARD, and so on. The rings are cyan for the Charter, amber for the Free Ports, white for the Ossuan and red for the Tide; a star with no ring is held by nobody. Beneath the star under the pointer the chart prints its facts, and the last news that has reached you from it, with its age. Fig. 2.3 is the chart of the home cluster as it appears on the screen.

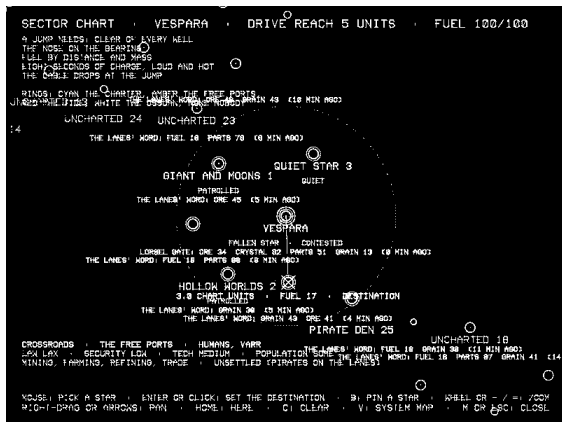


FIG. 2.3

Vespara is a fallen star: one of the Charter's, contested. Its neighbours differ a great deal.

The red circle on the chart is the Tide's front, as the Survey Board's watchers draw it. By their reckoning it gains about a unit of the chart in a quarter of an hour, less whatever the Charter and the Free Ports push back, and a system it has reached is one where raids and builders may come at any hour.

Flying the Kestrel

The Kestrel is a quick and forgiving ship, but it flies by the same rule as every other: the push you give it is added to the push it already has. The controls are few.

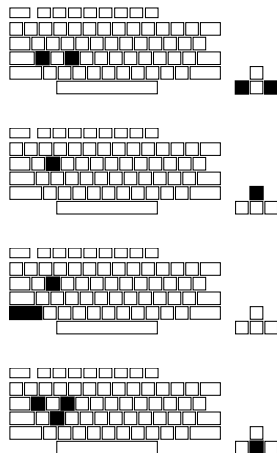
A, D **Rotate.** A turns the ship to port, D to starboard; the arrow keys do the same. Rotation changes only which way the ship points, not which way it goes.

W **Main thrust.** The engine pushes the ship the way it is pointing, and burns one unit of fuel each second. Above its top speed (60 units a second for a Kestrel) the engine stops adding speed.

SHIFT **Boost.** With W, a harder push to 135 units a second, at three and two-tenths units of fuel a second. No weapon will fire while the ship is boosting, and the engines are heard a long way off.

S, Q, E **Retro thrust and lateral jets.** S pushes against the heading; Q and E push to port and starboard. They are modules, not part of the stock ship (the Mule has retros of its own).

It is hard to learn how little a push does until you have seen what it does for a minute. A short burn toward the horizon gives a speed which does not fade; turn the ship round and burn again and you have the same speed again in the other sense, and nothing in between. Stopping needs



as much fuel as starting, and the engine is only able to push the way the nose points.

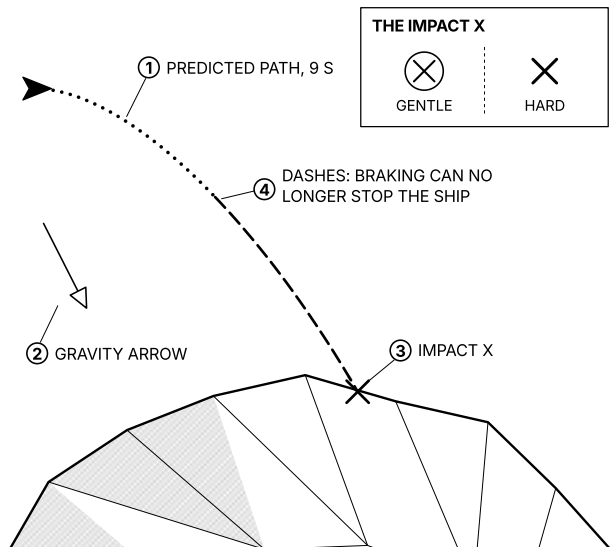
–, = **Zoom.** The wheel of a pointing device does the same. The view zooms in to a closer framing, and out as far as the sensors reach: a plain ship sees to 550 units, a ship with long-range sensors to twice that, and the picture never shows more than the sensors do. The setting is kept from one career to the next.

The dotted line

The dotted line ahead of the ship is where it will go if the pilot does nothing. It is calculated for nine seconds ahead, bent by every well within reach, and it is right. Where it turns red, braking would no longer save the ship. An X marks the point of impact on any world in its path: green if a landing there would be gentle, red if it would not. A violet arrow shows the pull of gravity on the ship, and turns pink when the pull is near the strength of the engine. Point the nose against the arrow to hover; along it to dive. In Fig. 2.4 the predicted path ① runs nine seconds ahead; the gravity arrow ② points at the centre of the world; the X ③ marks where the ship will meet the ground; and the line turns to dashes ④ where braking can no longer stop it.

FIG. 2.4

A world's pull bends the dotted line. Its end, the X, is where the ship will land; its red part, where braking would no longer stop it.



Falling and orbiting

A ship released near a world with no sideways speed falls straight down. A ship with enough sideways speed at height falls *round* the world, and keeps falling round it for ever: that is an orbit, and the cheapest place in the system to wait. A burn at one point of an orbit raises the opposite

side of it. This is the whole of astrogation, and the stations are placed so that it will do. Fig. 2.5 shows the three cases: a ship let fall, a ship with the speed to go round, and the same ship after a burn.

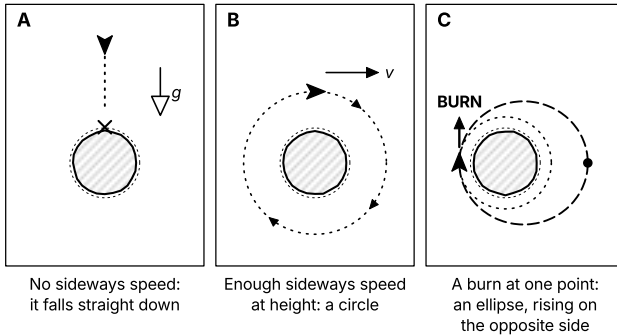


FIG. 2.5

A a ship let fall; **B** a ship with the speed to go round; **C** the same ship after a burn.

**Between worlds gravity is nearly nothing:
what is left in orbit stays in orbit.**

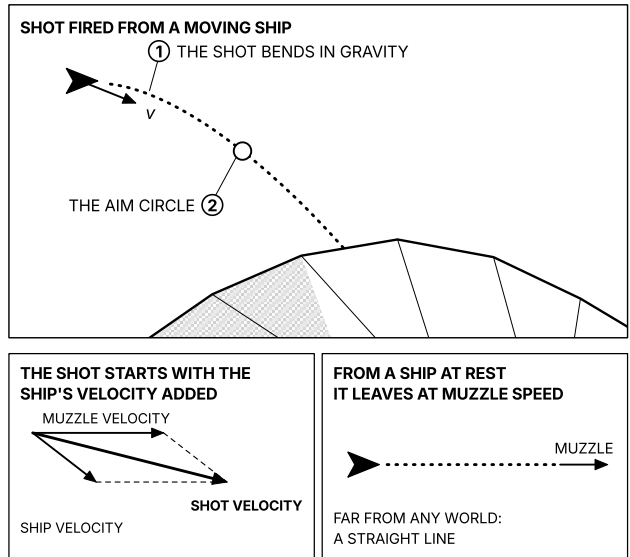
Gravity is real around every world and deep near the star.

Shots

A shot inherits the velocity of the ship that fires it, and bends in gravity as the ship does. The small circle ahead of the ship is where to aim: it marks where a shot fired now will be when it has gone as far as it can. In Fig. 2.6 a shot fired from a moving ship bends in gravity ①, and the small aim circle ② marks where it will be.

FIG. 2.6

A shot inherits its ship's velocity and bends in gravity; from a ship at rest it leaves at muzzle speed.



Console readings

The flight screen carries a number of readings, and the pilot who learns to read them without looking at them is the pilot who lives. They are numbered here in the order of the illustration. The readings are numbered in Fig. 2.7 and described below in the same order.

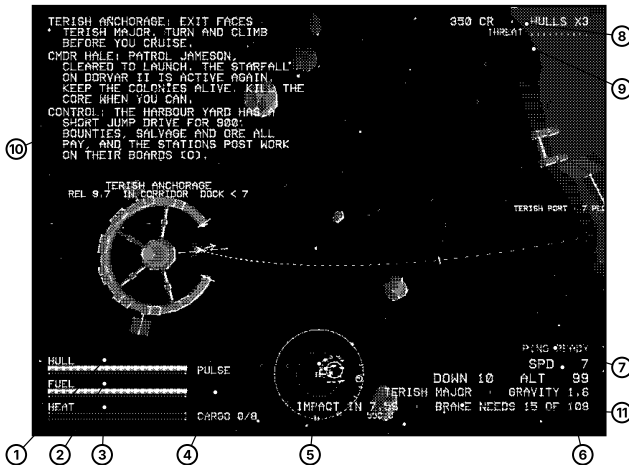


FIG. 2.7

The console as the pilot sees it, each reading numbered; they are described in the text.

- 1 **Hull.** What is left of the ship's strength. At nothing, the hull is lost. A layer of ablative armour, if fitted, shows on the same row and burns off first.
- 2 **Fuel.** The tank. At nothing there is no thrust at all.
- 3 **Heat.** From nothing to one. Firing, the star, flares, lava, gas, air friction and the jump drive's charge all add to it; shade cools. At one, the guns jam until the heat has fallen below three-tenths.
- 4 **Weapon and cargo.** The gun in use, and the units in the hold against the units it will take.
- 5 **Scanner.** A round chart of what is near, to 550 units (1100 with long-range sensors): worlds, stations, ships, rocks. The ring is the edge of what the ship can sense. A ship that would fight the pilot (the Tide's, a pirate, a Keth) is a small cross, any other a dash.
- 6 **Speed, altitude and gravity.** The ship's speed; its height above the nearest ground, with UP or DOWN and the rate; the name of the world whose pull is strongest and how strong it is, as a multiple of the pull of a world like Lorsel.
- 7 **Ping.** PING READY when the sensor pulse (R) can be sent again.
- 8 **Credits, hulls, threat.** What you have; how many hulls are left; and how much trouble the system is in, a row of dots.
- 9 **Situations.** Anything the watch has called in: a debris field, a raid, a convoy under attack, a shuttle with a dry tank, and what it is worth.
- 10 **Comms.** What CONTROL, the stations, other pilots and the Tide's own chatter are saying. The latest line is brightest.
- 11 **Brake line.** Near a surface: IMPACT IN so many seconds, and how much braking the ship needs against how much it has.

Other readings appear only when they matter. Within fifty units of the ground a landing readout gives the ship's descent, drift and tilt against the limits. A dashed amber ring round the ship is how loud it is; red chevrons closing on it mean something has it on its sensors (see Being

heard in chapter 3). A reading that has gone past its limit is red, and stands in brackets as well, so that it can be read without colour.

Heat

Everything the ship does warms it, and it sheds heat only through its fins. A gun that fires adds heat with each shot. The star adds it by being near, and flares by arriving. Lava, the air of a world and the dense gas of a giant add it through the hull. The jump drive adds it while it charges. Shade cools faster than sunlight. The gauge and its sources of heat are in Fig. 2.8.

When the heat reaches one the weapon jams, and stays jammed until the heat has fallen below three-tenths. A fit that draws more than the fins can shed is permitted, but it runs hot: the ship cools a third slower. An overheated cabin is a rough ride, and everyone aboard takes a knock every two seconds of it, and says so.

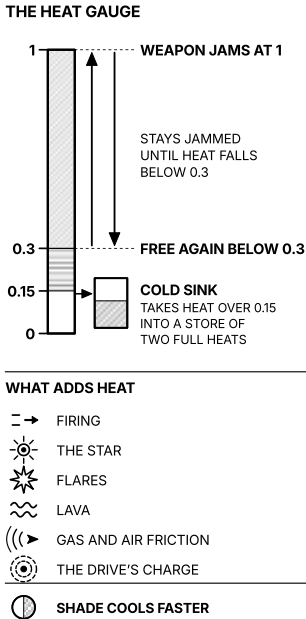


FIG. 2.8

The heat gauge, and what adds to it.

"Shade is a harbour."

PILOTS' SAYING

The star, the flares, the gas

The heat zone round a star burns the hull at up to 28 points a second (a heat shield divides this by two and eight-tenths) and the star itself kills. A flare gives 28 seconds of warning and then 22 seconds of radiation to everything in sunlight: the answer is shadow, a landing, or a dock. The pilot who has landed on a world's dark side has done the right thing. The gas of a giant planet is thicker than any air, and a ship that dips into it loses hull, more the deeper it goes.

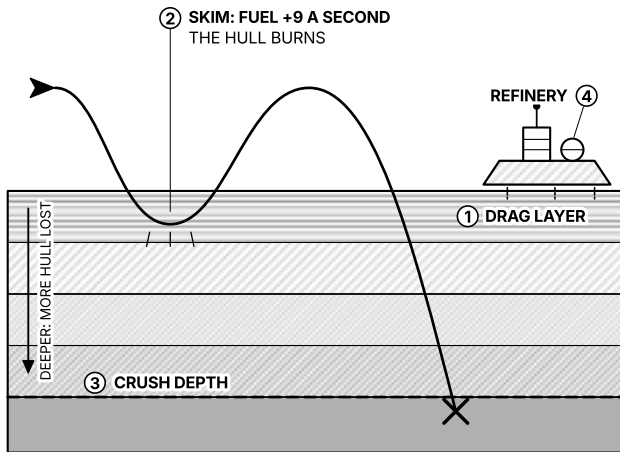


FIG. 2.9

A gas giant will refuel a ship that is brave enough. The refineries float low over the drag layer to do it.

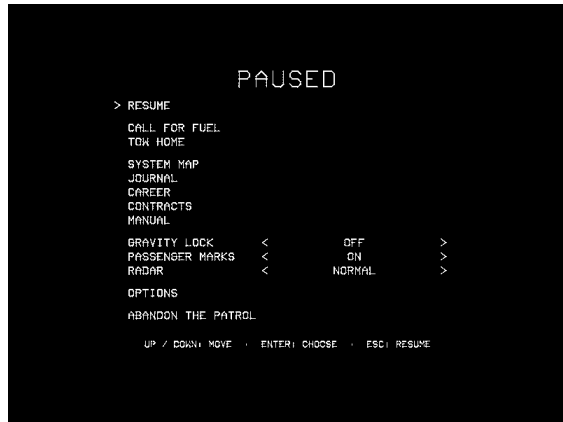
Fuel may be had at any station, at a colony's pad while its pumps have power, at a mine or an outpost, from a fuel cell, or by dipping into the gas of a giant: nine units a second, paid for in hull. Go deeper and the giant will crush the ship. The X on the dotted line turns red where a dive would crush, and CRUSH DEPTH shows inside it. In Fig. 2.9 a ship that skims the drag layer ① takes on fuel, at nine units a second, for a price in hull ②; deeper, the giant's crush depth ③ ends the dive. The refinery ④ floats low over the layer.

A dry tank

A tank that runs dry in flight, or a ship landed with too little fuel to lift where no pumps are running, is not the end. After three seconds CONTROL says so, and the pause menu (Esc) offers two things at its head. **CALL FOR FUEL:** in a system where a side's law runs, that side sends a tanker (a shuttle, low over a world), twenty to forty seconds after the call and a hundred and fifty credits to come; alongside, it takes the ship on its cable and fuel runs down the line at the price the side's nearest station asks, paid as it runs. Elsewhere nobody may answer, or a trader may, at twice the price; and the lanes sometimes answer, and what they take for the fuel is not always the hold's price. **TOW HOME**, chosen twice: a tug brings the ship where a lost hull would be replaced, the tank full, and the pilot loses a hull for it (on the last hull it ends the career). The ship, its fit and its hold are kept. Fig. 2.10 shows the menu.

FIG. 2.10

The pause menu on a dry tank: CALL FOR FUEL and TOW HOME.



Landing

To land, point the nose away from the ground, descend slowly, and let the legs take the weight. The limits are exact. The ship must be coming down at less than 4.5 units a second, drifting sideways at less than 2.6 and tilted by less than about 27 degrees from the vertical. The STRUTS module widens each limit by two-fifths; the Hauler is stiffer than the Kestrel, and the Wildcatter softer. In flight the readout under fifty units of height gives all three against their limits, and the X on the dotted line shows whether the landing will be gentle. The limits, and the ground that may be used, are set out in Fig. 2.11.

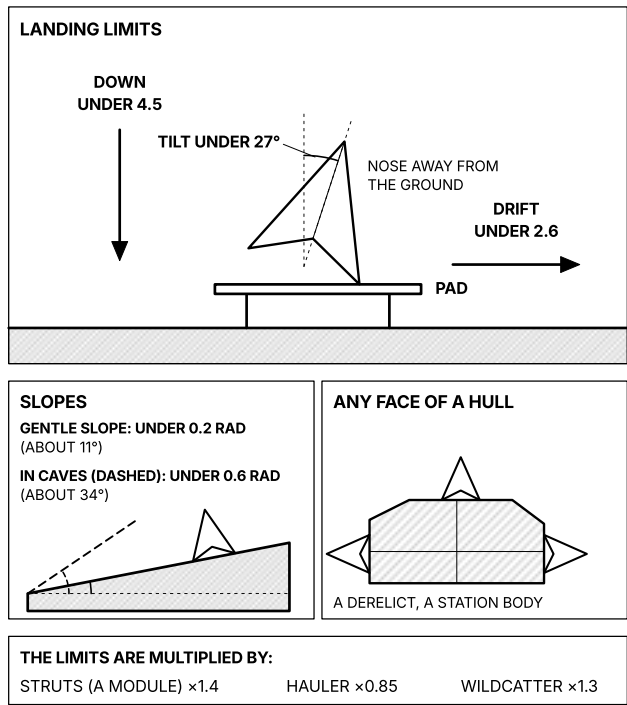


FIG. 2.11

Landing: three limits, and the ground you may use. A pad is best; a gentle slope will do; so will any face of a hull.

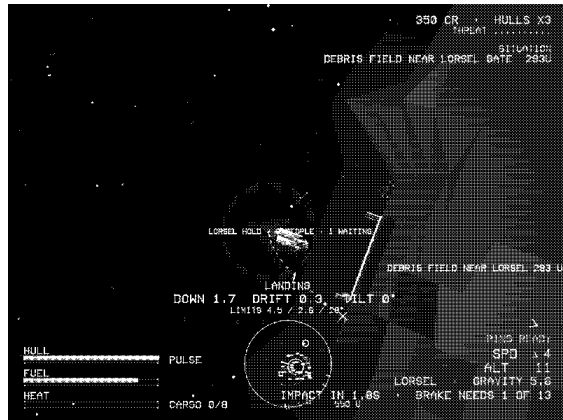
You may land on a pad (a flat place a colony, a mine or an outpost has marked), on any gentle slope (under two-tenths of a radian, or about eleven degrees; six-tenths in a cave), and on any face of a hull: a derelict, the body of a station. A landed ship rides the body it is on, and since worlds turn, every place has a day and a night. A hard landing costs hull by the impact speed and the drift, and the ship bounces. The readout under fifty units is Fig. 2.12.

HARBOUR OFFICE NOTICE 4

Landing legs are rated for weight, not for pride.

FIG. 2.12

The landing readout, under fifty units:
DOWN, DRIFT and TILT, each against its
limit.



A landing is also the way to use the ground. A landed ship is out of the sky: the pilot can refuel from a colony's pump, take on ore from a mine, board fares, wait out a flare, and, if the pad belongs to a colony or a settled outpost, press ENTER to open a ground port, which is a small dock screen of its own.

Docking

A harbour is a ring. It spins, and it has a single gap. To dock, fly in through the gap, with the ring's rotation in mind, and touch the hub at less than seven units a second. The station will then take the ship. Docking sets your respawn point, delivers what you carry (pods, wreck sections, evacuees, passengers), saves the career and opens the station's pages. A faction that thinks little of you (standing below -10) will not let you dock, and a station with a dreadnought sieging it takes nobody in until the dreadnought is dead. In Fig. 2.13 the ring ① has a single gap ②; five spokes ③ join it to the hub ④, which is to be touched at less than seven; and the whole turns as the arrow ⑤ shows. Fig. 2.14 is the same approach as the pilot sees it.

RING STATION

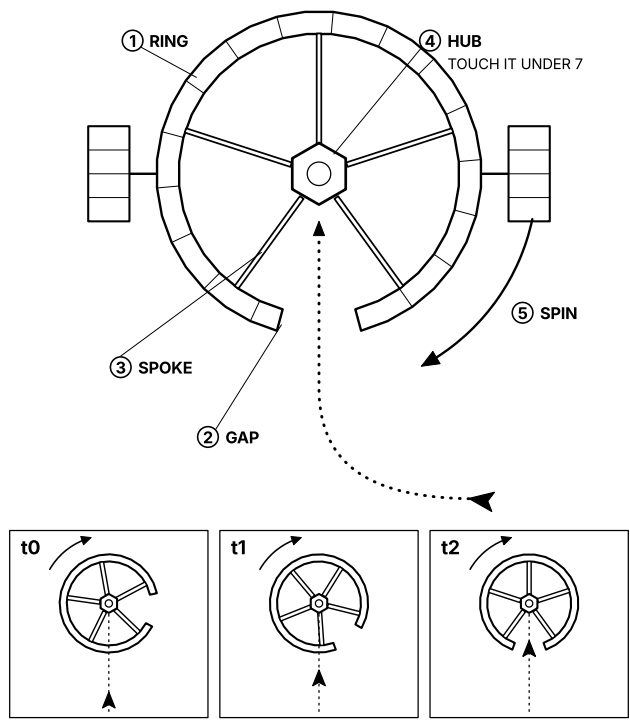


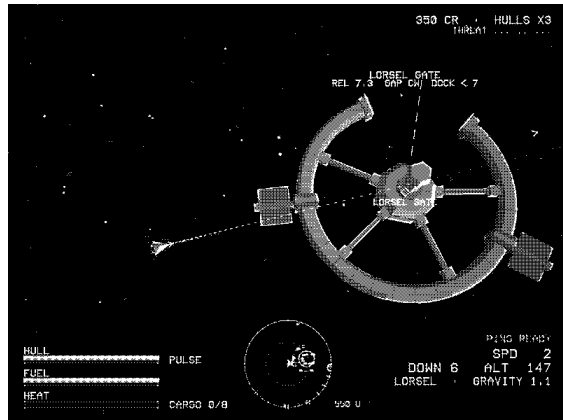
FIG. 2.13

A harbour from above: the ring and its gap, five spokes, the hub, and the panels that power it.

THE GAP TURNS WITH THE RING; THE SHIP IS TIMED TO MEET IT

FIG. 2.14

Approaching Lorsel Gate. The gap is at the lower left; the hub is the dark disc.



HARBOUR OFFICE NOTICE 6

The gap in a harbour ring is not a suggestion. The Office does not repair rings, and does not forgive them.

The usual mistake is to arrive too fast: the hub will not take a ship at more than seven units a second. The ring turns, and the gap comes round to meet the ship; a ship that has matched its approach to the turn goes in without touching the ring, and a ship that has not goes in with a good deal of noise.

LEAVING THE STATION

L launches from any of the station's pages. The first moment after launching is a good time to look at the dotted line.

The jump drive

The jump drive carries a ship from one star to another, five chart units at most for the standard drive and seven for the long one. A jump is built out of rules you already fly by: climb clear of every well, put the nose on the bearing the chart gives, and hold G for eight seconds while the drive charges. The charge is loud on every sensor and hot in your own guns; firing or boosting breaks it. The cable is dropped as the ship goes. It costs fuel by distance (five units for each chart unit) and by the mass carried. The five steps, and what the drive needs, are in Fig. 2.15.

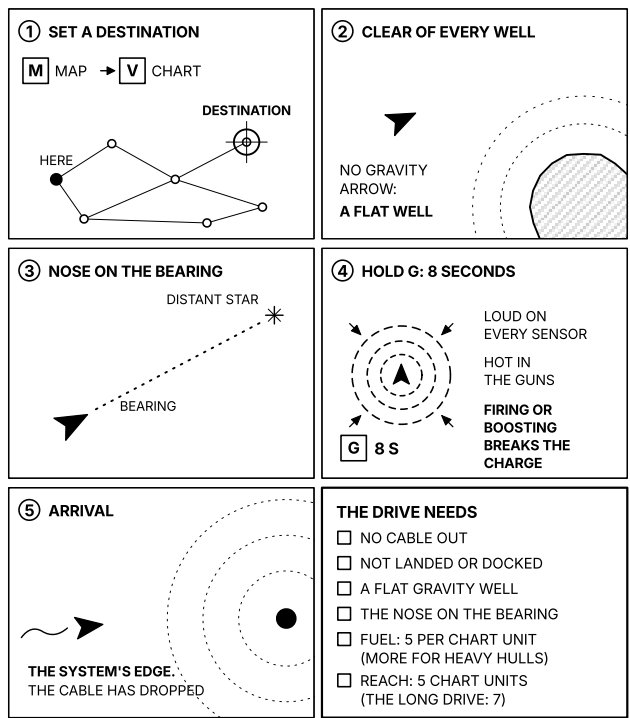


FIG. 2.15

Making a jump: five steps, and what the drive needs.

A jump needs a destination set on the chart; no cable out; the ship neither landed nor docked; a flat gravity well; fuel for the distance; and the nose on the bearing. You arrive at the edge of the next system. A ship that jumps damaged or hot may fall short into the deep, where the Keth keep their own count of those that come; a charging drive can call one.

The drive is a module, sold at the home harbour for 900 CR and, out in the sector, at research stations and crossroads ports. Systems remember you: what you destroyed, took and opened stays so when you come back, and the next time you jump to a place you have been, it is as you left it.

The pause and the settings

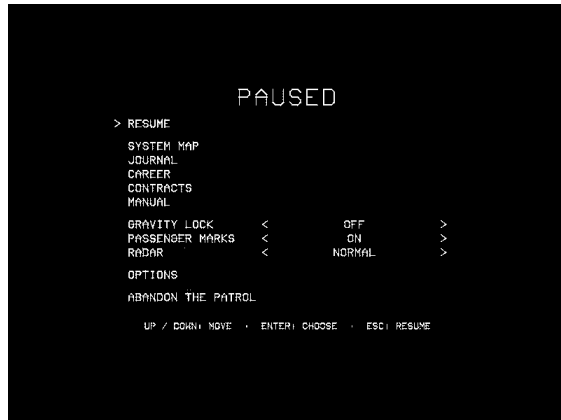
ESC or P pauses, in flight or docked. The pause is a menu, used one way, up and down and ENTER, with left and right to change a setting: RESUME; the map, the journal, the career, the contracts and the manual; then the settings of the game; then the OPTIONS menu; then ABANDON THE PATROL, which must be chosen twice. The keys that work everywhere (M, J, K, O, H and the two for sound) work in it too. Fig. 2.16 shows it.

SURVEY BOARD, CIRCULAR 22

A jump begun in a gravity well is a jump begun in a hurry.

FIG. 2.16

The pause menu.



Three settings are kept by the game itself. **Gravity lock** (V in flight turns it on and off) turns the view so that the ground is always below the ship: OFF; IN CAVES; or CAVES AND LOW FLIGHT, where it comes in fully under about sixty units of height and is gone by a hundred and thirty. **Passenger marks** show who is aboard. **Radar** draws the scope at the foot of the screen larger, NORMAL, LARGE or LARGER, with the same reach, so that what is close together parts.

The OPTIONS menu (Fig. 2.17) holds the music (9: full, half, off), the sound (0), and how the picture is shown. The **screen** shows the world as a monitor of the day would: CLEAN, as it is drawn; ARCADE, a cabinet's colour tube; GREEN, AMBER, WHITE or BLUE, a monochrome phosphor; VECTOR, a vector monitor, with its brilliant lines and trails; and the home computers' own, CGA, EGA, HERCULES, APPLE II and SPECTRUM, with their palettes, their dither and their clashes of colour; COMPOSITE and RF, a television's signal, clean or through an aerial. Each screen has its own **glass** (CURVED or FLAT) and **scanlines** (ON or OFF), remembered for that screen. Four more settings are for the pilot: **flashing** (FULL, or SOFT, with the jump's light and a flare's eased and the flicker taken out), **shake** (FULL, HALF or OFF), **text** (NORMAL, or LARGE, a third larger as far as the window has room) and **colour** (NORMAL, RED-GREEN or BLUE-YELLOW, which swap the colours that mean different things so that they stay apart).

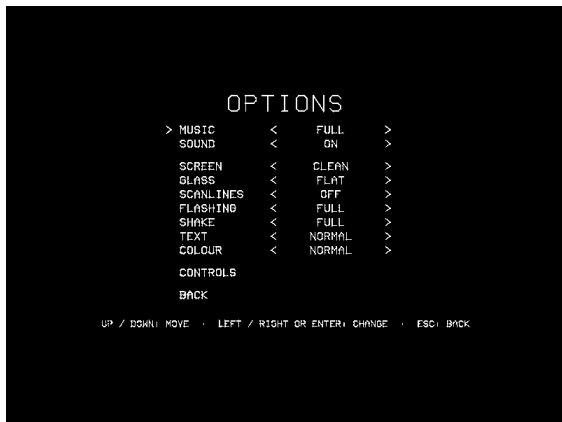


FIG. 2.17

The **OPTIONS** menu: sound, the screen, and the pilot's settings.

The last of **OPTIONS** is the **CONTROLS** screen (Fig. 2.18), which lists the keys or the pad buttons in use, grouped by where they work (flight, the menus, the map and chart, docked), and lets any of them be changed: choose a row, press **ENTER**, then the key or button wanted; one already in use in the same place swaps. The keys and the pad are kept apart, and everything the game says about a key names the one in use. A few are fixed: **ESC** and **START**, the pad's **BACK** button, the sticks and the pointing device.

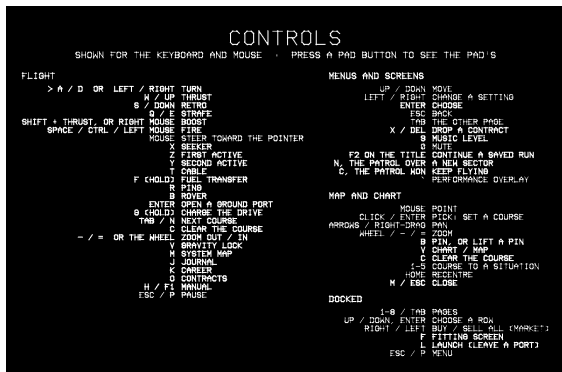


FIG. 2.18

The **CONTROLS** screen: the keys in use, by where they work.

The music follows what the pilot is doing: a slow texture in open space, another low over a world, another underground, another when hunted, another docked (each station has its own, heard through its radio); every system has its own key and pace.



CHAPTER THREE

Combat and Equipment

Most of what you will meet in flight is not trying to kill you. The Tide is, since it has no other business. Pirates are, when they judge it worth their while. The rest (freighters, tankers, liners, couriers, the patrols of the Charter and the Free Ports, the wardens of the Ossuan) are about their own affairs, and the pilot who shoots at them will hear of it.

In-flight combat

COMBAT PROTOCOL

Ships respond to hostile action with hostile action, and the first thing a ship needs in order to be hostile is to have found you. The Tide attacks on sight. Pirates attack what they think they can take. A patrol of the Charter or the Free Ports fires on the Tide, on pirates and on the Keth always, and on a pilot only if its side has no trust left in them. Civilians do not fire: they run, and a pilot who kills one pays for it in standing with its side, which may close its docks.

A ship brought down is a *claim* on its bounty, at half the figure given in chapter 6, and it counts toward your combat rating. The claim is paid when the pilot next docks, or opens a ground port, at any place of the Charter or the Free Ports (they pay for the Tide's, the Keth's and the pirates' ships; the pirates, the Ossuan and the Varr pay for none).

Claims are kept across jumps and across a lost hull, and the STATION page shows those held where they are not paid. The Tide's guns carry no bounty of their own: the sides pay for the works as they fall, two hundred for a base taken dark, four hundred for one destroyed, and a core destroyed three thousand. Not all the money is in the killing, but a good deal of it is.

MANOEUVRING

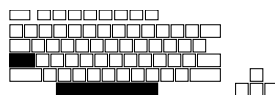
The Kestrel has no brakes, which means that nothing in a fight is as simple as it looks. A ship at speed stays at speed: the enemy's shots come at you with the enemy's speed added to their own, and yours leave with yours. To fight well is to know where your ship will be in a few seconds, and where the enemy's will, and to choose a place where the two meet. The dotted line tells you the first. The small circle tells you where to aim for the second.

The enemy also obeys gravity, and so do its shots, and a world between you and a gun is cover as well as scenery. Heat is the other limit: a gun that is fired steadily will jam in a few seconds, and a pilot who sits in sunlight with a hot gun is a pilot who is about to be shot. A pilot who has fired too much will do better to coast in shadow than to go on; they cool faster there.

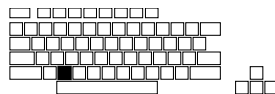
A seeker is a missile that homes on a target, and it is slow enough to be turned aside by a quick enough ship. A rack holds six; rearming at a station costs 40 credits for each. They fall in gravity too, so that a seeker fired across a world will take the long way round. The seeker boats of the Tide, which stand off at a distance and throw them, are best met by closing on them or by keeping a world in the way.

BEING HEARD

The enemy knows only what its sensors have seen. A ship with its engines off, its guns silent and nothing pinging is a small target. A ship that thrusts, fires, pings or charges a drive is a large one. An enemy senses a ship at its own range multiplied by the square root of the ship's *signature*, and only with a clear line of sight. A dashed amber ring round the ship shows how loud it is; red chevrons closing on it mean that something is tracking it, and a tone that falls is the moment that nothing is. Coming in cold, low, behind a world or at night is a real tactic. Three cases are drawn in Fig. 3.1: a loud ship, whose halo reaches the enemy's sensors (A); a quiet one, outside them (B); and one hidden by a world (C).



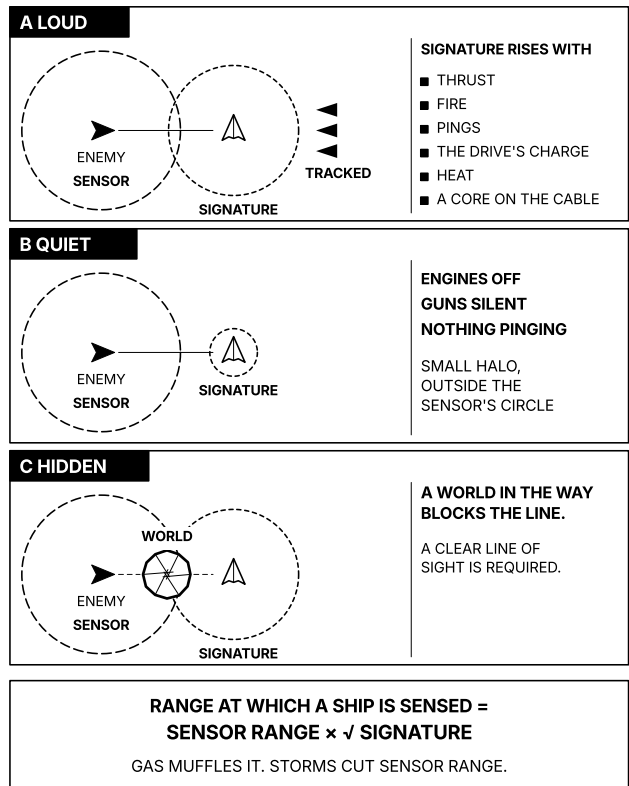
SPACE or CTRL fires the gun. It will not fire while the ship is landed, docked or boosting.



X fires a seeker. The rack carries six, and they bend in gravity as shots do.

FIG. 3.1

Three ways of being heard: A loud, B quiet, C hidden behind a world.



Signature rises with thrust, with fire, with pings, with the charge of a drive, with heat and with a core on the cable. Gas muffles it, and storms cut an enemy's range. Nothing in the game tells a pilot to be quiet; it is merely the case that quiet pilots live longer. Wasps at work are in Fig. 3.2.

SIGNS OF DANGER

Danger is told before it lands. Anything that holds you in its sights (the Tide, pirates, the Keth, a side's militia or posts) brings the TRACKED tick and chevrons in its colour, and guns that once fired at once now take a beat to aim. The heavy shells of the Tide, and of a station under siege, mark the ground they will land on. A volcano rumbles when it stirs, and louder as it rises, and the rock about live lava is warm. A struck roof creaks and sheds dust. A lit charge ticks, faster in its last two seconds. A holed tanker burns, and says so, before it goes up. While one of these harms holds near you it stays on the screen: TREMORS, LAVA RISING, DAY SIDE, CHARGE LIT, TANKER BURNING CLOSE.

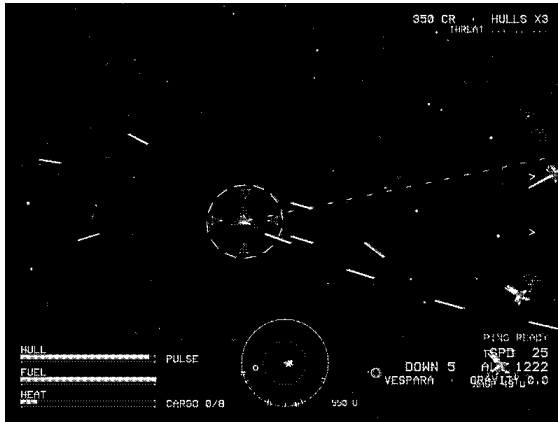


FIG. 3.2

Wasps strafe a ship on the cable. The streaks are shots in flight.

Likely enemies

An understanding of the other creatures that fly is essential. The chapter on ships in service shows each with its dimensions and its bounty; what follows is the habits.

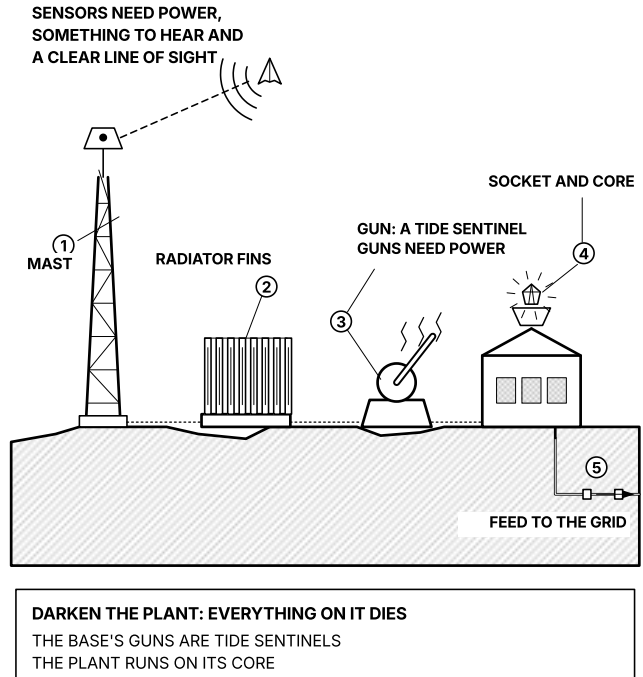
THE TIDE

The Tide flies in packs, and what it flies is built for one purpose each. **Wasps** strafe: they are quick, flimsy and many. **Lancers** chase, and burst. **Reavers** come down on colonies and lift pods from them, to carry them to the Tide's core; a reaver that is killed drops its pod, and the pod may be caught slowly, or left to fall home. **Dreadnoughts** besiege stations: a hull of 1300 and a mass driver, and no berth at the station they are on until they are dead. **Boarders** come alongside a civilian, cable it, cut its engines and fly it away (pirates fly them too); a shot through the cable frees it. **Tenders** keep behind a pack and mend it, taking heat off its guns: kill the tender and the guns jam. **Seeker boats** stand off and throw seekers. **Builders** land, and become bases if they are not stopped in forty-five seconds.

On the ground the Tide is a thing of masts, radiator fins and sockets: **sentinels**, the gun posts of its bases, run on plants with cores in them, and the guns need power and heat up when they fire. Sensors need power, something to hear and a clear line of sight. A base is not a thing to be attacked so much as a thing to be unplugged: darken the plant and everything on it dies. In Fig. 3.3 a mast ① and radiator fins ② stand about a gun ③; the plant keeps a socket with its core ④, and a feed to the world's grid ⑤.

FIG. 3.3

The parts of an enemy base. Take the core and everything on the plant goes dark.



Away from its own place the Tide fights by doctrine. Near it, in the hosts, it fights as a mass. In a system it reaches without holding it will sometimes be *dug in*: its idle packs sit low on the far side of their world from you, in a cave mouth where there is one, and come up over the horizon when you are close. A system that has known the Tide for some time has a different feel from one that has not.

Whatever flies at the pilot flies by the same rules. It will not close faster than it could still stop short of its guns' reach, so that a pass misses the pilot rather than ramming; it keeps clear of the ground, of rocks and of other ships; and while it is steering clear of something it does not turn to aim. A ship that rams is not a plan of the enemy's.

THE LANES

Pirates fly alone or in small crews, in craft of every sort, and are thickest on the corridors. Three kinds are worth knowing by their habits. The **picket** is a sensor ship that never closes: it holds you in its brackets from four hundred and twenty units and calls the hunt after fourteen seconds. Kill it, blind it, or go cold. The **tug** latches on to whatever is on your cable, on your pad or in your wreck field and takes it; the cable's own rules apply to it too. The **ambusher** waits in shadow with its engines off, emitting nothing, until you are inside a hundred and sixty units; then it springs.

A pilot the lanes hate is hunted. A pilot the lanes like is, at the least, left alone, which is more than can be said of a trader who has been robbed.

THE KETH

The Keth are met at the corridor stars and in the deep, and they are nobody's. A charging drive will call one. A Keth hunter is large and hard to kill (its hull is rated at 273), and it is not the pilot's friend; but it is not simply an enemy either, and the Keth keep a count of their own, which has nothing to do with what the Charter says.

Equipping the Kestrel

The yard at a station sells what its side makes. Docked, the OUTFITTING page (key 3) lists what is on the shelf, what it costs and what rank the side asks of you; ENTER buys, and F shows the fit: the power the plant has against what the modules draw, and the heat the fins can shed against what they make. A removed module refunds half its price.

A module is limited by the hull's power. Going over the cooling budget is allowed, but the ship runs hot. Some shelves ask a rank with the side that keeps the station, and some ask a system advanced enough to make the thing at all. A colony workshop will, now and then, make a module that no station of its system carries, at a premium.

FITTER'S RULE

Nothing fitted ever runs cooler than the book says.

AGGRESSIVE WEAPONRY

ITEM	PRICE CR	RANK	NOTES
Pulse gun	stock		Quick, light, bends in gravity
Scatter	800		Five shots in a fan
Rail gun	1500	3	Fast, heavy, barely bends
Mass driver	1100	2	Slow, heavy, falls hard, recoils
Seeker rack	700	2	Six homing missiles on X; rearm 40 each

The Charter's yards sell the pulse gun again in better marks, each a rank above the last: twin bolts, then a fan of three. The other guns have their marks too. Each runs hotter.

NON-COMBATIVE EQUIPMENT

A ship is a set of budgets. Its plant feeds a number of power points; its fins shed a number of cooling points. The modules in the table draw against them and, in some cases, add mass. Chapter 6 gives each hull's two budgets.

MODULE	CR	EFFECT
Retro	550	Reverse thrust (S)
Strafe	700	Lateral jets (Q, E)
Struts	450	Landing limits two-fifths wider
Engine	1000	Thrust $\times 1.3$, boost $\times 1.25$, burns $\times 1.35$
Gravity damper	1200	Gravity felt $\times 0.65$

MODULE	CR	EFFECT
Sensors	600	Scanner and sensing from 550 to 1100; the view zooms further out
Tractor	800	Draws loose things within 14 into the hold (pods too)
Heat shield	900	Star and flare damage divided by 2.8
Drive	900	Jump drive, 5 chart units
Long drive	2200	7 chart units; charges 1.75 times as long
Twin tank	1100	Fuel $\times 2.2$ (Surveyor or Hauler)
Ping amp	700	Ping $\times 1.6$
Winch	800	Reels a cable load in to 4
Grapple	600	Latches from 14
Fins	900	Cooling $\times 1.4$; cooling budget +2
Ablative armour	650	A layer of 50 before shield and hull; burns off; repair restores it
Cold sink	950	Stores heat; empties only in shadow
Passive array	750	Hears a loud ship half again as far; no power
Quiet drive	1500	The short drive's reach, charged quietly, unheard by the Keth
Regulator seat	1600	A core kept in the hold keeps its power and its beat
Rover bay	900	A small rover, let down from the landed ship (B)
Heavy engine	1600	Thrust $\times 1.45$, boost $\times 1.3$, burns $\times 1.25$ (Hauler, Mule, Lance, Surveyor)
Medium plant	1400	Two more points of power; one plant at a time
Large plant	2600	Four more points of power; one plant at a time
Cabin module	700	Four seats more, four units of hold fewer
Long cable	800	Pays out under a heavy pull rather than part; a winch reels it in
Pod clamps	900	The first three pods ride outside the hull
Mining laser	1300	An active: a short beam that cuts ore from loose rock
Mine rack	800	An active: a mine dropped astern, armed after three seconds

Four modules are *actives*: up to two may be fitted, one on Z and one on Y, each with its own wait, and both drawing on the plant (the OUTFITTING page puts an owned active on either key). They are sold only at the Free Ports. **Chaff** (700) breaks every lock, either way, for four seconds and waits twenty. A **decoy** (650) is a canister louder than the ship for fifteen seconds, towed on the cable if the cable is free; it waits thirty. **Point defence** (1100) eats enemy shots and seekers within sixteen units for twelve seconds. A **gravity charge** (1300) falls, and where it rests it opens a well for eight seconds; it waits twenty-five. The mining laser and the mine rack, sold at refineries, are actives too, and take a place on those keys.

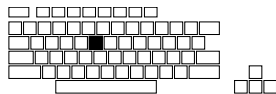
ENGINEERING

The ENGINEERING page (key 4) improves the ship's systems in one of two directions each, in three grades, and the side that works the system asks a rank for the better grades. Switching direction loses the other direction's grades. The sides' workshops and what they ask are the Office's business, and the pilot's.

A fit may also be given a *routing*: BALANCED; CLIMB (thrust up, guns hotter); FIGHT (damage and rate up, thrust down); or RUN COLD (signature $\times 0.7$, cooling up, slower). The routing is set on the same page.

The cable

The cable is a real rope, with real physics. T latches the nearest pickup, rock, ship, ground vehicle, station ring or towable hull within seven units. It pulls only when taut, and parts under too much force or stretch: a yank over about seven units a second parts it, and a steady pull never does. A taut cable is a pendulum, a heavy load swings, and a load changes the way the ship handles. Pulling on a station's ring changes its spin. The load against the breaking point is shown on the console in three colours, cyan, amber and red. Its three states, latching (A), a taut load (B) and a part (C), are in Fig. 3.4.



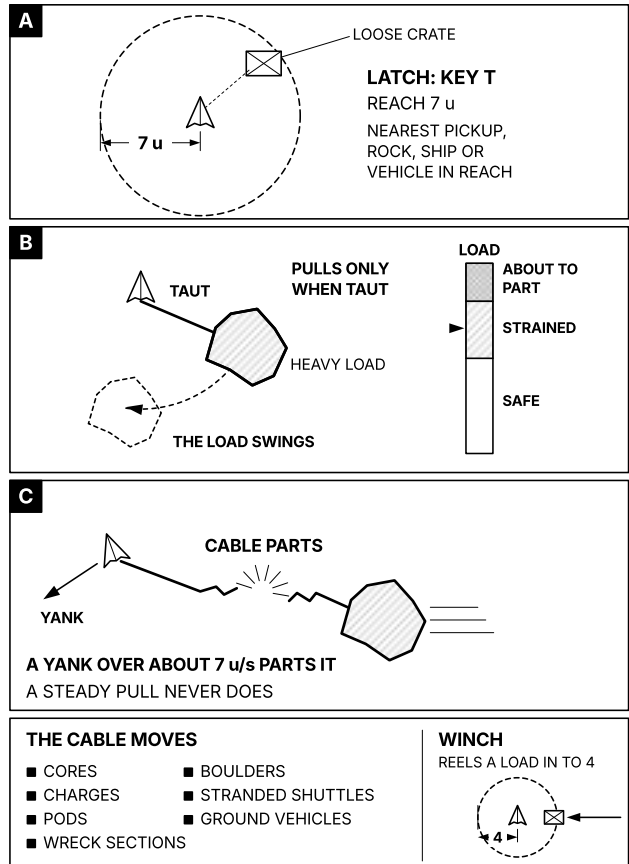
T latches the nearest thing within 7 units, or lets go.

CHARTER NOTICE 14/C

Recovery cables are not approved for altering the rotation of a station.

FIG. 3.4

The cable: A latching, B a taut load, C a part.



The cable carries what the hold cannot: cores, charges, escape pods, sections of wrecks, boulders, stranded shuttles and ground vehicles. Hauling a heavy load up a gravity well is the game's main physical puzzle, and caves are promised to be solvable by a stock Kestrel. A winch reels a load in to four units. The tractor beam is a different tool: it draws loose things, and only things that will go into the hold (and a pod, while the cable is free), and it never takes a core, a charge or a section of wreck. A thing let go of from the cable is left alone by the beam until it has been out of its reach once. A load under way is in Fig. 3.5. A pod touched gently goes into the hold, a unit's room each; with the hold full the cable takes one. Whatever is on the cable as the ship docks is held at the dock with the ship, and goes out with it at launch unless it is stowed.

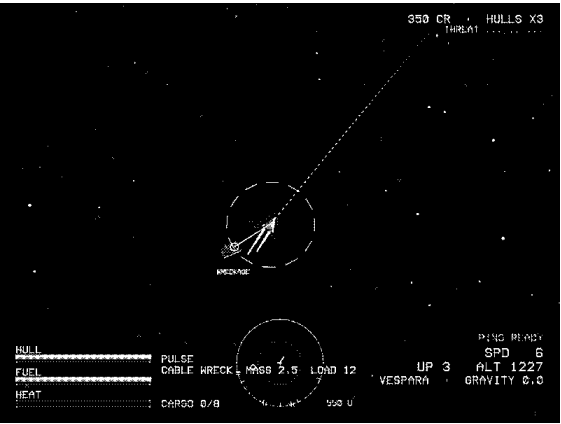


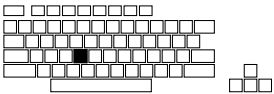
FIG. 3.5

A load on the cable: the line is taut, and the bar shows the strain.

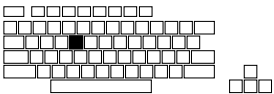
Fuel may be sent to a ship on the cable by holding F while the line is slack: five units a second flow down it. A stranded shuttle will wake on fifteen. With a Pilgrim thruster pad, F feeds the pad. Nothing flows when the line is taut.

The ping

R sends a pulse of sensing out to 460 units. It flashes what it finds: pickups (cores, recorders and modules longest), rocks, ships, and the mouths of caves. It finds hidden bodies, and hollow worlds answer with an echo; what comes back is written in the journal. It lights a dark cave for a moment. A ping gives geometry and echoes, never labels, and it has a cost: every enemy it touches notices the ship, and the ship is louder for a moment. If the ping is still cooling it will be held for up to two seconds, and the readout says when it is ready. In Fig. 3.6 the ring goes out to 460 units: pickups ② flash, cores, logs and modules longest; rocks ③ and ships ④ show; a cave's mouth ⑤ answers. The cost ① is that anything the ping touches notices the ship. Fig. 3.7 is the screen.



F (hold) sends fuel down the cable to a ship on it.



R sends a ping.

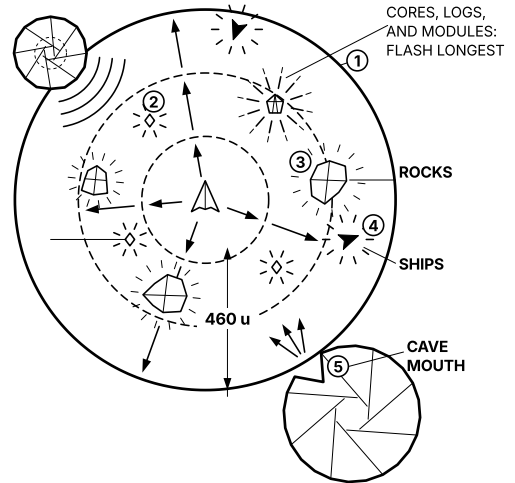
FIG. 3.6

A ping: out to 460 units, what it shows,
and what it costs.

PING RING: OUT TO 460 u
(x2.2 WITH THE RESONATOR)

HOLLOW WORLDS
ECHO

PICKUPS
THEY FLASH



COST

ENEMIES THE PING TOUCHES NOTICE THE SHIP.
IT MAKES THE SHIP LOUDER FOR A MOMENT.

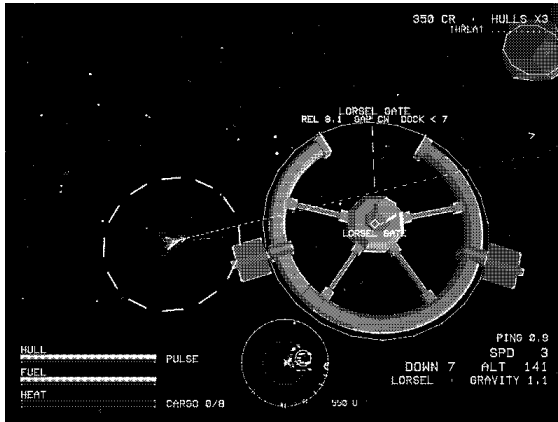


FIG. 3.7

A ping: the ring, and the shapes that answered it.

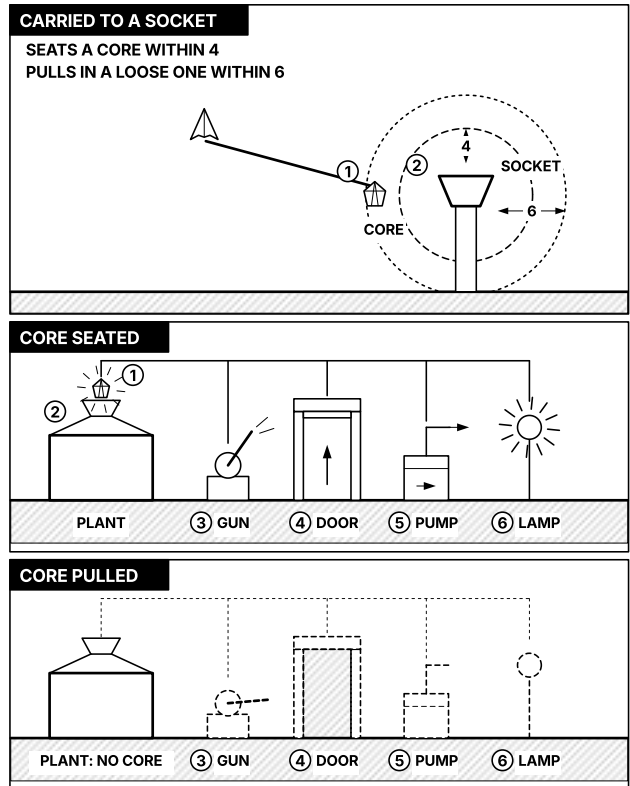
A ping that reaches the mouth of a cave comes back as the cave is now, in a word drawn over the mouth for six seconds and noted: **WARM** (a plant running, gas still pooled, magma, a nest alive), **METAL** (a post, a plant's housing, a store, a wreck still lying there), **VOICES** (people still waiting), **ECHO** (a long way down, deeper than half the world's radius), **HUM** (something one of a kind) or **QUIET**. Several may be read together; none names the prize.

Cores and sockets

A **core** is the heart of a plant. It is carried on the cable, and set in a **socket**: a socket seats a core within four units, and draws in a loose one within six. A seated core powers everything on its body within range: guns, doors, pumps and the cooling of hot floors. Pulling the core darkens all of it, and cracking a plant's housing throws its core out. A core is the game's master key: it opens doors, wakes or kills posts, runs colonies, lights relays. In Fig. 3.8 a core ① is carried to a socket ② within four units; seated, it powers a gun ③, a door ④, a pump ⑤ and a lamp ⑥; pulled, all of them go dark.

FIG. 3.8

A core carried to a socket, seated, and pulled.



To carry a core across a jump it must be stowed in the hold while docked, for the cable is dropped when the drive fires. A named core (a colony's, or a regulator) keeps its name in the hold and comes out as itself. Underground, the ship lights twenty units around it; a live plant lights forty-five and a loose core ten. There is no lamp to switch. A core let out on the cable is drawn out of the hull, and one stowed is drawn in.

Charges

A charge is a crate of blasting charge carried on the cable: a tool, not cargo. Let go of, it goes off when it is shot, or a few seconds after it comes to rest, and a fuse light blinks faster as the time runs out. The blast breaks walls, shatters a boulder, brings down a roof, hurts every hull in reach (the pilot's own included), sets off other charges near it, and is heard by anything that sleeps nearby. Charges are found in caves, and a miners' colony will sell one at its ground port. What goes in a blast is drawn in Fig. 3.9. The Tide hears a blast as far as a ping reaches, and less through rock: set off far from the ship it draws them off, set off beside it it brings them down.

CHARTER NOTICE 9/B

Blasting charge is not to be carried in the cabin, in the hold, or in the pilot's good opinion.

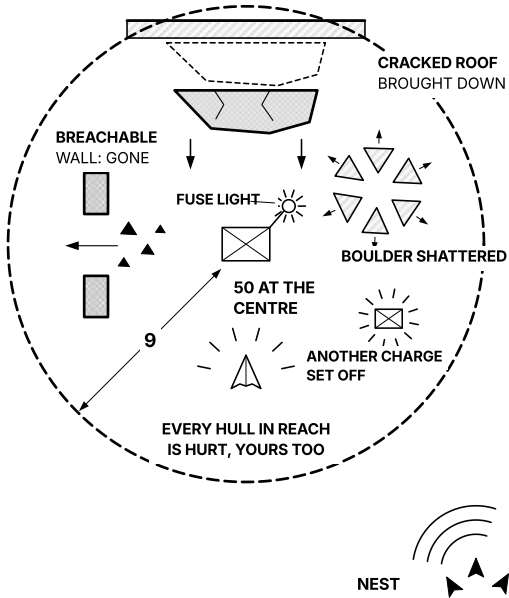
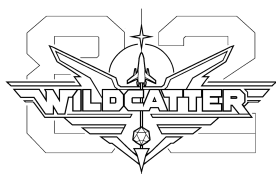


FIG. 3.9

A charge: what goes within nine units of it.

GOES OFF WHEN SHOT, OR 6 s AFTER IT COMES TO REST

- HURTS EVERY HULL IN REACH, YOURS TOO
- SETS OFF OTHER CHARGES
- NESTS HEAR IT



CHAPTER FOUR

Trade and Work

The Kestrel was designed as a patrol hull, but a hold of eight units and a cabin of four will earn a living for a pilot who has the sense to look at what is wanted. Most money in the sector is made by doing something for somebody. A good deal is made by noticing what a place is short of.

The dock

A docked ship opens the station's pages. They are reached with the keys 1 to 7, or with TAB, and the pages are the same at every harbour, refinery and research station, though what they offer is not. The first page is Fig. 4.1.

FIG. 4.1

1 STATION. A talk row from Commander Hale heads the page; below it, the board and the services.



- 1 **Station.** Where one of the cast is at the station, their words head the page, a line at a time (ENTER for the next). Below are the contract board, the sale of survey records, refueling, repair at one and a half credits a point, and LAUNCH (L). Research stations and Free Ports sell a chart of the systems within twelve; the Observatory, where there is one, sells the whole sector.
- 2 **Market.** The eight goods, what is in the hold and what the station holds, and what it pays and asks.
- 3 **Outfitting.** Modules, hulls, gun marks and actives (chapter 3).
- 4 **Engineering.** Improvements to the ship's seven systems (chapter 3).
- 5 **System.** What is so at the station, and in the system.
- 6 **News.** What has reached the station.
- 7 **Trip.** What the last trip changed.

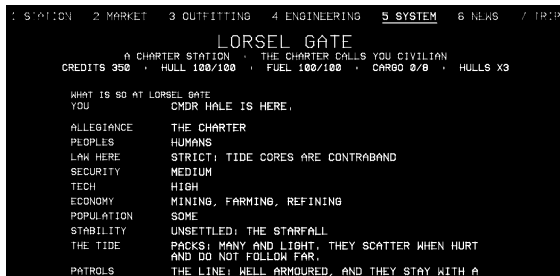


FIG. 4.2

5 SYSTEM. What is so at the station, and what is likely next.

The SYSTEM page opens with what is so there. **Now** gives the state of the place and the cause: short of a good; its pumps dark because the plant has no core and it bids for one; breached; under siege; people coming out to the pad. **Next** gives what is likely, from the simulation's own model: a colony growing on its stores, a hauler on its way with what, the Tide's front reaching the system in so many minutes, a flare coming. **You** says who there knows you: the cast and what was done for them, a trader who remembers, pilots you rescued, jobs done. It says what is so. It never says what to do. It is Fig. 4.2.

The TRIP page, which opens on every docking, records what the trip changed, in the order that it happened: a plant lit, a siege broken, ships brought down by side, fares carried, first sights, jumps, goods taken aboard, a pod brought in, a hull lost, and last the hull it cost and what took it. It is a record, not a score.

How to trade

Stations trade eight goods, each made somewhere and wanted somewhere else. Where a good is made it is cheap and in plenty; where it is wanted it is dear and scarce. Mines make ore. Ice and crystal worlds make crystal. Rock and desert colonies grow grain. Refineries at the gas giants make fuel and parts. Cores are made by nobody who will say so, and Keth alloy and Maker relics come from those who left them. The market page is Fig. 4.3.

GOOD	USUAL PRICE CR	SOURCE
Ore	26	Mines; rock shot to pieces
Crystal	56	Ice and crystal worlds
Fuel	10	Refineries
Parts	46	Refineries; salvage
Grain	24	Rock and desert colonies
Cores	320	Plants (contraband in places)
Keth alloy	190	Keth wrecks
Maker relics	260	Old caches

"A price is only a rumour that has been agreed."

VARR PROVERB

Prices follow stock. A station sells a good at its price and buys it at nine-tenths of it, and every unit sold lowers what it will pay for the next; the stock drifts back over about ten minutes. The chart remembers prices that you have seen, and says how long ago. Prices also move with your rank in the book of the side that keeps the station (by as much as fifteen per cent either way), with the stability of the system, and with a trader who remembers you. They follow what the place usually keeps, so that a station that feeds a system is deep, and a small colony shallow; the lanes' word, heard docked, says what the systems within ten chart units take in, and at about what.

A **Varr** exchange has a shallow market: every unit swings the price hard, and it comes back about twice as fast. An **Ossuan** hold has a deep one: a unit hardly moves the price, and it comes back at under half the pace. The market page says which. The traffic is the economy: haulers carry what their worlds make to the stations that want it, their cargo is the station's stock, and news of a robbery, a glut or a shortage moves prices in other systems.

FIG. 4.3

2 MARKET. The notice at the foot says what the station will not do: here, that it buys ore and does not sell it.

1 STATION	2 MARKET	3 OUTFITTING	4 ENGINEERING	5 SYSTEM	6 NEWS	7 TRIP
LORSEL GATE						
A CHARTER STATION - THE CHARTER CALLS YOU CIVILIAN						
CREDITS 350	HULL 100/100	FUEL 100/100	CARGO 0/0	HULLS X3		
GOOD	IN HOLD	THEY HOLD	BUY AT	SELL AT		
> ORE WANTED	0	24	-	31 CR		
CRYSTAL WANTED	0	18	-	56 CR		
PARTS WANTED	0	30	-	46 CR		
GRAIN	0	53	13 CR	-		
THEY DO NOT SELL ORE. THEY BUY IT. SELLING LOWERS WHAT THEY PAY.						

- ↑↓ Select a good.
- ENTER Buy one unit.
- ← Sell all of the good in the hold.

GROUND MARKETS

A colony or settled outpost keeps a small market of its own, opened by landing on its pad and pressing ENTER. It sells what its world makes, cheaply and in small stock, and buys what it needs, dearly. It uses what it buys: parts mend it, grain feeds its growth. A colony with a whole plant and an empty socket will bid high for a core.

CUSTOMS

Only cores are contraband, and only under Ossuan law everywhere and under strict Charter law. Goods spilled from a hauler that you have robbed are stolen from its side, and its customs will take them back. Strict law scans every docking; lax law about one in three; on the ground only a Charter colony has a warden. A fine is sixty credits for a core and twenty-five for a stolen unit. A Varr exchange will fence stolen goods.

Patrols scan in flight too. Where a side's law runs in its own system, one of its patrols will call a ship to hold, come alongside, and scan. A ship that runs is hunted by the side's patrols for a time, at a loss of standing.

CHARTER NOTICE 31

Customs scanning is carried out for the pilot's protection.

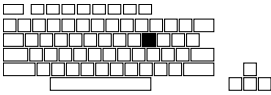
Contracts

Work reaches the pilot in four ways. The station board offers three or four jobs for systems within twelve units, refreshed every fifteen minutes. Comms bring offers from a colony, an outpost or a station that has something wanted done. A recorder, picked up, plays back what its crew said, and half of them end with a plea (IF ANYONE HEARS THIS:); these are always rescues or caves. The people the pilot meets have requests of their own, on the board under their name. A board is shown in Fig. 4.4.



FIG. 4.4

The contract board at Lorsel Gate: a commission from Commander Hale, and three offers.



O opens the contracts screen: taken, heard, and the board when docked.

O opens the contracts screen. ENTER takes an offer; on a contract already taken, ENTER sets the drive to its system. No more than four may be active, and three heard. Dropping a taken contract costs two points' standing. A contract says what is wanted and what it pays, and never how. A job done is paid on docking at its issuing station or any of its side's, or at once if the pilot sits docked at one; the row says where, and CONTROL says it once when the job is done.

The deadline is twenty minutes and ten more for each chart unit. Pay rises with distance and with the danger of the destination. When the job is done the pilot docks to be paid: at the drop station for deliveries, recoveries and passengers, and at any station of the issuing side for the rest.

KIND	IT ASKS (NEVER HOW)	PAY CR	STANDING
Delivery	4 to 7 units of a good a nearby system takes in, into a station's stock there	its price there $\times 1.4$, held, + distance	+3
Survey	Visit a system you have not	150 + distance	+4
Cave	Reach the deepest room of a cave in a system	260 + distance	+4
Recovery (Free Ports)	Bring 1 or 2 cores to the station	420 a core	+5
Rescue	A shuttle down in a cave, or adrift with a dry tank: fuel it, tow it out	450 + distance	+6
Bounty	Kill a named raider waiting cold at the end of a lane	400 + distance; $1.5 \times$ if the target comes back	+3 (+8)
Recon (commission)	Get within 150 of a live Tide base unseen	600 + distance	+8
Sabotage (commission)	Take a Tide base in the named system dark	900 + distance	+12
Site	A job on the ground	220 to 520 + distance	+3 (+5)
Passenger	Carry a specialist or a VIP to or from a nearby system	$\times 1.3$ or $\times 2$ of 220 + distance; -12% a knock	+4 (+7)
Operation	Your part in a side's open operation: strike, hold, or supply	650; supply 450	+4
Fetch (local board)	A wreck's section towed to the colony's pad	180 + distance, at most 700	+2
Courier (Varr boards)	A sealed case to a system one jump away, in 12 minutes and 4 more a chart unit	260 + distance; half again if in half the time	+4

SITE JOBS

A site job is done on the ground, and the pilot must stay landed within a short distance of the spot: moving resets the hold. The jobs are of a few kinds (a weather mast to be sat beside, a beacon to be set, a plant to be restarted with a spare core, a hulk's recorder to be fetched, a ruin to be powered) and each is told in its own offer.

PEOPLE WHO WANT SOMETHING

Now and then someone in a system wants what their world lacks, and asks where the pilot may meet them: their place's board, and TALK TO on its STATION page. It may be a plant gone dark, a crew lost in a cave, a black box still down one, a Tide base on a colony's world, a ruin with its port, or grain for a colony with no farms. There are never more than three in a sector, and none at home before the Foundry is on the chart. Fig. 4.5 shows such a request on a STATION page, and Fig. 4.6 the same on the contracts board.

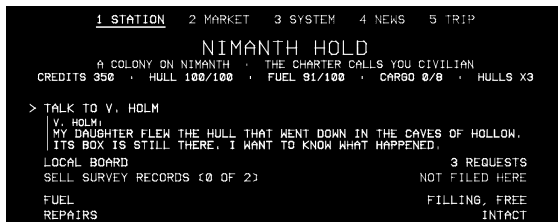


FIG. 4.5

A STATION page with someone's request to talk to.

What they ask is the goal, never the way. It is done however it is done and by whoever does it: met by the pilot without the contract taken, they thank the pilot all the same; met by someone else, they say so. Their thanks are standing with their side, and the favours the world already owes. Left alone for half an hour or an hour they go themselves, and how that goes is on the dice; arriving after, the pilot finds it as it went. Someone who has asked before is the one their system's people go to, and after three they settle and ask no more. What is asked now is a contract; the person is on the CAREER's PEOPLE page, with what each want was and what came of it. The career's PEOPLE page (Fig. 4.7) keeps them.



FIG. 4.6

The same request on the board.

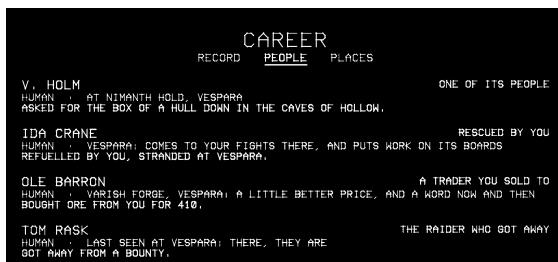


FIG. 4.7

The career's PEOPLE page.

FAILURE

If the deadline passes the pilot loses two points of standing, and a bounty target who got away returns later at a higher price. A passenger who dies costs three points, or six for a VIP. A commission also costs standing with the rival side whose space the target was in. **Contracts can lie.** A job is what someone says it is, and the journal notes it when a run turns out otherwise.

Situations

The system's own life is not asked for. Raids, convoys, sieges, stranded ships, rogue asteroids, flares and enemy construction come at any hour, more often as the threat rises, up to three at once; and the system does not wait whether the pilot is looking or not. You cannot save everyone. A harbour will often have a debris field near it, and the nearest colony trouble not long after. Resolving a situation pays six points of standing with the system's side (three for a rescue).

SITUATION	WHAT IT IS	PAYS CR
Raid	Reavers lift a colony's pods to carry them to the Tide's core: kill them, and ferry the evacuees out	300 + 100 a reaver
Convoy	A freighter under attack: stay within 300, or score kills	250
Siege	A dreadnought and two lancers on a station	1500
Stranded shuttle	A dry tank: take it on the cable and hold F, or set it down on a pad with fuel	220
Construction	A builder that will land and become a base in 45 seconds	500
Rogue asteroid	A rock heading for a colony or a station	300
Salvage field	Pick it over	what it holds
Flare	Find shadow, land or dock; evacuees from a colony	survival (60 each)
Hunter pack	Sent to where you were last sensed (never more than six)	100 a ship
Dust storm	Drag ×5 and blind sensors over an air world	survival
Ground siege	A siege gun and sappers crossing to a colony	350 (+200, +120)
Road raid	Wasps strafing an ore convoy	260
Blackout	A colony's core thrown from its plant: carry it back within six minutes, or the people leave	250

A **stranded shuttle** deserves a note. Its call stays open while it is on your cable, and close up it reads SHUTTLE · NO FUEL. The pilot you save remembers: they come to your fights in that system, and now and then put work of their own on its boards, a quarter over the usual.

Work on the ground

Fares. Colonies post local fares, worth 60 to 420 credits. Land on the pad and they walk to the ship. Pay is cut for knocks and for slowness, and people on foot die to the ship's exhaust, its landing gear and its shots. **Evacuations.** During a raid or a ground siege up to five people come out to a pad, sometimes a governor; take them to any other colony or station for 60 each, and 250 and standing for a governor. In a flare's warning up to three come out of a colony with nothing over it that holds, and half of those left when it breaks are lost. Pods taken aboard from a raid or a wreck are worth two hundred each at a colony's pad; the people in them go home, and those with no home stay and are one more of its people.

Vehicles. A stalled crawler or rover is mended by landing beside it, or towed to a colony if it is wrecked. A stranded survey rover's crew will board the cabin for a fee. **Colonies** grow toward twelve people, and a raided one burns while it is hurt. A colony's ground port has pages for STATION, MARKET, SYSTEM and NEWS, and a local board of two offers at most. A settled outpost has fewer. There are no yards and no saving, and a hit on the ship closes the port.

Places that fall. A place that is hurt runs badly and mends. Under half its structure its pumps stop (no fuel, no repairs, no growth), and under a quarter it sends no hauler up. It bids for the parts it needs, more as the damage grows, and mends itself out of its port's stock; parts come by shuttle, by the pilot, or broken out of a wreck section fetched to it. A place lost is a ruin: land on its pad and its port takes parts and nothing else, thirty for a colony, fifteen for a mine or an outpost; at a quarter of its structure it stands again, empty, and people come as to any place. A station destroyed is a wreck that may still be docked at: no services, its market taking parts in and nothing else, until it has what it needs. A place whose needs have all stood empty for twenty minutes declines, never past a quarter of its structure.

A colony founded. A harbour sells a CLAIM KIT (600 CR), carried on the cable for the harbour's side. Let go of on open ground where a colony could stand (flat, clear of mouths and walls, not hollow underneath, a good way from another settlement, and not on a world the Tide holds), and lying still, it opens into a claim: a pad, a beacon and the plan of a settlement. It is a ruin like any other, and thirty parts will stand it. The Tide hears of the founding, and a rival side takes note. Its founder is paid a small share as its port is opened. If the ground will not do, the kit lies there and says why.

Survey

Every first sight is a record, and every record may be sold once. A chart is worth 90 credits, a place 110, a cave 140, a world 30; big worlds pay double and danger raises the price. Research stations buy every kind; Free Ports and outposts buy caves and places; the Charter buys charts and worlds; the Ossuan count the records filed with them as standing. The survey ladder counts a record as it counts a first sight. It is the one trade in the sector in which the stock is the pilot.

Other ways of making a living

SALVAGE AND ROCK

Wrecks, debris fields and the cargo of destroyed ships are free to the pilot who gets to them first; everything found costs nothing and so counts in full on the trade ladder. Salvage sells as parts. Rock shot to pieces is ore, and ore is wanted. Wreck sections towed to a colony or a station are paid at their value; pods, which a raid or a wreck may leave, at 200.

BOUNTY HUNTING

A named raider on the board pays 400 and more, and the sides pay for the Tide's works as they fall (chapter 3). The pilot who is fond of the work will soon find that the enemy knows their hull: the Tide posts a picket over the world where it last had you; the pirates put a picket out on a lane and wait on your way out. Docking lets it fade, and so does time away from the system. There is no meter; there are only things said, and things done.

THE OTHER SIDE OF THE LAW

A hauler robbed in the lanes spills its cargo, and the cargo is the pilot's, in the way that stolen things are. It costs standing with its side and pleases the lanes. A Varr exchange will fence what it cannot be sold elsewhere, and there are other places that will. A pilot who does this for long will find it easier to be known on the lanes than to be welcome anywhere else.

HOME PORT

The place the pilot has docked at most, once it has been docked at five times, becomes the pilot's home port, never chosen and moved by docking elsewhere more. It greets the pilot as its own, and its reading says YOUR HOME PORT. Each jump counts the lane between two stars, and a lane jumped three times or more is drawn warm on the chart. A great turn done for a place (its crew brought out, its plant lit, a siege broken) makes it owe the pilot one, and the next time the pilot docks there needing a hull mended or the tank filled, it pays, once. The career's PLACES page, Fig. 4.8, lists them.

FIG. 4.8

The career's PLACES page: a home port, and the places that owe a favour.

CAREER		
RECORD	PEOPLE	PLACES
LORSEL GATE YOUR HOME PORT. YOU HAVE DOCKED HERE 6 TIMES.		HOME PORT · VESPARA
LORSEL HOLD IT OWES YOU ONE. YOU CARRIED ITS PEOPLE OUT.		VESPARA
RAYBUS CAMP IT OWES YOU ONE. YOU LIT ITS PLANT.		VESPARA
NIMANTH HOLD YOU BROUGHT IT GRAIN.		VESPARA

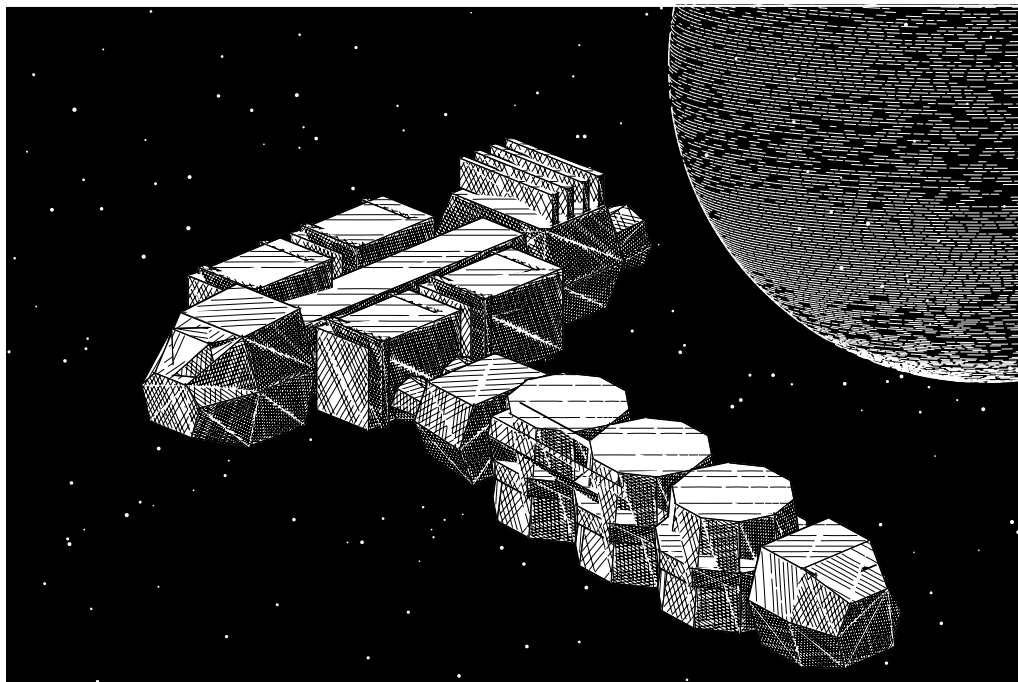
ADVICE TO TRADERS

The cheapest place to buy is where a thing is made. The dearest place to sell is where it is wanted, and a place that wants a thing says so on its market page and its system page. A station buys at nine-tenths and sells at the whole, so a trade of one unit is a loss; a trade of a hold is a business. The hold weighs: each unit adds 0.03 to the ship's mass, and a full Kestrel's hold climbs out of a well a quarter slower than an empty one. Think about a place's needs. Think what might make the society function.

If the profit is not worth it, trade it somewhere else.

FREE PORTS BOARD, RULE 1

Weights, measures and welcome are all negotiable.



A Hauler and a Tanker, on the way to the stations that want what they carry.



CHAPTER FIVE

Political Profile of the Sector

Wherever a pilot docks somebody keeps a book on them. The Charter keeps one, and so do the Free Ports, the Ossuan and the Varr, and the lanes keep a book of their own. What the books say sets prices, decides what a yard will sell, and decides whether a dock will open at all.

Consequences for trade

To trade successfully, and profitably, will almost certainly require you to fly the Kestrel into politically unstable systems. Pirate activity is high on the corridors, and adequate ship defences are essential if the rewards of higher selling prices are to be reaped. For the benefit of new pilots a brief summary of the powers follows; the sector's own opinion of itself is to be had from the stations' NEWS pages, which the Harbour Office recommends you read.

THE BOOKS

Five books are kept, and each has its own ladder. A book rises with what the pilot does for that side, and falls with what the pilot does against it. Below -10 a side shuts its docks to the pilot: WANTED, UNWELCOME, EXPELLED, NO CREDIT, as the side prefers to put it. The pirates begin at -5, hostile.

BOOK	RANKS, FROM THE BOTTOM	WHAT RAISES IT
The Charter	CIVILIAN, RESERVIST, ENSIGN, LIEUTENANT, COMMANDER, CAPTAIN, COMMODORE, ADMIRAL (and WANTED)	Its systems: situations resolved, people saved, raiders killed. Its civilians killed count against
The Free Ports	STRANGER, KNOWN FACE, FRIEND OF THE PORTS, FREE TRADER, CAPTAIN OF THE PORTS, PORT WARDEN, FREE LORD (and UNWELCOME)	Profit made in its ports, cores sold, situations resolved
The Ossuan	OUTSIDER, GUEST OF THE ICE, ICE WARDEN, DEEP WARDEN, FIRST WARDEN, ELDER WARDEN, KEEPER OF THE COLD (and EXPELLED)	Charts and first sights brought to them, people saved, relics given
The Varr	UNKNOWN, CUSTOMER, PARTNER, FACTOR, TRUSTED FACTOR, FRIEND OF THE HOUSE (and NO CREDIT)	Profit made at their exchanges. Their couriers and traders harmed count against
The lanes	PREY, LEFT ALONE, KNOWN ON THE LANES, FRIEND OF THE LANES, ONE OF US, LANE LORD	Haulers robbed, stolen goods fenced. Their own killed count against

The first rank comes quickly, and each after it takes about twice the last. A new rank in the Charter's, the Free Ports' or the Ossuan's book, like a new rank in combat, brings a spare hull; the Varr and the lanes give none. Rank brings better prices, the rank-gated shelves of a side's yards, and a warmer welcome (at rank 3 with the Free Ports, the back room is open). Selling cores to the Free Ports costs standing with the Charter, and so does robbing a hauler. A side's militia, where its law runs, comes to know the pilot's hull from what the pilot does to its people and its law (firing on them, running from a scan, flying under false colours found out), never from time spent. Knowing the hull, its patrols scan more often and its customs scan at every dock; looking for the pilot, it sends a patrol to where it last had them. They say so openly over comms, and the word reaches the side's other systems. It fades while docked, and slowly away.

The powers

THE CHARTER

The Charter holds the home cluster and the corridor to it, and its law is strict: customs scan every docking, a core is contraband, and its patrols will call a ship to hold in flight. It is the best ordered of the powers, and the one that has most to lose. Its harbours sell armour, guns, gun marks and ablative armour; its yards build the Lance. Its militia fights as a line, and does not break. Where the Charter's Harbour Office is in command, as at Lorsel Gate, a pilot is a civilian until they are shown to be otherwise.

CHARTER NOTICE 2

The Charter regrets that it cannot guarantee any pilot's opinion of the Charter.

FREE PORTS CHARTER, ARTICLE 1

The first duty of a port is to stay open.

"Keep your light low and your counsel lower."

OSSUAN SAYING, AS THE HARBOUR OFFICE RENDERS IT

"Sell what they want. Buy what they forgot."

VARR PROVERB

THE FREE PORTS

The Free Ports are a league, not a government: independent ports at the crossroads and along the corridors, each keeping its own law, and all keeping it lax (a scan on about one docking in three). They sell engines, the actives (chaff, decoys, point defence, gravity charges) and the passive array, and they buy cores. Their militia is hired, and fights as hired guns do. A pilot who has done well by them will find the back room open.

THE OSSUAN

The Ossuan keep the cold. Their holds are cut into the ice where a world's ground rises, low pale domes and capsules with their windows lit at any hour, and they turn at under half the pace of any other station: an Ossuan bay comes round slowly. Their markets are deep, and slow to move. They sell sensors, fins, the heat shield, the cold sink and the regulator seat; they count the charts and first sights a pilot brings them, and remember them. Under Ossuan law a core is contraband everywhere.

THE VARR

The Varr are traders, and they keep exchanges wherever there is something to trade: in the Free Ports' systems and on the corridors. Their markets are shallow, so that every unit swings the price. They sell tanks, holds, the long drive and the quiet drive, and carry sealed cases for anyone with a clock and a reason. A Varr exchange will fence stolen goods. The Runner, the Varr's hull, is sold only to their friends.

THE LANES

The lanes are what the pirates call the corridors. They are thickest there, and a pilot who keeps to the clusters will not often meet them. Their ranks are PREY, LEFT ALONE and, for the few, ONE OF US. The lanes have ports, but they are on no chart.

Reading a system

Every system has eight facts, shown on the chart once it is known and on the station's SYSTEM page: its side; the peoples who live there; the law; the security; the tech; the population; what it makes; and how stable it is, and why. Each acts in the game. Law decides the customs and the patrols. Security decides how many patrols there are. Tech decides what the yards may sell: a rail gun, the gravity damper and the long drive need a high-tech system, and the quiet drive, the cold sink, the passive array and the regulator a medium one. Population decides how much trade there is. Economy decides what is made and what is wanted.

DATA ON VESPARA	
Side	THE CHARTER
Peoples	HUMANS
Law	STRICT
Security	MEDIUM
Tech	HIGH
Population	SOME
Economy	MINING, FARMING, REFINING
Stability	UNSETTLED (THE STARFALL)

Stability moves in play. Raids, losses and the Keth push it down; trouble beaten off pushes it up.

Stability is where a system starts, and it moves: raids, losses and the Keth push it down, and trouble beaten off pushes it up. It moves what it touches. In a less stable system prices rise; its patrols are one fewer (never none, where it keeps any); and its boards post bounties, rescues, sabotage and recon, where a stable one posts deliveries, passengers, surveys and couriers.

DATA ON ORMEA	
Side	THE CHARTER
Peoples	HUMANS
Law	STRICT
Security	HIGH
Tech	HIGH
Population	MANY
Economy	FARMING, REFINING
Stability	STABLE (SETTLED)

Systems differ a great deal: this is a giant and its moons, of the Charter's.

Each system also has one *trait*, never shared with a neighbour (a flare star, a garden, a crossroads, a graveyard, a pirate den), and the chart shows its tag and, once known, a word for its danger. A garden is as safe as it sounds. A graveyard is not worth the fuel unless something has been left in it.

The Tide and the front

The Tide does not trade, and nobody has been able to speak to it. It raises works: masts, guns and plants, which launch waves of ships while they are powered. Powered masts report a pilot's position, and a base that has had no pilot to hunt for a while will send a picket to the last place it knew of. Away from its own place, in the systems it reaches but does not hold, it fights in packs; near it, in hosts; and in some systems it is dug in.

Its **front** is a red circle on the chart. By the Survey Board's reckoning it gains about a unit in a quarter of an hour, less what the Charter and the Free Ports push back, and it has never been seen to fall back far.

Systems inside the circle get raids and builders, and home can be besieged. The Charter and the Free Ports each run one operation at a time wherever the front is: a **strike** on a set of Tide works; a **hold** of a system the front will reach within the hour, or the relief of a station there with a dreadnought on it; a **supply** drive of parts, or fuel, to the side's system nearest the front. Each is open for about forty minutes, posted and closed in the news, and flown by three of the side's own ships whether the pilot comes or not; the side is likelier to win it if the pilot does their part. A win pushes the front back; a loss lets it through. A side that wins has the more say in how the war will end.

The front can reach home. When it does, the harbour is besieged by a dreadnought and two lancers, and a harbour that falls stays fallen until the front falls back and the Charter rebuilds it.

Other peoples

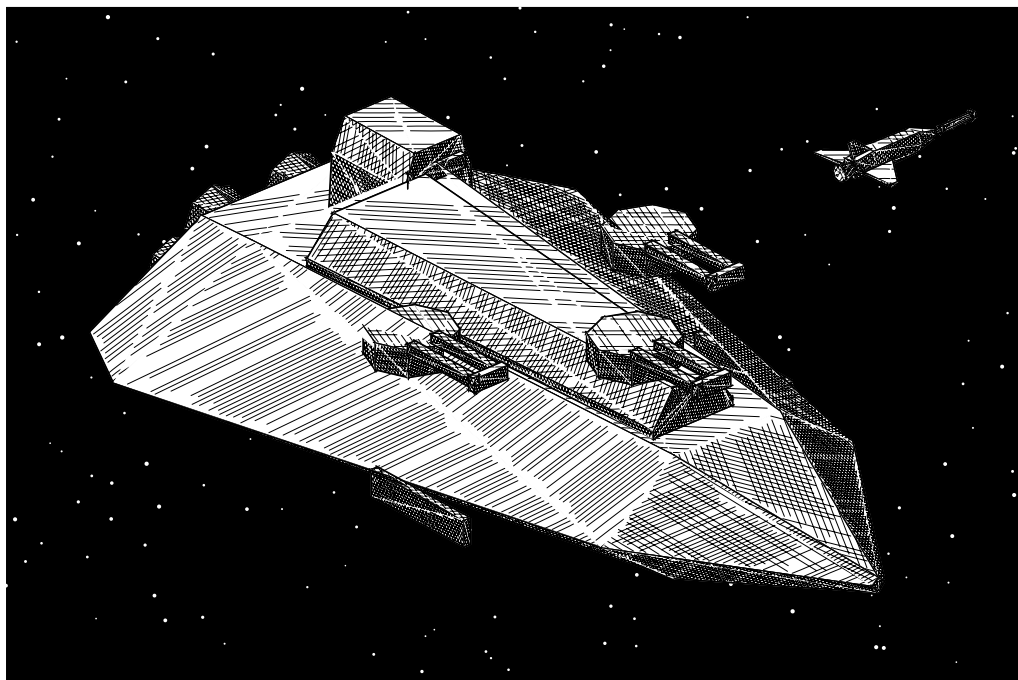
The Harbour Office is able to speak with confidence of the peoples it deals with, and of nothing before them. Two other peoples are met. The **Ossuan** and the **Varr** are neighbours, and live in the sector as the humans do. The **Keth** do not: they are met at the corridor stars and in the deep, they speak to nobody, and their hulks are worth their weight in alloy. A single Keth hunter, it is said, will speak to a pilot who comes close; the Charter has no record of what it says.

Five systems of the sector have ruins of an older people than any of these, spires with an empty socket, and a sealed cache beside each. Nothing is known of whoever raised them, and they are called the Makers for want of a better word. Maker relics are traded, since they may be traded; what they are for, nobody on the Harbour Office's books has been able to say.

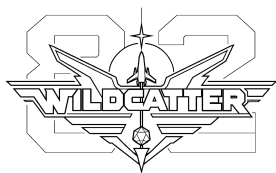
The people you will meet

A few people carry what the sector has of a history. They are met at the dock, on a talk row at the head of the station page, where their words appear a line at a time, and they are heard in comms and read of in the news. The Charter's watch at the home harbour is Commander Hale, whose voice is CONTROL's. A Free Ports fixer, an Ossuan elder and a Varr broker are met at the first of their ports a pilot docks at. A rival pilot is heard of near the front. The Keth have a hunter that speaks to nobody, or nearly nobody.

They want different things. They can tell the truth, or lie, or sell a pilot out, and they can be lost: killed, turned away, or simply never met. Where each stands, and what each will say once it is done, the journal records as the pilot sees it, and no more.



A Tide dreadnought, with a lancer in attendance. Nothing yet raised against one has held it back for long.



CHAPTER SIX

Observer's Guide to Ships in Service

In most operations certain ships are repeatedly encountered. All ships, whether armed or unarmed, are potentially dangerous, and any craft may be put to the wrong use. The brief guide given here is an indication of the range of types that ply the trade and the lanes. The illustrations show top, side and front views of each craft, all to the same scale; dimensions give length, breadth and height.

Your hulls

KESTREL

The Charter's light patrol hull, built at the harbour yards of Lorsei Gate and issued to every pilot on the Charter's books. A flat delta with two drive pods aft. It does everything and excels at nothing, which is why the Charter issues it. It is never sold: a pilot who loses it is given another.

DIMENSIONS
20/17/5 m

HOLD
8 units

CABIN
4 berths

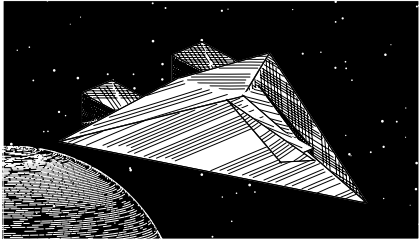
ARMAMENT
One pulse gun; seekers if a rack is fitted

MAX VELOCITY
60 (boost 135) u/s

THRUST
14

PRICE
Not sold
ITS OWN

None; the standard the others are measured by



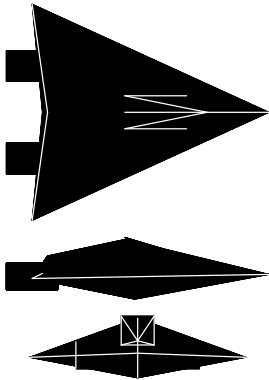
HULL STRENGTH
100

MASS
1.0

SOLD AT
Issued with the career

FUEL
100

POWER / COOLING
3 / 3



YARD NOTE, LORSEI GATE

The Kestrel is not fast, not strong and not roomy. It is, however, still here.

SWIFT

A light, quick craft from the Free Ports' crossroads yards: it outruns and outturns anything near its size, and everything about it is thin. It is the choice of couriers, and of pilots who mean never to be hit. Two berths and two units of hold make it a poor ship to earn a living in and a good one to be missed in.

DIMENSIONS
23/15/5 m

HOLD
2 units

CABIN
2 berths

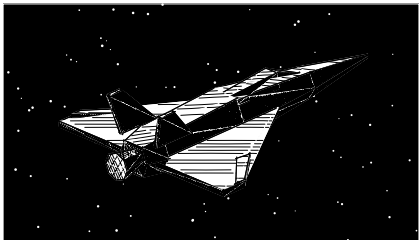
ARMAMENT
One pulse gun

MAX VELOCITY
72 (boost 150) u/s

THRUST
20

PRICE
2400 CR

ITS OWN
The fastest hull in service



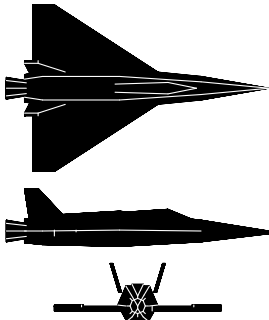
HULL STRENGTH
60

MASS
0.7

SOLD AT
Crossroads ports

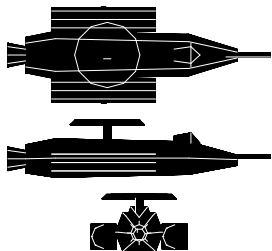
FUEL
70

POWER / COOLING
2 / 2



FREE PORTS YARD

Fitted with everything a pilot might need except a margin for error.



SURVEYOR

Go far and see far; fight nothing. A big tank, eyes and ears half again as long as any other hull's, a plant that will feed five points of equipment, and a landing gear that sets down best of all. It is flown by those who are paid for what they see rather than for what they carry.

DIMENSIONS
28/10/6 m

HOLD
10 units

CABIN
3 berths

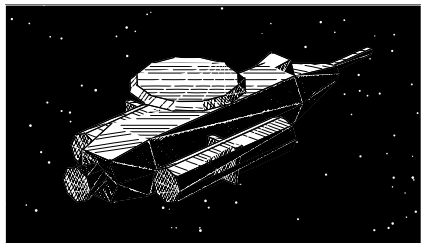
ARMAMENT
One light pulse gun

MAX VELOCITY
58 (boost 125) u/s

THRUST
13

PRICE
2800 CR

ITS OWN
Sees and pings $\times 1.5$; lands best ($\times 1.1$)



HULL STRENGTH
80

MASS
1.3

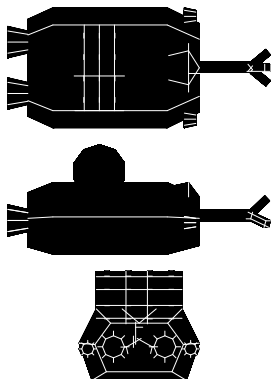
SOLD AT

Research stations; Ossuan holds

FUEL
160
POWER / COOLING
5 / 3

RESEARCH STATION NOTICE

The Surveyor sees a great deal. It is not required to do anything about it.



MULE

Lift and pull: the cable is the weapon. The Mule's cable holds twice the pull of any other, and the hull brakes on strong retros of its own, so that it can bring to a stop what it has hauled up. A refinery hull in the main: heavy, slow to turn, and hard to make let go.

DIMENSIONS
29/13/12 m

HOLD
12 units

CABIN
4 berths

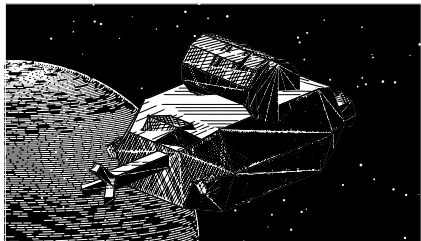
ARMAMENT
One pulse gun

MAX VELOCITY
52 (boost 115) u/s

THRUST
20

PRICE
3000 CR

ITS OWN
Retros of its own; a cable twice as strong



HULL STRENGTH
150

MASS
1.8

SOLD AT
Refineries

FUEL
120
POWER / COOLING
4 / 3

REFINERY FOREMAN

It pulls what you point it at. What you point it at is your lookout.

HAULER

Mass is the enemy: plan every burn. The Hauler carries forty units of cargo and eight passengers, and every unit of it is weight; it climbs out of a well slowly and lands stiffly. A pilot with the patience to fly it is the pilot a freight contract needs.

DIMENSIONS
33/14/8 m

HOLD
40 units

CABIN
8 berths

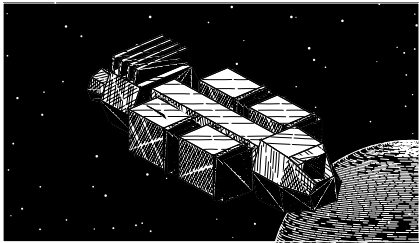
ARMAMENT
One pulse gun

MAX VELOCITY
50 (boost 110) u/s

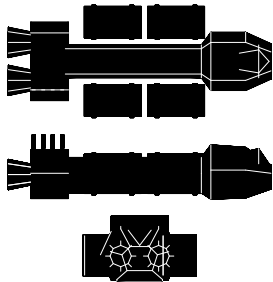
THRUST
18

PRICE
3200 CR

ITS OWN
Lands stiffly (x0.85)



HULL STRENGTH	FUEL
160	130
MASS	POWER / COOLING
2.6	4 / 4
SOLD AT	
Crossroads; core settlements	



LANCE

Take hits and keep firing. Two gun mounts that fire together, a thick hull, fins enough for both guns, and a small tank. The Charter builds it at its own harbours, for its own, and sells it to those it trusts.

DIMENSIONS
27/19/8 m

HOLD
6 units

CABIN
2 berths

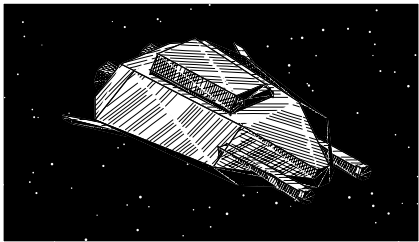
ARMAMENT
Two mounts, together firing

MAX VELOCITY
54 (boost 115) u/s

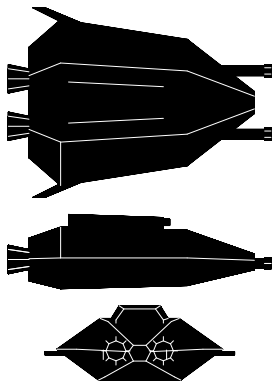
THRUST
17

PRICE
3600 CR

ITS OWN
Two gun mounts

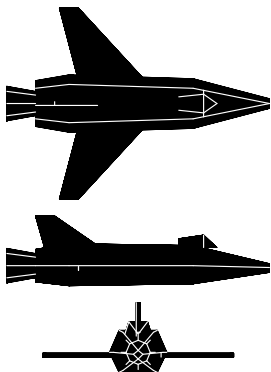


HULL STRENGTH	FUEL
170	80
MASS	POWER / COOLING
1.9	6 / 6
SOLD AT	
Charter harbours (rank 2)	

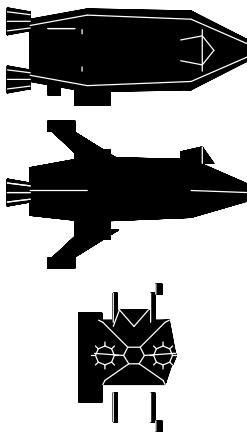


CROSSROADS PORT, TO NEW OWNERS
Cargo is not a feeling. It is a weight.

CHARTER HARBOUR OFFICE
Not available to pilots of no fixed regard.

**VARR EXCHANGE**

Delivery is the whole of the argument.

**NOTE**

The Charter keeps no record of a yard that builds it.

RUNNER

In and out before the news. The Varr's own hull: its drive charges in six-tenths of the usual time, and its hold is large for its size. It is sold to the Varr's friends and to nobody else.

DIMENSIONS
22/16/6 m

HOLD
14 units

CABIN
3 berths

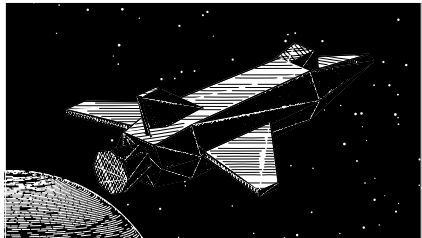
ARMAMENT
One pulse gun

MAX VELOCITY
72 (boost 140) u/s

THRUST
19

PRICE
4200 CR

ITS OWN
Charges a jump in 0.6 of the time



HULL STRENGTH
70

MASS
0.9

SOLD AT
Varr exchanges (rank 5)

FUEL
110

POWER / COOLING
3 / 3

WILDCATTER

The hull that gave this manual its name. It was built for going down where others cannot, and for coming back up with something: a cable one and six-tenths times as strong as a Kestrel's, a soft landing, and eyes and pings a fifth longer. The hold is small. The Charter has no record of one being sold.

DIMENSIONS
19/8/11 m

HOLD
6 units

CABIN
2 berths

ARMAMENT
One pulse gun

MAX VELOCITY
62 (boost 130) u/s

THRUST
16

PRICE
3400 CR

ITS OWN
Cable $\times 1.6$; lands softly ($\times 1.3$); sees and pings $\times 1.2$



HULL STRENGTH
110

MASS
1.05

SOLD AT
Not on any chart

FUEL
120

POWER / COOLING
4 / 4

Hostile and wary craft

A ship's bounty is what the Charter's books pay for it; a kill is a claim for half the figure, paid when the pilot next docks at a place of the Charter or the Free Ports, and counts toward the combat rating. Hull strength is in the same points as your own. Dimensions are of the hull as met, in metres.

WASP

A Tide straffer: quick, flimsy and many. It makes fast passes with a lance and breaks away. Its packs are the first met, and the commonest.

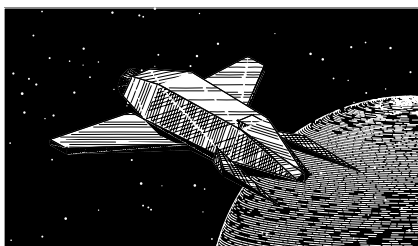
DIMENSIONS
27/25/5 m

HULL STRENGTH
38

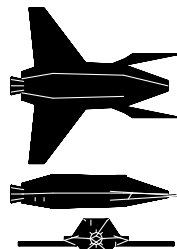
MAX VELOCITY
58 u/s

ARMAMENT
Lance

BOUNTY
120 CR



FLOWN BY
The Tide



PILOTS' SAYING

One wasp is an inconvenience. Two is a sentence.

LANCER

A Tide chaser, heavier and slower than the wasp, which runs a ship down and bursts upon it.

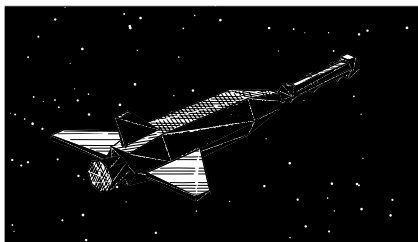
DIMENSIONS
45/25/10 m

HULL STRENGTH
90

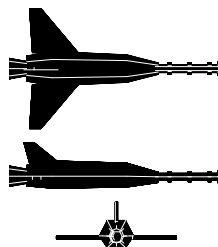
MAX VELOCITY
52 u/s

ARMAMENT
Lance

BOUNTY
300 CR

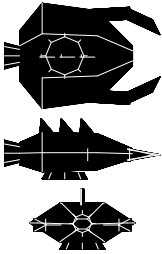


FLOWN BY
The Tide

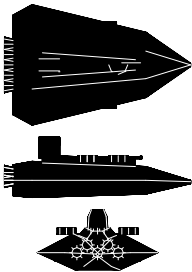


PILOTS' SAYING

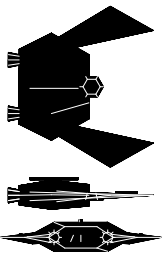
A lancer will not stop to be reasoned with.

**COLONY WATCH**

Count the pods before the reaver. After is too late.

**HARBOUR OFFICE**

The Office does not advise approaching a dreadnought. It does not advise anything near one.

**CORRIDOR PILOTS**

You do not meet a hunter. A hunter meets you.

REAYER

A Tide lifter. It comes down on a colony, takes pods from it and carries them to the Tide's core. Slow and thick; when it is killed carrying a pod it drops it.

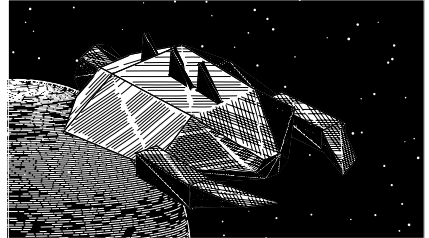
DIMENSIONS
43/29/16 m

HULL STRENGTH
137

MAX VELOCITY
36 u/s

ARMAMENT
Lance

BOUNTY
400 CR



FLOWN BY
The Tide

DREADNOUGHT

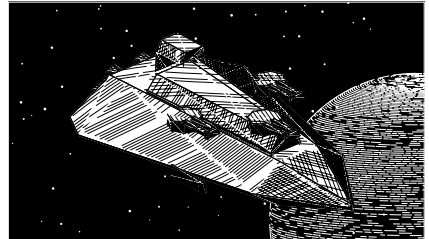
A Tide siege hull. A gravity damper lets its engines lift it from a world, and a mass driver breaks what it sits on. A station with one on it takes nobody in. It is the largest hull that flies at a pilot, and the most valuable.

DIMENSIONS
125/81/40 m

HULL STRENGTH
1300

MAX VELOCITY
20 u/s

ARMAMENT
Mass driver
BOUNTY
3000 CR



FLOWN BY
The Tide

KETH HUNTER

The Keth's hunting hull: large, hard to kill, and nobody's ally. It is met at the corridor stars and in the deep. A charging drive will call one.

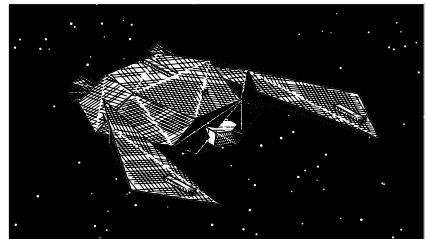
DIMENSIONS
46/51/10 m

HULL STRENGTH
273

MAX VELOCITY
56 u/s

ARMAMENT
Lance

BOUNTY
700 CR



FLOWN BY
The Keth

SENTINEL

The gun post of a Tide base: a lance on a turret, fed from a plant with a core in it. It does not fly. Darken the plant and it dies.

DIMENSIONS

30/15/7 m

ARMAMENT

Lance

HULL

70

BOUNTY

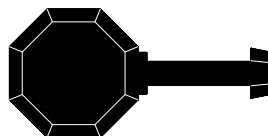
None

VELOCITY

0 u/s

FLOWN BY

The Tide



TENDER

Keeps behind a pack, and once a second takes heat off the guns of those near it and mends them. Kill it and their guns jam.

DIMENSIONS

40/42/16 m

ARMAMENT

None

HULL

147

BOUNTY

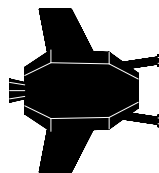
400 CR

VELOCITY

44 u/s

FLOWN BY

The Tide



SEEKER BOAT

Stands off at a distance and throws seekers that bend in gravity. Close with it, or keep a world in the way.

DIMENSIONS

34/26/16 m

ARMAMENT

Pulse; seekers

HULL

93

BOUNTY

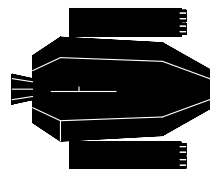
320 CR

VELOCITY

50 u/s

FLOWN BY

The Tide



BOARDER

Comes alongside a civilian, cables it, cuts its engines and flies it away. A shot through the cable frees it.

DIMENSIONS

35/8/9 m

ARMAMENT

Pulse

HULL

89

BOUNTY

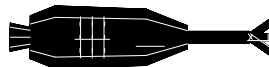
280 CR

VELOCITY

58 u/s

FLOWN BY

The Tide; the lanes



AMBUSER

Waits in shadow with its engines off, emitting nothing, until a ship is within 160 units; then it springs.

DIMENSIONS

23/20/6 m

ARMAMENT

Lance

HULL

61

BOUNTY

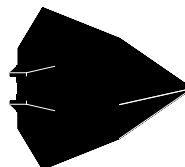
340 CR

VELOCITY

64 u/s

FLOWN BY

The lanes



PICKET

A sensor ship that never closes and never fires. It holds a ship in its brackets from 420 units and calls the hunt after fourteen seconds.

DIMENSIONS

31/34/16 m

ARMAMENT

Pulse

HULL

76

BOUNTY

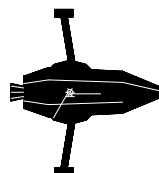
260 CR

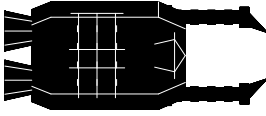
VELOCITY

46 u/s

FLOWN BY

The lanes; the Tide





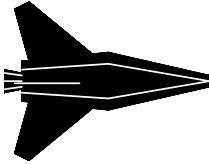
TUG

Latches on to what lies loose: your cable, your pad, your wreck field. The cable's rules apply to it too.

DIMENSIONS
47/19/19 m
ARMAMENT
Pulse

HULL
189
BOUNTY
220 CR

VELOCITY
34 u/s
FLOWN BY
The lanes



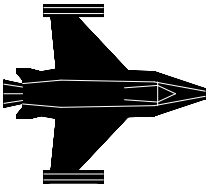
KETH DRONE

Small and quick. A brood sleeps in a nest to a quiet ship, and wakes to a scan.

DIMENSIONS
18/14/6 m
ARMAMENT
Lance

HULL
20
BOUNTY
60 CR

VELOCITY
80 u/s
FLOWN BY
The Keth



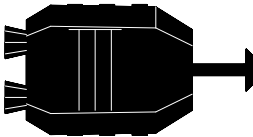
PATROL

A side's patrol craft: quick, armed, and on the colonies' side. It scans where its side's law runs.

DIMENSIONS
28/24/9 m
ARMAMENT
Pulse

HULL
70
BOUNTY
None

VELOCITY
62 u/s
FLOWN BY
The Charter; the Free Ports



WARDEN

The Ossuan's patrol hull, thicker than a patrol craft and as quick to turn.

DIMENSIONS
31/16/14 m
ARMAMENT
Pulse

HULL
160
BOUNTY
None

VELOCITY
48 u/s
FLOWN BY
The Ossuan

Civilian craft

A civilian that is shot at runs; a civilian that is killed costs its side's standing. Civilians carry what their worlds make, and what they carry is the station's stock.

FREIGHTER

The haulers of the lived world: they carry what the worlds make to the stations that want it. Slow, and unarmed to any purpose.

DIMENSIONS	HULL	VELOCITY
49/28/9 m	120	30 u/s



TANKER

Carries fuel. A holed tanker burns, and says so before it goes up.

DIMENSIONS	HULL	VELOCITY
42/10/8 m	90	30 u/s



LINER

People in their hundreds, between the stations.

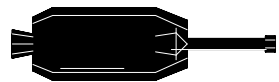
DIMENSIONS	HULL	VELOCITY
51/12/10 m	140	32 u/s



PROSPECTOR

A rock-cutter, working a belt.

DIMENSIONS	HULL	VELOCITY
27/7/7 m	50	40 u/s



COURIER

Fast mail, and the Varr's sealed cases.

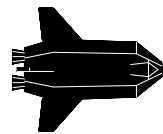
DIMENSIONS	HULL	VELOCITY
21/10/3 m	35	75 u/s



SHUTTLE

A small landing craft, as fragile as it looks. The stranded ones are worth a call.

DIMENSIONS	HULL	VELOCITY
16/14/7 m	30	40 u/s





SURVEY BOARD, CIRCULAR 3

Soundings of the ground are made from above. The Board accepts no liability for what the ground does when a pilot is under it.

CHAPTER SEVEN

Worlds, Caves and the Ground

A world is a place to land on before it is a place to look at, and under the ground a good deal more is going on than shows from above. What follows is enough to recognise what you are looking at. It is not a map, and the Harbour Office would think less of any pilot who wanted one.

Worlds

A system holds rock worlds, ice worlds, volcanic and desert worlds, crystal worlds, gas giants and their moons, and belts and rings of rubble and wreckage. Stations are of three kinds: **harbours**, where a pilot docks and fits; **refineries**, which make fuel and parts; and **research stations**, which buy what is found and sell charts.

Worlds are lit by the star, and since they turn, every place has a day and a night. A world close to the star runs a gun hot by day and cool by night. An air world drags and heats a fast ship, volcanic worlds the thickest. The ground is cut into valleys, ridges, craters, canyons and old workings, and on it stand colonies, mines, depots, masts, beacons, wrecks and old plants. Roads join the mines to the colonies, and crawlers and rovers use them.

The very large worlds, three times the size of the rest, carry arrangements of their own: a store whose guns a single socket both opens and wakes; a crashed hauler's survivors, waiting to be carried out; a battery

that is fed from a ridge some way off. Each is a situation. None of them has one answer, and the Harbour Office does not pretend to know them all.

VESPARA

The home system is five worlds and a belt. **Nimanth**, the inner world, lies so close to the star that a gun runs hot in daylight and cool at night. **Lorsel** is the home world: two colonies, a mine, the harbour (Lorsel Gate) in a high orbit over it, a rock cluster and a moon. **Ravbus** has a colony, a mine, the research station Ravbus Observatory, and a gun position in a crater. **Varish II** is a gas giant: the refinery Varish Forge floats low over its drag layer, and fuel is to be scooped. **Oroven**, the outermost, is the world where the Starfall fell, under sentinel guns. A belt, and a few things not on the map until a pilot has been there, make up the rest. *The Charter has not charted the rest, and asks that you do not rely on this list.*

Under the ground

A world's rock is hollow in places. Some of the hollows are only caves, some were dug, and some were lived in; a few are lived in still. A cave has a mouth, rooms with a shelf in each to land on, and a deepest room. What it holds is not told at the mouth, and it is rare for two to be alike. The things that follow are met in many of them, and a pilot who can recognise them can work out the rest. Fig. 7.1 shows a cave in section: its mouth (1); the dark (2); a draught (3); a cracked roof (4); a gas pocket (5); a breachable wall (6); a door with its socket (7); a boulder in a squeeze (8); the powder store (9); a lava chamber (10); a nest (11); and the deepest room (12).

The dark. Only what shines shows. The ship lights a small space about itself, a live plant a larger one, and a ping lights a cave for a moment.

Draughts, roofs and gas. Air moves through some caves, and will carry a ship, most of all one with a load. A roof that has cracked will come down on a knock or a shot, on whoever is under it, and may close the way behind. Gas drags and heats a ship, and drains if its flue is opened. A volcanic cave has a cycle of its own: it is quiet, then it stirs, and a pilot who has felt the rock warm will not need telling twice.

Walls, doors and squeezes. A wall may be thin enough to shoot through, or thick enough to need a charge. A door stands open while its socket has power. A boulder in a narrow neck will not move for a ship, but it will move for a cable or for a charge.

Water and ice. The caves of about half the ice worlds hold water, drawn as a deep blue-green sheet with a pale edge, and IN WATER shows on the screen while the ship is in it. It finds its own level, runs down any way opened below it (a wall shot through, a strip blown) and pours out at the sky; shut doors and rock hold it. It slows everything that moves in it, a ship under thrust crawls, and it pushes up against gravity, so that a pod floats and a rock sinks. Heat melts ice: lava, a hot floor, a blast, or a hull hotter than half pressed against it; and where lava meets water

"The mouth tells you what the cave will tell you. After that it is up to the cave."

PROSPECTORS' SAYING

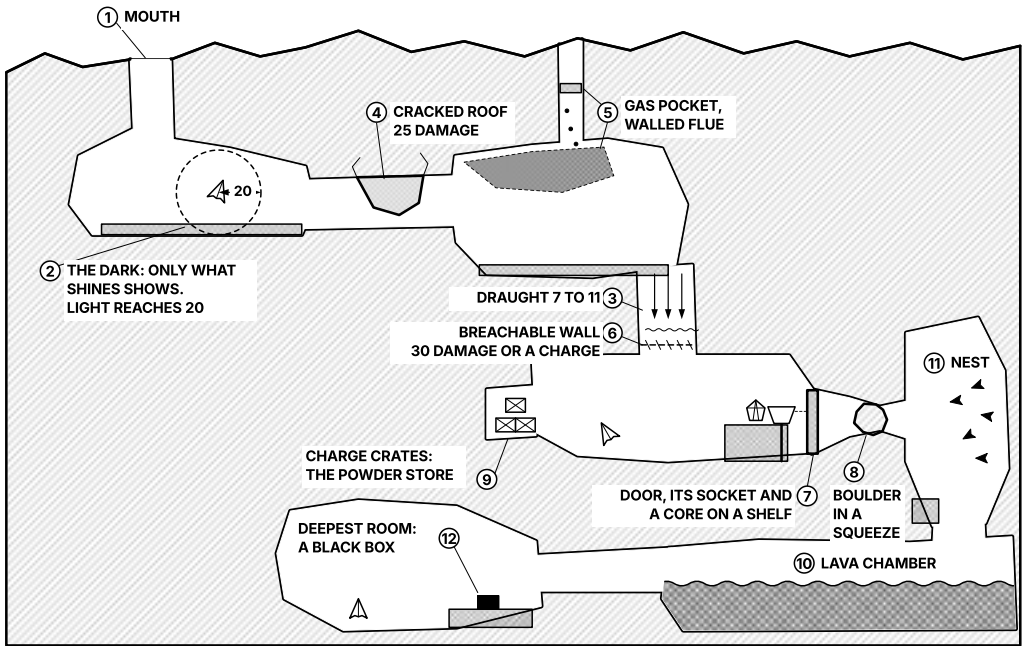


FIG. 7.1 A cave in section: some of what a pilot may meet. No cave has all of it, and most have something that is not shown.

the lava sets to brittle rock and the water boils away in steam. The walls of a crystal cave, pale and icy, throw shots back, up to twice. Fig. 7.2 is such a cave.

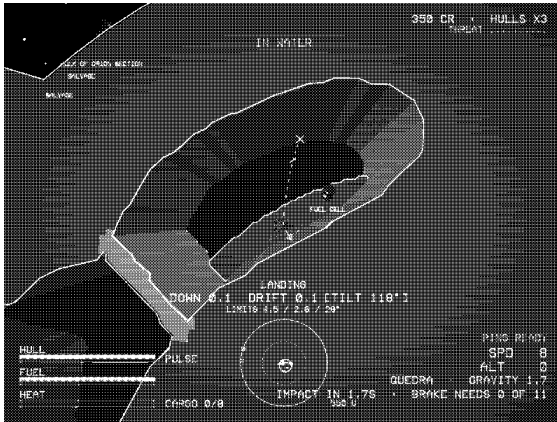


FIG. 7.2

Water in a cave of an ice world; IN WATER shows on the screen.

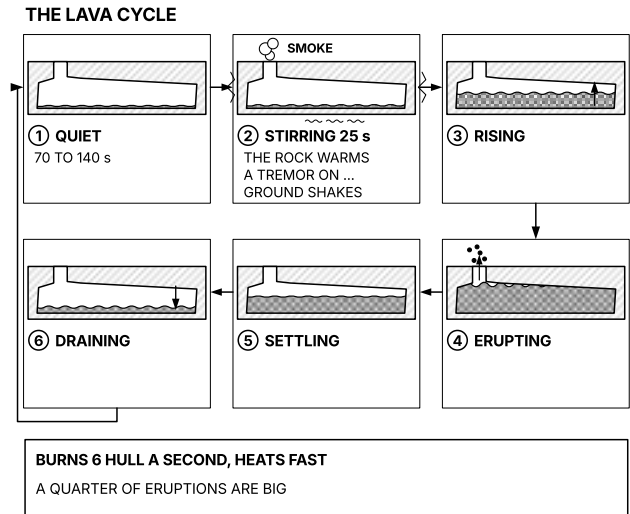
A cave keeps what you did to it: walls shot open, roofs down, cores seated or taken. One that has given up its prize may answer once, as it is left. A pilot is advised to look behind them.

TELLS AT THE MOUTH

A cave shows something of itself from outside. Dust streams out of a mouth where a draught moves the air, or is drawn in. A cave with gas in it shows a faint haze at its mouth. A volcano rumbles when it stirs, and louder as it rises, and the rock about live lava is warm. Miners leave spoil and a headframe; a crash leaves wreckage; a crew in trouble has a recorder that calls like a beacon through the rock. A ping that reaches the mouth gets back a word, as chapter 3 describes. None of these names the prize. The cycle of a volcano is drawn in Fig. 7.3.

FIG. 7.3

The cycle of a volcano. A quarter of eruptions are big.



The rover

With a rover bay fitted, B on the ground lets a small rover down and hands it the controls while the ship waits where it was left, parked and exposed. Left and right drive it along whatever floor it is on; it climbs what its wheels can grip and falls off what they cannot. T takes or sets down one light thing. B beside the ship takes it back aboard. Its radio is short, and shorter still from a cave to the outside: beyond that it stalls until the ship comes closer.

Some caves have crawlways too narrow for any hull, leading to a nook worth a rover's trouble.

What else a sector holds

A few things in a sector are one of a kind, and the Ossuan will read any of them for a pilot, and build what it makes for a pilot they trust. Between eight and twelve places are hidden until they are found, and named on the chart once they have been: hulks, hollows, ruins, dust clouds, a world that does not stay, a colony ship falling toward a dead star. Come back to a place and it is as you left it.

Not every colony stands on the surface. A few are dealt to a sector's systems under the rock, in an empty chamber, people of the system's side who went down out of the Tide's way: four to seven of them, a pad on the chamber's floor, a plant lit with its own core, windows always lit. They are hidden until the pilot flies into the chamber; a ping at the cave's mouth comes back VOICES. The rock hides them from raids and rocks alike. Landed on, one is any colony, and its fares pay half as much again, since it is a hard place to reach.

Summary of Key Functions

All the keys of the flight, the dock and the map, in one place. A joystick may stand for the direction keys and the fire key, and a pointing device (a mouse or a trackball) steers the ship toward the cursor, with its first button to fire and its second to boost.

Navigation and records

M	System map
V (in the map)	Sector chart
1 to 5 (in the map)	Course to a situation
TAB, N	Cycle the course
C	Clear the course
B (on the map)	Pin what is under the pointer
O	Contracts
K	Career
J	Journal and comms log
H	Flight manual (F1 on the title screen)
ESC, P	Pause (X there abandons the career)
9	Music: full, half, off
0	Mute

Docked

1 to 7, TAB	Station, market, outfitting, engineering, system, news, trip
↑↓	Select
ENTER, →	Choose; buy
←	Sell all (market)
F	The fit
L	Launch

Flight

A, D or ← →	Rotate
W or ↑	Main thrust
SHIFT (with W)	Boost; no weapons while boosting
S or ↓	Retro thrust (module)
Q, E	Lateral jets (module)
SPACE, CTRL	Fire
X	Fire a seeker (module)
Z	The first active: chaff, decoy, point defence, gravity charge
Y	The second active
T	Cable: latch the nearest thing within 7, or let go
R	Ping
F (hold)	Transfer fuel down the cable, or into a pad
G (hold)	Charge the jump drive (eight seconds)
B	Rover (with a rover bay, landed)
V	Gravity lock on or off
-, =	Zoom the view
ENTER (landed)	Open a ground port

Title screen

ENTER	A new career
F2	Continue the saved career
F1	The flight manual
TAB	Seed word / call sign

Joystick. The stick turns the ship and works the thrust. Its buttons fire, boost, ping and work the cable; further buttons use the active and fire a seeker, and the map and the pause have buttons of their own. In the menus the stick moves the choice, and a button picks it.

Pilot's Log

Date

Call sign

System

Rank (combat / survey / trade)

Hulls left

Credits

Fuel

Current fit: modules, weapon, active

Item / world

Usual price

Price paid

Units

Trading profits

Kills

Systems visited

Special notes

Contracts and Standing

Contract / who	Where	Pays	Done by

Book	Rank	Remarks
The Charter		
The Free Ports		
The Ossuan		
The Varr		
The lanes		

Places found

[illegible]

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper has a slight shadow on the right side, suggesting it's resting on a surface.

[illegible]

