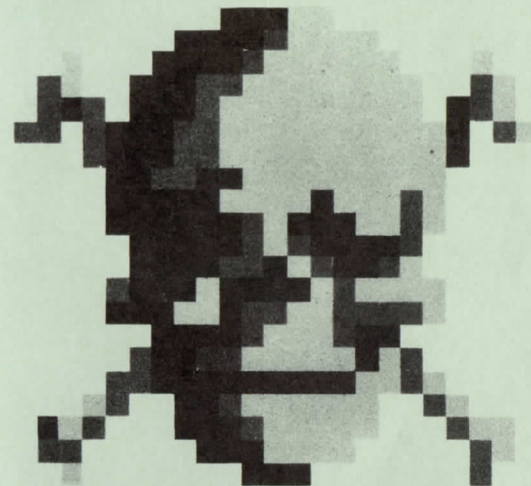


**FEDERAL
INTER STARBASE
PATROL FORCE**



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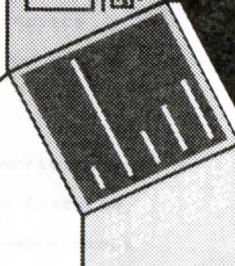
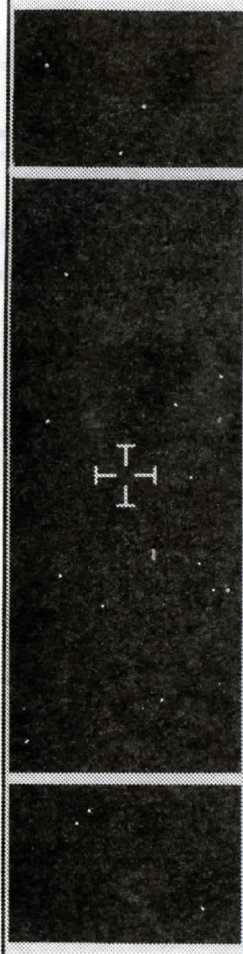
PILOT'S INSTRUCTION MANUAL

**INTERDICTOR
MK III**

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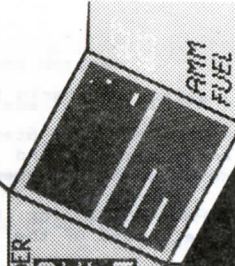
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+ AAI
TGT SYS

TRANSPONDER
ID ID
EC EC
MT MT
JA JA

+026



ARM
FUEL

I extend my thanks to the following:

PETER CALVER of Starbase Central Developments for his encouragement and the loan of research and development equipment.

JOHN HARDING for his encouragement and aid in the development of the Interdictor Mk 2 craft.

COMMANDER TERRY RANDELLS for all his hard work as chief test pilot on the Interdictor Mk 2 and 3.

SUB LIEUTENANT STEVE MOLE (deceased) for his work as test pilot on the Interdictor Mk 3.

1ST LIEUTENANT AL WARDEN for his work as test pilot on the Interdictor Mk2 and 3 and for his contributions to the development of the Mk3.

L MARSHALL

Commodore (Ret'd)

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SECTION ONE

CHAPTER 1

ORDERS FOR THE CONDUCT OF OPERATIONS - INTERDICTOR PILOTS

Your prime task is to engage and destroy manned craft and drones of the Jahdra-Gallan Alliance. The following orders are laid down to assist you in the discharge of your duty.

1. USE OF TRANSPONDER

Pilots may employ their transponder in the manner they see fit in the circumstances prevailing. Upon identification of a friendly craft, however, pilots are to set the unit to 'ID' and ON if it is serviceable.

2. RULES OF ENGAGEMENT

- i) Pilots are to use all means at their disposal to identify a contact and are not to engage until or unless they are sure that it is not a Federal craft.
- ii) All hostiles are to be engaged unless the pilot considers that the damage or ammunition status of his craft place him at too great a disadvantage for a reasonable chance of success.
- iii) Deflector shields are not to be used as an offensive weapon; pilots are not to deliberately ram any craft under engagement.

3. CONDUCT IN STARBASE AIRSPACE

- i) Weapons systems are to remain OFF during launch from and recovery to a starbase.
- ii) Transponders must be set to 'ID' and ON during starbase recovery.

ORDERS FOR THE CONDUCT OF OPERATIONS - FREIGHTER CAPTAINS

1. CONTACT AVOIDANCE

Upon meeting a contact, you are to apply full thrust to attain maximum available velocity and steer directly away from the contact craft in order to escape beyond detection range.

2. USE OF TRANSPONDER

Your transponder facility, which consists of a transmit-only serial identifier, is to be left continuously ON unless the unit is unserviceable.

3. RULES OF ENGAGEMENT

You are to engage a contact with all serviceable turrets that you can bring to bear if you experience hostile weapons fire or if the contact approaches within a range of 20KQ. If you have initiated engagement on grounds of encroachment and the contact subsequently retires beyond a range of 20KQ without returning your fire, you are to break off engagement.

4. CONDUCT IN STARBASE AIRSPACE

- i) All laser-cannon ball-turrets are to be retracted during launch from and recovery to a starbase.
- ii) Captains must observe maximum and minimum speed limitations in starbase airspace.
- iii) Transponders must be set to 'REC F' during starbase recovery.

NOTICE TO PILOTS

Issuing Authority: Operations Command and Control Centre

Date: 05.12.37

Ref: OCC/011/K

Subject: "Buzzing" of Friendly Craft

Many pilots have been reporting that after positive visual or transponder identification by a fellow Interdictor Mk 3, they have been repeatedly "buzzed" by the other craft. Pilots are reminded that the approved procedure, having identified another craft as friendly, is to switch the transponder to 'ID' and ON and to fly away from the other craft.

Pilots are reminded also that "buzzing" a Federation freighter invites a hostile reaction from the freighter's ball-turret operators.

NOTICE TO PILOTS

Issuing Authority: Inspectorate of Flight Safety

Date: 23.10.37

Ref: IFS/290/F

Subject: Control Consol Anomalies - INTERDICTOR MK 3

During production of the Interdictor Mk 3, a problem was discovered in the control consol units. The following extracts from the relevant engineering boards of enquiry illustrate the problem:-

Extract from the summary to B.Enq/100-23/1A dated 11.7.36

.....and that the units (control consoles) supplied have not been built to design specification. The number of primary input-output ports fitted for control/processor intercommunication has been reduced to 2, with the result that when the joystick unit is fitted and operated in conjunction with other controls, spurious control inputs are generated. It is believed that prototype CA-02 was lost through this cause during launch from a starbase.

Due to the time scale involved it is not considered viable to have the units rebuilt, so it is recommended that Engineering Mod ST 172 B (details enclosed) be embodied. This calls for the fitting of a damping circuit to one of the ports.

Extract from the summary to B.Enq/100-23/17D dated 15.10.36

.....The embodiment of ST 172 B, while suppressing spurious control inputs, has the effect of further suppressing valid key inputs while joystick inputs are active. Pilots should therefore note that while generating steering or fire button inputs, all other controls are rendered inoperable.

NOTICE TO PILOTS

Issuing Authority: Inspectorate of Flight Safety

Date: 30.11.37

Ref: IFS/295/F

Subject: Collision Avoidance

It has come to the attention of IFS, through the Director of Rectification and Repairs, that many Interdictor Mk 3 craft are returning from sorties with very considerable collision damage - far too much to be attributable to Meson Torpedoes alone. It is therefore suspected that some pilots are using their deflector shields as a weapons system and ramming enemy craft. Pilots are warned that this practice is not only officially disapproved of but is also extremely hazardous.

CHAPTER 2

DIRECTOR'S ADDRESS TO NEW PILOTS

Welcome to the Federal Inter-Starbase Patrol Force. Read this manual well - it and the simulator built into your craft are your sole tutors since we do not have sufficient pilots to be able to afford the luxury of providing instructors.

Remember, the simulator never killed anyone - though it does provide an accurate imitation. There are too many dead ensigns on record - killed on their first sortie, usually on recovery to starbase. There is no good reason for this. It happens only to impatient young pilots who do not complete a sufficiently long period of simulator training before launching into the real thing.

If you absorb nothing else from this address then absorb this:

become proficient in the simulator before you risk both your life and your craft on a combat sortie.

On 3rd April 2131 eleven battlestations of the Jahdra-Gallan Alliance appeared in Federation airspace, thus violating the terms and conditions of the Limhof Concord. Early diplomatic efforts on the part of the Federation to avoid open confrontation were frustrated when the nine members of our Representative Commission failed to return from their fifth negotiational visit to the Alliance Mothership "KONTARKOHSZ".

Fifty Interdictor Mk 1 craft were despatched from the nearest Federation starbase on a punitive mission against "KONTARKOHSZ" but none returned. Communications received from the last few surviving Interdictors as they tried to make good their escape indicated that the defences of the formidable Jahdra-Gallan battlestations were impregnable to our craft. They remain so to this day. The Federation therefore adopted a policy of attacking Alliance freighters, patrol craft and drones in outer space - a task to which the Interdictor Mk 1 was ideally suited. However, our losses in the early stages of the conflict remained high, in part because the excellent enemy patrol craft, the Jahdran Aggressor, was a more sophisticated copy of our own Interdictor Mk 1 and also because our craft would stray into Alliance battlestation airspace. Such unfortunates were destroyed without exception.

Our performance in the conflict was dramatically improved with the introduction in mid '32 of the Mk 2 variant of the Interdictor. In addition to being faster and more powerful, it featured many new systems including automatic avoidance of battlestation airspace at light-speed cruise. The Mk 3 variant, introduced into service at the beginning of '35 featured an improved cockpit layout and better weapons systems. With the introduction of the latest Mk 3 at the beginning of '37 came an improved target acquisition system and the abandonment of the photon bolts weapons systems in favour of increased laser fire capacity. The cockpit layout was again an improvement on its predecessor. Our fleet now consists entirely of these craft. Consider yourself lucky that you will never encounter an Alliance battlestation!

You will, however, encounter the Jahdran Aggressor, Gallanic Cruiser,

freighters and Meson Torpedo drones of the Jahdra-Gallan Alliance, as well as fellow Interdictor Mk 3 craft, freighters and Meson Torpedo drones of the Federation.

It is hoped that if we can sufficiently deplete their vast fleet of craft their battlestations will be forced to concede an untenable position and withdraw.

Be very sure that you positively identify a craft before engaging it and be particularly aware that an Interdictor is visually indistinguishable from a Jahdran Aggressor until at very close range. Too many otherwise capable pilots have been deported for acts against Federal shipping having failed to positively identify before engaging.

As an Interdictor pilot, your life will be made up of a series of sorties punctuated by 'shore leave' should you wish to take it. A sortie consists of four phases - launch from starbase, transit with encounters, recovery to destination starbase and administrative procedures there.

The most difficult phase of flight for a newly-commissioned pilot seems to be the recovery to starbase. It is not easy to get in without being shot down by the starbase automatic defence systems as a possible hostile craft. Learn and practice starbase recovery procedures in the simulator - like riding a hover-skate, when you have done it once it is easy to repeat.

There is some material in this manual that you do not strictly need to know but you are advised, for your own welfare, to digest it all before you leave the simulator behind you. Your knowledge will not be formally tested - other than by the craft and drones of the Jahdra-Gallan Alliance and the automatic defence systems of your own starbases!

If you are impatient to try your hand at the simulator then by all means proceed directly to Section Three, Chapter 3 - Simulator Operation. This will get you started, but for full training you will find the entire manual set out in a logical sequence.

GOOD LUCK !

Director
Federal Inter-Starbase Patrol Force

17 Nov 2138

SECTION TWO

CHAPTER ONE

THEORY AND PRACTICE

As a newly commissioned Interdictor Pilot it is important for you to have at least a basic working knowledge of what makes your craft "tick". This short section is intended to give you a grounding in how things work. For further information consult 'Field Theory and Electromagnetic Dynamics' by Klee Ebon D.G.S., 'Advances in Crystal Technology' by Dr Robert Abercrombie F.D.C.R. and 'Propulsion and Manoeuvre Systems' by Professor John Newell F.D.C.R., P.D.F..

DEFLECTORS

In the latter part of the last century a research team at the Phethean Institute of Science and Technology discovered that when projected to form a uniform, coherent field, three beams of particle energy (K-meson, unstable plutonium nuclides and neutrino) formed an interference boundary impenetrable to both solid projectiles and to electromagnetic forces. This interference boundary, known as the KPN phenomenon, makes possible your propulsion and defence systems.

When the vanes of your deflector wave form guides detect an incoming laser weapons threat, deflector power is instantly diverted from the propulsion unit to form a protective shield around your ship. Due to the detection time lag and the finite time that the deflector shield takes to reach full protective power, an incoming laser threat from an Alliance ship will partially penetrate the shield if fired from a range closer than 130kQ. At closer ranges still, progressively more of the incoming laser energy will get through the incomplete deflector shield until at very close range the deflectors are too slow to do any good at all.

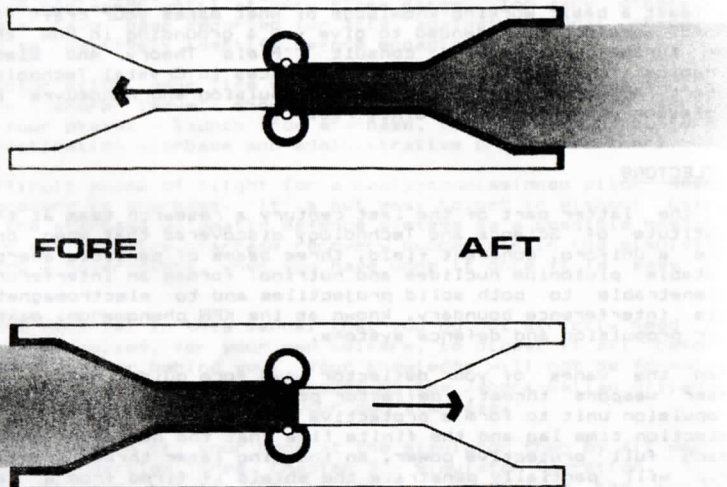
The penetrating portion of the laser fire causes deflector depletion as well as potentially inflicting damage on various on-board systems. If complete deflector depletion is reached, your craft will explode.

The deflector shield is also erected against collision. When this occurs a proportion of your deflector capacity is lost, the amount being dependent upon the deflector strength of the other ship at the time of collision. Further, the deflector/deflector interaction causes a schism in the continuation of space/ time. The two contact ships both maintain their alignment in space - assuming that neither was destroyed in the collision - but they inherit an instantaneous spacial separation of random nature.

In addition, some portions of your ship are deemed so important as to warrant continuous, dedicated deflector protection. Such portions of your ship are invulnerable to battle damage as protection is supplied by an auxiliary deflector generator. Deflector power is dropped for starbase approach and during pre light speed jump alignment.

PROPULSION

Fuelled by an atomic core of 90kg capacity propulsion is by means of pulsed thermonuclear explosions within the drive unit. Deflector power shields your ship from the drive unit whilst also providing the means for both forward and retro-thrust, governed by the placement of the end deflector barrier as illustrated below:



The motor unit responds to the pilot's accelerator/decelerator selections with forward/retro-thrust to a maximum velocity of 100Q/sec in an undamaged ship and a minimum of zero. If your ship has sustained any damage then the maximum attainable speed will be somewhat less than 100Q/sec. When you have attained your desired velocity and cut the motor you will continue to cruise at that velocity in accordance with Newton's Laws. If deflector power is completely exhausted through battle damage the motor unit will run critical and your ship will explode!

DIRECTIONAL CONTROL SYSTEM

Directional control is by means of a large, centrally mounted inertial gyroscope. Your horizontal/vertical steer selections are applied to the gyroscope as torques displaced through ninety degrees from the required craft attitude change. Secondary precession causes the craft to alter its direction in accordance with your steering inputs.

STABILISERS

An unfortunate side effect of deflectors is the creation of artificial turbulence - even in the vacuum of space! Your ship is therefore fitted with a gyro-stabilised platform which detects non-stable moments of inertia and applies corrections via a servo loop through the directional control system. Deflector turbulence does not affect your ship when it is at rest.

If your stabilisers have failed, you will get a very uncomfortable ride if in free space with any forward velocity. However, during pre light speed jump alignment and during approach to starbase no turbulence will be experienced since your deflector power is automatically dropped during these phases of flight.

SATURN ARRAY

The Saturn Array is a pod containing various sensors and transmitters. It contains the following:-

- Auto-tracking pulsed laser transmitter
- Target acquisition tracking radar transmitter
- Target acquisition tracking radar receiver
- Polarised deflector field sensor head
- Pulsed doppler radar transceiver
- Standby transponder transmitter
- Omni-directional terminal signal transmitter

All of the above devices (with the exception of the standby transponder transmitter) have very short activation cycles - typically less than 2.5ns - and trigger no more than 20 times per second. This, in real terms, means that during a one hour flight the devices within the pod would be actually transmitting or receiving for no more than 1.8×10^{-4} seconds, less than 0.2 milliseconds! It is therefore possible to provide virtually uninterrupted dedicated deflector power protection to this very important pod. Instrumentation and devices that these sensors feed are therefore not individually susceptible to damage.

The standby transponder transmitter, whose transmissions are of a continuous nature, cannot transmit from the pod in normal flight. Its sole function, however, is to identify your craft on recovery to starbase - a phase of flight during which deflector power is dropped - so it was included in the pod for the essential invulnerability that it offered.

LEWIS ARRAY

The Lewis Array is a pod containing various sensors and transmitters. It contains the following:-

- Auto-tracking pulsed laser receiver
- Transponder main transmitter
- Transponder receiver
- Angular velocity tracking head

Due to the continuous nature of operation of these devices it is not possible to provide them with continuous, dedicated deflector protection - they would simply cease to function. You will therefore find that instrumentation relying on information from these devices is vulnerable to battle damage. The pod is retracted during light speed drive to prevent damage due to particle impact.

LIGHT SPEED DRIVE

From Einstein to Zebenezer Roth it was believed that travel at speeds approaching or in excess of the speed of light was not possible. The proof was derived from Einstein's equation:

$$E = mc^2$$

or the energy contained in a body is equal to its mass multiplied by the square of the speed of light. Since it was possible to prove that at speeds tending towards that of light energy would approach infinity, it followed that mass too must approach infinity, since the speed of light - though very considerable - is nonetheless finite. Since mass can be defined as a body's resistance to further acceleration, it naturally follows that as a body approaches the speed of light its resistance to further acceleration becomes infinite - it can be accelerated no further...until the advent of deflector technology.

Since no energy can cross the boundary of a deflector shield, if the shield envelops your ship at the moment of application of a massive impulse, the total energy of your ship does not increase as it accelerates. If the total energy remains constant so too must the mass - light speed is no longer a barrier.

Let us now consider the mechanics. Your ship carries a magazine of Phohn bombs - a powerful weapon of the last century about the size of a clenched fist functioning on the principle of matter/anti-matter interaction. Upon selection of STEER mode your ship will drop deflector power and align itself with your destination starbase. It will eject a Phohn bomb rearwards, erecting the deflector shield around your ship prior to the detonation. This will impulse accelerate you beyond light speed.

The process is reversed to drop you from light speed to a conventional speed of 50Q/sec, decelerating. This occurs when manually selected, upon meeting a contact, or on arrival at destination starbase, though in the latter case your ship will maintain a velocity of 50Q/sec throughout the recovery.

LASER WEAPONS SYSTEM

Your craft is fitted with two Bardens series III rapid firing high powered laser cannon. They have a considerably greater rate of fire than the laser cannon employed by any opposition you will meet (unless you are sufficiently inept to mis-identify a fellow Interdictor). Maximum effective range against deflector - equipped targets is 130 KQ. This is coincident with visual acquisition range. The damage inflicted on a deflector - equipped target increases as range reduces (see page 9,

DEFLECTORS, para 2). When a hit is scored on a target an electro - magnetic pulse (EMP) is generated which is potentially harmful to your ship. At ranges greater than 6KQ your deflectors have time to react and erect against the EMP threat, but at closer ranges they would not have fully erected in time. For this reason the laser cannon of all craft are fitted with a safety override device which prevents operation at ranges below 6KQ.

The Bardens series III is fitted with an auto-fire device which fires the weapon whenever the target is within the line of fire. This auto-fire option has the disadvantage of considerably reducing the rate of fire due to the EMP temporarily 'blinding' the weapon, though it does have the advantage of making every shot count.

The laser cannon nozzles are protected by your deflector shield unless a unit is actually firing OR the firing button is depressed. If you collide with another ship or receive a hit while the nozzles are exposed then one or both of your laser cannon may be damaged, depending upon the direction from which the damage is received. Since the nozzles are exposed only for the instant of actually firing if the auto - fire option is engaged, your lasers will suffer minimal damage in this mode.

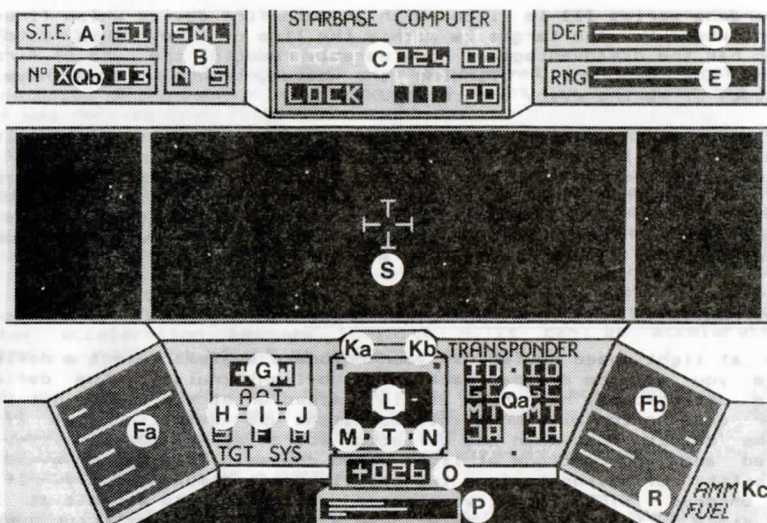
TARGET PROXIMITY DETECTION FROM LIGHT SPEED

While at light speed cruise, if your on-board systems detect a deflector source you will be dropped back into sub-light cruise. The deflector source detected may have been at light speed or at sub-light, but in the former case he too will drop into sub-light upon detecting you. If your systems detect more than one deflector source at any location they are ignored and you continue at light speed cruise. This is to avoid the possibility of having to face two hostile craft simultaneously. If you have entered 'STEER' mode, you become undetectable to a craft at light speed since during pre light speed jump alignment your deflector power is dropped.

SECTION THREE

CHAPTER 1

COCKPIT DISPLAY, INSTRUMENTATION & WORKING PRINCIPLES



A	Sortie Time Elapsed Indicator	J	Auto Laser Fire Selection Indicator
B	Simulator System Status Indicator	K	Laser Weapons Indicators
C	Starbase Computer	L	Target Acquisition System Display
D	Target Deflector Strength Indicator	M	Laser Cannon Range Cut-off Warning Light
E	Range Indicator	N	Collision Warning Light
F	Damage Status Indicators	D	Doppler Velocity Display
G	Target Axial Advice Indicators	P	3-Way Velocity Indicator
H	Steer Mode Indicator	Q	Transponder
I	Target Acquisition Fine Mode Indicator	R	Atomic Core Fuel Indicator
		S	Sight
		T	Target on Tail Indicator

The instrument display has been ergonomically designed - with a little practice you will find yourself absorbing all of the information you require from it with minimal effort or distraction. Indeed, due to the extensive use of illuminated panel and horizontal bar-graph instrumentation, you should find that with practice you are able to read everything without being distracted from the all-important events occurring outside the craft.

A: SORTIE TIME ELAPSED INDICATOR



Input Sources: system clock.

Working Principles: direct output from the above source to the display.

Damage Susceptibility: nil

Interpretation: the indicator shows time elapsed at sub-light speeds since launch. The display is standard hours and minutes format. Time is not accumulated at light speed since, as Einstein's Theory of Relativity states, at light speed time stops still.

The example above indicates sortie time elapsed to be 51 minutes.

B: SIMULATOR SYSTEM STATUS INDICATOR



Input Sources: simulator computer trip relays.

Working Principles: direct output from the above sources to display.

Damage Susceptibility: nil.

Interpretation: display type is illuminated alphabetic. If the 'SIM' caption is illuminated then you are operating in simulator mode. Then one of the two indicators 'N' or 'S' will always be illuminated - if it is the 'N' then the simulator is running in real-time mode, i.e. Normal speed, whereas the 'S' indicates the simulator to be running in Slow motion mode. The bar light at the centre of the display is illuminated whenever the simulator is 'frozen' by use of the pause or stop functions.

The example above indicates the simulator is engaged, in slow motion with the action frozen.

C: STARBASE COMPUTER

Input Sources: on-board computer, inertial navigation system, weapons bay monitoring probes, standby transponder trip switch.

Working Principles: the inertial navigation system feeds the approach and recovery distance indicators and triggers the displacement warning light. The weapons bay monitoring probes feed the weapons warning light while the standby transponder trip switch feeds the transponder warning light. The on-board computer correlates information and feeds the 'LOCK'

warning system.

Damage Susceptibility: nil.



Interpretation: the approach distance to go indicator (APP) gives a 3-figure representation of distance to run to commencement of recovery at destination starbase. This indication will decrement while at light speed cruise unless the simulator mode is engaged. The recovery distance to go indicator (REC) gives a 2-figure representation of distance to run to the starbase docking bay during recovery. This indication will decrement during recovery. The three warning lights for weapons (W), transponder (T) and displacement (D) will illuminate if their associated parameter is unsatisfied during the recovery phase (see section 4 Ch 1, PHASE 3: RECOVERY TO DESTINATION STARBASE). If an unsatisfied parameter causes the starbase automatic defence systems to lock their tracking radars on to your craft, the 'LOCK' caption will illuminate and the lock-on distance/time quotient indicator will increment. This is the 2-figure indicator at the bottom right of the Starbase Computer display. If this figure reaches 50 you will be shot down by your own starbase!

The example above indicates that you have 24 distance units to run to your destination starbase.

D: TARGET DEFLECTOR STRENGTH INDICATOR



Input Sources: polarised deflector field sensor head, laser ranging system.

Working Principles: the polarised deflector field sensor head is constantly monitoring the incoming strength of any external deflector field within detection range. This is factorised to take target range into account via a Kalin amplifier linked into the laser ranger circuitry and the resultant absolute deflector strength is displayed.

Damage Susceptibility: due to the damage susceptibility of the laser ranger system, if the ranger is lost through battle damage then the target deflector strength indicator will be lost also.

Interpretation: the display type is horizontal bar-graph. The greater the deflection to the right the greater is the deflector strength of the target ship, with full-scale deflection representing a deflector strength equal to that of an undamaged Interdictor Mk 3. If the system fails due to loss of the ranging system, the display will remain blank.

The example above indicates a target with a deflector strength of approximately 60% of that of an undamaged Interdictor Mk 3.

E: RANGE INDICATOR



Input Sources: auto-tracking pulsed-laser receiver, on-board computer.

Working Principles: the auto-tracking pulsed laser transmitter fires a 1.2ns duration laser beam at any contact in range at a rate of 16 times per second. The receiver, which is constantly monitoring for return signals, passes received signal strength to the on-board computer which then extracts target range for display.

Damage Susceptibility: due to the mounting of the receiver in the Lewis Array, the laser ranger system is damage susceptible.

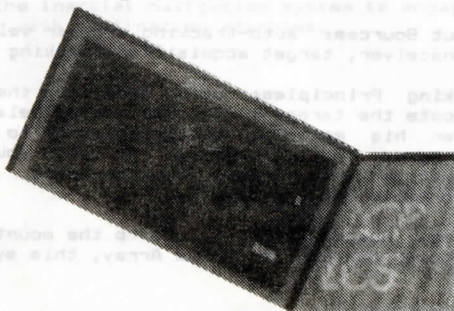
Interpretation: the display type is horizontal bar-graph. The greater the deflection to the right, the greater is the range of the target ship, with full-scale deflection representing a range of 260KQ. Visual acquisition range coincides with maximum effective laser weapons range at 130KQ. This is one half of full scale deflection on the instrument. If the system has failed due to battle damage the display will remain blank.

The example above indicates a target at range 220KQ.

F: DAMAGE STATUS INDICATORS

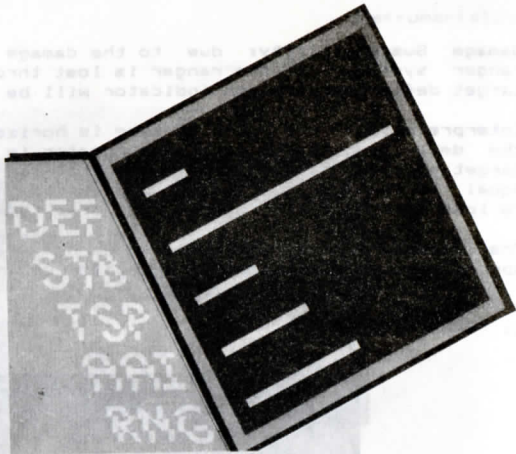
Input Sources: argon/tungsten Schultz monitor probes located within the Lewis Array, deflector regulator computer, stabiliser-mounted torque sensor.

Working Principles: direct output from the above devices to the display.



Damage Susceptibility: nil.

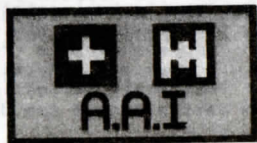
Interpretation: the display consists of one five-bar horizontal bar graph and one two-bar horizontal bar graph. The greater the deflection the greater is the damage for the indicated system. The Deflectors indicator is a direct readout of the proportion of deflector power lost. All other indicators show estimated failure projection. These indications become progressively more accurate as a system approaches failure point. Failure point is indicated at full scale deflection.



The readings in the example above indicate:

- DEF - deflectors 18% lost (82% remaining)
- STB - stabilisers failed
- TSP - transponder 28% towards failure
- AAI - axial advice indicator 38% towards failure
- RNG - laser ranger 50% towards failure
- LCP - laser cannon port undamaged
- LCS - laser cannon starboard 10% towards failure

G: TARGET AXIAL ADVICE INDICATORS



Input Sources: auto-tracking angular velocity head, pulsed doppler radar transceiver, target acquisition tracking radar, on-board computer.

Working Principles: using data from the above inputs, it is possible to compute the target's motional vector relative to your own geometric axes. Given his motional vector relative to you, it is a simple process to transpose the information to yield your own position relative to his geometric axes. This the on-board computer does and feeds the information to the display.

Damage Susceptibility: due to the mounting of the auto-tracking angular velocity head in the Lewis Array, this system is damage susceptible.

Interpretation: the instrument will tell you at a glance how a target 'sees' you - whether you are behind or in front of him, whether you are displaced vertically or horizontally from his sighting line or not. It will help you to manoeuvre for attack, indicate when he is doing so, give a fair indication of when you are in his sights and let you know if he is running away. The leftmost of the two indicators is the head-on/tail-on indicator. If you are situated somewhere within his frontal hemisphere (head-on) the display will show a dot. If you are somewhere within his dorsal hemisphere (tail-on) the display will show a cross. If the display is alternating dot/cross then you are close to his abeam position. The rightmost of the two indicators shows your horizontal and vertical displacements from his sighting line. The symbology used is as illustrated below:

- A you are close to his sighting line
- B you are somewhat displaced horizontally from his sighting line
- C you are considerably displaced horizontally from his sighting line
- D you are close to his horizontal abeam position
- E you are displaced vertically from his sighting line



A B C D E

Notice how the symbology follows the convention of a three-dimensional letter "H" being rotated in accordance with the target craft's relative axes. If the system has failed due to battle damage the display will remain blank.

The example above illustrates a target to whom you are somewhat displaced horizontally from his aft sighting axis.

H: STEER MODE INDICATOR

Input Sources: inertial navigation system.

Working Principles: direct output from the above source to the display.

Damage Susceptibility: nil

Interpretation: self-evident, display type illuminated alphabetic. The light will illuminate whenever the inertial navigation system is engaged in pre light speed jump alignment with destination starbase.

I: TARGET ACQUISITION FINE MODE INDICATOR

Input Sources: target acquisition computer resolution gate.

Working Principles: direct output from the above source to the display.

Damage Susceptibility: nil.

Interpretation: self-evident, display type illuminated alphabetic.

J: AUTO LASER FIRE SELECTION INDICATOR

Input Sources: target acquisition computer auto gate.

Working Principles: direct output from the above source to the display.

Damage Susceptibility: nil.

Interpretation: self-evident, display type illuminated alphabetic.

K: LASER WEAPONS INDICATORS

Input Sources: laser weapons bay monitoring probes.

Working Principles: direct output from the above source to the display.

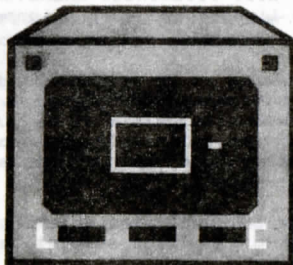
Damage Susceptibility: nil.

Interpretation: the instrumentation consists of two separate indicator systems. The first is a simple arrangement of two lights mounted above the targetting VDU. When these are flashing the weapons have been selected ON but are not yet ready to fire. When they are on steady the weapons have attained on-line, ready to fire status. There is one light each for port and starboard cannon.

The second indicator system is a horizontal bar graph instrument indicating capacity remaining.

L: TARGET ACQUISITION SYSTEM DISPLAY

Input Sources: target acquisition tracking radar receiver, on-board computer.



Working Principles: output from the target acquisition tracking radar receiver is processed by the on-board computer and fed to the display.

Damage Susceptibility: nil.

Interpretation: display type is VDU. If a target is present and the

system is switched ON, a dot will be visible on the VDU. This dot indicates relative target placement and shows you what steer inputs are required to centralise the target. Operating in normal mode the central VDU window indicates an area approximating to the central viewglass of your cockpit. In fine mode this window approximates to the area of your gun sight with the target in front of you.

The example above indicates that a right steer is required to centre the target.

M: LASER CANNON RANGE CUT-OFF WARNING LIGHT

Input Sources: Bardens series III laser cannon nozzle ranger.

Working Principles: when the nozzle ranger detects range to be less than 6KQ, a signal is fed directly to the indicator light and the laser cannon are prevented from firing.

Damage Susceptibility: nil.

Interpretation: self-evident, display type steady light.

N: COLLISION WARNING LIGHT

Input Sources: on-board computer.

Working Principles: The on-board computer is constantly monitoring target range against Doppler velocity. Whenever the range decreases to less than ten times the Doppler velocity (positive), the warning light is activated.

Damage Susceptibility: nil.

Interpretation: self-evident, display type steady light.

O: DOPPLER VELOCITY DISPLAY

Input Sources: pulsed doppler radar transceiver.

Working Principles: the pulsed doppler radar transceiver fires a 0.5ns duration burst of fixed-frequency radar energy at the target at a rate of 20 times per second. The returned signal is analysed for Doppler shift - a shift in the radar frequency caused by relative motion between the two craft. The result is factorised to represent relative velocity between the two craft and fed to the display.

Damage Susceptibility: nil

Interpretation: the display type is numeric crystal. Doppler velocity - otherwise known as relative velocity - is a measure of the rate at which the distance between yourself and the target is decreasing (positive relative velocity) or increasing (negative relative velocity).

The example above indicates a positive relative velocity of 24Q/sec.

P: 3-WAY VELOCITY INDICATOR



Input Sources: deflector regulator computer, drive motor monitoring probes, pulsed doppler radar transceiver, axial advice indicator, on-board computer.

Working Principles: direct output from the drive motor monitoring probes feeds the V1 indication (velocity of your ship). Output from the deflector regulator computer via the on-board computer feeds the VM indication (maximum velocity of which your ship is capable). Using the other input sources, it is possible to compute the target's absolute velocity from his relative velocity and direction of motional vector. This is fed to the V2 indicator.

Damage Susceptibility: due to the reliance on information from the axial advice indicator (a damage susceptible device) the V2 indication will be lost if the axial advice indicator fails. The other two velocity indicators are not damage susceptible.

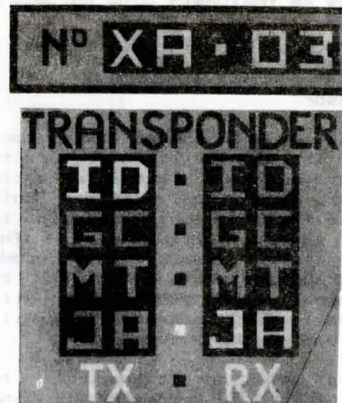
Interpretation: the display type is 3-way horizontal bar-graph. The greater the deflection to the right the greater is the velocity indicated, on a scale of 0 - 100. The indicators read from top to bottom in the order V1, VM, V2.

The example above indicates:

- V1 - your velocity 45Q/sec
- VM - your maximum attainable velocity 65Q/sec
- V2 - target ship's velocity 14Q/sec

If the axial advice indicator has failed, then the V2 window will remain empty, irrespective of target velocity.

Q: TRANSPONDER



Input Sources: transponder receiver, transponder input selector chip.

Working Principles: the transponder, otherwise known as 'Identification of Friend or Foe/Secondary Surveillance Radar' (IFF/SSR), has been around since the mid 20th century. When switched ON or to standby it transmits a coded radar beam which, if it encounters another ship with a transponder which is switched ON, causes that ship's transponder to trigger and transmit a coded reply to your 'interrogation'. Similarly your own transponder will reply to interrogation by a third party if it is switched ON. The coded replies transmitted can consist simply of an identification of ship type or the ship's actual serial number or both of these.

If your transponder is switched to standby you will interrogate other ships and their responses, if any, will be displayed to you. However, your transponder will not respond to any interrogation it receives.

When switched ON the transponder fitted to the Interdictor Mk 3 will automatically respond to interrogation with the craft serial number along with the ship type identifier code if 'ID' has been selected. Note however that Meson Torpedoes, Gallanic Cruisers and Jahdran Aggressors are fitted with transponders that can transmit or suppress the ship type identifier code and the ship serial number individually, while Freighters are fitted with a serial number only type transponder. If you have elected to set your transponder to anything other than 'ID' for ship type then you will transmit only the ship type identifier associated with that ship.

Remember - if your transponder is set to standby you have the advantage of being able to decode incoming beams while not betraying any details concerning your own ship.

Damage Susceptibility: due to the mounting of the transponder main transmitter and receiver in the Lewis Array the system is damage susceptible. However, should the transponder fail due to battle damage there is a back-up system in the standby transponder transmitter. This is for the sole purpose of enabling you to transmit while flying an approach to starbase since failure to do so has fatal results. This system is not available outside starbase airspace, since it can only operate in a 'deflectors down' environment. (See Section 2 Ch 1 page 11, SATURN ARRAY.)

Interpretation: the display type is flashing alphabetic and alphanumeric window. The two character identifiers decode as follows:-

ID - Interdictor
GC - Gallanic Cruiser
MT - Meson Torpedo
JA - Jahdran Aggressor

The main panel is divided into two columns of alphabetic indicators separated by a column of indicator lights. The alphabetic indicators to the left show the ship type to which you have set your transponder while those to the right indicate any incoming ship-type signal. If the unit is in standby mode your selection will be flashing, while if it is switched ON your selection will be steadily illuminated. The alphanumeric window at the top left of your cockpit displays the decode of any incoming ship's serial number transmission. This will be indicated by an illuminated light in the central column of the main unit. Federation craft serial numbers all have the leading character 'C' while Alliance craft serial numbers all have the leading character 'X'.

The example above indicates that you have set your transponder to INTERDICTOR. There is an incoming signal of Jahdran Aggressor and the target is also transmitting his craft serial number XA-03.

R: ATOMIC CORE FUEL INDICATOR

Input Sources: atomic core monitoring probes.

Working Principles: direct output from above source to the display.

Damage Susceptibility: nil.

Interpretation: display type is horizontal bar graph. The greater the deflection to the right the greater is the atomic core fuel remaining, on a scale of 0-90Kg.

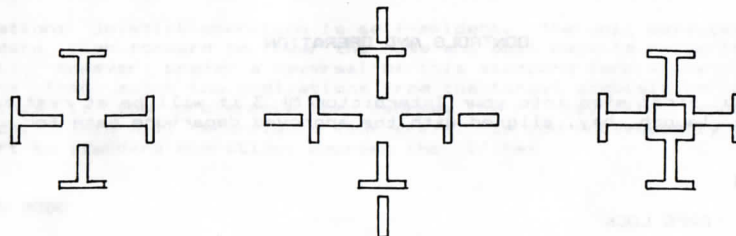
S: SIGHT

Input Sources: target acquisition computer, on-board computer.

Working Principles: output from the above sources to the head-up display generator.

Damage Susceptibility: nil.

Interpretation: there are three different sight graticules that can be projected onto your view screen. They are as illustrated below:



Targetting on,
target in front
(or no target
present)

Targetting on,
target behind you

Targetting off
steer mode selected

T: TARGET ON TAIL INDICATOR

Input Sources: target acquisition tracking radar receiver.

Working Principles: direct output from the above source to display.

Damage Susceptibility: nil.

Interpretation: whenever a contact craft is behind you this light will illuminate whether or not your target acquisition system is switched on.

CHAPTER 2

CONTROLS AND OPERATION

When you first step into your Interdictor Mk 3 it will be at rest in a starbase launch bay, aligned with the approved departure path for that bay.

POWER ON

Control: CAPS LOCK

Operation: on selection of POWER ON the craft's systems and cockpit lighting are brought on-line.

LAUNCH MASTER SWITCH

Control: SHIFT KEY

Operation: depressing a 'SHIFT' key after application of power will initiate the launch process. The craft will impulse accelerate down the launch ramp before punching into light speed on its way to destination starbase.

COCKPIT LIGHTING

Controls: W Q

Operation: to turn cockpit lighting ON use the 'W' key. To turn OFF use the 'Q' key. These controls are only operable after launch, and will not function during approach to starbase.

CONVENTIONAL SPEED CONTROLS

Controls: ← → ↑ ↓ COPY

Operation: you are equipped with two accelerator controls (↑, →) and two decelerator controls (↓, ←). The vertically aligned controls will deliver forward or retro thrust only while they are depressed while the horizontally aligned controls will initiate continuous forward or retro thrust until attainment of either maximum velocity or zero. The speed must be stable before selection of one of these keys. The 'COPY' key is used to cut the drive motors if the desired velocity is achieved after selection of one of the continuous thrust keys. Once speed is stable you will continue to cruise at that speed in accordance with Newton's Laws of Motion. If your maximum attainable speed should fall below your actual cruise speed due to battle damage, the continuous decelerator key (←) will not function unless you first decelerate below V max by using the instantaneous decelerator (↓).

MANOEUVRE CONTROLS

Controls: Joystick] [

Operation: joystick operation is self-evident. The unit defaults to the standard push forward to lower the nose and pull back to raise it. Some pilots, however, prefer a reversal of this standard form since joystick inputs then match the indications from the target acquisition display. If this is your preference then depress the 'J' key after your first launch. This will reconfigure your craft. If you subsequently wish to revert to standard operation, depress the '[' key.

STEER MODE

Controls: S Z CLR

Operation: STEER mode can only be selected in free space with NO TARGET PRESENT. Pressing S causes your ship to realign itself with your destination starbase and, after a short delay during which your navigation platforms and light speed drive computer fine-adjust themselves, you will punch into light speed. There you will remain until you encounter a target, reach destination starbase or cancel steer mode by pressing Z. If you have suffered more than 50% deflector depletion and feel unable to reach your destination starbase, selection of the 'CLR' key while at sub-light speed and with no contact present will program your navigation platform to return you to your departure starbase. However, you may still encounter other craft on your return journey, so it is advisable to exercise this option only if you are still some way short of the midpoint of your transit. Once selected this option cannot be cancelled.

WEAPONS SYSTEM

Controls: LARGE ENTER KEY DEL A < FIRE BUTTON

Operation: the LARGE ENTER key is the weapons system master switch. It switches the weapons system ON. The weapons system is switched OFF with the DEL key. There is a delay of approximately 18 seconds between selecting the system ON and it reaching on-line, ready-to-fire status. The Laser Weapons system features an auto-fire facility selected by the A key when the Laser System is selected and the Target Acquisition System is ON. This facility will automatically fire your lasers whenever any portion of an in-range target is centred in your sights provided that the system is ready to fire (in auto mode the fire rate is very much slower than in manual). To cancel auto mode use the < key, which also switches the target acquisition system OFF.

To fire the weapons system manually use the firing button on the joystick. Hold this down for continuous fire. Note that your weapons system is disengaged by target destruction, collision or selection of STEER mode.

Weapons range: your laser cannon will operate to a maximum range of 130KQ and a minimum range of 6KQ. (see SECTION 2 THEORY AND PRACTICE - Deflectors and Laser Weapons System).

TARGET ACQUISITION SYSTEM**Controls:** > < F D

Operation: the system is selected ON by the > key and OFF by the < key. Select FINE mode of operation with the F key - in this mode the target must be precisely centred in your sights in order to give target centred indications, whereas in normal mode of operation you will be given target centred indications if the target is anywhere within the geometric boundaries of the targetting sight. FINE mode can be deselected by selection of the D key. Selecting the system OFF resets the FINE mode and the Laser Energy system auto-fire function. The target acquisition system is taken off-line by any of the following:-

- collision
- selection of STEER mode
- target destruction

TRANSPONDER**Controls:** 0 . ENTER (on numeric keypad) CTRL**Operation:** the above controls have the following functions:

- ENTER - select transponder ON
- . - select transponder to STANDBY
- 0 - select transponder OFF
- CTRL - change transponder output selection

Alone amongst all craft only the Interdictor can alter the output of its transponder to imitate other craft types. The CTRL key will only function if the transponder is switched ON or to STANDBY. You are advised to ensure that the transponder is in STANDBY mode before using it since if you change your selection while the transponder is ON this will be detected by a target with a serviceable transponder. Select ON only when you have selected the desired output.

Note that the transponder controls are not available during light speed cruise or pre-light speed jump alignment due to retraction of the Lewis array.

SIMULATOR**Controls:** S Z I O SPACE BAR ESC TAB P 1 2 3 4 5 R K

Operation: selection of S while at rest in a starbase launch bay with main power ON puts your on-board computer into simulator mode of operation. In this mode you never actually leave starbase but scenarios are simulated for you to your own selection. Z switches the simulator OFF when you have finished with it and again this is only available while at rest in a launch bay. After a successfully simulated starbase recovery or your simulated destruction you will be returned to the simulator start point - at rest in a launch bay with power off and simulator still engaged.

You are given a slow motion option which beginners are advised to make full use of. Select I for slow motion IN and O for slow motion OUT. Events run at approximately half normal speed with slow motion engaged. Slow motion cannot be selected before launch.

The SPACE BAR pauses the action and the ESC key stops the action. To restart after use of the ESC key use the TAB key. Make full use of the pause and stop keys as a beginner to study what is happening both inside and outside your craft - especially on recovery to starbase - and to refer to the manual whenever necessary.

Keys 1 to 5 and R select encounters in the following manner:-

- 1 - Interdictor Mk 3
- 2 - Gallanic Cruiser
- 3 - Meson Torpedo
- 4 - Jahdran Aggressor
- 5 - Freighter
- R - Starbase Recovery

All encounters may be selected from light speed cruise. Meson Torpedoes and Freighters may be either Federation or Alliance. Since they are light speed capable the Interdictor, Gallanic Cruiser and Jahdran Aggressor may be selected while you are not at light speed cruise, but you may have to hold down the associated key for a few seconds before the simulator will produce one. At conventional cruise you are unable to select a Meson Torpedo or Freighter contact since the chances of two ships at conventional speed encountering each other in space are billions to one against!

If you hold down the P key while you make any of the selections 1 to 5 the target ship will appear stationary in space. It will not move, fire or respond to you in any way; use this facility to practice your visual identification and rudimentary manoeuvre and firing techniques. Selection of R will give you a simulated starbase approach. Selection of K will kill the contact craft thereby allowing reselection of STEER mode or selection of another contact craft.

SUMMARY OF CONTROLS

POWER ON	CAPS LOCK	
LAUNCH MASTER SWITCH	SHIFT	
COCKPIT LIGHTING	W	ON
	Q	OFF
CONVENTIONAL SPEED CONTROLS	↑	ACCELERATE
	↓	DECELERATE
	→	ACCELERATE LOCK
	←	DECELERATE LOCK
	COPY	CUT DRIVE MOTORS
MANOEUVRE CONTROLS	JOYSTICK	
	J	REVERSE VERTICAL SENSE
	I	RESTORE VERTICAL SENSE
STEER MODE	S	SELECT
	Z	CANCEL
	CLR	SELECT RETURN TO LAUNCH STARBASE
WEAPONS SYSTEM	LARGE ENTER	ON
	DEL	OFF
	A	SELECT AUTO-FIRE
	<	DESELECT AUTO-FIRE
	FIRE BUTTON	FIRE LASERS
TARGET ACQUISITION SYSTEM	>	ON
	<	OFF
	F	SELECT FINE MODE
	D	DESELECT FINE MODE
TRANSPONDER	0	OFF
	.	STANDBY
	ENTER	ON
	CTRL	CHANGE OUTPUT
SIMULATOR	S	ON
	Z	OFF
	I	SLOW MOTION IN
	O	SLOW MOTION OUT
	SPACE BAR	PAUSE
	ESC	STOP
	TAB	RESTART
	P	PARALYSE TARGET
	1	SELECT INTERDICTOR MK3
	2	SELECT GALLANIC CRUISER
	3	SELECT MESON TORPEDO
	4	SELECT JAHDRAN AGGRESSOR
	5	SELECT FREIGHTER
	R	SELECT STARBASE RECOVERY
	K	KILL CONTACT CRAFT

NOTE: All keyboard inputs are disabled while joystick inputs are active. Keys shown in **BOLD** type are those on the numeric keypad.

CHAPTER 3

SIMULATOR OPERATION FOR THE BEGINNER

Before launching in the simulator you should ideally read the two preceding chapters of this section. However, by sensible use of the simulator pause and stop controls it is possible to learn about the instrumentation and controls while actually flying the simulator. If this is your approach then the following paragraph will at least get you launched on your first simulator trip.

Enter your initials and surname at the Starbase Central Records Office Registration Department and press the ENTER key. Aboard the transporter on your way to your craft you will be offered various sortie options, varying in transit distance and intensity of traffic activity according to latest intelligence reports. You should opt for a sortie of short transit distance and light activity, if available, since the sortie you choose now will be the one on which you have to launch when you have finished with the simulator (the higher the alphabetic character the lighter is the traffic intensity). Once aboard your craft switch on the cockboard lighting (W key), and select power ON (CAPS LOCK key). Type S to switch the simulator ON then press the SHIFT key. You are now on your way out of starbase. After your craft has left the launch ramp it will punch into light speed. Select the Z key to drop you back into sub-light speed, then refer to Chapter 2 of this Section and operate the transponder, weapons, manoeuvre and conventional speed controls and targetting. Familiarise yourself with them and get to know your way around the instrument display by reference to Chapter 1 of this Section.

You are advised to conduct your first simulator sortie in slow motion. To achieve this, press I. Now try selecting STEER MODE with the S key. Once at light speed select a contact, 1 - 5, in conjunction with the P key on early sorties. This paralyses the contact. Refer to this Section, Chapter 2 for a full description of how the contact selectors function and the ship types they give. Practise visual identification of the paralysed targets. Fly up to and manoeuvre around them then use your weapons systems against them. Remember to make full use of the 'Pause' and 'Stop' keys (SPACE BAR and ESC) whenever you wish to stop to consult the manual or pause to study the cockpit display. While manoeuvring against paralysed targets practice coordinating the information given you by the ranger, doppler velocity indicator and target acquisition system - see if you can get it all "tied in".

As you progress and become more proficient try non-paralysed targets to see how they behave, how they respond to your transponder, to being fired on etc.. Note that the Starbase Computer approach distance indicator does not decrement while at light speed with the simulator selected. If you wish to have an attempt at recovery to a starbase, select the R key from light speed cruise. Do not worry if you are shot down at first attempt - most pilots are! Remember that it is just a simulation at this stage. Refer to Section 4, Chapter 1 for recovery parameters. While practising recoveries, again make full use of the 'Pause', 'Stop' and 'Slow Motion' controls on early practice runs.

As you become more proficient so you should read and absorb more of the manual. Try tackling it from front to back since everything is presented in logical sequence.

The simulator is really very realistic. Do not leave it until you are at least reasonably proficient in combat, good at craft identification and almost infallible during approach to starbase! Do not become just one more dead ensign lost on his first live sortie.

SECTION FOUR

CHAPTER 1

SORTIE FORMAT & BASIC TUTION

Each sortie is divided into four distinct phases. They are:-

- 1 Launch from starbase
- 2 Transit with encounters
- 3 Recovery to destination starbase
- 4 Administrative procedures at destination starbase

The simulator will faithfully imitate phases 1 to 3, but it will not simulate the administrative procedures of phase 4. Each phase is discussed in detail below.

PHASE 1: LAUNCH FROM STARBASE

Launch is initiated after application of internal power. The launch sequence is entirely automatic - your craft will accelerate down the launch ramp, which has been pre-aligned with your destination starbase, and when clear of the ramp will punch into light speed. The launch bay itself erects a deflector barrier against your Phohn bomb impulse accelerator.

PHASE 2: TRANSIT WITH ENCOUNTERS

During this phase of the sortie you have to transit to your destination starbase in a series of light speed jumps punctuated by encounters with other craft. Light speed alignment and navigation are performed automatically after you have selected STEER mode. Note that you cannot enter STEER mode if another craft is within your instrument detection range.

You are expected to investigate all contacts - unless your craft is so heavily damaged as to make combat inadvisable - and to deal with them if they are hostile. Remember to switch your targetting system ON in order to receive steering advice for target acquisition (refer to Section 5).

You will only ever meet single contacts from light speed because if your craft encounters more than one contact craft at any location it ignores them and remains at light speed. Similarly if you are in contact with another craft no further craft will appear from light speed. It is a virtual impossibility for two craft at conventional speed to encounter each other. At light speed cruise your ship is travelling in excess of 2,000,000Q/sec whereas the maximum sub-light speed is only 100Q/sec, therefore a contact that you would encounter after 5 seconds at light speed would take more than one day to reach at maximum sub-light speed. You can therefore assume that any contacts which appear while you are alone at sub-light speed are themselves light speed capable - this rules out Meson Torpedoes and Freighters. In order to minimise the number of

contacts that you meet during a sortie you are advised to spend as little time as possible alone at sub-light speeds. Enter STEER mode as soon as you have destroyed or lost contact with another craft, unless you consider that you have the necessary skill, fuel, ammunition and damage capacity to loiter at sub-light awaiting contacts. You do have the option to return to your launch starbase if you have suffered 50% deflector depletion or more, but before exercising this option make sure that it is shorter to return than to continue, since the process is irreversible.

This phase of the sortie terminates when you reach destination starbase at light speed and are dropped into sub-light speed for recovery.

PHASE 3: RECOVERY TO DESTINATION STARBASE

This is the most daunting phase of flight for most new pilots. The procedures and limitations outlined below seem complicated, but you will find in practice that if you simply set the transponder to 'ID' and ON, leave your weapons OFF, assess your horizontal and vertical displacements from the tunnel and take these out ONE AT A TIME, with SMALL steering adjustments you will survive every approach! Usually the cause of death during approach is attributable to trying to take out both horizontal and vertical displacements simultaneously and over-steering, leading to over-correction, a worsening situation, more over-correction, panic and, inevitably, destruction. More details are given later under "Recovery Technique". It is only by meeting the criteria below that starbase can be certain that you are not hostile.

Recovery criteria are divided into three parts. They are:

1. Criteria to be met from start of recovery to a range of 50KQ.
2. Criteria to be met from 50KQ range to 25KQ.
3. Criteria to be met from 25KQ range to docking bay.

The criteria are as follows:-

Part 1: Start of Recovery to 50KQ

YOU MUST REMAIN WITHIN FOUR TUNNEL WIDTHS OF THE CENTRELINE WITH WEAPONS OFF.

If you are outside the boundaries of the recovery tunnel the displacement warning light on your starbase computer will be illuminated. No starbase defence system lock-on will occur at this stage.

If your displacement exceeds four tunnel widths you will be shot down immediately.

If you switch your weapons ON then until you switch them OFF the weapons warning light on your Starbase Computer will illuminate, and the LOCK caption on your starbase computer will illuminate, indicating that the starbase defence system has locked-on to your craft, causing loss of available remaining lock-on distance/time quotient.

If you have not set your transponder to 'ID' and ON the transponder

warning light on your starbase computer will illuminate, though no defence system lock-on will occur during this section of the recovery.

Part 2: From 50KQ to 25KQ

YOU MUST BE AND REMAIN WITHIN THE TUNNEL WITH WEAPONS OFF AND TRANSPONDER SET TO 'ID' AND ON.

The criteria governing weapons is the same as Part 1.

If your craft is outside the tunnel then the displacement warning light will be illuminated and you will get a defence system lock-on. If your displacement from the centreline exceeds four tunnel widths you will be shot down immediately.

If, by the commencement of Part 2, you have not yet set your transponder to 'ID' and ON the transponder warning light will remain illuminated and you will get a defence system lock-on.

Part 3: From 25KQ to Docking Bay

YOU MUST REMAIN WITHIN THE TUNNEL WITH WEAPONS OFF AND TRANSPONDER SET TO 'ID' AND ON.

If any one of the above criteria is not met, causing a defence system lock-on to your craft, you will be instantly terminated.

The above criteria are all presented in Appendix II in tabular form for quick reference.

Recovery technique

When you first arrive at destination starbase you will ALWAYS be on a flight path which is parallel to the tunnel, though you may be displaced from it by up to two tunnel widths. Because you are flying parallel to the tunnel your displacement will not increase, so take your time, assess the situation. THERE IS PLENTY OF TIME IF YOU ACT CALMLY AND CORRECTLY.

Let us consider the worst possible case. Suppose you are displaced from the recovery tunnel by two tunnel widths in both the horizontal and vertical axes. For the sake of the example we will assume that you are high and to the left, i.e. the tunnel originates apparently in the centre of your targetting sight and passes low and to the right of your craft as you fly, along parallel to it. As long as the origin of the tunnel appears in the centre of your sight then you must be flying parallel to the tunnel and therefore your displacement remains constant. This is also indicated by having the target acquisition system dot centred on the VDU.

Remove the displacement one axis at a time - if you try to deal with both of them simultaneously you will probably land yourself in deep water. Let us assume that you have chosen to take out the vertical error first - since you are high you must dip the nose of your craft. DO NOT OVERSTEER. You cannot make a displacement disappear instantaneously;

steer down only one or two notches to place the origin of the tunnel slightly high in your sight, and wait. Slowly the tunnel's visual aspect will change as you descend relative to it. It will move slowly from passing low and to the right of your craft to passing level and to the right of your craft. When this state has been achieved you obviously need to regain a parallel flight path, otherwise you will pass through the tunnel's horizontal centreline and end up low relative to it, so at this point steer up by the exact amount that you initially steered down, repositioning the target acquisition system dot in the centre of the VDU. Watch the display for a few seconds to ensure that you have re-established a parallel flight path - if you have not then the tunnel will wander - before dealing with the horizontal displacement. If you are satisfied with your vertical positioning THEN MAKE NO MORE VERTICAL ADJUSTMENTS DURING THE RECOVERY!

To take out the horizontal displacement employ the same technique. Steer right by only one or two notches and wait. Slowly the tunnel's visual aspect will change as you approach it. It will appear to be swinging from the right towards you. When you have passed through the outer left wall of the tunnel, thereby extinguishing the displacement warning light, steer back left by the same amount as your initial right adjustment - again, if you do not do this you will pass out through the far side of the tunnel.

Remember, you do not need to be right in the centre of the recovery tunnel. As long as the central aperture of your sight is inside the tunnel and you are flying parallel to it - the origin of the tunnel is centred under the target sight aperture and the target acquisition system dot is centred - then you are inside and safe.

This now leaves only the transponder to deal with. Set it to 'ID' and ON. If you are not sure that it was last set to 'ID' it is preferable to first put the unit into standby mode. Alter the output to 'ID' before switching it ON. You can, of course, get this out of the way before you start to eliminate displacements, if you so wish.

Now all that you have to do is leave your weapons off, preferably sit on your hands, and enjoy the ride down the tunnel to the docking bay!

Do not worry if your early attempts in the simulator fail. This happens to most pilots. Once you grasp the basic idea, however, you should find it relatively easy to get in from any approach. It is only because flying an Interdictor successfully into a starbase is so different from any flying you may have done before that it seems so daunting.

PHASE 4: ADMINISTRATIVE PROCEDURES AT DESTINATION STARBASE

After your craft is secured in the docking bay you will be taken by transporter to the Sortie Evaluation Department of the Starbase Central Records Office. Here your sortie will be assessed, your kills listed and your promotion, demotion or deportation will be conferred according to your performance. The Sortie Evaluation Department is able to credit you with your kills from records kept by your own on-board computer cross-referenced with information gathered by the Starbase Terminal Monitoring Service which picks up termination signals transmitted by craft as they are destroyed. Each craft will be credited by type and serial number.

You will be heavily penalised for any Interdictors, Federation Freighters or Federation Meson Torpedoes that you destroy. Your rank and grade display will be continuously updated as kills are credited.

At the end of the assessment you will be offered the opportunity to take your own copy of Starbase performance files, view the performance files of the top three Interdictor Pilots or take a transporter. You are strongly advised to take your own copy of the performance files at each visit to starbase.

When you have finished in the Sortie Evaluation Department you take the transporter to the Registration Department. Here you can re-register by initials and surname to continue your career immediately or else take a period of "shore leave" aboard the starbase, the choice is yours.

Phase 4 of a sortie is the only phase which is not simulated by your built-in simulator. When Phase 3 of the simulated sortie is complete you are placed once again in your launch bay ready to fly another simulation or launch on the "real thing" as required.

CHAPTER 2

STARBASE AND ITS FUNCTIONS

The C Mk 4 starbase is a truly magnificent creation. Virtually a man-made planet, being 29KD in diameter, each starbase has fifty docking bays, one hundred launch bays, powerful automatic defence systems, full servicing, replenishment and administrative facilities and its own sizeable population. Departments and facilities of direct interest to the Interdictor Pilot are dealt with below.

Starbase Central Registration Department

Pilots register themselves at this department by initials and surname before each sortie. The department runs an identity check against the latest pilots' personal records files to determine whether you are a novice reporting for your first duty or a veteran. After checking the files this department will advise you of your current rank and grade and will assign you to your craft and launch bay. Of course, it is possible that a new pilot will attempt to register under the name of a pilot who is listed as retired, deceased or deported. Such registrations will be queried and, if confirmed, previous records under that name will be destroyed.

Entries on the Registration console must be of at least four characters and if you make an error in entry use the DEL key for deletions. Use the ENTER key on completion of your entry. If the department queries your entry, use the Y key to confirm that starbase records are correct as they stand or the N key to deny them.

Mission Assignment Control

In the transporter en-route from the Registration Department to your launch bay you will be offered various sortie options. You will be offered from two to six options varying in the length of the transit to your destination starbase and the reported traffic intensity based on latest intelligence reports. Generally the higher your rank and level of experience the more demanding will be the options offered to you.

The traffic intensity reports are a general guide and, though unlikely, it is possible to meet more contacts on a route reported as lighter activity than another route of similar distance. The traffic intensity grades are represented by alphabetic characters ranging from very intense activity (A) to negligible activity (Z).

Make your selection by depressing the numeric key corresponding to your preferred option.

Starbase Sortie Evaluation Department

After successful sortie completion and docking, pilots report to the Sortie Evaluation Department where their performance is evaluated. This

department interrogates your craft's on-board computer and, cross-referencing information with the records of the Starbase Terminal Monitoring Service, credits you with your kills. Each kill is displayed to you by craft type and serial number. You are promoted by two grades for successful mission completion (arrival at destination starbase). If you fail in your mission by returning to your departure starbase you are not credited with this upgrading.

You will be credited with Alliance kills, while kills registered against Federation craft will count heavily against you!

The display of your rank and grade will be continuously upgraded as your kills are considered, with grades ranging from Z (low) to A (high) and the rank structure being as listed below:

Ensign
Sub lieutenant
1st lieutenant
Lieutenant Commander
Commander
Captain
Commodore

If you should fall below the rank of Ensign grade Z through acts against Federal shipping, you will be deported to one of the four prison planets. Attainment of the rank of Commodore brings with it honourable retirement.

When evaluation is complete you have the option to take a copy of starbase performance files. You are advised to do so. The procedure is as follows:

Insert and cue a blank tape, press the PLAY and RECORD keys, then select D. The tape will stop automatically on file completion.

You are advised to make several copies of the records. You are also offered the option of viewing the performance files of the top three Interdictor Pilots on record.

When you have finished here you catch a transporter back to the Registration Department. There you may register for another sortie immediately or else go on "shore leave". You will find that starbase is able to provide you with all the comforts of your own home!

Starbase Terminal Monitoring Service

All craft types, Federation and Alliance, are fitted with a transmitter which sends out an omni-directional coded data stream if the craft is terminated. The Starbase Terminal Monitoring Service receives and logs these signals, adding pilot data to craft data if the craft is Federal, and allocates a cause code to Federal terminations. These decode as follows:

- 1 - terminated by weapons fire
- 2 - collision with another ship
- 3 - Meson Torpedo impact
- 4 - terminated by starbase automatic defence systems

SECTION FIVE

CHAPTER 1

COMBAT ADVICE

There is no substitute for experience - preferably gained in the simulator - though you can save training time and profit considerably from the experience and advice of those who have gone before you.

General

While at light cruise speed it is a good idea to keep the weapons master key and targetting key depressed so that weapons and targetting are brought on-line as soon as you meet a contact. If you are dexterous and wish to also maintain your 500/sec velocity when you drop into sub-light, keep the COPY key depressed. This has the further advantage of saving fuel.

If you do not know what it is, DO NOT OPEN FIRE. You will incur severe penalties for destroying friendly craft. Remember also that a fellow Interdictor, in particular, is capable of inflicting considerably more damage on you than Alliance craft with its rapid firing laser weapons.

Do not approach too close to a freighter if you have not received a hostile craft serial number on your transponder. All freighters, Federation and Alliance, are required by convention to transmit their serial number and only fail to do so if their transponder is inoperative. All freighters are also under instruction to open fire on any craft which approaches too close. Without a serial number you cannot possibly identify a freighter as friend or foe so STAY CLEAR OF IT.

With the exception of freighters it is reasonably safe to assume that a craft which opens fire on you is hostile.

Switch the targetting into FINE mode if you are unsure of the precise location of the target having centred him in coarse mode. Coarse mode is better used in close combat to indicate the target's whereabouts when he is not on screen.

Hints on early identification of contact craft:-

(i) Do not rely on an incoming craft type transponder transmission for craft identification - remember that an Interdictor can transmit whatever it wishes. If, however, the transmission is accompanied by a craft serial number transmission then no doubt remains - X series numbers are Alliance while C series numbers are Federation.

(ii) If the contact alters speed note the acceleration-deceleration rate. A Meson Torpedo accelerates at approximately half the rate of any other craft. This will enable you to

identify or rule out this craft type.

(iii) Take an early look at how strong his deflectors are. A very strong set of deflectors will belong to a freighter, Interdictor or Jahdran Aggressor. Gallanic cruisers tend to have medium to weak strength deflectors. Be aware, however, that a weak set of deflectors could equally belong to a battle-damaged Interdictor or other craft. A Meson Torpedo will always have a deflector strength of 50 GeV since, if at all damaged, it will always destroy itself against the deflector shields of its attacker. Learn to recognise this 50GeV deflection on your deflector strength indicator, but again be aware that this can also indicate another craft type with battle damage.

(iv) If a contact with a deflector capacity of 50 GeV has a speed in excess of 650/sec it must be a Meson Torpedo since they are not speed limited by deflector capacity as are all other ships.

(v) If a contact alters its craft type transponder transmission it must be an Interdictor.

(vi) If a craft attempts to run away shortly after initial contact it is probably a freighter.

(vii) A contact that appears while you are alone at sub-light speed cannot be a Meson Torpedo or a freighter since these are not light speed capable.

(viii) If you meet a contact from light speed cruise and his initial speed is 500/sec, decelerating, then he has probably just dropped from light speed and cannot therefore be a Meson Torpedo or Freighter.

Hints on close range identification of contact craft:-

(i) Visual identification becomes possible only at close ranges.

(ii) The Gallanic Cruiser has its vertical strakes mounted at the wing mid-points.

(iii) The Meson Torpedo is the smallest of all craft types and will remain as an apparent dot until very close range - beware!

(iv) The Interdictor and Jahdran Aggressor are visually indistinguishable until very close range. They both have their vertical strakes mounted at the wing tips and can be distinguished only by the small dorsal strakes of the Interdictor mounted above and below the central cabin. The Jahdran Aggressor does not have these strakes.

(v) If you are behind it and it opens fire at close range it is a freighter as only freighters are fitted with a tail turret.

(vi) The Freighter is of cruciform configuration and may be taken for a Meson Torpedo. The Freighter, however, is considerably larger than a Meson Torpedo so judging visual size

against range should avoid confusion.

(vii) If a Meson Torpedo opens fire at you it is a Federal craft. Federation Meson Torpedoes after serial no. CL-00 are fitted with a single laser cannon.

(viii) Practice visual identification in the simulator.

Use of Transponder

The Interdictor is the only craft fitted with a 'smart' transponder. You have the ability to simulate the craft type transmissions of other craft. You are not able, however, to simulate false serial number transmissions. Your transponder will transmit your serial number only in accompaniment to the 'ID' craft type identifier. All other craft, except the freighter, are able to transmit or suppress serial number and craft type transmissions individually.

As a general rule you should keep your transponder in 'STANDBY' mode. This gives you the advantage of being able to interrogate targets and receive their transmissions, if any, while not providing any information about yourself.

If you are receiving a hostile transmission it is a good idea to transmit an Alliance ship type yourself. However, be aware that since you actually look very much like a Jahdran Aggressor use of this setting will delay an enemy's visual identification of your craft.

If you are in bad shape and wish to discourage a contact from investigating you, transmitting MESON TORPEDO may suffice. Be aware that if your ploy does not work you will be identifiable from fairly long range due to the complete dissimilarity between yourself and what your transmission declares you to be.

You can sometimes save fuel and learn a lot about a contact by switching your transponder ON and observing what effect, if any, this has on his behaviour. If you do this it is always prudent to be truthful and transmit 'ID' since a Federation Meson Torpedo will lock on to and attack any craft from which it has received a hostile transmission - even if you subsequently revert to 'ID'.

If you believe a contact to be a Meson Torpedo and he is not transmitting a serial number identifier, it is advisable to transmit your Interdictor identifier. If he presses on to attack you know he is hostile whereas a friendly Torpedo will retreat on receipt of your friendly transmission.

Always set your transponder to STANDBY mode while changing your transmission. This prevents transmission of intermediate settings through which you pass and reduces the chances of an opponent noticing that you have a 'smart' transponder.

Be aware that your transponder settings cannot be altered while at light speed cruise so ensure that it is configured as required before light speed jump occurs.

Your transponder settings will obviously have no effect upon a craft

whose own transponder is inoperative through battle damage, nor upon a freighter, since they are fitted with a transmit-only device.

Use of Weapons System

General

(i) Your Laser Weapons System is limited in range to 130KQ and effectiveness increases with reduced range. Minimum range is 6KQ.

(ii) You have a very much faster rate of fire with your lasers in manual mode than you do in AUTO, though AUTO has the advantage of making every shot count, thereby saving ammunition, and reduces your workload. AUTO is best used against high-maneuvring targets or against running Gallanic Cruisers and Jahdran Aggressors to conserve ammunition. AUTO also has the advantage of reducing laser cannon battle damage (see page 12, LASER WEAPONS SYSTEMS, para 3).

(iii) Do not fire on a contact which you have not positively identified as hostile.

(iv) Always release the fire button if head-on collision is imminent. One collision could destroy both of your laser cannon if they are not deflector shielded (see Page 12, LASER WEAPONS SYSTEMS, para 3).

Weapons Selection

(i) Always select the weapons system ON when you encounter a contact. You might not need it but better be safe than sorry - it takes about 18 seconds from selection to on-line readiness.

(ii) NEVER switch weapons on in starbase airspace.

Speed Control and Manoeuvre

If you are on the tail of an evading target use a slower speed than he is. This may seem a strange act but the slower craft is always more manoeuvrable and the evasion attempts of the contact craft will usually prevent him from getting too far away from you.

Conversely, if an attacker is on your tail and you cannot shake him off, cut your speed and turn hard. A fast moving opponent will usually overshoot and enable you to turn the tables on him.

Apart from shooting it down before it reaches you, there is only one method which offers any chance of avoiding an attacking Meson Torpedo. Head straight for it at maximum speed and turn hard to avoid the head-on collision at the last possible moment (soon after illumination of the collision warning light). The Torpedo will probably miss you and overshoot. Keep your turn going and select the decelerator lock. When you have reached a speed of zero you should find that the Torpedo is

orbiting you! This is because it is programmed to turn towards its victim while maintaining maximum speed, and your manoeuvre has placed you inside his turning circle. You can now just pick him off with pot shots as he orbits you.

Beware of collision! The greater burden of avoidance usually rests with the faster moving craft.

If a contact is firing at you keep your speed high and evade. A fast-moving manoeuvring craft is more difficult to hit than a slow-moving craft or one which is approaching without deviation.

Coping With System Failures

If your laser ranger has failed - causing also a failure of your target deflector strength indicator - you will have to rely on visual impression for range information. The only information you might be able to glean about deflector strength will be from high speed contacts. If the speed is very high then the deflector strength must also be high unless the contact is a Meson Torpedo.

If your axial advice indicator has failed - causing also a failure of your V2 indication - you can, with practice, gauge whether the contact is closing or retreating by reference to the Doppler Velocity indicator and relating this to your own speed and the contact placement relative to your own axes. You can also learn to gauge his absolute velocity from these sources.

If your stabilisers have failed and you are in close combat with another craft cut your speed to zero to provide you with a stable firing base.

If you have lost both of your laser cannon - it is just not your day!

APPENDIX I

CRAFT DESCRIPTIONS

Interdictor MK3

Fast, agile combat patrol craft, light speed capable.

Operating authority	Federal Inter-Starbase Patrol Force
Deflector shield capacity	150 GeV
Maximum speed (sub-light)	100 Q/sec
Acceleration rate	18 Q/sec ²
Fuel capacity	90 kg atomic core
Operational features	auto light speed navigation rapid-fire high powered laser weaponry full feature transponder full feature target acquisition system simulator operation mode

Gallanic Cruiser

Medium speed combat patrol craft, light speed capable.

Operating authority	Gallanic Patrol Command
Deflector shield capacity	86 GeV
Maximum speed (sub-light)	70 Q/sec
Acceleration rate	15 Q/sec ²
Fuel capacity	47 kg atomic core
Operational features	medium-fire laser weaponry 2 man crew basic transponder basic target acquisition system cargo carrying capability automatic combat speed control system

Meson Torpedo

Fast unmanned craft (drone), non-light capable

Operating authority	Federal Inter-Starbase Patrol Force/ Gallanic Patrol Command
Deflector shield capacity	50 GeV
Maximum speed	100 Q/sec
Acceleration rate	9 Q/sec ²
Fuel capacity	15 kg atomic core
Operational features	auto lock-on to hostile transponder medium range tele-visual identification of hostile craft basic transponder high velocity auto-home to target for impact attack maximum speed not damage related Federal models post serial no CL-00 fitted with laser cannon.

Jahdran Aggressor

Fast, agile combat patrol craft, light speed capable.

Operating authority Jahdran Council for Hostilities
 Deflector shield capacity 150 GeV
 Maximum speed 100 Q/sec
 Acceleration rate. 18 Q/sec²
 Fuel capacity 82 kg atomic core
 Operational features auto light speed navigation
 medium-fire laser weaponry
 basic transponder
 full feature target acquisition system
 basic threat evaluation system
 automatic combat speed control system

Freighter

Fast cargo carrier, non-light capable.

Operating authority Federal Transportation Command/
 Jahdra-Gallanic Supply Corps
 Deflector shield capacity 150 GeV
 Maximum speed 100 Q/sec
 Acceleration rate 17 Q/sec²
 Fuel capacity 250 kg atomic core
 Operational features 9 man crew
 2 twin laser-cannon ball-turrets
 very basic transponder, transmit-only
 serial identifier
 large cargo hold capacity

APPENDIX II

RECOVERY CRITERIA

RANGE	CRITERIA WHICH CAUSE WARNING LIGHTS WITHOUT REPERCUSSIONS	CRITERIA WHICH CAUSE WARNING LIGHTS WITH DEFENCE SYSTEM LOCK-ON	CRITERIA WHICH CAUSE INSTANT TERMINATION
100-50KQ	Transponder not transmitting ID Craft outside Recovery Tunnel	Weapons DN	Displacement more than 4 tunnel widths
50-25KQ	nil	Craft outside tunnel Weapons ON Transponder not set	Displacement more than 4 tunnel widths
25KQ To Docking Bay	nil	nil	Craft outside tunnel Weapons ON Transponder not set

APPENDIX III

LOADING INSTRUCTIONS

To load INTERDICTION PILOT, insert the rewind cassette into the tape drive, then type RUN"INTERDICTION" and press ENTER. When prompted by the computer press the PLAY key, then any other key.

The loading process differs somewhat from the normal procedure. Initially the screen will display 'Loading INTERDICTION block 1', but then the screen will clear, and remain clear until loading is complete at which point the program will execute automatically.

When the program is first run, you have the opportunity of loading an 'ACES FILE'. This is a data file containing the service records of pilots; if you are flying in an INTERDICTION for the first time you should press 'N' for NO. If you have successfully flown 'live' missions you may have saved your performance data, in which case you should remove the program cassette, and insert the cassette containing the 'ACES FILE', press 'PLAY' then type 'Y'. You should never attempt to write to the program tape - always use a separate tape for performance data.

Loading or saving of data files can be aborted by hitting the ESC key.