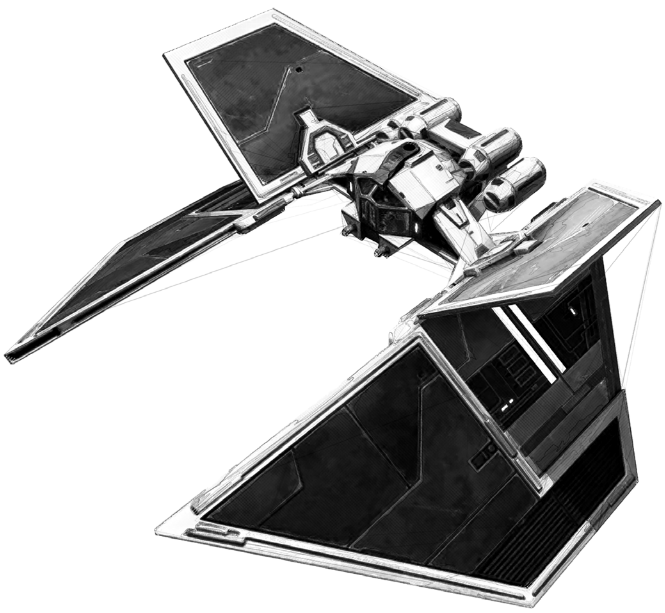
IMPERIAL STARFIGHTER CORPS

FLIGHT MANUAL

TANDANKIN SHIPYARDS

Mk-VI/S-SC4

SUPREMACY CLASS AND BLOODMARK VARIANTS



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NOTE TO READERS

This manual contains information on spacecraft systems, performance data, operating procedures and tactical information to aid pilots in the operation of the spacecraft when aboard a carrier or disembarked. It is not, however designed to be a rigid set of procedures but is designed to stimulate ideas to be effective during space operations and combat. Always exercise sound judgement when conducting operations.

Modifications and software changes to the spacecraft systems may affect the subject matter of this publication. When orders or instructions are released from the technical spaceworthiness regulator for the spacecraft that contradict any part of this publication they are to be taken as the overriding authorities.

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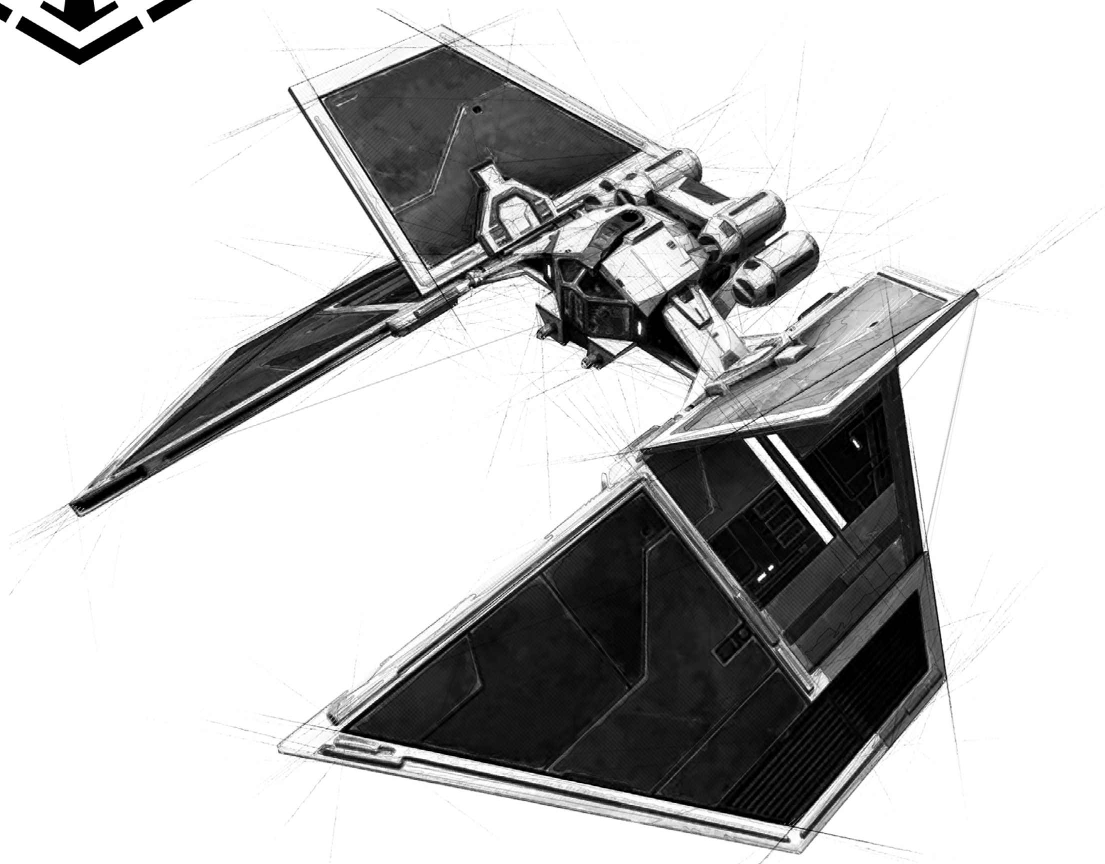

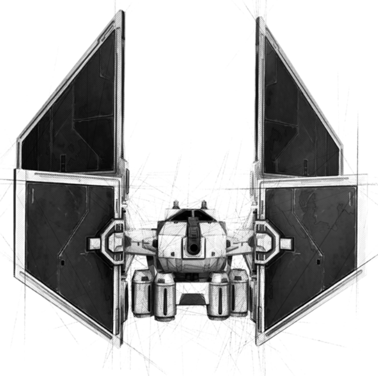

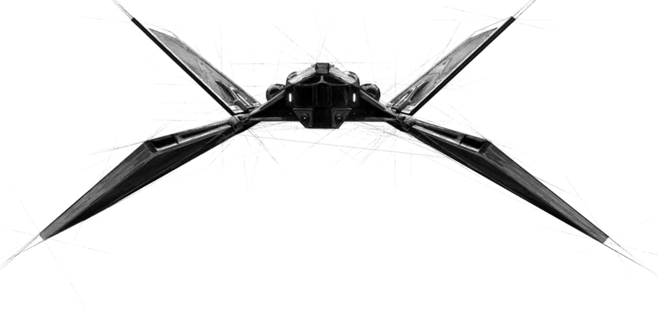

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CHAPTER 1
THE SPACECRAFT

1.1 SPACECRAFT DESCRIPTION

The Mk. VI Supremacy class starfighter - also known as the ISF Interceptor or the Mk. VI interceptor - is the primary mainstay of the Imperial forces. The Mk. VI built by Tandankin shipyards forms the basis of the Imperial fighter fleet, and has been incorporated into the S-SC4 Bloodmark, the two-seater variant.
Modern Mk. VI's have been retrofitted to match the later produced S-SC4 having two extra thrusters and improved subsystems, however retaining the single seat.
The Mk. VI's have light shielding and a light hull surrounding the fuselage.

Top speed: 278 m/s.
Cargo capacity: 25kg.

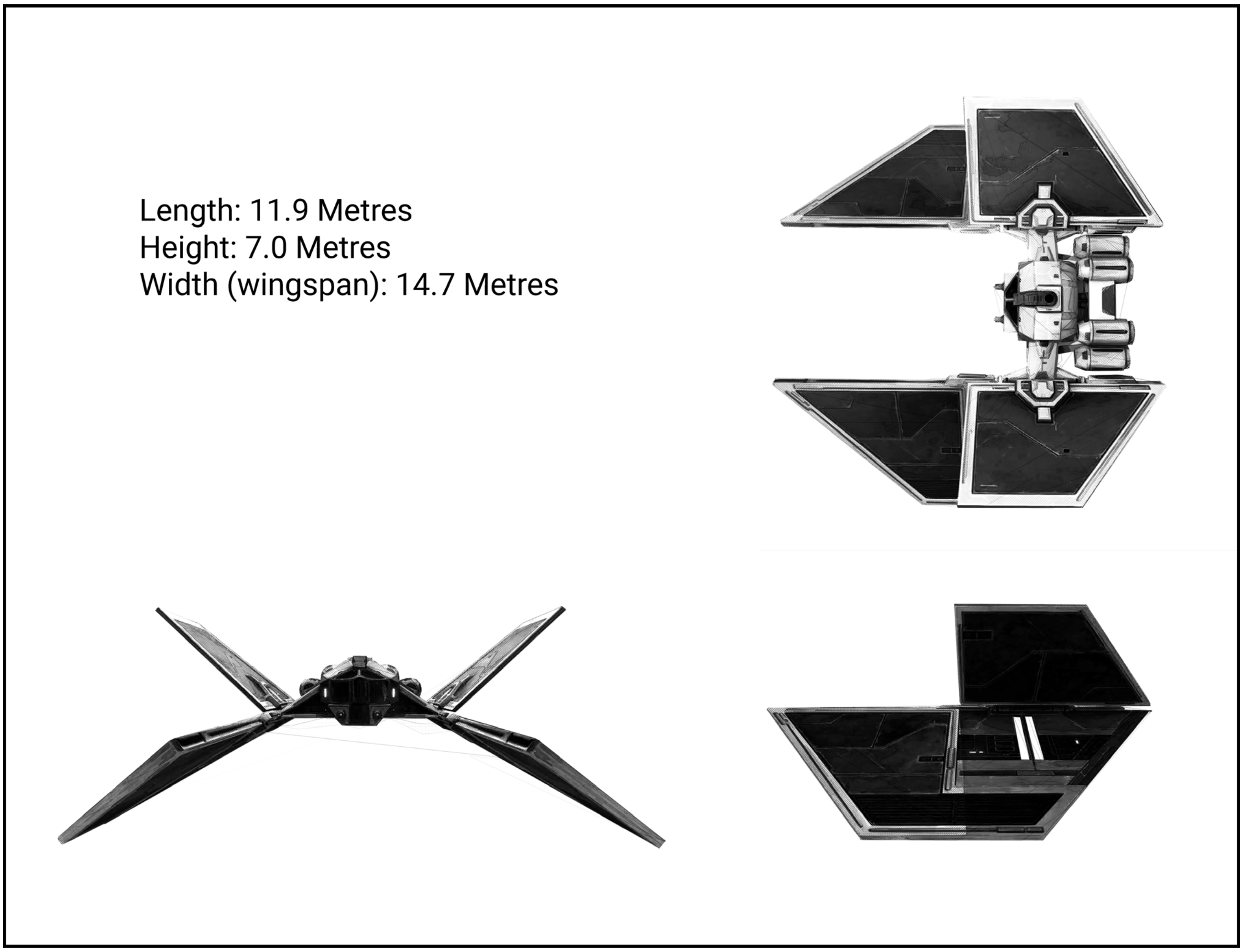
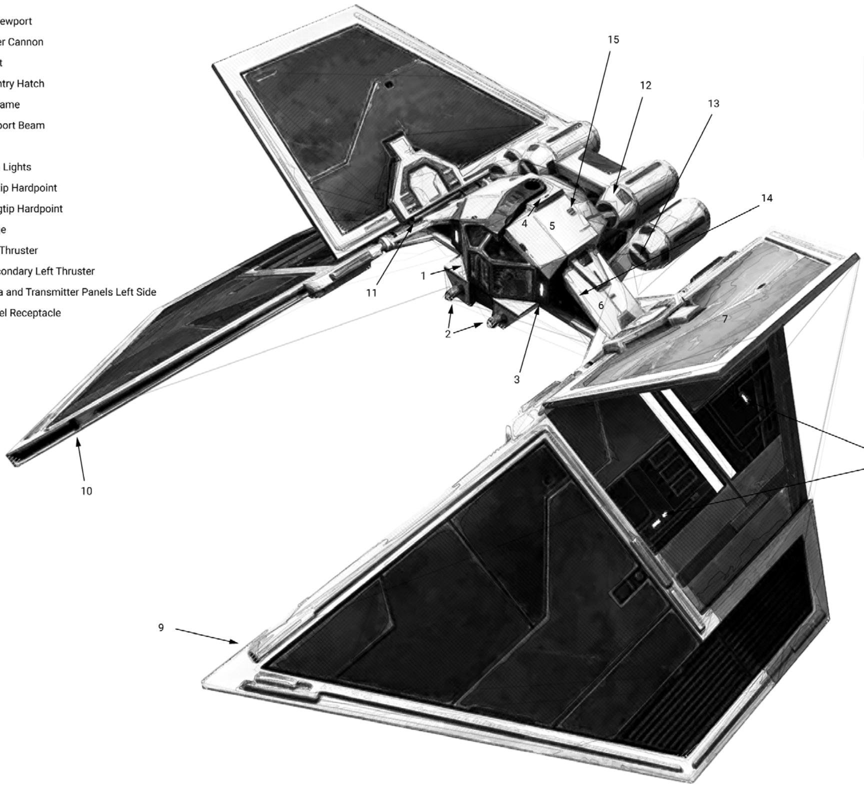


Figure 1-1 MK VI General Arrangement

1.2 GENERAL ARRANGEMENT

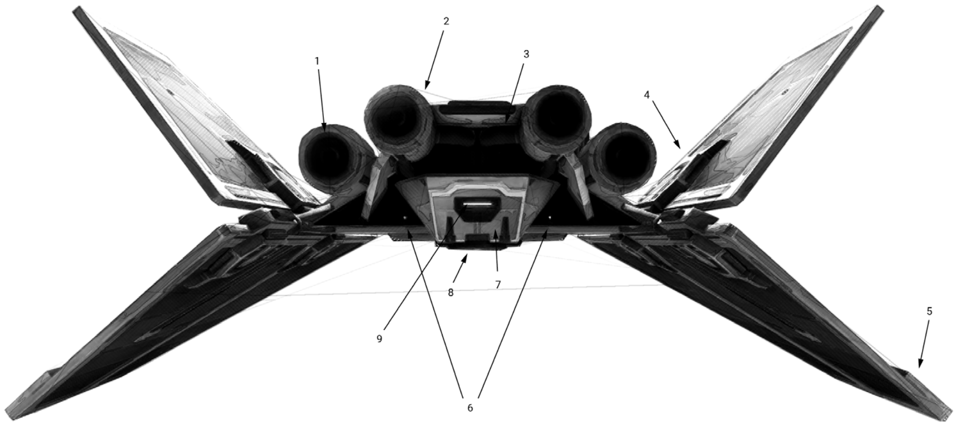
MK VI Key Arrangement

1	Cockpit Viewport
2	Nose Laser Cannon
3	Front Light
4	Cockpit Entry Hatch
5	Cockpit Frame
6	Wing Support Beam
7	S-foil
8	Formation Lights
9	Left Wingtip Hardpoint
10	Right Wingtip Hardpoint
11	S-foil Hinge
12	Main Left Thruster
13	Intake Secondary Left Thruster
14	Pitot , Data and Transmitter Panels Left Side
15	Inflight Fuel Receptacle



MK VI Key Arrangement

1	Afterburner
2	Main Left Thruster
3	Aft Fuel Tube
4	S-foil Clamp
5	ECM Aerials
6	Aft Lights
7	Cargo Hatch
8	Ground Fuel Receptacle
9	Tail Light



CHAPTER 2

SYSTEMS

2.1 ENGINE/THRUSTER SYSTEMS

2.1.1 Engines. The Spacecraft is powered by four Tandankin SS Engines. The engines provide power for the manoeuvring thrusters as well as main propulsion thrust.

2.1.2 Thrusters. The spacecraft utilises four propulsion thrusters mounted on the spacecraft's aft fuselage. The thrusters are a reaction control system that utilises thrusters to provide spacecraft attitude and translation control. Thruster output is displayed on the thrust output page on the cockpit's Multi Functional Displays.

2.1.2 Throttles. The spacecraft engine is controlled by the throttle controlled in the cockpit. Throttle movement is transmitted to the main engines for thrust modulation.

2.1.3 Engine/Thruster Boost. Thrusters and main engine performance can be periodically increased through the use of boost. When in boost, the output of the thrusters increases to allow faster changes in direction or to recover speed lost through manoeuvring. Boost utilises and is limited by the onboard spacecraft fuel. Boost does not affect spacecraft top speed but will increase acceleration. Activation of boost is controlled via the boost button and is independent to engine throttle or translation control.

2.2 FUEL SYSTEM

The spacecraft fuel system provides fuel for the Engine/Thruster system.

2.2.1 Refuelling System. The spacecraft can be refuelled on deck via a single point refuelling receptacle or inflight through a hydraulically actuated inflight refuelling receptacle.

2.2.2 Fuel Quantity Indicating system. The fuel quantity indicating system measures the individual fuel quantities in the spacecraft's fuel tanks and provides cockpit readouts either on the HUD or cockpit screens

2.2.3 Fuel Consumption. Fuel is consumed by the thrusters and main engines. The combined fuel consumption is 0.7 mpg.

FUEL TANK SYSTEM

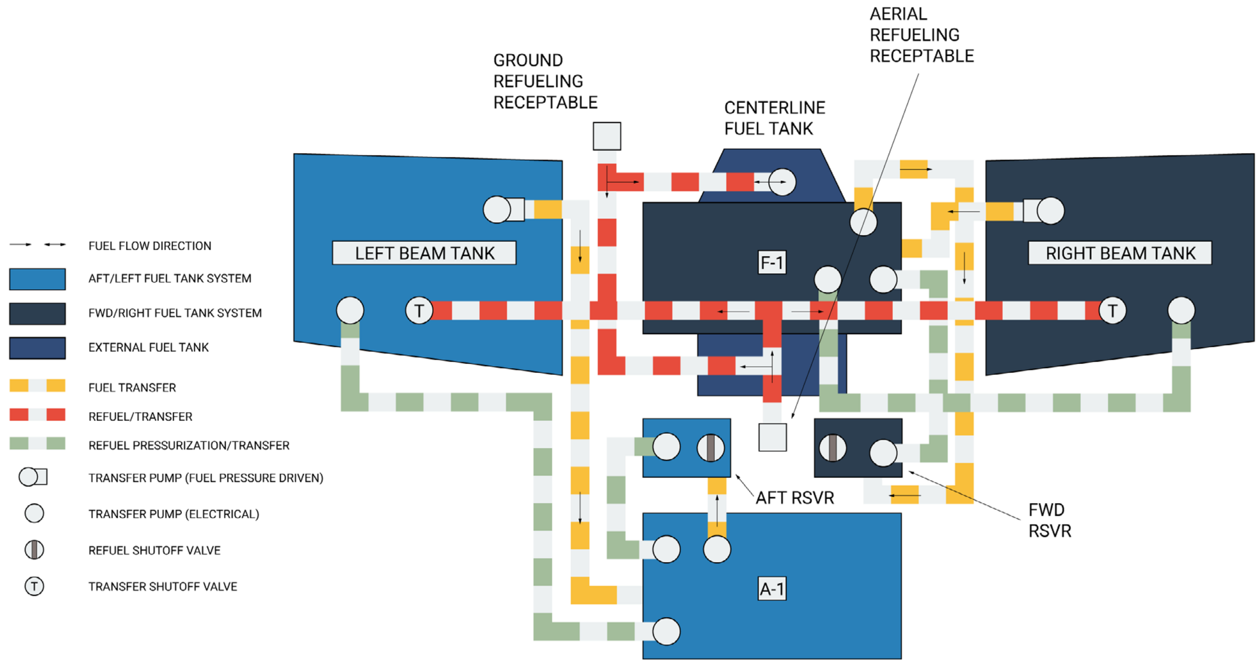


Figure 2-1 Fuel Tank System Diagram

2.3 ELECTRICAL SYSTEM

2.3.1 Power Plant. The spacecraft subsystems are powered by an Tandankin T3 fusion reactor. All spacecraft subsystems are connected to the power plant by the main power pipe.

2.3.2 Battery. The battery is connected the main power pipe and battery power pipe. The battery provides redundancy for the power plant for essential systems in the event of electrical power loss.

2.3.3 Power Throttle. The power plant power output can be adjusted utilising the power throttle in the power management display. This gives a linear total power output request from 0 – 100%.

2.3.4 Power Management Display. The power management display allows the pilot to prioritize power distribution among all of the spacecraft's various components and subsystems powered by the spacecraft's power plant. Power is distributed among three generic groups using the power allocation triangle. Components are not strictly bound to a particular group however, and can be rearranged into other groups if desired, providing an extra layer of flexibility in the pilot's preferences for power distribution among the spacecraft's components. By default, ship components are grouped in the following manner:

Group 1: Weapon Components
Group 2: Shields and Avionics
Group 3: Engines and Thrusters

Individual components can also be powered on/off via power toggles for system components.

2.4 THERMAL MANAGEMENT SYSTEM

The spacecraft subsystems are cooled by a SERN LSR-3G cooling unit. The cooling unit efficiently dissipates heat created by sub-system operation. Heat is transmitted to the cooler unit via the heat pipe which connects all the spacecraft subsystems to the coolers.

2.5 AVIONICS SYSTEM

2.5.1 Trans Directional Active Radar System (TDARS). The TDARS is a multifunctional radar which is capable of processing information on surrounding signals and displaying distance and relative position of external contacts in 3D space. The TDARS is able to interface with the ship's targeting computer in order to overlay additional targeting-specific markers and indicators within the TDARS Holosphere. The TDARS is also designed to switch between various modes of scanning such as omnidirectional and focused, depending on the desired fidelity and range of signal detection. The TDARS can be zoomed to focus in a particular area of space. The TDARS displays the galactic plane as a standard reference for your ship's orientation in space (shown as a disc within the TDARS sphere). Objects in the TDARS display a relative distance indicator (line and stalk) that indicate distance to target both horizontally and vertically. A selected target is represented as a 3D holo-image of the target object. The colour of the relative distance indicator and 3D hologram changes to indicate friend or foe. Un-scanned or unknown targets appear as blue spheres. Scanned, unselected targets will appear as triangles pointing either up or down depending on the targets vertical direction to the spacecraft.

2.5.2 Identification Friend-or-Foe (IFF). IFF automatically scans and interrogates any new TDARS contact and displays the corresponding symbology (friendly or threat) on the TDARS holo-sphere for pilot situational awareness.

2.5.3 Combat Visor Interface (CVI). The CVI is a helmet-mounted display that interfaces with the spacecraft HUD. The CVI has four distinct display options for ship management, Overview display, weapons group management display, power management display and shield management display. The CVI also displays the targeting pane.

2.5.3.1 Overview Display. The overview display shows all priority spacecraft information consisting of hull condition, shield condition and power priority, weapon loadout and grouping, weapon ammo remaining and heat levels, and basic power plant power allocation. Individual weapons can be deactivated from the overview display without entering the weapons display.

2.5.3.2 Weapons Group Management display. The weapons group management display is described in Para 2.8.7.

2.5.3.3 Power Management Display. The power management display is described in Para 2.3.4.

2.5.3.4 Shield Management Display. The shield management display is described in Para 2.7.1.

2.5.3.5 Signature Displays. The spacecraft's Electromagnetic (EM) and Infrared (IR) signatures are displayed on the CVI. These indicate the level of the current emissions in both spectrums to the pilot in a constantly refreshed line style graph. Selected target Electromagnetic (EM) and Infrared (IR) signatures are also displayed on the HUD. These indicate the level of the current emissions in both spectrums of the spacecraft to the pilot in a constantly refreshed line style graph. The signature of the spacecraft directly relates to detectability and trackability by weapon systems and TDARS.

2.5.3.6 Targeting Pane. The targeting pane displays information regarding your current target including range, hull condition, shield condition and pilot information (if available). Targets can be “pinned” to the lower part of the targeting pane. Pinned targets will remain in view regardless of the currently locked target. A target direction arrow is displayed for locked and pinned targets.

2.5.3.7 Velocity Indicator (VI). The velocity indicator (VI) provides an outside world reference to actual spacecraft flight path. The VI is displayed on the CVI.

2.5.3.8 Line of sight (LOS) marker. The CVI helmet interface displays the pilot’s point of focus with the line of sight (LOS) marker. The LOS marker indicates the point at which the pilot is looking, and where gimballed weapons will attempt to align on. The LOS marker is hidden when the pilot is looking directly ahead through the HUD.

2.5.4 Heads Up Display (HUD). The HUD is holographically displayed above the instrument panel. The HUD is used as the primary flight instrument, weapon status, and weapon delivery display for the spacecraft under all conditions. The HUD displays critical information and warnings to the pilot including ship status, weapons status, selected target status, boost fuel level, throttle handle angle (in %), velocity, weapons targeting information, etc.

2.5.4.1 Velocity Ladder. The velocity ladder displays your current velocity in metres per second (M/S) at one M/S intervals. The velocity ladder can show forward speed or reverse speed in negative M/S.
2.5.4.2 Longitudinal Velocity. The current spacecraft velocity, displayed in metres per second (M/S) is indicated in the lower LH corner of the HUD. The velocity display indicates velocity in the longitudinal axis only.

2.5.4.3 Thrust. Thrust, displayed in kilo-newtons represents the force being applied to the forward axis of the ship.

2.5.4.4 Throttle Handle angle. The main engine throttle’s current angle and "requested" throttle setting for the main engine is displayed on the HUD in % (forward and aft strafing are not taken into account in throttle angle).

2.5.4.5 Gun Boresight Cross. The gun boresight cross indicates the fixed weapon direction. The boresight cross also indicates the position of your ship’s longitudinal axis.

2.5.5 Multi Functional Displays (MFD). The MFDs are integrated into the cockpit vertical console. The MFDs convey second priority information. The MFDs can display current TDARS configuration, thruster output & monitoring and current power configuration. Each MFD is able to cycle between the various display modes available. Display modes can also be duplicated across multiple screens if desired.

2.5.6 Status Display. The cockpit status display is mounted on the upper LH vertical console and displays the current ship signature output, and ambient IR/EM signals. The status display functions as a backup display to the CVI Signature display.

2.5.7 Performance Display. The performance display displays the health of each of the ships shield segments in a bar style graph. The performance display functions as a backup to the CVI Overview Shield Status Display.

2.5.8 Communications System. The spacecraft utilises short and long range communication systems. The communications systems are controlled by the HUD, CVI and ISD’s.

2.6 FLIGHT CONTROLS

2.6.1 Stick. A traditional centre mounted control stick is used to provide pitch and yaw (or roll dependant on software configuration) inputs to the FCS.

2.6.2 Directional Pedals. Two directional pedals (left and right) are used to provide directional inputs to the FCS for roll (or yaw dependant on software configuration) control.

2.6.3 Translation (Strafe) control. Translation control allows movement of the spacecraft via the thrusters in 3 dimensions without changing the orientation of the spacecraft. Translation inputs are summed, and are in addition to the spacecraft's forward or aft motion however the total speed of the spacecraft is limited by the FCS to the spacecraft's max rated speed.

2.6.4 Flight Control System (FCS). FCS is a fly-by-wire, full authority control safety system. The FCS provides four basic functions: spacecraft directional stability, spacecraft control, crew safety and structural loads management.

2.6.4.1 Coupled Mode. In coupled mode FCS commands the spacecraft's manoeuvring thrusters to maintain similar flight characteristics to atmospheric flight (i.e. Attitude linked to direction of flight). The FCS also allows strafing in the lateral, longitudinal, and vertical directions when commanded in coupled mode. This mode is indicated through the "COUPLED" indicator on the HUD.

2.6.4.2 Decoupled Mode. In decoupled mode the spacecraft's forward facing direction is not linked to the spacecraft's direction of travel. This allows the spacecraft's attitude to be changed without affecting the spacecraft's vector. The FCS also allows strafing in the lateral, longitudinal, and vertical directions when commanded in decoupled mode. This mode is indicated by the text dulling and an "X" being displayed through the "COUPLED" indicator on the HUD.

2.6.4.3 G-Safe. G-force safety mode limits excessive positive or negative G-force on the pilot by limiting the spacecraft's rotational turn rate, or rate of directional change during strafe. This limits the physiological effects of excessive G and prevents the onset of G-LOC. G-Safety mode is indicated by the "G-SAFE" lit for ON, or by the text dulling and an "X" being displayed through the "G-SAFE" indicator on the HUD when OFF.

2.6.5 Autopilot. The autopilot provides two basic functions: navigation waypoint steering, and auto-landing. When in navigation waypoint steering mode the spacecraft will fly to the designated waypoint on the HUD/TDARS without further pilot input. In auto-landing mode, when the spacecraft is within the required landing zone the spacecraft will land without further pilot input. This mode is indicated on the HUD by "AUTOMATED" cue appearing in the HUD and TDARS changing to landing mode.

2.6.6 Space Brake. Space brake is a function of the FCS and utilises the manoeuvring thrusters and/or main engines to arrest spacecraft movement by applying thrust in the opposite direction of travel. FCS will modulate the thruster output directly with spacecraft speed.

2.7 SHIELD SYSTEM

The spacecraft utilises a shield to protect spacecraft hull integrity from kinetic energy damage from debris or kinetic weapons, and absorb laser energy. The Shield system is powered by the power plant via the connected power pipe and is also connected to the info and heat pipes.

2.7.1 Shield Management Display. Shield management is achieved via the CVI and displayed on the HUD. In normal operation all shield segments are powered equally. The shield management display allows you to prioritize shield level distribution between all of the ship's shield segments.

Figure 2-2 Shield Management Display

2.8 WEAPON SYSTEMS

The spacecraft weapon systems can be a mixture of ballistic and energy weapons. All weapons are connected to the heat, power, info and avionics pipes.

2.8.1 Weapon System Controls. All of the primary controls for the spacecraft's weapon systems are located on the stick grip assembly. The hands on throttles and stick (HOTAS) control arrangement, allows the aircrew to manipulate the weapon systems without removing the hands from the spacecraft's primary flight controls.

2.8.1.1 Stick Grip Controls. The weapons systems controls located on the cockpit stick grips include the pickle button, trigger, missile fire button, target select/cycle hat, target pin/cycle hat.

2.8.1.2 Throttle Grip Switches/Controls. The weapon systems controls located on the cockpit throttle grips are pilot customisable and dependant on the software configuration of the spacecraft.

2.8.2 Missile Target Acquisition. Missile target tracking information is provided to the targeting computer via the info pipe. The CVI to displays the missile tracking/lock/launch symbology when commanded by the targeting computer. When the selected missile has achieved a "Lock on" to the selected target, the target missile locked symbology (in for form of a red ring around the target) will be displayed.

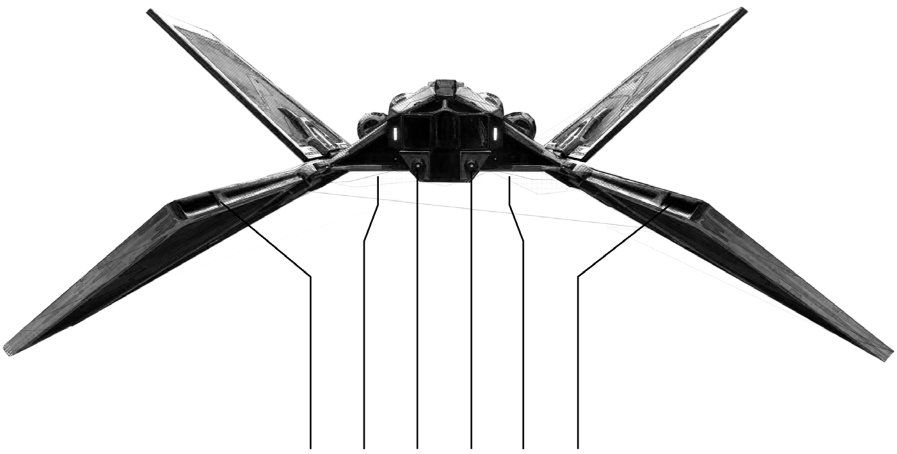
2.8.3 Nose Weapon Mounts. The Mk. VI has two laser cannons integrated into the forward fuselage.

2.8.4 Wingtip Weapon Mounts. The wingtip weapon mounts consist of two mounts (one on each tip of the forward wing). These are standard outfitted with laser cannons.

2.8.5 Missile racks. Each beam has two pylons for mounting missile launchers.

2.8.6 Countermeasures. The spacecraft can be loaded with various countermeasure dependant on mission requirements. The countermeasure type and number remaining are indicated on the HUD.

2.8.7 Weapon Group Management Display. The weapon management display shows your ship's weapons, sorted by weapon groups. Weapon group assignment can be managed within the display. Weapons can be assigned to a total of three weapons groups. Individual weapons can be assigned to more than one group at a time. Missiles and countermeasures cannot be assigned to weapons groups.



●		●	●		●	LASER WEAPON
●●	●●●			●●●	●●	MISSILE
	●●			●●		TORPEDO

Figure 2-3 Weapon Mount Compatibility

2.9 EMERGENCY EQUIPMENT

2.9.1 Warning/Cautions/Advisories. The warning/caution/advisory system provides visual indications of normal spacecraft operation and system malfunctions affecting safe operation of the spacecraft. The spacecraft has warning lights mounted in the annunciator panel. Warnings and cautions also appear on the CVI.

2.9.2 Proximity Warning. The on-board proximity warning system alerts crew when an object is near to the spacecraft that it may cause damage. A warning icon will appear at the edge of the CVI indicating the approaching objects direction.

2.9.3 Ejection seat. The Mk. VI is fitted with an ejection seat. The ejection seat is a ballistic catapult/rocket system that provide the pilot with a quick, safe, and positive means of escape from the spacecraft. Ejection is initiated by pulling the ejection control handle.

2.9.4 Ejection Control Handle. The ejection control handle, located between the crew members legs on the front of the seat pan, is the only means by which ejection is initiated. The handle, moulded in the shape of a loop, can be grasped by one or two hands. To initiate ejection, pull the handle from its housing.

2.9.5 Self Destruct. The spacecraft is equipped with a self-destruct function that will totally destroy the spacecraft in an emergency.

2.10 CREW ENTRANCE/EGRESS SYSTEM

2.10.1 Cockpit boarding system. The cockpit boarding system is by way of a retractable boarding ladder mounted on the top of the cockpit.

2.11 VOICE ALERT SYSTEM

The voice alert system is used to provide the pilot with aural cues in relation to normal spacecraft operation and system malfunctions.

2.12 LIFE SUPPORT SYSTEM

2.12.1 Environmental Control and Life Support System (ECLSS). The spacecraft is fitted with a robust environmental control and life support system (ECLSS) that maintains cabin pressure (1 atmosphere), atmospheric gas concentration (21% o2/78% n2/1% other), and cabin temperature at optimum levels during normal operation. The ECLSS also provides pressurised air for the pneumatic systems such as Pilot suit anti-G, fuel tank pressurisation and emergency oxy systems maintenance/replenishment. ECLSS is also responsible for processing any waste fluids during flight.

2.12.2. On-board Biological Oxygen Generation System (OBBOGS). The OBBOGS maintains the correct oxygen levels within the spacecraft cabin atmosphere for human use. OBBOGS utilises a combination of microorganisms and algae to recycle expelled CO_2 back into O_2. The Oxygen creating micro-organisms also create O_2 to supplement O_2 levels lost during depressurisation and cabin leakage.

2.12 LIFE SUPPORT SYSTEM

2.13.1 Fire Detection system. The fire detection system is an automatic system that utilises a system of detectors to detect and locate cockpit fires.

2.13.2 Fire extinguishing system. The fire extinguishing system is an automatic system that, in conjunction with the fire detection system, extinguishes detected fires in the cockpit.

CHAPTER 3

FLIGHT PROCEDURES

3.1 DISEMBARKED PROCEDURES

For all planetside/non-carrier based landing areas, the following checks are to be completed by the crew.

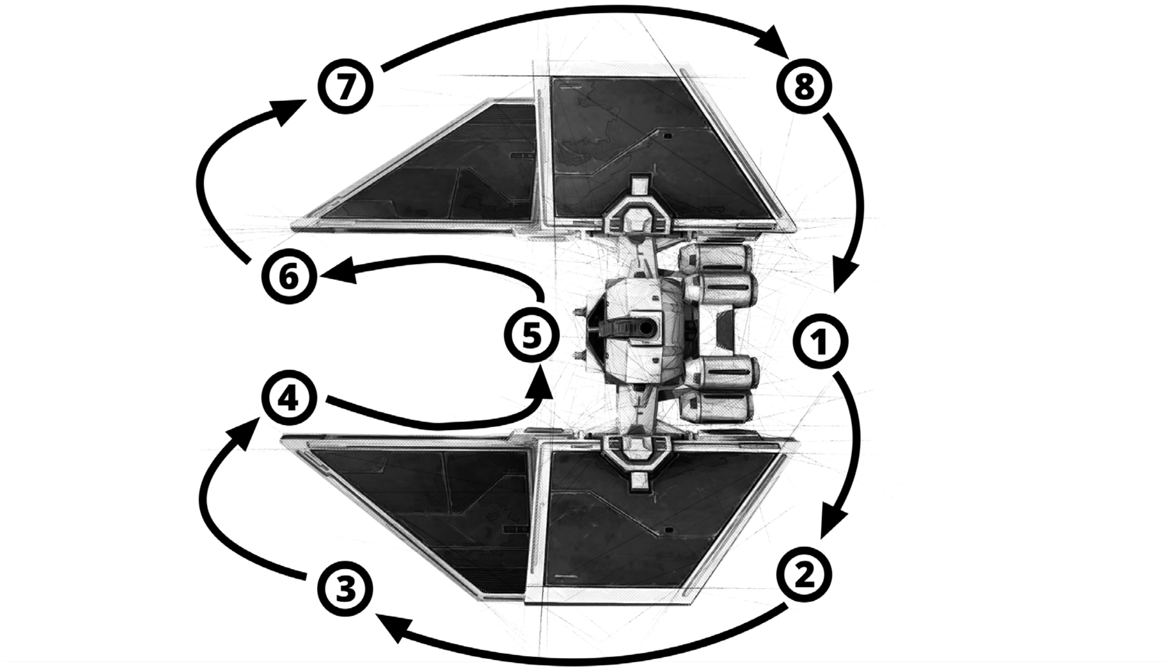


Figure 3-1 Pre-flight Inspection Points

3.1.1 Pre-flight Checks

3.1.1.1 Exterior Inspection. The exterior inspection is divided into 8 areas, beginning at the aft fuselage and continuing clockwise around the spacecraft. Check the spacecraft skin and structure for obvious damage, ensure all doors and panels are closed and fastened, inspect for fluid leaks, etc.

1 - Aft fuselage/Engine Exhaust
- RH Vertical stabiliser - CHECK CONDITION
- Manoeuvring thrusters - CHECK CONDITION
- RH Engine exhausts - CHECK CONDITION and ensure clear
- Aft fuselage underside - CHECK CONDITION
- Cargo door - Ensure closed
- Refuel receptacle - Ensure closed
- LH Engine exhausts - CHECK CONDITION and ensure clear
- LH Vertical stabiliser - CHECK CONDITION

2 - Left S-foil and trailing edge
- S-foil hinge - CHECK CONDITION
- S-foil - CHECK CONDITION and ensure clear
- Wing trailing edge - CHECK CONDITION

3 - Left wing
    Structure - CHECK CONDITION
    Leading edges - CHECK CONDITION
4 - Left tip
    Wingtip weapons hardpoint - CHECK CONDITION and correct installed
5 - Nose section
    LH electronics panels - CHECK CONDITION
    LH Nose section - CHECK CONDITION
    LH Laser Cannon - CHECK CONDITION
    Viewport - inspect for damage and ensure clear
    RH Laser Cannon - CHECK CONDITION
    RH Nose section - CHECK CONDITION
    RH electronics panels - CHECK CONDITION
6 - Right tip
    Wingtip weapons hardpoint - CHECK CONDITION and correct installed
7 - Right wing
    Structure - CHECK CONDITION
    Leading edges - CHECK CONDITION
8 - Right S-foil and trailing edge
    S-foil hinge - CHECK CONDITION
    S-foil - CHECK CONDITION and ensure clear
    Wing trailing edge - CHECK CONDITION

3.1.1.2 Cockpit Access.

Mount retractable ladder on the top of the cockpit and open canopy.

BEFORE ENTERING COCKPIT

Ejection seat - **CHECK SAFE**
Spacecraft self-destruct handle - **SAFE**
Main power switch - **OFF**

3.1.1.3 Interior Checks.

Interior checks - Carry out cockpit setup
Powerplant - **ON**
Power Throttle - **MAX**
Information Displays - **ON**
HUD - **ON, adjust as required**
CVI - **ON**

3.1.1.4 Engines - START

3.1.1.5 Pre-launch Checks.

Fuel tank quantities - **CHECK**
Waypoint - **SELECT (as required)**
Carry out FCS Safeties check
    G-Safe - **ON**
    Coupled Mode - **ON**

3.1.1.6 Pre-taxi Checks.

Controls - **CYCLE,** ensure all thrusters output nominal

3.1.1.7 Taxi Checks.

Landing magnets - **DISENGAGE**
Translate vertically to ensure clearance from deck
Ensure attitude to remain parallel with taxiway
Taxi to launch area

3.1.1.8 Launch.

Translate if required to ensure clearance from landing area
Launch horizontal from pad to prevent conflicts
Throttles - **MAX**

3.1.1.9 After Take-off.

Clearing turn - **PERFORM** (if required)
TDARS - **CHECK CONTACTS**

3.2 LANDING CHECKS

Landing area - **SELECTED**
Landing permission - **GAIN, ENSURE CLEARED FOR LANDING**
Approach landing area perpendicular to platform alignment
Landing mode - **SELECTED (AUTO or MAN)**
Landing mode - **CHECK ENGAGED**
Altitude/attitude/obstacle clearance - **CHECK GREEN**
Translate down until touchdown

3.3 POST FLIGHT CHECKS

Ejection Seat - **Ensure safe**
Information Displays - **OFF**
HUD - **OFF**
CVI - **OFF**
COMMS - **OFF**
Engines - **OFF**
Powerplant - **OFF**

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CHAPTER 4

EMERGENCY PROCEDURES

4.1 ANTI TUMBLING PROCEDURE

Throttles - **IDLE**
Spacebrake - **ON**
Boost - **ENGAGE**
When tumbling stops - **EXECUTE unusual attitude recovery procedures**
If unable to recover - **EJECT**

4.2 UNUSUAL ATTITUDE RECOVERY PROCEDURES (UARP)

Manoeuvre craft to achieve most predictable flight path
Minimize control and power inputs as necessary
If unable to recover - **EJECT**

4.3 OUT OF CONTROL FLIGHT

Controls - **NEUTRALIZE**
Power control lever - **IDLE**
Flight instruments: attitude, altitude, airspeed, engine parameters - **CHECK**
If tumbling or unusual attitude as indicated by flight instruments - **EXECUTE ANTI TUMBLING OR UNUSUAL ATTITUDE RECOVERY PROCEDURES**
If time required to execute anti tumbling/unusual attitude procedures insufficient – **EJECT**

4.4 CONTROLLABILITY CHECK

Requirement: Malfunction, failure or damage to manoeuvring thrusters, main engine, or power plant which will degrade flight characteristics for approach and landing

Purpose: To determine
- Whether to attempt approach or abandon spacecraft
- Safe landing configuration

Coordinate visual inspection from other friendly spacecraft (if possible)
Check manoeuvring thruster operation via controllability check.
Perform slow yaw
Perform slow pitch
Perform slow roll
If controllability acceptable to attempt landing
Fly straight in approach
If controllability unacceptable for landing
If possible - signal carrier for support/recovery ship
If not possible - consider controlled ejection

4.5 COCKPIT SMOKE/FUME/FIRE ELIMINATION

Emergency Oxygen - **ACTIVATE (BOTH)**
CABIN ATMOSPHERE switch - **DUMP**

If smoke, fumes or fire persist

Power throttle - **ZERO**
Required electrical equipment - on, one component at a time. If smoke/fire starts again, secure that equipment
If unable to clear smoke or fire - **EJECT**

4.6 HYPOXIA/LOW SUIT OXYGEN

Emergency Oxygen - **ACTIVATE**
Oxy System - **OFF**
Divert to nearest safe atmosphere immediately
Land as soon as possible

4.7 DISPLAY MALFUNCTION

If displays malfunction attempt to restore power by cycling display power. If cycling does not fix the problem, secure display.

4.8 CVI/HUD FAILURE DURING LANDING

If HUD and/or CVI have failed before or during landing, declare a priority assistance needed (PAN) and advise carrier space traffic control (STC) of the problem. Utilise dead reckoning to align spacecraft with carrier landing deck, and carrier precision approach radar (PAR) tracking advice if available to achieve landing.

4.9 EJECTION

4.9.1 Immediate Ejection. For extreme emergency situations, the pilot shall immediately initiate ejection.

4.9.2 Controlled Ejection. If time and conditions permit:

Cockpit canopy - ENSURE EJECTION PATH CLEAR OF OBSTRUCTIONS
Follow radio distress procedures
Stow loose equipment
Cabin atmosphere - DUMP
Throttles - IDLE

4.9.3 Ejection Preparations.

EJECTION INJURIES AND BODY POSITIONING
THESE PROPER BODY POSITIONS MUST BE TAKEN TO PREVENT INJURIES

1. Press head firmly against the headrest
2. Elevate shin slightly (10°)
3. Press shoulders back firmly against seat
4. Hold elbows and arms firmly towards sides
5. Press buttocks firmly against the seat back
6. Place thighs firmly against seat
7. Press outside of thighs against sides of seat
8. Place heels firmly on deck, toes on rudder pedals.

EJECTION INITIATION

Two Handed Method -
Grip ejection control handle with the thumb and at least two fingers on each hand, palms facing towards body. Keep elbows close to body.

Single Hand Method -
Grip the ejection handle with the master hand, palm towards body. Grip the wrist of the master hand with the other hand, palm towards body. Keep elbows close to body.

Both Methods -
Pull the handle sharply up and towards the abdomen, keeping elbows in. Ensure handle is pulled to the end of travel. Continue to hold handle until seat/pilot separation.

4.10 DITCHING

Duties Before Impact

Make radio distress call
External stores - **JETTISON**
Assume position for ditching - **FEET ON PEDALS, KNEES FLEXED**
Throttles - **OFF BEFORE IMPACT**

Duties After Impact

Abandon spacecraft as soon as possible
Deploy survival kit
If ditching into water - **INFLATE LIFE RAFT**

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