



# Hunter F.6/FGA.9



# **Hunter F.6 & FGA.9**

## **Operations Manual**

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Please note that Flight Simulator X Steam Edition must be installed correctly on your PC prior to the installation and use of this Hunter F.6 & FGA.9 simulation.

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# INTRODUCTION

In 1946 Sydney Camm, Hawker's chief designer and father of the Hurricane, prepared a design to meet Specification F.43/46 which had been issued by the Air Ministry for a daytime jet-powered interceptor.

Camm's design included a swept wing and the all-new Rolls-Royce Avon turbojet. The Avon's major advantages over the Rolls-Royce Nene, used in the earlier Sea Hawk, were a much smaller engine diameter and also greater thrust. One single Avon could develop roughly the same power as the two Rolls-Royce Derwents of the Gloster Meteors that the Hunter would eventually replace. In March 1948 the Air Ministry updated the specifications, demanding a speed of 629 mph (1,010 km/h) at 45,000 ft (13,700 m) and a high rate of climb while carrying four 20 mm (0.79 in) or two 30 mm (1.18 in) cannon.



The prototype first flew from RAF Boscombe Down on 20 July 1951, powered by a 6,500 lbf Avon 103 engine. The second prototype, which was fitted with production avionics, armament and a 7,550 lbf 107 engine, first flew on 5 May 1952. Because of Avon developmental problems, Hawker, in a surprisingly 'modern' move, modified the design to accommodate another axial turbojet – the Armstrong Siddeley Sapphire 101. A third prototype fitted with this engine flew on 30 November 1952.

The Hunter entered production with the Hunter F.1 flying on 16 March 1953. Suitably modified, the first prototype, flown by wartime ace Neville Duke, broke the world air speed record for jet-powered aircraft, achieving 727.63 mph (1,171.01 km/h) at Littlehampton. A Supermarine Swift was to take the record just three weeks later.

This remarkable aeroplane continued to break records and entered service with the RAF as its front-line interceptor. Hawker's first jet for the RAF, the Hunter delivered exceptional performance, and features such as removable gun packs and modular servicing routines made it an excellent performer in the field.

Pilots quickly grew to like the Hunter as it was light, nimble and very powerful. Not without its vices, however, the new Hawker jet required diligence and concentration, but once mastered was a joy to fly – a major quality in an essential air fighter.

What is often referred to as the 'definitive' Hunter, the FGA.9, was to acquit itself with distinction in its ground attack role during the Suez Crisis and in Aden.

Many of the world's air forces adopted the Hunter in several variants and the design flew on as a front-line fighter and ground attack machine for many years. Nearly 2,000 Hunters were produced, almost half of them ordered by overseas operators.

The Hunter had an illustrious career with the RAF that lasted 30 years. Many examples even exceeded that with overseas operators like Singapore and Switzerland, who took delivery of 'good as new' refurbished airframes, engine packages and service items and flew them for decades.

Several Hunters currently perform on the international air show circuit so it is still possible to see this great aeroplane around the world today!

## Included aircraft

### Hawker Hunter F.6

- XG232 – No. 92 Squadron, Royal Air Force
- XG190 – No. 111 Squadron, Royal Air Force 'Black Arrows' aerobatic team
- XF520 – No. 92 Squadron, Royal Air Force 'Blue Diamonds' aerobatic team
- XG204 – Royal Air Force Fighter Weapons School
- XF509 – No. 4 Flying Training School, Royal Air Force

### Hawker Hunter FGA.9

- XE620 – No. 208 Squadron, Royal Air Force
- XF414 – No. 20 Squadron, Royal Air Force

## Aircraft specifications

Length	45 ft 11 in (14.00 m)
Wingspan	33 ft 8 in (10.26 m)
Height	13 ft 2 in (4.01 m)
Wing area	349 ft <sup>2</sup> (32.42 m <sup>2</sup> )
Empty weight	14,122 lb (6,405 kg)
Typical loaded weight	17,750 lb (8,050 kg)
Maximum T/O weight	24,600 lb (11,158 kg)
Power plant	1 × Rolls-Royce Avon 207 turbojet, 10,145 lbf (45.13 kN)

## Performance

Maximum speed	Mach 0.94, 620 kts (715 mph, 1,150 km/h) at sea level
Combat range	385 NM (445 mi, 715 km)
Ferry range	1,650 NM (1,900 mi, 3,060 km) with external fuel
Service ceiling	50,000 ft (15,240 m)
Rate of climb	17,200 ft/min (87.4 m/s)

## Armament

Guns            4× 30 mm (1.18 in) ADEN revolver cannon in a removable gun pack

Hardpoints    4 underwing hardpoints to carry combinations of:

- Rockets:
  - 4× Matra rocket pods, each with 18 × SNEB 68 mm (2.68 in) rockets (FGA.9 only)
  - 4× Hispano racks, each with 3 x SURA R80 80 mm (3.15 in) rockets (F.6 only)
- Bombs: Unguided iron bombs (FGA.9 only)
- Other: 2× 230 US gallons (870 l; 190 imperial gallon) drop tanks for extended range

## INSTALLATION, UPDATES AND SUPPORT

### INSTALLATION

1. Installation is handled by Steam after purchase of the product. After purchasing the product the files will be downloaded and installation into the Scenery Library will be automatic.

### Accessing the aircraft

**To access the aircraft in FSX:**

1. Click on 'Free Flight'.
2. Select 'Just Flight' from the 'Publisher' drop-down menu.
3. Select 'Hawker' from the 'Manufacturer' drop-down and choose one of the Hunter variants.

### Updates

Updates to the product will automatically be deployed, downloaded and installed via Steam to all users who own the product.





## **Technical Support**

To obtain technical support (in English) please visit the Support pages at [justflight.com](http://justflight.com). As a Just Flight customer you can obtain free technical support for any Just Flight or Just Trains product.

For support specifically on the Steam version of the add-on please contact Dovetail Games. <https://dovetailgames.kayako.com/>

## **Regular News**

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# WALK-AROUND

The Hawker Hunter is one of those designs that is simply 'right' from any angle. The slim circular-section fuselage houses the axial compressor Avon engine which is fed air through large intakes in each wing root. You can see the fan blades of the engine compressor through these intakes, nestling behind an aerodynamically shaped fairing. The intakes themselves are sculpted to provide the smoothest and largest volume of airflow possible.



The nose carries the forward landing gear, a camera port (gun camera) and, hidden inside the cone, radar ranging for the gyroscopic gunsight.

Below the nose are the four gun troughs housing the 30mm Aden cannon. The Hunter's firepower, especially on the FGA.9, was certainly a force to be reckoned with.



Large streamlined pods for collecting expended shell cases are mounted beneath the gun pack. These were nicknamed 'Sabrinas', after the curvaceous English glamour model of the time, and were designed to prevent spent shell casings from being sucked into the intakes. Atop the fuselage is the bubble canopy which afforded excellent all-round visibility. The cockpit is quite cramped and is a snug fit for the pilot.

The wing of the F.6 and subsequent variants was modified with a saw-tooth joint in the mid and outer sections. This improved high speed stability in the raked-back wing. Flaps are of the conventional split variety with multiple selected positions and the ailerons are conventional in design. The wings carry four hard-point pylons on the underside to carry a variety of payloads made up of droppable extended-range fuel tanks, 3.15" rockets (F.6 only), Matra SNEB rocket packs carrying 18x68mm rockets each (FGA.9 only) and conventional iron bombs (FGA.9 only).



The thicker inner section of the wings carries the main landing gear. The Hunter needed to have narrow main gear wheels to fit inside the gear wells and the inner landing gear doors open first to allow the gear to extend. The larger outer doors are attached to the gear oleo legs.





Various intake scoops and grilles adorn the fuselage and perhaps the most noticeable feature of a Hunter lies beneath the rear fuselage, aft of the wing roots. This is the enormous ram-powered ventral speedbrake which, when deployed, can slow the Hunter very quickly. In a combat situation this rapid reduction in speed can force your opponent to overshoot and end up in your gunsight. The speedbrake must never be used with the gear down or on the ground. In fact the real aircraft has a special system to lock the speedbrake up whenever the gear is extended.

The tailplane is fully powered and can be adjusted for pitch to act as a tail-trimmer. This technology, while found on most modern jet aircraft and airliners today, was advanced when the Hunter was first operational in the 1950s. Swept back like the wings and mounted above the wing-disturbed airflow, the tailplane, together with the elevators, provides a substantial amount of pitch control.



Lighting is minimal on the Hunter and you will find no evidence of a landing light (Hunters didn't feature them) or beacon lights, strobes and so on. There are just the basic navigation lights in the wings and a tail light mounted at the rear of the fin.

The tailpipe on the FGA.9 has an additional pod mounted on it. This is the braking parachute housing from which two doors fly open when the parachute is deployed, streaming the parachute lines and canopy behind the aircraft to aid with braking in the landing roll. The parachute is modelled in this simulation.



It's time to use the ladder and climb aboard!

# CANOPY AND GROUND EQUIPMENT

## Canopy

A canopy control switch, located forward of the throttle lever and labelled CANOPY MOTOR CONTROL, provides control of the canopy position. Right-click and hold the switch to open the canopy, and left-click and hold it to close the canopy.

Press **[Shift]+[E]** to open/close the canopy.





## Battery cart

To toggle the battery cart, switch on the GROUND POWER switch on the centre console.



## Ground equipment

To toggle pre-flight flags, chocks and a boarding ladder, use the SECURE AIRCRAFT switch, which is located on the left console.



## PANEL GUIDE

The Hunter F.6 & FGA.9 are simple aircraft and not at all sophisticated by today's standards in their equipment specification and layout. The layout is quite conventional, which makes for a pleasant flight experience, and the type is generally easy and enjoyable to fly.

The cockpit can be divided into five areas:

- Main panel
- Centre console
- Left console
- Right console
- Control stick

The following pages will guide you through these areas.

## Moving around the cockpit

To move around the cockpit, you can use the hat switch on your joystick, hold down the [Space] bar on your keyboard while moving your mouse around, and also use your keyboard keys.

## Virtual Cockpit views

Press the [A] key to cycle through the various preset views and the [+] and [-] keys to zoom in and out. Pressing the [Backspace] key will reset the zoom level to the default setting.



You can also alter your viewpoint using these keys:

[Ctrl]+[Shift]+[Backspace]	Left
[Ctrl]+[Shift]+[Enter] (Return key)	Right
[Ctrl]+[Backspace]	Forward
[Ctrl]+[Enter] (Return key)	Back
[Shift]+[Backspace]	Down
[Shift]+[Enter] (Return key)	Up

For a clearer view of the centre console, the stick can be removed/replaced by clicking on the ejection pull rope in the ejection seat cushion.



## Main panel



1. Accelerometer (G meter)
2. Low fuel warning lights
3. Gunsight retraction switch and reticle warning light (built into sight switch)
4. Reticle ON/OFF switch
5. Standby E2 compass
6. Fire extinguisher button and warning light
7. Exhaust gas temperature indicator
8. Vertical speed indicator (VSI)
9. Artificial horizon indicator (AHI)
10. Airspeed indicator (knots)
11. Tailplane trim indicator
12. Mach meter
13. Elevator/aileron power switches and indicators
14. Brake parachute control (FGA.9 only)
15. Flap control and position indicator
16. Altimeter
17. Direction indicator
18. Turn/slip indicator
19. Tachometer (engine RPM)
20. VOR/ADF indicator
21. ILS indicator
22. Cockpit altitude (pressurisation) indicator
23. Low cockpit pressure warning light
24. Camera aperture switch (non-functional)
25. Landing gear push-buttons
26. Landing gear position indicator
27. Emergency landing gear control (one use only)



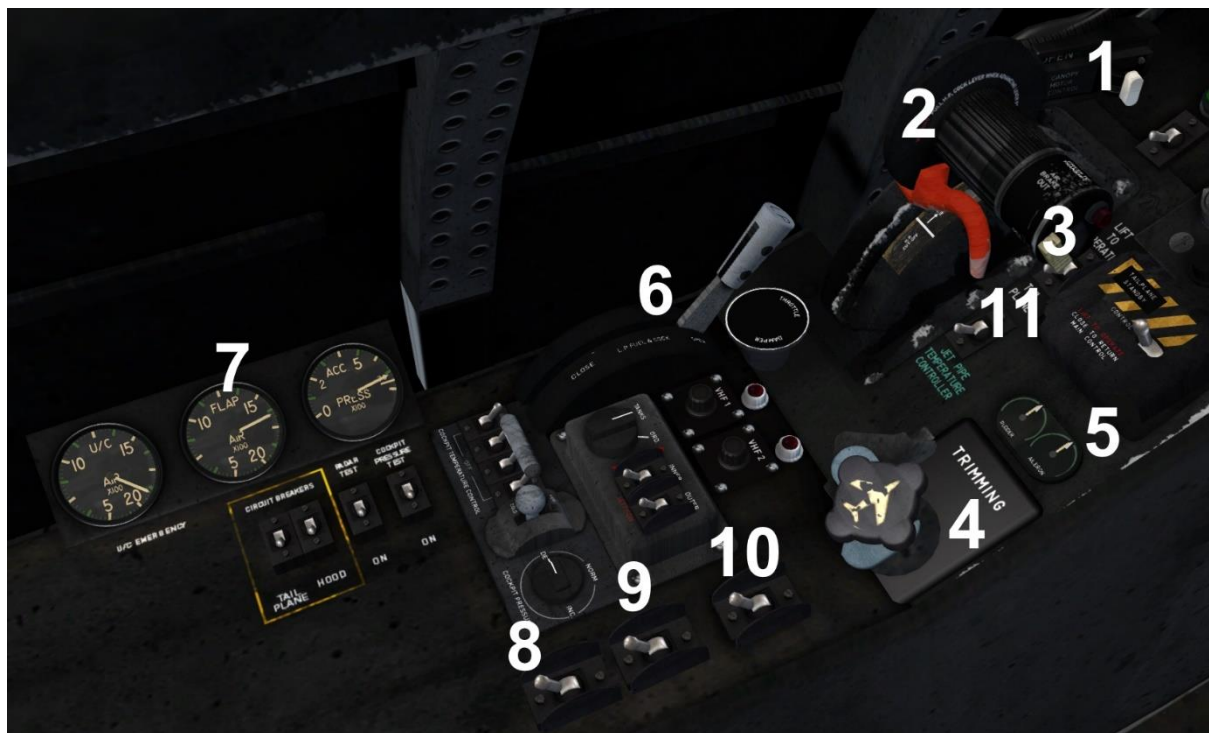
- 28. Triple brake gauge
- 29. Gear unsafe warning light
- 30. Airbrake position indicator

## Centre console



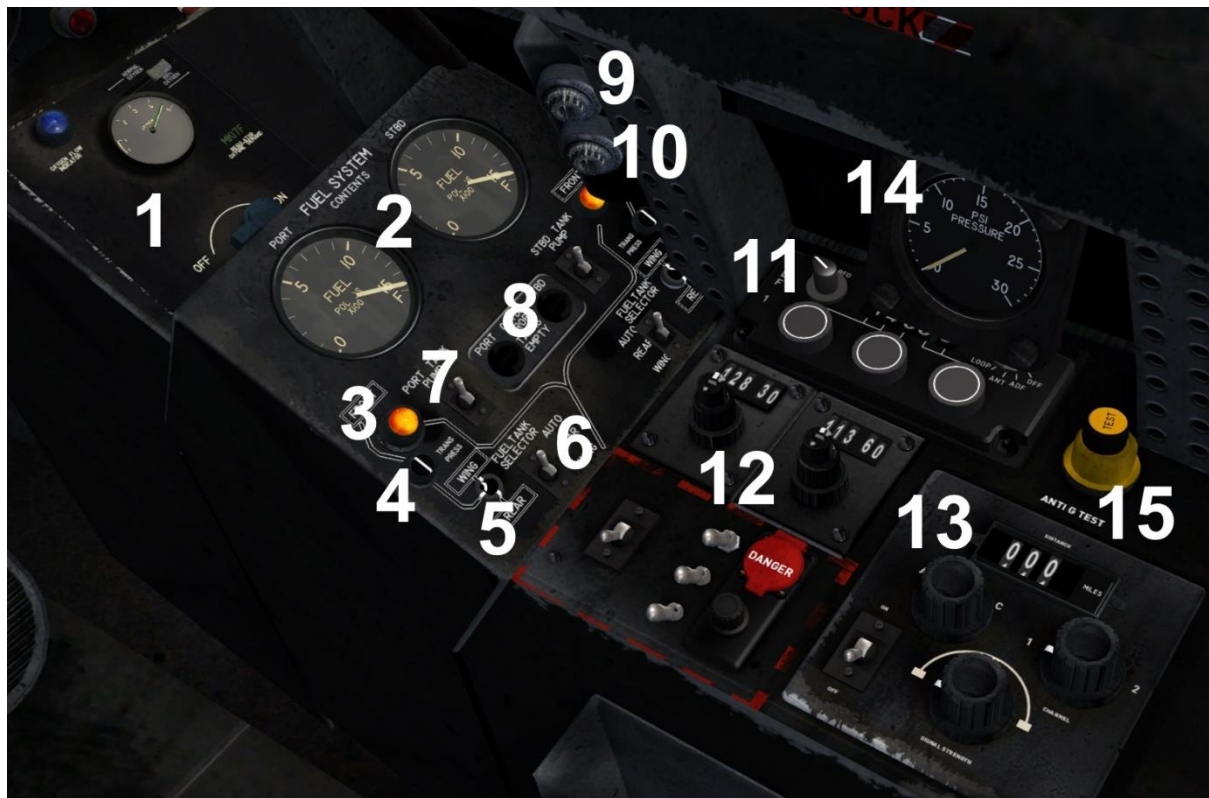
1. Oil pressure gauge
2. Ignition switch
3. Generator warning lights (fail and overheat)
4. Starter button (guarded)
5. Ground power switch
6. Battery master switch
7. Pitot heat switch
8. Master start switch – enables the starter button

## Left console



1. Canopy drive motor switch
2. Throttle/H.P. fuel cock control
3. Airbrake control
4. Trimming control
5. Trim position indicators
6. L.P. fuel cock lever
7. Accumulator pressures (flaps, brakes and landing gear)
8. Secure aircraft switch – toggles ground equipment
9. Show/hide pilot switch – toggles visibility of pilot on exterior model
10. Engine relight switch
11. Tailplane switch

## Right console



1. Oxygen panel
2. Fuel contents gauges
3. Fuel tank pump light
4. Transfer pressure indicator
5. Wing/rear fuel tank indicator
6. Fuel tank selector switch
7. Fuel tank pump switch
8. Outboard drop tank empty indicator
9. Panel light switch
10. UV lighting switch
11. ADF radio
12. NAV/COM radio
13. DME read-out
14. Anti-G pressure gauge
15. Anti-G test control



## Control stick



1. Elevator trim control
2. Parking brake lever

# SYSTEMS GUIDE

## Engine start

The H.P. cock on the Hunter is integrated into the throttle lever. It can be closed by moving the throttle lever to the H.P. CUT-OFF position, achieved by moving the throttle lever to the idle position, right-clicking on it and then dragging it back to the H.P. CUT-OFF position. Drag the throttle lever forward again to move it to the idle position, which will open the H.P. cock.

You begin the engine start process with the lever in the cut-off position as per the real procedure. Apply the parking brake using the curved lever mounted on the leading edge of the control stick.

1. Switch ON the battery.
2. Move the L.P. cock lever fully forward.
3. Pull the throttle fully back to cut-off.
4. Check the fuel gauges for sufficient tank contents.
5. Switch the three-way tank selector to the AUTO (forward) position.
6. Switch ON the fuel pumps – confirm the fail light extinguishes.
7. Switch ON the master start.
8. Push the throttle lever one inch forward of the IDLE position.
9. Flip the starter cover and press the starter button.

The engine will spool up and settle to idle.

## Flying controls

The Hunter's elevator and ailerons are powered, i.e. the hydraulic jacks that operate the surfaces are provided with hydraulic pressure via electrical pumps and switches.

Manual operation of the controls can be selected deliberately by switches in the cockpit labelled ELEVATOR POWER SUPPLY and AILERON POWER SUPPLY, provided that electrical power is available, or this will happen automatically if hydraulic pressure falls below 200 PSI.

When power is selected ON, the controls are in powered mode and the associated magnetic indicator shows black. If hydraulic failure occurs or power is selected OFF, the indicators show white, indicating that the controls are in manual mode.



## Trim controls

The Hunter is equipped with an all-moving tailplane. In other words, the entire unit together with the elevators is rotated up and down to achieve tail trim. The tailplane control is mounted on the pistol grip of the stick and is a serrated sliding switch.

Rudder and aileron trim is applied using the multi-function trimming control on the left console. Middle-click the control to toggle between the rudder and aileron trim functions and then rotate the control with left and right clicks to apply trim. The trim indicators will display the trim changes as they are applied to the relevant surface.



An electrical interconnection enables the variable-incidence tailplane to follow elevator movements automatically, giving greater manoeuvrability. The TAIL PLANE switch, right of the throttle, is used to switch on the interconnection. It functions irrespective of whether the elevator is in powered or manual mode.



# Airbrake

Beneath the aft fuselage of the Hunter is a large retractable airbrake. This is operated with a small serrated sliding switch on the end of the throttle lever.

You cannot use the airbrake on the ground or whenever the gear is extended. The airbrake will automatically retract if the gear is extended.





# Flaps

The flaps are selected electrically and operated hydraulically. Selection is by means of a lever on the port side of the instrument panel, which provides UP, DOWN (80°) and six intermediate positions (15°, 23°, 30°, 38°, 45° and 60°).

The flaps may be selected to any of the above positions but the extent to which they will lower depends upon air loads. If speed is increased with the flaps extended, the angle will be adjusted to suit the air loads.

A flap position indicator is fitted adjacent to the selector switch.



# Fuel

Fuel is carried in six internal tanks, one in each wing (140 gallons) and two front (200 gallons) and two rear (52 gallons) tanks in the centre fuselage. Provision is made for carrying either two or four tanks on under-wing pylons. The outboard tanks have a 100-gallon capacity and the inboard tanks have a 230-gallon capacity.

Fuel is fed to the engine by a booster pump in each front tank, through the L.P. and H.P. cocks. Fuel is transferred from the wing and rear tanks to the front tanks on the same side by air pressure from the engine compressor. When drop tanks are carried, fuel transfer is from the outer drop tank to the inner drop tank and then to the wing.

Each booster pump is controlled by an ON/OFF switch. Adjacent to the switches are two warning lights, one for each pump, which illuminate if the associated booster pump is switched off.

Two electrical fuel contents gauges indicate the total fuel in the PORT and STBD tanks (front, wing and rear). The contents of the 230- and 100-gallon drop tanks are not gauged. The fuel gauges read the weight of fuel in pounds. When all gauged tanks are full (front, wing and rear) each gauge should read 1,500lb.

Control of the transfer system is by two tank selector switches, one for each side of the system. Each switch has three positions: AUTO, REAR and WING. When the switches are set to AUTO, the air pressure forces fuel from the rear tanks to the front tanks. When each rear tank is empty, a float switch in the tank operates to alter the setting of the transfer cock, shutting off the rear tank and allowing the drop tanks to feed to the wing tanks and the wing tanks to feed to the front tanks. At the same time, the WING/REAR tank indicator operates to show that this is happening. When change-over from either wing or rear tanks is taking place, the indicator shows yellow and the contents gauges read the front tank contents only. Setting either control switch to WING or REAR causes transfer to take place from the respective tank.

Although all internal tanks are gauged, and the contents reading should fall when fuel from these tanks is being used, when transfer from the (ungauged) drop tanks is taking place the fuel contents gauges should show a constant reading. The TRANS PRESS indicators will indicate a failure in fuel transfer by showing a cross-line, and the contents gauges will only indicate the contents of the front tanks, i.e. the amount of fuel available to the engine.

Two magnetic indicators, one for each outboard tank, are situated aft of the contents gauges. Each shows white when all fuel has transferred from its associated outboard drop tank. Two low fuel warning lights, one for each internal tank, are mounted above the left glareshield.





# Lighting

The Hunter has very basic external lighting which is limited to red, green and white navigation lights. There are no landing or taxi lights. Many novice Hunter pilots dreaded their initial night ops because of the lack of exterior lighting!

Internally, conventional panel lighting and green UV lighting are provided by the rotary switches mounted on the right cockpit wall.



## Gunsight

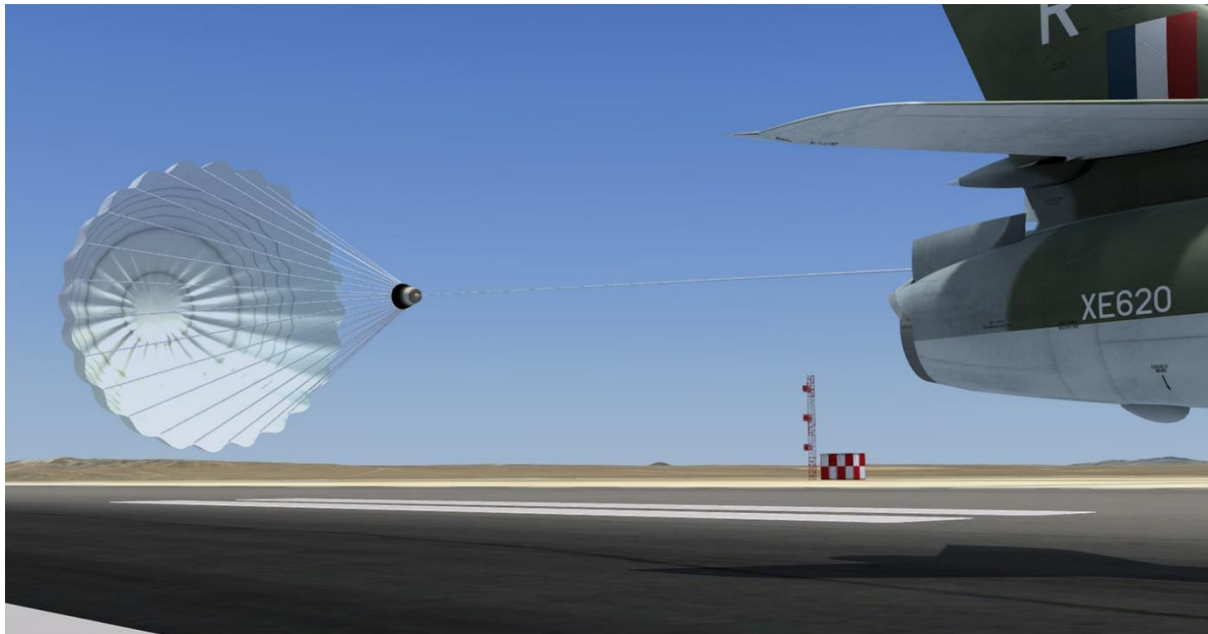
The gunsight is collimated and retractable, using the switch provided. The reticle can be toggled on/off with the switch mounted immediately above the retract switch.



## Brake parachute

The FGA.9 variant has a parachute which aids with braking for short-field operations.

The control switch for the parachute is on the left side coaming and is shaped like a miniature parachute. When you use the switch, doors will open in the tail pod of the FGA.9 and a parachute will appear, streaming back from the tail. Don't forget to turn off the control before taxiing to your parking spot!



## Load-out selector



A 2D pop-up panel is provided for selecting the available load-outs (payloads):

- Clean – no payload
- Tanks – extended-range fuel tanks
- Bombs (FGA.9 only) – conventional iron bombs
- Rockets – 3.15" rockets (F.6) or SNEB rocket packs (FGA.9)

Any weight or fuel changes made by your payload selections will be automatically applied to the aircraft.

The panel also features a COLD START switch which, when moved to the ON position, configures the aircraft in a 'cold & dark' state. This switch can only be used once per flight.

# FLYING THE HUNTER F.6 & FGA.9

## Getting started

The Hunter is not a difficult aircraft to master, but adhering to checks and routines will allow you to get the best from this high performer.

We will now take you through a typical first flight so that you can get acquainted with the systems, controls and flying characteristics of the Hunter.

We will assume that you are used to starting your flights from a 'cold & dark' cockpit. This can be achieved by using the COLD START switch on the load-out selector 2D panel.

To begin, you will need the battery cart attached with the umbilical connected to the receptacle port in the nose. Move the GROUND POWER switch to the **ON** position and then check outside to make sure that the battery cart is visible and attached to the aircraft.

Switch **ON** the battery using the switch on the centre console.

On the left console, push the L.P. cock lever forward to the **OPEN** position. This will open the fuel valve stopcocks and start delivering low pressure fuel to the pumps. Switch **ON** the fuel pumps.

Ensure the throttle is closed and in the **HP CUT-OFF** position.

Check that you have sufficient fuel for your flight and place the tank selectors in the **AUTO** (up) position.

Turn **ON** the master start switch and push the throttle one inch forward of the IDLE position. Flip up the starter safety cover and press the starter button. You will hear the engine begin to spool up.

The engine will ignite and the RPM will increase, as indicated on the tachometer.

Ensure your elevator and ailerons are powered up by moving their power switches to the **ON** (up) position. Confirm that the doll's eye indicators are black and check your external view for control movements.

## Take-off

Tune your radios and obtain taxi clearance. Switch **ON** the pressure head (pitot heat) switch. Open the throttle gently, release the parking brake and begin your taxi out to the runway. Remember that this is a very powerful jet aircraft. You will not need much throttle to get moving and maintain taxi speed.

When you reach the runway, hold your position, throttle back to IDLE and apply the parking brake. After obtaining clearance to take off, hold the aircraft on the brakes and ease the throttle forward to full power.

Normal take-off speeds are:

- V rotate – 125 knots
- V lift off – 145 knots

You must retract the gear before 250 knots is reached. A steep climb out after take-off or throttling back will help to avoid overspeeding the gear. A typical climb speed is around 350-450 knots indicated at 16,000 ft per minute.

## Cruise

Once you have reached your chosen cruise altitude, level off and adjust power to stay within the airspeed limit of 620 knots (sea level). Maximum cruise speed for economy is 485 knots.

**Note:** *The Hunter will achieve sonic speed in shallow dives at full throttle. Dives of 40 degrees or less are recommended to avoid stressing the airframe with unusual G loads.*

Transonic flying, between Mach 0.8 and 1.0, can be practised but must take place above 25,000 ft to provide sufficient recovery time. As speed increases, elevator control will lessen, making dive recovery difficult. Apply the speedbrake and close the throttle to IDLE to regain elevator control.

Stall speeds are:

- Undercarriage and flap up – 130 knots
- Undercarriage down and flap up – 130 knots
- Undercarriage down and full flap – 120 knots

At higher speeds a stall-spin can develop. A conventional recovery technique should result in a safe recovery but it is recommended that any intentional spin should be carried out at above 15,000 ft to allow sufficient recovery time.

When flying at high indicated airspeeds, any control inputs should be smooth and progressive to avoid over-controlling, particularly when flying in turbulent air. Tailplane trim changes should be gradual.

The maximum rate of roll increases with indicated airspeed up to 420 knots. At higher speeds, however, the rate of roll decreases progressively due to jack stalling. Normally the maximum rate of roll is not required unless you are performing aerobatic routines.

## Aerobatics

The following entry speeds are recommended for aerobatic manoeuvres:

- Roll – 350 knots
- Loop – 425 knots
- Roll off the top – 450 knots
- Vertical roll – 500 knots

Until you have gained some experience with the Hunter, it is recommended that loops are started above 10,000 ft and with a gentle stick input.

Intentional spinning should be avoided but conventional forward stick movement should provide recovery, with the controls centred once the spin is neutralised to avoid opposite spin occurring.

## Approach and landing

Enter the circuit at **180 knots** with the throttle set to achieve **6,500 RPM** and **35 degrees** of flap deployed once the airbrake has reduced speeds to acceptable limits for flap.

Below **250 knots**, lower the undercarriage and check for three greens.

Turn cross-wind at **160 knots** and lower **full flap**.

Maintain **4,500 RPM** until you are committed to landing.

Your speed over the threshold should be **130 knots** and falling slowly.

Aim to touch down at around **130 knots**, allowing the aircraft to settle on the main gears first.

Lower the nose gear and apply braking to minimise the landing roll distance. Maxaret units are fitted to the Hunter to prevent the wheels from locking. In the FGA.9, deploy the braking parachute to aid with braking.

The Hunter is an excellent side-slip performer so it is easy to handle in crosswind conditions. Maintain a level attitude and get the three gears on the ground quickly to avoid a wing lifting and a ground loop.



Please refer to the Kneeboard Checklist for more information on the procedures for each stage of flight.



## PROCEDURES

### Cockpit checks

Battery master switch	ON
L.P. cock	ON
Throttle lever	H.P. CUT OFF
Aileron and rudder trim	Neutral
Undercarriage emergency	UP (one use only)
Undercarriage warning light	Out
Undercarriage position	Three green lights
Flaps selector lever	Up
Elevator and aileron power selector switches	Off. Magnetic indicators white.

Fuel level warning lights	Both out
Flight and engine instruments	Check
Fire warning light	Out
Altimeter	Check and set
Fuel low pressure warning light	On
Oxygen	Check system for operation
Cockpit lighting switches	As required
Fuel gauges	Check contents
Booster pump switches	OFF
Booster pump warning lights	On
Tank selector switches	AUTO
Navigation lights switch	As required
Anti-G control	Switch ON. Pressure 1,800-2,000 lb/sq. in. Depress button to test.
Generator failure warning lights	Both ON
Camera, pitot heater and starter master switches	All OFF
Flying controls	Full and free movement
Parking brake	ON. Check pressure.

## Engine start

Starter master switch	ON
Throttle lever	1 inch forward of IDLE
Starter switch	PUSH

When the starter fires, the engine speed should build up rapidly to 1,600 RPM. As the engine ignites, the RPM will increase to idling (2,500 ± 200).

**Note:** The exhaust gas temperature may momentarily exceed the idling limit.

## After start

Fire warning light	Out
RPM	2,500 min. $\pm$ 200
J.P.T.	Max. 500-525°C.
Oil pressure	10 lb/sq. in. (min.)
Generator warning lights	Out
VHF radio	Frequency selected
Rudder and aileron trim	Check and set neutral
Hydraulic pressure	2,850 $\pm$ 150 lb/sq. in.
Elevator and aileron power	ON in turn and check the indicators are black
Flaps	Check operation
Instruments	Correct functioning
Fuel	Contents check
Booster pump switches	ON

## Before take-off

Trim	Tailplane neutral
Rudder and aileron trim	Neutral, lock on
Fuel	Contents check
Booster pump switches	ON
Flap	38°
Instruments	Check and set

Oxygen	As required
Canopy	SHUT and LOCKED
Flying controls	At 4,500 RPM apply full aileron and elevator and ensure that the magnetic indicators remain black. Warning light out.

## Take-off

Align the aircraft with the runway centreline and roll forward a few yards to straighten the nose-wheel. Apply the brakes and open the throttle smoothly. Once the engine has spooled up, release the brakes and keep the aircraft tracking down the centreline using the rudder.

Using 38° flap, the nose-wheel can be eased off at 125 knots and the aircraft flown off the runway at 145-150 knots. When safely airborne, immediately raise the undercarriage and then the flaps one notch at a time, retrimming after each selection. Delay in raising the flaps will result in an increasing nose-down change of trim as speed increases.

There is no noticeable change of trim as the undercarriage retracts but the nose-wheel locks up with a distinct thud. It may be necessary to climb quite steeply initially as retraction must be complete before 250 knots is reached.

## Descent and approach

Airbrake	IN, indicator black
Undercarriage	Down below 250 knots Three green lights
Flaps	As required
Fuel	Contents check
Booster pumps	ON

## Landing

Flaps	Fully down on finals
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## Taxi in

Flaps	Up
Camera master switch	OFF
Booster pumps	Both OFF
Tailplane	Set to neutral
DME	OFF
VHF radio	OFF

## Shutdown

Throttle lever	H.P. CUT-OFF
Flying control switches	Both OFF. Magnetic indicators remain white.
All electrics	OFF
Battery master switch	OFF
L.P. cock	OFF when engine stops rotating

# CREDITS

## Hawker Hunter F.6 and FGA.9

Models and code  
Flight dynamics  
Textures  
Sounds

Aeroplane Heaven  
Paul Frimston  
Aeroplane Heaven  
Benoit Plamondon

## Just Flight

Project management  
Manual  
Installer  
Design  
Technical support

Alex Ford  
Barry Bromley, Martyn Northall  
Martin Wright  
Fink Creative  
Martin Wright

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