Eurofighter

Pilot's Notes

Please note that Microsoft Flight Simulator X: Steam Edition must be installed correctly on your PC prior to the download and use of this Eurofighter simulation.

CONTENTS

INTRODUCTION

The Eurofighter Typhoon multi-role combat aircraft first entered service in 2004 and over 350 aircraft have since been delivered. The Eurofighter is the result of Europe's largest military collaborative programme and seven nations are now Eurofighter customers: United Kingdom, Germany, Italy, Spain, Austria, Kingdom of Saudi Arabia, and Sultanate of Oman. At the start of 2013 the Eurofighter fleet had accumulated more than 160,000 flying hours around the world.

The Just Flight Eurofighter captures perfectly the power and multi-role nature of this advanced combat aircraft.

This FSX:SE expansion includes the single-seat Eurofighter Typhoon. The highly accurate model features the signature delta wing with reverse camber roots, flaperons and foreplanes. Six accurate ordnance load-outs give you the opportunity to experience this swing-role aircraft in its various weapon configurations.

The aircraft features numerous animations including wheel chocks, pre-flight flags, engine covers and a ground power unit. Even the seeker heads on the Paveway missile and Maverick bomb are animated!

The fully functional virtual cockpit features accurate multi-function displays with a variety of pages for monitoring the aircraft systems, and the collimated and conformal HUD with real-world symbology will provide you with excellent situational awareness.

Eurofighter development milestones

August 1985 – The UK, Germany, Italy and Spain begin work on the development of the Eurofighter.

March 1994 – The maiden flight of the Eurofighter prototype takes place in Bavaria, Germany.

July 2002 – The Austrian government announces its decision to buy the Typhoon as its new air defence aircraft, choosing it instead of the General Dynamics F-16 and the Saab JAS 39 Gripen.

August 2003 – Germany accepts the first series production Eurofighter. Spain also takes delivery of its first series production aircraft in 2003.

December 2005 – The Typhoon reaches IOC (Initial Operational Capability) with the Italian Air Force.

October 2008 – The first Typhoon in Royal Saudi Air Force colours flies for the first time at BAE Systems' Warton Aerodrome, marking the start of the test flight programme for RSAF aircraft.

March 2011 – RAF Typhoons fly their first ever combat mission on 21 March while patrolling the no-fly zone in Libya.

Eurofighter specifications

General characteristics

Length:	15.96 m (52.4 ft)
Wingspan:	10.95 m (35.9 ft)
Height:	5.28 m (17.3 ft)
Wing area:	51.2 m^2 (551 sq. ft)
Empty weight:	11,150 kg (24,600 lb)
Loaded weight:	16,000 kg (35,000 lb)
Max. Take-off weight:	23,500 kg (52,000 lb)
Powerplant:	2 × Eurojet EJ200 afterburning turbofans
Dry thrust:	60 kN (13,000 lb/ft) each
Thrust with afterburner:	89 kN (20,000 lb/ft) each
Fuel capacity:	4,500 kg (9,900 lb) internal

Performance

Maximum speed:	
At altitude:	Mach 2 (2,475 km/h / 1,538 mph)
At sea level:	Mach 1.2 (1,470 km/h / 910 mph)
Range:	2,900 km (1,800 miles)
Combat radius:	
Ground attack, lo-lo-lo:	601 km (325 nmi)
Ground attack, hi-lo-hi:	1,389 km (750 nmi)
Air defence with 3-hr combat air patrol:	185 km (100 nmi)
Air defence with 10-min. loiter:	1,389 km (750 nmi)
Ferry range:	3,790 km (2,350 miles)
Service ceiling:	16,765 m (55,003 ft)
Absolute ceiling:	19,812 m (65,000 ft)
Rate of climb:	>315 m/s (62,000 ft/min)
Wing loading:	312 kg/m^2 (64.0 lb/ft^2, 262 kg/m^2 with 50% fuel)
Thrust/weight:	1.15
g-limits:	+9/–3 g
Crew:	1 (operational aircraft) or 2 (training aircraft)

Armament

Guns:	1 × 27 mm Mauser BK-27 revolver cannon with 150 rounds
Hardpoints:	Total of 13: 8 under-wing and 5 under-fuselage pylon stations holding up to 7,500 kg (16,500 lb) of payload
Missiles:	
Air-to-air:	AIM-9 Sidewinder (included in this simulation)
	AIM-132 ASRAAM
	AIM-120 AMRAAM
	IRIS-T
	MBDA Meteor (included in this simulation)
Air-to-surface:	AGM-65 Maverick (included in this simulation)
	AGM-88 HARM
	Storm Shadow (AKA Scalp EG) (included in this simulation)
	Brimstone
	Taurus KEPD 350
Bombs:	6 × 500 lb Paveway IV
	Paveway II/III/Enhanced Paveway series of laser-guided bombs (LGBs). (Paveway III included in this simulation)
Other:	Flares/infrared decoys dispenser pod
	Chaff pods
	Electronic countermeasures (ECM) pods
	LITENING III laser targeting pod
	Up to three drop tanks for ferry flight or extended range/loitering time
	Multi-rocket pod (included in this simulation)

Avionics

Euroradar CAPTOR Radar

Passive Infra-Red Airborne Tracking Equipment (PIRATE)

AIRCRAFT IN THIS SIMULATION

At the request of Dovetail Games, airforce insignia and markings have been removed from the aircraft paint schemes for the Steam Edition of Eurofighter for licensing reasons.

ZJ936

ZJ931

ZJ810

30-48

30-11

345

MM7299

36-01

7L-WD

Black

Factory grey/white prototype scheme

Middle East Airforce

11-28

Accessing the aircraft

To access the Eurofighter variants in FSX:SE:

1. Click on ‘Free Flight’
2. Select ‘Just Flight’ from the ‘Publisher’ drop-down menu
3. Select ‘Eurofighter’ from the Manufacturer drop-down and choose one of the Eurofighter variants

Tick the ‘Show all variations’ box to see all the available liveries.

Technical Support

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

FLIGHT DYNAMICS

The Eurofighter Typhoon has a foreplane and delta configuration which is, by nature, aerodynamically unstable.

The instability of the aircraft is derived from the position of a theoretical "pressure point" on the longitudinal axis of the aircraft. This is calculated from the contribution to lift from each of the aircraft components (the wings, the canards, fuselage etc). If the pressure point is in front of the centre of gravity on the longitudinal axis, the aircraft is aerodynamically unstable and it is impossible for a human to control it.

With the Eurofighter Typhoon, in subsonic flight the pressure point lies in front of the centre of gravity, therefore making the aircraft aerodynamically unstable, and is why Eurofighter Typhoon has such a complex Flight Control System – computers react quicker than a pilot.

When Eurofighter Typhoon crosses into supersonic flight, the pressure point moves behind the centre of gravity, giving a stable aircraft.

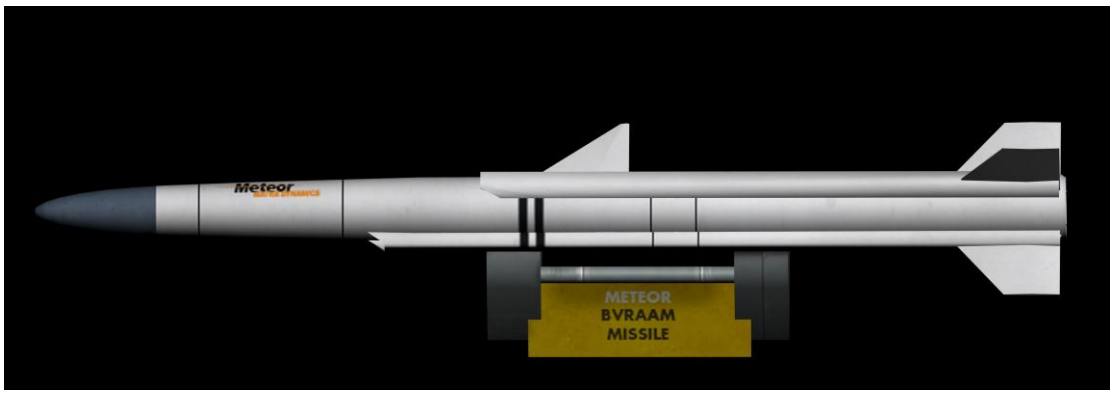
The advantages of an intentionally unstable design over that of a stable arrangement include greater agility – particularly at subsonic speeds – reduced drag, and an overall increase in lift (also enhancing STOL performance).

(Source: Eurofighter.com)

The flight dynamics of this simulation have been designed to approximate the performance and handling envelopes of the real Eurofighter as closely as possible. Without the incredible sophistication of the real computerised systems, however, the simulated flight characteristics can only be as good as the data provided and the abilities of the host simulator itself. Nonetheless we think you will find that the Just Flight Eurofighter comes fairly close to allowing you to experience the challenges and rewards of flying such a powerful and technically advanced jet fighter.

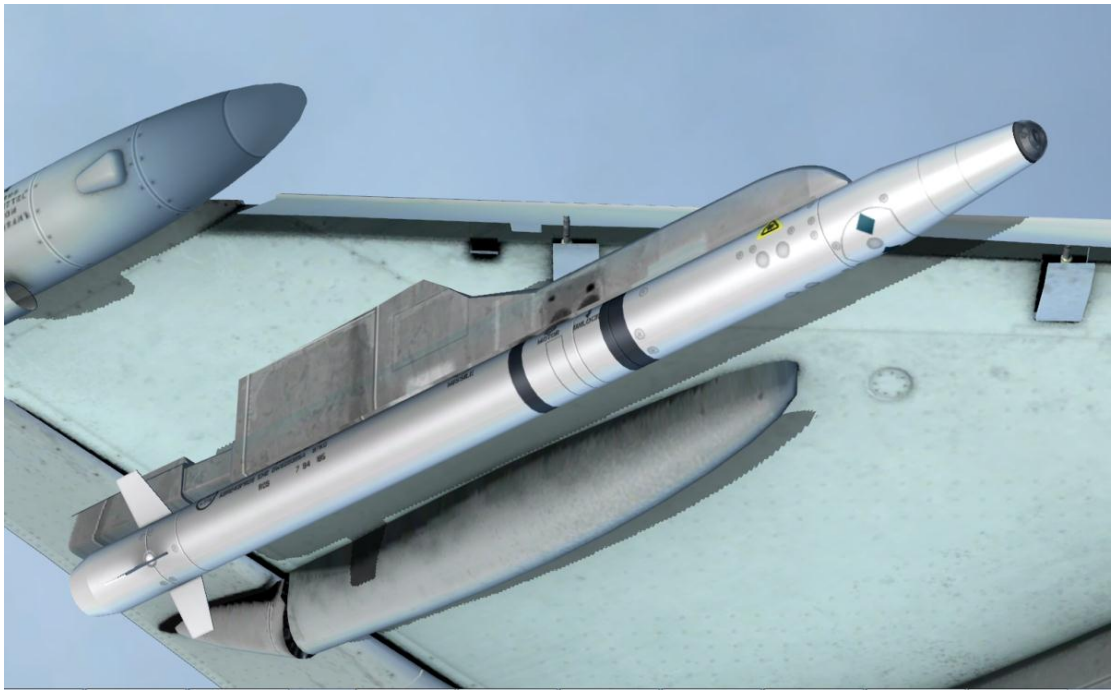
WEAPONS AND EQUIPMENT

A full complement of accurately modelled weapons is available through the Loadout Manager screen of the on-board MFDs.



Meteor BVRAAM (Beyond-Visual-Range Air-to-Air Missile)

AIM-9 Sidewinder anti-aircraft missile

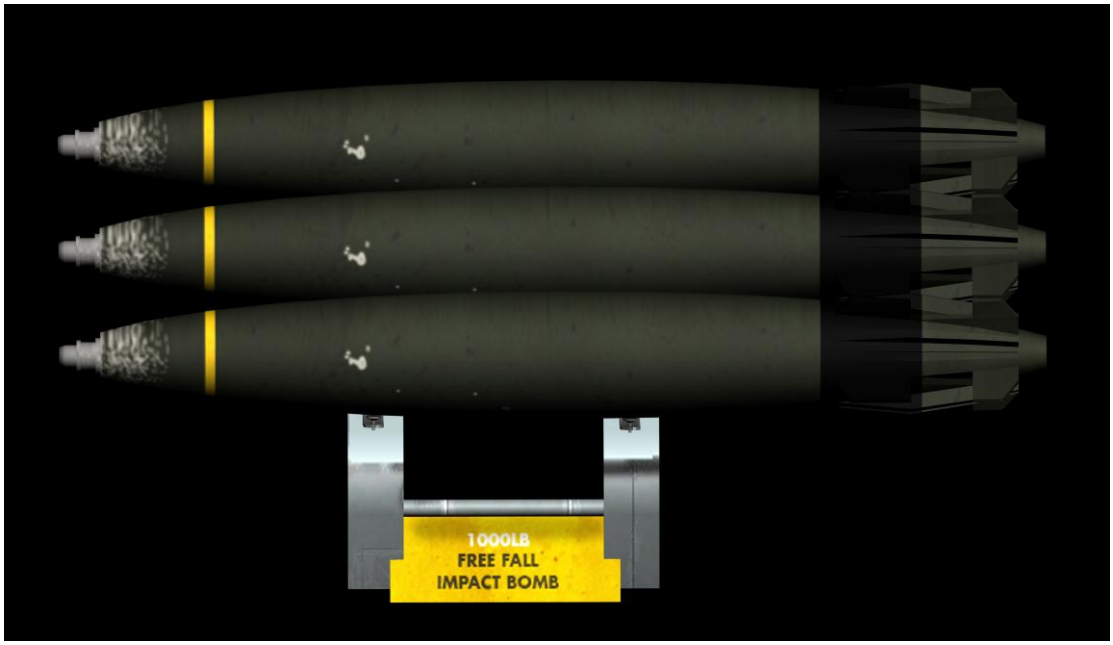


ASRAAM - Advanced Short Range Air-to-Air Missile

Paveway III laser-guided air-to-ground missile

AGM-65 Maverick laser-guided bomb

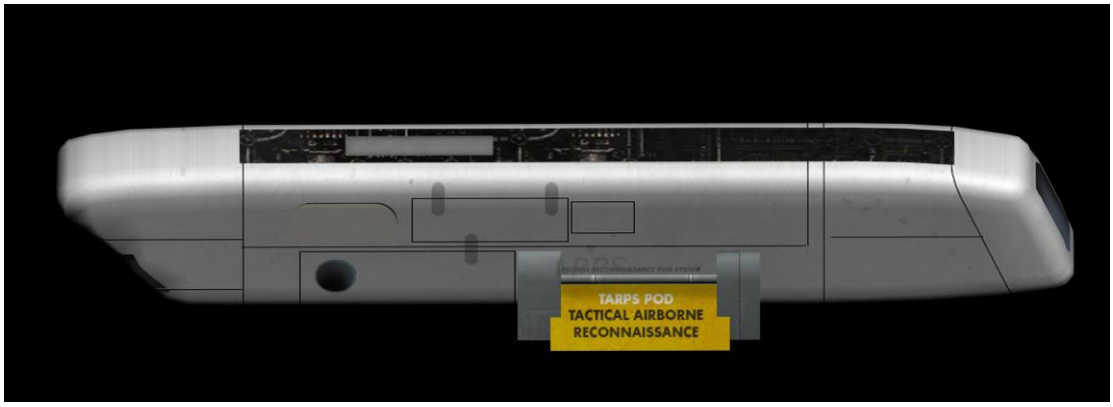
Storm Shadow stand-off nuclear cruise missile



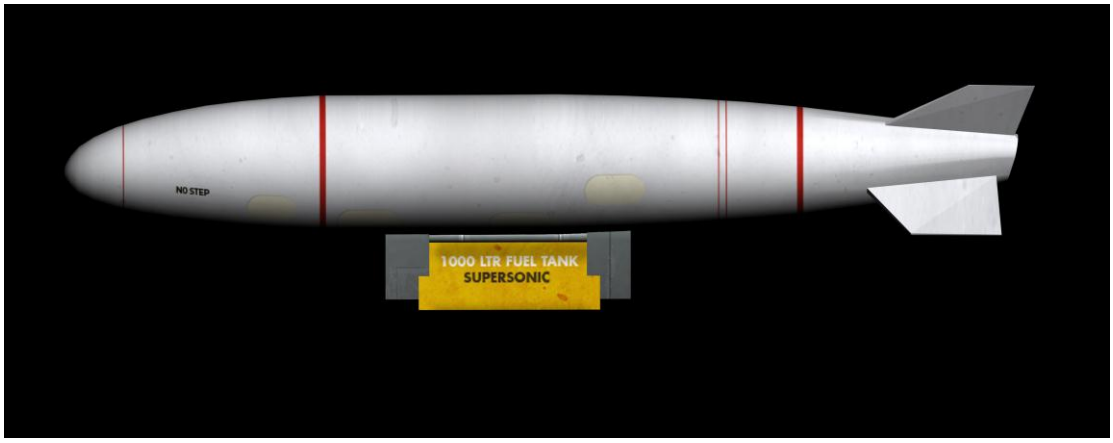
Conventional free-fall bomb

Earlier aircraft also carry a 27mm cannon mounted in a wing root pod on the starboard side.

In addition to the weapons the Eurofighter can also carry a TARPS (Tactical Airborne Reconnaissance Pod System) reconnaissance pod.



The aircraft also has two fuel tank options:



1,000 litre tank (capable of supersonic flight)

1,500 litre tank (subsonic flight)

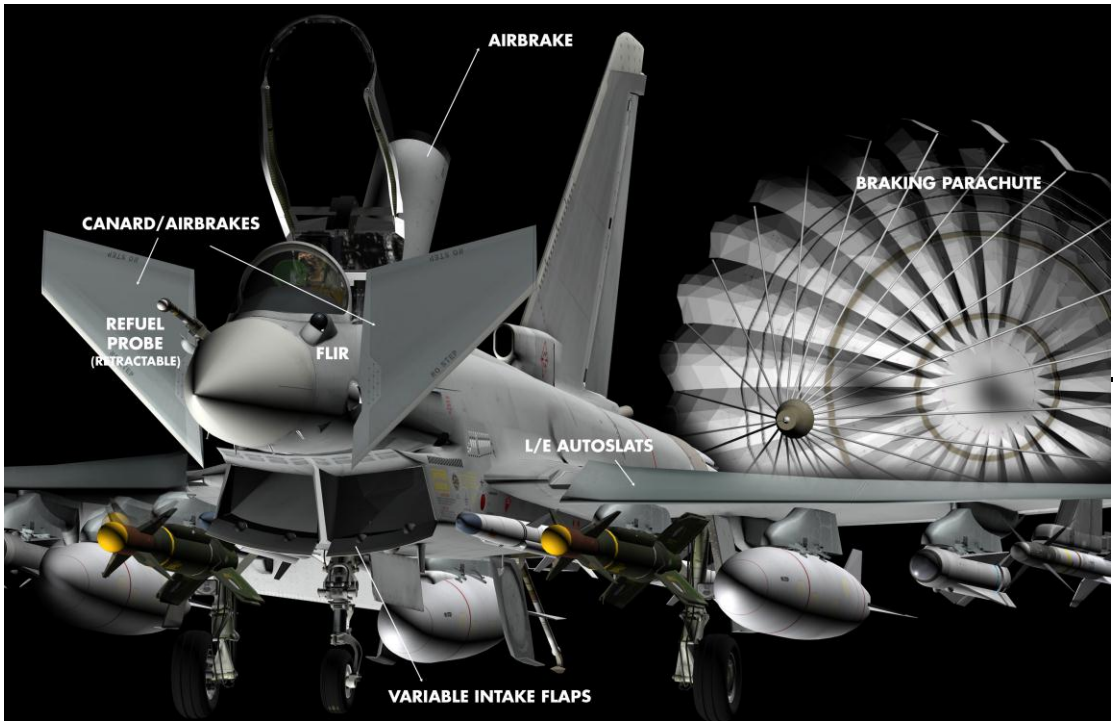
The airframe can be fitted out with a range of mission options, taken from the official specifications:

- Air superiority
- Multi-role/Swing-role
- Interdiction/Strike
- Close air support
- Suppression and destruction of enemy air defences
- Training

This Eurofighter simulation comes complete with additional equipment which can be toggled from the cockpit: ground power unit, boarding ladder, pre-flight flags, wheel chocks and engine intake and exhaust covers.

There is also a display arrangement of the weapons typically carried by the Eurofighter Typhoon, for use at airshows and demonstrations.

EUROFIGHTER WALK AROUND



Among the prominent features of the Eurofighter's exterior are the large FLIR (Forward-Looking InfraRed) scanner unit to the left of the canopy, the retractable refuelling probe and housing to the right of the canopy, and large forward canards either side of the cockpit. These moveable planes are used during flight to control the stall characteristics of the delta wing, acting like a form of trim tab. They are also used as giant air brakes during the landing roll, slowing the aircraft quickly in conjunction with the braking parachute.

Just in front of the huge intake mouths are two flap-like surfaces. These rotate up or down automatically, increasing or decreasing the intake area depending on angle of attack and airspeed changes.

Another signature component of the Eurofighter can be seen immediately behind the cockpit in the spine of the aircraft – the large and extremely powerful pop-up air brake which projects up into the airflow during combat manoeuvres or when landing.

The landing gear is fairly conventional and the wheel brakes are fan-cooled. A tailhook is fitted to the Eurofighter but is not designed for carrier landings – it is used for wire trapping on runways fitted with such equipment in an emergency landing situation.
The Indian Navy has explored the possibility of using the Eurofighter Typhoon configured for carrier operations, however, so the tailhook might have a naval use after all.

The delta wing itself is very thin in section and has a complex inverted anhedral shape at the root, blending to a noticeable curve through the mid-section and out to a forward-twisted tip. These shapes become more apparent in flight. Pods for sophisticated electronics and deployable decoys are mounted at the tips of the wing.

The wing has automatically deploying leading-edge slats and carries fully automated flaperons; these are split control surfaces which act as flaps, elevators and ailerons all in the one unit. The on-board computer controls this flying surface and the flap function is controlled automatically, so much so that there is no conventional flap lever mounted in the cockpit.

When the Eurofighter lands there are no visible flap extensions; the computer continuously controls the stall moment of the large delta wing and provides minute adjustments based on the angle of attack. This system is simulated in the Just Flight Eurofighter, based on AOA and airspeed variables.

At subsonic speeds the airframe of the Eurofighter is actually aerodynamically unstable – the centre of gravity is well forward, throwing out the balance completely. With computers controlling flight, this instability actually contributes to the amazing manoeuvrability of
the aircraft.

Under-wing pylons carry the various weapon loads. These will change automatically depending on the loadout selected in the simulation.

The rear exhausts are cleanly faired into the tail section and the afterburner/exhaust petals are very smooth, giving the Eurofighter a particularly clean profile in this area.

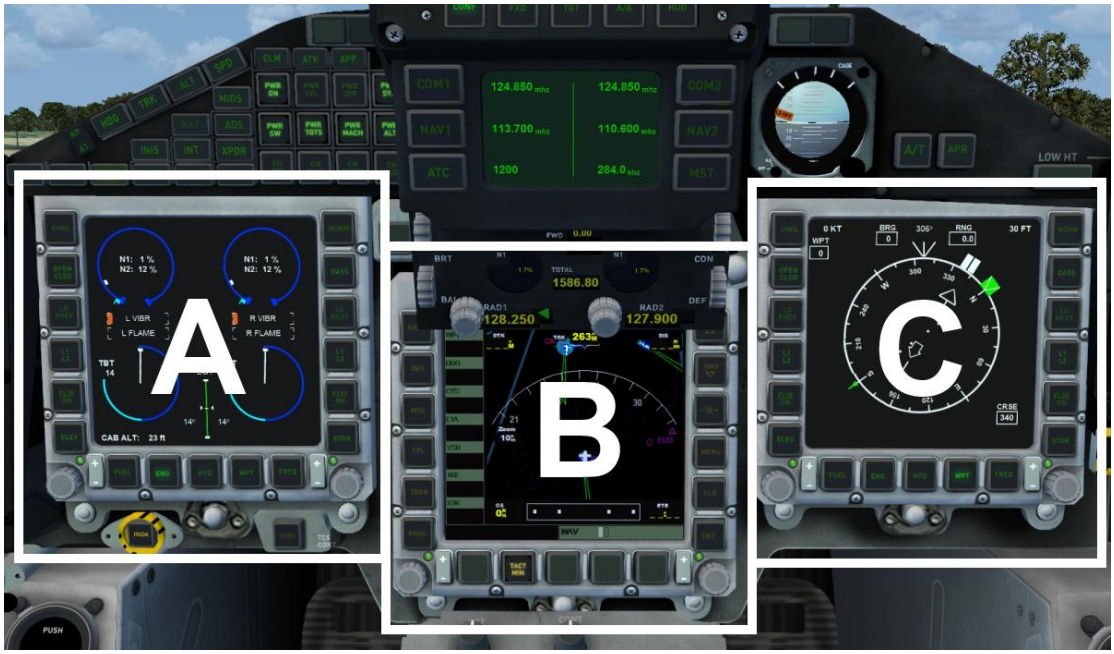
COCKPIT GUIDE

The Eurofighter cockpit is mostly computer-controlled so at first glance it may appear very basic for such a complex fast jet fighter. Once you are acquainted with the characteristics of the aircraft in flight, however, you will appreciate the simple and efficient cockpit layout.

Essentially the aircraft has been designed to be flown by computer and is actually a very unstable aerodynamic design. Flying the delta wing is all about angle of attack and using the airframe's position relative to the airflow to manoeuvre the aircraft.

As is the case with most modern fighters, most of the Eurofighter's systems information and monitoring is displayed via MIDS (Multi-Functional Information Distribution System).

There are three MFDs (Multi-Function Displays) mounted in the prominent main panel position of the cockpit.



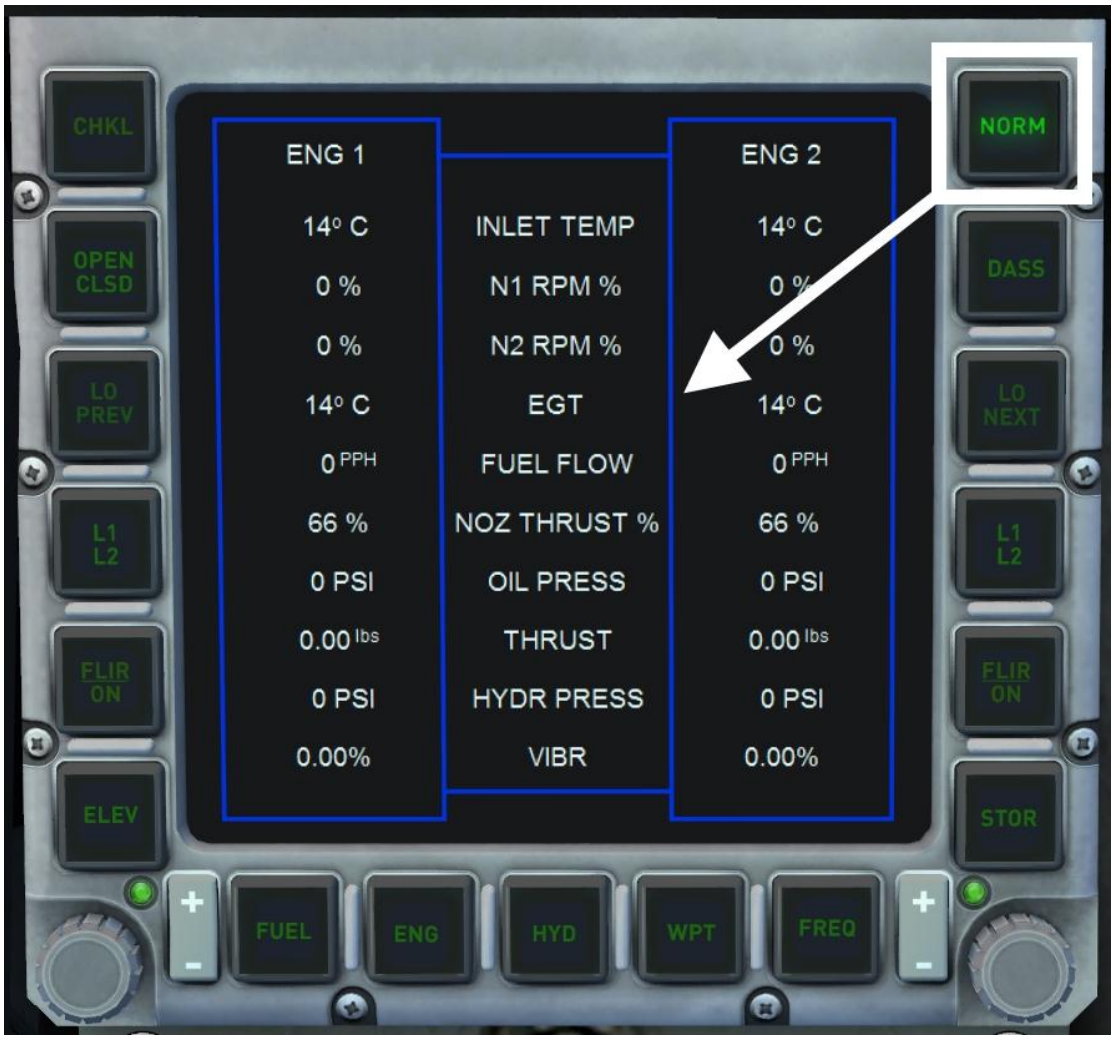
MFDs **A** and **C** are identical. They can display the same information or be configured separately to show different pages. It is a good idea to set up your MFDs with the best balance of information you require before you take off.

MFD **B** displays the GPS unit. This operates in exactly the same way as the standard Flight Simulator X Steam Edition GPS display except for the controls which are separate push-buttons around the perimeter of the MFD.

MFD operations

There are a number of function push-buttons around the perimeter of the MFD screens.

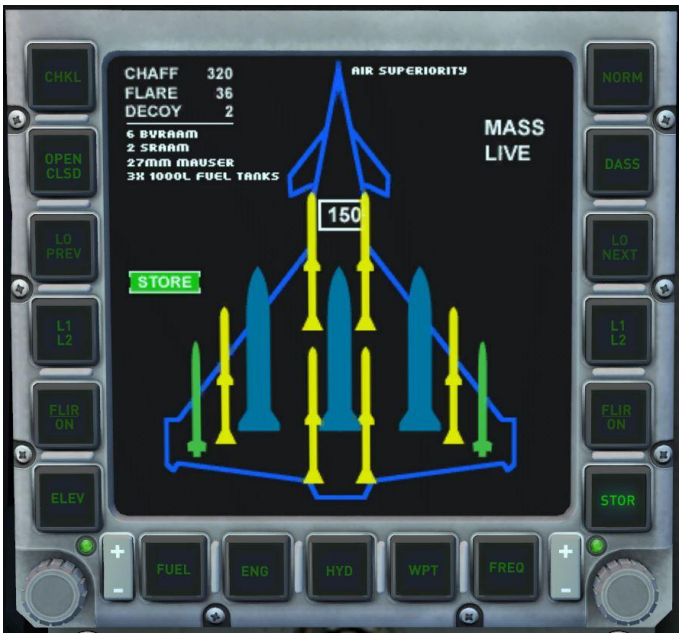
To monitor general systems information, use the System Summary screen which is brought up by pressing the **NORM** button. All major systems can now be monitored at a glance in real time.



To configure your payloads, press the **STOR** button.

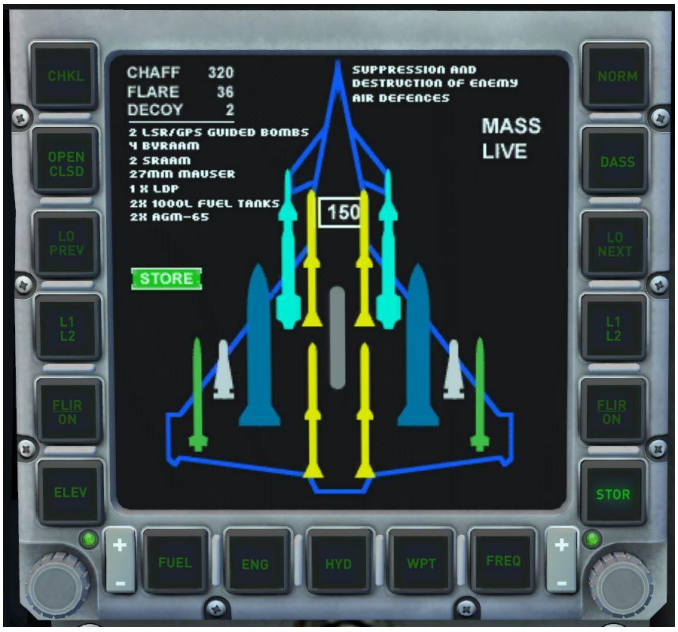
This will bring up the first of a series of loadout screens depicting the various mission loadouts. Press the **LO NEXT** and **LO PREV** buttons and each loadout will display in turn, from a clean aircraft through to the loadouts for all mission types:

Training

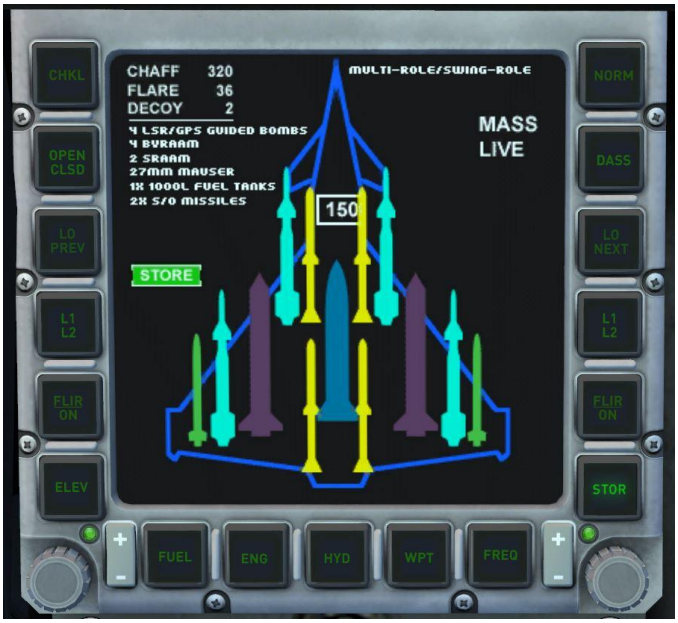


Air superiority

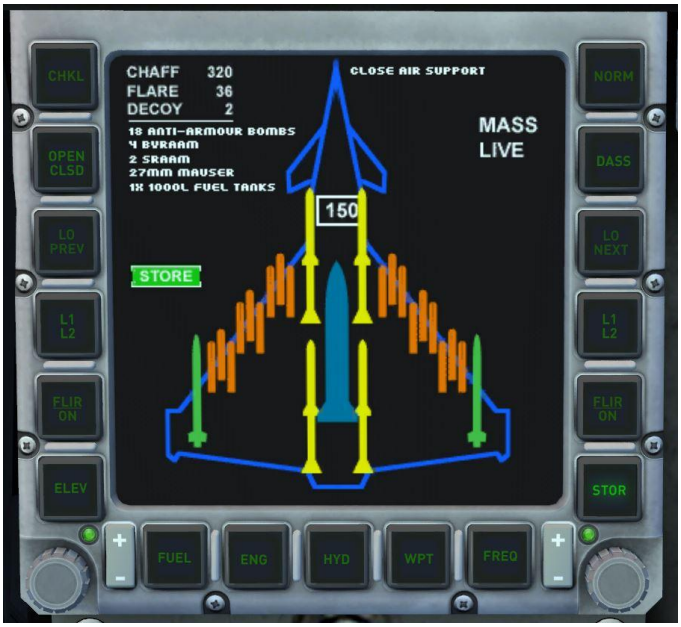
Interdiction/Strike



Suppression

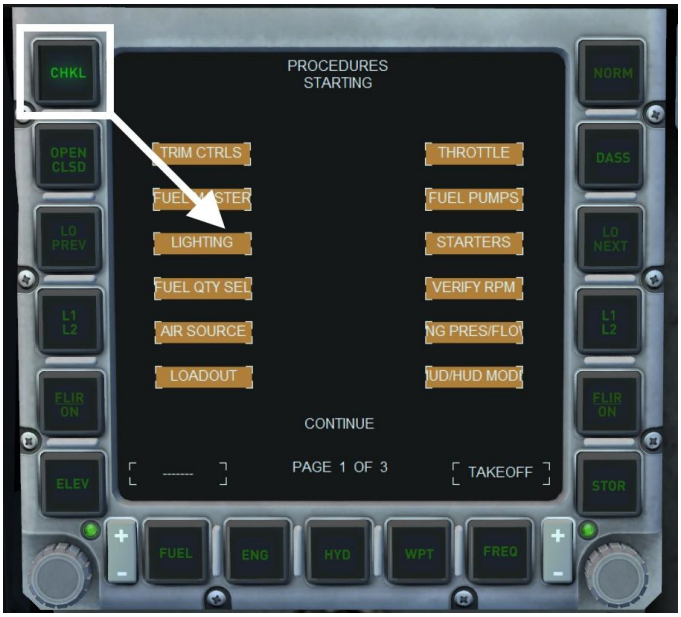


Multi-role/Swing-role

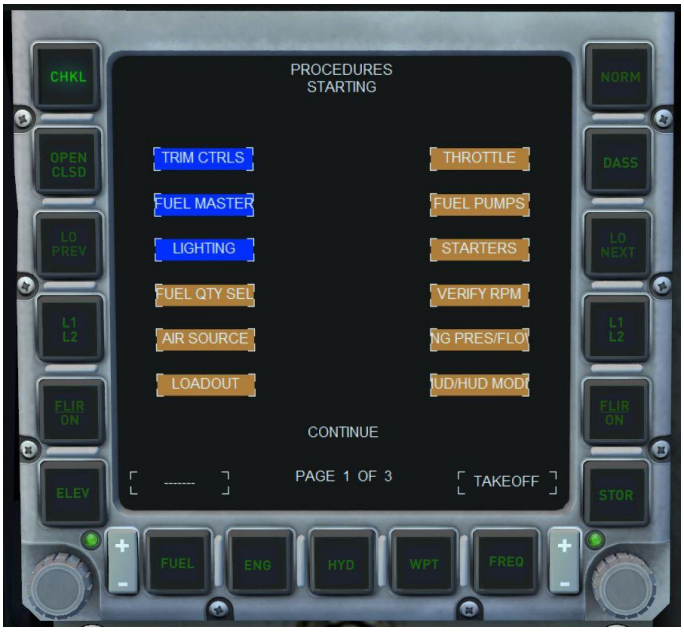


Close air support

Each time you click a loadout button the relevant stores loadout will automatically appear in exterior views on pylons beneath the wings.



The MFD has a CHECKLIST mode for engine start, take-off and landing checklists. Access this screen using the **CHKL** button and then use the **L1 L2** buttons to cycle through the lists.

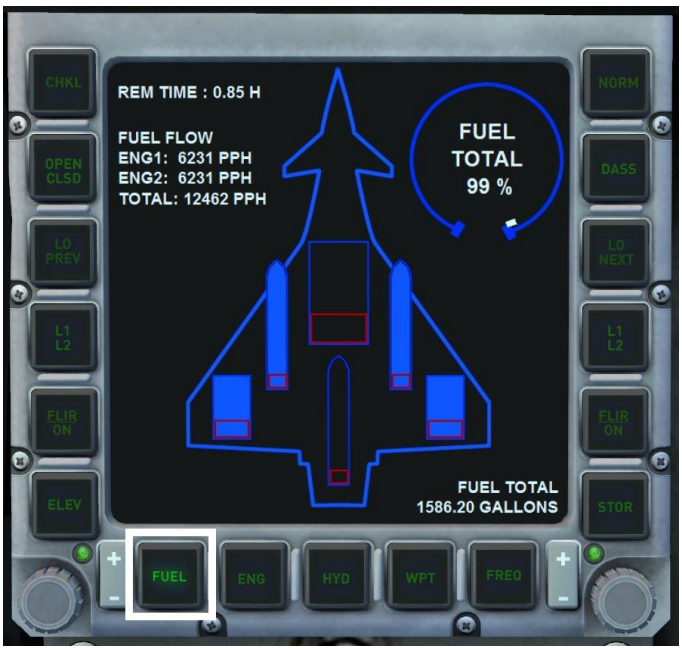


The checklist items can be marked as completed but doing so does not affect any simulator parameters.

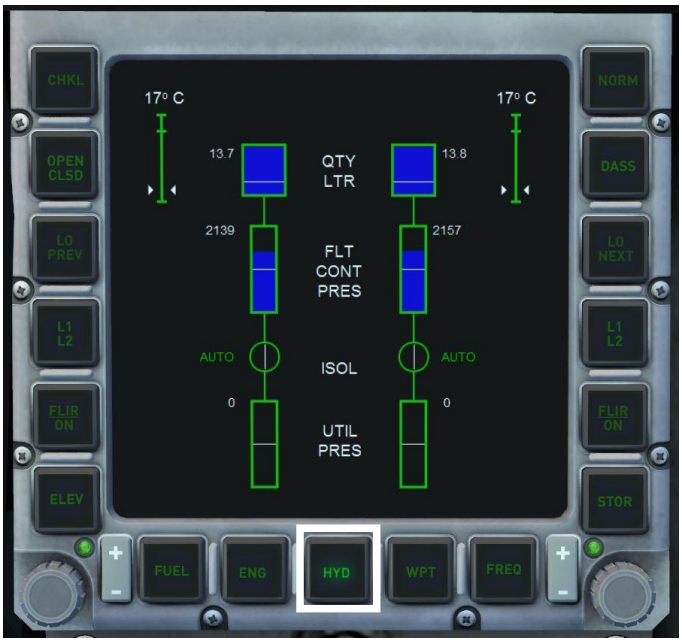
Bring up the required checklist and then click on the item to mark it as completed; the item will change from orange to blue.

The MFD has a row of buttons along its lower edge for engine management, fuel and hydraulic status. Pressing the relevant button will bring up each screen:

Engine management



Fuel status



Hydraulic status

As a navigation aid, there is also a WAYPOINT MODE which displays the waypoints set in the flight plan on a compass rose with supporting data. A green arrow and dashed white line act as a course deviation indicator. To access this screen, press the **WPT** button. Pressing this button also brings up the GPS display on the centre MFD.

Waypoint mode

GPS display

Mounted centrally above the MFDs are the all-important HUD (Head-Up Display) unit and a smaller digital display which is also multi-functional.

The HUD is brought up on the HUD glass by pressing the **HUD** button on the small switch panel immediately beneath the HUD glass.

The HUD is collimated, meaning that the HUD image will remain on the glass irrespective of where your head or eye point is in the cockpit. It is also conformal, which means that the horizon bar remains pinned to the outside world horizon to make approaches easier in poor visibility.

Status panel

This panel will display the status of all active navigation and communication systems. Use the **CMD** button to toggle between the status of the various systems.

The numeric keypad underneath is clickable but cannot be used to set the NAV/COM/ADF radios. To simulate the entry of data into the 'stack', press a number key to input the number into the stack and then press [ENT] to enter the information.

Small read-outs for fuel usage and engine N1 percentage are housed in the HUD unit just above the controls for the Comms radios.

System annunciators

This panel is used to help the pilot ascertain quickly which systems are running on which panel and their operational state.
Selecting the **A/A** or **TGT** function on the HUD will illuminate the TAC annunciator to indicate that an attack configuration is selected.

The modes currently selected on the MFDs are also displayed. The mode selected on the left MFD is shown on line **A** and the mode selected on the right MFD is shown on line **B**. If the centre MFD is switched on, the **CENT** annunciator will be illuminated.

The transponder code is shown at the bottom of the panel.

Navigation and communications

A full suite of navigation and communication radios is fitted to the Eurofighter. The controls and displays are mounted above the MFDs directly in front of the pilot.

1. Push-buttons for Comms, Transponder, Navigation and ADF receivers
2. Switch between Active and Standby frequencies for COMMS 1
3. Switch between Active and Standby frequencies for NAV 1
4. Switch to select Transponder (squawk) code
5. Switch between Active and Standby frequencies for COMMS 2
6. Switch between Active and Standby frequencies for NAV 2
7. Switch to select ADF frequency
8. Digital read-out screen
9. COMMS 1 radio frequency knobs
10. COMMS 2 radio frequency knobs

The RAD1 and RAD2 windows display the currently selected standby frequencies for COM1 and COM2.

If the autopilot is engaged the display will indicate the status of the autopilot. Placing your mouse cursor over the buttons surrounding the display and rotating your mouse wheel will allow you to set the autopilot values.

1. Course hold selector
2. Heading hold selector
3. Speed hold selector
4. Mach hold selector
5. Altitude hold selector
6. Vertical speed selector

Upper left panel

To the left of the HUD unit is a block of push-button switches:

1. Autopilot buttons – Master on/off, heading hold, altitude hold, speed hold and navigation hold
2. Master Caution light (press to cancel)
3. AOA (Angle Of Attack) indicator. This is a special speed/angle indicator to assist with approaches and landings. It is a simple device which uses illuminated symbols to tell you if you have the correct AOA. The Up arrow means you should raise the nose or slow down, the Down arrow means lower the nose or speed up, and if the green ball is centred in the box then your AOA is spot on.
4. Power buttons for batteries, generator and systems avionics

Upper right panel

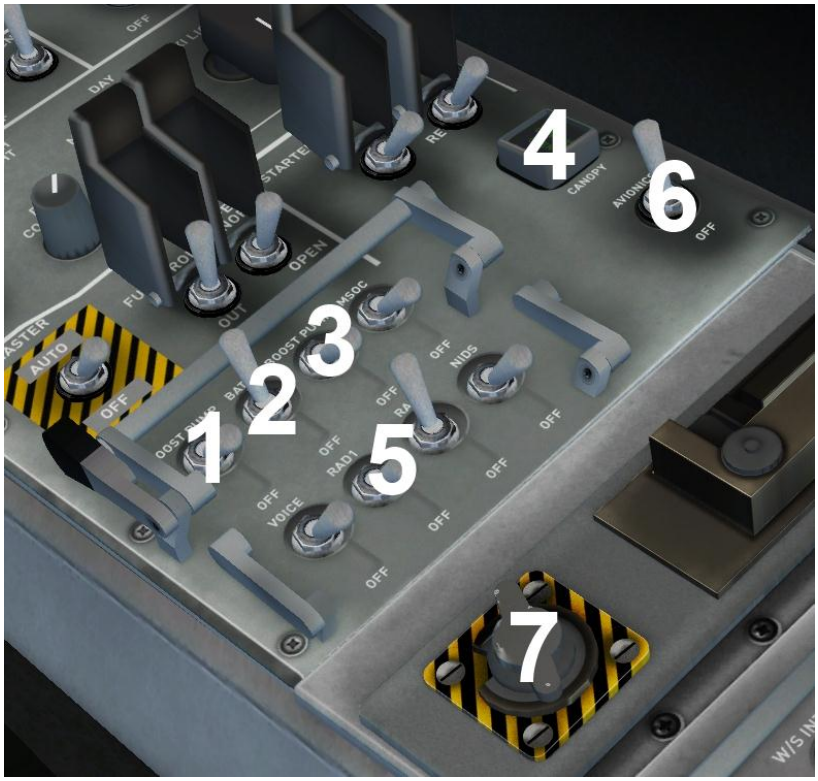
To the right of the HUD unit are the standby AHI (Artificial Horizon Indicator) and a couple of other important buttons.

1. ILS selector – switches on the ILS approach bars which indicate correct alignment with the runway when using ILS approaches
2. Horizon adjustment knob – to compensate for parallax when your viewpoint or the seat height changes, you can adjust the height of the Horizon bar to match the artificial horizon on the instrument
3. Cage button – cages the instrument to protect the delicate oil-filled indicator from damage in violent manoeuvres such as inverted flight
4. Autothrottle button – used in conjunction with the autopilot to engage the speed hold function
5. APR (Auto Power Reserve) – once armed, this advanced system will automatically advance the throttles to a preset value when the TOGA (Take Off and Go Around) button is pushed on the centre console
6. Angle of attack indicator

Right sidewall console

Located on the right sidewall console are the Nav Comms unit and a collection of knobs and switches for lighting, power, engine start and other critical operations.

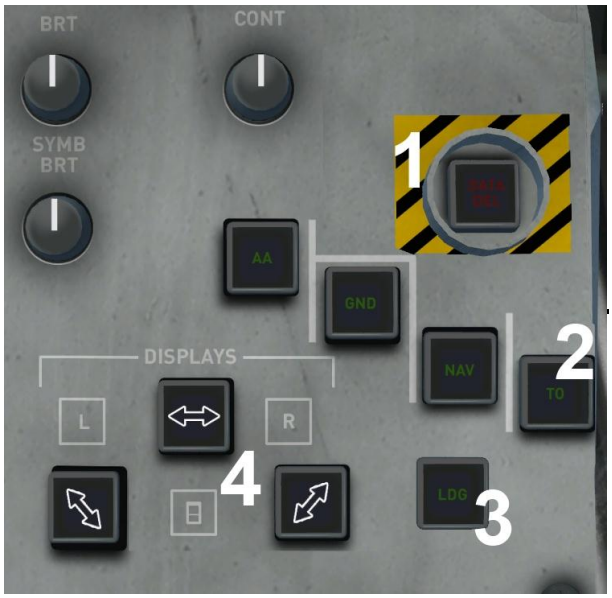
1. Push-in cabin air control
2. Nav Comms unit
3. Structural de-icing switch
4. Pitot heat switch
5. Navigation lights switch
6. Panel lights switch
7. Anti-collision light switch
8. Beacon light switch
9. Taxi light switch
10. Floodlight switch
11. GPU (Ground Power Unit) toggle
12. Fuel probe extension/retraction switch (lift cover first)
13. Fuel transfer switch (lift cover first)
14. Engine starters (lift covers first)



1. Left engine fuel pump switch
2. Master battery switch
3. Right engine fuel pump switch
4. Canopy warning light
5. Audio switches
6. Avionics master switch
7. Security toggle (chocks, pre-flight flags, engine muffs, boarding ladder etc.)

On the aft section of the right console is a gauge blanking plate. Clicking this will reveal a traditional VOR gauge.

Centre console



For a better view of the GPS and its controls, you can hide the control stick by using the **LDG** button on the centre console **(3)**.

The arrow buttons **(4)** allow you to swap the various selected displays between MFD units.

The outer button marked **TO (2)** executes the TOGA (Take Off and Go Around) feature. For the TOGA system to work you must arm the system using the APR (Auto Power Reserve) button on the upper right panel and also have the autothrottle button selected.

There is a data erase button **(1)**. This shuts down all MFDs and resets the MIDS system. Use this only at the end of a flight when shutting down the cockpit.

Left sidewall console

The twin throttles in the Eurofighter are also used as fuel cut-off switches for engine shutdown. They also serve to light the afterburners in reheat mode. With throttles right back on the rear stops, the fuel system is cut. Moving the throttles forward slightly will open the fuel cocks to each engine. The last 10% of forward throttle movement controls the reheat afterburners.

It is worth noting here that the exhaust petals open fully at idle and close at full throttle. When the throttles are pushed through reheat, however, they open fully again.

1. Canopy lever
2. Push-in cabin air control
3. Air brake deploy
4. Emergency stores jettison (not simulated)
5. Autobrake switch
6. Landing gear lever and lights
7. Emergency gear switch (lift cover first)

1. Throttles/fuel cuts
2. Yaw trim rocker switch
3. Data Erase button
4. Seat height/view adjuster

OTHER CONTROLS AND FEATURES

Immediately below the left MFD unit you will find a push-button control for the tail hook **(1)** and a pull handle that operates the braking parachute **(2)**.

The braking parachute works correctly when the switch is pulled in the cockpit and will do an excellent job of stopping the aircraft quickly without any interaction from the pilot.

The laser-guided ordnance has inbuilt animated cameras which respond to any control inputs that you make.

The taxi lights are modelled in 3D for ultimate realism with light splash on various adjacent parts.

Repainters who wish to delete the FLIR (PIRATE) pod, as seen on the Austrian model, need only to set the ATC id variable to 0 for the chosen variant in the aircraft.cfg
(atc_id=0) and this part will be hidden.

FLYING THE EUROFIGHTER

Provided you keep a close watch on the aircraft systems and angle of attack, the Eurofighter is quite easy to operate, mainly due to the large number of computer-controlled functions.

Landing is perhaps the trickiest part as speed can be increased and reduced very quickly in the Eurofighter and there are set procedures to follow.

One or two check rides using the following checklists will soon have you feeling at home in the cockpit and fully in control of this exceptional aircraft.

Fuel burns quickly, especially with the afterburner reheat operating. Watch your fuel consumption carefully and don't be tempted to dash around the sky in full reheat – the Eurofighter is capable of phenomenal performance with conventional military power settings! The aircraft is light and agile but will stall if you are not careful. Regrettably we cannot fully simulate the extraordinary computer coding in the real aircraft which is required to maintain stable dynamics.

With a considered approach to your flying operations, we are confident that you can look forward to many hours of enjoyable fast jet flight.

Take-off is very quick. You will reach your Rotate speed in a matter of seconds so be prepared to lift off cleanly and do not be tempted to pull back too sharply on the stick.

As soon as you are airborne, lift the gear and enter a power climb to clear the field.
Once at cruise altitude, throttle back. The Eurofighter is capable of high-speed transits and has good range for a fighter but you will need to use your fuel wisely, balancing performance and endurance.

Landing is all about AOA (Angle Of Attack). Use the lights on either side of the HUD unit to control AOA and approach speed. Check the HUD horizon line if you are some distance out from the field to help with your approach angles. Use the air brake to slow the aircraft and remember that you do not have trailing edge flaps to deploy on the approach to reduce speed. The computer and canards will ensure the stability of the wing.

Reduce your airspeed well before entering finals and you will be in for a far more relaxed landing.

Arming APR (Auto Power Reserve) before a landing will provide a one-hit go-around if you miss your approach or need to start a go-around during your landing roll. Just hit the **TO** button and let the computerised power controls do the work. Once you are stable at circuit height, reset everything for another attempt at the approach.

CHECKLISTS

These checklists are available in the kneeboard and are also summarised in the interactive MFD screens.

Pre-start

BATTERY SWITCH	ON
MASTER CAUTION LIGHT	RESET
PARKING BRAKE	SET
LEADING EDGE FLAPS	AUTO
TRIM CONTROLS	CENTRE
FUEL MASTER	FORWARD (UNCUT)
AIR REFUEL	CLOSED AND STOWED
EXTERNAL LIGHTS	AS REQUIRED
MASTER LIGHT	AS REQUIRED
LANDING TAXI LIGHT	AS REQUIRED
HOOK	OFF/STOWED
FUEL QTY SEL	NORM
INTERIOR LIGHT	AS REQUIRED
AIR SOURCE	NORM
AVIONICS POWER	OFF

Engine start

THROTTLE	IDLE
FUEL BOOST PUMPS	ON
STARTERS	START 1
VERIFY RPM	OVER 10%
ENGINE PRESSURES/FLOWS	CHECK

After engine start

AVIONICS POWER	ON
HUD + HUD MODES	ON and SET
MIDS	CONFIGURED and SET

Engine check

FUEL FLOW	CHECK NORMAL
RPM RANGE	NORMAL
THROTTLE	SET TO IDLE
FUEL BOOST PUMPS	OFF

Before taxi

AUTOPILOT	OFF
FLIR	OFF
RADAR	OFF
VERIFY GEAR	DOWN/LOCKED/GREEN
LANDING LIGHTS	ON
CAUTION LIGHTS	ALL OFF
FLIGHT CONTROLS	CHECK FREE
STANDBY AHI	UNCAGED and ADJUSTED
AUTOBRAKE SWITCH	OFF
CONTACT TOWER	REQUEST TAXI

Taxi

LIGHTS	CHECK
PARKING BRAKE	RELEASE
SPEED BRAKE	CHECK CLOSED
SPEED	20 KTS MAX.
FUEL FLOW	CHECK
BRAKES	TEST

FLIGHT PLAN	FILED and SET

Before take-off

AIRPORT	ELEVATION NOTE and CHECK
HUD	CHECK
TRIM	CHECK NEUTRAL
SEAT	CHECK VIEW HEIGHT
CANOPY	CLOSED

Take-off

POWER	FULL
AIRSPEED	ROTATE AT 150 KNOTS
GEAR	RETRACT
POSITIVE CLIMB	MAINTAIN 10 DEGREES
ZOOM CLIMB	EXECUTE ABOVE 220 KNOTS

Approach

RADIO TOWER	CALL INBOUND
STANDBY AHI MODE	ILS SET (IF REQUIRED)
AOA	GREEN
FUEL	CHECK
SPEED	225 KNOTS ON APPROACH

Before landing

RADIO TOWER (5 NM OUT)	GET CLEARANCE
ILS	CHECK (IF REQUIRED)
LANDING LIGHT	ON
SPEED	< 225 KNOTS
GEAR	DOWN / LOCKED / THREE GREEN
SPEED BRAKE	FULLY DEPLOYED

Final

AOA	GREEN
SPEED	< 150 KTS
GEAR	CHECK DOWN
AIR BRAKE	DEPLOY
AUTOBRAKE SWITCH	ON

After landing

THROTTLES	IDLE
SPEED	DECREASING
BRAKE CHUTE	DEPLOY
SPEED 80 KTS	APPLY BRAKES
SPEED 30 KTS	VACATE RUNWAY
STANDBY AHI	ILS OFF
CANOPY	OPEN
MASTER CAUTION	OFF/RESET
SPEED BRAKE	OFF/STOW
AUTOBRAKE SWITCH	OFF

Shutdown

PARKING BRAKES	SET
HUD	OFF
MIDS	ALL OFF
AVIONICS POWER	ALL OFF
THROTTLE	CUT-OFF (FULL BACK)
FUEL PUMPS	OFF

RPM	CHECK DECREASING
MASTER CAUTION	OFF/RESET
POWER BUTTONS	OFF
MASTER BATTERY SWITCH	OFF

CREDITS

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