

Paris Air Show, June 2015

THE “MARITIME FALCON” FAMILY

THE FALCON MULTI-ROLE PROGRAMS: A WIDE RANGE OF AIRCRAFT SPECIFICALLY DEDICATED TO ADDRESS THE MARITIME MISSIONS

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DIRECTION GÉNÉRALE INTERNATIONALE

The Falcon family represents fifty years of success. Over 2,250 aircraft have been delivered in more than 80 countries; logging more than 16 million flight hours.

In addition to the impressive flight qualities associated to an exceptional comfort, the "Falcon" name is synonymous of reliability and efficiency.

The Falcons are not only used for passenger transportation. When equipped with specific systems, their performance, flexibility and robustness enable them to accomplish a wide variety of military as well as public service missions.

The Falcon's wide body fuselage allows numerous layout possibilities for multirole missions. Each aircraft can receive equipment and systems tailored to specific roles, such as maritime surveillance and reconnaissance, aerial photography, weapons system training, electronic warfare, target towing, air ambulance...

DASSAULT AVIATION

MULTIROLE FALCON AIRCRAFT EXPERIENCE



Nearly 10% of the Falcon aircraft are used by military or governmental services. The Falcon fleet counts over 200 multirole aircraft used for various missions. These aircraft have brought to their operators a very high level of efficiency, reliability and maintainability, whether for civilian or military missions' purposes.

In order to respond to changing needs for blue water operations as well as coastal and border surveillance, spin-off versions of the Falcon 2000 and the Falcon 900 business jets have been designed.

This new cost-efficient multi-role aircraft family of Falcons has been built on the expertise and feedback experience gained by Dassault Aviation on previous maritime programs such as the Atlantique 2, Falcon 20 / 200 and Falcon 50M.

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The **Falcon 2000 MRA multi-mission "Maritime Multi-role Aircraft"** is equipped with dedicated systems fulfilling the needs of navies worldwide. This Falcon version is developed for missions such as surveillance, reconnaissance, anti-surface attack, electronic warfare or training of fleet.

It demonstrates remarkable performance, during all the flight phases and allows a highly operational flexibility. The Falcon 2000 MRA offers a very light logistical footprint. It can be easily deployed for overseas missions or to remote and isolated airfields.

In March 2015, the Japan Coast Guard selected the Maritime Surveillance Aircraft (MSA) variant of the Falcon 2000 to renew their fleet.



Fitted with a fully-fledged advanced mission suite, the **Falcon 900 MPA "Maritime Patrol Aircraft"** is able to detect all kinds of threats and react with the appropriate response. Like the Falcon 2000 MRA, it offers outstanding operational flexibility as well as excellent performance.

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FALCON 2000 MRA (MARITIME MULTI-ROLE AIRCRAFT)



CONCEPT BUILT FROM:

The Falcon 2000 MRA concept has benefited from the experience gained on various programmes:

- The long-range maritime patrol aircraft Atlantic" / "Atlantique" family, delivered to five different navies and air forces.
- The Falcon family aircraft modified for maritime surveillance, operated by several foreign Coast Guard administrations and the French Navy.
- The Falcon derivatives modified for special missions.

OPERATIONAL CAPABILITIES:

The Falcon 2000 MRA is customised to fulfil all, or some of the following missions and tasks, depending on the suite of equipment and sensors selected by the customer:

- Search and Rescue (SAR),
- Monitoring of maritime approaches,
- Anti-Surface Warfare (AsuW),
- Target acquisition and Over The Horizon Targeting (OTHT),
- Economic Exclusive Zone (EEZ) and maritime traffic surveillance,
- Government action at sea,
- Intelligence, Surveillance and Reconnaissance (ISR),
- Electronic Intelligence / Signal Intelligence (ELINT / SIGINT),
- Naval forces training (target towing, EW simulation...),
- Environment protection,
- Medical evacuation capabilities,
- Personnel and light equipment transportation...

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FALCON 2000 MRA MAIN FEATURES

Airframe highlights

The airframe of the Falcon 2000 has demonstrated its aerodynamic excellence, as well as its sturdiness under all climates and skies around the world. To date, around 500 Falcon 2000 business jets have been delivered and have logged more than 1.8 million flight hours.

To cope with the whole range of Maritime Reconnaissance and Security Missions, the FALCON 2000 MRA is equipped with:

- Four leading edge slats and winglets,
- Oversized observation windows,
- Markers launcher,
- Life rafts dispenser, for SAR mission,
- Multimode radar, under the fuselage,
- Retractable electro-optical turret,
- Underwing store stations for a wide variety of stores (air-to-surface missiles, target towing equipment, electronic warfare/simulation pods...).

Mission System

The mission system of the Falcon 2000 MRA allows carrying out efficiently the various tasks dedicated to a multi-mission aircraft operated by a reduced crew, thanks to automatic functions and analysis processes.

In a basic configuration, it is composed of:

- A very long range multimode Air-to-Surface radar with dedicated air-to-sea modes,
- A retractable Electro-Optic turret (FLIR), providing a 360° coverage,
- Multi-function workstations with automatic analysis functions, equipped with colour displays,
- A complete communication suite, including a SATCOM.

Other configurations allow the aircraft to be fitted with additional equipment (data links, electronic warfare systems, self-protection suite...).

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Crew Concept

Basic configuration:

- 2 pilots,
- 2 operators / observers.

Enhanced configuration:

- 2 pilots,
- 4 operators / observers.

State-of-the-art flight deck

The Falcon 2000 MRA is equipped with the state-of-the-art Enhanced Avionics System (EASy) cockpit defined by Dassault Aviation.



The flight deck is designed for a two-pilot configuration. EASy has inherited of some concepts issued from modern combat aircraft and flight management systems, which improve man-machine interfaces and represent a breakthrough in the crew resources management.

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Falcon 2000 MRA key features

The Falcon 2000 MRA takes advantage of the Falcon aircraft family outstanding performance.

The twin-jet Falcon 2000 MRA is almost twice faster than a turboprop aircraft. This is essential for quick reaction alerts required to fulfil critical missions, as well as to rapidly monitor large zones. The twin-engine configuration provides a huge reserve of power and unrivalled flight qualities. Fast and safe, the Falcon 2000 MRA is capable of climbing at high altitude and of flying above adverse weather conditions, even with one engine inoperative.

It features all the capabilities needed for a land-based Maritime Surveillance Aircraft:

- No take-off restriction up to ISA+20°C at MTOW,
- Low fuel consumption,
- Long range / long endurance,
- Fast speed to minimise transit time,
- Outstanding manoeuvrability at low speed / low altitude,
- Significant payload, with full fuel.

The Falcon 2000 MRA is perfectly suited for maritime operations: it is fast, persistent, capable and safe. This platform, associated to a state-of-the-art mission system, is eligible for growth potential to meet any new requirement that could arise during the whole life of the aircraft.

Modern propulsion

The Falcon 2000 MRA is powered by two PW 308C engines with 7,000 lbs thrust each. Each engine is monitored by dual channel Full Authority Digital Electronic Control (FADEC), allowing the best efficiency and minimum fuel consumption, during each segment of the mission.

Unmatched maintainability

Falcon aircraft are designed to meet the highest reliability, maintainability and safety criteria.

The Falcon 2000 MRA features a very light maintenance costs and demonstrates an impressive dispatch reliability. The Falcon can be operated from Forward Operating Bases without need for heavy Ground Support Equipment (GSE) and specific ground crew.

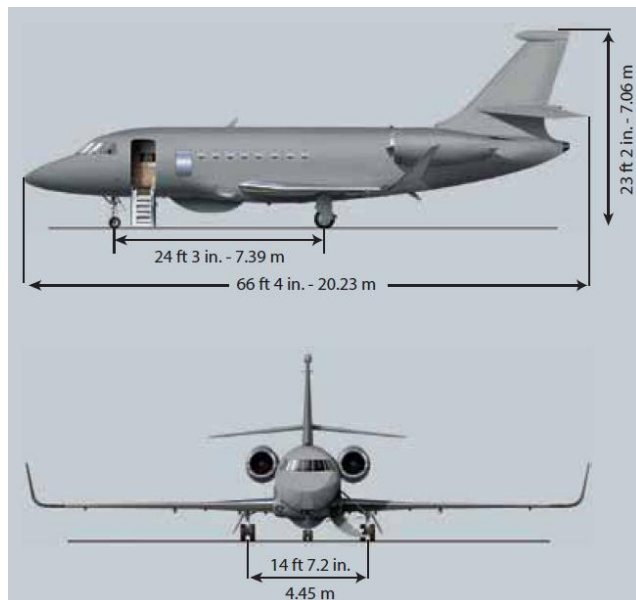
Falcon's maintenance policy is intended to maintain these highest standards at a minimum cost and optimum ease operators' work. If required, maintenance operations can also be performed through an authorized service centre.

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Dimensions



• Cabin height	74 in.	1.88 m
• Cabin width	92 in.	2.34 m
• Cabin length	26 ft 2 in.	7.98 m
• Maximum take-off weight	40,969 lbs	18600 kg
• Equipped empty weight	24,670 lbs	11200 kg
• Fuel	14,537 lbs	6600 kg

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DIRECTION GÉNÉRALE INTERNATIONALE

FALCON 900 MPA (MARITIME PATROL AIRCRAFT)



As for the Falcon 2000 MRA, the concept of the Falcon 900 MPA builds up directly on lessons learnt from:

- The long-range maritime patrol aircraft "Atlantic" / "Atlantique" family delivered to five different navies and air forces.
- The Falcon family aircraft modified for maritime surveillance and operated by the French Navy and by several foreign Coast Guards.

It is a unique concept of high performance, low cost and low risk development, long-range maritime patrol aircraft.

Derived from the Falcon 900 DX business jet, the Falcon 900 MPA is perfectly sized for maritime patrol missions. It is persistent, capable and safe. From the onset of the project, the state-of-the-art mission system and the sensors suite, as well as the platform have been developed with the necessary growth potential provisions, in order to meet new requirements that could arise during the long life of the aircraft.

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Capabilities of the Falcon 900 MPA

The Falcon 900 MPA is a land based high performance aircraft with a multi-mission capability. The mission system incorporates state-of-the-art sensors and avionics designed to carry out efficiently the missions and the tasks dedicated to a maritime patrol aircraft:

Military missions:

- Monitoring of maritime approaches,
- Anti Submarine Warfare (ASW),
- Anti Surface Warfare (ASuW),
- Target acquisition and Over The Horizon Targeting (OTHT),
- Electronic Intelligence / Signal Intelligence (ELINT / SIGINT),
- Naval forces training (target towing, EW simulation...).

Operations other than war:

- Surveillance of the Exclusive Economic Zone (EEZ),
- Surveillance of Sea Lanes Of Communication (SLOC),
- Search And Rescue (SAR),
- Government action at sea,
- Protection of the environment
- Medical evacuation,
- Personnel and light equipment transportation.

FALCON 900 MPA MAIN FEATURES**Airframe**

The Airframe of the Falcon 900 MPA is based on the Falcon 900 DX. It is modified to carry out the whole range of maritime patrol missions:

- Radar under the fuselage,
- Retractable electro-optical turret,
- Oversized observation windows,
- Sonobuoys / markers launcher,
- Life rafts dispenser for SAR operations,
- Underwing store stations.

Propulsion system

The Falcon 900 MPA is powered by three Honeywell TFE 731-60 engines with 5,000 lbs thrust. Each engine is monitored by a Digital Electronic Engine Computer (DEEC) allowing the best efficiency with the minimum fuel consumption, during each segment of the mission.

Glass cockpit "EASy"

The flight deck is designed for a two-pilot configuration.

The full glass cockpit "EASy", defined by Dassault Aviation is the most advanced flight deck system in the world. It dramatically increases safety and efficiency of the crew during all the phases of the mission.

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Mission System

The mission system of the Falcon 900 MPA incorporates state-of-the-art technologies in both sensors and sub-systems. It allows carrying out efficiently the various tasks dedicated to a multi-mission aircraft operated by a reduced crew, thanks to analysing systems and automatic functions.

The mission system is composed of:

- One 360° radar fitted under the belly in a radome,
- One retractable electro-optical FLIR located under the fuselage,
- One Electronic Support Measurement (ESM) suite,
- One acoustic subsystem with sonobuoys launcher, acoustic processor and analyser,
- One to four multi-functions workstations, all with colour displays,
- A complete communication suite including a SATCOM, and a Data Link,
- A Self-Protection System.

Interior layout

The floor plan is based on a seven crew concept:

- Two Pilots,
- Two Observers / Operators,
- One TACTical COordinator (TACCO),
- One Deputy TACCO,
- One Acoustic Operator,

Efficiency

The operational efficiency stems directly from performance and availability. In term of performance, the Falcon 900 MPA is far ahead from same class competitors. Capable of very high cruise and maximum speeds, the Falcon 900 MPA provides with a wider domain of operating speeds. Furthermore, it is capable of higher acceleration rate, longer range, longer endurance and higher cruise altitude.

The state-of-the-art mission system and sensors suite, combined to the outstanding aircraft performance, allow patrolling at medium or high altitudes, thus dramatically increasing the surveyed areas during each mission, in a shorter time.

The Falcon 900 MPA can reasonably be compared to the upper class of large maritime patrol aircraft. Based on a business jet platform, the Falcon 900 MPA is particularly adapted to long lasting flights. This is a key factor, contributing to the crew efficiency.

The Falcon 900 family demonstrates a very high reliability rate and features a very light maintenance footprint. Thus, the Falcon 900 MPA can be rapidly deployed to Forward Operating Bases, from where it can be operated without any need for Ground Support Equipment (GSE) or specific ground crew.

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DIRECTION GÉNÉRALE INTERNATIONALE

Thanks to its unique low fuel consumption three turbofans configuration the Falcon 900 MPA demonstrates outstanding operational performance:

- Operation from short runways,
- Significant cruise speed up to Mach 0.85,
- Long range/long endurance (3 hours class @ 1,200 NM from its base),
- Two engines ferry capability.

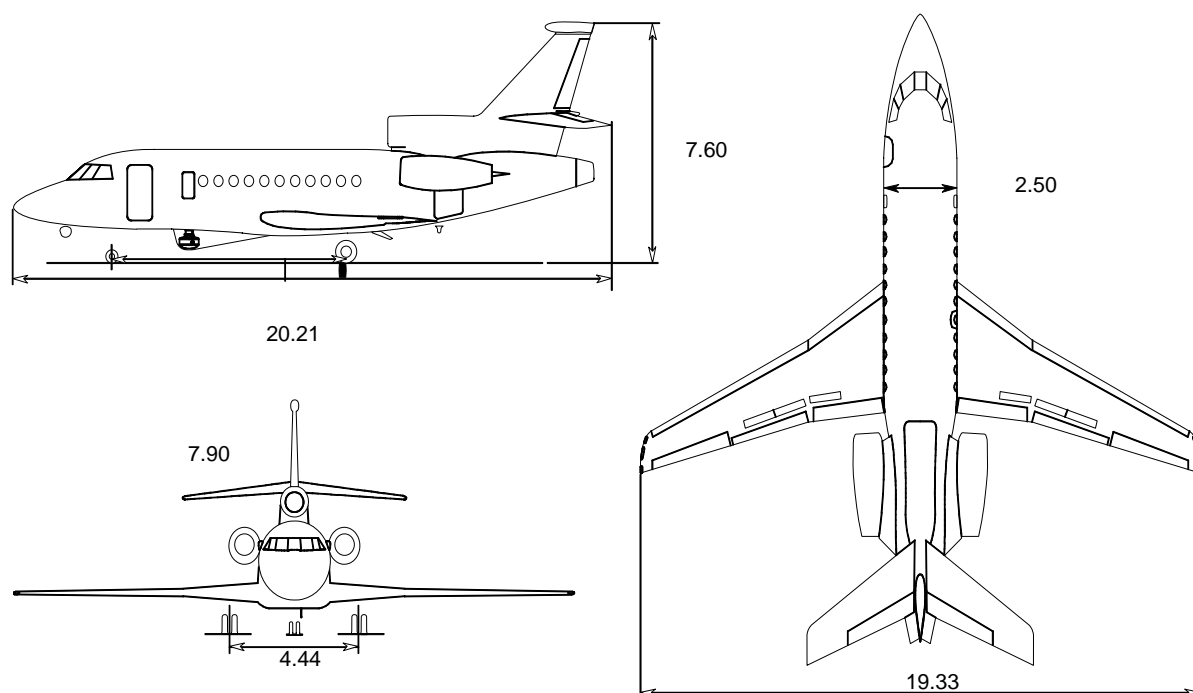
Safety

Safety is a paramount when flying at low level over the sea in all types of weathers. With three engines, the Falcon 900 MPA has been designed for transoceanic flights. The Falcon 900 MPA demonstrates such performance and safety records that it is capable to be ferried with one engine inoperative.

If a bird ingestion hazard or an engine failure occurs at low altitude, the Falcon 900 MPA may benefit from its three-engine configuration to keep on performing temporarily the critical mission.

This three-engine configuration also eases return to mother base or to reach a service centre instead of being stuck on a deployment airfield, until the problem has been fixed.

Dimensions



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DIRECTION GÉNÉRALE INTERNATIONALE

• Cabin height	74 in	1.88 m
• Cabin width	92 in	2.34 m
• Cabin length	33 ft 2 in	10.11m
• Maximum Take Off Weight	46,659 lbs	21,183 kg
• Equipped empty weight	25,683 lbs	11,660 kg
• Fuel	18,815 lbs	8,541 kg

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