Falcon 7X Backgrounder

Dassault has a long and distinguished tradition of developing advanced business jets and introducing new technologies to business aviation, drawing on state-of-the-art technologies derived from combat aircraft. The Falcon 7X is a perfect example of this tradition. The 5,950 nm / 11,020 km 7X features innovative digital flight controls and exceptional transonic/low-speed flight performance that heralded the transition to a new generation of business jets when it was introduced in 2007. Today, the Falcon 7X is the fastest selling Falcon ever, with more than 280 aircraft delivered.

A cabin of uncompromising comfort
Falcon 7X cabin width and height have the same generous dimensions as the popular Falcon 900 series. Cabin length is over 6 feet longer, offering 20% more volume, providing room for three spacious lounge areas and bigger front and aft lavatories, galley, and a large baggage compartment. The cabin can be configured with a private aft stateroom. The cabin pressurization system provides a low, 3,900 ft cabin altitude when flying at a high cruise altitude of 41,000 ft (12,497 m). The cabin features a sophisticated temperature control system and an extremely low noise level (50 to 52dB). The 7X offers an optional shower that can be used in flight or on the ground. Its cabin reflects the best of modern design and old-world craftsmanship.

Cabin controls and entertainment—at a touch
The 7X offers the latest generation of cabin entertainment, including a state-of-the-art FalconCabin HD+ cabin management system and Skybox wireless media server. Skybox provides a one terabyte storage capacity and a full complement of media from the Apple iTunes library including music, television, and movies. Cabin functions can be controlled from anywhere in the cabin using any Apple® device.

Unprecedented value
The 7X maintains its value better than competing aircraft, with a 10 percent higher retained value after six years. When you include lower cost of operation, a 7X owner can expect to save around $10 million in total cost of ownership over six years (based on 600 flight hours’ operation per year). The 7X offers a compelling value proposition.

Innovative wing design yields double-digit lift-to-drag improvement
The 7X wing features an optimized high-transonic design offering a double-digit improvement in L/D (lift-to-drag ratio) over previous Falcon airfoils. The 7X wing has a higher aspect ratio and a more pronounced sweepback angle than previous Falcon designs, permitting more efficient high-speed cruise performance. The wing includes a simplified light metal alloy/composite structure that saves weight and adds sturdiness to the design. The wing design enables the 7X to achieve a top speed (MMO) of .90 Mach, with a VMO of 370 knots. This means 7X operators can conduct most day-to-day flights at Mach .85 or above.

Digital Flight Control System adds performance and safety
The Falcon 7X’s pioneering Digital Flight Control System – the first in business aviation - provides a level of precise handling that can’t be matched by any purely mechanical means. The system is based on over 30 years of experience with fly-by-wire systems in military aircraft like the Mirage and Rafale Mach 2 fighters. Benefits, which include full flight envelope protection, stall prevention and over-speed limits, allow pilots to safely extract maximum performance whenever needed.
Second-generation “intuitive” flight deck improves crew performance

In 2013, the 7X’s EASy flight deck was upgraded to Dassault’s EASy II standard, which significantly enhances crew coordination and situational awareness, heightening performance and maximizing flight safety. Also available as a retrofit on earlier 7X aircraft, EASy II, like the basic EASy flight deck, is based on Honeywell’s EPIC® avionics system. Four large 14.1” displays provide everything from flight planning and automated checklists to position, situational and environmental data. An innovative graphical interface allows pilots to keep “eyes up” while adjusting flight plans or mapping their route.

The EASy II flight deck includes an optional Enhanced Vision System (EVS) enabling pilots to clearly view terrain and the airport environment in low visibility situations such as fog, haze, snow or at night. The system displays infrared images on the Head-Up Guidance System and on the pilots’ Multifunction Display Unit (MDU). EASy II adds new capabilities and safety enhancements. These include optional Synthetic Vision System (SVS), Runway Awareness and Advisory System (RAAS), XM® weather, Auto Descent Mode (ADM) and dual Jeppesen charts.

New capabilities have also been added for both approach and takeoff, including a Satellite Based Augmentation System non-precision approach capability with localizer performance and vertical guidance (SBAS/LPV) and single-button take off and go-around guidance (TOGA).

The upgraded avionics suite is compliant with new air traffic control requirements, including Automatic Dependent Surveillance-Broadcast (ADS-B) Out and Controller-Pilot Data Link Communications (CPDLC).

FalconBroadcast permits troubleshooting in the air

Introduced in 2012, FalconBroadcast is an airborne health monitoring service that provides real-time notification of in-flight events and maintenance status. The new tool helps operators begin the troubleshooting process while their aircraft is still in the air, allowing them to maximize the fleet dispatch rate.

Dassault’s signature three-engine design

Dassault’s three-engine design is recognized the world over as a model of unequalled performance, versatility, safety, and efficiency. The tri-jet 7X carries on this Falcon tradition, providing operators with increased access to more demanding airfields, including those located at high altitudes or in warm climates. A net thrust vector closer to the centerline provides better low-speed control with wider safety margins. An additional benefit of the three-engine design is unrestricted flight over water, offering more direct routings than are typically possible in twin-engine aircraft, with a correlating savings in time and money.

Pratt & Whitney Canada’s reliable PW307A power plant powers the 7X. Engine thrust is 6,400 pounds per engine and TBO is over 7,200 hours out of the box. The aircraft meets the most stringent noise standards, even those expected to be introduced over the next two decades.

Inspired flight performance

With its 5,950 nm range, the Falcon 7X can fly nonstop between cities like New York and Riyadh, Paris and Singapore and Los Angeles and Rome. The 7X operates more comfortably from shorter runways and smaller airports than other large-cabin jets. At typical landing weight, it can approach the runway at a slow, safe Vref speed of 104 knots (193 kph), then land and stop in just 2,070 feet (631 m). These characteristics allow day-to-day operations in and out of hundreds of airports other jets can’t access, including those with hot-and-high conditions, steep approaches and stringent noise restrictions. In August 2014, the Falcon 7X flew a test flight campaign at China’s Daocheng Yading Airport - the highest commercial airport in the world - that will enable it to operate at airports up to 15,000 ft.
The 7X was the first large cabin jet approved to fly in and out of London City Airport (LCY). It can lift off from the airport’s short 3,940 foot runway and fly nonstop as far as New York or Dubai.

This exceptional short field performance has allowed the Falcon 7X to accomplish some truly impressive flights. For instance, a 7X set a new speed record between Teterboro Airport and London City Airport, connecting the two major financial centers in just 5 hours and 54 minutes at an average speed of M.88.

Several Falcon 7Xs have flown medical relief missions to Antarctica, landing and departing on a grooved ice runway.

**Facts and figures**
The Falcon 7X was certified by both EASA and the FAA on April 27, 2007 and has currently received type certification from more than 20 aviation authorities. More than 280 aircraft have been delivered to date, making the 7X the fastest selling Falcon ever. The fleet has accumulated over 700,000 flight hours since the first aircraft went into service in 2007, and is in operation in 40 different countries on five continents.

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**ABOUT DASSAULT AVIATION:**
Dassault Aviation is a leading aerospace company with a presence in over 90 countries across five continents. It produces the Rafale fighter jet as well as the complete line of Falcons. The company employs a workforce of over 12,500 and has assembly and production plants in both France and the United States and service facilities around the globe. Since the rollout of the first Falcon 20 in 1963, over 2,500 Falcon jets have been delivered. Dassault offers a range of six business jets from the twin-engine 3,350 nm large-cabin Falcon 2000S to its flagship, the tri-engine 6,450 nm ultra-long range Falcon 8X and the new ultra widebody cabin Falcon 6X.
For more information about Dassault Falcon business jets, visit: dassault-aviation.com and dassaultfalcon.com

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FALCON 7X SPECIFICATIONS

- PERFORMANCE
  - Range: 5,950 nm (11,020 km) at Mach .80 (8 pax, 3 crew, NBAA IFR Reserves)
  - Maximum Mach Operating (MMO) speed: Mach 0.90
  - Takeoff Distance (SL - ISA, Max Take Off Weight): 5.710 ft (1,740 m)
  - Landing Distance (FAR 91, 8 pax, SL, NBAA IFR reserves): 2,070 ft (631 m)
  - Approach Speed, Vref (8 pax, 3 crew, SL, NBAA IFR Reserves): 104 kias (193 kph)
  - Maximum Certified Altitude: 51,000 ft (15,540 m)

- ENGINES & AVIONICS
  - 3 Pratt & Whitney Canada PW307A
    - 6,402 lb / 28.49 kN (Max Thrust, ISA + 17°C, SL)
  - EASy II Flight Deck
    - With Honeywell Primus Epic System

- EXTERNAL DIMENSIONS
  - Wing Span: 86 ft (26.21 m)
  - Length: 76.70 ft (23.38 m)
  - Height: 26.17 ft (7.96 m)

- INTERNAL DIMENSIONS
  - Cabin Height: 74 in (1.88 m)
  - Cabin Width: 92 in (2.34 m)
  - Cabin Length (excluding flight deck and baggage): 39.07 ft (11.91 m)
  - Cabin Volume (excluding flight deck and baggage): 1,552 ft³ (44 m³)
  - Baggage Volume: 140 ft³ (4 m³)

- WEIGHTS/CAPACITIES
  - Maximum Takeoff Weight: 70,000 lb (31,750 kg)
  - Maximum Landing Weight: 62,400 lb (28,304 kg)
  - Maximum Zero-Fuel Weight: 41,000 lb (18,598 kg)
  - Maximum Fuel Weight: 31,940 lb (14,488 kg)