DASSAULT
FALCON 8X
ULTRA-LONG RANGE TRIJET
Stretches all boundaries
The Falcon 8X is a beast, a jaguar waiting to pounce and reach for the blue above. It’s tough, climbs high, flies fast and can land 14 hours after take-off. The 8X is also considerably greener and gentler on the environment. It’s actually up to 35% nicer on planet earth than the competition. So, can an aircraft be perfect? Our man David Zara finds out.
was tempted to think of the 8X as a stretched 7X but this wouldn’t begin to address what Falcon has done, though the fuselage is in fact 3.6 feet longer. It’s not meant to replace the 7X but to add more of a choice to the fleet. It is Dassault’s largest plane and also its longest-range bird and it dethrones the 7X’s claims to those titles. All my Falcon dreams start with a call from Jean Rosanvallon, Dassault Falcon Jet’s President and CEO. You can imagine my answer...

A SENSE OF LOYALTY
Veteran Falcon pilots, Franco Nese and Ben Aram, were assigned to take me through the paces. In true Dassault style, Franco and Ben have both been around for a while. It seems that working for Dassault breeds a unique sense of loyalty and it’s not uncommon to speak to people who have been there for twenty, thirty or more years. The briefing was succinct and to the point and the flight would follow the form and function of previous flights. It would start with a takeoff and a smile and end with a landing and even more smiles.

We started with a preflight walk-around and everything was easy to check and preview but not before I paused to admire the 8X. It’s a beast of a plane but also well proportioned and beautiful. Its ramp presence is commanding without being ostentatious. The wing is a silver and white scimitar of a wing, reminding me that Falcons don’t need to mow down the air to power forward. They separate the air to make way for their lithe bodies to slither through the sky leaving everything undisturbed behind them.

THIRTY DIFFERENT CABIN LAYOUTS
The 8X is about 80 feet long and has a wingspan of over 86 feet. Despite having smaller outside dimensions than its competitors the cabin space is about the same size as other long-range business jets. The cabin is almost 43 feet long and a very comfortable 92 inches wide. At 74 inches it’s as tall as its competitors. The baggage compartment is not only large but efficiently shaped. There are three families of floor plans with short, medium and large entryways offering more than 30 possible layouts including one with a shower configuration. A crew rest area is also an option. The windows, 32 to be exact, allow lots of ambient light. There are some great cabin amenities too. Pullout tables are electric, there is a Falcon Cabin HD-Management System, dual Blu-Ray players, a 3D Airshow moving IPad map, Iridium or Inmarsat/ATG high-speed internet, HD color monitors up to 32 inches, a great audio system, a Skybox system to stream movies to IPads and external cameras to feel as one with the sky. So what does it feel like to sit in the cabin? Strange is the first word that came to mind when I considered we were slicing through the sky at warp-speed and it was eerily quiet, or about 3db quieter than the already incredibly quiet 7X’s cabin.

AUTOMATION
Starting the engines is a two-button affair. The rest is all automated. Pre-departure checks are simple and quickly dispensed with. I was afraid taxing would be less than smooth and my fears were both warranted and quickly assuaged. It takes a few turns to get used to taxiing without a tiller and the digital nose wheel system is good and proportional. I find the rudder pedals are positioned a little high for my taste but that’s a matter of opinion. I found the brakes touchy but I’m sure the cause of my rather abrupt braking was none other than yours truly sitting in the left seat. The landing gear does a superb job of absorbing runway imperfections and would later prove to do an equally great job of correcting my own landing imperfections. The side-stick controller feels great with just the right firmness. It took me about 5 seconds to forget I no longer had a yoke and 10 seconds to realize I didn’t miss it. I love not having to trim. The 8X is stable in its flight-path. You point the aircraft in any configuration and a millisecond later it trims itself and remains on the flight path you selected. It not only does a faster job of relieving stick pressures than any living pilot, it does it better too. Dassault’s fighter aircraft DNA comes alive once airborne. The digital flight control system offers unmatched crispness in the air. This is the most fun I’ve ever had in an aircraft. The 8X flies so well I felt the autopilot is almost not necessary and I didn’t use it much. It’s too much fun to fly manually. The digital system dampens turbulence, enhancing comfort and greatly improves safety with its flight envelope protection. There are a multitude of computers to manage any potential flight control issues and four modes (Normal/Alternate/Direct & Back-Up Laws) to fly the aircraft. The fly-by-wire system is powered and managed by three main and three secondary flight control computers. In addition to the four modes previously stated, the fourth mode, BACK-UP MODE is designed for temporary operation while the crew recovers to a higher level of flight control system laws. The statistical
chance of reaching bottom is virtually non-existent. You lose very little flight envelope protection when transitioning from normal law to alternate law in case of a system failure and should the system move to direct law you are left with an aircraft controlled by the pilot just like any other regular plane. Should you accidentally approach a stall, the 8X will simply fly to the edge of the stall and stay there happily loafing about but keeping you out of trouble.

A NATION OF ENGINEERS
You might be asking yourself, the 8X is an electric airplane, what would happen should you not be able to produce much-needed electricity? It’s a fair question. France is a nation of engineers and Dassault’s wizards have come up with failsafe solutions. There are three generators each producing 12KW
(400A), one for each engine along with five Permanent Magnetic Alternators providing additional independent sources of power to the Primary Flight Control System (PFCS) and Engine Electronic Controllers/Full Authority Digital Engine Control (EEC/FADEC). In the highly unlikely event they should all fail there is a Ram Air Turbine (RAT) to produce ample electrical power and charge the aircraft batteries above 140 KIAS. Then there are batteries and a large APU, though it’s technically restricted to ground use. An engine malfunction in the 8X is not considered an emergency. It’s merely an Abnormal Situation. While an actual engine malfunction is a rare event in today’s world, ingesting a bird large enough to destroy an engine isn’t. Captain Sully of Hudson River fame is a good reminder birds own the sky.

SAVING MONEY
Takeoff was brisk. V1 and Vr flew by in a flash and we were soon climbing like mad. A few air-traffic control mandated altitude restrictions later, we reached our cruise altitude and this is where the 8X shines. The aircraft’s maximum certificated ceiling is 51,000 feet but we elected to remain lower. At 41,000 feet and ISA +10, I saw about 700 pounds per hour per engine at Mach .80. Surprisingly at Mach .85 fuel consumption was only about 105 pounds per hour higher. Traditionally fuel consumption tends to be exponential between those speeds yet this increase was linear. There are three Pratt & Whitney PW307D engines powering this bird and they each produce 6720 lbs of thrust. That’s a lot of power for an aircraft whose maximum take-off weight is only 73,000 lbs. They are about 5% more powerful than their predecessors but surprisingly consume about 2% less. The lighter weight makes for cheaper landing fees and considerably less fuel consumption and cheaper operating costs compared to the competition. Balanced-field length is 5,880 ft and landing distance is a measly 2,220 ft, which means there are a lot more airports the 8X can operate out of. A sampling of those include challenging fields like Cannes, La Mole-St Tropez, Lugano, St Moritz, Aspen, Toluca, Lhasa, La Paz, Daocheng Yading and London City of course. Actually the 8X can depart from London City and make a good number of cities on the East Coast of the United States. It can also make Bermuda, Dubai, Lagos, Moscow and Novosibirsk without breaking a sweat. A high landing weight close to max takeoff weight also means flexibility when it comes to saving money by not having to refuel at some expensive airports.

This fuel efficiency is achieved in part thanks to the 8X’s smaller footprint so you’ll not only pay less for fuel but you’ll also save money on smaller hangar space and even equally important, you’ll increase your chance of finding overnight space on those days when a storm is looming large and everyone is looking for shelter.

The 8X behaves much the same regardless of weight. In the air it’s as aggressive as you want to be or as docile as a little Cessna. Maneuvering around the airport pattern it’s easy to forget you have a massive airplane behind you. The sky was clear that day but winds were gusting 12 to 20 knots. The 8X takes it all in stride. The Flight Path system means you point your circle where you want to go and that’s exactly where you’ll end up. I flew a steep approach to simulate a London City landing but with some extra zest added to it. Even at a seemingly exaggerated angle I was able to stop the 8X in about 2,500 feet on my second landing and without brak-
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ing hard. Besides being awe-inspiring the 8X is a confidence-builder.

The avionics are first rate and third-generation iterations of the Honeywell Primus Epic platform. It's easy and intuitive enough for a first-time user to grasp the basics to operate the system but complex enough to warrant dedicating the time to explore its full potential. More importantly, the system is easily scalable to accept improvements and meet future requirements. The new 3D radar is a joy to use and removes much of the skill needed to properly get an idea of the weather you need to deal with. A new FalconEye Combined Vision System (CVS) superposing Enhanced Vision System (EVS) with a Synthetic Vision System (SVS) in the Head Up Display is now certified. The SVS system can also be seen on the primary flight displays. There is an Enhanced Ground Proximity Warning System coupled with wind shear detection system, the latest version of Traffic Collision Avoidance System
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(TCAS II) and a Satellite Based Augmentation System/Localizer Performance with vertical guidance (SBAS/LPV) that allows for safer approaches at a multitude of airports. The 8X is equipped with Automatic Dependent Surveillance Broadcast out (ADSB-out) to comply with upcoming regulations. It is the same for Controller/Pilot Data Link Communication (CPDLC) requirements. An Automatic Descent Mode (ADM) in case of pilot incapacitation during a catastrophic depressurization is a good thing to have too should it happen. A Runway Awareness Advisory System (RAAS) is also always useful when operating into airports with multiple parallel runways.

GREEN AIRCRAFT

A great aircraft is not much more than the sum of its parts without proper support and here too Dassault rises to the challenge with a history of supporting aircraft even long out of production. There are almost a billion dollars worth of parts positioned through the world to assist clients in need of quick replacements. A dedicated team and the right support aircraft to rescue flights are ready to go anywhere in a matter of hours. These fully furnished support aircraft can not only bring much needed mechanics and parts to an aircraft in need but are also able to transport stranded passengers to their destination.

Finally and certainly very important, the 8X is also considerably greener and gentler on the environment as well. It’s actually up to 35% nicer on planet earth than the competition. Dassault’s manufacturing processes have also been streamlined to benefit the environment. In the past 15 years the factories have reduced their energy consumption by 20% and water usage by 80%. These reductions were achieved while increasing aircraft production by 50%. These are not inconsequential numbers and more than confirm Dassault’s commitment to the environment.

In a nutshell, Dassault has achieved a technological tour de force with the 8X proving technology combined with common sense and an ear for what clients want can produce miracles.

The Falcon 8X entered service in October 2016 and has already been delivered to customers in a number of key markets, including Europe, the United States, the Middle East, India and Brazil.

David Zara would love to hear readers’ comments, he can be reached at pilotzara@gmail.com