DASSAULT FALCON

ENGINEERED WITH PASSION

Aircraft Specification

Falcon 2000 LX

DGAC-DMF8008B

August 2009

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Note:

Dassault Aviation reserves the right to substitute equipment in lieu of that specified herein, whenever such substitution is deemed necessary to prevent delay in delivery, improve the product, or meet the requirements of the appropriate airworthiness authorities.

TOPIC PAGE

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GENERAL

The Falcon 2000LX is a high-performance, widebody business jet designed and produced by Dassault Aviation of France. The aircraft is powered by two Pratt & Whitney PW308C turbofan engines. The standard configuration is designed for 8 passengers. Its Type III emergency exit qualifies it to hold up to 19 passengers.

CERTIFICATION

The Falcon 2000LX is certified to Transport Category Aircraft Standards by both the European Aviation Safety Agency (EASA) and by the United States Federal Aviation Administration (FAA).

The Falcon 2000LX meets EASA CS-25 and FAR 25 Amendment 94 Transport Category Aircraft requirements. day/night IFR (Cat I and II), and flight into known icing conditions.

The Falcon 2000LX meets FAR 36 Stage IV and ICAO Annex 16 (chapter 4, with following noise levels, EPN dB):

Takeoff	80.7
Sideline	91.7
Approach	91.0

The Falcon 2000LX and all systems is capable of the following types of operations: Minimum Navigation Performance Specifications (MNPS) and Reduced Vertical Separation Minimums (RVSM) standards operations in the North Atlantic (NAT), Domestic US and Europe Airspace Regions, RNAV-5 (B-RNAV), RNAV-1 (P-RNAV), RNP-0.3, RNP-10 and GPS Non-Precision approach requirements.

LAYOUT

The Falcon 2000LX is built from metal alloys and composite materials. It relies on a double-swept, Mach-optimized profile wing similar to that of the Falcon 900 series. Its tail assembly features a movable tailplane at the lower third of the fin. The aircraft's avionics cabinets are located in the nose cone and under the floor in the front cabin. The radio cabinets are located in the nose cone and in the left-hand side flight deck closet. The main entry door is electrically controlled and operated, is located on the left-hand side of the aircraft behind the flight deck. An emergency exit is located farther aft in the cabin on the right-hand side. A stand-up lavatory and a large baggage compartment with in-flight accessibility are located in the aft cabin.

The aircraft's engines are mounted at the rear of the fuselage with standard target-type thrust reversers. Fuel is contained in structural tanks in both wings, in the center wing section, and in forward and aft fuselage tanks.

Standard exterior items

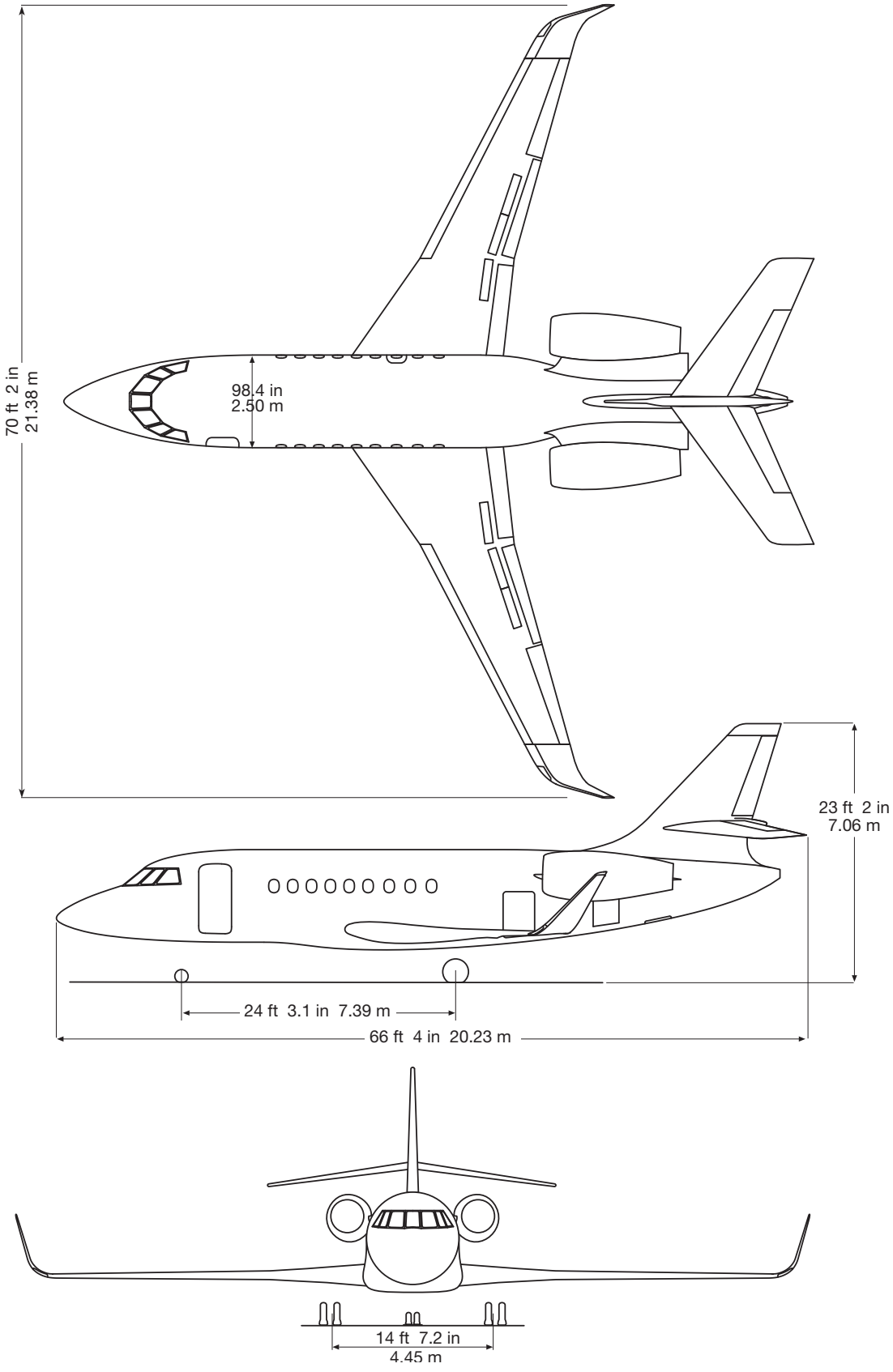
- White paint with two color stripes
- Single-point pressure refueling/defueling
- Dayton-Granger static discharge system
- Pulsed wing-root landing lights
- Red tail and belly anti-collision lights
- Wing ice detection lights
- Wing tip and tail navigation position lights
- RH and LH pylon lights and internal servicing lights
- Three white light strobe system (wing and tail)
- Taxi light on the nose gear

STRUCTURE

The Falcon 2000LX structure employs mainly high-strength aluminum alloys and complies fully with "damage tolerance" requirements. The aircraft relies on multiple load paths and low stress levels to transfer stress to alternate paths if the primary load path fails.

Wing planks are manufactured from solid blocks of aluminum. Kevlar or glass composites are selected for nose cone, horizontal stabilizer (carbon and titanium), rear cone, fillets and similar secondary structure components.

Three-view drawing



DIMENSIONS

Airframe

Overall length	66 ft 4 in	20.23 m
Overall height	23 ft 2 in	7.06 m
Wing span	70 ft 2 in	21.38 m
Wing sweep at quaterchord	29°/24°50’	
Wing area, gross	527.4 ft^2	49.00 m^2
Aspect ratio	7.66	
Mean aerodynamic chord	113.7 in	2.89 m
Cross Section (external)	98.4 in	2.50 m

Cabin

Cabin height	74 in	1.88 m
Cabin width (maximum)	92 in	2.34 m
Cabin width (floor)	75.2 in	1.91 m
Cabin length (flight deck separator to baggage door)	26 ft 2 in	7.98 m
Cabin volume (flight deck separator to baggage door)	1,024 ft^3	29.00 m^3
Flight deck volume	132.4 ft^3	3.75 m^3
Baggage volume (internal/external access)	130.6 ft^3	3.70 m^3
Mechanic’s servicing compartment (non-pressurized)	50.0 ft^3	1.42 m^3
Main entry door size	31.5 in x 67.7 in	0.80 m x 1.72 m
Emergency exit size (Type III)	21.0 in x 36 in	0.53 m x 0.92 m
Cabin window size	15.1 in x 11.8 in	0.38 m x 0.30 m
Baggage door size	30.5 in x 29.5 in	0.775 m x 0.75 m

Landing Gear

Wheelbase	24 ft 3.1 in	7.39 m
Track	14 ft 7.2 in	4.45 m
Minimum turning radius (with nose wheel steering at 60°)	49 ft 3.8 in	15.03 m

LIMITATIONS

Weights

Maximum ramp weight	42,400 lb	19,233 kg
Maximum takeoff weight	42,200 lb	19,142 kg
Maximum landing weight	39,300 lb	17,826 kg
Maximum zero fuel weight	29,700 lb	13,472 kg
Equipped empty weight*	22,635 lb	10,267 kg

* Based on standard configuration including unusable fuel, engine oil, basic interior, standard avionics and paint.

CG location

CG limits: From 32.5% of Mean Aerodynamic Chord (MAC) aft to 14% of MAC Forward.

Fuel Quantity

The approximate total usable fuel capacity is 16,660 lb (7,557 kg) or, at a 6.7 lb/US gallon (0.803 kg/l) fuel density, 2,487 US gallons (9,411 l).

Speeds

Maximum Operating Speed (V_{MO})	370/350 kias
Maximum Operating Mach (M_{MO})	.862/.85
VFE: SF1 (Slats + Flaps 10°)	200 kias
VFE: SF2 (Slats + Flaps 20°)	190 kias
VFE: SF3 (Slats + Flaps 40°)	180 kias
VLO: Landing gear operating	190 kias
VLE: Landing gear extended	245 kias
Airbrakes operating or extended	no limitation

Altitude and Temperatures

Maximum operating altitude	47,000 ft
Airport altitude (maximum)	14,000 ft
Operating temperatures at sea level	-54 °C to +50 °C -65 °F to +122 °F

GUARANTEED PERFORMANCE

Takeoff Distance

Balanced Field Length

42,200 lb (19,142 kg) ..... 5,585 ft (1,702 m)**
(Maximum takeoff weight) .....
(sea level, ISA)

Range

(Full fuel, 6 passengers, 2 crew,
23,465 lb (10,643 kg) basic operating weight,
M.80*, ISA, zero wind
NBAA IFR reserves) ..... 4,000 nm**

Cruise Speed

The maximum cruise speed at the weight of 32,000 lb (14,515 kg) as limited by the maximum cruise thrust setting or MMO is 508 KTAS* at 25,000 ft (7,620 m) and standard temperature.

Approach Speed (Vref) ..... 113 kias*

26,490 lb (12,015 kg)
(Typical landing weight,
6 passengers, NBAA IFR reserves)

Landing Distance

26,490 lb (12,015 kg) ..... 2,630 ft (801 m)**
(Typical landing weight, (sea level, ISA,
6 passengers, NBAA IFR reserves) FAR 91)

* Guaranteed Performance (±3%)

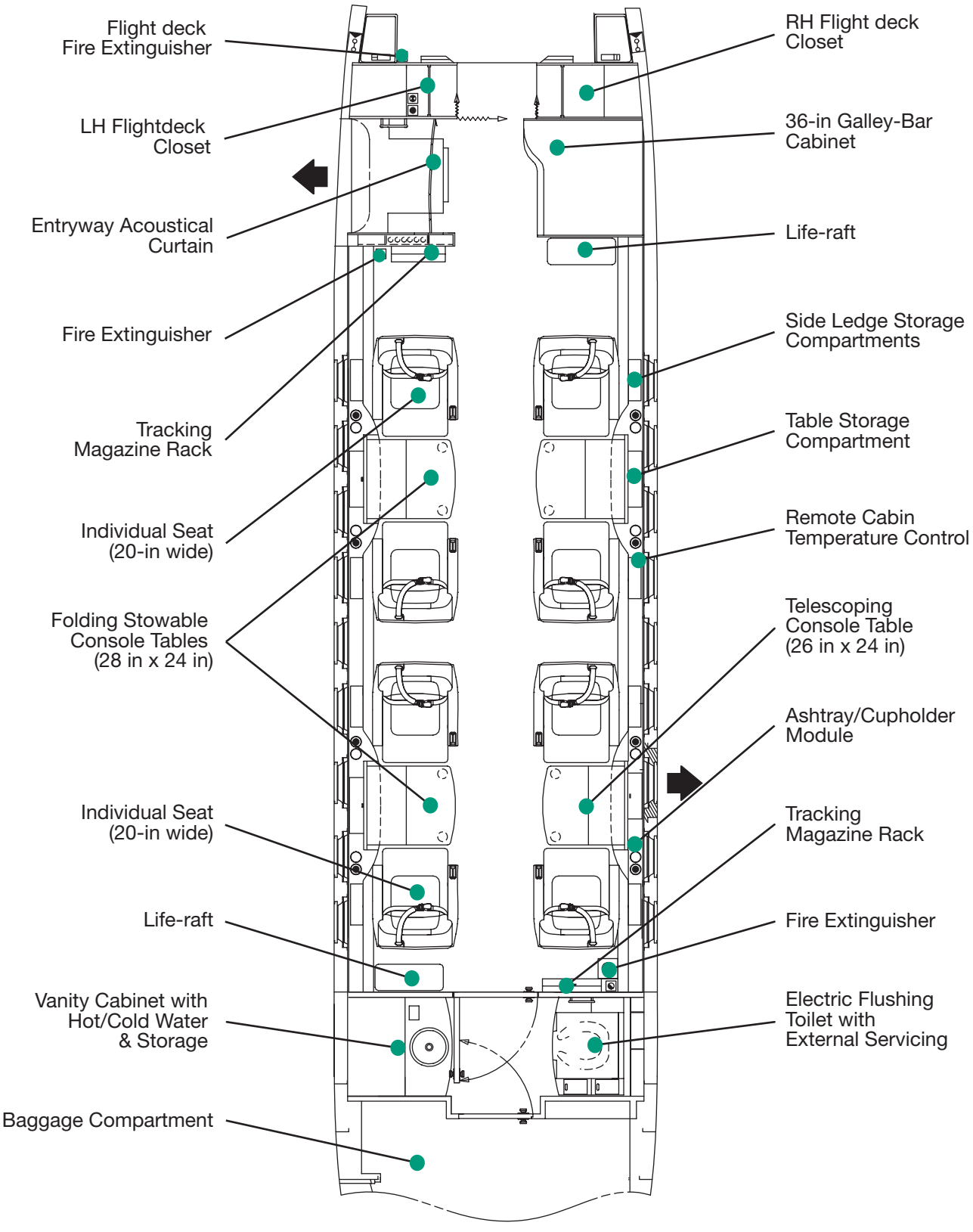
** Guaranteed Performance (±5%)

Assumptions

The performance data are based on the following conditions:

- Equipped empty weight: 22,635 lb (10,267 kg) with standard equipment including paint.
- In accordance with EASA CS-25 and FAR 25 Amendment 94 regulations, takeoff and landing performance data are calculated on the basis of a smooth, hard, dry-surfaced runway with zero wind, no slope, and an anti-skid system in operation.
- Range is determined by using the NBAA IFR fuel reserves performed in still air at standard atmosphere. Includes climb, cruise at three flight levels (maximum), and descent.
- The fuel quantity allows (in addition to the planned distance flown): 10 minutes of taxiing, one minute of takeoff, and NBAA IFR reserves (one approach, one go-around, holding for five minutes at 5,000 ft (1,524 m), a flight of 200 nm (370 km) to an alternate airport, and holding for up to 30 minutes at 5,000 ft) (1,524 m).
- The fuel is assumed to have a heating value of 18,400 BTU/lb (42,800 kN/kg) and a density of 6.7 lb/US gallon (0.803 kg/l).

Interior layout



GENERAL DESCRIPTION

The passenger cabin is soundproofed and insulated, and measures 26 ft 2 in (7.98 m) in length including an aft lavatory. It is configured with eight individual passenger seats. Each passenger seat is provided with an ashtray and cupholder module, a cold air outlet and a reading light. A stowable, folding console table is installed for each pair of facing seats.

Two indirect lighting systems provide general lighting throughout the cabin. They are divided into two zones. Individual reading and table lights are also provided.

Emergency equipment, including a first-aid kit, smoke hood, life jackets vests and life rafts are provided on the aircraft. Oxygen masks are installed for all passengers in the cabin and in the lavatory.

A maintenance ladder is installed in the mechanic's servicing compartment.

Flight deck - Entryway - Galley

The aircraft main entry door (electrically controlled and operated) is located on the forward, left-hand side of the fuselage. LH and RH flight deck closets are installed forward of the door.

A 36-in galley-bar unit is located on the right-hand side of the cabin and opposite the entry door. It offers adequate work surfaces and includes:

- a sink supplied with hot and cold water
- a high temperature oven
- an automatic cappuccino/expresso coffee machine with hot/cold water spigot
- two ice chests
- storage drawers
- a trash container
- glass storage racks.

Forward cabin

The forward cabin features four (20-in wide) individual seats (certified to the 16g requirements) and arranged in facing pairs on the left-and right-hand sides of the cabin.

Each seat includes floor tracking, base tracking, side tracking, swivel, full flat recline (berthing), integral headrests and retractable armrests, electrically controlled lumbar.

Each pair of forward seats is provided with a folding stowable console table (28 in x 24 in).

Rear cabin

The rear cabin also features four (20-in wide) individual seats arranged as in the forward lounge and functionally identical. The right-hand side pair of seats is provided with a telescoping, 26 in x 24 in console table.

Lavatory

The lavatory is equipped with an electric flush toilet on the right and a vanity cabinet on the left-hand side of the compartment. The vanity cabinet includes a sink with hot and cold water.

The external toilet-servicing connector is located on the right-hand side of the aircraft. The galley and the lavatory are supplied through a central water system, which can be drained externally. It also has an internal filler cap and gauge.

To ensure privacy, the lavatory compartment is separated from the cabin by a door.

Baggage Compartment

The compartment's volume is 130.6 ft^3 (3.7 m^3).

Access to the baggage compartment is available from inside or outside the aircraft. The compartment is lined and features garment hanger racks in the forward area and fold-down baggage shelves to maximize baggage storage.

Interior Finishing

The cabin provides generous proportions for comfort and ease of movement during lengthy flights. Each interior is finished with:

Headliner, Flight deck: ..... Ultra Leather/suede
Headliner, Main Cabin: ..... Ultra Leather/suede
Window Panels, Shades: ..... Fabric
Service Ledges, Main Cabin: ..... Leather
Lower Sidewalls, Main Cabin: ..... Leather
Carpet: ..... High-Quality, 100% Wool
Bulkheads & Doors: ..... Wood Veneer
Cabinetry: ..... Wood Veneer & Laminates
Metal Finish: ..... Brushed Aluminum
Tables: .....Composite with Wood Veneer
Seats: ..... Fabrics or Leather
Closet/Baggage Compartment Lining: ..... Grospoint

ENGINES

The Falcon 2000LX operates with two Pratt & Whitney PW308C engines with a rated takeoff thrust of 7,000 lb (at sea level, up to 30°C) each. The engine is a two-spool turbofan with a front-mounted single stage fan.

The Falcon 2000LX's two engines are controlled by dual FADEC systems (Full-Authority Digital Electronic Controls). The engines meet EPA Part 87 requirements for emissions. Engine parameters are displayed into Engine/CAS windows on each Primary Display Unit.

The nacelles and engines are separated from the airplane's fuselage and pylons by firewalls.

THRUST REVERSERS

Each engine is fitted with a hydraulically operated thrust reverser for ground use.

FUEL SYSTEM

The fuel system consists of two distinct subsystems that control fuel tanks in each of the wings, in the center section and in forward and aft tanks. Each engine draws fuel from its respective wing tank, one-half of the center section tank and one forward or aft tank. Fuel flows from pressurized tanks to the engines by four brushless booster pumps installed in a sump, supplied by jet pumps. Pressurizing the fuel tanks permits the engines to continue drawing fuel if the booster pumps fail during maximum demand on take-off. Interconnecting the LH and RH tanks enables fuel levels to balance. Falcon 2000LX is designed so any fuel tank can feed any engine and feature single-point refueling capability.

The total usable fuel capacity is approximately 16,660 lb (7,557 kg) or, at a 6.7 lb/US gallon (0.803 kg/l) fuel density, 2,487 US gallons (9,411 l).

HYDRAULIC SYSTEM

The hydraulic system provides power to operate flight controls, landing gear and brakes. The Falcon 2000LX operates with two main, independent and simultaneous hydraulic systems for added safety. The hydraulic system operates with MIL-PRF-5606 hydraulic fluid under a working pressure between 2,850 psi (19.6 MPa) and 3,050 psi (21.0 MPa).

- The left system is powered by two hydraulic pumps (one on each engine)
- The right system is powered by the hydraulic pump of right engine and by a stand-by pump.

When powered by the stand-by pump, the right system operates between 1,550 psi to 2,400 psi (10.7 MPa to 16.5 MPa). The stand-by pump can be operated manually to power either of the dual hydraulic systems and to supply hydraulic fluid to operate the flight controls, landing gear and the brakes, for maintenance operations on the ground.

The reservoirs are pressurized by bleed-air.

FLIGHT CONTROLS

The Falcon 2000LX is controlled in flight using conventional flight control surfaces:

These are:

- Two ailerons for roll and an emergency aileron actuator.
- Two elevators and a movable horizontal stabilizer for pitch.
- A rudder for yaw. A yaw damper unit is installed on the rudder control linkage.
- Two mobile outboard leading edge slats and four double-slotted Fowler flaps for takeoff, approach and landing,
- Six airbrakes for aerodynamic braking with automatic activation after landing and RTO (Rejected TakeOff).

The airplane's primary flight controls incorporate:

- An AFU (Artificial Feel Unit) that consists of springs on each axis.
- On the aileron and rudder controls, the main AFU's are mounted in series with electrical actuators.
- In the aileron control system, a fully electrical "Arthur Q" unit causes the feel force to vary with the airspeed.
- In the elevator control system, an electrical "Arthur Q" unit slaved to the horizontal stabilizer position is used to maintain the stick force per "g" to a nearly constant level throughout the flight envelope.

In the event of failure, the aileron and elevator feel systems are returned to their lowest values to ensure safe surfaces displacement at any aircraft speed.

The elevator, rudder and ailerons are controlled by push-pull rods that drive dual barrel hydraulic servo-actuators. The rudder and aileron can be trimmed using electrical actuators that adjust the neutral position of the AFU on the respective linkages.

To accomplish pitch trim, two electric motors drive a jackscrew that displaces the stabilizer around a hinge point.

The airbrakes and slats are hydraulically actuated. The flaps may be operated in increments by a jackscrew powered by a hydraulic motor.

Two angle of attack sensors allow the automatic extension of slats at high angles of attack.

LANDING GEAR

The landing gear is a retractable tricycle-type with dual wheels on all landing gear. It is electrically controlled and hydraulically actuated.

The main trailing arm gear retracts by swinging laterally inward. It is fitted with 26 in x 6.6 in - 14 in - 225 mph radial tires (tire pressure: 219 psi/1.51 MPa).

The nose gear retracts by swinging forward. Before retraction, the nose wheels are mechanically centered. The nose gear is fitted with 14.5 in x 5.5 in - 6 in - 225 mph radial tires (tire pressure: 183 psi/1.26 MPa).

The hydraulic system powers the nose wheel steering, which is electrically controlled from the left-hand pilot's station. In the event of failure, a shimmy damper maintains nose wheel directional stability.

The standby landing gear extension, with an emergency hydraulic extension handle on the front panel, operates hydraulically and does not include electrical sequencing. Three manual override handles in the flight deck allow the landing gear to free fall into a down and locked position in an emergency.

A temperature sensor is fitted on each brake. Brake temperature is displayed in the hydraulic synoptic on the flight panel displays.

The landing gear carbon disk brakes are powered independently by two hydraulic systems. The N° 2 hydraulic system provides back-up braking with an accumulator for parking and emergency braking. The braking system provides a signal for automatic airbrake activation upon touch down or landing.

ELECTRICAL SYSTEM

The Falcon 2000LX's electrical system is a 28-Volt DC system. It operates under any of four available sources of power: two 12 kW rectifier-alternators, each one driven by an engine; a 9 kW starter generator driven by the APU (Auxiliary Power Unit), by external power and by two batteries. A 28-Volt DC ground power receptacle with over-voltage protection enables electricity to be supplied from an external power source for routine maintenance purposes and as an alternate method for starting the APU. The two 36 A/h nickel-cadmium batteries provide for on-ground APU or in-flight engine starts.

The two rectifier-alternators supply power to three independent bus bars (LH, RH and essential), which serve as a conduit to distribute power to the airplane's various systems. The buses can be tied or untied by switches on the overhead panel.

PNEUMATIC SYSTEM

The pneumatic system relies on Low-Pressure (LP) and High-Pressure (HP) bleed air drawn from the two engines or from the APU, which is supplied to the cabin and the anti-icing system. HP bleed is regulated by an electrical valve controlled by a Bleed Air Supply Computer.

The air conditioning system supplies the cabin with a mixture of cool and warm air on demand. Cool air is provided by a single two-wheel bootstrap air cycle cooling unit connected to primary and secondary heat exchangers and a condenser. A jet pump provides circulation through the exchangers when the airplane is on the ground or flying at low speed.

Temperatures in the passenger and crew compartments can be controlled by two automatic, independent temperature control systems and by a backup manual control system.

The pressurization system can maintain cabin and baggage compartment pressures up to the rated pressure differential of 9.00 psi (620 hPa) for all flight altitudes below 47,000 ft (14,325 m), ensuring a maximum cabin altitude of 8,000 ft (2,438 m). Cabin pressure is controlled by two outflow valves. The nose cone is also pressurized from the cabin air.

The pneumatic system also controls pressurization of the fuel tanks.

A catalytic ozone-removal system is installed.

AUXILIARY POWER UNIT

A self-contained APU (Auxiliary Power Unit) is installed in the aft fuselage. It is designed for ground and in flight operation: Maximum operating altitude is 35,000 ft (10,668 m), used to start the engines, and to deliver bleed air to the air conditioning system when the airplane is on the ground. A 9 kW starter generator starts the APU itself, supplies power to aircraft systems and is fitted with an APU Electronic Control Unit.

ICE AND RAIN PROTECTION

The ice-protection system is intended to permit safe flight into and through intermittent or continuous maximum icing conditions. Heated bleed air produced by the engines and directed to the air conditioning system serves as an anti-icing agent on the leading edges of the wings, the engine air-inlets and the nacelles. The windshield, pitot probes, temperature probes, static ports and angle-of-attack sensors are electrically heated for ice protection.

The inner surface of the windshield panels is defogged using air from the air conditioning system. The side windshield panels and the pilot's sliding window are defogged electrically. The cabin windows can be kept free of fog by preventing moisture from accumulating in the airspace between the window panes.

Independent, electrically-operated wipers help keep the front windshields free of rain.

FIRE PROTECTION SYSTEM

The Falcon 2000LX is equipped with a fire-detection system that includes audio and visual warnings. Fire detectors are located in zones 1 and 2 of each engine area, in the APU shroud and in the landing gear wheel wells. One fire extinguisher container, with a two-shot capacity, is positioned at each of the aircraft's two engines, and a third is located at the APU.

In addition, three portable fire extinguishers are located in the aircraft, one in the flight deck and the others in the passenger cabin. A smoke detector is installed in the baggage compartment.

OXYGEN SYSTEM

In case of depressurization, drop-down masks are automatically released (or can be manually released) so passengers can breathe low-pressure oxygen from a 77.6 ft^3 (2,150 l) container.

Oxygen flow is regulated by cabin altitude.

Oxygen is continuously provided to the crew on demand. The flight deck is equipped with quick-donning masks with built-in regulators and comfort harnesses.

The oxygen system is fitted with an electronic computer for airport altitudes up to 14,000 ft (4,267 m).

AVIONICS

The Falcon 2000LX's avionics system encompasses:

Description	Quantity	Vendor
Honeywell Primus Epic System		
Flight Display System (w/4 each 14" LCD's, 2 each Cursor controls & 2 each keyboards)	1	Honeywell
Flight Control Systems	2	Honeywell
Autothrottle System	1	Honeywell
Crew Alerting & Aural Warning Systems	3	Honeywell
Central Maintenance Computer	1	Honeywell
Interactive Checklist	1*	Honeywell
Flight Management Systems	2	Honeywell
Global Positioning Systems	2	Honeywell
Air Data Systems	2	Honeywell
Enhanced Ground Proximity & Windshear Warning System	1	Honeywell
VHF Communication Systems	2	Honeywell
VOR/ILS/Marker Navigation Systems	2	Honeywell
DME Systems	2	Honeywell
ADF Systems	2	Honeywell
Mode S Transponder Systems	2	Honeywell
Complementary Systems		
TCAS II System	1	ACSS
Data Loader	1	Honeywell
Inertial Reference Systems	2	Honeywell
Color Weather Radar System	1	Honeywell
Radio Altimeter System	1	Honeywell
Cockpit Voice Recorder	1	Honeywell
Flight deck Audio Systems w/radio & intercom functions & SELCAL (HF1 & 2, VHF1 & 2)	2	Honeywell
Flight deck Headsets	2	Telex
Falcon Cabin Management System (FCMS) (PA/chime, lights, temperature only, without entertainment)	1	Rockwell Collins
HF Communication Systems	2	Rockwell Collins
ELT (Tri-frequency) System	1	ELTA
Emergency Equipment		
Standby Magnetic Compass	1	Smiths
Integrated Electronic Standby Indicator (Attitude, Altitude, Mach/Airspeed)	1	Meggitt
Rechargeable Flashlights	2	DME

* 2nd Interactive Checklist will be available in EASy Phase 2

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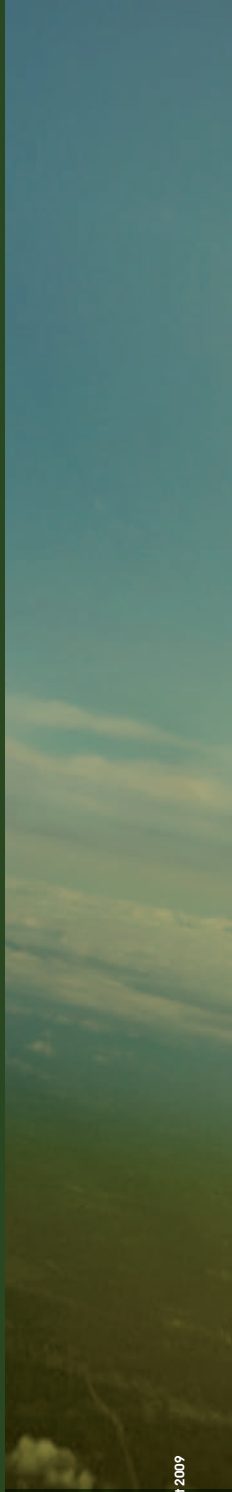

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