

European Aviation Safety Agency

EASA

**TYPE CERTIFICATE DATA SHEET
EASA.A.155**

FALCON 7X

DASSAULT AVIATION

9 Rond Point Marcel Dassault
75008 PARIS

For models: FALCON 7X

Issue 4.0: 20 January 2010

SECTION 1. GENERAL	3
SECTION 2. FALCON 7X.....	4
2.I General.....	4
2.II FALCON 7X Certification Basis.....	4
2.III FALCON 7X Technical Characteristics and Operational Limitations.....	6
2.III.1 Type Design Definition	6
2.III.2 Dimensions.....	6
2.III.3 Engines	6
2.III.4 Auxiliary Power Unit (APU)	7
2.III.5 Fluids (Fuel/Oil/Additives):	7
2.III.6 Fluid capacities:.....	7
2.III.7 Airplane speed limits	8
2.III.8 Maximum Operating Altitude.....	8
2.III.9 All weather Capability.....	8
2.III.10 Maximum Weights.....	8
2.III.11 Leveling Means:	9
2.III.12 Minimum Flight Crew:.....	9
2.III.13 Maximum Seating Capacity:	9
2.III.14 Exits:.....	9
2.III.15 Baggage/Cargo Compartments:	9
2.III.16 Wheels and Tyres:	9
2.IV FALCON 7X Operating and Service Instructions	10
2.V NOTES.....	10
SECTION 3. CHANGE RECORD.....	11

SECTION 1. GENERAL

- **Data Sheet No:** TCDS EASA.A.155
- **Airworthiness Category:** Large Airplane
- **Performance Category:** A
- **Certifying Authority:** EASA
- **Type Certificate Holder:** DASSAULT AVIATION
9, Rond Point Marcel Dassault
75008 PARIS - FRANCE
- **ETOPS:** Not applicable

SECTION 2. FALCON 7X

2.I General

Aeroplane: FALCON 7X

2.II FALCON 7X Certification Basis

- Reference Application Date for EASA Certification: May 26th, 2002
- EASA Certification Date: April 27th, 2007
- EASA Certification Basis:

1. The following EASA/JAA airworthiness standards effective on the reference date are:

- JAR 1 at change 5 plus orange papers 1/97/1 and 1/99/1
- JAR 25 at change 15
- JAR AWO at change 2

Refer to CRI A01 for exhaustive list of applicable requirements

2. Special Conditions:

- CRI B-01 Stalling and scheduled operating speeds
- CRI B-02 Motion and effects of cockpit controls
- CRI B-03 Static directional, lateral and longitudinal stability and low energy awareness
- CRI B-04 Flight envelope protection
- CRI B-05 Normal load factor limiting system
- CRI C-01 Design maneuver requirements
- CRI C-02 Limit forces and torque
- CRI C-03 Design dive speed Vd
- CRI C-05 Interaction of systems and structure
- CRI C-06 Fuel tank crashworthiness
- CRI D-02 Electronic flight control unusual features
- CRI D-05 Flight controls - Harmonised 25.671
- CRI D-07 Nose wheel steering - Towbarless towing
- CRI D-09 Airworthiness standards for subsonic aeroplanes to be operated above 41 000 ft
- CRI D-11 Fire protection of thermal and acoustic insulation material
- CRI D-22 Fuselage doors
- CRI E-01 Fuel tank safety
- CRI E-04 Reversing system requirements
- CRI E-05 Sustained engine imbalance
- CRI F-06 Protection from effects from HIRF
- CRI F-24 Human factors aspects of flight deck design
- CRI F-44 Installation of Crew rest area

3. Exemptions: none

4. Deviation:

- CRI D-14 Door between passenger compartments
- CRI D-18 Personal injury criteria of dynamic testing of side facing sofa

5. Equivalent Safety Findings:

- CRI C-09 JAR 25.251, 25.305 and 25.629 - Vibration, buffet and aeroelastic stability requirements
- CRI C-12 JAR 25.361 - Engine failure loads
- CRI C-15 JAR 25.341, 25.343(b), 25.345(c), 25.371, 25.373(a), 25.391, 25.1517 - Gust and continuous turbulence
- CRI C-16 JAR 25.963(g) - Fuel tank access cover
- CRI D-12 JAR 25.811(d)(1) and (d)(2) - Emergency exit locator sign used also as marking sign – cabin without divider
- CRI D-13 JAR 25.811(d)(1) and (d)(3) - Emergency exit locator sign used also as marking sign – cabin with divider
- CRI D-15 JAR 25.831(a) - Packs-off take off
- CRI D-19 JAR 25.699(b) - Lift and drag device indicator
- CRI E-02 JAR 25.865, 25.1181, 25.1195, 25.1203 - Engine fire protection in designated fire zones
- CRI E-08 JAR 25.1093(b) - Falling and blowing snow
- CRI E-10 JAR 25.1549 - Powerplant instruments – colour markings
- CRI E-12 JAR 25.971 - Fuel tank sump
- CRI F-22 JAR 25.1357(e), 25.1309 - Honeywell PRIMUS EPIC Integrated Modular Avionics system (compliance with requirements for individual circuit protection)
- CRI F-35 JAR 1459 (a)(2) - Use of IRS for DFDR vertical acceleration
- CRI F-37 JAR 25.1329, JAR 25.1335 - Revisions to JAR 25.1329 and 25.1335 resulting from Flight Guidance Systems Harmonisation
- CRI F-41 JAR 25.1322 - CAS window red message line space
- CRI G-01 JAR 25X-1591 - Operation on contaminated runways
- CRI K-01 Revisions to JAR AWO resulting from JAR/FAR 25.1329 Harmonisation
- CRI K-02 Revisions to JAR AWO paragraphs resulting from JAA/FAA Harmonisation

6. Elect to comply by Dassault Aviation:

- JAR 25.331(c)(2) amdt 16 Symmetric manoeuvring conditions
- JAR 25.335(b)(2) amdt 16 Design airspeeds
- JAR 25.337(d) amdt 16 Limit manoeuvring load factors
- JAR 25.391 amdt 16 Control surface loads: general
- JAR 25.395(b) amdt 16 Control system
- JAR 25.415 amdt 16 Ground gust conditions
- JAR 25.491 amdt 16 Taxi, takeoff and landing roll
- JAR 25.493(c) amdt 16 Braked roll conditions
- JAR 25.605(a) amdt 16 Fabrication methods
- JAR 25.731(d)(e) amdt 16 Wheels
- JAR 25.735 amdt 16 Brakes
- JAR 25.904 amdt 16 Automatic takeoff thrust control system (ATTCS)
- JAR 25.933 amdt 16 Reversing systems
- JAR 25.939(d) amdt 16 Turbine engine operating characteristics
- JAR 25.951(d) amdt 16 Fuel system - General
- JAR 25.952(c) amdt 16 Fuel system analysis and test
- JAR 25.954 amdt 16 Fuel system lightning protection
- JAR 25.961(a) amdt 16 Fuel system hot weather operation
- JAR 25.967 amdt 16 Fuel tank installations
- JAR 25.975(a)(5) amdt 16 Fuel tank vents
- JAR 25.981 amdt 16 Fuel tank temperature
- JAR 25.993 (c) amdt 16 Fuel system lines and fittings
- JAR 25.994 amdt 16 Fuel system components
- JAR 25.997 amdt 16 Fuel strainer or filter
- JAR 25.1013 amdt 16 Oil tanks
- JAR 25.1015 amdt 16 Oil tank tests
- JAR 25.1019 amdt 16 Oil strainer or filter
- JAR 25.1145(c) amdt 16 Ignition switches

JAR 25.1301(d) amdt 16	Function and installation
JAR 25.1305(a)(3),(a)(9),(c)(5),(c)(6),(c)(7),(c)(8),(d)(2) amdt 16	Powerplant instruments
JAR 25.1309 amdt 16	Equipment, systems and installations
JAR 25.1310 amdt 16	Power source capacity and distribution
JAR 25.1323 amdt 16	Airspeed indicating system
JAR 25.1351 (b)(6) amdt 16	Electrical systems and equipment - General
JAR 25.1435 amdt 16	Hydraulic systems
Appendix H §H25.3 amdt 16	Instruction for Continued Airworthiness

6. Environmental Standards:

Noise level: ICAO Annex 16 Volume 1 Chapter 4 Amdt 8.

Fuel venting and emissions: ICAO Annex 16 Volume 2 Part II and Part III Chapter 2, Amdt 4 applicable on November 4, 1999.

7. Additional National Requirements:

To be defined at a later stage for JAA countries not being member of EASA.

2.III FALCON 7X Technical Characteristics and Operational Limitations

2.III.1 Type Design Definition

The Falcon 7X is a maximum 22 occupants, tri-jet, long range, large aeroplane category. It has a low positioned, high swept wing, mid-height horizontal stabilizer and tricycle landing gear. Flight controls are fly-by-wire.

Three Pratt & Whitney Canada PW307A engines are rear mounted, two on side of fuselage and one in center position.

The Type Design aircraft configuration is the F7TC version stored in an electronic format under the virtual product management tool ENOVIA/VPM©. The repository of the ENOVIA/VPM© database is located in Dassault Aviation facilities. This F7TC version contains also the type design list of equipment."

2.III.2 Dimensions

Length	23.38 m
Span	26.21 m
Height	7.93 m
Gross wing area	70.7 m ²

2.III.3 Engines

Model: PRATT & WHITNEY CANADA Corp. - Model PW307A

Engine TCDS: EASA TCDS IM.E.035

Note : Engine is approved for operation with thrust reverser p/n F7XC782140020

Number: 3.

Ratings:

- Maximum takeoff static thrust : 2 849 daN (6405 lbs) limited to 5 minutes
- Max continuous : 2 849 daN (6405 lbs)

Engine limits: Refer to the Airplane Flight Manual and to the relevant Engine Type Certificate Data Sheet

2.III.4 Auxiliary Power Unit (APU)

Model : HONEYWELL - 36 - 150 [FN]

APU limits: Refer to the EASA approved Airplane Flight Manual DGT105608. APU is usable for ground operation only.

2.III.5 Fluids (Fuel/Oil/Additives):

Approved Fuel, oils and additives : Refer to the EASA approved Airplane Flight Manual DGT105608.

2.III.6 Fluid capacities:

Fuel capacity

USABLE FUEL	Liters	kg (*)	US Gallons	lbs (*)
Left circuit	5944	4773	1570	10522
Right circuit	5944	4773	1570	10522
Center circuit	6154	4942	1626	10896
Total usable	18042	14488	4766	31940
UNUSABLE FUEL				
Drainable	65	52	17	115
Undrainable	41	33	11	72
Total unusable	106	85	28	187

* assuming a fuel density of 0,803 kg/liter

Engine Oil Tank Capacity * :

	Liters	kg (**)	US gallons	lbs (**)
Max oil level				
Left engine	7.87	7.67	2.08	16.90
Right engine	7.87	7.67	2.08	16.90
Center engine	7.87	7.67	2.08	16.90
Total	23.61	23.01	6.24	50.70
Min oil level				
Left engine	6.23	6.07	1.64	13.38
Right engine	6.23	6.07	1.64	13.38
Center engine	6.23	6.07	1.64	13.38
Total	18.69	18.21	4.92	40.14

(*) Tank quantities do not include undrainable oil or residual oil in the Accessory Gearbox, oil filter bowl or air-cooled oil cooler (ACOC)

(**) Based on specific gravity of 0.975

2.III.7 Airplane speed limits

(Unless otherwise specified, speeds are indicated airspeeds)

VMO	at sea level	350 kts
VMO	straight line variation up to 10,000 ft	370 kts
VMO	from 10,000 ft to 28,000 ft	370 kts
MMO	from 28,000 to 51,000 ft	0.9
V _A	maneuvering speed	218 kts
V _{FE}	SF1	200 kts
	SF2	190 kts
	SF3	180 kts

Note : Above 20,000 ft, do not establish, nor maintain a configuration with the slats and the flaps extended.

V _{LO}	Landing gear operation	200 kts
M _{LO}	0.70
V _{LE}	Landing gear extended	245 kts
M _{LE}	0.75
V _{MCA}	minimum control speed in flight.....	80 kts (CAS)
V _{MCG}	minimum control speed on ground	81.3 kts (CAS)

2.III.8 Maximum Operating Altitude

15 544 m (51,000 ft)

2.III.9 All weather Capability

Category II Auto Pilot with or without MOPT0002 (HUD)

Category II requirements provided the airplane is operated in accordance with Airplane Flight Manual Annex 1 and with Supplement 1 revision 1 (or later approved revision) when monitored with HUD

2.III.10 Maximum Weights

Mean aerodynamic chord (MAC): 3 347.54 mm
Zero % MAC is at y fuselage station +11,346.1 mm.

Datum is 25 % of mean aerodynamic chord (MAC): 12 183 mm from the forward end of the aircraft nose cone

	Weight		Forward limit % MAC	Aft limit % MAC
	kg	lbs		
Minimum flight - Aft	14 696	32 400	N/A	38.5
Minimum flight - Forward	15 694	34 600	26.0	N/A
Maximum zero fuel	18 597	41 000	19.5	38.5
Maximum landing	28 304	62 400	19.5	38.5
Maximum for aft CG at 38,5 %	25 890	57 076	19.5	38.5
Maximum takeoff	31 751	70 000	19.5	33.65
Maximum ramp	31 842	70 200	19.5	31.5

For weight and balance calculation refer to the Loading Manual (DGT 105608) - See note 1

2.III.11 Leveling Means:

Aircraft is leveled in the longitudinal and lateral axis by means of a plumb bob and target in the left main landing gear bay

2.III.12 Minimum Flight Crew:

2 : pilot and copilot

2.III.13 Maximum Seating Capacity:

2 + 1 crew - third crew member seat authorized for take-off and landing in the cockpit.
19 passengers in cabin.
See note 2.

2.III.14 Exits:

	Type	Size
1 Passenger door	I	0.800 x 1.72 m (31.50 x 67.72 in)
1 Emergency exit	III	0.534 x 0.916 m (21.02 x 36.06 in)

2.III.15 Baggage/Cargo Compartments:

Baggage compartment: 909 Kg, not to exceed 400 kg per square meter.
See note 1.

2.III.16 Wheels and Tyres:

This aircraft is equipped with wheels, brakes and H type radial tubeless tires.

Main wheel tyres are H32x10.5R16.5
Nose wheel tyres are 16x6.0R6

Mixability is not approved.

2.IV FALCON 7X Operating and Service Instructions

The aircraft must be operated according to the EASA approved Airplane Flight Manual DGT 105608

The Instructions for Continued Airworthiness consist of:

Maintenance Review Board Report	DGT 102566
Chapter 5-40	DGT 107838
Airplane Maintenance Manual	included in FIELD publication in CD format
Structural Repair Manual	included in FIELD publication in CD format

2.V NOTES

NOTE 1:

- a) - A current weight and balance report must be carried in the aircraft at all times from the moment the aircraft is originally certified.
- b) - Loading of the aircraft must be accomplished in a manner that always maintains the center of gravity within the specified limits considering crew and passenger movements as well as fuel consumption and transfer.

NOTE 2:

Cabin interior and seating configuration must be approved.

NOTE 3:

F7X is compliant with RVSM requirements through basic equipments.

NOTE 4:

F7X is compliant with RNP RNAV operations, down to RNP 0.3 RNAV (RTCA/DO-236A and DO-283) through basic equipments.

SECTION 3. Change Record

TCDS Issue No	TCDS Date	TCDS Changes	TC Date
1.0 to 3.0		No tracking of detailed changes. Changes log implemented only at issue 4.0 according to new EASA procedure.	27/04/07
4.0	20/01/2010	<p>Page 5 Section 2.II.6</p> <ul style="list-style-type: none"> - Elect to comply, removal of JAR 25.907 amt16 propeller vibration as not applicable to the Falcon 7X <p>Page 7 Section 2.III.4 and 3.III.5</p> <ul style="list-style-type: none"> - Addition of EASA approved AFM reference DGT 105608 <p>Page 8 Section 2.III.10</p> <ul style="list-style-type: none"> - Maximum Weights – removal of weight table for A/C without M0478 and M0826 as all Falcon 7X fleet has been retrofitted with these modifications and new deliveries are automatically fitted with these modifications. Note that M0826 is only a justification of the maximum ramp and take off weights without design change, therefore M0826 applies to all F7X A/C even if not in the A/C initial RIC. This removal is to ease operator understanding of the F7X TCDS. <p>Page 10 Section 2.IV</p> <ul style="list-style-type: none"> - Correction of Chapter 5-40 reference and removal of operating and service instructions publication format. 	27/04/07