European Aviation Safety Agency

EASA

TYPE-CERTIFICATE DATA SHEET

Falcon 10

Manufacturer:

DASSAULT AVIATION
9 Rond Point des Champs Elysées
75008 Paris
FRANCE

For model: Falcon 10

Issue 1, 9 October 2009

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1.3. Performance Category:	A (according to EU-OPS1)
1.4. Certifying Authority:	EASA
1.5. Type Certificate Holder:	DASSAULT AVIATION 9, Rond Point des Champs Elysées 75008 PARIS

SECTION 2: FALCON 10

2.1. General

Aeroplane: Falcon 10

2.2. Certification Basis

Application Date for EASA Certification:	June 19th, 1969
EASA Certification Date (DGAC France approval):	September 11th, 1973
Reference date for the definition of the certification basis:	July 8th, 1969

EASA Certification Basis:

Airworthiness standard

FAR Part 25 dated February 1st, 1964, including Amendment Nos. 25-1 through 25-20.

Plus

FAR 25.145 (c) - FAR 25.677 (c) at amendment 25-23 as notified by DGAC-F letter n° 4705 – DTA/M dated August 16th, 1971

FAR 25.853 - FAR 25.855 at amendment 25-23 as notified by DGAC-F letter n° 5929 – DTA/M dated October 18th, 1971

***Additional technical conditions**:*

Notified by DGAC-F letters n° 3474 – DTA/M dated July 1st, 1970 and n° 4328 – DTA/M

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Environmental Standards:

FAR Part 36, including Amendment 36-1.

2.3. Technical Characteristics and Operational Limitations

Twin jet, medium range, large airplane category

2.3.1. Type Design Definition

Type Certification aircraft is defined in Note DTM 3011.

2.3.2. Equipment

List of equipment (basic and optional) is provided in Note no 920.

2.3.3. Dimensions:

Length	13,86 m
Span	13,08 m
Height	4,61 m
Distance between main landing gears	2,86 m

2.3.4. Engines:

Model: GARRETT TURBINE ENGINE COMPANY, Model TPE731-2-1C
(FAA Engine Type Certificate E6WE-1)

Number: 2.

Engine Limits:

Maximum takeoff static thrust, up to 30°C, sea level conditions (5 minutes): 1438 daN.

Maximum continuous static thrust, up to 30°C, sea level conditions: 1320 daN.

Maximum permissible engine operating speeds (Takeoff and maximum continuous):

- Low pressure rotor (N1) - RPM 20 688 (100%)
- High pressure rotor (N2) - RPM 29 692 (100%)

Maximum permissible interstage turbine temperature (ITT)

- During starting: 860°C
- Takeoff (5 minutes:) 860°C
- Maximum continuous: 832°C

Oil pressure limits:

- At idle 25 to 46 psig
- Takeoff and maximum continuous: 38 to 46 psig

Oil temperature limits:

- Maximum from sea level up to 30,000 ft: 113°C
- Maximum above 30,000 ft: 132°C
- Minimum: - 40°C

2.3.5. Fluids (Fuel/Oil/Additives):

Fuel

Fuels conforming to the following GARRETT TURBINE ENGINE COMPANY specifications: (see note 4)

EMS 53111 JET A
EMS 53112 JET A1 / JP8
EMS 53113 JET B / JP4
EMS 53116 JP5

For equivalencies, please refer to approved AFM referenced .DTM n°721

Oil

As per FAA Engine Data Sheet E6WE-1.
Note: GARRETT TURBINE ENGINE COMPANY information letters provide commercial designations of oil compliant with EMS 53110 Class B specification.

2.3.6. Fluid capacities :

Fuel tank capacity (nominal) (see note 10)

	Liters	**US gallons**
USUABLE FUEL		
- in both wings	1 780	470,0
- in both fuselage tanks	1 560	411,8
TOTAL USABLE	**3 340**	**881,8**
UNUSABLE FUEL		
- Drainable unusable fuel	10	2,6
in both wings	4	1
in both fuselage tanks	4	1
- Tank trapped fuel		
in both wings		
in both fuselage tanks		
TOTAL UNUSABLE	18	4,6
TOTAL FUEL		
in both wings	1 794	473,6
in both fuselage tanks	1 564	412,8
TOTAL	**3 358**	**886,4**

Oil capacity

Engine lubrication system capacity:

	Liters	U.S. Gallons
Usable (left or right)	1,89	0,5
Unusable (left or right)	3,78	1

2.3.7. Air Speeds:

(Unless otherwise specified, speeds are indicated airspeeds)

VMO	at sea level	350 kt
VMO	straight line variation up to 10.000 ft	370 kt
VMO	from 10,000 ft to 25.000 ft	370 kt
MMO	above 25.000 ft	0.87
VA	maneuvering speed	220 kt
V_{FE}	slats slats + flaps 15° slats + flaps 30° slats + flaps 52°	200 kt 190 kt 165 kt 165 kt
V_{LO}	landing gear operation	190 kt
V_{LE}	landing gear extended	220 kt
V_{MCA}	minimum control speed in flight	97 kt
V_{MCG}	minimum control speed on ground	100 kt

2.3.8. Maximum Operating Altitude:

45.200 feet (13 800 m)

2.3.9. All weather Capability:

IFR.

Autopilot coupled approach to Category II for aircraft incorporating Dassault Aviation Modification M626D.

2.3.10. Maximum Weights:

From MSN 1 to 54

Maximum ramp	8 300 kg
Maximum takeoff	8 300 kg
Maximum landing:	7 800 kg
Maximum zero fuel:	5 650 kg
Minimum flight	4 500 kg

From MSN 55, and MSN 1 to 54 fitted with AMD-BA service bulletin F10-0052, AFM DTM721 revision 12

Maximum ramp	8 500 kg
Maximum takeoff	8 500 kg
Maximum landing:	8 000 kg
Maximum zero fuel:	6 150 kg
Minimum flight	4 500 kg

From MSN 212 and MSN 1 to 211 fitted with AMD-BA service bulletin F10-0238, AFM DTM721 revision 28

Maximum ramp	8 800 kg
Maximum takeoff	8 755 kg
Maximum landing:	8 000 kg
Maximum zero fuel:	6 540 kg
Minimum flight	4 500 kg

2.3.11. Center of Gravity Range:

From MSN 1 to 54

Weight	Forward limit % MAC			AFT limit % MAC
kg	Takeoff	En route	Landing	
4 500	16	14	14	31
6 000	16	14	14	31
7 130	16	16	16	31
7 800	21,2	21,2	21,2	31
8 300	25	25	-	31

From MSN 55, and MSN 1 to 54 fitted with AMD-BA service bulletin F10-0052, AFM DTM721 revision 12

Weight	Forward limit % MAC			AFT limit % MAC
kg	Takeoff	En route	Landing	
4 500	16	14	14	31
6 000	16	14	14	31
7 130	16	16	16	31
8 000	21,8	21,8	21,8	31
8 500	25	25	-	31

From MSN 212, and MSN 1 to 211 fitted with AMD-BA service bulletin F10-0238, AFM DTM721 revision 28

Weight	Forward limit % MAC			AFT limit % MAC
kg	Takeoff	En route	Landing	
4 500	16	14	14	31
6 000	16	14	14	31
7 130	16	16	16	31
8 000	21,8	21,8	21,8	31
8 755	26,6	26,6	-	31
+8 800	27	27	-	31

2.3.12. Datum:

Datum is 25% of mean aerodynamic chord (MAC) marked on aircraft and located at 6,8144 m from the forward end of aircraft nose cone.

2.3.13. Mean Aerodynamic Cord (MAC):

MAC = 2 0457 m

2.3.14. Leveling Means:

A bubble-type level placed on bolt heads (with locknuts) of the rear fuselage compartment floor.
Leveling can be done in the longitudinal and lateral directions.

2.3.15. Minimum Flight Crew:

One pilot (in the left pilot seat) plus additional equipment as specified in the Limitations Section of the EASA Approved Airplane Flight Manual, or

One pilot and one copilot.

2.3.16. Maximum Passenger Seating Capacity:

9 passengers

2.3.17. Exits:

1 Passenger door (size 1460 X 800)
1 Emergency exit (size 508 X 914)

2.3.18. Baggage/Cargo Compartments:

Compartment	Weight (kg)	Moment
Compartment A (Rear compartment above feeder tank)	230	+ 260 m.daN
Compartment C (on rear sofa pulled down)	230	+ 55 m.daN
Addition A + C Compartments	340	
Compartment B (Forward compartment)	100	- 280 m.daN

2.3.19. Wheels and Tires:

Main wheels tires: 22 x 5.75 - 12.8

Nose wheels tires: 18 x 5.75 - 8.8

2.3.20. Environmental Flight Envelope

Refer to approved Airplane Flight Manual.DTM721

2.3.21. Other Limitations

Refer to approved Airplane Flight Manual.DTM721

2.3.22. Hydraulics

The only hydraulic fluid approved for use in the hydraulic system must conform to French specifications AIR 3520 (MIL-H-5606B specifications).

2.4. Operating and Service Instructions

Airplane Flight Manual: Document DTM N° 721 EASA approved

Maintenance Instructions and Airworthiness Limitations
Airworthiness limitations (life limited airframe components and required maintenance/inspections) are listed in AMM chapter 5.40 referenced DMD 11745 of the Maintenance Manual approved by EASA

Service Letters and Service Bulletins
Service Bulletins are listed in Service Bulletin index (SB 0)

Various statements:

The F10 is compliant to:

- RVSM requirements are met provided airplane complies with Dassault Aviation Modifications / Service Bulletins (non group RVSM approvals specific to each aircraft s/n).

- Basic RNAV airworthiness requirements are met provided airplane is equipped as specified in AFM Limitation Section Page 1-14.

2.5. Notes

Note 1:

a) A current weight and balance report, including the list of the certified empty weight equipment and if necessary the loading instructions must be carried on board at all times from the original aircraft certification.

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.

c) The weight of unusable fuel must be included in the aircraft empty weight and the fuel quantity indicators must read zero when the usable fuel quantity is zero.

d) The total weight of unusable oil in the tanks and engines must be included in the aircraft empty weight.

e) The total weight of hydraulic fluid must be included in the aircraft empty weight.

Note 2:

If a different type of fuel, or a mixture of fuels, is used, the engine computer must be adjusted (in order to adapt the computer to the density of the fuel used) so as to preserve the starting, acceleration and deceleration characteristics of the engine.

Additives allowed: See AFM

Note 3:

GARRETT TURBINE ENGINE COMPANY Service Information letters give brand names of oils conforming to Specification EMS 53 110, Class B.

Note 4:

The cabin interior arrangements must comply with the forced landing load factors from the certification basis and the gust loads specified in DTM 711.

Note 5: Use on unpaved runways

Airplanes incorporating Service Bulletin AMD-BA n°F10-0082 are eligible for operation on unpaved runways in accordance with Air Flight Manual DTM721 supplement n° 1.

This operation is subject to specific instructions described in Aircraft Maintenance Manual.

The aircraft MSN 005 with composite wing boxes can not be operated on unpaved runways.

Note 6: Maximum baggage weights

Rear baggage hold of aircraft s/n 136 and subsequent and with the modification AMD/BA M 584 B or M584 C:

Aircraft without thrust reverser:
Compartment D: 90 kg Moment + 248 m.daN
Compartment E: 45 kg Moment + 158 m.daN

Aircraft with thrust reverser (M366)::
Compartment D: 68 kg Moment + 187 m.daN
Compartment E: 22 kg Moment + 77 m.daN

This modification is included in Revision n°25 of the Aircraft Flight Manuel DTM 721

Note 7:

The aircraft Falcon 10 MSN 5, with modification M550 embodied, has composite wing boxes. Limitations described in this TCDS are applicable to that airplane except for fuel wing tanks capacities modified as follows:

Only wings (*)	Liters
Total capacities -Left wing -right wing	 833 850
Unbleedable	2 x 6,5
Unusable (2° attitude)	2 x 9,5
Undrainable (2° attitude)	2 x 12
Usable capacity	1644

(*) including about 200 liters for each wing center section tank (unchanged after M550).