FRENCH REPUBLIC

DIRECTORATE GENERAL OF CIVIL AVIATION

GSAC delegate body

SHEET No. 103 TER Dassault Aviation

Mystère-Falcon 20 -
Falcon-C5 Mystery 20 -
Mystery D5-Falcon 20 -
Falcon 20-E5 Mystery - F5
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SHEET DIRECTIVE No 103 TER

Aircraft:
Mystère-Falcon 20 -
Falcon-C5 Mystery 20 -
Mystery D5-Falcon 20 -
Falcon 20-E5 Mystery - F5

Manufacturer Authorized:

DASSAULT AVIATION
9, Rond-Point des Champs Elysées 75008
PARIS

Certificate of Airworthiness Normal

Extension type Airworthiness Certificate No 35 on:

- March 10, 1989 for the MYSTERY-20 FALCON - F5

- May 22, 1989 for MYSTERY FALCON 20 - C5
  MYSTERE-FALCON 20 - D5
  MYSTERE-FALCON 20 - E5

Note: aircraft - FAN JET FALCON FAN JET
FALCON Series C FAN JET
FALCON Series D FAN JET
FALCON Series E FAN JET
FALCON Series F

subject to Airworthiness record No. 103 planes:

FAN JET FALCON Series G
MYSTERE-FALCON 200 FALCON
MYSTERE-20 GF

subject Airworthiness sheet No. 103a.

SUMMARY

MYSTERY AIRCRAFT-FALCON - C5
D5
E5
F5

0 - GENERAL

MYSTERY-aircraft FALCON 20 - C5 / D5 / E5 / F5 differ FAN JET previous models by FALCON:

- Fitting new engines and nacelles.
- Adaptation of bleed air circuits, anti-icing, hydraulic, fuel, and electric motor control.
- Unification mass limitations and centering field.
- Addition of an automatic increase in engine takeoff thrust system (ATTCS or SAM). All of these developments is done by application of the Bulletin AMD-BA Service FJF 731 (Amendment No. M3500) on aircraft Fan Jet Falcon Basic, Series D, E or F already in operation. Designation of aircraft equipped after repowering:

- A plane FALCON JET FAN Basic modified by application of Bulletin AMD-BA Service FJF 731 takes the name of MYSTERY FALCON-20 C5.
- A FAN JET aircraft FALCON Series D modified by application of Bulletin AMD-BA Service FJF 731 takes the name of MYSTERY FALCON-20-D5 (see Note 9).
- A plane FALCON JET FAN E Series modified by application of Bulletin AMD-BA Service FJF 731 takes the name of MYSTERY-Falcon 20-E5 (see Note 9).
- A FAN JET aircraft FALCON Series F modified by application of Bulletin AMD-BA Service FJF 731 takes the name of MYSTERY FALCON-20-F5.

Redesignation aircraft after repowering is materialized by the addition of a specific identification plate next to the original wafer.

1 - REACTORS

	No BS 735	**With SB 735**
type: GARRETT Engine Division (FAA E6WE Data Sheet and specification sheet DGAC M-IM 4) (See Note 12).	TFE 731-5AR-2C	TFE 731-5BR-2C

Number 2.

reactor limitations:

	No BS 735	**With SB 735**
- maximum take-off thrust, static, at sea level up to 23 ° C (5 minutes)	2002 daN (4500 lb)	2113 daN (4750 lb)
- maximum continuous thrust, static, at sea level at 15 ° C: 2002 daN (4500 lb).	2002 daN (4500 lb)	2061 daN (4634 lb)

Note: comply with the Flight Manual for driving motors.

	A / C without SB 735	A / C with SB 735
- maximum rotational speed		
. Floor Low Pressure (N1)	21 000 r / min (100%)	
Transient (5 seconds)	100 to 103%	
. High Pressure Floor (N2)	29 989 r / min (101%)	30 540 r / min (100.8%)
Transient (5 seconds)	101 to 103%	100.8 to 103%
- peak temperature between the turbines (TT5)		
. While booting	952 ° C	978 ° C
Transient (10 seconds)	974 ° C	996 ° C
. Take-off (5 minutes)	974 ° C	996 ° C
Transient (5 seconds)	984 ° C	1006 ° C
Transient (2 seconds)	994 ° C	1016 ° C
. maximum continuous	924 ° C	968 ° C
- Limitations of oil pressure		
. Pressure at idle	25-46 psig	
. off Plan and continuous max	38-46 psig	
For more details, refer to the Flight Manual.		
- Limits oil temperature (at the entrance reducer FAN)		
. Maximum temperature up to 30 000 ft	127 ° C	
. Maximum temperature at above 30 000 ft	140 ° C	
. maximum transient temperature at all altitudes (2 minutes)	149 ° C	
. Continuous Low	30 ° C	
-- Fuel pressure		
. - Low pressure alarm	5.5 psig	

2 - SPEED LIMITS

	A / C without SB 735	A / C with SB 735
- MF20-C5 and D5 with BS 381, and MF20-E5 and F5		
.HOV: at sea level	350 kt	
23 000 ft	390 kt	
. MMO	0.88	

- Some aircraft have lower speed limits, depending on the type of equipment installed on aircraft (Service Bulletins No. 363, 465 or 475). The following speed limits were approved:

. HOV: at sea level	350 kt
at 23,400 ft	370 kt
. MMO	0.85
. HOV: sea level	
at 27,000 ft	350 kt
. MMO	0.85

linear variation between the values indicated VMO.

		A / C without SB 735	A / C with SB 735
VMO (maneuver)		200 kt	
VFE	Shutters 40 °	180 kt	
	Shutters 25 °	190 kt	
	Shutters 15 ° (MF20-C5 / D5 / E5)	200 kt	
	Shutters 10 ° (MF20-F5)	190 kt	
VLO	(Landing gear maneuvering)	190 kt	
VLE	(With left landing gear)	220 kt	
VLLO (landing lights maneuver)		220 kt	
STBY (with landing lights out)		220 kt	
VWWO (wipers maneuver)		180 kt	
VMC	(Minimum control) 20		
	MF-C5 and -d5:	VMCA 110 KCAS VMCG 115 KCAS	VMCA: 112.5 KCAS VMCG: 117.5 KCAS
	MF 20-E5 and -F5:	VMCA: 103 KCAS VMCG 108 KCAS	VMCA: 105.5 KCAS VMCG: 110.5 KCAS

3 - FIELD CENTER OF LIMITATIONS

Aircraft MF20 - D5 / E5 / F5 and MF20 - C5 with BS 179 applied:

masses kg	CMA% limit before			rear boundary CMA%
	Lift-off	Cruise	Landing	
9360	19	16	14	
9500	19	16	16	
9980	19	16	16	
11000	19	16	16	
12580	19	17.5	17.5	28.5
13200	19	19		

Aircraft MF20 - C5 with BS 179 not applied:

masses kg	CMA% limit before			rear boundary CMA%
	Lift-off	Cruise	Landing	
9360	20	17.5	17.5	
9500	20	17.5	17.5	
9980	20	17.5	17.5	
11000	20	18	18	
12580	20	18.7	18.7	28.5
13200	20	20		

linear variation between these points

NOTE: 14% CMA represents 0.399 m behind the reference
16% CMA represents 0.455 m behind the reference
17.5% CMA represents 0.498 m behind the reference 18% CMA represents 0.511 m behind the reference
18.7% CMA represents 0.531 m behind the reference 20% CMA represents 0.569 m behind the reference
28.5% CMA represents 0.811 m behind the reference

The return of the nose and main landing gear has no significant effect on the position of the center of gravity. The mass and balance diagrams are defined in the approved flight manual DGAC.

Reference centering:

The reference is the zero of the mean aerodynamic chord. This reference is marked on the aircraft and is 7670 mm from the end of the nose cone of the aircraft.

mean aerodynamic chord

CMA: 2 846.80 mm.

Reference of leveling

A spirit level can be used on the screw heads 3 disposed on the structural elements of the rear compartment of the fuselage. Leveling can be done longitudinally and laterally.

4 - LIMITATIONS OF MASS STRUCTURAL

Maximum mass taxiing and takeoff	:	13200 kg (29,100 lb)
Maximum landing weight	:	12580 kg (27,734 lb)
Maximum Zero Fuel Weight	:	9980 kg (22,000 lb)
minimum flight mass	:	8310 kg (18,320 lb)

5 - PASSENGERS AND CREW

- **minimum crew**
  2 pilots (pilot and copilot) (see note 10).

- **Maximum passenger seats**
  Ten seats as standard (see note 6).

- **maximum baggage weight in the cab**
  rear compartment of the cabin: 92 kg Time: + 212 daN.m compartment forward cabin: 84 kg Time: - 290 daN.m

6 - FUEL OIL

6.1. - Combustible

Useful capacity of reservoirs:

a) MYSTERY-20 FALCON - C5

Tank	usable fuel		Position of center of gravity compared to Ref.
	(Liters)	(US gallon)	
left wing	2090	552	0.655 m
right wing	2090	552	0.655 m
fuselage left	263	69.5	3.34 m
right fuselage	263	69.5	3.34 m
TOTAL	4706	1243	0.945 m

b) MYSTERE-FALCON 20 - D5 and - E5

Tank	usable fuel		Position of center of gravity compared to Ref.
	(Liters)	(US gallon)	
left wing	2090	552	0.655 m
right wing	2090	552	0.655 m
fuselage left	410	108.5	3.34 m
right fuselage	410	108.5	3.34 m
TOTAL	5000	1321	1.10 m

c) MYSTERE-FALCON 20 - F5

Tank	usable fuel		Position of center of gravity compared to Ref.
	(Liters)	(US gallon)	
left wing	2164	572	0.655 m
right wing	2164	572	0.655 m
fuselage left	410	108.5	3.34 m
right fuselage	410	108.5	3.34 m
TOTAL	5148	1361	1.08 m

- View weigh and balance report for each aircraft for the exact capacity of usable fuel.

- See Note 4 for information regarding the use of additives.

unusable fuel

	liters	US Gallons	Position of center of gravity compared to the reference
Drainable:			
Wing	7.57	2.00	1,015 m
Fuselage	3.40	0.90	3,230 m
Not drainable:			
Tanks and piping	7.21	1.91	1,930 m

6.2. - Oil

oil capacity

Capacity of the oil circuits reactor:

left or right engine	liters	US Gallons
usable capacity	1.42	0.37
ability unusable	10.82	2.86

Technical Specifications of usable fuel:

In accordance with the specifications listed under "Garrett Engine Division."

SPECIFICATION	EQUIVALENCE	
	LA FRANCE	USA
EMS 53 111	3405 AIR	ASTM JET A
EMS 53 112	TRO	ASTM JET A1
EMS 53113	AIR 3407 TR4	ASTM MIL.T.5624 JET B (JP4)
EMS 53 116	AIR 3404 TR5	MIL.T.5624 (JP5)

Technical specifications of the oil used reactor:

Synthetic oil in accordance with the specification EMS 53110 type Garrett Engine Division.

7 - ALTITUDE MAXIMUM USE

42,000 ft (12,800 m)

8 - FLIGHT CONTROLS

8.1. - Deflection from the horizontal plane

a) MYSTERE-FALCON 20-C5

Aircraft on which the BS AMD 179 is not applied	dive	prancing
electrical stops	0 °	- 7 °
mechanical stops	+ 10 '	- 7 ° 10 '
Operating limits, returned beaks	0 °	- 3
Aircraft on which the BS AMD 179 is applied	**dive**	**prancing**
electrical stops	0 °	- 7 ° 45 '
mechanical stops	+ 10 '	- 7 ° 55 '
Operating limits, returned beaks		
BS AMD # 480 not applied	0 °	- 3 ° 30 '
BS AMD # 480 applied	0 °	- 4 °

b) MYSTERE-FALCON 20-D5 and E5

	dive	prancing
electrical stops	0 °	- 7 ° 45 '
mechanical stops	+ 10 '	- 7 ° 55 '
Operating limits, returned beaks		
BS AMD # 480 not applied	0 °	- 3 ° 30 '
BS AMD # 480 applied	0 °	- 4 °

c) MYSTERE-FALCON 20-F5

	dive	prancing
electrical stops	0 °	- 10 °
mechanical stops	+ 0 ° 10 '	- 10 ° 10 '
Operating limits, returned beaks	0 °	- 4 °

8.2. Travels are

elevator:
- To the top 16 °
- Down: MF20-C5 and -d5 6 °
  MF20-E5 and -F5 9 °

Rudder, right and left:
MF20-C5 and -d5 23 °
MF20-E5 and -F5 30

Spoiler:
- To the top 16 °
- Down 14 ° 30 '

Flaps, total stroke 40 °

Airbrakes, up 70 °

leading edge slats:

- internal:	MF20-C5 -d5, E5	0 °
	MF20-F5	17 ° 30 '
- external:		25 °

For setting tolerances, see the service manual.

9 - CERTIFICATION BASIS

a) initial type certification (aircraft Fan Jet Falcon):

Date of application for the type certificate: 13 September 1962 Date of issue : June 9, 1965
Number Type Certificate 35

nuisance limitation Type Certification: Date of issue:

: May 13, 1977
Number Type Certificate : N35

b) Model derivative Mystery Falcon-20-C5, -d5, E5, -F5:

Date request the extension of the Type Certificate: May 18, 1987 Issue date:

March 10, 1989 for the Falcon Mystère-model 20-F5 May 22, 1989 for Mystery-Falcon models C5, D5, E5

Date of application of the extension of nuisance limitation Type Certificate: May 18, 1987 Issue date:

March 10, 1989 for the Falcon Mystère-model 20-F5 May 22, 1989 for Mystery-Falcon models C5, D5, E5

AIR Regulations 2051 updated June 15, 1963 with the SR 422B by replacing paragraphs 2-10 to 2-23 inclusive. (This is equivalent to US regulations CAR 4b, of 31 December 1953 with amendments 4b-1 through 4b-12 and SR 422B).

The aircraft is approved in accordance with FAR amendment 25-772 25-4 instead of derogation 4b-350 (e) and (f) for locking the door between the cockpit and the passenger cabin. additional technical requirements notified by letter DGAC No. 53154 SFACT / TC of 16 February 1988 applicable to new or modified parts and comprising: (1) Sections and subsections in paragraphs 25 FAR following:

SECTION	AMENDMENT
25-571 (d)	25-10
25-581	25-23
25-863	25-46 replacing 4b-385
25-865	25-23
25-901 (c)	25-40

25-903 (b)	origin	
25-903 (d) (1)	25-23 for the torch flame	
25-903 (e) (2)	25-40	
25-904 and appendix I	25-62	
25-939 (c)	25-11	
25-943	25-40	
25-954	25-14	
25-1011	origin	
25-1013	25-36	
25-1015	25-36	replacing
25-1017		4b-440
25-1019		at
25-1021	origin	4b-448
25-1023		
25-1025		
25-1041	25-11	replacing 4b-450
25-1091 (d) (2)	25-23	replacing 4b-460 (g)
25-1093 (b)	origin	
25-1103 (d)	25-23	
25-1141 (e) 25-11		
25-1182	25-11	replacing 4b-480 (c)
25-1183	25-36	replacing 4b-483
25-1189	25-23	replacing 4b-482
25-1309	25-41	replacing 4b-606

(2) The additional technical requirement C4b-260: landing conditions in relief.

- Decree of 19 February 1987 on the nuisance limitation certificates subsonic jet airplanes, category II B and Annex II.

- Compliance with 2051 AIR regulation, paragraph 4-61 (CAR 4b-361) for ditching and paragraph 6-40 (CAR 4b-640) concerning the protection against freeze was demonstrated.

10 - DEFINITION OF CERTIFIED AIRCRAFT

The type of plane is defined by the change master M 3500.

- Serial number of devices covered in detail: according to directions of the individual airworthiness certificate.

11 - EQUIPMENT

The basic equipment required by applicable requirements must be installed. The list of equipment approved both optional basis

that is given by the document DTM 30518.

12 - NOTES

NOTE 1 - a) Weight and Balance report update, including list of equipment included in the mass to be approved vacuum and if necessary instructions for loading, must be in each plane from certification of origin and subsequently at any time .

b) The aircraft must be loaded so as to maintain at all times the center of gravity within the specified limits, taking into account the movements of the crew, passengers, consumption and transfer of fuel.

c) The mass of unusable fuel must be included in the empty weight of the aircraft and the zero measurers corresponds to a zero amount of usable fuel.

d) The total mass of the unusable oil reservoirs and that remaining in the reactors must be included in the empty weight of the aircraft (22, 26 kg).

e) The total mass of the hydraulic fluid must be within the empty weight of the airplane.

NOTE 2 - The aircraft must be used in accordance with the limitations specified in the Flight Manual approved by DGCA reference DTM 30528.

NOTE 3 - The airworthiness limitations (cell elements for maximum lifetime and maintenance mandatory) are listed in the section 5-40 DGAC approved the Maintenance Manual. This document bears the

reference DMD 42937.

NOTE 4 - In the case of remaining fuel type or mixture, the reactor of the computer must be adjusted (to fit the computer to the density of the fuel) to obtain the best starting performance, acceleration and deceleration of the reactor.

The fuels approved for the reactor in document GARRET ENGINE Division Installation Manual 4200 approved by the Federal Aviation Administration. The following additives are permitted:

- anti-icing additive in accordance with the specification AIR 3652 or MIL-I-27 686 D or E (JP4 and JP8) or MIL-I-85470 (JP5), with concentrations less than or equal to 0.15% by volume.
- antistatic additive in sufficient quantity to impart, fuel, 300 "Conductivity units" (300 picohms per meter) and not finish exceeding one part per million by volume for SHELL ASA-3, three parts per million by volume for STADIS 450.
- Antibacterial additive SOHIO BIOBOR JF, or equivalent features, and not exceeding, mixed with fuel, a concentration of 270 parts per million.

NOTE 5 - GARRETT information letters ENGINE Division provide the names commercial oils according to specification EMS 53110, class B, type 2.

NOTE 6 - Special accommodations for 12 passengers defined by the manufacturer have been approved in passenger cabin. The maximum loading of the structure of the aircraft floor is 210 kg per linear meter on each of the rails between the frames 13 and 29, and 210 kg per linear meter on each of the two central beams between the frames 29 and 33. refer to supplement No. 2 of the Flight Manual.

NOTE 7 - Platelets and markings are defined in the AMD-BA document DTM 30538 / A120.

NOTE 8 - The noise levels certified for Mystère-Falcon 20 aircraft C5 / D5 / E5 / F5 are defined in the Flight Manual.

NOTE 9 - Aircraft FAN JET FALCON Series D No. 237 and 238 entitled, after applying Service Bulletin AMD-BA FJF-731, to name MYSTERY-Falcon 20-E5.

NOTE 10 - The use of the aircraft with a crew consists of a driver and a crew member driven ensure workload is defined in the Supplement No. 1 Flight Manual, and should not be incompatible with the use of another supplement Flight Manual or other Service Bulletin.

NOTE 11 - As of 19/06/90, the manufacturer Avions Marcel Dassault-Breguet Aviation changed its name. Its new name, DASSAULT AVIATION, appear once on all documents. However, the records covering the previous appointment remain valid. NOTE :

The identification plate has evolved over time. For the manufacturer, it says GAMD / SOUTH AVIATION, AMD / SOUTH AVIATION AIRCRAFT MARCEL DASSAULT-BREGUET AVIATION DASSAULT-AVIATION. For the name of the plane, we read: MYSTERY 20 FALCON JET FAN and MYSTERY-FALCON.

NOTE 12:

History on the engine change the Falcon 20- (X) 5.
Basic certification the device has TFE 731-5AR-2C. By applying the M3530 (BS F20-735 original edition 03/07/91) TFE 731-5BR 2C-P / N 3075370-1 are mounted. Following incidents (bursting global) these reactors are banned from FAA AD No. 92.02.18 of 14 January 1992.

The reactors are then modified following modification M 3532 (BS. 736) and take the type TFE 731-5AR-4C P / N 3075220-1 (decreased performance with respect to TFE 731-5BR-2C identical to those of AR 5) .

After studying GARRETT, a new planet is designed to return to the performance of the type TFE 731-5BR-2C.

Mounting the planetary again the 731-5BR 2C TFE-P / N 3075370-1 is certified by the modification M3534A, and on the TFE 731-5AR-4C by changing M3534B, the type of reactor becoming TFE 731-5BR- 2C ..

In conclusion two engines are currently possible on Mystère Falcon-20- (X) 5:

Basic Certification: TFE 731 - 5AR - 2C

M.3530 + M.3534A (or BS. 735 rev. 1 or higher) or

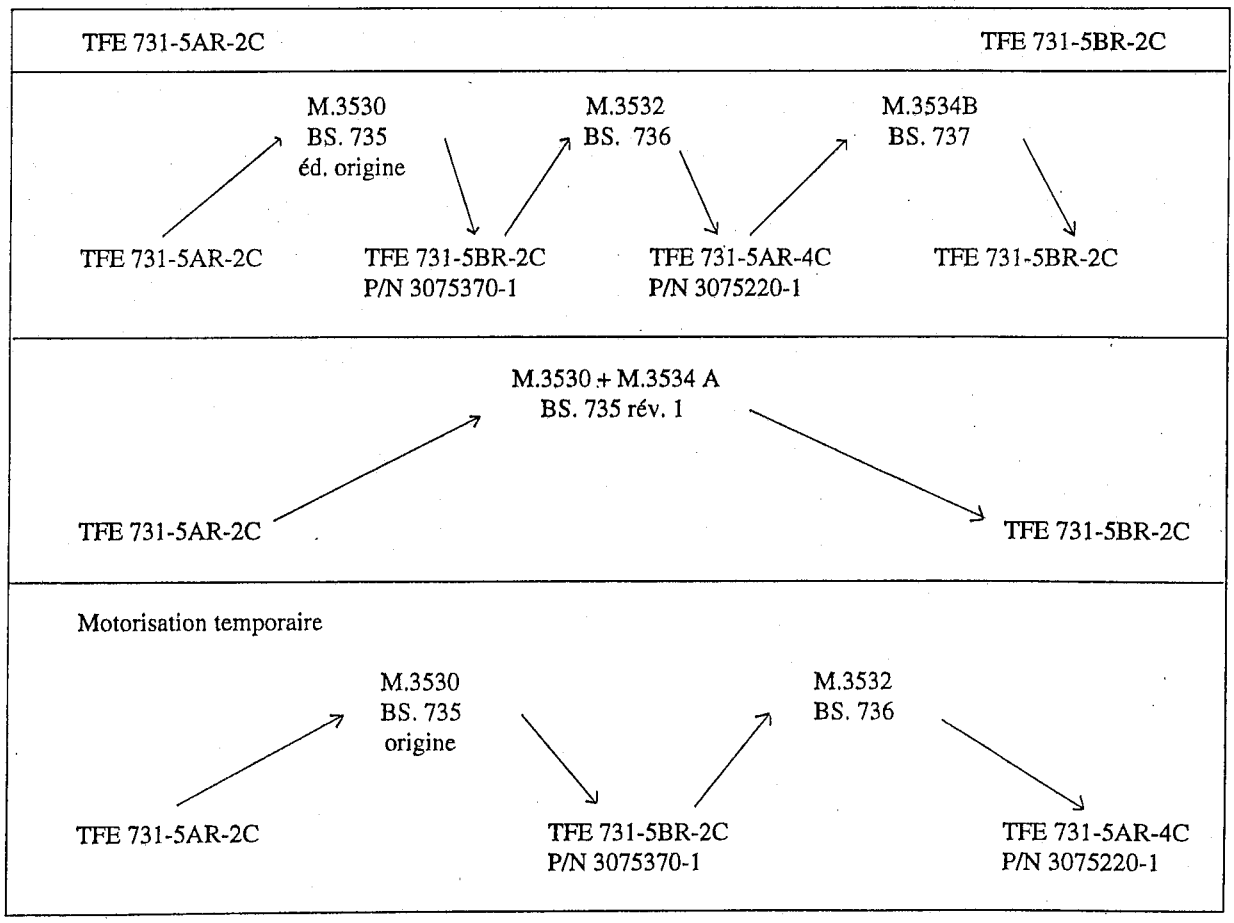
TFE 731-5BR-2C

Mr. M.3530 + 3532 + M.3534B (BS. 735 ed. Orig. + BS. 736 + BS. 737)}

Plus a powertrain that should be temporary: M3530 M3532 + (SB 735 SB 736 + ed orig....): TFE 731-5AR-4C P / N 3075220-1.

SUMMARY TABLE

Basic Certification certified engines



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