

# Surrendered July 15, 2002

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

A40EU  
Revision 2  
DASSAULT  
AVIATION  
Mercure 100C

March 2, 2010

## TYPE CERTIFICATE DATA SHEET NO. A40EU

This data sheet, which is a part of type certificate No. A40EU prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder                      DASSAULT AVIATION  
(Formerly known as AVIONS MARCEL DASSAULT - BREGUET AVIATION)

- (1) **This TC was surrendered for cancellation on July 15, 2002. Only standard airworthiness certificates issued prior to July 15, 2002 are valid.**
- (2) **Future unsafe conditions existing in the aircraft may result in the revocation of the airworthiness certificates of the aircraft if there is no entity to comply with 14 CFR § 21.99(a), "Required design changes."**
- (3) **Replacement parts may not be available in the future.**

### I - Model MERCURE 100C (Transport Aircraft), approved May 30, 1975.

Engines	2 Pratt & Whitney JT 8D-15 turbofan engines.		
Fuel	JP1 (MIL-J-5616 - ASTM D 1655) JP4 (MIL-T-5624) Fuels conforming with PW specification No. 522.		
Engine oil	MIL-L-23699 - P&WA Turbojet Engine Service Bulletin No. 238 lists approved brand oils. Synthetic type conforming to P&WA Specification 521 as revised.		
Engine limits	Takeoff static thrust standard day, sea level conditions (5 min.), lb.		<u>JT8D-15</u> 15,500
	Maximum continuous static thrust, standard day, sea level conditions, lb.		13,750
	Maximum permissible engine rotor operating speeds:		
	low pressure compressor ( $N_1$ ), rpm		8,800
	high pressure compressor ( $N_2$ ), rpm		12,250
	Maximum permissible turbine outlet gas temperature:		
	Takeoff (5 min.)	(620°C)	1148°F
	Maximum continuous	(580°C)	1076°F
	Maximum for acceleration (2 min.)	(630°C)	1166°F
	Starting	(510°C)	950°F ground
Maximum permissible oil inlet temperature:			
Continuous operation	(130°C)	266°F	
Transient operation (is limited to 15 min. above 130°C)	(165°C)	329°F	
Maximum permissible air bleed extraction:		<u>Percent of Primary</u> <u>Engine Airflow</u>	
1. <u>High Pressure Bleed:</u>		<u>Normal</u> <u>Emergency</u> *	

(a) At 70% maximum continuous thrust and below	6.7	8.0
(b) From 70% maximum continuous thrust to maximum continuous thrust	3.5	5.5
(c) Above maximum continuous thrust	2.8	3.0

Maximum permissible air bleed extraction: Percent of Primary Engine Airflow  
(cont'd) Normal Emergency \*

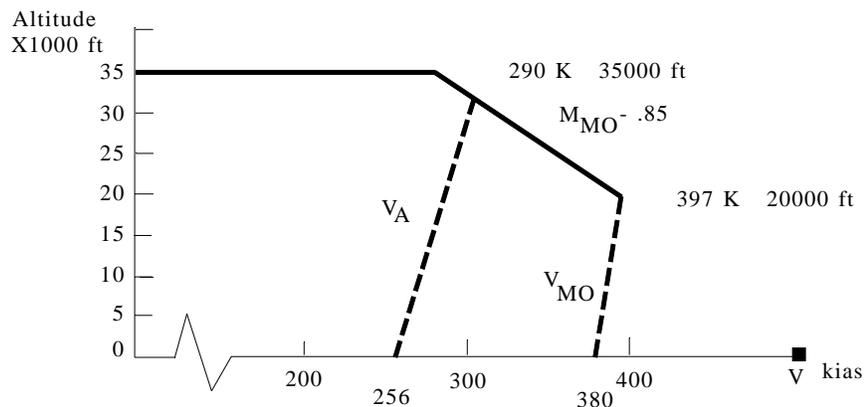
2. <u>Eight (8th) Stage Bleed:</u>		
(a) At and below maximum continuous thrust	4.0	4.0
(b) Above maximum continuous thrust	2.75	3.25
3. <u>Low Pressure Bleed:</u>		
(a) At 20% maximum continuous thrust	5.0	5.0
(b) Below 20% maximum continuous thrust	4.0	4.0
4. <u>Fan Air Bleed:</u>		
(a) At and below maximum continuous thrust	3.0	5.0
(b) Above maximum continuous thrust	2.0	2.0

Thrust Setting:

The appropriate thrust setting curve (APR or P<sub>t</sub>7), in the Airplane Flight Manual must be used for control of engine thrust.

\*Usable only when malfunction requires and only until next landing.

Airspeed limits	V <sub>mo</sub> /M <sub>mo</sub> (Maximum Operating)	380 kts EAS/0.85 Mach. (whichever is lower) See FIGURE 1		
	V <sub>a</sub> (Maneuvering)	256 kts IAS at sea level (for altitude see FIGURE 1)		
	V <sub>fe</sub> (Flap Speeds):	<u>Deflection</u>	<u>Speed</u>	
		Takeoff slats position and flaps deflection	0° to 12°	225 Kts IAS
		Landing slats position and flaps deflection	25°	200 Kts IAS
		Landing slats position and flaps deflection	37°	178 Kts IAS
	V <sub>lo</sub> (Landing Gear Operation)			
		Retract	200 Kts IAS	
		Extend	250 Kts IAS	
	V <sub>le</sub> (Landing Gear Extended)	300 Kts IAS		
	M <sub>le</sub>	.8 Mach		
	V <sub>llo</sub> (Landing Lights Operation)	225 Kts IAS		
	V <sub>lle</sub> (Landing Lights Extended)	225 Kts IAS		
	V <sub>abo</sub> (Airbrake Operation)			
		Extended	V <sub>mo</sub> /M <sub>mo</sub>	
	Retracted	V <sub>mo</sub> /M <sub>mo</sub>		
V <sub>abe</sub> (Airbrake Extended)	V <sub>mo</sub> /M <sub>mo</sub>			
V <sub>mc</sub> (Minimum Control Speed)				
	V <sub>mca</sub>	99 Kts IAS		
	V <sub>mcg</sub>	108 Kts IAS		



Maximum weights	Ramp	54,500 Kg.	120,150 lb.
	Takeoff (brake release)	54,000 Kg.	119,048 lb.
	Landing	49,800 Kg.	109,789 lb.
	Zero fuel	46,000 Kg.	101,411 lb.
	Minimal	29,100 Kg.	64,154 lb.

Fuel capacity (See NOTE 1 (c) for information relative to unusable fuel  
NOTE 2 (b) on use of fuel anti-icing additive  
and NOTE 2 (c) on use of fuel anti-static additive)

The following data is given for full fuel tanks.

Tank	Usable Fuel		Arm		
	U.S. Gals.	Liters	Meters	Inches	
Left Wing	1,637	6,200	- 0.173	- 6.8	Aft of Datum
Right Wing	1,629	6,168	- 0.173	- 6.8	Aft of Datum
Center Wing	1,585	6,050	+1.270	+50.0	Fwd of Datum
<b>Total</b>	<b>4,851</b>	<b>18,418</b>			

Oil capacity Engine tank oil is the engine oil that is required for circulation in the system.

Location	Volume U.S. Gals	Arm	
		Meters	Inches
Left engine	4.0	+ 2.97	+ 116.9
Right engine	4.0	+ 2.97	+ 116.9
<b>Total</b>	<b>8.0</b>		

Stabilizer movements

	Nose-Down	Nose-Up
Electrical stops	+ 1°	- 11°
Mechanical stops	+ 1° 30'	- 11° 30'
Cruise limit, droop L.E., retracted	idem	- 4° 30'

Control surface movements

Left and right elevator	Up - 20°	Down + 15°
Lower and higher rudder	Left - 22°	Right + 22°
Aileron	Up - 25°	Down + 25°
Flaps (total)	Down 37°	

	Maximal Movements		
	Flight spoilers	Airbrakes	Ground Spoilers
Spoilers No. 1, 2, and 3 (right and left)	25°	35°	45°
Airbrakes No. 1 and 2 (right and left)		25°	32° 30'

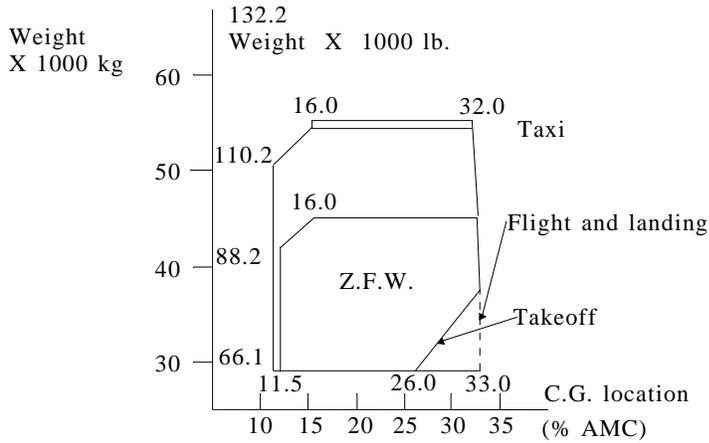
Wing droop leading edges down : 17°48' internal slats No. 1  
(right and left) 30°25' external slats No. 2 and 3

For detail rigging and tolerances consult Maintenance Manual.

C.G. range  
(Gear down)

Weight/C.G. Envelope

- FIGURE 2 -



The airplane is normally weighed with wing flaps retracted, landing gear extended and thrust reversers retracted.

- Gear retraction moment is - 175 mKg/1265 ft-lb  
(moves CG forward)
- Flaps extension moment is + 40 mKg/1013 ft-lb (flaps 37°)  
(moves CG rearward)
- Reversers extension moment is + 20 mKg/1447 ft-lb  
(moves CG rearward)

Weight -1000 Kg	Forward Limit % MAC		Aft Limit % MAC	
	Flight	Zero Fuel	Flight and Landing	Takeoff
29.1	11.5	12	33	26 ) linear
40	11.5	12	33	33 ) variation between these points
43.2	11.5	12	33	33
46	11.5	16	33 )	33 ) linear
49	11.5 ) For		)	) variation
51.5	13 ) variation		)	) between
53	14.6 ) see		)	) these
54	16 ) figure 2.		32 )	32 ) points

Ramp 54.5 - Forward Limit 16% - Aft Limit 32%

Datum	Datum (origin of moments) is located at 25% of MAC and placards on the keel at fuselage main frame No. 30.		
Mean Aerodynamic Chord	4,315 meters/169.9 inches (leading edge at 1.079 meters/42.5 inches forward of datum).		
Leveling means	<p>A leveling facility is provided in the left main landing gear well. It features a support, a plumb line and sliding rod system designed to record the airplane longitudinal and lateral attitude.</p> <p>The airplane is leveled when the end of plumb line reads the zero on the sliding rod with the pointer of this sliding rod sets on the zero marking on the fixed rod. This item of equipment is part of the airplane flyaway kit.</p> <p><u>NOTE:</u>A means for airplane quick leveling but less accurate with two spirit levels is installed on cockpit wall at the crew side: one spirit level in longitudinal plane and the other in lateral plane.</p>		
Minimum crew	Pilot and Copilot.		
Maximum passengers	<p>162 in accordance with Arrangement General Specifications AMD/BA D 113 and Emergency Evacuation Demonstration per FAR 25.</p> <p>179 in accordance with emergency exits configuration.</p>		
Maximum operating altitude	The maximum operating altitude is 35,000 ft.		
Other operating limitations	See approved Airplane Flight Manual.		
Main cabin load limitations	Fuselage floor	- Maximum Running Load Maximum Loading	<p>800 kg/m (44.8 lb/in)</p> <p>375 kg/m<sup>2</sup> (76.8 lb/sq.ft)</p>
	Passenger cabin floor extends into the fuselage between frame No. 9 and frame No. 55.		

Lower Holds:

Holds		Maximum Running Load				Maximum Distributed Load Intensity				Max Total Load Kg / Lb	
		Fitted Cargo Kg/m lb/in		Unfitted Cargo Kg/m lb/in		Fitted Cargo Kg/m <sup>2</sup> lb/ft <sup>2</sup>		Unfitted Cargo Kg/m <sup>2</sup> lb/ft <sup>2</sup>			
Forward lower deck cargo hold	1	840	47.0	660	37.0	735	150.6	580	118.8	3,625	7,992
Aft lower deck cargo hold	3	840	47.0	660	37.0	735	150.6	580	118.8	2,900	6,393
	4	630	35.3	630	35.3	600	122.9	600	122.9	1,800	3,968

Equipment	<p>The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.</p> <p>The Equipment List for Mercure Doc. DGT 11 1211 contains list of all required equipment. DGT 11 1222 contains list of optional equipment approved by Secretariat General a l'Aviation Civil (SGAC) of France.</p>
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- NOTE 1. (a) Current weight and balance report, including loading instructions and list of equipment in certificated empty weight, must be provided for each aircraft at the time of original certification.
- (b) The aircraft must be loaded in accordance with prescribed methods which conform with the overall loading instructions given in the MERCURE Weight and Balance manual.
- (c) The "drainable unusable fuel" is that amount of fuel in the tank which is unavailable to the engine under critical flight conditions as defined in FAR 25.959. This drainable unusable fuel does not include the "tank trapped fuel" or "line unusable fuel" which is the unusable fuel retained in the fuel feed lines. The "total unusable fuel" and line unusable fuel must be included in the airplane empty weight or be suitably accounted for in the airplane weight and balance document. The volume weight and moments of the unusable fuel are listed in the following table:

UNUSABLE FUEL QUANTITIES								
Location	Drainable				Trapped			
	Volume li./qts.	Weight kg / lb	Arm m / in	Moment m-kg/ft-lb	Volume li. / qts.	Weight kg / lb	Arm m / in	Moment m-kg/ft-lb
Left wing + Right wing Lines	27.4 26	20.8 (45.8)	+1.4 (55.1)	- 29.1 -210.5	32 33.8 12 12.7	25.6 (56.4) 9.6 (21.2)	+ 1.2 47.2 + 0.6 23.6	- 30.7 -222.1  - 5.9
Total	26 27.4	20.8 (45.8)	+ 1.4 (55.1)	- 29.1 -210.5	44 46.5	35.2 (77.6)	+ 0.93 36.6	- 36.6 -264.7
Center wing	5 5.3	4 (8.8)	+ 0.2 (7.9)	- 0.8 - 5.9	5 5.3	4 ( 8.8)	+ 0.1 3.9	- 0.4 - 2.9
Total	31 32.8	24.8 (54.7)	+ 1.21 (47.6)	- 29.9 -216.3	49 51.8	39.4 (86.9)	+ 0.93 36.3	- 37 -267.6

- (d) Engine System Oil is the total engine oil less the quantity drainable from the tank.

Location	Volume li. / qts.	Weight kg / lb	Arm m / in.	Moment m-kg / ft-lb
Left engine	4.73 / 5.0	4.45 / 9.8	+2.97 / 116.9	13.2 / 95.5
Right engine	4.73 / 5.0	4.45 / 9.8	+2.97 / 116.9	13.2 / 95.5
* Total	9.46 / 10.0	8.90 / 19.6	+2.97 / 116.9	26.4 / 191.0

\* 1.25 gallons of residual oil in each engine is included in the engine weight and is not in the engine oil values given above.

- (e) The maximum allowable lateral unbalance fuel for taxi, takeoff, ground roll and landing is 1000 kg. (2.205 lb)

- NOTE 2. (a) JP1 and JP4 fuels conforming to P&WA Specifications No. 522 and later revisions may be used separately or mixed in any proportions without adversely affecting the engine operation or power output. No fuel control adjustment is required when switching fuel types.
- (b) Phillips anti-icing fuel additive PFA-55MB may be used if concentration delivered to airplane does not exceed 0.15% by volume.  
No fuel system anti-icing credit is allowed.
- (c) Shell ASA 3 antistatic additive may be used at a concentration up to 0.0001% by volume (1 mg per liter)

NOTE 3. The aircraft must be operated in accordance with the limitations presented in the MERCURE 100C Airplane Flight Manual approved by the Secretariat General a l'Aviation Civile (S.G.A.C.) of France.

NOTE 4. Service Life Limits:  
Airplane components which are life limited are listed in the SGAC approved portion of Chapter 5 of the MERCURE Maintenance Manual (Section 5-40.00) and must be replaced as indicated therein.

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