FEDERAL AVIATION AGENCY

E-302
Revision 6
TURBOMECA
Marbore
II C
VI C

March 21, 2007

TYPE CERTIFICATE DATA SHEET NO. E-302

Engines of models described herein conforming with this data sheet (which is a part of Type Certificate No. E-302) and other approved data on file with the Federal Aviation Agency, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Civil Air Regulations provided they are installed operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate (TC) Holder: Turbomeca S.A.
64 511 Bordes Cedex, France

Model	Marbore	IIC	VIC
Type	Turbojet	Single stage centrifugal compressor	- -
		Single stage turbine	- -
		Single annular combustion chamber	- -
Rating			
Maximum continuous and takeoff at sea level, lb. thrust, rpm		880-22600	1060-21500
Fuel Control		Turbomeca Governor and fuel pump 057 90 000 or 211 93 501	224 91 753
		Turbomeca Altitude control 057 97 100 or 092 11 000	092 18 000
		Turbomeca acceleration limiter 057 96 200 or 092 06 000	092 06 000
		Turbomeca torch igniter fuel pumps 044 56 000 or 044 38 000 or MPE 2	044 56 000
Fuel (See NOTE 9)		JP-1 (MIL-F-5616 Amd 1) or JP-4 or JP-5 (MIL-F-5624 E)	- -
		British D.Eng.DED 2482 Issue No. 3 or DED 2486 Issue 2, or D.Eng.RD 2488 Issue 2	
		French TRO (AIR 3405) or TR4 (AIR-3407) or TR5 (AIR 3404) Aviation Gasoline (MIL-G-5572 C) British D.Eng.RD 2485 Issue 3 French MT 80/87 or MT 100/130 (AIR 3401/G)	
Oil (1.7 gal. integral tank)		Shell turbo Oil 9 or Esso Oil 57 or Caltex Jet engine oil heavy	MIL L 7808C, D or E, Amd. 1
(see NOTE 2)		British DED 2479/0	French AIR 3513/A
		French AIR 3512	British DERD 2487
		Esso Aviation Utility oil F or Aeroshell turbine oil 3 British D.Eng RD 2490 Amd 1 or DEF 2001	
		French AIR 3515 Amd 1	

Model Marbore	IIC	VIC
Principal dimensions:		
Length, in. (includes inner tail cone)	61.7	55.8
Width, in. (includes fire-wall)	24.9	24.9
Height, in. (includes firewall)	25.9	25.9
C.G. Location Aft of front mounts in.	12.75	12.28
Above engine shaft, in.	.62	.59
Weight, lb. (includes starter, all control units, but excludes tail pipe and nozzle)	358	370
Ignition System	Dual, with two Turbomeca torch igniters 057 33 806 and two coils AIR EQUIPMENT No. 81 263	Dual, with two Turbomeca torch igniters No. 224 31 707 and two coils AIR EQUIPMENT No. 81 263
NOTES:	1, 2 ,3, 4, 5, 6, 7, 8, 9, 10	- -

"- -" indicates "same as previous model".

Certification basis CAR 10 and relevant French Airworthiness Requirements AIR 2051 (equivalent to CAR 13 effective June 13, 1956)
Type Certificate No. 302 issued June 10, 1958 amended to include Model VI C on December 22, 1965.
Date of Application for Type Certificate July 13, 1955.

The aviation authority for France, the Direction Generale de L'Aviation Civile (DGAC)**,** originally type certificated this engine. The FAA validated this product under U.S. Type Certificate Number E-302 Effective September 28, 2003; the European Aviation Safety Agency (EASA) began oversight of this product on behalf of France.

Import Requirements To be considered eligible for installation on U.S. registered aircraft, each new engine to be exported to the United States with the DGAC or EASA airworthiness approval shall have a Joint Aviation Authorities (JAA) or EASA Form 1, Authorized Release Certificate. The JAA or EASA Form 1 should state that the engine conforms to the type design approved under the U.S. Type Certificate E-302, is in a condition for safe operation and has undergone a final operational check.

NOTE 1. Maximum permissible temperatures:
Turbine exhaust gas temperatures:
Takeoff and maximum continuous, 650°C (1200°F)
Maximum for starting and transients, 650°C (1200°F)
This gas temperature is measured by 2 thermocouples in the tailpipe.
Since thermocouples are installed in a tailpipe not supplied by Turbomeca as an engine part, correlation of location, and type must be consistent with the basis for engine rated limits.
Oil inlet temperatures:
40° to 71°C (104° to 160°F)
External engine component temperatures:
Ahead of firewall, 50°C (120°F) maximum ambient air
To rear of firewall, 120°C (250°F) maximum ambient air
Rear bearing air cooling supply, 50°C (120°F) maximum temperature

NOTE 2. Fuel and oil pressure limits:
Fuel at engine inlet, 4 to 6 psig
Oil, engine gage pressure 14 to 70 psig
For the Marbore II, (engine if the outside temperature is less than -10°C (14°F), oil AIR 3515 should be used.
If the outside temperature is more than -10°C (14°F), oil AIR 3512 should be used.

NOTE 3. The engine ratings are subject to a tolerance of ± 3% based on the following conditions:
Static sea level conditions of 59°F and 29.92 in. Hg
Jet nozzle area of 56.9 sq.in. for the Marbore II C engine and 67.2 sq. in for the Marbore VI C engine
Exhaust gas temperature as indicated on engine data plate.
This will be no higher than 650°C (1200°F)
With .22 lb/sec air bleed
With 2500 watts generator load.

NOTE 4. The following aircraft accessory provisions are provided on the engine:

Drive	Rotation (facing drive)	Ratio of Engine to Drive Speed	Static Torque (in. lb.)	Cont. Torque (in. lb.)
Starter (Air Equipment) 80 395	Counter Clockwise	1:1.8236	82	- -
Tachometer Jaeger G.12	Counter Clockwise	1:6.0096	10	- -
Tachometer (Spare drive adapter)	Clockwise	1:6.0096	10	- -
Generator or power takeoff	Clockwise	1:3.1739	600	260

NOTE 5. Maximum air bleed for aircraft services is .22 lb/sec at sea level.

NOTE 6. The engine includes a starting relay box (time switch) Turbomeca type 018 62 00.

NOTE 7. This engine meets FAA requirements for adequate turbine disc integrity and rotor blade containment and does not require external armoring.

NOTE 8. These engines meet FAA requirements for icing protection when they are equipped with the "Spraymat protection" NO 999 90 875 or 211 79 000.

NOTE 9. Use of Aviation Gasoline 80/87 and 100/130 as an alternate fuel are authored but should be limited to no more than 50 hours between overhauls. No control system adjustment is required to utilize the alternate fuels indicated.

NOTE 10. Engine Models II F and II G deleted December 22, 1965 since none are installed in United States type certificated aircraft.

NOTE 11. SERVICE INFORMATION:

Each of the documents listed below must state that it is approved by the European Aviation Safety Agency (EASA) or, for approvals made before September 28, 2003 by Direction Generale de L'Aviation Civile (DGAC). Any such documents including those approved under a delegated authority, are accepted by the FAA and are considered FAA approved.

- Service bulletins,
- Structural repair manuals,
- Vendor manuals,
- Aircraft flight manuals, and
- Overhaul and maintenance manuals.

These approvals pertain to the type design only

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