

FEDERAL AVIATION ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

E17EU TURBOMECA Revision 2 ASTAZOU XVIII A March 21, 2007

TYPE CERTIFICATE DATA SHEET E17EU

Engines of models described conforming with this data sheet (which is part of Type Certificate Number E17EU) and other approved data on file with the Federal Aviation Administration, meet the minimum standards for use in certificated aircraft in accordance with pertinent aircraft data sheets and applicable portions of the Federal Aviation Regulations, provided they are installed, 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

I. Models	Astazou XVIII A
TYPE	Single spool (fixed shaft turbine)/Turbo-shaft engine for single engined helicopters -Two stage axial compressor -Single stage centrifugal compressor -Annular combustion chamber -Three stage axial turbine (43,000 rpm) -Reduction gear box with output rotating at 5,830 rpm (1/7.375643 reduction ratio)
RATING (See NOTE 7)	-At nominal turbine speed of 43,000 rpm -Maximum continuous 804 s.hp. -Take-off (5 minutes) 871 s.hp.
FUEL (See NOTE 14)	
FUEL CONTROL	Turbomeca integral constant speed governor with phase advance correction (includes fuel pump, fuel clock, starting and idling unit and fuel flow limiter).
Oil	See NOTE 13
PRINCIPAL DIMENSIONS	-Length in. 55.86 -Width in. 21 -Height in. 28
CENTER OF GRAVITY	C.G. location, aft of engine front attachment plane, 22.1 in., on engine centre line.
WEIGHT	Dry weight of fully equipped engine (exhaust pipe excluded) : Maximum 375 lb. Refer to Turbomeca Installation Manual No. 275.01.932 Ch. 3 for definition of engine dry weight.
DRIVE SHAFT TYPE	Shaft with 24 external involute splines 40 x 14 x 2.5 according to French Standard E 22 141.
IGNITION	Low tension high energy system including: -Two high energy generators ABG or EYQUEM -Two igniters SMITHS or EYQUEM
STARTING (See NOTE 6)	Starter generator SEB Starting unit TURBOMECA with servo-valve TURBOMECA and electro-valve INDUSTRIA. EGT and idling RPM electronic unit TURBOMECA.

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CERTIFICATION BASIS FAR 21.29 and FAR 33 effective February 1, 1965, and Amendments 33-1, 33-2, 33-3, and 33-4.
Date of Application for Type Certificate: October 12, 1973.
Type Certificate No. E17EU issued: January 22, 1976.

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 E17EU . 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 E17EU, is in a condition for safe operation and has undergone a final operational check.

NOTE 1 Permissible engine speeds, rpm:

Maximum:

-Takeoff & Maximum continuous	44,500
-Transient overspeed (10 sec. limit)	45,600
Minimum for continuous operation	41,500

Refer to Operation Manual 275.01.934 for required action if limits are exceeded.

NOTE 2. Maximum permissible temperature:

A. Exhaust gas (t4 °C)

(measured with two thermocouples on turbine exhaust diffuser).

-Takeoff (5 minutes)	620
-Maximum continuous	580
*Starting maximum (5 sec.)	700 to 750

*Refer to Operation Manual 275.01.934 for required action if limits are reached.

B. Oil (°C)

(measured on the suction line from tank to pressure pump)

-Maximum operating	: +95
-Minimum for starting	: - 40 (with normal fuel and oil types, and ground power supply Refer to Operation Manual 275.01.934 for further details).
-Minimum for power application	: 0

C. Fuel (°C)

(at engine inlet)

-Minimum for starting	: - 40
-Maximum operating	: +55

NOTE 3. Fuel and oil pressure limits (psig)

A. <u>Fuel:</u>	at engine for starting	2.9 to 11.6
	at engine inlet for operation	- 4.3 to +17.4

B. Oil: (measured at engine pump outlet, after filter)

normal	15.95 to 72.6
minimum	15.95
maximum	72.6

NOTE 4. Maximum permissible air bleed

- P2 air bleed (from centrifugal compressor plenum) max. air mass flow : 0.26 lb/sec.
- P1 air bleed (between axial and centrifugal compressor) max. air mass flow : 0.44 lb/sec.
- Power loss due to P2 bleed air : 335 s.hp/lb/sec.
- Power loss due to P1 bleed air : 213 s.hp/lb/sec.

NOTE 5. Air intake requirements

- The engine complies with the ice protection requirements of FAR 33.67(c) when fitted with S.N.I.A.S. air intake. SNIAS grid no. 360A.58.1001.08 and 09 and sound suppressor no. 360A.58.1001.05 and 06 or SGAC approved equivalent intake are required.

NOTE 6. Accessory drive provisions

The following drive accessories are provided as part of engine and are included in engine dry weight (except A.C. generator which is an optional item) and are as defined in Turbomeca Installation Manual No. 275.01.932.

Accessory	Manufacturer Type	Direction of rotation of drive	Reduction ratio Nominal rpm	Maximum continuous available power s.hp.	Maximum static torque in. lb.	Static overhang in. lb.
Main output shaft	TURBOMECA	CCW*	7.375643 5830	ÄÄ	ÄÄ	ÄÄ
Starter generator	SEB	CCW	4.291417 10,020	10	885	221
Tachometer transmitter	JAEGER	CCW	5.095994 8,438	.1	4.5	9
A.C. generator (optional)	ÄÄ	CW	3.620748 11,876	16	300	133
Fuel pump and governor	TURBOMECA	CCW	10.886075 3,950	ÄÄ	ÄÄ	ÄÄ
Oil pump	TURBOMECA	CW	10.886075 3.950	ÄÄ	ÄÄ	ÄÄ

*CCW : Counter clockwise, looking from rear of the engine.

CW : Clockwise or CCW: Counter clockwise, looking at accessory drive.

NOTE 7. Engine ratings: Based on calibrated test rig with performance under the following conditions:

- Static, sea level standard conditions (59°F, 29.92 in Hg)
- No air bleed, no accessory power off-take.

The indicated ratings are minimum final test performance of production and overhaul engines measured with engine acceptance test specification No. 275.02.940 (calibrated test bed air intake, straight, short exhaust pipe, 10.23 in.dia.)

NOTE 8. Fuel supply requirements:

- The engine has no provision for principal fuel filtering. Fuel supply from aircraft (helicopter) system must therefore be delivered to engine with a 10 micron filtration grade.
- Filter ice protection not provided with engine.

NOTE 9. The Astazou XVIII A has an integral oil system, including oil tank, cooler, pumps, filter and piping.

- Oil pumps (pressure and scavenge) - TURBOMECA
- Oil filter - TURBOMECA with metallic filter element SOFRANGE
- Oil tank volume, including expansion volume : 3.57 U.S. gal.
- Oil volume, at top of show glass (filled) : 2.38 U.S. gal.
- Oil volume, at lowest show glass (minimum indicated) : 1.85 U.S. gal.
- Oil consumption, normally negligible, but less than : .13 U.S. gal.
- Maximum acceptable fuel dilution in oil : 10% in volume.

NOTE 10. Engine monitoring transmitters

The engine is equipped with the following transmitter instruments:

- Tachometer transmitter (turbine speed) JAEGER
- Oil pressure transmitter LABEM
- Minimum oil pressure switch TURBOMECA
- Oil temperature bulb "JAEGER"
- Thermocouple harness including 2 thermocouples MOVIE-SONICS
- Fuel flow limit pressure switch TURBOMECA

NOTE 11. Electrical equipment

- Electronic starting control box TURBOMECA (actuated by E.G.T. and R.P.M.)
- Refer to Turbomeca Operation Manual No. 275.01.934 for electrical limits.

NOTE 12. Engine fire and overheat sensors:

- The following fire detectors are provided : 4 L'HOTELLIER
- Complementary rear zone overheat temperature sensors : 2 ELMWOOD

NOTE 13. Refer to Turbomeca Operation Manual No. 275.01.934 for approved oil specifications.

NOTE 14. Refer to Turbomeca Operation Manual No. 275.01.934 for approved fuel and additive specifications.

NOTE 15. A list of life limited parts is given in SGAC approved Chapter V of Turbomeca Maintenance Manual No. 275.01.935.

NOTE 16. Manuals required by FAR 33.5:

- OPERATION MANUAL 275.01.934
- INSTALLATION MANUAL 275.01.932
- MAINTENANCE MANUAL 275.01.935
- OVERHAUL MANUAL 275.01.936

NOTE 17. 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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