DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E13EU
TURBOMECA
Revision Number: 4
Models:
Astazou XIV B
Astazou XIV H

March 20, 2007

TYPE CERTIFICATE DATA SHEET E13EU

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E13EU) 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, operated, and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate (TC) Holder: Turbomeca
64 511 Bordes Cedex
France

I. Models	Astazou XIV B	Astazou XIV H
TYPE	Single spool turbo-shaft engine for single engined helicopters: - Two stage axial compressor - Annular combustion chamber with central fuel injection - Three stage axial turbine (43,000 rpm)	
	- 7.34528:1 reduction gearing (5824 rpm)	- 6.78857:1 reduction gearing (6334 rpm)
RATING (See NOTE 7)	At nominal engine speed of 43,000 rpm	
	- Maximum continuous: 542 shp. - Takeoff (5 min.) : 592 shp.	- Maximum continuous and Takeoff (5 min.): 592 shp.
FUEL CONTROL	Turbomeca integral constant speed governor with phase advance correction: includes fuel pump, idle Fuel control and hp. fuel shut-off cock, fuel flow limiter (Astazou XIV H only).	
FUEL	See Note 13.	
OIL	See Note 12.	
PRINCIPAL DIMENSIONS		
Length, in.:	56.42	57.90
Width, in.:	20.47	19.68
Height, in.:	24.55	22.20
CENTER OF GRAVITY		
	C.G. location, aft of accessory drive plate, on engine C.L., in.: 7.30	C.G. location, aft of rear engine attachment phase: in engine C.L., in.: 8.15
WEIGHT (dry, completely equipped, exhaust pipe excluded): 353 lb. (maximum)		

DRIVE SHAFT TYPE. Special 24 internal involute splines, according to AND 20006, Type XVI Spec., pitch circle: 1.20 inches diameter.

IGNITION. High tension, low energy, comprising:

- Double ignition coil : Air Equipment
- Two torch igniters : TURBOMECA
- Two high tension cables : TURBOMECA
- Ignition fuel micropump : TURBOMECA

CERTIFICATION BASIS FAR 21.29 and FAR 33, effective 1 February 1965 and Amendments 33-1, 33-2, 33-3 and 33-4.
Date of application for Type Certificate : 7 May 1971 (Astazou XIV B).
Type Certificate No. E13EU issued : 12 September 1972.
Date of application for Type Certificate extension to Astazou XIV H : 25 November 1975.
Amended Type Certificate E13EU issued May 25, 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 E13EU**.** 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 E13EU**,** is in a condition for safe operation and has undergone a final operational check.

NOTE 1. Permissible engine speeds, rpm

Maximum:

- Takeoff maximum continuous, and all normal flight conditions:	43,200
- Transients:	44,500
- Overspeed (10 sec. limit):	45,600
Minimum for transient operation	41,500

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

NOTE 2. Maximum and minimum permissible temperatures.

A. - Exhaust gas (°C) (Measured with two thermocouples on turbine exhaust diffuser)

	ASTAZOU XIV B	ASTAZOU XIV H
- Take-off (5 min.)	550	550
* Maximum continuous	470*	500
**Starting	700 to 750	700 to 750

**Refer to Operation Manual for required action if limits exceeded.
* When modification AB60/No. 40 is installed the permitted maximum is 500.

B. - Oil (°C) (Measured on oil return from cooler to tank)

- Minimum for starting	-30
- Minimum for engine loading	-15
- Maximum in operation	+85
- Minimum for anti-icing	+30

C. - Fuel (°C) (not measured on the engine)

- Minimum for starting	-30
- Maximum in operating	+55

Refer to TURBOMECA Operation Manual for required actions if limits are exceeded.

NOTE 3. Fuel and oil pressure limits (p.s.i.g.)

A. - Fuel
- at engine inlet for starting : 4.3 to 8.7
- at engine inlet for operation : -4.3 to 13.

B. - Oil : (at engine oil pump outlet)
- Normal : 20 to 70
- Minimum : 16
- Maximum : 70

NOTE 4. Maximum permissible air bleed (from centrifugal compressor plenum)

(Orifice limited at engine pick-up union) : 0.420 lb/sec.
Power loss due to air bleed off : 335 hp/lb/sec.

NOTE 5. Air intake anti-icing limits.

This engine complies with the ice protection requirements of FAR 33.67(c) when TURBOMECA P/N 0.235.28.751.0 or grid no. 0 235 21 762 0 or SNIAS sound suppressors SNIAS no. 341 A 54 0110 or no. 341 A 54 1004 is fitted or SGAC-approved equivalent intake are required.

Oil temperature (refer to NOTE 2(B)).

NOTE 6. Accessory drive provisions.

The following driven accessories are provided on the engine and included in engine weight, (with exception of the A.C. generator, which is an optional item). Refer to TURBOMECA Installation Manual.

Accessory	Engine Type	Manufacturer	Rotation direction of engine drive pad*	Reduction ratio (nominal rpm).	Maximum continuous available power (shp)	Maximum static torque (in. lb.)	Static overhang (in. lb.)
Principal power out put drive	XIV B	TURBOMECA	CCW	7.34528 (5854)	542	8 680	780
	XIV H	"		6.78857 (6334)	592	8 680	780
Starter Generator	XIV B	S E B	CW	5.5713 (7,718)	10	868	221
	XIV H			4.18166 (10,283)			
A.C. Generator	XIV B	-	CW	3.63468 (11,830)	12	300	133
	XIV H			3.57173 (12,039)	18.1		
Tachometer Transmitter	XIV B	JAEGER	CW	10.3481 (4,141)	0.1	4.5	9
	XIV H			10.2049 (4,214)			

Accessory	Engine Type	Manufacturer	Rotation direction of engine drive pad*	Reduction ratio (nominal rpm).	Maximum continuous available power (shp)	Maximum static torque (in. lb.)	Static overhang (in. lb.)
Fuel pump and control unit Generator	XIV B	TURBOMECA	CCW	10.9417 (3,390) 10,750 (4,000)	-	-	-
Fuel Pump	XIV B	TURBOMECA	CW	11.4513 (3,755) 11.250654 (3,822)	-	-	-

*Direction of rotation: looking at accessory drive pad except principal power output drive from the rear of the engine.

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

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

The ratings are minimum acceptable final test performance of production series and overhauled engines, measured according to Acceptance Test Specification No. 283 00 940.

NOTE 8. Fuel supply requirements:

The engine has no provision for principal fuel supply filtering. Fuel supply from aircraft (helicopter) system must therefore be delivered to engine with a 10 microns filtration grade. Maximum fuel flow:

- 61 U.S. gal./h. (ASTAZOU XIV B)
- 65.5 U.S. gal./h. (ASTAZOU XIV H)
- Filter ice protection not provided with engine.

NOTE 9. The ASTAZOU XIV has integral oil system, including oil tank, oil pumps, oil filter, all necessary piping and fitting, except oil cooler, which is aircraft (helicopter) delivery.

- Oil pump assembly (lubricating and scavenging pumps) : TURBOMECA
- Oil filter (part of accessory drive casing) including cleanable metallic filter-element with 30 microns filtration grade : SOFRANCE
- Oil tank volume : including expansion space : 3.86 U.S. gal
- Oil volume at top of show-glass (filled) : 2.43 U.S. gal
- Oil volume at lowest show-glass (minimum) : 1.64 U.S. gal
- Demonstrated usable oil volume : 1.11 U.S. gal
- Undrainable oil volume (approx) : .40 U.S. gal
- Oil consumption, normal, less than : .21 U.S. pint/hour
  Maximum allowable : 1.05 U.S. pint/hour
- Maximum acceptable fuel dilution in oil : 10 percent in volume

NOTE 10. Engine monitoring transmitters:

The engine is equipped with the following transmitter instruments:

a - Tachometer transmitter, (turbine speed) : JAEGER
b - Low oil pressure alarm pressure switch : TURBOMECA
c - Oil pressure transmitter : LABEM
d - Oil temperature bulb : JAEGER
e - Thermocouple harness including 2 thermocouples : TURBOMECA
f - Fuel flow limit pressure switch, (including in fuel control unit) : TURBOMECA

NOTE 11. Electrical requirements
Refer to TURBOMECA Operation Manuals for electrical limits.

NOTE 12. Refer to TURBOMECA Operation Manuals for approved oil specifications.

NOTE 13. Refer to TURBOMECA Operation Manuals for approved and additive specifications.

NOTE 14. Engine fire sensors:

- The following fire detectors are provided: 4 l'Hotellier

NOTE 15. See SGAC approved Chapter 5 of Maintenance Manual for life limited parts.

NOTE 16. Manuals required by FAR 33.5:

	ASTAZOU XIV B	ASTAZOU XIV H
- OPERATION MANUAL	283 00 931	283 02 938
- INSTALLATION MANUAL	283 00 939	283 02 937
- MAINTENANCE MANUAL	283 00 936	283 02 933
- OVERHAUL MANUAL	283 00 938	283 00 938

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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