FEDERAL AVIATION ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

E4EU
Revision 5
TURBOMECA

BASTAN VI-C1

March 21, 2007

TYPE CERTIFICATE DATA SHEET E4EU

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E4EU) 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 S.A.
64 511 Bordes Cedex, France (See NOTE 16)

Models	BASTAN VI C1
Type	Turboprop/Single stage axial compressor, single stage centrifugal compressor, annular combustion chamber, three stage turbine. Propeller gear ratio: 21.0909:1. Output shaft rotation speed: 1,588 rpm
Rating (See NOTE 9) Take-off and maximum continuous at sea level (ISA), equivalent shaft hp, jet thrust, rpm.	1057 - 987 - 180 - 33,500
Propeller shaft	Spline NFL 87 120 (French Standard) - Involute splines 28 splines, 2.5 mm pitch, 75 mm diameter, acc. to French spec NFE 22141.
Fuel Control	
Governor unit	(TURBOMECA Part) 0 064 64 503 0, 505 0, 507 0, 508 0, or 510 0
Fuel cock	(SEMCA Type) 4414/311 Eq6 - or TURBOMECA: 0 243 89 768 0
Quick shutoff valve	(TURBOMECA Part) 0 210 01 000 0
Micropump for starting	(TURBOMECA Part) 0 044 56 000 0
Automatic starting box	(TURBOMECA Part) 0 077 75 000 0 or 510 0
Fuel (See NOTE 12)	American: JP-1 ASTM JET A, JET A1 JP-4 (MIL T 5624) ASTM JET B French: TRO Norme AIR 3405 TR4 Norme AIR 3407 British: D.ENG.RD 2453, D.ENG.RD 2494 D.ENG.RD 2454, D.ENG.RD 2486, D.ENG.RD 2498
Oil	American: MIL L 7808, MIL L 23 699* French: AIR 3513, AIR 3514, AIR 3517*, AIR 3515* British: D.ENG.RD 2490*, D.ENG.RD 2487*

NOTE: The oil specifications marked with * should not be used below -30°C.

Principal Dimensions (See NOTE 11)
Length in.: 69.80
Width in.: 27.85
Height in.: 33.56

Weight (dry) (See NOTE 11) 710 lb.

Center of Gravity (see NOTE 11) 8.56 in.
Ahead of centroid of plane containing 3 forward mounting points.

Ignition — High tension, (low energy system) 24 volt supply 2 torch igniters (TURBOMECA Part 0 237 30 750 0 or 0 237 30 755 0), Dual ignition coil (Air Equipment Part 81 264)

Certification Basis — CAR 10 and relevant French airworthiness requirements AIR 2051. (equivalent to CAR 13 effective June 15, 1956, including Amendments 13-1 through 13-5).
Type Certificate (Import) No. E4EU issued December 11, 1964.
Date of application for Type Certificate: March 4, 1964.

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 E4EU. 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 E4EU, is in a condition for safe operation and has undergone a final operational check.

NOTE 1. Maximum permissible temperatures:
Turbine exhaust gas temperatures (measured with four thermocouples)

Starting (momentary):	650°C
Take-off (dry):	530°C
Maximum continuous:	530°C
Take-off (wet):	550°C

Oil temperatures (measured in the tank)

Minimum for turning up:	+15°C
Minimum in flight (stabilized)	+25°C
Maximum:	+85°C
	+90°C for oils MIL-L-7808; MIL-L-23699; AIR 3513 - AIR 3514.

Fuel temperatures (measured on the engine)
Maximum: +60°C for ASTM Jet A and Jet A1
+55°C for MIL-T-5624 - ASTM Jet B

NOTE 2. Fuel and oil pressure limits:
Fuel at engine inlet (booster pressure): for starting: 4.3 to 11.5 psig
(not measured on engine) during operation: -2.9 to 17.4 psig

Oil pressure - normal during operation		:	41 psig ± 10 psig
(Oil pressure	minimum during ground idling	:	14.5 psig
transmitter	maximum with cold oil	:	87 psig
on engine)	minimum during operation (warning light)	:	10 psig

NOTE 3. The engine performance is guaranteed under the following conditions:
- Static sea level standard conditions (29.92 in. Hg. and 15°C (50°F)
- No air bleed
- No accessory load
- The exhaust gas temperature is the same for each engine. This temperature is 530°C (985°F) for all engine at dry take-off power, which corresponds to a turbine inlet temperature of 855°C (1620°F).
- Each engine is equipped on aircraft with tailpipe the small section variations of which have no significant effect on engine performance; however, each new application must be evaluated for installation effects.
- Jet thrust is converted to equivalent shaft horsepower by dividing the thrust value by 2.5.

NOTE 4. The following accessories are eligible and normally supplied with the engine:

Accessories	Part Numbers	Rotation	Gear ratio for reduction gear with 1588 rpm	Cont. Torque in. lb.	Max. Torque in. lb.	Moment due to weight in. lb.
Starter generator	Air Equipment 84 521/21 or SEB 8042 - 1	CCW	1:5.0052	133	597	354
Tachometer transmitter (generator)	JAEGER 545 366	CCW	1:8.0239	1	5	9

Drives are provided for the following optional accessories:

Alternator	AUXILEC 9005	CCW	1:4.1480	221	600	354
Hydraulic pump	MESSIER Type 40	CCW	1:5.0520	24	177	12.5

(The continuous power taken from the alternator and hydraulic pump drives should not exceed 36 shp. The maximum torque values quoted above are maximum short duration values permissible for a turbine rotation speed not less than 25,000 rpm).

NOTE 5. Maximum air bleed for aircraft services is 0.287 lb/sec. at sea level and take-off power.
Maximum air bleed for engine air intake anti-icing: 0.154 lb/sec.
Power loss due to air bleed is: 243 hp/lb/sec.

NOTE 6. The engine meets FAA requirements concerning turbine and compressor blade containment and does not require external armoring.

NOTE 7. The BASTAN VI C1 engine is equipped with an electrical and hot air anti-icing system.

NOTE 8. This engine is designed for use with a hydraulic propeller which must be adapted to the provided regulation system.

NOTE 9. The engine is fitted and eligible for water-methanol injection (TURBOMECA modifications TU 130 and TU 131) to restore take-off power to 39°C (102°F) at sea level ISA.

Approved water-methanol mixture: 44% methanol, 56% distilled water.

	AMERICAN	FRENCH	BRITISH	NATO
Methanol specification	OM 232 d, Grade A	AIR 3651	D.ENG. RD.2491	S 747

NOTE 10. The engine is fitted with a torquemeter system intended principally for control of power during water-methanol injection. Maximum permissible torque: 109%.

NOTE 11. Dimensions, weight and center of gravity values are for engine and all regulating equipment (including for propeller and starter), oil tank and oil cooler. Tailpipe and propeller excluded.

NOTE 12. The following fuel additives are approved for use:

- PHILLIPS PFA/55 MB, AIR 3652, MIL-I-27686, D.ENG.RD.2451, anti-icing additive in quantity up to 0.15 percent by volume.
- SHELL ASA-3 anti-static additive in quantity up to 0.0001 percent by volume.

NOTE 13. Engine speed limits: (RPM)

- Normal: 33,500 rpm (tachometer reading: 99.4%)
  Tolerance +1.0%, - .4%
- Minimum regulated: 28,600 (tachometer 85%)
- Maximum transient: 34,900 (tachometer 103.6%)
- Maximum overspeed: 35,500 rpm (20 sec. limit) (tachometer 105.4%)

NOTE 14. Vibrations: Amplitude under stabilized conditions in operation smaller than 20 microns, maximum allowed amplitude under stabilized conditions: 30 microns.

NOTE 15. Because of integrated airframe/engine/propeller system qualifications and certification under FRENCH AIR 2051 requirements, the BASTAN VI C1 engine is eligible only for installation in the NORD Model 262 airplane and with a RATIER FIGEAC Model FH 146 propeller.

NOTE 16. Due to several modifications in the French postal code, the different following addresses can be met on the engine documents and engine identification plates:

- TURBOMECA - BORDES - BASSESS PYRENEES - FRANCE
- TURBOMECA - BORDES - PYRENEES ATLANTIQUES - FRANCE
- TURBOMECA - 64 - BORDES - FRANCE
- TURBOMECA - BORDES - 64 320 - BIZANOS (FRANCE)

NOTE 17. The life limit components are listed in the engine Maintenance Manual.

NOTE 18. Engine Manuals required by FAR 33.5.

Operation Manual	No. 243 87 930
Installation Manual	No. 243 87 940
Maintenance Manual	No. 243 87 932
Overhaul Manual	No. 243 87 933

NOTE 19. 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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