

**DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

E-300  
Revision 7  
TURBOMECA  
ARTOUSTE

IIB1  
IIC, IIC1, IIC2,  
IIC5, IIC6

March 20, 2007

**TYPE CERTIFICATE DATA SHEET NO E-300**

Engines of models described herein conforming with this data sheet (which is a part of engine type certificate No. 300) 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 Civil Air Regulations provided they are installed, operated and maintained as prescribed by the approved manufacturer's manuals and other approved instructions.

Type Certificate Holder                      Turbomeca S.A.  
64 511 Bordes Cedex, France

Model	Artouste	<u>IIB1</u>	<u>IIC, IIC1, IIC2, IIC5,</u> <u>IIC6</u>
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Type	Turboshaft for helicopters	Single stage centrifugal compressor Annular combustion chamber Two stage turbine 5.803:1 reduction gearing	--
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Rating	Maximum continuous at sea level, Shaft hp., r.p.m.	330-34000	--
	Takeoff (5 min.) at sea level), Shaft hp, r.p.m.	400-34000	--
	Drive shaft type		

Fuel control, Turbomeca Governor	064.14.000		064.28.000
	or 064.37000		or 064.37.000
Turbomeca Automatic Starting Box	077.13.000		077.28.000
	or 077.37.000		or 077.37.000
Turbomeca Micropump (for starting)	044.38.000		--
	or 044.56.000		--

Fuel (See NOTE 9)	Approved Specification (latest amendment): JP.1 (MIL.F.5616) or JP-4 (MIL-T-5624) British D.Eng. R.D. 2482 or R.D. 2486 France TRO (AIR 3405) or TR4 (AIR 3407) JP.5 (MIL-J-5624) French TR5 (AIR 3404) British D.Eng. R.D. 2488 or R.D. 2498 Aviation Gasoline (MIL-G-5572 or MIL-G-3056) British D.Eng. R.D. 2485 or DEF 2401 French MT 80 (AIR 3401) Diesel Fuel (MIL-F-16884 Type I and Type II) French 47.0 Dieso Illuminating Oil (Kerosene) Automotive Diesel Oil
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Oil (See NOTE 1)

(For ambient air above 14°)  
 Shell Turbine Oil 9  
 Esso Turbine Oil 57  
 Caltex Jet Engine Oil Heavy  
 British DED 2479  
 French AIR 3512

(For ambient air lower than 14°F)  
 Shell Turbine Oil 3  
 Esso Aviation Utility Oil F  
 Caltex Jet Engine Oil Medium Heavy  
 British DED 2490 or DEF 2001  
 French AIR 3515

Caltex Aircraft Instrument Oil  
 (For ambient air between 5°F and 41°F)  
 British DED 2480

		<u>IIB1</u>	<u>IIC, IIC1, IIC2, IIC5, IIC6</u>
Principal Dimensions:	Length, in.	54.4	58.13
	Width, in.	29.9	29.9
	Height, in.	27.0	26.65
C. G. Location:	Aft of front mounts, in.	8.56	9.61
Weight (dry), lbs. (Includes weight of clutch, 44 lb.)		342	360
Ignition system	Low energy type (24 volt supply) with 2 Turbomeca 056.31.750 or .751 or 223.30.750 torch igniters Dual ignition coil RB Ducellier AV type A or air equipment 81264		
NOTES	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	--	

“- -” indicates “same as preceding model.”

Certification basis CAR 10. Engine Type Certificate No. 300 issued January 13, 1958, amended January 20, 1960 to include IIC, amended August 28, 1968, to include IIC1, IIC2, IIC5, and IIC6.  
 Date of application for Type Certificate: November 22, 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-300 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-300 is in a condition for safe operation and has undergone a final operational check.

NOTES:

Note 1.

Maximum permissible temperatures:

Turbine exhaust gas temperatures:

	<u>IIB1</u>	<u>IIC, IIC1, IIC2, IIC5, IIC6</u>
Takeoff	1125°F (607°C)	1035°F (557°C)
Maximum continuous	950°F (510°C)	950°F (510°C)
Maximum transient	1040°F (560°C)	1022°F (550°C)

The turbine exhaust gas temperature is measured by 4 thermocouples.

Oil inlet temperature:

68° to 175°F (20° to 80°C) For ambient air temperatures 14°F and above with appropriate grade of oil per manual.

32° to 86°F (0° to 30°C) For ambient air temperatures below 14°F with appropriate grade of oil per manual.

- NOTE 2. Fuel and oil pressure limits:  
 Fuel, at engine inlet, 4.0 to 4.5 p.s.i.g.  
 Oil, normal pressures are 30 to 60 p.s.i.g., except minimum of 10 p.s.i.g. is permitted for idling.
- NOTE 3. The engine ratings are the minimum guaranteed and are based on the following:  
 Static sea level standard conditions of 59°F, 29.92 in.Hg.  
 No external air bleed or aircraft accessory power.  
 At the exhaust gas temperatures stamped on each engine. This temperature will vary somewhat but will be no higher than 1100°F (593°C) for IIB1, 1010°F (543°C) for IIC, IIC1, IIC2, IIC5, IIC6 for all engines at takeoff power, which corresponds to a turbine inlet temperature of 1480°F (804°C) for IIB1, 1385°F (752°C) for IIC, IIC1, IIC2, IIC5, IIC6.
- Exhaust gas temperatures are measured by the 4 Turbomeca thermocouples installed on each engine. A typical jet pipe, although the engine is not sensitive to small differences in tailpipes.
- NOTE 4. The following aircraft accessories provisions are provided on the engine:
- |   | Rotation<br>( <u>facing drive</u> ) | Speed<br>Ratio | Continued<br>Torque<br>( <u>in. lb.</u> ) | Static<br>Torque<br>( <u>in. lb.</u> ) |
|---|-------------------------------------|----------------|---|--|
| Starter-generator<br>(Labavia DD 2501A) | Counter<br>clockwise                | 1:5.108        | 85  | 520                                    |
| Tachometer<br>(AMA/G32/type 110)        | Clockwise                           | 1:10           | -   | 10                                     |
- NOTE 5. Maximum air bleed for aircraft services is .067 lb/sec. at sea level.
- NOTE 6. This engine is for use on helicopters and includes the following equipment:  
 Drive clutch assembly for main drive  
 Overload signaling device  
 Isochronous speed governing system  
 Automatic sequency device for starting
- NOTE 7. This engine meets FAA requirements for adequate turbine disc integrity and rotor blade containment and does not require external armoring.
- NOTE 8. This engine has no provision for anti-icing the inlet and has not been substantiated for use in icing weather.
- NOTE 9. (a) Use of any of the specified alternate fuels does not require readjustment of fuel controls  
 Use of leaded Aviation Gasoline as an alternate fuel is limited to no more than 25 hours between overhauls as engine power output will decrease significantly with its extended use.  
 (b) When Marine Diesel Fuel is used, the outside air temperature must be above +5°F (-15°C).  
 (c) When JP5 is used, its specific gravity must be below 0.8.  
 (d) When gasoline is used, it is recommended to add 1% oil.  
 (e) Illuminating oil (kerosene) to be used must have the following characteristics:  
 Sulphur: Less than 0.2% flash point  
 Not less than 100°F (38°C), freezing point  
 Not greater than -40°F (-40°C)  
 (f) Automotive diesel oil must not be used when the outside air temperature is below 32°F (0°C). Its characteristics must be:  
 Sulphur: Less than 1% , kinematic viscosity at 68°F (20°C)  
 Less than 9 centistokes
- NOTE 10. (a) The models IIC and IIC1 are similar to the IIB1 except for improved design for the turbine section and stators.  
 (b) The model IIC2 is similar to the IIC and IIC1 except for improvement in the intake and reduction gear casing design.  
 (c) The model IIC5 is similar to the IIC1 except for steel inducer instead of aluminum alloy and new combustion chamber outer liner.  
 (d) The model IIC6 is similar to the IIC5 except for the improvement in the intake and reduction gear casing design.

## NOTE 11

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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