

FEDERAL AVIATION ADMINISTRATION  
U.S. DEPARTMENT OF TRANSPORTATION

E2IN	
Revision No. 4	
TURBOMECA	
ASTAZOU II A	ASTAZOU II G
ASTAZOU II C	ASTAZOU II J
ASTAZOU II D	ASTAZOU II K
ASTAZOU II E	
March 20, 2007	

TYPE CERTIFICATE DATA SHEET E2IN

Engines of models described herein conforming with this data sheet (which is part of Type Certificate Number E2IN) 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

Models	II A	II C	II D	II E
Type	Single stage axial compressor Single stage centrifugal comp. Annular combustion chamber Three stage turbine	--	--	--
	Turboshaft (for helicopter) 7.34:1 reduction gearing (Shaft speed 5922 r.p.m.)	Turboprop 19.97:1 Propeller ratio (2178 r.p.m.)	-- -- --	-- 21.13:1 (2058)
Rating (See NOTE 3)				
Maximum continuous at sea level, equivalent shaft hp., shaft hp., jet thrust, r.p.m.	496-473-57.5-43,500	503-473-75-43,500	473-444-73-43,500	503-473-75-43,500
Takeoff (5 min) at sea level, equivalent shaft hp., shaft hp., jet thrust, r.p.m.	546-523-60-43,500	555-523-77.5-43,500	473-444-73-43,500	553-523-77.5-43,500
Propeller Shaft	—	integral with prop. hub body	--	--
Fuel Control				
Fuel pump block and speed governor	064 54 519, or 064 53 500	--	064 41 000	064 53 000
Igniting micropump	044 61 501	--	--	--
Automatic control box	077 59 504	077 53 000	077 50 000	077 53 000
Master fuel cock and feathering cock	—	074 17 000	074 11 000	--
Fuel (See NOTE 9)				
Oil (See NOTE 10)				
Principal Dimensions:				
Length, in.	56.2	69.5	69.1	--
Width, in.	18.1	19.93	18.25	19.55
Height, in.	18.1	19.93	18.3	19.55
C.G. Location:				
Aft of front engine mounts, in.	17.9	—	—	—
Forward of side engine mounts, in.	—	17.15	--	--
Below engine shaft, in.	.2	--	--	--
Left of engine shaft, in.	.315	--	--	--
Weight (dry), lb. (See Note 11)	310	348	355	348
Ignition System Type	Low energy, 24 volts supply with 2 torch igniters No. 237 30 750 Dual ignition coil	-- --	-- --	-- --
	Air Equipment No. 81 264			

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**LEGEND: "--" INDICATES "SAME AS PRECEDING MODEL"**  
**"--" NOT APPLICABLE**  
**NOTE: ALL PAGES ARE REFORMATTED. SIGNIFICANT CHANGES IF ANY, ARE BLACK-LINED IN THE LEFT MARGIN.**

Models	II G	II J	II K
Type	--	--	--
	21.13:1 Propeller ratio (2058 rpm) w/out floating pinion	19.84:1 (2193)	19.97:1 (2178)
	20.81:1 Propeller ratio (2090 rpm) with floating pinion	—	19.84:1 (2193)
Rating (See NOTE 3)			
Maximum continuous at sea level, equivalent shaft hp., shaft hp., jet thrust, r.p.m.	503-473-75-43,500	473-444-73-43,500	503-473-75-43,500
Takeoff (5 min) at sea level, equivalent shaft hp., shaft hp., jet thrust, r.p.m.	553-523-77.5-43,500	473-444-73-43,500	553-523-77.5-43,500
Propeller Shaft	--	--	--
Fuel Control			
Fuel pump block and speed governor	064 53 501	--	--
Igniting micropump	044 55 500	--	--
Automatic control box	077 64 501	077 64 500	077 74 000
Master fuel cock and feathering cock	074 17 000	--	--
Fuel (See NOTE 9)			
Oil (See NOTE 10)			
Principal Dimensions:			
Length, in.	74.6	--	--
Weight, in.	20.08	--	--
Height, in.	20.51	--	--
C.G. Location:			
Aft of front engine mounts, in.	—	—	—
Forward of side engine mounts, in.	15.5	--	--
Below engine shaft, in.	--	--	--
Left of engine shaft, in.	--	--	--
Weight (dry), lb. See Note 11	342	318	332
Ignition System Type	--	--	--
	81 265	--	--

Certification Basis: CAR 10 and CAR 13 effective June 15, 1956 as amended by 13-1 through 13-3. Type Certificate No. E2IN issued August 1, 1962; Models II G, II J and II K added September 22, 1964. Date of Application for Type Certificate September 22, 1960.

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 E2IN. Effective September 28, 2003, the European Aviation Safety Agency (EASA) began oversight of this product on behalf of France.

Import Requirement: 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 E2IN, is in a condition for safe operation and has undergone a final operational check.

NOTE 1. Maximum permissible temperatures:

Turbine exhaust gas temperature: (measured by 2 thermocouples)

	II A	II C	II D	II E	II G	II J	II K
Starting transient (30 sec.)	1120°F (550°C)	--	--	--	--	--	--
(less than 3 sec)	1165°F (630°C)	--	--	--	--	--	--
Takeoff	980°F (525°C)	--	--	--	--	--	--
Maximum continuous	930°F (500°C)	--	--	--	--	--	--
Oil temperatures	(inlet)	--	(outlet)	--	(inlet)	--	--
	32°F to 167°F (0°C to 75°C)	--	68°F to 85°C (20°C to 85°C)	--	50°F to 176° (10°C to 80°C)	--	--
Maximum thermic load:							
Takeoff	—	100%	--	--	--	--	--

Maximum continuous — 88% 100% 88% -- 100% 88%

## NOTE 2. Fuel and oil pressure limits:

Fuel at engine inlet (p.s.i.g)	0 to 7	--	--	-1.5 to 10	--	--	--
Normal oil pressure (p.s.i.g)	16 to 70	oil pressure	--	--	--	--	--

warning light

## NOTE 3. The engine ratings are guaranteed on the following conditions:

Static sea level standard conditions (59°F and 29.92 in Hg.) (15°C and 760 mm Hg.)

No air bleed off

No power bleed off

The exhaust gas temperature is given for each engine. It varies with engines but is never higher than 980° (525°C) at takeoff rating. This value corresponds to a turbine entry temperature of 1565°F 850°C).

Each engine is equipped on aircraft with an exhaust pipe the small section variations of which have no effect on the engine performance. Jet thrust is converted to equivalent shaft hp. by dividing the thrust value by a factor of 2.5.

## NOTE 4. The following accessories are provided on the engines:

Model	Accessories	Part Numbers	Rotation Sense	Reduction Ratio	Continuous torque (in.-lb.)	Max. Torque (in.-lb.)	Moment due to the weight (in.-lb.)
II A	Dynastart	Labinal 2522 or Air Equipment 84 502/1	A.C.	1:5.598	30	435	90
	Tachometer Dynastart	AMA 8470 Air Equipment 84 502/1	A.C.	1:10.351	30	435	6
II C	Dynastart	AMA 8470 Air Equipment 84 502/1	A.C.	1:5.596	30	435	90
	Tachometer Dynastart	AMA 8470 Air Equipment 84 502	A.C.	1:10.348	30	435	6
II D	Dynastart	AMA 8470 Air Equipment 84 502	A.C.	1:5.596	30	435	90
	Tachometer Dynastart	AMA 8470 Air Equipment 84 502	A.C.	1:10.429	30	435	6
II E	Dynastart	AMA 8470 Air Equipment 84 502	A.C.	1:5.561	30	435	90
	Tachometer Dynastart	AMA 8470 Air Equipment 84 502/1	A.C.	1:10.362	30	435	6
II G	Dynastart	AMA 8470BF Air Equipment 84 502/1	A.C.	1:1.596	30	435	90
	Tachometer Dynastart	AMA 8470BF Air Equipment 84 502/1	A.C.	1:10.150	30	435	6
II J	Dynastart	AMA 8470BF Air Equipment 84 502/1	A.C.	1:5.561	30	435	90
	Tachometer Dynastart	AMA 8470BF Air Equipment 84 502/1	A.C.	1:10.345	30	435	6
II K	Dynastart	AMA 8470BF Air Equipment 84 502/1	A.C.	1:5.596	30	435	90
	Tachometer	AMA 8470BF	A.C.	1:10.345	30	435	6

## NOTE 5. Maximum air bleed for aircraft services is at sea level:

.155 lb/sec. (70 gr/s)

NOTE 6. This engine meets the FAA requirements for adequate turbine disc integrity and rotor blade containment and does not require external armoring.

NOTE 7. The Astazou II A has no provision for anti-icing.

The Astazou II C includes an electric anti-icing and has been proved satisfactory for operation at 5°F (-15°C) and 20,000 ft. altitude.

The Astazou II D, II E, II G, II J and II K include an anti-icing system by air bleed after compressor, and have been proven satisfactory for operation at 5° (-15°C) and 20,000 ft. altitude.

NOTE 8. Models II C, II D, II E, II G, II J and II K engines will be used with an electric propeller adapted to the required regulation system.

NOTE 9. Fuels shall conform to the specifications as listed in the table below or to subsequent revisions thereof. The mixing of approved fuels is permitted subject to the limitations specified under "Remarks".

FUEL	SPECIFICATION				REMARKS
	FRENCH	NATO	U.S.A.	U.K.	
AVIATION FUELS	AIR 3405* (TR.0)	F.34		D.eng.RD 2453 AVTUR/FS II	
		F.35		D.eng.RD 2494 AVTUR	
	AIR 3407* (TR.4)	F.40	MIL-T-5624 (JP.4)	D.eng.RD 2454 AVTAG FS II	
		F.45		D.eng.RD 2486 AVTAG	
	AIR 3403* (TR.5)	F.42			
	TR.5*	F.44	MIL-T-5624 (JP-5)	D.eng.RD 2498 AVCAT	
	Gasoline*	F.12	MIL-G-5572		<u>25 hr maximum between overhauls</u>
AIR 3401	F.18 F.22	MIL-G 5572	D.eng. RD 2485	It is recommended to add 1% to 2% oil, preferably mineral oil.	
OTHER FUEL	Automotive Gasoline DCEA/2D MT 80	F.46		DEF 2401	

For the turbo shaft engine variant II A, the following fuels are also approved:

FUEL	SPECIFICATION				REMARKS
	FRENCH	NATO	U.S.A.	U.K.	
NAVY FUELS	7120 STM Gas Oil: 0	F.75	MIL-F-16884	DEF STAN 31-4	Do not use below -15°F For the normal use of this fuel the AZ 156 unit containing one of the fuels marked*: - is recommended in all cases - is essential if the temperature is below 10°C
	7120 STM Gas Oil: 20	F.76			
OTHER FUELS	Illuminating oil (Kerosene) DCEA/II C	F.58	VVK 211	DEF 2403	Sulfur: less than 0.2% Flash point: not less than 38°C Freezing point: not greater than -40°C
	Automotive diesel oil 40 Dieso DCEA/21C	F.54	VVF 800  Class DF 2	TS 10003	Sulfur: less than 1% Kinematic viscosity at 20°C: less than 9 cst Do not use below 0°C For the normal use of this fuel the Az 156 unit containing one of the fuels marked*: - is recommended in all cases - is essential if the temperature is below 10°C

NOTE 10. Oils shall conform to the specifications as listed in the table below or to subsequent revisions thereof. The mixing of oils AIR 3513 and AIR 3515 is not permitted. The system should be flushed when changing from one type to the other.

ENGINE OIL	SPECIFICATION				REMARKS
	FRENCH	NATO	U.S.A.	U.K.	
NORMAL	AIR 3513	0.148	MIL-L.7808	E.Eng.RD 2490	Use of brands other than those shown opposite requires S.G.A.C. approval.
	AIR 3515	0.135	Aeroshell turbine oil 3		
			Esso Aviation Utility Oil F		
			Caltex Jet Engine Oil, medium heavy		

NOTE 11. The weight includes all the regulations and starting apparatus and oil tank, except the exhaust pipe, and the propeller for the models II C, II D, II E, II G, II J and II K.

NOTE 12. The Model Astazou II G engine has been designed as a replacement for the II E and the II J as a replacement for the II D. The II G and II K engines possessing a floating pinion reduction gear are marked in the engine log book by Modification No. TU 53.

NOTE 13. 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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