

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E7NE
Revision 7
ALLIEDSIGNAL INC.
LTP 101-600
LTP 101-600A
LTP 101-600A-1A
LTP 101-700A-1A

September 17, 1997

TYPE CERTIFICATE DATA SHEET NO. E7NE

Engines of models described herein conforming with this data sheet (which is part of Type Certificate No. E7NE) 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 Holder: AlliedSignal Inc.
111 South 34th Street
Phoenix AZ 85034

TYPE

LTP 101-600	Axial-centrifugal flow free turbine turboprop. Single stage axial and single stage centrifugal compressor. Reverse flow annular combustor. Single stage gas generator turbine. Single stage power turbine.
LTP 101-600A	Identical to LTP 101-600 except for customer accessory drive and configuration. Reference Installation Drawing No. 4-003-001-01, Sheet 9 of 11.
LTP 101-600A-1A	Identical to -600A, except for improved gas producer turbine wheel.
LTP 101-700A-1A	Similar to -600A-1A, except for higher mass flow compressor.

Model	LTP-101-600	LTP 101-600A	LTP 101-600A-1A	LTP 101-700A-1A
Output shaft to power turbine speed ratio	.052	--	--	--
Ratings (See NOTE 1).				
Maximum continuous SHP	565	--	--	637
ESHP (See NOTE 2).	585	--	--	665
Output shaft speed, RPM	1924	--	--	--
Measured gas temperature, °F	1365	--	1380	--
Takeoff (5 minutes) SHP	599	--	--	671
ESHP (See NOTE 2).	620	--	--	700
Output shaft speed, RPM	1924	--	1,440	1,440
Measured gas temperature, °F	1405	--	--	--
Output shaft	Flanged 4.250' bolt circle, 8 holes, .594" diameter (see AlliedSignal Installation Manual Fig. 6.6)			
Control System				
Gas Producer	Bendix			
Fuel Control	DP-UI	--	--	--
Flow Fence	Bendix			
Actuator	AV-P1	--	--	--

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Model	LTP-101-600	-600A	-600A-1A	-700A-1A
Propeller Governor	Woodward Constant Speed Propeller Governor P/N 8210	--	--	--
Fuel (See NOTE 3)	ASTM D1655-70, Jet A, Jet A1 & Jet B MIL-T-5624 Grades JP-4 and JP-5 or equivalent	--	--	--
Oil (See NOTE 4)	Mil-L-7808 Mil-L-23699	--	--	--
Weight (Dry lb. maximum) (Includes essential engine accessories, but excludes starter-generator)	325	--	--	330
Principal Dimensions				
Length, In. Nominal	36.8	--	--	--
Height, In. Nominal	22.8	--	--	--
Width, In. Nominal	23.3	--	--	--
C.G. Location (dry weight) aft of centerline of lower mount pads, in.	1.77	--	--	--
below propeller centerline, in.	3.073	--	--	--
right of propeller centerline, looking aft, in.	0.12	--	--	--
Ignition System	Ignition exciter unit, Bendix Corporation P/N 10-371440-1, or Simmonds Precision P/N 42416, with separate spark plug leads to two shunted surface gap ignitor plugs.	--	--	--
Ignitor Plugs	AC spark plug P/N 5611304 or Unison, Ind. P/N 10-360840-1 or Champion P/N FHE211-2, CH34016, and CH34016-1 or S.G.L. P/N 0270310	--	--	--

"- -" Indicates "same as preceding model"

Certification basis: FAR 33 effective February 1, 1965, including Amendments 33-1, 33-2, 33-3, 33-4, 33-5.

<u>Model</u>	<u>Date of Application</u>	<u>Type Certificate Issued/Amended</u>
LTP 101-600	September 18, 1974	July 16, 1976
LTP 101-600A	June 16, 1976	July 16, 1976
LTP 101-600A-1	July 21, 1977	November 30, 1977
LTP-101-600A-1A	July 21, 1977	November 30, 1977
LTP-101-600A-1B	November 3, 1977	November 30, 1977
LTP-101-600A-1	Canceled	May 18, 1979
LTP-101-600A-1B	Canceled	May 18, 1979
LTP-101-700A-1A	November 14, 1977	July 11, 1980

NOTE 1. Engine ratings are based on calibrated stand performance under the following conditions:

Static sea level standard conditions at 59°F and 29.92 in. Hg. No airbled, no duct losses and no external power extraction. Exhaust configuration as specified in Figure 7 of the engine installation instructions, and having an area of 76 square inches.

NOTE 2. Equivalent shaft horsepower (ESHP) is based on:

$$\text{ESHP} = \frac{\text{Jet Thrust, lb} + \text{SHP}}{2.5}$$

NOTE 3. Engines will operate satisfactorily with fuel contaminated to the levels specified in Paragraph 4.4.3 of the engine installation instructions, provided the fuel is introduced to the engine through a filter satisfying the requirements of the subject paragraph.

NOTE 4. Mixing of these oils is prohibited.

NOTE 5. Maximum permissible gas generator operating speeds (RPM) are as follows:

	<u>LTP-101-600</u>	<u>-600A</u>	<u>-600A-1A</u>	<u>-700A-1A</u>
Transient	49,545	--	50,165	--
Takeoff	49,020	--	49,399	48,968
Maximum Continuous	48,349	--	48,681	48,346

NOTE 6. Maximum permissible output shaft torque limits (ft. - lb.)

	<u>LTP-101-600</u>	<u>-600A</u>	<u>-600A-1A</u>	<u>-700A-1A</u>
Transient	1,687	--	--	1,887
Takeoff	1,634	--	--	1,832
Maximum Continuous	1,542	--	--	1,739

NOTE 7. Maximum permissible output shaft speeds (RPM):

	<u>LTP-101-600</u>	<u>-600A</u>	<u>-600A-1A</u>	<u>-700A-1A</u>
Transient	2,112	--	--	--
Takeoff	1,950	--	--	--
Maximum Continuous	1,950	--	--	1,950

NOTE 8. Maximum permissible temperatures:

Measured exhaust gas temperature (°F) measured by eight thermocouples mounted in the combustor housing.:

	<u>LTP-101-600</u>	<u>-600A</u>	<u>-600A-1A</u>	<u>-700A-1A</u>
*Starting	1,650	--	--	--
*Transient	1,550	--	--	--
Takeoff	1,405	--	1,440	--
Maximum Continuous	1,365	--	1,405	--

* Time limit 12 seconds above 1470°F

Component surface (°F), all models:

Gas generator speed control	250
Ignition Exciter box	250
Inlet flow modulator	350
Thermocouple harness	350
Electrical harness	392

Oil temperature (°F), all models: 210
(as measured by engine oil temperature bulb)

NOTE 9. Fuel and Oil Pressure Limits (all models):

Fuel: 45 p.s.i.a. maximum
15 p.s.i.a. minimum*

* The engine is capable of operation to 14,000 feet pressure altitude under the following conditions:

- (a) Minimum fuel pressure: 4 p.s.i. below atmospheric to 8,000 feet. 3 p.s.i. below atmospheric from 8,000 feet to 14,000 feet.
- (b) Maximum fuel temperature of 130°F (55°C) at sea level and decreasing linearly to 110°F (43°C) at 14,000 feet.
- (c) A priming system may be required for engine starting.

Oil: Flight Idle and below: 20 p.s.i.g., minimum
Maximum Continuous: 100 ± 5 p.s.i.g.

NOTE 10. Accessory Drive Provisions (all models):

	Starter/Generator	Overspeed Governor	Propeller Governor	Customer Accessory
Gear Ratio	.2512 ⁽¹⁾	.1157 ⁽²⁾	.1157 ⁽²⁾	.1157 ⁽²⁾

(1) Speed - Times Gas Generator RPM (100% NG = 47,870 RPM).

(2) Speed - Times Power Turbine RPM (100% N_p = 37,000 RPM or 1,924 RPM output).

	Starter/Generator	Overspeed Governor	Propeller Governor	Customer Accessory
Continuous Torque (In. - Lb.)	100	4.0	20	225
Peak Torque During Starts (In. -Lb.)	500	-	-	-
Rotation Facing Engine Pad	CW	CCW	CW	CCW

NOTE 11. These engines meet FAA requirements for operation in icing conditions when the induction system conforms with the applicable AlliedSignal Installation Instructions.

NOTE 12. These engines have not been tested to evaluate the effects of bird and ice ball ingestion. The bird and ice ball ingestion characteristics of the airframe air inlet and engine combination are to be evaluated prior to the approval of the engine installation.

NOTE 13. Maximum permissible air bleed extraction is 5% of inlet airflow at the designated customer bleed port at standard sea level static conditions.

NOTE 14. Engine starting torque and speed requirements are as shown in Figure 8 of the applicable AlliedSignal Installation Instructions.

NOTE 15. These engines may use approved type fuels separately or mixed in any proportion. Fuel control adjustments are not required when switching fuel types. Phillips PFA-55MB anti-icing additive at a concentration not in excess of 0.15% by volume is approved for use in fuels for these engines.

NOTE 16. Fuel venting emission control is not included on these engines and therefore airframe compliance must be provided in accordance with SFAR-27.

NOTE 17. Certain engine parts are life limited. These limits are listed in FAA approved AlliedSignal Service Bulletin No. LTP 101-72-0002 and LTP 101A-72-0002, Revision 2.

NOTE 18. Engine maintenance program requirements are defined in FAA approved AlliedSignal Service Bulletin No. LTP 101-72-0001 and LTP 101A-72-0001, Revision 1.

NOTE 19. Overhaul of engine model LTP 101-700A-1A is not authorized unless the appropriate Overhaul Manual is available; otherwise, rebuilt engines utilizing new engine tolerances may be provided by the manufacturer.

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