

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

E1EA
Revision 5
ALLIEDSIGNAL
T5309A
T5309B
T5309C
T5311A
T5311B

September 15, 1997

TYPE CERTIFICATE DATA SHEET NO. E1EA

Engines of models described herein conforming with this data sheet (which is a part of Type Certificate No. E1EA) 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.
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<u>Model</u>	<u>T5309A</u>	<u>T5309B</u>	<u>T5309C</u>	<u>T5311A</u> <u>T5311B</u>
Type	Axial - centrifugal flow, free turbine turboshaft. Five stage axial and single stage centrifugal compressor. External annular vaporizing combustion chamber. Single stage gas producer turbine. Single stage power turbine.			
Ratings	At nominal output shaft speed of 6610 r.p.m.			
	Maximum continuous at sea level, hp.	900	--	--
	Takeoff (5 min.) at sea level, hp.	1100	--	--
Fuel control	Chandler Evans Model TA-2B with integral dual element pump	--	--	Chandler Evans Model TA-2G with integral dual element pump
Fuel (See NOTE 10)	MIL-J-5624, Grade JP-4 or equivalent	--	MIL-J-5624, Grades JP-4 or JP-5 or equivalent	--
Oil	Synthetic type conforming to MIL-L-7808	--	--	--
Principal dimensions	Length, in. nominal			
	Nominal diameter, in.	47.80	--	--
	Nominal radius, in.	23.70	--	--
	Nominal radius, in.	13.56	--	--
Weight (dry), lb.	485	490	--	496
	(includes essential engine accessories but excludes starter, two tachometer generators, oil tank and oil cooler)			

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NOTE 4. Accessory drive provisions:

Drive	AND Type	No. Required	Gear Ratio	Maximum Torque (in.-lb.)			Rotation
				Continuous	Short Time ⁽¹⁾	Static	
Gas producer tachometer	20005 XV-B Modified	1	.1670	7	----	50	c
Starter-generator	20002 XII-D Modified	1	.2833	250	320 ⁽³⁾	1600 ⁽²⁾ c	
Power takeoff	20002 XII-D Modified	1	.5397	150	22	680	c
Power turbine tachometer	20005 XV-B Modified	1	.1993	7	---	50	c

C - Clockwise

(1) Maximum permissible torque for 5-minute periods, recurring at not less than 4-hour intervals.

(2) Maximum permissible torque during starts is 1296 in.-lb.

(3) Generator torque in excess of 320 in.-lb. is permissible up to a maximum of 625 in.-lb. for a period of not more than 15 seconds.

The customer accessory horsepower extraction limits are presented in the AlliedSignal Manual of FAA Approved Data.

NOTE 5. Engine ratings are based on calibrated stand performance under the following conditions:

Static sea level standard conditions of 59° F and 29.92 in. Hg.

No inlet duct losses, no loading of the accessory drives and minimum permissible bleed air flow.

Exhaust configuration as defined by AlliedSignal drawing 1-000-029-03.

NOTE 6. Maximum permissible air bleed extraction shall be in accordance with Figure 4 in the AlliedSignal Manual of FAA Approved Data.

NOTE 7. The nominal power turbine operating speed is 21,190 r.p.m. Maximum power turbine speed is 21,300 r.p.m. at all conditions including takeoff.

NOTE 8. Power turbine output shaft torque limits:

Takeoff	926 ft.-lb.
Maximum continuous	850 ft.-lb.

NOTE 9. These engines meet FAA requirements for operation in icing conditions, for adequate turbine disc integrity and rotor blade containment and do not require airframe mounted armoring.

NOTE 10. T5309A and T5309B engines require wide cut gas turbine fuels type JP-4 or equivalent listed in the AlliedSignal Manual of FAA Approved Data. The T5309C and T5311A engines may use JP-4 or JP-5 kerosene type fuels separately or mixed in any proportion. No fuel control adjustment is 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 11. The above models incorporate the following general characteristics:

<u>T53 Model</u>	<u>Characteristics</u>
09A	Basic model. Bleed air bled from peripheral gap in centrifugal compressor housing.
09B	Same as 09A except bleed air bled from series of holes in rear vanes of diffuser.
09C	Same as 09B except revised combustion chamber parts to permit operation on JP-5 fuel.
11A	Same as 09C except fuel regulator provides control of the transient air bleed for decreased acceleration time.
11B	Same as 11A except for output shaft spline.

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