

FEDERAL AVIATION AGENCY

E-123
Revision 14
PRATT & WHITNEY
Wasp Jr.
SB, SB-2, SB-3
TIB2, TIB3
B-4, B-5

July 15, 1966

TYPE CERTIFICATE DATA SHEET NO. E-123

Engines of models described herein conforming with this data sheet (which is a part of type certificate No. E-123) and other approved data on file with the Federal Aviation Agency, 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.

Manufacturer Pratt & Whitney Aircraft
Division of United Aircraft Corporation
East Hartford, Connecticut 06108

Model	Wasp Jr.	SB, -2, -3	TIB2, 3	B-4	B-5
Type		9RA - Direct drive	--	--	--
Rating					
Max. cont., hp., r.p.m., in. Hg., at:					
Critical alt. (ft.)		400-2200-33.5-5000	450-2300-37.0-1500	450-2300-36.5-2300	(See NOTE 9)
Sea level pressure alt. (ft)		400-2200-34.5-S.L.	450-2300-37.5-S.L.	450-2300-37.0-S.L.	(See NOTE 9)
Takeoff (five minutes), hp., r.p.m., in. Hg.		400-2200-34.5 450-2300-36.5	450-2300-37.5	452-2300-37.0	--
Fuel (minimum grade aviation gasoline)		Grade 80/87	--	--	--
Lubricating Oil		See P&WA S.B. #1183	--	--	--
Bore and stroke, in.		5 3/16 x 5 3/16	--	--	--
Displacement, cu. in.		985	--	--	--
Compression ratio		6:1	--	--	--
Weight (dry), lb.		640, 653, 668	653, 674	684	682
C.G. location (dry)					
Fwd. of mounting face, in.		7.3, 7.3, 6.7	7.3, 6.7	6.6	6.7
Below crankshaft C.L., in.		.2	--	--	--
Propeller shaft, SAE No.		30	--	--	--
Supercharging (Imp. gear ratio)		10:1	--	--	--
Carburetion		Stromberg NA-R9B or NA-R9C2 carburetor	--	Stromberg NA-R9B-19 carburetor	--
Venturi diameter, in.		2 3/4	2 5/8	2 3/4	--
Ignition, dual		Scintilla VAG-9D, VAG-9DR, SB9R or Bosch SB9R-U2, SB9R-U3 magnetos	--	Bosch SB9R-U3 or Scintilla SB9R magnetos	--
Ignition timing, °BTC		25	--	--	--
Spark plugs		See NOTE 8	--	--	--
NOTES		1,2,3,4,5,6,8	1,2,4,5,8	1,2,4,8	1,2,4,8,9
Certification basis		Type Certificate No. 123			
Production basis		Production Certificate No. 2			

Page No.	1	2	3
Rev. No.	14	14	14

NOTE 1. Maximum permissible cylinder head, barrel and oil inlet temperatures, 550°F, 335°F and 200°F, respectively, except cylinder head for B-4 which is 500°F.

NOTE 2. The following accessory drives are provided:

	Direction of Rotation (Clockwise or Counter- Clockwise)	Speed Ratio (Times Crank shaft Speed)	Maximum Torque (in. -lb.)		Maximum Overhang (in. -lb.)
			Continuous	Static	
Starter	CC	1.0	2200	10000	180
Generator (None on B-4)	C	1.5	100	300	160
Generator (opt. on all models - P&WA Service Bulletin No. 1118)	C	2.0	150	900	183
* Fuel pump	CC	1.0	150	450	10
Vacuum pump (SB, SB2, TIB-2 only)	C	1.5	100	800	10
* Hydraulic or vacuum pump (SB-3, TIB-3, B-5)	C	1.5	100	300	10
Hydraulic or vacuum pump (B-4, only)	C	1.5	100	800	10
Vertical auxiliaries (2 provided)	CC	1.0	150	450	10
Prop. governor (use vertical aux. drive)					

* NOTE. For SB-3 and TIB-3 engines, maximum torque loading on these drives should not exceed 150 in. -lb. combined load. Wasp Jr. SB and early SB2 engines incorporate tongue and groove type fuel and vacuum pump drives and all engines have splined type drives.

NOTE 3. When Grade 80/87 is not used, Aviation Grade 80 is suitable for a maximum of 400 hp. and Grade 91 should be used when higher power is attained.

NOTE 4. These engine models differ additionally in the following respects:

<u>Model</u>	Valve Rocker Lubrication <u>Method</u>	Hydraulic Propeller <u>Provisions*</u>
8B	Manual greasing and oiling system	C.S. or T.P.
8B-2	External automatic	C.S., T.P., or F.
TIB2	External automatic	C.S., T.P., or F.
8B-3, B-5	Internal automatic	C.S., T.P., or F.
TIB3	Internal automatic	C.S., T.P., or F.
B-4	Internal automatic	None - this engine used with extension shaft and is mounted with the crankshaft vertical.

* Some model 8B-3 engines may bear the serial No. suffix "NH" (non-feathering) in which cases modification of the crankshaft is necessary before a feathering propeller can be used. This modification is also possible on other Wasp Jr. engines. (C.S. - constant speed; T.P. - two position; F. - feathering).

NOTE 5. Model SB-3 and those TIB3 engines having serial numbers above 9257, as originally manufactured involve a possible maximum weight increase of 40 lbs. due to the substitution of aluminum for magnesium in the nose, blower and rear sections. Since any one or all of these sections may be substituted, the weight increase stated is the maximum.

NOTE 6. Includes Model SB engines Nos. Y-22 and Y-23 (R.C.A.F. Nos. 1594 and 1595).

NOTE 7. Deleted February 10, 1954.

NOTE 8. The following spark plugs are approved on these engines:

AC	S-86R, SR-83P, HSR-86, HSR-83P, SR-97, HSR-87.
Auto-Lite	SH-2K, SH-2M, SH-20, SH-20A.
BG	417S, 706SR, RB485S, SS485A.
Champion	C26S, C27S, ED41N, EM41N, RC26S, RED39N, RHD39N, REM39N, RHM39N, REM40E, RHM40E.

NOTE 9. When the B-5 engine is operated at full rich power mixture settings, the following rating applies:

Maximum continuous, hp., r.p.m., in. Hg. at
 Rated pressure alt. (ft.) 450-2300-35.5-2300
 Sea level pressure alt. (ft.) 450-2300-37.0-S.L.

When the B-5 engine is operated at best power mixture settings, the following rating applies:

Maximum continuous, hp., r.p.m., in. Hg. at:
 Rated pressure alt. (ft.) 450-2300-35.5-3500
 Sea level pressure alt. (ft.) 450-2300-36.5-S.L.

NOTE 10. Fuel pressure limit:

	<u>Max.</u>	<u>Min.</u>
Pressure System	6 p.s.i.	2 p.s.i.
Gravity feed	6 p.s.i.	1 p.s.i. with required carburetor setting

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