

# AIRCRAFT ENGINES GRANTED APPROVED TYPE CERTIFICATES

BY THE FOLLOWING U. S. GOVERNMENT AGENCIES:

AERONAUTICS BRANCH, DEPARTMENT OF COMMERCE—

BUREAU OF AIR COMMERCE—CIVIL AERONAUTICS AUTHORITY

## KEY

4.....Number of Cylinders	H.....Horizontal Arrangement	O.....Opposed Arrangement	
A.....Air Cooled	I.....Inverted Arrangement	R.....Radial Arrangement	
G.....Gear Drive	L.....In-Line Arrangement	V.....Vee Arrangement	
W.....Liquid Cooled			

NOTE: The above symbols are employed by the U. S. Government Agencies for designating various types of engines, and these are used in the list of approved engines which follows:

The reader will observe slight differences from the symbols found necessary in the preceding index; for example, (L) in the following table stands for in-line arrangement, and in the index (L) stands for liquid cooling and (IL) for in-line arrangement. Also, in the tables to follow, W is used to represent liquid cooling, while in our index it is necessary to use this symbol to designate the W arrangement of cylinders.

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.	
1	6-1-28 1-15-36	Fairchild, Caminez 447C.....	4RA	120	960	S.L.	
2	4-2-28	Warner, "Scarab".....	7RA	110	1850	S.L.	
	6-20-30	Warner, "Scarab" Series 30.....	7RA	125	2050	S.L.	
	8-28-33 3-13-39	Warner, "Scarab" Series 40 (incl. 28, 29 and 30) Revisions.					
3	6-18-28 4-29-30						
	6-15-33	Kinner, K5.....	5RA	100	1810	S.L.	
4	6-22-28 9-3-31	Lambert, Velie M5.....	5RA	65	1900	S.L.	
	12-7-35	(Expired).					
5	7-26-28	Curtiss, "Challenger".....					
	4-12-32	Wright, "Challenger" R600.....	6RA	185	2000	S.L.	
	3-26-34	(Expired).					
6	8-31-28	Curtiss, "Conqueror" V1570.....					
	4-12-32	Wright, "Conqueror" V1570C (incl. A & B).....	12VW	600	2400	S.L.	
	10-21-32	Wright, "Conqueror" V1570F (incl. A, B & C).....	12VW	600	2400	S.L.	
	11-8-32	Wright, "Conqueror" V1570F (incl. A, B & C).....	12VW	650	2400	S.L.	
	11-27-33 7-12-37	Wright, "Conqueror" V1570F (incl. A, B & C)..... (Expired).	12VW	650	2400	S.L.	
7	9-13-28	Curtiss, "Conqueror" GV1570 (geared 2:1).....	12VW	600	2400	S.L.	
	9-2-30	Wright, "Conqueror" GV1570C (incl. A & B geared 2:1) (incl. G1V1570C geared 7:5).....	12VW	600	2400	S.L.	
	7-12-37	(Expired).					
	10-21-32	Wright, "Conqueror" GV1570F (geared 2:1) (incl. G1V1570F, geared 7:5; and Series A, B & C).....	12VW	600	2400	S.L.	
	11-8-32	Wright, "Conqueror" GV1570F (geared 2:1) (incl. G1V1570F, geared 7:5, and Series A, B & C).....	12VW	625	2400	S.L.	
8	11-27-33	Wright, "Conqueror" GV1570F (geared 2:1) (incl. G1V1570F, geared 7:5, and Series A, B & C).....	2VW	625	2400	S.L.	
	3-26-34	(Expired).					
	9-13-28	Curtiss, "Chieftain" H1640.....	12RA	600	2200	S.L.	
9	9-19-28	Comet, 7D.....	7RA	130	1825	S.L.	
	1-15-36	(Expired).					
10	10-11-28	Curtiss, D12.....	12VW	435	2300	S.L.	
11	4-4-29	Dayton, "Bear".....	4LA	100	1500	S.L.	
	12-2-36	(Expired).					
12	11-30-28						
	4-29-31	LeBlond, 60 (5D).....	5RA	65	1950	S.L.	
	12-1-35	(Expired).					
13	1-26-29	Wright, J-5 Series, "Whirlwind".....	9RA	220	2000	S.L.	
	3-26-34	(Expired).					
14	1-22-29						
	2-16-32	Pratt & Whitney, "Wasp" C1 (incl. "Wasp" A, B and C).....	9RA	420	2000	S.L.	
	5-17-33	Pratt & Whitney, "Wasp" C1 (incl. A, B, C and D) rated.....		450	2100	S.L.	
	4-17-34 1-8-36	(Expired)					
15	12-19-28						
	2-16-32						
	8-31-32	Pratt & Whitney, "Hornet" A2 (incl. A, A1 and A3).....	9RA	525	1900	S.L.	
16	1-8-36	(Expired).					
	2-5-29	Axelson, B.....	7RA	115	1800	S.L.	
17	12-1-35	(Expired).					
	1-26-29	Wright, "Cyclone" R1750A (incl. R1750B, R1750C, R1750D, R1750E and R1750CE).....	9RA	525	1900	S.L.	
18	1-26-29	Packard, 3A1500.....	12VW	525	2100	S.L.	
	12-17-35	(Expired).					
19	1-26-29	Packard, 3A2500.....	12VW	800	2000	S.L.	
	12-17-35	(Expired).					
20	2-6-29						
	4-29-31	LeBlond, 90 (7D).....	7RA	90	1975	S.L.	
	12-1-35	(Expired).					
21	2-15-29						
	8-18-31	Wright, J6 "Whirlwind" Series, R975 and GR975 (incl. R975A, GR975A, R975B, GR975B, R975D, R975E, GR975E, GR975E).....	9RA	300	2000	S.L.	
	10-10-32	Wright, J6 "Whirlwind" Series, R975 and GR975 (incl. R975A, GR975A, R975B, GR975B, R975D, R975E, GR975E, GR975E).....	9RA	325	2000	S.L.	
	11-8-32	Wright, J6 "Whirlwind" Series, R975 and GR975 (incl. R975A, GR975A, R975B, GR975B, R975D, R975E, GR975E, GR975E).....	9RA	330	2000	S.L.	
	11-27-36	Wright, J6 "Whirlwind" Series, R975 and GR975 (incl. R975A, GR975A, R975B, GR975B, R975D, R975E, GR975E, GR975E).....	9RA	330	2000	S.L.	
	5-11-36	(Octane 73).					
	2-10-37	Revised (R-975E, incl. R-975, R-975A, R-975B and R-975D).....					
	7-12-37	(Expired).					
	22	3-11-29	Arnold Harris.....	8VW	90	1400	S.L.
		1-15-36	(Expired).				

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
23	3-27-29 8-18-31	Wright, J6 "Whirlwind" Series R540 and GR540 (incl. R540A, GR540A, R540B, GR540B, R540D, GR540D, R540E, GR540E), geared 1.58:1 or 2:1.	5RA 5RA	165 175	2000 2000	S.L. S.L.
	10-10-32 7-12-37	(Expired).				
24	6-3-29 1-15-36	Alliance, Hess "Warrior".....	7RA	115	1925	S.L.
		(Expired).				
25	6-8-29 1-15-36	Michigan, "Rover".....	4LAI	55	1900	S.L.
		(Expired).				
26	7-9-29 8-18-31	Wright J6 "Whirlwind" Series R760 and GR760 (incl. R760A, R760D, GR760D, R760E, GR760E), geared 1.58:1 or 2:1.	7RA 7RA	240 250	2000 2000	S.L. S.L.
	10-10-32 5-11-36	(Octane 73).				
	2-10-37 7-12-37	Revised (R-760E, incl. R-760, R-760A, R-760B and R-760D). (Expired).				
27	8-14-29 7-00-32	Lycoming, R645 Cancelled.	9RA	185	2000	S.L.
28	8-30-29 4-5-32 2-18-33	Pratt & Whitney, "Hornet" B1 (incl. B; B1G [geared 3:2]; S2B1G [geared 3:2], 575 hp. at 2000 r.p.m. at 8000 feet; SBI, 575 hp. at 1950 r.p.m. at 5000 feet; S3B1, 575 hp. at 1950 r.p.m. at 5000 feet; S1B1, 575 hp. at 1950 r.p.m. at 6000 feet; S1B1G, 575 hp. at 2000 r.p.m. at 6000 feet [geared 3:2]; S2B1, 575 hp. at 1950 r.p.m. at 8000 feet).	9RA	575	1950	S.L.
	1-8-36	(Expired).				
29	8-30-29 2-16-32 1-8-36	Pratt & Whitney, "Hornet" A2G, geared 2:1 (incl. AG and A1G) (Expired).	9RA	500	1900	S.L.
30	9-13-29 11-19-31 8-26-32 9-1-23	A.C.E., Cirrus "Upright" Mark III (Expired).	4LA 4LA	90 100	2100 2100	S.L. S.L.
31	2-7-29 7-13-31 12-1-35	Jacobs, LA1..... (Expired).	7RA	170	2125	S.L.
32	10-5-29 6-11-31	Continental, A70 (incl. Series 1 and 2).	7RA	165	2000	S.L.
33	11-16-29 7-12-30 1-15-36	Light Mfg. & Foundry, Brownback "Tiger" C400 (Expired).	6RA	90	1700	S.L.
34	11-14-29 12-1-35	Kimball, "Beetle" K..... (Expired).	7RA	120	1850	S.L.
35	12-4-29 12-9-35	Chevrolet, D 4..... (Expired).	4LAI	90	2000	S.L.
36	12-19-29 2-16-33 11-23-37	General Airmotors, Moore "Scranton," Three-valve Model 2 (Expired).	5RA 5RA	120 155	1600 1900	S.L. S.L.
37	1-4-30 3-19-38	Michigan, "Rover" Reissued to J. A. Roche	4LAI	75	1975	S.L.
38	1-7-30 9-3-31	Lambert, R266.....	5RA	90	2375	S.L.
39	1-8-30 11-3-31 9-3-33 1-8-36	Pratt & Whitney, "Wasp Jr.," R985 Pratt & Whitney, "Wasp Jr.," A (Expired).	9RA	300	2000	S.L.
40	1-9-30 3-26-34	Wright, "Gipsy" L 320 (Expired).	4LA	90	1950	S.L.
41	1-11-30 1-15-36	Aeromarine, RAD-B (Expired).	9RA	115	1925	S.L.
42	2-4-30 1-21-31 3-16-34 12-1-35	Lycoming, R680 Octane 58. (Expired).	9RA	215	2000	S.L.
43	3-3-30 12-1-35	Packard, Diesel DR980 (Expired).	9RA	225	1950	S.L.
44	3-5-30 10-17-31	American Cirrus, Mark III Supercharged (Expired).	4LA	110	2100	S.L.
45	3-19-30 1-15-36	Western, L7 (Expired).	7RA	130	1850	S.L.
46	4-8-30 4-29-31 8-1-36 11-16-36 12-30-37	LeBlond, 85 (5DF) Includes Model 5F Rearwin Airplanes—Engine Division.	5RA	85	2125	S.L.
47	5-1-30 1-15-36	Comet, 7E, R610 (Expired).	7RA	165	1900	S.L.
48	5-3-30 4-29-31 8-1-36 12-30-37	LeBlond, 70 (5DE) Includes Model 5E. Rearwin Airplanes—Engine Division.	5RA	70	1950	S.L.
49	5-5-30 11-23-37	MacClatchie, "Panther" X2 (Expired).	7RA	150	1900	S.L.
50	5-10-30	Menasco, "Pirate" A4	4LAI	90	1925	S.L.
51	5-31-30 2-12-34	Kinner, B5 (R440) Kinner, B5 (Octane 73)	5RA	125	1925	S.L.
52	5-31-30 4-29-31 12-30-37 2-20-39 4-19-39	LeBlond, 110 (7DF) Rearwin Airplanes—Engine Division. Elgie, 6-1 (C. B. Inc. Ken Royce 120F)	7RA	110	2150	S.L.
53	5-31-30 12-22-32	Szekely, SR3L Aviation Holding Co., Szekely SR3L (Expired).	3RA 3RA	30 30	1750 1750	S.L. S.L.
54	6-21-30 1-12-32 3-13-39	Warner, "Scarab Jr." Revisions. Revisions.	5RA	90	2025	S.L.
55	7-3-30 2-16-32 1-8-36	Pratt & Whitney, "Wasp" C1G, geared 5:4 (incl. "Wasp" CG) (Expired).	9RA	425	2050	S.L.
56	7-7-30 12-9-35	Chevrolet, D6 (Expired).	6LAI	165	2175	S.L.
57	7-14-30 8-17-31 12-5-35	American, "Ranger" 6-390 (Expired).	6LAI	120	2150	S.L.

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
58	7-14-30 2-4-32 7-21-32 8-31-32 1-6-36	Pratt & Whitney, "Wasp" SC1 (incl. "Wasp" SC). (Incl. "Wasp" B). (Expired).	9RA	450	2100	6000
59	7-16-30 9-29-32 12-1-32 3-4-32	Martin, 333. (Incl. Series A & B).	4LAI	120	2100	S.L.
60	8-18-30 11-30-31 9-1-33	A.C.E. Corp., Cirrus "Hi-Drive" Mark III. (Expired).	4LAI	95	2100	S.L.
61	9-8-30 11-21-31 7-12-37	Wright, "Cyclone" R1820E and GR1820E, Direct Drive or geared 1.58:1 or 2:1. (Expired).	9RA	575	1900	S.L.
62	10-6-30	Kinner, C5 (R715).	5RA	210	1900	S.L.
63	10-3-30	Milwaukee, Tank V470.	8VA	115	1650	S.L.
64	8-26-31 10-29-30 8-18-31 3-26-34	Wright, J6 "Whirlwind" R975C (incl. GR975C geared 1.58:1 or 2:1). (Expired).	9RA	400	2300	S.L.
65	11-1-30 5-28-32 4-7-36	Menasco, "Pirate" B4. (Battery Ignition).	4LAI	95	2000	S.L.
66	1-3-31 11-3-31 1-8-36	Pratt & Whitney "Wasp Jr." S1A. (Expired).	9RA	400	2300	S.L.
67	1-14-31 9-6-30 12-15-33 4-7-36	Menasco, "Pirate" C4. (Octane 80) (Battery Ignition).	4LAI 4LAI	125 125	2175 2175	S.L. S.L.
68	1-14-31	Menasco, "Buccannear" B6 (down draft).	6LAI	160	1975	S.L.
69	1-14-31	Menasco, "Buccannear" A6 (up draft).	6LAI	140	1925	S.L.
70	1-17-31 1-11-32 12-22-32	Szekely, SR-3-45. Aviation Holding Co., Szekely SR-3-45 (Expired).	3RA 3RA	45 45	1750 1750	S.L. S.L.
71	4-24-31 6-17-31 3-10-34 9-23-35 3-26-37 3-17-38	Aeronautica, Aerona E113 and E113A. Octane 73. E-113B. E-113C. Spark Plug Specifications.	2HOA	36	2400	S.L.
72	5-19-31 7-28-33 5-8-35 8-17-36	Continental, A40. A40-2 (incl. A40), Octane 65. A40-3 (incl. A40 and A40-2). A-40-4 (incl. A40, A40-2 and A40-3).	4HOA	37	2550	S.L.
73	6-23-31 8-26-31 3-22-37	Milwaukee, Tank V502. Eligible with Roberts battery ignition.	8VA	115	1676	S.L.
74	7-28-31 1-11-39	Aeromarine, AR3. Change in Lenape address.	3RA	50	2125	S.L.
75	8-12-31	Jacobs, LA3.	3RA	55	2125	S.L.
76	12-30-31 1-8-36	Pratt & Whitney, "Wasp" SD. (Expired).	9RA	500	2200	7500
77	1-21-32	Kinner, R5 (R-490).	5RA	160	1975	S.L.
78	2-4-32 7-30-32	Wright, R975E2. (Incl. GR975E2 geared 1.58:1 or 2:1).	9RA 9RA	420 420	2150 2150	S.L. S.L.
79	2-17-32	Gulberson, Aero-Diesel A980.	9RA	185	1925	S.L.
80	3-22-32 8-21-33 3-1-24	Continental, R670. R-670 Series A (incl. R-670); (incl. Series C, D, E and G).	7RA	210	2000	S.L.
81	3-29-32 3-16-34 3-6-36	Lycorning, R680 BA. R-680-2. R-680-E2.	9RA	240	2000	S.L.
82	4-5-32 5-6-32 12-1-35	Jacobs, LA2. (Expired).	7RA	195	2075	S.L.
83	5-27-32 1-8-36	Pratt & Whitney, "Hornet" C. (Expired).	9RA	600	2000	S.L.
84	6-8-32	American, "Ranger" V-770-SG (3:2), (incl. SGV-770-A3).	12VAI	420 420	2800 2800	3000
85	7-8-32 10-5-33 8-3-38	Pratt & Whitney, "Wasp Jr." T3A. Wasp Jr. TB (incl. T3A). Revisions ignition specifications.	9RA	420 420	2200 2200	
86	7-25-32 9-27-32 1-15-36	Chevron, A. (Expired).	7RA	160	2000	S.L.
87	7-28-32 9-27-32 2-10-37	Wright, R975E-1. (Incl. GR975E-1 geared 1.58:1 or 2:1). Revised (incl. only R-975E-1).	9RA 9RA	365 365	2100 2100	S.L. S.L.
88	7-29-32 1-15-36	Chevron AL. (Expired).	7RA	150	1950	S.L.
89	9-1-32 2-7-33 7-13-33 8-2-33 4-2-34	Wright, "Cyclone" R1820F1. (Incl. GR1820F1 geared 8:5). (700 hp. at 1900 r.p.m.). (Gear 16:1). Both eligible with changes necessary to adapt them for use with hydraulically operated controllably-pitch propeller.	9RA 9RA	700 715	1900 1950	S.L. S.L.
90	7-30-34 9-11-36 12-4-36 7-12-37	(Octane 87). Reissued. (Expired).				
91	1-14-32 11-8-32 4-26-33 4-3-34 7-16-36 9-21-37 7-25-38	Pratt & Whitney, "Wasp" S1D1. (Incl. S1D1G, geared 3:2). (Expired). Reissued—"Wasp" S1D1. (Incl. "Wasp" S1D1-G and "Wasp" TDI and S1D1 in Ford 5AT installations with 73 octane fuel and Stromberg NAY-78 carburetor-1 1/2 venturi).	9RA	550	2200	5000
91	10-26-32 7-16-36	Pratt & Whitney, "Wasp" T1D1. (Expired).	9RA	525	2100	S.L.

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
92	12-6-32 4-24-33 8-17-33 10-30-33 12-12-33 12-12-33 3-21-34 1-8-36	Pratt & Whitney, "Hornet" TIC "Hornet" TIC1 (incl. "Hornet" TIC). "Hornet" T1D1 (incl. TIC and TIC1 and T1D1G, geared 3:2). "Hornet" T1D1 (incl. TIC and TIC1). (Expired).	9RA 9RA	700 725	2000 2150	S.L. S.L.
93	12-7-32 2-7-33 5-23-33 8-2-33 8-28-33 10-16-33 4-2-34 7-12-37	Wright, "Cyclone" R1820F eligible with vaneless type supercharger diffuser. (Incl. "Cyclone" GR1820F, geared 8:5). Wright, "Cyclone" R1820F21 (incl. GR1820F21 at 1950 r.p.m., geared 8:5, and R1820F and GR1820F). Geared 16:11. "Cyclone" R-1820F-21M also eligible with 575 hp. at 1900 r.p.m.; GR-1820F-21M eligible at 1950 r.p.m. geared 8:5 or 16:11; "Cyclone" R-1820F-21, R-1820F-21M, GR-1820F-21 and GR-1920F-21M also eligible with changes necessary for use with hydraulically operated controllible-pitch propellers. Change rating. (Expired).	9RA	645 635	1900 1900	S.L. S.L.
94	1-9-33 11-10-36 2-10-37 10-27-37	Wright, "Whirlwind" R760E1. c.r. change from 6 to 6.3 to 1. Revised—c.r. changed to 6.1 to 1. Revised take-off rating.	7RA	285	2100	S.L.
95	3-20-33 1-8-36	Pratt & Whitney, "Twin Wasp Jr." (SA-G, geared 4:3, octane 86). (Expired).	14RA	700	2500	8500
96	3-20-33 1-8-36	Pratt & Whitney, "Twin Wasp" AG (geared 3:2). (Expired).	14RA	830	2490	2500
97	3-22-33 8-2-33 10-26-33 4-2-34 7-12-37	Wright, "Cyclone" R1820F11 (incl. GR1820F11 at 1900 r.p.m. with 8:5 reduction gears). Geared 16:11. R1820F11 and GR1820F11 eligible with change for use with hydraulically operated controllible-pitch propellers. (Expired).	9RA	675	1900	S.L.
98	4-14-33 8-2-33 9-18-33 3-5-34 4-2-34 7-6-35 9-30-35 12-4-36 7-12-37 8-26-38	Wright "Cyclone" SR1820F2 (incl. "Cyclone" SGR1820F2 at 1950 r.p.m. with 8:5 reduction gears). Geared 16:11. SR1820F2 and SGR1820F2 eligible with changes necessary to adapt them for use with hydraulically operated controllible-pitch propellers. (Incl. "Cyclone" SGR1820F at 720 hp. with 8:5 or 16:11 reduction gears). Revised. R-1820F-2A (770 hp. at 1950 r.p.m. at 2600 feet). GR-1820F-2A (75) hp. at 1950 r.p.m. at 2600 feet). Revised and reissued. (Expired). Revisions.	9RA	710	1900	3000
99	4-25-33 8-23-33 3-12-34 12-12-35 4-9-36	Pratt & Whitney, "Hornet" T2C1. "Hornet" T2D1 (incl. T2C1). "Hornet" T2D1A. "Hornet" T2E (incl. T2D1, T2D1-A and T2C1).	9RA	660	2000	S.L.
100	6-6-33 8-31-33 11-29-33 12-27-33 1-8-36	Pratt & Whitney "Hornet" S3C1. "Hornet" S3D1 (incl. S3C1). "Hornet" S4D1 (incl. S3C1 and S3D1, 645 hp. at 2000 r.p.m.). (Incl. S4D2). (Expired).	9RA	650 645	2000 2000	2200 3000
101	6-1-33 8-2-33 4-7-37	Wright, "Cyclone" SR1820F31 (incl. SGR1820F31 at 1950 r.p.m. with 8:5 reduction gears). Geared 16:11. (Expired).	9RA	670	1900	2500
102	6-5-33 8-2-33 4-2-34 4-7-37	Wright, "Cyclone" SR1820F41 (incl. SGR1820F41 at 1950 r.p.m. with 8:5 reduction gears). Geared 16:11. Both engines eligible with necessary changes to adapt them for use with hydraulically operated controllible-pitch propellers. (Expired).	9RA	620	1900	4500
103	6-17-33 8-13-33 3-22-34 12-4-36 7-12-37 8-26-38	Wright "Cyclone" SR1820F3 (incl. SGR1820F3 at 1950 r.p.m. with 8:5 reduction gears). Geared 16:11. (Incl. Models SR1820F3 and SGR1820F3, rated altitude 5500 feet; eligible with changes necessary to adapt them for use with hydraulically operated controllible-pitch propellers.) Revised and Reissued. (Expired). Revisions.	9RA	710	1900 1950	5500 7000
104	8-25-33 3-25-36 3-13-39	Warner "Super-Scarab" Series 40, Octane 73. Series 50 (incl. Series 40). Revisions.	7RA	145	2050	S.L.
105	8-12-33 1-8-36	Pratt & Whitney, "Hornet" SD-G (geared 3:2; Octane 86). (Expired).	9RA	700	2150	6500
106	8-12-33 7-16-36	Pratt & Whitney, "Hornet" SD (Octane 87). (Expired).	9RA	675	2050	6000
107	8-17-33 10-10-33 7-16-36	Pratt & Whitney, "Twin Wasp Jr." S1AG (geared 4:3; Octane 80). (Geared 4:3 or 3:2). (Expired).	14RA	660	2490	7000
108	10-18-33 2-14-34 3-6-36 4-19-37 4-4-38 7-2-38 3-14-39	Lycoming R-680-4 (Octane 58). (Octane 65). R-680-B4. Includes R-680B-4B. Includes B-680B-4C. Includes Engines No. 2-751 and 752. (Expired).	9RA	220 225	2050 2100	S.L. S.L.
109	10-30-33 1-8-36	Pratt & Whitney, "Hornet" T1D1G, geared 3:2; Octane 87. (Expired).	9RA	709	2150	S.L.
110	11-7-33 3-6-36 3-14-39	Lycoming R-680-5 (Octane 80). R-680-B5. (Expired).	9RA	260	2300	S.L.
111	11-7-33 3-6-36 3-14-39	Lycoming R-680-6 (Octane 58; Octane 65). R-680-B6. (Expired).	9RA	245	2300	S.L.
112	11-7-33 12-1-35	Lycoming R-680-7 (Octane 58). (Expired).	9RA	240	2300	S.L.
113	11-29-33 8-3-38	Pratt & Whitney, "Wasp Jr." T1B (Octane 73). Revised ignition specifications.	9RA	345	2000	S.L.
114	11-29-33 1-8-36	Pratt & Whitney, "Hornet" SD1 (Octane 73). (Expired).	9RA	575	2000	2050
115	11-29-33 1-8-36	Pratt & Whitney, "Hornet" SD1-G, geared 3:2 (Octane 73). (Expired).	9RA	575	2150	3000
116	11-29-33 1-8-36	Pratt & Whitney, "Hornet" SD1 (Octane 73). (Expired).	9RA	525	2000	4000

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
117...	11-29-33 1-8-36	Pratt & Whitney, "Hornet" S3D1-G, geared 3:2; Octane 80. (Expired).	9RA	670	2150	5000
118...	12-1-33 1-9-34 4-2-34 4-7-37	Wright "Cyclone" SR1820F33 (incl. SGR1820F33 at 635 hp, geared 8:5 or 16:1) Octane 80 (Expired).	9RA	650	1950	9500
119...	12-27-33 1-11-39	Aeromarine AR340, Octane 73. Change in Lenape address.	3RA	40	2050	S.L.
120...	2-13-34	Continental R670 Series B, Octane 80 (incl. Series F and H).	7RA	225	2000	S.L.
121...	2-27-34 10-7-36	Jacobs LA, Octane 73 (incl. L4M) (incl. L4MB).	7RA	225	2000	S.L.
122...	8-28-34	Kinner C7 (Octane 73).	7RA	300	1800	S.L.
123...	3-30-34 9-9-36 8-3-38	Pratt & Whitney, "Wasp Jr." SB (Octane 80). Octane 87 min. for take-off. Revised ignition specifications.	9RA	400	2200	5000
124...	4-30-34 7-16-36	Pratt & Whitney, "Wasp" S5D1 (Octane 80). (Expired).	9RA	450	2200	10500
125...	5-3-34	Wright "Whirlwind" R975E3 (Octane 87).	9RA	440	2200	S.L.
126...	7-5-34 2-10-37	Wright "Whirlwind" R760ET (Octane 73).	7RA	235	2000	S.L.
127...	7-9-34 1-8-36	Pratt & Whitney, "Hornet" S5D1-G (Octane 87). (Expired).	9RA	700	2150	3500
128...	8-4-34 1-8-36	Pratt & Whitney "Wasp" S3D1 (Octane 80). (Expired).	9RA	450	2100	6000
129...	8-15-34 9-11-36 10-12-38	Pratt & Whitney, "Wasp" S1H1-G (Octane 83), (incl. "Wasp" S1H2-G) (Octane 87). Includes "Wasp" S1H1 (Octane 87—direct drive; Octane 83—geared).	9RA	550	2200	8000
130...	9-5-34 7-16-36	Pratt & Whitney, "Wasp" S6D1 (Octane 80). (Expired).	9RA	450	2100	4500
131...	9-11-34 7-12-37	Wright "Conqueror" GV-1570-F2 (Octane 87). (Expired).	12VW	675	2450	S.L.
132...	9-11-34 7-12-37	Wright, "Super Conqueror" SGV-1570-F4 (Octane 87). (Expired).	12VW	705	2450	7000
133...	11-7-34 4-7-37	Wright "Cyclone" SR-1820F-42 (Octane 73). (Expired).	9RA	635	1950	8000
134...	11-27-34 9-25-37	Menasco "Pirate" C45 (Octane 73). Revised Specifications.	4LAI	150	2250	3000
135...	12-8-34 4-7-37	Wright "Cyclone" SR-1820F-32 (Octane 80). SGR-1820F-32 (Expired).	9RA	675 660	1950 1950	6500 6500
136...	12-13-34 9-11-36 1-13-37 3-19-37 5-17-37 8-11-37 10-27-37 11-29-37 11-26-38 1-24-39 4-25-39	Pratt & Whitney, "Hornet" S1E-G (Octane 87). Take off (one minute) 36 inches high. Change in manifold pressure ratings. Eligible with automatic power and mixture control take off (one minute) 40.75 in. Hg. Revisions. Revisions. Revisions. Revisions. Revisions. (Expired).	9RA	750 800	2250 2300	7000 S.L.
137...	12-17-34 8-13-35 11-19-35 12-4-35 12-4-35 7-16-36	Pratt & Whitney, "Twin Wasp" S1A2-G (Octane 87). Eligible with automatic power and mixture control. S1A3-G. S1A4-G. Also eligible with automatic power and mixture control. (Expired).	14RA	800 830	2400 2400	7000 6000
138...	12-18-34 7-12-37	Wright "Conqueror" GV-1570F-1 (Octane 80). (Expired).	12VW	675	2450	S.L.
139...	12-26-34	Menasco "Buccaneer" B6S (Octane 73).	6LA	200	2250	4500
140...	2-25-35	Pratt & Whitney, "Hornet" S7E-G (Octane 87).	9RA	690	2250	9200
141...	3-5-35 9-12-38 11-18-38	Pratt & Whitney, "Wasp" S2H1-G. Revisions. Revised ignition specifications. Change in take-off rating.	9RA	500	2200	10500
142...	3-5-35 3-22-37 3-24-39	Pratt & Whitney, "Wasp" S3H1-G. Eligible with Stromberg NA-Y9C carburetor with 2.75 in. venturi. Revised ratings.	9RA	550	2200	5000
143...	3-9-35 9-29-36 5-29-37 3-13-39	Pratt & Whitney, "Wasp" S3H1. NAY9C carburetor (2.75 in. venturi), optional. Eligible with automatic power and mixture control. Revised ratings.	9RA	550	2200	5000
144...	3-9-35 9-11-36 1-13-37	Pratt & Whitney, "Hornet" S2E-G. Take off (one minute) 36 in. Hg. Changes in maximum and take-off ratings.	9RA	750 800	2250 2300	2500 S.L.
145...	3-23-35 7-16-36	Pratt & Whitney, "Wasp" T2D1. (Expired).	9RA	420	2000	S.L.
146...	3-26-35 4-9-36 8-1-36 10-30-36	"Ranger," 6-390-B. Including 6-390-D. Including 6-390-D3 maximum rating. Includes optional use of Scintilla PNR-6D magnetos.	6LAI	145	2250	S.L.
147...	4-18-35 4-25-39	Pratt & Whitney, "Hornet" S8E-G (Octane 87). Mfg. Name and dry weight revisions.	9RA	720	2250	4000
148...	5-15-35 9-10-35 12-11-35 11-8-37 2-11-38 8-20-38 9-1-38 2-28-39	Wright "Cyclone" SR-1820F-52 (Octane 87). SGR-1820F-52. SR-1820F-2B, SGR-1820F-2B. SGR-1820F-62. Revisions. Revisions. GR-1820F-52 (engine numbers specified). Revisions to carburetor specifications.	9RA	775 760 770	2100 1950	5800 3000
149...	5-15-35 6-17-35 12-11-35 2-28-36 2-28-39	Wright, "Cyclone" SR-1820F-53 (Octane 87). SGR-1820F-53. Includes SR-1820F-3B and SGR-1820F-3B. SGR-1820F-53 and SGR-1820F-3B. Revisions to carburetor specifications.	9RA	750	2100	11000
150...	8-2-35 2-28-39	Wright, "Cyclone" SR-1820F-54. SGR-1820F-54 (Octane 87). Revisions to carburetor specifications.	9RA	700 685	2100	16200 16200
151...	8-12-35	Arrow V-8 Model F (A.A. & M.C.) 1.95 to 1 gear ratio (Octane 70).	8VW	82	3075	S.L.
152...	11-9-35 4-25-39	Pratt & Whitney "Hornet" S9E (Octane 80). Mfg. Name and dry weight revisions.	9RA	650	2050	3000

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
153...	12-18-35	Kinner, R-5 Series 2 (Octane 73).....	5RA	160	1850	S.L.
154...	12-23-35	Wright, "Cyclone" GR-1820G-5 (Octane 87).....	9RA	830	2100	5500
	1-11-35	With high ratio of two-speed impeller.....		850		12000
	2-27-36	With high ratio of two-speed impeller.....		850		12000
	9-17-36	Includes R-1820G-5 and rating change to.....		850	2100	5800
	10-30-36	Rating added for R-1820-G5 low impeller ratio.....		815	2100	7500
		Rating added for R-1820-G5 high impeller ratio.....		815	2100	13500
	9-27-37	Change in ratings, weights, etc.....		850	2100	6000
	9-1-38	Revisions.....				
	2-28-39	Revisions to carburetor specifications.....				
155...	12-30-35	Wright, "Whirlwind" R-760E-2 (Octane 83).....	7RA	320	5800	2200
156...	1-30-36	Jacobs L-5, L-SM.....	7RA	285	2000	S.L.
	9-2-36	Jacobs L-5MB eligible.....				
	8-7-37	Jacobs L-5, L-SM, L-5MB.....		300	2125	S.L.
	8-18-37	Jacobs L-5, MA7 eligible.....		285	2000	S.L.
	2-25-38	Jacobs L-5 MA7 eligible.....				
	4-15-38	Specification changes.....				
157...	3-18-36	Wright, "Cyclone" GR-1820G-2 (Octane 87), (16:11 reduction gears).....	9RA	850	2100	5800
	9-17-36	Includes R-1820G-2 and rating change to.....		850	2100	5500
	3-23-37	Rated altitude changed to 5800 feet.....		850	2100	5800
	7-27-37	Includes GR-1820G-2A.....				
	11-18-38	Includes R-1820G-2E and GR-1820G-2E (revisions).....				
	2-28-39	Revisions to carburetor specifications.....				
158...	3-27-36	Pratt & Whitney, "Twin Wasp" SB-G (Octane 87), (3:2 reduction gears).....	14RA	900	2450	6500
	9-15-36	Includes SB-G with 6:5 to 1 comp. ratio and weight of 1235 pounds.....				
	4-13-37	SB3-G.....				
	4-25-39	(Expired).....				
159...	6-11-36	Wright, "Cyclone" SR-1820F-56 (Octane 87), (incl. SGR-1820F-56, rated 730 hp. at 2100 r.p.m. at 11,300 feet; 16:11 reduction gears).....	9RA	745	2100	11300
	8-18-36	R-1820F-56.....		755	2100	11300
	8-18-36	GR-1820F-56.....		740	2100	11300
	12-4-36	Revised.....				
	2-28-39	Revised carburetor specifications.....				
160...	6-18-36	Pratt & Whitney, "Twin Wasp" S2A4-G (Octane 87; 3:2 reduction gears).....	14RA	830	2400	3800
	4-25-39	(Expired).....				
161...	7-23-36	Arrow V-8 Model F (Arrow Aircraft Corp.).....	8VW	82	3075	S.L.
162...	7-27-36	Continental W-670K (incl. W-670M; 6.1:1 c.r.).....	7RA	225	2175	S.L.
	3-29-39	Revisions.....				
163...	9-24-36	Pratt & Whitney, "Wasp" S2H1.....	9RA	500	2200	10500
	8-23-37	Eligible with automatic power and mixture control.....				
	8-23-38	Change in weight and take-off rating.....				
	11-18-38	Change in take-off rating.....				
164...	9-24-36	Pratt & Whitney, "Hornet" S3E.....	9RA	700	2050	6000
165...	10-8-36	Pratt & Whitney, "Twin Wasp Jr." S2A4-G.....	14RA	700	2500	8500
	1-13-37	S2A5-G (incl. S2A4-G).....				
	4-25-39	(Expired).....				
166...	10-24-36	Pratt & Whitney, "Hornet" S13E-G.....	9RA	750	2250	4000
	4-25-39	(Expired).....				
167...	10-28-36	Pratt & Whitney, "Twin Wasp" S2A5-G.....	14RA	830	2400	3600
	3-31-39	(Expired).....				
168...	11-4-36	Continental W-670M (80 minutes; Octane fuel).....	7RA	250	2200	S.L.
	11-14-36	W-670M change 1 to W-670M1 (incl. W-670K-1; 5.4:1 c.r.).....				
	3-29-39	Revisions.....				
169...	2-13-37	Wright, "Cyclone" GR-1820G-102.....	9RA	900	2200	6000
	3-29-37	Eligible with Stromberg NA-FTF carburetor with 2.375 inch venturi.....				
	7-27-37	Minor revisions.....				
	9-27-37	Change in carburetor specifications.....				
	8-18-38	Incl. "Cyclone" GR-1820G-102A and revisions.....		900	2300	6700
	11-3-38	Revisions (incl. GR-1820G-102C).....		950	2200	4400
	2-28-39	Revised carburetor specifications.....				
170...	4-7-37	Pratt & Whitney, "Wasp" T3H1.....	9RA	470	2000	S.L.
	4-25-39	Mfg. Name and dry weight revisions.....				
171...	3-23-37	Wright, "Cyclone" R-1820G-3 and GR-1820G-3.....	9RA	840	2100	8700
	7-27-37	Cylinder head change.....				
	4-6-38	Includes R-1820G-3B and GR-1820G-3B.....				
	7-11-38	Includes R-1820G-3 and GR-1820G-3B.....		820	2100	8800
	10-4-38	Revisions.....				
	10-8-38	Revised carburetor specifications.....				
172...	3-30-37	Lycoming R-680-D5.....	9RA	245	2100	S.L.
173...	3-30-37	Lycoming R-680-D6.....	9RA	225	2100	S.L.
174...	5-15-37	Continental A-40-5.....	4HOA	40	2575	S.L.
175...	6-5-37	Kinner SC-7.....	7RA	350	1900	5000
176...	6-10-37	Wright, Double-row "Cyclone" GR-2600 A-2 (3:2 gears).....	14RA	1200	2100	5700
	9-27-37	Modifications in ratings.....				
	2-28-39	Revised carburetor specifications.....				
	4-20-39	Revised take-off specifications.....				
177...	7-13-37	Allison V-1710-C6 (2:1 gears).....	12VW	1000	2600	S.L.
178...	7-15-37	Waterman-Studebaker.....	6LW	90	1800	S.L.
	8-4-37	Correction.....		90	3500	S.L.
179...	7-22-37	Pratt & Whitney, "Twin Wasp Jr." SB4-G (3:2 or 4:3 reduction gears).....	14RA	750	2550	9500
	4-15-38	Specification changes.....				
	10-22-38	Revised ignition specification.....				
180...	9-14-37	Wright, "Cyclone" GR-1820G-103 (16:11 reduction gears).....	9RA	860	2200	10000
	9-20-38	Includes GR-1820G-103A.....				
	2-28-39	Revised carburetor specifications.....		860	2300	11100
181...	9-20-37	Security S-5125.....	5RA	125	1950	S.L.
182...	10-12-37	Lycoming R-530D1 (Octane 80).....	7RA	200	2100	S.L.
183...	10-12-37	Lycoming R-530D2 (Octane 73).....	7RA	190	2100	S.L.
184...	11-16-37	"Ranger" V-770-B4 (Octane 80).....	12VIA	305	2300	S.L.
185...	12-1-37	"Ranger" SGV-770-B5 (Octane 87).....	12VIA	420	2800	3000
	2-7-38	Take-off rating.....		450	2900	S.L.
186...	12-16-37	Pratt & Whitney "Twin Wasp" SC-G (Octane 87).....	14RA	900	2550	12000
	1-3-38	Includes SIC-5 (95 C/R Octane).....		1050	2550	7500
	8-15-38	Revised carburetor and ignition specifications.....				
	11-1-38	Revised carburetor specifications.....				
	12-21-38	Includes SIC3-G (Octane 95).....		1050	2550	7500
	2-21-39	Includes SC3-G (revised ratings).....				
	10-30-37	Revised carburetor specifications.....				
	5-16-39	Includes S7C3-G (revisions).....				

A.T.C. No.	Dates Issued and Amended	NAME AND MODEL	Type	Rated hp.	Rated r.p.m.	Rated Altitude ft.
187...	12-31-37 8-29-38 9-20-38 6-29-39	"Ranger" 6-410-B1 (Octane 80) Includes 6-410-B1A. Includes 6-410-B2, 6-410-B2A and 6-410-B2B. Includes 6-410-B3.	61A	165	2450	S.L.
188...	10-30-37	"Ranger" 6-390-D4	61A	150	2350	S.L.
189...	1-22-38	Aeronca E-113CDB (incl. E-113CD, etc.—42 hp. at 2500 r.p.m.)	2HOA	45	2500	S.L.
190...	1-27-38 12-1-38 3-15-39	Continental A-50-1 (incl. A-50-2 and A-50-3). All models eligible with wet sump. Includes A-50-4 and A-50-5.	4HOA	50	1900	S.L.
191...	2-8-38	Menasco "Pirate" M-50	4HOA	50	2500	S.L.
192...	7-12-38 2-23-38 4-7-38 2-20-39 4-14-39	Wright "Cyclone" GR-1820G-105. Change in rating. Revised weight and carburetor specifications. Includes GR-1820G-105A.	9RA	900	2200	6000
193...	2-24-38 5-31-39 7-5-39	Pratt & Whitney, "Hornet" S1E2-G. Includes S1E3-G. Revised carburetor specifications.	9RA	800	2250	5500
194...	3-10-38 4-20-39	Air Cooled Motors Corp. "Franklin" 4AC-150. Revisions.	4HOA	50	2300	S.L.
195...	3-26-38	Jacobs L-6 (incl. L-6M and L-6Mb)	7RA	300	2100	3700
196...	5-5-38 2-24-39 3-9-39	Pratt & Whitney, "Twin Hornet" S1A1-G (incl. "Twin Hornet" S1A-G), (2:1 reduction gears) Revised specifications. Revised take-off rating.	14RA	1150	2350	8000
197...	7-15-38 7-12-38 6-6-38	Pending. Menasco "Super Buccaneer" C6S-4. Wright "Cyclone" R-1820F-55; "Cyclone" GR-1820F-55 (16:11 reduction gears (87 min. octane (low super ratio 7:14:1), rating with high super ratio 10:1), (incl. "Cyclone" R-1820F-65 and GR-1820F-65) low super ratio high super, ratio as above.	6ALI	260	2300	7500
198...	3-6-39	Revised carburetor specifications.	9RA	760	2100	5800
199...	6-13-38 7-25-38 11-3-38 7-5-39	Lycoming O-145. Des. O-145-A1 Includes O-145-A2; O-145-A3. Revised carburetor specifications.	4HOA	675	2100	15300
200...	6-27-38 5-2-39	Tank 70. Sky Motors Model 70.	4LAI	810	2350	6000
201...	8-12-38	Akron-Funk E	4LWI	60	2050	S.L.
202...	8-29-38	Aviation Mfg. Co., Lycoming R-680E1 Lycoming R-680E2 Lycoming R-680E3.	9RA	275	2200	S.L.
203...	8-31-38 1-11-39 6-22-39 7-5-39	Lenape "Papoose" LM-3. Change in Manufacturer's address. Includes LM-365. Change in LM-3 rating to	3RA	50	2200	S.L.
204...	1-10-39 4-25-39	Pratt & Whitney "Wasp Jr." SC-G (Expired).	9RA	525	2300	10500
205...	2-3-39 2-16-39 3-4-39	Continental A-65-1. Revised specifications. Added A-65-3.	4HOA	65	2350	S.L.
206...	2-10-39 4-20-39 8-2-39	Air Cooled Motors Corp., "Franklin" 4AC-171. Revisions. Revised carburetor and ignition specifications.	4HOA	60	2350	S.L.
207...	2-21-39	"Ranger" SGV-770B6	12VIA	420	2850	6000
208...	2-23-39	Allied "Monsoon"	4LIA	100	2285	S.L.
209...	2-20-39	Erco IL-116	4LIA	65	3500	S.L.
210...	4-8-39 5-24-39	Lycoming O-145, C1, C2 and C3 Includes B1, B2 and B3.	4HOA	75	3100	S.L.
211...	4-25-39 5-2-39	Wright, "Whirlwind" R-975F. Lenape "Brave" LM5.	9RA	425	2300	5000
212...	5-11-39	Continental A75-3	5RA	95	2200	S.L.
213...	5-1-39	Warner "Super Search" 165	4HOA	75	2650	S.L.
214...	5-9-39	Warner "Super Search" 165	7RA	165	2100	S.L.
215...	6-30-39	Lenape "Papoose" LM-375	3RA	75	2450	S.L.
216...	7-20-39	Ranger 6-440-C2	6LIA	175	2450	S.L.
217...	7-21-39	Continental A80-6J	4HOA	80	2750	S.L.
218...	12-15-39	Wright "Duplex Cyclone" GR-3350-A2	18RA	1700	2300	6500

## ENGINES GIVEN CALIBRATION RATINGS

No.	Dates Issued and Amended	Name and Model	Calibration Rating		
			Type	hp.	r.p.m.
4-1	3-9-31 5-19-31	Continental A-40. Superceded by A.T.C. No. 72.	—	—	—
4-2	5-28-31	Cycloplane, Cyclomotor A-2-25	2HOA	22.5	2350
4-3	10-15-31	Heath, Heath B4	4LA	25	2800
4-3	10-10-33 12-10-35	International Aircraft Co. Heath Aviation Co.	—	—	—
4-4	11-3-31 12-4-31	Szekeley, SR3-35	3RA	35	1750
4-5	1-11-32 3-28-32	Augustine Automotive Rotary Eng. Co. Champion Rotary Motors Co. Augustine R-4-40	4RA	35	1875
4-6	12-5-34 5-17-35	Straughan Aircraft Corp. A-L1000. Thomas J. Rudy, Straughan AL-1000. Wiley Post, A-L1000.	4LW	40	1900
4-7	2-18-36	Poyer, 3-40	3RA	37	2100
4-8	2-24-36	National 35	2HOA	35	2400
4-9	10-21-36	Continental A-40-5. Superceded by A.T.C. No. 174.	2HOA	40	2575

## DOMESTIC ENGINES APPROVED but not given

### APPROVED TYPE CERTIFICATES

NAME	Model	Description	Rated hp.	Rated r.p.m.
Curtiss	OX5	8VW	90	1400
Curtiss	OX33	8VW	102	1400
Curtiss	C6	6LW	160	1750
Curtiss	K6	6LV	150	1700
Hall-Scott	L4	4LW	125	1650
Liberty	12A	12VW	400	1700
Wright-Hispano	A	8VW	150	1450
Wright-Hispano	D	8VW	200	2200
Wright-Hispano	E	8VW	180	1800
Wright-Hispano	I	8VW	150	1450
Wright-Hispano	H	8VW	300	1800

