

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

A-707
Revision 4
FAIRCHILD
24W-9 (Army UC-61F)
24W-9S
24W-40 (Army UC-61G)
24W-40S
24W-41 (Army UC-61)
24W-41S
24W-41A (Army UC-61A)
24W-41AS
24W-46
24W-46S

October 21, 1949

AIRCRAFT SPECIFICATION NO. A-707

Manufacturer Fairchild Personal Planes Division of
Fairchild Engine and Airplane Corp.
Strother Field
Winfield, Kansas

I - Models 24W-9 (Army UC-61F), 24W-9S, 4 PCLSM, Approved February 8, 1939
24W-40 (Army UC-61G), 24W-40S, 4 PCLSM, Approved February 8, 1940;
24W-41 (Army UC-61), 4 PCLM, Approved March 25, 1941;
24W-41S, 4 PCSM, Approved November 13, 1941

All models the same except for equipment and minor revisions. See NOTE 2 for modifications required for conversion of military models.

Engine Warner Super Scarab Series 50 or 50A. See NOTE 3 for Kinner engine.
Warner Super Scarab 165 hp series engine eligible with one inch longer crankshaft.
Longer crankshaft designated by suffix "L" after engine serial number. Use spacer
AN5010-20 or equivalent Warner part 8432 if needed.

Fuel 73 min. octane aviation gasoline

Engine limits For all operations, 2050 rpm (145 hp)

Airspeed limits Level flight or climb 137 mph True Ind.
Glide or dive 185 mph True Ind.
Flaps extended 94 mph True Ind. (When installed).

Propeller limits 24W-9, 24W-40: maximum diameter 92 in.
24W-9S, 24W-40S, 24W-41S: maximum diameter 100 in.
24W-41: maximum diameter 100 in.
See Item 221 regarding larger diameters.

C.G. range Landplanes: (+16.6) to (+25.9)
Seaplanes: (+17.2) to (+25.9)

Empty weight C.G. range None.

Maximum weight 24W-9, 24W-40: 2550 lbs.
24W-41: 2562 lbs.
24W-9S, 24W-40S: 2750 lbs.
24W-41S: 2762 lbs.

No. seats 4 (2 at +20 and 2 at +50)

Maximum baggage 170 lbs. (140 lbs. aft of rear seat at +74 and 30 lbs. under rear seat at +50).

Fuel capacity 24W-9 and 24W-9S: 40 gals. (one 20 gal. tank in each wing at +24).
See Item 319 for larger capacity.
24W-40, 24W-40S, 24W-41, 24W-41S: 60 gals. (one 30 gal. tank in each wing at +24).

Oil capacity 3 or 3 3/4 gals. (-19).

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Control surface movements	Not available.
Serial Nos. eligible	24W-9, 24W-9S: W-100 and up and all AAF numbers. 24W-40, 24W-40S: W40-101 and up and all AAF numbers. 24W-41, 24W-41S: W41-101 and up and all AAF numbers. Use manufacturer's number when available.
Required equipment	24W-9: Items 101(a), 102, 103, 104, 105, 106(a), 107, 108, 109(a), 110. 24W-40, 24W-41: Items 101(a), 102, 103, 104, 105, 106(a), 107, 108, 109(a), 110, 111 and 112. 24W-9S, 24W-40S, 24W-41S: Items 101(a), 102, 106(a), 108, 109(a), 110, 151, 152.

II - Models 24W-41A (Army UC-61A), 24W-41AS, 4 PCLSM, Approved JULY 17, 1941
24W-46, 24W-46S, 4 PCLSM, Approved JUNE 8, 1948

See NOTE 2 for modifications required for conversion of military models.

Engine	Warner Super Scarab 165, 165-A, 165-B or 165-D. See NOTE 3 for Kinner engine.
Fuel	73 min. octane aviation gasoline
Engine limits	Maximum continuous: 2100 rpm (165 hp) Take-off (one minute): 2250 rpm (175 hp)
Airspeed limits	Level flight or climb 137 mph True Ind. Glide or dive 185 mph True Ind. Flaps extended 94 mph True Ind.
Propeller limits (With Item 108)	Landplane: Static rpm at maximum permissible throttle setting, not over 1925, not under 1825. No additional tolerance permitted. Diameter: Not over 86 in., not under 83 in. Seaplane: Static rpm at maximum permissible throttle setting, not over 2010, not under 1910. No additional tolerance permitted. Diameter, not over 88 in., not under 86 in.
C.G. range	Landplanes: (+16.3) to (+25.5) Seaplanes: (+17.2) to (+25.5)
Empty weight C.G. range	None.
Maximum weight	Landplane: 2562 lbs. Seaplane: 2762 lbs.
No. seats	4 (2 at +20 and 2 at +50)
Maximum baggage	170 lbs. (140 lbs. aft of rear seat at +74 and 30 lbs. under rear seat at +50).
Fuel capacity	60 gals. (one 30 gal. tank in each wing at +24).
Oil capacity	4 gals. (-19).
Control surface movements	24W-41A, 24W-41AS: Not available. 24W-46, 24W-46S: Aileron 17° up 12° down Elevator 25° up 25° down Rudder 25° right 25° left Flaps 55° down Elevator trim tab 8° up 11° down
Serial Nos. eligible	24W-41A, 24W-41AS: W41A-201 and up and all AAF numbers. 24W-46, 24W-46S: W46-101 and up and all AAF numbers. Use manufacturer's number when available.
Required equipment	24W-41A: Items 101(b), 102, 103, 104, 105, 106(b), 107, 108, 109(b), 110, 111 and 12. 24W-41AS: Items 102, 106(b), 108, 109(b), 111 151, 152, 210, 317. 24W-46: Items 103, 104, 106(b), 108, 109(c), 111, 213. 24W-46S: Items 106(b), 108, 109(c), 111, 151, 152, 317.

Specifications Pertinent to All Models

Datum	Wing leading edge
Leveling means	Average level indication taken at the outermost left or right sides of extreme rear portion of cabin floor with level parallel to longeron.
Certification basis	Type Certificate No. 707 (CAR 4a)
Production basis	None. Prior to original certification, each aircraft must satisfactorily pass: (a) An inspection for workmanship, materials, and conformity before any covering, metal priming, or final finish is applied. All woodwork may be varnished.

(b) A final inspection of the completed aircraft.
(c) A check of the flight characteristics.
Export eligibility Eligible for export to all countries except as follows subject to the provisions of ASR 312 (MOP 2-4 contains the same information):
Canada - Landplane and seaplane eligible.
Skiplane not eligible. However, structure complies with Canadian requirements for ski installation when oleo strut per Dwg. 3340-10 is installed. Maximum ski height 9.25 in.
Tread with skis not to exceed tread with wheels.

Equipment: A plus (+) or minus (-) sign preceding the weight of an item indicates net weight change when that item is installed.

Propellers and Propeller Accessories

	<u>24W-9,-9S</u>	<u>24W-40,-40S</u> <u>-41,-41S</u>	<u>24W-41A</u>	<u>24W-46,-46S</u>
108. Propeller - wood (fixed pitch) (See Item 114)	25 lbs. (-52)	25 lbs. (-52)	28 lbs. (-52)	28 lbs.(-51)
209. Propeller				
(a) Fixed pitch metal (Curtiss Model 55511)	+19 lbs. (-52)	+19 lbs. (-52)	---	---
(b) Adjustable pitch metal (Ham. Std.)	+36 lbs. (-52)	+36 lbs. (-52)	---	---
(c) Fixed pitch metal (Curtiss Model 55518)	---	---	+22 lbs. (-51)	+22 lbs.(-51)
<u>For landplanes only</u>				
Static rpm at maximum permissible throttle setting for diameters of not over 90 in., not under 87 in.: not over 1730, not under 1630. No additional tolerance permitted.				
Static rpm at maximum permissible throttle setting for diameters not over 86 in., not under 83 in.: not over 1850, not under 1750. No additional tolerance permitted.				
<u>For 24W-46S only</u>				
Static rpm at maximum permissible throttle setting: Not over 1950, not under 1850. No additional tolerance permitted. Diameter: Not over 93 in., not under 91 in.				
(d) Constant speed propeller installation (Ham. Std. 2B with 6165A-12 or 6165A-13 blades. Dia. 7' 1/8" max. 6' 10-1/4" min. Low pitch setting 13°) (Dwg. 48518)		---	---	+97 lbs. (-50) +97 lbs.(-50)
(e) Koppers Aeromatic 220/0-85		---	---	+25 lbs. (-51) +25 lbs.(-51)
<u>For landplane only</u>				
Parts List Assembly No. 4293. Blade pitch settings at 30 in. sta.: Low 13.7°; High 23°. Static rpm at maximum permissible throttle setting: not over 2250,not under 2150. No additional tolerance permitted. Diameter: not over 85 in., not under 82.5 in.				
Installation and operation must be accomplished in accordance with Koppers "Installation Procedure and Operating Limitations" No. 5D.				
(f) Koppers Aeromatic 220/0-85		+28 lbs. (-52)	+28 lbs. (-52)	---

For landplanes with Warner Super
Scarab Series 50A engine only)

Parts List Assembly No. 4319.

Low pitch setting at 30 in.

sta.: 14°. Static rpm at maximum

permissible throttle setting: Not

over 2075, not under 1975. No additional

tolerance permitted. Diameter:

Not over 85 in., not under 83.5 in.

Adjustment of counterweights and flight rpm must be accomplished in accordance with Koppers "Installation Procedure and Operating Limitations" No. 4C or that dated April 28, 1948, with paragraph E thereof revised as follows:

"E. For Operation at altitudes below the base at which the counterweights were last set

Counterweights must be added after landing at a field of elevation 2000 feet or more below that at which the counterweights were last set. This adjustment is required for optimum performance and to avoid exceeding rated rpm at full throttle during take-off and climb."

Engines and Engine Accessories

- Fuel and Oil System

	<u>24W-9,-9S</u>	<u>24W-40,-40S</u> <u>-41,-41S</u>	<u>24W-41A</u>	<u>24W-46,-46S</u>
101. Starter				
(a) Eclipse Y-150	18 lbs. (-24)	18 lbs. (-24)	---	---
(b) Eclipse E-80	---	---	18 lbs. (-26)	18 lbs. (-26)
106. (a) Engine ring cowl	29 lbs. (-37)	29 lbs. (-37)	---	---
(b) Engine ring cowl (Dwg. 48489)	---	---	18 lbs. (-38)	18 lbs. (-38)
109. Carburetor air heater				
(a) Dwg. 48276	x	x	---	---
(b) Dwg. 48471	---	---	x	---
(c) Dwg. 48706	---	---	---	x
114. Kinner R-56 engine installation	x	x	x	x
Limits - For all operations, 1850 rpm (160 hp) Propeller - Wood (fixed pitch) with hub 40 lbs. (-34). Static rpm at maximum permissible throttle setting: Not over 1800, not under 1700. No additional tolerance permitted. Diameter: Not over 92 in., not under 89 in. Airspeed limits (TIAS): Level flight or climb 137 mph; Glide or dive 175 mph; Flaps extended 94 mph. See NOTE 3 regarding modifications required, etc.				
212. Oil cooler (Harrison)	11 lbs. (-24)	11 lbs. (-24)	---	---
217. Engine shielding	6 lbs. (-38)	6 lbs. (-38)	6 lbs. (-36)	6 lbs. (-36)
224. Exhaust manifold with intensifier tube (Fairchild Dwg. 48440)	+8 lbs. (-32)	+8 lbs. (-32)	---	---
319. Two 30 gal. wing tanks	+17 lbs. (+24)	---	---	x
323. Two 20 gal. fuel tanks (replacing standard tanks) (Dwg. 4866-T)	---	-17 lbs. (+24)	-17 lbs. (+24)	---

	(d) Engine-drive (Electric Specialties NA-1)	---	---	---	15 lbs. (-26)
	(e) Engine-driven (For use with Military R-500 Series and Warner 165 Engines).				
	(1) (Pierson 2411-Flex. Drive)	16 lbs. (-27)	16 lbs. (-27)	16 lbs. (-27)	16 lbs. (-27)
	(2) (Eclipse 30E01-1)	24 lbs. (-27)	24 lbs. (-27)	24 lbs. (-27)	24 lbs. (-27)
218.	Landing lights				
	(a) Two (Grimes ST-250)	+9 lbs. (+16)	+9 lbs. (+16)	+9 lbs. (+16)	+9 lbs. (+16)
	(b) One (Grimes ST-250)	+5 lbs. (+16)	+5 lbs. (+16)	+5 lbs. (+16)	+5 lbs. (+16)

Interior Equipment

201.	Parachute front seats				
	(a) Irvin -24 ft.	+35 lbs. (+28)	+35 lbs. (+28)	+35 lbs. (+28)	+35 lbs. (+28)
	(b) Switlik -24 ft.	+30 lbs. (+28)	+30 lbs. (+28)	+30 lbs. (+28)	+30 lbs. (+28)
202.	Three 1-1/2 minute parachute flares				
	(a) Under rear seat	+20 lbs. (+46)	+20 lbs. (+46)	+20 lbs. (+46)	+20 lbs. (+46)
	(b) Under rear baggage compt.	+19 lbs. (+75)	+19 lbs. (+75)	+19 lbs. (+75)	+19 lbs. (+75)
205.	Pressure fire ext. (Lux No. 5)	20 lbs. (-14)	20 lbs. (-14)	20 lbs. (-14)	20 lbs. (-14)
206.	Cabin heater	6 lbs. (-18)	6 lbs. (-18)	6 lbs. (-18)	6 lbs. (-18)
214.	Cargo compt. (Dwg. 41840) - capacity 370 lbs. (rear seat folded)	18 lbs. (+49)	18 lbs. (+49)	18 lbs. (+49)	18 lbs. (+49)

Miscellaneous (not listed above)

110.	Two cabin doors	x	x	x	x
111.	Flaps and controls (Dwg. 42254)	+39 lbs. (+50)	+39 lbs. (+50)	+39 lbs. (+50)	+39 lbs. (+50)
112.	Safety glass door windows	8 lbs. (+23)	8 lbs. (+23)	8 lbs. (+23)	8 lbs. (+23)
152.	Seaplane fin	5 lbs. (+197)	5 lbs. (+197)	5 lbs. (+197)	5 lbs. (+197)
203.	Metallizing and corrosion proofing	12 lbs. (+39)	---	---	---
204.	Corrosion proofing	8 lbs. (+39)	8 lbs. (+39)	8 lbs. (+39)	---
215.	Special cabin trim	4 lbs. (+37)	---	---	---
216.	Special exterior finish	10 lbs. (+45)	---	---	---
316.	Quick release door hinges	1 lbs. (+7)	1 lb. (+7)	1 lb. (+7)	1 lb. (+7)
317.	Seaplane fittings	Neglect Weight	Neglect Weight	Neglect Weight	Neglect Weight

NOTE 1. Current weight and balance report including list of equipment included in certificated weight empty, and loading instructions when necessary, must be in each aircraft at the time of original certification and at all times thereafter (except in the case of air carrier operators having an approved weight control system).

NOTE 2. (a) In order to be eligible for night operation, any UC-61 series airplane having uncertificated position lights should have them replaced with approved types. If Air Force type A-9 wing-tip lights are installed, they may be used provided the sandblasted surface on the inside of the cover glass is painted black.

(b) Some Army UC-61 aircraft were equipped with Warner 165 series engines instead of Warner 145 hp engines. Any UC-61 aircraft equipped with the higher hp engine should be certificated as model 24W-41A.

(c) Military engine model R-500-1 is identical to model 165. Military engine model R-500-7 is similar to model R-500-1 except that it incorporates heavier pistons, 1-49/16 in. carburetor venturi (Holley), and shielded ignition with weight (dry) of 351 lbs. Prior to use of any engine of these models in certificated aircraft, the generator drive gear, part No. 7859 should be removed and magnetically inspected for cracks. The Champion E-2411 generator used on these engines in military aircraft should not be reinstalled in these engines or in any other Warner 165 series engine. Drive gear failures have been experienced when using this generator which does not incorporate a flexible torsion drive. The designation plate of a military engine used in certificated aircraft should be stamped with the corresponding certificated engine model designation and the Type Certificate No. If there is no room for this information on the existing plate, such information may be stamped on a plain thin metal plate and attached beneath the existing plate by at least two of the mounting screws.

NOTE 3. Eligible with Kinner R-56 engine when converted by means of Kinner Installation Kit. The application for approval must be accompanied by an affidavit to the effect that the alteration has been accomplished in exact accordance with the approved drawings and instructions, and that parts and materials furnished in the Kit have been used. Weight and balance should be checked after the alteration to determine that forward C.G. limit of the aircraft has not been exceeded. Upon approval of the alteration, the aircraft model designation should be modified by suffixing the letter "K", e.g. model 24W-9 should be changed to model 24W-9K.

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