

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

A-706
Revision 4
FAIRCHILD
24R9 (Army UC-61C)
24R9S
24R40 (Army UC-86)
24R40S
24R46
24R46S
24R46A (Army UC-61K)

October 21, 1949

AIRCRAFT SPECIFICATION NO. A-706

Manufacturer Fairchild Personal Planes Division
of Fairchild Engine and Airplane Corp.
Hagerstown, MD.

I - Model 24R9 (Army UC-61C) and Model 24R9S, 4 PCLSM, Approved February 8, 1939

See NOTE 2 regarding night operation for UC-61C.

Engine Ranger 6-410-B1, -B1A, -B2, -B2A or -B2B
 Fuel 80 min. octane aviation gasoline
 Engine limits For all operations, 2450 rpm (165 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 flaps are installed.)

Propeller limits Maximum permissible diameter:
 Landplane - 103 in.
 Seaplane - 111 in.

C.G. range Landplane - (+16.4) to (+24.6)
 Seaplane - (+16.8) to (+23.5)

Empty weight C.G. range None.
 Maximum weight Landplane - 2550 lbs.
 Seaplane - 2750 lbs.

No. seats 4 (2 at +20 and 2 at +50)
 Maximum baggage 170 lbs. (140 lbs. at +74 and 30 lbs. at +50)
 Fuel capacity 40 gals. (one 20 gal. tank in each wing at +24)
 Oil capacity 3 gals. (-22)

Control surface movements Not available.
 Serial Nos. eligible R9-300 and up and all AAF Nos. of UC-61C. Use manufacturer's number when available.

Required equipment Landplane - Items 101, 102, 103(a), 104, 105, 106, 107(a), 108(a), 109, 110(a) and 111.
 Seaplane - Items 101, 102, 103(a), 107(a), 109, 110(a), 111, 151, and 152.

II - Model 24R40 (Army UC-86) and Model 24R40S, 4 PCLSM, Approved April 2, 1940, and August 26, 1940, respectively

(Same as Model 24R9 and Model 24R9S except engine installation).

Engine Ranger 6-410-B3
 Fuel 80 min. octane aviation gasoline
 Engine limits Maximum continuous 2425 rpm (165 hp)
 Take-off (one minute) 2450 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 Diameter - 86 in., Pitch - 58 in.

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C.G. range	Landplane - (+16.4) to (+24.6) Seaplane - (+16.8) to (+23.5)
Empty weight C.G. range	None.
Maximum weight	Landplane - 2550 lbs. Seaplane - 2750 lbs.
No. seats	4 (2 at +20 and 2 at +50)
Maximum baggage	170 lbs. (140 lbs. at +74 and 30 lbs. at +50)
Fuel capacity	40 gals. (one 20 gal. tank in each wing at +24)
Oil capacity	3 gals. (-22)
Control surface movements	Not available.
Serial Nos. eligible	R40-401 and up and all AAF Nos. of UC-86. Use manufacturer's number when available.
Required equipment	Landplane - Items 101, 102, 103(a), 104, 105, 106, 107(a), 108(b), 109, 110(a) 111 and 112. Seaplane - Items 101, 102, 103(a), 107(a), 109, 110(a), 111, 112, 151, and 152.

III - Model 24R46 and 24R46S, 4 PCLSM, Approved June 8, 1948

Engine	Ranger 6-440-C2
Fuel	80 min. octane aviation gasoline
Engine limits	Maximum continuous 2400 rpm (165 hp) Take-off (one minute) 2450 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	Static rpm at maximum permissible throttle setting: Landplane - not over 2075, not under 1975 Seaplane - not over 2175, not under 2075 No additional tolerance permitted. Diameter: Not over 86 in., not under 84 in.
C.G. range	Landplane - (+16.4) to (+24.6) Seaplane - (+16.8) to (+23.5)
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. at +74 and 30 lbs. at +50)
Fuel capacity	60 gals. (one 30 gal. tank in each wing at +24)
Oil capacity	4 gals. (-19)
Control surface movements	Aileron 17° up 12° down Flaps 0° up 55° down Elevator 28° up 20° down Elevator trim tab 8° up 11° down Rudder 25° right 25° left
Serial Nos. eligible	R46-101 and up.
Required equipment	Landplane - Items 104, 105, 107(b), 109, 110(b), 112 and 215. Seaplane - Items 107(b), 109, 110(b), 112, 151, 152 and 303.

IV - Model 24R46A (Army UC-61K), 4 PCLM, Approved May 6, 1947

See NOTES 2 and 3 for modifications for civil conversion of UC-61K.

Engine	Ranger 6-440-C5
Fuel	87 min. octane aviation gasoline
Engine limits	Maximum continuous 2300 rpm (165 hp) Take-off (one minute) 2450 rpm (200 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	Static rpm at maximum permissible throttle setting: not over 2050, not under 1950 No additional tolerance permitted. Diameter: Not over 86 in., not under 84 in.

C.G. range	(+16.4) to (+24.6)
Maximum weight	2562 lbs.
No. seats	4 (2 at +20 and 2 at +50)
Maximum baggage	170 lbs. (140 lbs. at +74 and 30 lbs. at +50)
Fuel capacity	60 gals. (one 30 gal. tank in each wing at +24)
Oil capacity	4 gals. (-19)
Control surface movements	Aileron 17° up 12° down Flaps 0° up 55° down Elevator 28° up 20° down Elevator trim tab 8° up 11° down Rudder 25° right 25° left
Serial Nos. eligible	R46-101 and up and all AAF Nos. of Model UC-61K. Use manufacturer's numbers when available.
Required equipment	Items 104, 105, 107(b), 109, 110(b), 112 and 215.

Specifications Pertinent to All Models

Datum	Wing leading edge
Leveling means	Average level indication taken at outermost left or right sides of extreme rear portion of cabin floor with level parallel to longeron.
Certification basis	Type Certificate No. 706 (CAR 4a)
Production basis	None. Prior to original certification of 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 are eligible. Skiplane is not eligible. However, structure complies with Canadian requirements for ski gear when oleo strut per Dwg. 3340-10 is installed. Maximum ski height 9.25 in. Tread with skis not to exceed that 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>24R9 or 24R9S</u>	<u>24R40 or 24R40S</u>	<u>24R46 or 24R46S</u>	<u>24R46A</u>
109. Propeller - wood (any fixed pitch wood propeller eligible for the engine rpm and power, and which meet the diameter and static rpm limits specified)	28 lbs. (-63)	28 lbs. (-63)	32 lbs. (-74)	32 lbs. (-74)
1. Beech controllable, Model R203, with R203-100 Series hub and R201-211-88 or R201-237-88 blades. Includes Beech electrically operated mechanical control. Static rpm in lowest pitch approx. 11.5° at 33 in. sta.); not over 2075, not under 1975. No additional tolerance permitted. Diameter: Not over 88 in., not under 86 in. (Landplane only)	---	---	66 lbs. (-73)	---
2. Propeller - Koppers Aeromatic Hub 220 with 0-85 blades. (Landplane only) Parts List Assembly No. 4321. Low pitch setting 10.3° measured at 30 in. sta. Static rpm at max. permissible throttle setting:	---	---	53 lbs. (-75)	---

Not over 2450; not under 2350. No additional tolerance permitted.
Diameter: Not over 85 in., not under 83 1/4 in. (Oil cooler air ducts to be modified and instrument panel placard added in accordance with Fairchild Dwg. 48734*). When Aeromatic propeller, is installed, installation and operation must be accomplished in accordance with Koppers "Installation Procedure and Operating Limitations" No. 6C.

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| 3. | Propeller - Hartzell Controllable Hub HC-12x20-1 with 8428 or 8428C blades. (Landplane only) Pitch setting at 31 in. sta.: Low 9.5°, high 20.5°. Low pitch static rpm: not over 2250, not under 2150. No additional tolerance permitted. Diameter: not under 82.5 in. | --- | --- | 64 lbs. (-74) | --- |
|----|---|-----|-----|---------------|-----|

In order to be eligible with Item 3 installed, the Model 24R46 landplane must have the oil cooler air ducts modified, instrument panel placarded, and the propeller shaft thrust nut machined down to 3.22 in. O.D., in accordance with Fairchild Dwg. 48735*.

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| 4. | Hartzell Controllable Hub HC-12x20-8, -8A or -8B with 8428 or 8428C blades. (Landplane only). Pitch settings at 31 in. sta.: 24R46: low 9 1/2°, high 20 1/2°; 24R46A: low 12°, high 21 1/2°. Low pitch static rpm: 24R46: not over 2250, not under 2150; 24R46A: not over 2260, not under 2160. No additional tolerance permitted. Diameter: not over 84 in., not under 82.5 in. | --- | --- | 68 lbs. (-74) | 68 lbs. (-74) |
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In order to be eligible with Item 4 installed, the Models 24R46 and 24R46A landplanes must have the oil cooler air duct modified, instrument panel placarded, and propeller shaft thrust nut machined down to 3.22 in. O.D. in accordance with Fairchild Dwg. 48736A* and nose cowl cut out modified in accordance with Fairchild Dwg. 48737A*.

*Drawings indicated by asterisks not available from FAA for reproduction.

Engines and Engine Accessories - Fuel and Oil System

	<u>24R9 or 24R9S</u>	<u>24R40 or 24R40S</u>	<u>24R46 or 24R46S</u>	<u>24R46A</u>
103. Starter				
(a) Eclipse Y-150	18 lbs. (-16)	18 lbs. (-16)	---	---
(b) Eclipse E-80	---	---	18 lbs. (-24)	18 lbs. (-24)
107. Oil cooler				
(a) Harrison 3074410	11 lbs. (-20)	11 lbs. (-20)	---	---
(b) United Aircraft Product	---	---	17 lbs. (-41)	17 lbs. (-41)
110. Carburetor air heater				
(a) Integral with engine	x	x	x	x
(b) Fairchild Dwg. 48661	---	---	x	x
207. Engine shielding	5 lbs. (-29)	5 lbs. (+29)	5 lbs. (-35)	5 lbs. (-35)
301. Two 30 gal. fuel tanks (replacing standard tanks)	+17 lbs. (+24)	+17 lbs. (+24)	---	---

Landing Gear and Floats

104. 7.50-10 wheels (Hayes 750M or 752M) with brakes & 6.50-10 tires	55 lbs. (-1)	55 lbs. (-1)	58 lbs. (-1)	58 lbs. (-1)
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105.	Hydraulic brake cylinder (Hayes D-87-3)	5 lbs. (-10)	5 lbs. (-10)	5 lbs. (-10)	5 lbs. (-10)
106.	8 in. steerable streamline tail wheel with heavy duty 6-ply tire (wheel must be placarded for this tire; however, 4-ply nylon tire may be used)	6 lbs. (+205)	6 lbs. (+205)	---	---
108.	or 310. Streamlines				
	(a) Hub	4 lbs. (0)	4 lbs. (+1)	-9 lbs. (+1)	-9 lbs. (+1)
	(b) Wheel	13 lbs. (+1)	17 lbs. (+1)	17 lbs. (+1)	17 lbs. (+1)
151.	Edo 45-2880 floats (including water rudders)	369 lbs. (+23)	374 lbs. (+23)	374 lbs. (+23)	---
209.	Dual brake controls	5 lbs. (-10)	5 lbs. (-10)	5 lbs. (-10)	5 lbs. (-10)
213.	7.50-10 4-ply tires	+6 lbs. (-1)	+6 lbs. (-1)	+6 lbs. (-1)	+6 lbs. (-1)
214.	20x9-4 wheels (Goodyear 4-HBM with brakes and tires (Maximum permissible propeller diameter 100 in. with these wheels) The installation or removal of these wheels requires modifications to the oleo strut. Contact manufacturer for instructions prior to starting modification.	5 lbs. (-1)	+5 lbs. (-1)	+5 lbs. (-1)	+5 lbs. (-1)
215.	10 in. smooth contour tail wheel and tire (Goodyear Type 1)	+4 lbs. (+205)	+4 lbs. (+205)	6 lbs. (+205)	6 lbs. (+205)
311.	Skis (Eligible on any airplane of these models provided the propeller installation meets the minimum 9 in. ground clearance. The maximum weight for the skiplane will be the same as for the corresponding landplane or that shown in parenthesis after each ski model, whichever is less) Use actual wt. change				
	(a) Pollack P-3 (Maximum 2550 lbs.)				
	(b) Grab and Smith or Wien Alaska GS-5 (Maximum 3000 lbs.)				
	(c) Federal A-3500 (Maximum 3500 lbs.), Federal Installation Dwg. 11G248				
	(d) Federal A-3500A (Maximum 3500 lbs.), Federal Installation Dwg. 11G248				
312.	Landing gear installation (Drawing No. 43264)	No wt. change	No wt. change	---	---

Electrical Equipment

101.	Generator and cutout (Elec. Spec. NA-1)	16 lbs. (-15)	16 lbs. (-15)	16 lbs. (-15)	16 lbs. (-15)
102.	Battery and box (Reading R-24)	28 lbs. (-30)	28 lbs. (-30)	28 lbs. (+141)	28 lbs. (+141)
212.	Battery (Reading R-40)	+11 lbs. (-30)	+11 lbs. (-30)	---	---
309.	Landing lights				
	(a) 2 Grimes ST-250	9 lbs. (+16)	9 lbs. (+16)	9 lbs. (+16)	9 lbs. (+16)
	(b) 1 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.	Flares (Three 1 1/2 min.) (MK-1)				
	(a)	20 lbs. (+46)	20 lbs. (+46)	20 lbs. (+46)	20 lbs. (+46)
	(b)	20 lbs. (+75)	20 lbs. (+75)	20 lbs. (+75)	20 lbs. (+75)
206.	Pressure fire extinguisher (Lux No. 5)	18 lbs. (+44)	18 lbs. (+44)	18 lbs. (+44)	18 lbs. (+44)
208.	Cabin heater	4 lbs. (-24)	4 lbs. (-24)	6 lbs. (-18)	6 lbs. (-18)
216.	Cargo compt. per Dwg. 41840 - 370 lb. capacity (rear seat folded)	18 lbs. (+49)	18 lbs. (+49)	18 lbs. (+49)	18 lbs. (+49)

Miscellaneous (not listed above)

111.	Two cabin doors	x	x	x	x
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112. or 211. Flaps and controls (Dwg. 43177 for models 24R9, 24R9S, 24R40, 24R40S; Dwg. 42254 for models 24R46, 24R46S).	39 lbs. (+50)	39 lbs. (+50)	39 lbs. (+50)	39 lbs. (+50)
152. Auxiliary fin	5 lbs. (+197)	5 lbs. (+197)	5 lbs. (+197)	---
203. Metalizing and corrosion proofing	18 lbs. (+39)	12 lbs. (+39)	---	---
204. Corrosion proofing	8 lbs. (+39)	12 lbs. (+39)	---	---
302. Cabin door windows (5/32 Aerolite or Duplate)	+8 lbs. (+23)	+8 lbs. (+23)	+8 lbs. (+23)	+8 lbs. (+23)
303. Seaplane fittings	-----Neglect weight-----			---
304. Quick release door hinges	+1 lb. (+7)	1 lb. (+7)	1 lb. (+7)	1 lb. (+7)

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. In order to be eligible for night operations, 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 sand-blasted surface on the inside of the cover glass is painted black.

NOTE 3. Prior to original certification of the UC-61K models install a single-pole, 5 ampere, toggle switch in the generator field circuit. Mount this switch adjacent to the battery circuit breaker switch on the instrument panel and placard it "Generator Field Switch." The battery circuit breaker switch and generator field switch should be ganged so either simultaneous or individual action is possible. When so ganged these switches constitute a Master Switch and should be so placarded.

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