

MODELS: Waco ARE, HRE (Army UC-72C), SRE (Army UC-72)

T.C. NUMBER: 714

I - MODEL ARE 5 PCLB (Approved 2/1/40)

Engine	Jacobs L-6MB
Fuel	80 minimum octane aviation gasoline
Engine limits	Maximum, except take-off (Sea level) 24.5 in.Hg., 2100 rpm (300 hp) (Straight line manifold pressure variation with

	altitude to 3700 ft.)
	23.5 in.Hg., 2100 rpm (300 hp)
	Take-off (one minute)
	26 in.Hg., 2200 rpm (330 hp)
Airspeed limits (T.I.A.S.)	Level flight or climb - 200 mph
	Glide or dive - 270 mph
	Flaps extended - 108 mph
Propeller limits	Maximum permissible diameter 110 inches
C.G. range	(-17.6) to (-7.84)
Maximum weight	4250 lbs.
No. seats	5 (one at (-13), three at (+22)) (pilot at (-13))
Maximum baggage	100 lbs. (+52) (See NOTE 2)
Fuel capacity	125 gallons (62-1/2 gallon tank in each upper wing (-14) (See Item 208)
Oil capacity	6-1/4 gallons (-56) (See Item 208)
Control surface movements	Not available
Serial numbers eligible	5076 and up per NOTE A
Required equipment	Items 101, 102, (a), 103, 104, 105, 106, 107, 108, 109, 110(a), 111, 112

II - MODEL SRE (Army UC-72), 5 PCLB (Approved 4/6/40)

Engine	P & W Wasp Jr. SB with one 4-1/2 N and one 9 N damper (See also Item 212)
Fuel	80 minimum octane aviation gasoline for maximum, except take-off and take-off at 400 hp; 87 minimum octane aviation gasoline for take-off at 450 hp
Engine limits (See also Item 212)	Maximum, except take-off (Sea level)
	34.5 in.Hg., 2200 rpm (400 hp)
	(Straight line manifold pressure variation with altitude to 5000 ft.)
	33.6 in.Hg., 2200 rpm (400 hp)
	Take-off (one minute)
	34.5 in.Hg., 2200 rpm (400 hp)
	36.5 in.Hg., 2300 rpm (450 hp)
Airspeed limits (T.I.A.S.)	Level flight or climb - 200 mph
	Glide or dive - 270 mph
	Flaps extended - 108 mph
Propeller limits	Maximum permissible diameter 108 inches
C.G. range	(-17.6) to (-9.56)
Maximum weight	4250 lbs.
No. seats	5 (one at (-13), three at (+22)) (pilot at (-13))
Maximum baggage	100 lbs. (+52) (See NOTE 2)
Fuel capacity	125 gallons (62-1/2 gallon tank in each upper wing) (-14) (See Item 208)
Oil capacity	6-1/4 gallons (-56) (See Item 208)
Control surface movements	Not available
Serial numbers	5076 and up per NOTE A and all AAF numbers
Required equipment	Items 101, 102(b), 103, 104, 105, 106, 107, 108, 109, 110(b), 111, 112

III - MODEL HRE (Army UC-72C), 5 PCIB (Approved 11/1/40)

Engine	Lycoming R-680-E3
Fuel	87 minimum octane aviation gasoline
Engine limits	Maximum except take-off, 2200 rpm (285 hp)
	Take-off (one minute), 2300 rpm (300 hp)
Airspeed limits (T.I.A.S.)	Level flight or climb - 200 mph
	Glide or dive - 257 mph
	Flaps extended - 108 mph
C.G. range	(-17.6) to (-8.64)
Maximum weight	4051 lbs.
No. seats	5 (one at (-13), three at (+22)) (pilot at (-13))
Maximum baggage	100 lbs. (+52) (See NOTE 2)
Fuel capacity	125 gallons (62-1/2 gallon tank in each upper wing) (-14) (See Item 208)
Oil capacity	6-1/4 gallons (-56) (See Item 208)
Control surface movement	Not available
Serial numbers eligible	5097 and up per NOTE A and all AAF numbers
Required equipment	Items 101, 102(c), 103, 104, 105, 106, 107, 108, 109, 111, 112, 113 and 114

SPECIFICATIONS PERTINENT TO ALL MODELS

Datum	Leading edge of lower wing
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Leveling means
 Certification basis
 Production basis
 Export eligibility

Lower surface of left upper wing
 Type Certificate No. 714 (CAR 4a)
 None (See NOTE A)
 Eligible for export as follows, subject to
 provisions of MOP 2-4:

- (a) Canada
 - Landplane - eligible
 - Skiplane - not eligible.
- (b) All other countries except New Zealand.

EQUIPMENT:
 Propellers and Propeller Accessories

	ARE	SRE	HRE
102. Propeller			
(a) Controllable metal (Hamilton Standard 2B20 hub, 6135A-9 or 6135A-10 blades. Diameter 8'3-1/8" maximum, 8'7/8" minimum, low pitch setting 13 degrees)	105 lbs. (-92)	---	---
(b) Constant speed metal (Hamilton Standard 2D30 hub, 6167A-12, 6167A- 13, 6101A-18 or 6101A-19 blades. Diameter 8'6-1/8" maximum, 8'3-7/8" minimum, low pitch setting 10 degrees)	---	150 lbs. (-89)	---
(c) Controllable metal (Lycoming-Smith P220 propeller with S0200806 or S0220806 blades, low pitch setting 10 degrees)	---	---	124 lbs. (-92)
217. Propeller - fixed pitch metal (Curtiss 55501) (Static rpm at maximum permis- sible throttle setting - not more than 1910; not less than 1660. Diameter - not more than 99 inches, not less than 96 inches)	-50 lbs. (-92)	---	---
224.			
(a) Constant speed propeller governor and governor control (Drawing 47-76). Pitch range 12 degrees to 27 degrees. For installation with item 102 (a).	7 lbs. (-61)	---	---
(b) Constant speed propeller governor and governor control (Drawing 47075). Pitch range 10 degrees to 23 degrees. For installation with item 102 (b).	---	7 lbs. (-58)	---

Engines and Engine Accessories - Fuel and Oil System

	ARE	SRE	HRE
101. Engine cowl (NACA)	35 lbs. (-77)	32 lbs. (-70)	35 lbs. (-70)
103. Starter (Eclipse E-80)	20 lbs. (-55)	20 lbs. (-55)	20 lbs. (-57)
110. Oil radiator			
(a) One (Winchester 5 inches)	5 lbs. (-77)	---	---
(b) Two (Winchester 4 inches)	---	8 lbs. (-74)	---

205. Larger starter	*10 lbs. (-58)	*10 lbs. (-60)	*10 lbs. (-59)
208. Tanks			
(a) Auxiliary 38 gallon fuel tank	---	35 lbs. (+52)	---
(b) 8-1/2 gallon oil tank	---	8 lbs. (-56)	---
(c) 58-1/2 gallon aluminum alloy replacing 62-1/2 gallon Fairprene wing tanks (Aero. Services, Inc. Drawings numbers 100 and 101)	+20 lbs. (-14)	+20 lbs. (-14)	+20 lbs. (-14)
211. Vacuum pump	+4 lbs. (-53)	+4 lbs. (-43)	+4 lbs. (-63)
212. Engines (must have one 4-1/2N and one 9 N damper)	---	Use actual weight increase	---
(a) P&W Wasps Jr. SB-2 (limits same as SB)			
(b) P&W Wasps Jr. SB-3 (limits same as SB)			
(c) P&W Wasps Jr. T1B2 Limits - Maximum, except take-off (Sea level) 35 in.Hg., 2200 rpm (400 hp) (Straight line manifold pressure variation with altitude to 3800 ft.) 34 in.Hg., 2200 rpm (400 hp) Take-off (one minute) 35 in.Hg., 2200 rpm (400 hp) 37.5 in.Hg., 2300 rpm (450 hp)			
(d) P&W Wasps Jr. T1B3 (limits same as T1B2, Item 212(c) above)			
(e) Military R-985-AN-4 (limits same as SB)			
(f) Military R-985-AN-6 or -AN-6B (limits same as SB)			
(g) Military R-985-AN-12 or -AN-12B (limits same as SB)			
(h) Military R-985-AN-14B (limits same as SB)			
(i) Military R-985-25 (limits same as T1B2, Item 212(c) above)			
(j) Military R-985-AN-1 or -AN-3 (limits same as T1B2, Item 212(c) above)			
223. Interconnected throttle-mixture control (Drawing 47073)	---	No weight change	--
Landing Gear and Floats			
	<u>ARE</u>	<u>SRE</u>	<u>HRE</u>
106. Wheel cuffs	4 lbs. (-33)	4 lbs. (-33)	4 lbs. (-33)
107. 7.50-10 wheels (Goodyear) with brakes and 6-ply tires (wheels must be placarded for these tires)	63 lbs. (-33)	63 lbs. (-33)	63 lbs. (-33)
108. 10x3 heavy duty tail wheel and 4-ply tire	5 lbs. (+196)	5 lbs. (+196)	5 lbs. (+196)
210. Cactus proof inner tubes	+12 lbs. (-33)	+12 lbs. (-33)	+12 lbs. (-33)
216. Wheel streamlines	22 lbs. (-33)	22 lbs. (-33)	18 lbs. (-33)
222. Steerable tail wheel (Drawing 48811)	No weight change	No weight change	No weight change
Electrical Equipment			
	<u>ARE</u>	<u>SRE</u>	<u>HRE</u>
104. Generator (15 amp.)	21 lbs. (-55)	21 lbs. (-60)	21 lbs. (-59)

105. Battery and box (Exide 6-TS-13-1)	42 lbs. (+65)	42 lbs. (+65 or +108)	42 lbs. (+65)
112. Shielding	11 lbs. (-68)	11 lbs. (-68)	11 lbs. (-68)
113 or 220. Bonding	6 lbs. (-3)	6 lbs. (-3)	6 lbs. (-3)
114 or 219. Landing lights (Grimes retractable)	11 lbs. (-23)	11 lbs. (-23)	11 lbs. (-23)
204. Larger generator	+10 lbs. (-58)	+10 lbs. (-55)	+10 lbs. (-57)
225. Battery and box (Reading R-33-L)	32 lbs. (-63)	---	32 lbs. (-63)

Interior Equipment

	<u>ARE</u>	<u>SRE</u>	<u>HRE</u>
109. Control column - throw over type	11 lbs. (-33)	11 lbs. (-33)	11 lbs. (-33)
111. Cabin heater and ventilating system	8 lbs.	6 lbs.	8 lbs.
201. Fire extinguishers			
(a) Pressure	15 lbs. (-53)	8 lbs. (-53)	15 lbs. (-53)
(b) Pressure (Lux)	20 lbs. (+22)	20 lbs. (+22)	20 lbs. (+22)
202. Parachute seats			
(a) Rear	+41 lbs. (+27)	+41 lbs. (+27)	+41 lbs. (+27)
(b) Front	+30 lbs. (-13)	+30 lbs. (-13)	+30 lbs. (-13)
207.			
(a) Cargo type compart- ment (Drawing 49073) (loading instructions required)	36 lbs. (+38)	36 lbs. (+38)	36 lbs. (+38)
(b) Large baggage door	+16 lbs. (+52)	+16 lbs. (+52)	+16 lbs. (+52)
209. Control column - "Y" type	+4 lbs. (-33)	+4 lbs. (-33)	+4 lbs. (-33)
214. Flares (three 1-1/2 minute)	17 lbs. (+78)	17 lbs. (+78)	17 lbs. (+78)

Miscellaneous (not listed above)

	<u>ARE</u>	<u>SRE</u>	<u>HRE</u>
200. Extra door and wing walk	+16 lbs. (+19)	+16 lbs. (+19)	+16 lbs. (+19)
218. Quick release door	1 lb. (+19)	1 lb. (+19)	1 lb. (+19)

NOTE A. Each aircraft manufactured after 4/13/43 for civil use, must, prior to original certification, 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) Final inspection of the completed aircraft.
- (c) Check of flight characteristics.

NOTE 1. The following placards must be displayed in full view of the pilot:
"Use left wing tank before using right tank. Operate auxiliary fuel pump while flying on left tank until auxiliary tank gage shows empty."

NOTE 2. Weight and balance report must be submitted for each aircraft with original inspector's report and each subsequent report covering a change in equipment. Loading instructions, when necessary, must be included in the Aircraft Operations record and the baggage compartment must be placarded accordingly.