

MODELS: Lockheed Electra 10-A (Army UC-36A, Navy R-20, XR-20-1), 12 PCLM

T.C. NUMBER: 551

Engines	2 P&W Wasps Jr. SB (See Item 119)
Placard limits	Maximum, except takeoff (87 minimum octane fuel) 33-1/2 in. Hg., 2200 rpm (400 hp) (80 minimum octane fuel) 33-1/2 in. Hg., 2200 rpm (400 hp) Takeoff (one minute) (87 minimum octane fuel) 36-1/2 in. Hg., 2300 rpm (450 hp) (80 minimum octane fuel) 34-1/2 in. Hg., 2200 rpm (400 hp)
Propellers	Hamilton Standard hubs 2D30, blades 5095A-6 to 6095A-8, inclusive. Diameter 9'1/8" maximum, 8'9-3/4" minimum; low pitch setting 14 degrees) 157 lbs. each (-90) (See NOTE 6 and Items 101, 116 and 118)
Placard speeds	Level flight or climb - 210 mph True Ind. Glide or dive - 261 mph True Ind. Flaps extended - 125 mph True Ind.
Usable ceiling	(May be realized under conditions shown)

Ceill (ft.)	Weight (lbs.)	RPM	Manifold Pressure (in.Hg.)	T.I.A.S. (mph)	Min. Octane	Inop. Prop.
4600	10,500	2200	Full throttle	94	80 or 87	Feathered
0*	10,500	2200	METO	92	80 or 87	Idling at 700 rpm

*NOTE: Best one-engine inoperative; rate or climb at sea level for this condition is 8 ft. per minute.

Additional conditions	(1) Standard air (2) Either engine inoperative (3) Carburetor intake on "cold air" (4) Leading edge de-icers installed but not operating
Fuel capacity	194 gallons standard (4 tanks in wing - 2 main at 81 gallons each (-21); 2 auxiliary tanks forward of spar at 16 gallons each (-21))
Oil capacity	14 gallons (2 tanks at 7 gallons each in each nacelle) (-49)
No. passengers	10
Baggage	Maximum capacity of compartments; compartment in nose 300 lbs. (-97-1/2); compartment in each stub wing 250 lbs. (+20-1/2)
Maximum weight	10100 lbs. (See NOTES 3 and 5)
C.G. limits	(-10.1) and (+6.1) (Base line of cabin windows level)
Spec. basis	Type Certificate No. 551 (Aero. Bulletin 7A requirements)
Serial Numbers	1001 and up eligible per NOTE A

EQUIPMENT:

(Datum is centerline of the center section wing spar) (* Means net increase)

Class I:

1. 2 Engine ring cowls	61 lbs.	(-70)
2. 2 Exhaust collector rings	60 lbs.	(-60)
3. 2 Oil radiators (UAP 5")	28 lbs.	(-54)
4. 2 Landing and 1 warning light (in nose)	15 lbs.	(-126)
5. Position lights		
6. Flares (two 3 minute and brackets 5 lbs.)	50 lbs.	(-85)
8. 2 Starters (electric)	64 lbs.	(-58)
9. Battery (Exide 6XT-13-12V)	65 lbs.	(-32)
10. Generator (50 amp)	36 lbs.	(-61)
11. Pressure fire extinguisher system	35 lbs.	(-45)
12. 35x15-6 wheels (Goodyear 6HBM)	68 lbs.	(-23)
13. 35x15-6 (Goodyear) H.D. 6-ply tires and plain tubes (wheels must be placarded for these tires)	109 lbs.	(-23)
14. Retracting landing gear, elec. worm drive (100 amp. fuse required)	269 lbs.	(-20)
15. Shock struts (Aerol SP-400E)	96 lbs.	(-23)
16. Wing split trailing edge flaps elec. operated (60 amp. fuse required)	75 lbs.	(+55)
17. Rudder equipped with trailing edge tab (single) and spring type bungee	3 lbs.	
18. Elevator equipped with balance weight (external 12 lbs.; auxiliary flap 3 lbs.; tabs 2 lbs. (+310) total 17 lbs.)		
20. Ventilating system	20 lbs.	(+85)
21. Cabin heaters	40 lbs.	(+45)
22. Toilet equipment	15 lbs.	(+180)
23. Container and 1 gallon water	12 lbs.	(+168)
24. Cabin Deluxe equipment	19 lbs.	(+60)
25. 2 Baggage straps (nose compartment)	4 lbs.	(-98)
26. 16x7-3 tail wheel (Goodyear 3TW) with 4-ply tire	12 lbs.	(+313)
27. Tail wheel strut (Aerol 300ET)	17 lbs.	(+300)
28. Instruments with panel	56 lbs.	(-74)

Class II:

31. 2 Wheel fenders (12 lbs. on serials below 1018)	8 lbs.	(-20)
32. Rudder lock in cockpit	1 lb.	(-65)
33. Control wheel lock	2 lbs.	(-29)
34. Tail wheel centering lock control	3 lbs.	(-70)
35. Abrasion strips on lower fins	2 lbs.	(+284)
36. Abrasion strips on tail surface (complete)	5 lbs.	(+270)
37. De-icer installation (fixed portion 56 lbs., removable 55 lbs.) (See NOTE 5)	111 lbs.*	(-24)

38.	Small type generator (25 amp.)	28 lbs.	(-61)
39.	Heavy duty battery	70 lbs.	(-32)
40.	2 cactus proof tire liners	22 lbs.	(-23)
41.	Oil radiator (UAP 6") (replaces UAP 5")	39 lbs.	(-54)
48.	Fuel capacity increase 51 gallons, forward fuselage tank	40 lbs.	(-17)
49.	Fuel capacity increase 90 gallons, two 45-gallon fuselage tanks	60 lbs.	(+33)
50.	Fuel capacity increase 56 gallons, two 28-gallon wing tanks	62 lbs.	(+17)
51.	Oil capacity 28 gallons - 14 gallon tank in each nacelle, replacing standard 7 gallon tank	30 lbs.*	(-49)
52.	Couch (2-place)	55 lbs.	(+40)
53.	Couch (1-place) and pillows cloth covered	115 lbs.	(+40)
54.	Couth (2-place and pillows cloth covered	115 lbs.	(+40)
55.	Couch (3-place) and pillows cloth covered	115 lbs.	(+40)
56.	Couch (3-place) and pillows leather covered	130 lbs.	(+40)
57.	Arm chair	26 lbs.	(-17)
58.	Standard passenger seats removed, deduct 20 lbs. each (Roman numerals in parenthesis signify number of seats removed)		
74.	Robot pilot installation	120 lbs.	(-80)
79.	Light weight sound proofing, deduct	30 lbs.	(+60)
80.	Heavier type inner cowling	15 lbs.	(-65)
84.	Revised landing gear retracting mechanism with 12.5:1 gear ratio and EDC No. 45040 electric motor (100-amp. fuse required)	6 lbs.	(-20)
85.	Oil capacity 19 gallons (9.5 gallon tank in each nacelle, replacing standard 7-gallon tank)	4 lbs.	(-49)
86.	Oil capacity 17 gallons (two 8.5 gallon tanks in each nacelle)	2 lbs.	(-49)
87.	Pratt & Whitney oil regulator	6 lbs.	(-54)
88.	Cactus proof liner in tail wheel tire	3 lbs.	(+313)
91.	2 Batteries (Exide 6TS-13-1) and box, 7 lbs.	81 lbs.	(-32)
93.	Heavy type landing gear yoke	14 lbs.	(-23)
94.	Carburetor induction system	10 lbs.	(-65)
95.	Double filler neck and plumbing	15 lbs.	(-28)
96.	Heavy type engine mount fittings	7 lbs.	(-45)
97.	Electric system 24-volt wiring 10 lbs. and extra weight landing lights 3 lbs.	13 lbs.	(0)
99.	Landing gear (knuckle type) retracting mechanism with 12.5:1 gear ratio and EDC No. 45040 electric motor (140-amp. fuse required) (replaces standard worm and sector type)	275 lbs.	(-20)
100.	Rudders equipped with fixed trimming tabs (replacing adjustable tabs) and 3 lbs. spring type bungee	No weight change	
202.	Constant speed propeller control installation	20 lbs.	(-64)
	(a) When installed with 6095A-6 blades, low pitch setting 10 degrees		
	(b) When installed with 6101A-12 blades, low pitch setting 9 degrees		
102.	Exhaust gas analyzer (Cambridge)	12 lbs.	(-40)
103.	2 Heavy gage 81 gallon fuel tanks (Lockheed No. 45732), replacing standard 81-gallon fuel tanks	26 lbs.*	(-21)
104.	Oil capacity 16 gallons (8 gallon tank in each nacelle replacing standard 7 gallon tank)	No change in weights	
105.	Lockheed Model 10 ski and ski gear (Lockheed Drawing 45204) 624 lbs.; tail ski and gear (Lockheed Drawing 45205) 51 lbs.; and original portion of landing gear structure retained 11 lbs.; total 686 lbs. Lockheed Drawing 45378 must be used when ski are installed with knuckle landing gear.		

106.	Landing lights (in wing)	11 lbs.	(-10)
107.	Oil capacity 23 gallons (11.5 gallon tank in each nacelle) (Lockheed Drawing 45889 or 45906), replacing standard 7 gallon tank)	6 lbs.*	(-49)
108.	Oil immersion heaters	6 lbs.	(-49)
109.	Radio compass (RCA, AVR-8)	63 lbs.	(-46)
111.	15.5 inch streamline tail wheel	12 lbs.	(+313)
112.	Oil radiator (UAP 7") (replaces UAP 5")	42 lbs.	(-54)
113.	Hamilton Standard blades 6101A-12 to 6101A-14 inclusive. Diameter 9'1/8" maximum, 8'9-3/4" minimum, replacing 6095A-6 blades (Item 101(b) must be installed with this item) (See NOTE 6)	5 lbs.*	(-90)
114.	New bladed (hydropressed type main wing ribs) (Drawing 40200K)	No weight change	
115.	2 Engine ring cowls (Engel Parts No. 1101, 1103, 1104, 1105, 1106, 1108, 1110, 1112 and 1114)	61 lbs.	(-70)
116.	Hamilton Standard propeller blades 6167A-6 to 6167A-8 inclusive (same diameter limits as 6095A)	No weight change	
117.	256 gallon fuel capacity installation replacing standard (in accordance with Northwest Airlines Drawing No. 40012-A)	59 lbs.	(+17)
118.	2 Full feathering hydromatic (Hamilton Standard hubs 22D30, blades 6186A-6, 6181A-7, 6183A-12, or 6185A-13. Diameter 9'3/8" maximum, 8'10" minimum; low pitch setting 10 degrees) (Northwest Airlines Drawing 107411)	88 lbs.*	(-62)
119.	Engines	Use actual weight change	
	(a) Pratt & Whitney Wasp Jr. SB-2 (limits same as for SB)		
	(b) Pratt & Whitney Wasp Jr. SB-3 (limits same as for SB)		
	(c) Pratt & Whitney Wasp Jr. T1B3 fuel; 87 minimum octane aviation gasoline Limits: Maximum, except takeoff (Sea level) 34.2 in. Hg., 2300 rpm (400 hp) (Straight line manifold pressure variation with altitude to 5400 ft.) 32.5 in. Hg., 2300 rpm (400 hp) Takeoff (one minute) 37.5 in. Hg., 2300 rpm (450 hp)		
	(d) Pratt & Whitney Wasp Jr. T1B2 (limits same as T1B3)		
	(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 T1B3)		
	(j) Military R-985-AN-1 or -AN-3 (limits same as T1B3)		
	(k) Military R-985-13, -17, -19, -23, -48, -50, -AN-2, -AN-8 (limits same as SB)		
	(l) Military R-985-27 (limits same as T1B3)		
120.	Automatic pilot		
	(a) Lear Model L-2E installation in accordance with Lear Drawing 95625A	54 lbs.	(+71)
	(1) Servo Slip Clutch Settings: Aileron 75±5 in.lbs. Elevator 60±5 in.lbs. Rudder 60±5 in.lbs.		
	(2) Pilots Operating Instructions, dated 1/31/52 should be attached for Aircraft Form ACA-309.		

- (3) The following placard should be installed in full view of the pilot: "Do not use autopilot below 300 feet above the terrain in the cruise configuration.
"Do not use autopilot below 300 feet above the terrain in the approach configuration."
Minimum altitude for each case does not override any higher minimum operational altitude.
"Do not override the autopilot to increase angle of bank."
"Do not use autopilot turn control with one engine inoperative."

121. Toe brakes installed in accordance with Purdue Aeronautics Corp., Drawing 60574-41.

NOTE A. Each aircraft manufactured after 10/7/41 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) A final inspection of the completed aircraft.
- (c) A check of flight characteristics.

NOTE 1. Weight and balance report including list of equipment included in certificated weight empty, and loading instructions when necessary, must be submitted for each aircraft with original inspector's report and each subsequent report covering changes in equipment.

NOTE 2. (a) The following placard must be conspicuously posted at the right outboard wing fuel tank filler cap: "FILL WITH 87 OCTANE FUEL ONLY."
(b) The following placard must be placed at the fuel selector valve: "USE RIGHT WING OUTBOARD TANK FUEL FOR TAKE-OFF AND LANDING."
(c) When 87 (or 80) octane fuel is used in all tanks, the above placards may be deleted and the operation limits placard should bear the notation "87 OCTANE FUEL ONLY USED IN ALL TANKS."

NOTE 3. Maximum weight may be increased to 10,500 lbs. provided Item 101 (constant speed prop, control or propeller Item 118) is installed.

NOTE 4. Eligible for export subject to the provisions of ASR 312 (MOP 2-4 contains same information) except as follows:

- (a) Canada
 - Landplane - eligible.
 - Skiplane - not eligible. However, structure complies with Canadian requirements for ski installation when item 105 is installed.

NOTE 5. Maximum weight may be increased an amount equal to $.006 \times$ maximum weight when complete de-icer is installed.

NOTE 6. Propeller is eligible for use on engines without dynamic damper or with dynamic damper tuned to both 4-1/2 and 9 times engine speed. Item 113 must be installed when engines are equipped with damper turned to 4-1/2 times only. When used on engines without dynamic dampers, the propeller shall not be operated in excess of 1500 hours and shall be operated in a cruising range of 1850 to 1950 rpm, taking every precaution to avoid nicks and eliminate them as soon as possible in the outer 14 inches of the blade.

NOTE 7. Fuel dump valves must be made positively inoperative pending satisfactory completion of dump tests.

NOTE 8. Placard lavatory door as follows:
"This room not to be occupied during take-off and landing."