

LUSCOMBE PHANTOM 1 AND 1S, ATC 557

I - SPECIFICATIONS PERTINENT TO THE MODELS:

Engine Warner Super Scarab Series 50
 Placard limits Maximum, except take-off
 -- in. Hg., 2050 rpm (145 hp)
 Take-off (one minute)
 -- in. Hg., 2050 rpm (145 hp)
 Propeller Maximum permissible diameter 89 in.
 Fuel capacity 33 gals. (Two tanks, one 16½ gal.
 tank in each wing)(+23)
 Oil capacity 3½ gals. (-5)
 No. pass. 1 (+25)
 Spec. basis Approved Type Certificate No. 552
 Serial Nos. 101 and up mfrd. prior to 7-7-41 eligi-
 ble. Approval expired as of that date.
 EQUIPMENT: (Datum is wing leading edge)(* Means net
 increase)

Class I:

A. Landplane

101. Propeller - adj. metal 62 lbs. (-38)
 102. Engine ring cowl 25 lbs. (-23)
 103. 21 in. streamline wheels (Autofan)
 with brakes and 4-ply tires (+6)
 104. Tail wheel (4½ in. dia. with
 solid tire) 6 lbs. (+182)

B. Seaplane: Items 101 and 102 PLUS

151. Battery (just aft of firewall) 28 lbs. (-5)
 152. Starter (Eclipse Y-150) 20 lbs. (-12)
 153. Generator (Bosch) 10 lbs. (-15)
 154. Edo 44-2425 floats
 155. Auxiliary fin

Class II:

A. Landplane:

200. Miscellaneous items as noted in approved
 weight and balance report.

B. Seaplane: Item 200 PLUS

251. Propeller - fixed metal
 (Curtiss 55511) Net decrease 15 lbs.

Class III:

A. Landplane: Items 151, 152, 153, 251 PLUS

301. Radio (RCA AVR 7 series) 20 lbs. (+68)
 302. Landing lights 6 lbs.
 303. Additional instruments 12 lbs.
 304. 8 in. streamline tail wheel (+182)
 305. Bonding and shielding
 306. 6.50-10 wheels with
 brakes Net decrease 4 lbs. (+6)
 307. Tail wheel lock

B. Seaplane: Items 302, 303 and 305 PLUS

351. Battery (just aft of firewall) 10 lbs.* (-5)

NOTE 1. All airplanes of the seaplane type (model 18)
 must have approved wing spoilers approximately 36 in.
 long installed on the leading edges of both wings.
 The inboard ends of the spoilers are attached to the
 first wing ribs inboard of front wing strut attachment
 fittings (approximately 6 in. inboard of the strut
 points.)

NOTE 2. Landplane baggage may be increased to 112 lbs.
 when substantiated by actual weight and balance report.
 This necessitates recheck of C.G. limits for any
 future change in equipment.

NOTE 3. Eligible for export to all countries except
 Great Britain, Canada, Australia and New Zealand.
 (July 7, 1941)

II - MODEL PHANTOM 1, DESIGNATION 2 PCLM:

Placard speeds Level flight or climb 160 mph True Ind.
 Glide or dive 240 mph True Ind.
 Flaps extended 149 mph True Ind.
 Baggage 66 lbs. (+48) (See NOTE 2)

Standard weight 1950 lbs.

C.G. limits (+15.25) and (+18.9)

III - MODEL PHANTOM 1S, DESIGNATION 2 PCSM:

Placard speeds Level flight or climb 150 mph True Ind.
 Glide or dive 200 mph True Ind.
 Flaps extended 149 mph True Ind.

Baggage 32 lbs. (+48)

Standard weight 2180 lbs.

C.G. limits (+18.2) and (+19.6)

LUSCOMBE 4, 2 PCLM, TC 687

Engine Warner Scarab Jr.
 Placard limits Maximum, except take-off
 -- in. Hg., 2025 rpm (90 hp)
 Take-off (one minute)
 -- in. Hg., 2025 rpm (90 hp)
 Propeller Maximum permissible diameter 87 in.
 Placard speeds Level flight or climb 136 mph True Ind.
 Glide or dive 184 mph True Ind.
 Flaps extended 98 mph True Ind.
 Fuel capacity 31 gals. (Two 15½ gal. tanks in wings)
 (+24)
 Oil capacity 2 gals. (-17)
 No. pass. 1 (+21)
 Baggage 60 lbs. (+40) (May be increased to
 106 lbs. when substantiated by weight
 and balance report)

Standard weight 1650 lbs.

C.G. limits (+16) and (+18.75)

Spec. basis Type Certificate No. 687

Production Certificate No. 5

Serial Nos. 400 and up mfrd. prior to 7-16-41 eligi-
 ble. Approval expired as of that date.

EQUIPMENT: (Datum is wing leading edge)(* Means net
 increase)

Class I:

101. Engine ring cowl
 102. 3 in. wheels and brakes (Goodyear
 S-LHM) with 18x8-3 H.D. tires 36 lbs. (+7)
 103. Tail skid
 104. Propeller - wood (fixed or adj.
 pitch) 24 lbs. (-40)
 105. Carburetor air heater

Class II:

200. Miscellaneous items as noted in approved weight
 and balance report.
 201. Shielding 5 lbs. (-27)
 202. Radio (RCA AVR-10) 9 lbs. (-6)
 203. Battery (Reading 12V) 26 lbs. (+36)

Class III:

301. Propeller - adj. metal (Ham. Std.
 hub 7005, blades 25V2-0) 10 lbs.* (-40)
 302. 6.50-10 wheels (Warner M-5270)
 and tires 21 lbs.* (+7)
 303. Additional instruments 2 lbs. (-2)

NOTE 1. Eligible for export as follows subject to inspec-
 tion for equipment specified in Chapter XII of Inspec-
 tion Handbook; (July 16, 1941)

(a) Canada - Landplane

Skiplane - not eligible

(b) All other countries except Australia, Great Britain
 and New Zealand.

NOTE 2. Approval of tail wheel appended to skid spring
 as outlined in SI-175 not applicable to this airplane
 without additional technical data showing that such
 wheel does not strike fuselage bottom structure or rud-
 der in drop tests as outlined in CAR 04.2420.

8-20751

MARTIN 130, 52 PCFbM, ATC 585

Engines	4 P&W Twin Wasps S2A4-G or S2A5-G
Placard limits	Maximum, except take-off
(See NOTE 3)	32.8 in. Hg., 2400 rpm (850 hp)
	Take-off (one minute)
(S2A4-G)	35.5 in. Hg., 2450 rpm (900 hp)
(S2A5-G)	36.0 in. Hg., 2550 rpm (950 hp)
Propellers	4 controllable metal (Ham. Std. hubs 50045, blades 6111 or 6105A-18; low pitch setting 14° or 14½°) or 4 hydromatic full feathering (Ham. Std. hubs 23850, blades 6153A-18) 143 lbs. net increase (253) (See NOTE 3b)
Placard speeds	Level flight or climb 168 mph True Ind. (145 knots) Glide or dive 203 mph True Ind. (176 knots)
Placard ceiling	8400 ft. (density altitude) Any engine inoperative
Fuel capacity	4077 gals. (6 tanks: One rear in hull 1218 gals., one fwd. in hull 719 gals., two in sea wings at 970 gals. each and two in wings at 100 gals. each) (See NOTE 1)
Oil capacity	216 gals.
No. pass.	46 maximum (day type) and 22 maximum (sleeper type)
Baggage	5880 lbs. (See NOTE 2)
Weights	Standard 48,000 lbs. (See NOTE 7) Provisional 52,000 lbs. (See NOTE 7)
C.G. limits	360.9 in. (26% MAC) and 378.7 in. (34.5% MAC) aft of nose of hull
Spec. basis	Approved Type Certificate No. 585
Serial Nos.	556 and up mfrd. prior to 9-30-39 eligi- ble. Approval expired as of that date.
EQUIPMENT:	(Weight and balance report including list of equipment included in certificated weight empty, and loading instructions when neces- sary, must be submitted for each aircraft with original inspector's report and each sub- sequent report covering change in such equip- ment.)

NOTE 1. The two sea wing tanks must be filled first and emptied last. Airplane must be placarded accordingly.

NOTE 2. Allowable baggage: Maximum
Compt. aft of cabin 2500 lbs.
Two compts. fwd. in cabin - Total 2000 lbs.
30 lbs. under each passenger seat - Total 1380 lbs.
Maximum Total 5880 lbs.

NOTE 3. (a) The following restrictions must be observed by the operators of these aircraft: "Engines MUST NOT be operated for any appreciable length of time between 1450 and 1650 rpm." This is to avoid operation whenever possible in this speed range which covers a critical resonance vibration period of the power plant.

(b) Continuous operation between 1950 and 2050 engine rpm should be avoided when Hamilton Standard 6153A-18 propeller blades are installed.

NOTE 4. (Deleted February 23, 1938)

NOTE 5. Eligible for export to all countries except Great Britain, Canada and Australia. (4-24-39)

NOTE 6. All lift, jury and sea wing struts must be made of "HEAT TREATED MATERIAL." (Tubing is heat treated after streamlining.)

NOTE 7. The following operational limitations shall be observed:

- A. If provisions other than in accordance with Pan American Airways Dwg. 7,152,104A are made for dumping, the fuel dump valves shall be made positively inoperative.
- B. If dump valves in accordance with Pan American Airways Dwg. 7,152,104A are installed, the airworthiness certificate shall incorporate one of the following statements, as the case may be:
 - (1) Non Air Carrier. "Fuel shall not be dumped except in accordance with the provisions of CAR 60.900."

MARTIN 130 (Continued)**(2) Air Carrier.**

- (a) With authorized weight in excess of standard - "Landing shall not be made at a weight in excess of standard except in accordance with CAR 61.7811. Fuel shall not be dumped except in accordance with CAR 61.7811 and then only if the pilot deems it safer than landing at a weight in excess of standard."
- (b) With authorized weight not in excess of standard - "Fuel shall not be dumped except in accordance with CAR 61.7811."

MARTIN 156, 53 PCFbM, TC 697

Engines	4 Wright Cyclones GR-1820G-2
Placard limits	Maximum, except take-off
	34.5 in. Hg., 2100 rpm (850 hp)
	Take-off (one minute)
	40.0 in. Hg., 2200 rpm (1000 hp)
Propellers	4 controllable metal (Ham. Std. hubs 3E50-210, blades 6105A-12)
Placard speeds	Level flight or climb 185 mph (161 knots) True Ind. Glide or dive 208 mph (181 knots) True Ind. Flaps extended 105 mph (91 knots) True Ind.
Placard ceiling	8000 ft. absolute (Density altitude) at 62,000 lbs. any engine inoperative. Undetermined at 63,000 lbs.
Fuel capacity	4460 gals. (6 tanks: 2 in each sea wing at 870 gals. (outboard) and 1260 gals. (inboard) and one in each wing at 100 gals.) (See NOTE 1)
Oil capacity	216 gals.
No. pass.	46 maximum (day type) and 26 maximum (sleeper type)
Baggage	5880 lbs. (See NOTE 2)
Standard weight	63,000 lbs.
C.G. limits	366.2 in. (25.6% MAC) and 385.8 in. (35.8% MAC) aft of nose
Spec. basis	Type Certificate No. 697 (Aero. Bulletin 7A requirements)
Serial Nos.	715 and up eligible per NOTE A (714 eligible when changed to conform)
EQUIPMENT:	(Equipment and weight thereof as noted in approved copy of pertinent report and loading schedule which must accompany certificate and form part thereof.) (Report No. 739 pertains to serial No. 714.)

NOTE A. Each aircraft manufactured after April 2, 1941, 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 the flight characteristics.

NOTE 1. The maximum allowable fuel is 3800 gals. (1800 gals. in each sea wing and 100 gals. in each wing)

NOTE 2. Allowable baggage: Maximum
Front compt. 2000 lbs.
Two rear compts. - Total 2500 lbs.
30 lbs. under each passenger seat - Total 1380 lbs.
Maximum - Total 5880 lbs.

MERCURY BT-120, 2 POLB, TC 744

Engine Rearwin Ken Royce 7F (See Item 301)
 Placard limits For all operations, 2225 rpm (120 hp)
 Propeller Static rpm at maximum permissible throttle
 setting- not more than 2110
 not less than 2110
 Diameter - not more than 78 in.
 not less than 76 in.

Placard speeds Level flight or climb 125 mph True Ind.
 Glide or dive 169 mph True Ind.

Fuel capacity 28.5 gals. (one tank in fuselage) (+26)
 Oil capacity 2.5 gals. (-32)
 No. pass. 1 (+10) or (+67)
 Baggage None
 Standard weight 1800 lbs.
 C.G. limits (+12.5) (15.2% MAC) and (+19.7) (30.0% MAC)
 MAC 48 in. L.E. of MAC (+5.2)
 Leveling means Leveling lugs on upper longeron in rear
 cockpit

Spec. basis Type Certificate No. 744
 Serial Nos. 2 and up eligible (See NOTE A)

EQUIPMENT: (Datum is leading edge of lower wing) (*Means
 net increase) (See NOTE 2)

Class I.

101. Propeller - wood (fixed pitch)
 and hub 19 lbs. (-72)
102. 6.50-8 wheels (Shinn) with
 hydraulic brakes and 4 ply tires
 and tubes 58 lbs. (+5)
103. 6 x 2 tail wheel (Firestone 206-7B)
 with 6 x 2 tail wheel tire (solid) 13 lbs. (+203)

Class II.

200. Miscellaneous items as listed under this number
 on approved weight and balance report.

Class III.

301. Engine
 (a) Rearwin Ken Royce 7G 3 lbs.*
 Placard limits same as for 7F

NOTE A. Prior to original certification, each aircraft
 must satisfactorily pass:

- (a) An inspection for workmanship, materials and con-
 formity 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. Eligible for export as follows, subject to in-
 spection for equipment specified in Chapter XII of
 Inspection Handbook;

- (a) Canada - Landplane
 Skiplane - not eligible
 (b) All other countries except Great Britain, Australia
 and New Zealand.

NOTE 2. Weight and balance report including list of
 equipment included in certificated weight empty must
 be submitted for each aircraft with original inspector's
 report and each subsequent report covering changes in
 Class I or Class II equipment.

NOTE 3. The following placard must be displayed in the
 front cockpit in full view of the occupant;
 "Solo from rear seat only".

NOTE 4. Eligible for use in acrobatic stages of War
 Training Service secondary course when operated in
 accordance with "Instructions for the Operation of
 Mercury BT-120 in the acrobatic stages of the Civilian
 Pilot Training Program Secondary Course" issued by
 War Training Service.

MERCURY CHIC T-2, 2 POLM, ATC 235

Engine Rearwin LeBlond 90 7D 90 hp
 Fuel 28 gals.
 Oil 4 gals.
 No. pass. 1
 Baggage 48 lbs.
 Standard weight 1600 lbs.
 Spec. basis Approved Type Certificate No. 235
 Serial Nos. 20 and up mfrd. prior to July 15, 1935
 eligible. Approval expired as of
 that date.

METAL G-2-W FLAMINGO, 8 PCLM, ATC 192

Engine P&W Wasp CI 420 hp
 Fuel 148 gals. or 130 gals.
 Oil 11 gals.
 No. pass. 7
 Baggage 200 lbs.
 Standard weight 5800 lbs.
 Spec. basis Approved Type Certificate No. 192
 Serial Nos. 11 to 19 eligible

METAL G-2-W FLAMINGO, 8 PCLM, 2-62

Engine P&W Wasp CI 420 hp
 Fuel 148 gals.
 Oil 11 gals.
 No. pass. 7
 Baggage 200 lbs.
 Standard weight 5800 lbs.
 Spec. basis Aero. Bulletin 7A, Section 3
 Serial Nos. 4 to 11 eligible.

METAL AIR THADEN T-4, 4 PCLM, 2-247

Engine Wright R-975 330 hp
 Propeller Adj. metal
 Fuel 96 gals.
 Oil 8 gals.
 No. pass. 5
 Baggage 50 gals.
 Standard weight 3800 lbs.
 Spec. basis 4 only eligible
 Equipment: Hand inertia sta Engine ring cowl;
 Entrance ladder.

S-21463

MILLER DAWYDOFF-CADET UT-1 (GLIDER), 1 PCLM, 2-9
I - MODEL UT-1, 1 PCLM, APPROVED NOVEMBER 30, 1943;

Type	Class III
Airspeed limits	Glide or dive 65 mph True Ind. Auto-winch tow 45 mph True Ind.
C.G. range	(+15.3)(28.1% MAC) to (+17.8)(+32.0% MAC)
Datum	Wing leading edge at side of fuselage
MAC	54.6 in. L.E. MAC (0)
Leveling means	Longerons at cockpit horizontal
Standard weight	450 lbs.
No. seats	1 (-4) (See NOTE 1)
Baggage	None
Control surface movements	Elevator Up 34°; Down 34° Rudder Right 28°; Left 26° Aileron Up 8°; Down 29° Stabilizer Up 1°; Down 0°
Serial Nos.	1, only, eligible
Required equipment	Items 401 and 402

SPECIFICATIONS PERTINENT TO ALL MODELS:

Certification basis CAR 06.031

Equipment: Items included in required lists under specifications pertinent to individual models may not be removed unless replaced by approved equivalent items.

The effect upon balance of all equipment changes must be computed and the aircraft operation record revised accordingly.

Values in inches shown in parenthesis after each item represent horizontal arms to the C.G. of the item measured minus (-) ahead and plus (+) to the rear of the datum.

A plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change between that item and the equivalent required item.

Interior Equipment

401. Air speed indicator	0.5 lbs. (-19)
402. Altimeter	0.5 lbs. (-19)

Miscellaneous (not listed above)

600. Miscellaneous items as noted in approved weight and balance report.

NOTE 1. The following placards must be installed in full view of the pilot:

- (1) (a) "Inverted flying prohibited."
(b) "Shock-cord launching prohibited."
(c) "Aircraft tow prohibited."
(d) "Visual-contact day flying only permitted."
- (2) "Authorized Loadings
(a) Maximum weight of pilot and parachute 170 lbs.
(b) Minimum weight of pilot and parachute 120 lbs.

Revised December 28, 1945

MILLER Y-18 (FORMERLY STEARMAN-HAMMOND), 2 PCLM, TC 644
 (Type Certificate holder, P. D. Miller, Concrete, Skagit
 County, Wash.)

Engine Menasco Pirate C48
 Fuel 73 min. oct. aviation gasoline
 Engine limits Max., except take-off,
 32.3 in. Hg., 2260 rpm (150 hp)
 Take-off (one minute),
 34.7 in. Hg., 2260 rpm (150 hp)
 Airspeed limits Level flight or climb 125 mph True Ind.
 Glide or dive 170 mph True Ind.
 Flaps extended 81 mph True Ind.
 Propeller limits Max. permissible dia. 85½ in.
 C.G. range (+17.2) to (+24.2)
 Datum Wing leading edge at fuselage
 Standard weight 2250 lbs.
 No. seats 2 (-20)
 Baggage 100 lbs. (-1)
 Fuel capacity 45 gals. (Two 21½ gal. tanks in wing)
 (+7)
 Oil capacity 4 gals. (-1)
 Certification basis Type Certificate No. 644
 (Aero. Bulletin 7A requirements)
 Production basis None (See NOTE A)
 Serial Nos. eligible 304 and up (See NOTE A)
 Required equipment: Items 101, 102, 103, 104, 105, 106
 Eligible for export as follows subject to inspection for
 equipment specified in Chapter XII of Inspection
 Handbook:
 (a) Canada - Landplane
 Skiplane - not eligible
 (b) All other countries except Great Britain,
 Australia and New Zealand.
 Equipment: (Items included under "Required equipment"
 may not be removed unless replaced by approved equiv-
 alent items. The effect upon balance of all equipment
 changes must be computed and the aircraft operation
 record revised accordingly. Values in inches shown in
 parenthesis after each item represent horizontal arms
 to the C.G. of the item, measured minus (-) ahead and
 plus (+) to the rear of the datum.)
 Propellers and Propeller Accessories
 106. Propeller - wood (fixed pitch) 23 lbs. (+56)
 Engines and Engine Accessories - Fuel and Oil System
 101. Starter (Eclipse E-80) 19 lbs. (+11)
 102. Oil cooler
 302. Engine shielding 2 lbs. (+29)
 305. Pressure fire extinguisher 17 lbs. (+7)
 Landing Gear and Floats
 104. 21 in. streamline rear wheels
 (Hayes 2100M) and tires
 105. 18 in. streamline nose wheel
 (Hayes 1801A) and tire
 Electrical and Radio Equipment
 103. Battery (Exide 6TS-7-1) 25 lbs. (0)
 201. Radio, variable (Location and actual
 weight of installation including con-
 trols, etc., or make, model, and loca-
 tion if already installed and included
 in certificated weight empty should be
 noted by inspector)
 303. Generator (Hodges wind-driven) 8 lbs. (+35)
 Interior Equipment
 301. Extra instruments 8 lbs.
 304. Parachutes or parachute type seats
 306. Rug 3 lbs.
 Miscellaneous (Not listed above)
 200. Miscellaneous items as noted in approved
 weight and balance report

NOTE A. 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) Check of flight characteristics.

MORROW 1-L, 1 PCLM, 2-568

Engine Lycoming O-435-C
Fuel 73 min. octane (CFR) aviation gasoline
Engine limits For all operations 2450 rpm (185 hp)
Airspeed limits Level flight or climb 150 mph True Ind.
 Glide or dive 180 mph True Ind.
 Flaps extended 100 mph True Ind.
Propeller limits Static rpm at max. permissible throttle
 setting
 - not more than 2085
 - not less than 2085
 Diameter - not more than 82 in.
 - not less than 80 in.
C.G. range (+45.8)(19.7% MAC) to (+49.6)(26.1% MAC)
Datum Firewall
MAC 59.4 in. (L.E. of MAC at +34.1)
Leveling means Top longeron at front cockpit
Standard weight 2350 lbs.
No. seats One at +45
Baggage None
Fuel capacity 40 gal. (2 wing tanks 20 gal. ea.) (+57)
Oil capacity 3 gal. (in engine sump) (-28)
Control surface movement Elevator Up 29° Down 27°
 Elevator trim tab Up 25° Down 25°
 Aileron Up 26° Down 14°
 Rudder Right 38° Left 38°
 Wing flaps - Down 35°
Certification basis CAR 04.031
Serial Nos. elig. No. 2 only
Required equipment Items 1, 101, 102, 103, 201, 202 and 301
Equipment: Items included in required list may not be
 removed unless replaced by approved equivalent items.
 The effect upon balance of all equipment changes must be
 computed and the aircraft operation record revised accord-
 ingly.
Propellers and Propeller Accessories
 1. Propeller - Fixed pitch wood - incl. hub 29 lbs. (-53)
Engine and Engine Accessories - Fuel and Oil System
 101. Oil radiator - G&O No. B-3670 9 lbs. (-47)
 102. Fuel pump - Pesco 2P-227-DE 2 lbs. (-16)
 103. Hand fuel pump - Parker 5-3140-14 2 lbs. (-2)
 104. Starter - Eclipse type 635 (6V) 17 lbs. (-14)
Landing Gear and Floats
 201. Wheels and brakes (Goodyear L6HBS)
 and 7.00-6 4-ply tires 36 lbs. (+33)
 202. Tail wheel - 8 in. smooth contour
 (Shinn) with 4-ply tire 3 lbs. (+219)
Electrical Equipment and Radio
 301. Battery - 6 volt, 33 ampere hour 16 lbs. (+117)
Interior Equipment
 None
Miscellaneous (not listed above)
 600. Miscellaneous items as noted in the
 approved weight and balance report.

NOTE 1. The aircraft operation record must include the following
 restrictions and a similar placard should be placed on the
 instrument panel in full view of the pilot:
 "Intentional Acrobatics Prohibited."
 "Rear Cockpit Not to be Utilized."

NOTE 60GM AND 60GMW, 2 POL-SE, ATC 197

Engine DH Gipsy 85 hp (model 60GM)
 or Wright Gipsy L-320 90 hp (model 60GMW)
Propeller Wood (See NOTE 1)
Fuel capacity 35 gals. (See NOTE 1)
Oil capacity 2½ gals.
No. pass. 1
Baggage Landplane 36 lbs.
 Seaplane 30 lbs.
Standard weight Landplane 1650 lbs. (See NOTES 1 and 2)
 Seaplane 1670 lbs.
Spec. basis Approved Type Certificate No. 197
Serial Nos. 1C to 1S, incl, and 41 and up afcd. prior
 to 9-30-39 eligible. Approval expired
 as of that date. (See NOTE 2)

Class I equipment. (Seaplane) Edo H floats.

NOTE 1. Landplane type of the above aircraft also eligible with 23 gal. fuel capacity (12 gal. aux. fuel tank removed) with the following:

Propeller Wood or fixed pitch metal (10 lbs. net
 increase over wood)
Baggage 45 lbs. (Compt. rear of pilot's seat
 30 lbs., compt. in front cockpit
 15 lbs.) (Pay load includes 2 para-
 chutes 20 lbs. each)

Standard weight 1615 lbs.

NOTE 2. Serial Nos. 1R and up eligible when equipped with revised engine mount with the following:

Fuel capacity 23 gals.
Oil capacity 2 gals.
Baggage 30 lbs. (Pay load includes 2 parachutes
 20 lbs. each)

Standard weight 1589 lbs.

NOTE 3. All aircraft originally certificated with DH Gipsy engine also eligible with Wright Gipsy L-320 when changed to conform with approved data.

NOTE 4. Airworthiness certificate must include the following unless it has been satisfactorily demonstrated to an inspector of Civil Aeronautics that such notation is unnecessary: "INTENTIONAL ACROBATICS PROHIBITED." (See current Certificate and Inspection Division instruction.)

J-26635

NAVAL AIRCRAFT FACTORY NSN-3, 2 POLE, 2-569

NAVAL AIRCRAFT FACTORY NSN-3 (Continued)

Engine Wright R-760-2,-4 or -8 built by Naval Aircraft Fact. (Equivalent to Wright R-760E-T)
 Fuel 73 min. octane (CPR) aviation gasoline
 Engine limits For all operations, 2000 rpm (235 hp) (See NOTE 1g)
 Airspeed limits Level flight or climb 126 mph True Ind. Glide or dive 180 mph True Ind.
 Propeller limits Diameter - maximum 102 in. (See NOTE 1e) minimum 100 in.
 C.G. range (-1.6)(22% MAC) to (+4.9)(34% MAC)
 Datum Leading edge of lower wing.
 MAC 54 in. L.E. MAC (-13.5)
 Leveling means Top surface of upper longerons in either cockpit
 Standard weight 2800 lbs.
 No. seats 2 (One at +28, and one at +75)
 Baggage 20 lbs. maximum (+100)
 Fuel capacity 45 gals. (-11)
 Oil capacity 3-3/4 gals. (-31)
 Control surface movements Elevators - Up 35°; Down 25° Elevator tab - Up 15°; Down 15° Rudder - Right 30°; Left 30° Aileron - Up 30°; Down 18°

Certification basis CAR 04.031
 Serial Nos. All eligible in accordance with NOTE 1
 Required equipment Items 1, 101, 102, 103, 104, 201, 202, 401, 402 and 403

Equipment: (Items included under "Required equipment" may not be removed unless replaced by approved equivalent items. The effect upon balance of all equipment changes must be computed and the aircraft operation record revised accordingly.)

Propellers and Propeller Accessories

1. Propeller - adj. metal - Navy Bur. of Aero. 5406AL or 5406AR hub and two 4350P blades (See NOTE 1e) 86 lbs. (-80)

Engines and Engine Accessories (Fuel and Oil System)

101. Carburetor air heater assembly (See NOTE 1b) 13 lbs.
102. Engine-driven fuel pump - Pesco R-400
103. Hand fuel pump
104. Fire extinguisher - engine section - pressure type (-9)
105. Carburetor air cleaner
106. Starter - hand cranking
107. Engine primer

Landing Gear

201. Bendix 30x5 fabricated wheels (-19.5)
202. 10x3 tail wheel (+185.5)

Electrical and Radio Equipment

301. Battery (See NOTE 1c) (-29)
302. Swivel panel light (front and rear)
303. Anchor (turtle back) light
304. Wing position lights
305. Tail light (See NOTE 1c)

Interior Equipment

401. First-aid kit
402. Fire extinguisher - portable
403. Safety belts (two) - NAF 39941 (+28) & (+75)
404. Venturi tube

Miscellaneous (Not listed above)

600. Miscellaneous items as noted under this number in approved weight and balance report.

NOTE 1. Prior to certification, each aircraft must comply with the following:

- (a) Firewall. Firewall either to be completely replaced by, or covered or backed by, one of the following materials:
 - (1) Stainless steel - .015 in. thick
 - (2) Nickel-chromium-iron alloy sheet - .015 in. thick
 - (3) Low carbon steel - .018 in. thick (aluminum coated or otherwise protected against corrosion)
 - (4) Monel metal - .018 in. thick
 - (5) Terne plate - .018 in. thick

- (b) Carburetor Air Heater. Carburetor air heater to be modified in accordance with Airworthiness Bulletin No. 83.
- (c) Electrical System. Battery and battery supports to be removed or, if battery is retained, a master switch, approved type tail light, and battery to be installed and structure adjacent to battery to be painted with acid-proof paint.
- (d) Cockpit Air Contamination. The fuselage skin openings around landing gear members and any other openings leading through the bottom of the fuselage or lower wing into the cockpits to be sealed with suitable boots or skin patches to prevent engine exhaust from entering the cockpits and contaminating the air with carbon monoxide.
- (e) Propeller. If 9 ft. diameter propeller is installed, it should be reduced to 8 ft. 6 in. in diameter. Pitch setting at 42 in. station for 8 ft. 6 in. diameter blades - 14.6°. Propeller to be indexed so that blades are 45° ahead of the locating screw on the propeller shaft (in the direction of rotation).
- (f) Spin Placard. Placards reading "Intentional Spinning Prohibited" to be installed in both cockpits.
- (g) Engine Operation Placard. Placards reading "Avoid Continuous Operation above 1800 rpm or below 1680 rpm" to be installed in both cockpits.
- (h) Solo Flying Placard. Placard reading "Fly Solo from Front Cockpit Only" to be installed in rear cockpit.
- (i) Instrument Marking. Tachometer to be marked at 2000 rpm. Airspeed indicator to be marked at 126 mph and 180 mph.
- (j) Fuel and Oil Markings. The words "Fuel", "73 octane" and "45 gallons" to be marked on or adjacent to fuel filler cap. The words "Oil" and "3-3/4 gallons" to be marked on or adjacent to oil filler cap.

NICHOLAS-BEAZLEY NB-3, 3 POLM, ATC 174

Engine Rearwin LeBlond 5D 65 hp
 Fuel 18 gals.
 Oil 1½ gals.
 No. pass. 2
 Baggage None
 Standard weight 1373 lbs.
 Spec. basis Approved Type Certificate No. 174 (Revoked)
 Serial Nos. 5A, 21 to 97 eligible. Serial Nos. 4, 8, 13, 15, 16, 19 and 20 eligible after reworking at factory provided mfr. submits affidavit of conformity with approved design.

NOTE 1. Also eligible with balanced type ailerons.

NICHOLAS-BEAZLEY NB-3G, 3 POLM, ATC 231

Engine Genet Mark II 80 hp
 Fuel 18 gals.
 Oil 1½ gals. (without oil radiator)
 2½ gals. (with oil radiator)
 No. pass. 2
 Baggage None
 Standard weight 1364 lbs. (without oil radiator)
 1405 (with oil radiator)
 Spec. basis Approved Type Certificate No. 231 (Revoked)
 Serial Nos. 3, 4-A, 39 to 97 eligible, with or without balanced type ailerons

NOTE 1. Eligible with oil radiator and revised cowling provided airwheels are installed. Net increase in weight 33 lbs.

NICHOLAS-BEAZLEY NB-3V, 3 POLM, ATC 230

Engine Monocoupe Velle M-5 65 hp
 Propeller Wood
 Fuel 18 gals.
 Oil 1½ gals.
 No. pass. 2
 Baggage None
 Standard weight 1401 lbs.
 Spec. basis Approved Type Certificate No. 230 (Revoked)
 Serial Nos. 25, 28, 37 to 97 and 100 eligible with or without balanced type ailerons.

NICHOLAS-BEAZLEY NB-4L, 3 POLM, ATC 385

Engine Monocoupe R-266 90 hp
 Fuel 24 gals.
 Oil 2½ gals.
 No. pass. 2
 Baggage 10 lbs.
 Standard weight 1511 lbs.
 Spec. basis Approved Type Certificate No. 385
 Serial Nos. 103, 104 and 105 eligible

NICHOLAS-BEAZLEY NB-8G, 2 POLM, 2-353

Engine Genet Mark II 80 hp
 Propeller Wood
 Fuel 21 gals.
 Oil 2 gals.
 No. pass. 1
 Baggage 12 lbs.
 Standard weight 1175 lbs.
 Spec. basis Aero. Bulletin 7A, Section 3
 Serial Nos. K-4 and up mfrd. prior to May 2, 1938 eligible. Approval expired as of that date due to sale of Nicholas-Beazley Airplane Company, Inc. to Air Associates, Inc., Nicholas-Beazley Airplane Division.

Class III equipment; Spring type tail skid.

NOTE 1. Airworthiness certificate must include the following placard: "INTENTIONAL ACROBATICS PROHIBITED."

NICHOLAS-BEAZLEY NB-8G, 2 POLM, ATC 452

Engine Genet Mark II 80 hp
 Fuel 21 gals.
 Oil 2 gals.
 No. pass. 1
 Baggage 12 lbs.
 Standard weight 1210 lbs.
 Spec. basis Approved Type Certificate No. 452
 Serial Nos. K-16, K-23, K-31 and up mfrd. prior to May 2, 1938 eligible. Approval expired as of that date due to sale of Nicholas-Beazley Airplane Co., Inc. to Air Associates, Inc., Nicholas-Beazley Airplane Division

Class I equipment; Engine ring cowl; Airwheels; Wood propeller.

Class III equipment (Serials K-31 and up); Cabin top installation 11 lbs.; Revised landing gear and/or Frise type ailerons.

NOTE 1. Airworthiness certificate must include the following placard: "INTENTIONAL ACROBATICS PROHIBITED."

NOORDUYN ARMY UC-64, UC-64A, UC-64B (SEE NOTE 3), 8 PCLM, 2-578, Approved January 26, 1946

(Manufacturer, Noorduyn Aviation, Ltd., Montreal, Canada)
 Engine Pratt and Whitney Military Model R-1340AN-1
 Fuel 91 min. octane aviation gasoline
 Engine limits Maximum, except take-off
 (Sea level) 34.0 in. Hg., 2200 rpm (550 hp)
 (5000 ft.) 32.5 in. Hg., 2200 rpm (550 hp)
 Take-off (one minute)
 36.0 in. Hg., 2250 rpm (600 hp)
 Airspeed limits Level flight or climb 150 mph True Ind.
 Glide or dive 180 mph True Ind.
 Flaps extended 108 mph True Ind.
 C.G. range (+106.2)(28% MAC) to (+114.7)(38% MAC)
 Datum Propeller hub centerline
 MAC 85 inches (L.E. MAC +82.4)
 Leveling means Lugs provided on Sta. 3 steel tubes just aft of pilot's seat.
 Max. weight UC-64 and UC-64B = 6450 lbs.
 UC-64A = 7300 lbs.
 No. of seats 8 (pilot and copilot (+84)) Six passengers (See NOTE 2(f))
 Baggage 120 lbs. maximum (+236). Cargo section (+91 to +211)
 Max. capacity cargo compartment 2500 lbs.
 Fuel capacity 245 gal. (Right and left wing tanks 60 gal. each (+112), front fuselage tank 45 gal. (+127.6), rear fuselage tank 80 gal. (+159))
 Oil capacity 23 gal. (+47.6)
 Control surface movements
 Flaps 38° down
 Elevator 31° up 22° down
 Elevator trim tab 14° up 19° down
 Aileron 27° up 23° down
 Rudder 26° right 26° left
 Rudder trim tab 4.5° right 11° left
 Serial Nos. eligible All Army serial numbers.
 Required equipment Items 1, 2, 101, 102, 104, 105, 201, 202, 301, 302.
 Certification basis Airworthiness Certificate only (CAR 04 prior to November 9, 1945)
 Export eligibility Eligible for export as follows subject to inspection for equipment specified in Chapter XII of the Inspection Handbook:
 (a) Canada
 (b) All other countries except Great Britain, Australia, and New Zealand.
 Equipment; Items included in required lists under specifications pertinent to individual models may not be removed unless replaced by approved equivalent items.
 The effect upon balance of all equipment changes must be computed and the aircraft operation record revised accordingly.
 Values in inches shown in parenthesis after each item represent horizontal arms to the C.G. of the item measured minus (-) ahead and plus (+) to the rear of the datum.
 A plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change between that item and the equivalent required item.

NOORBUYN ARMY UC-64, UC-64A, UC-64B (SEE NOTE 3), 8 PCLM, 2-578, Approved January 25, 1946 (continued)

Propellers and Propeller Accessories

1. Propeller - Ham. Std. hub 12D40, blades 6101A-12 to -14 incl
 Diameter 9' 1" to 8' 10-5/8"
 High pitch: 21° at 42" sta.
 Low pitch: 11° at 42" sta.
 2. Propeller governor - Ham. Std. 1M12-G (+7.5)
- Engine and Engine Accessories-Fuel and Oil System
101. Starter - Jack and Heintz Model JH3L (+35.0)
 102. Vacuum Pump - Pesco 3P-207-3A, Type B-12 (+30.0)
 103. Engine Nose Shutter Assembly (+9.0)
 104. Oil cooler (+33.0)
 105. Wobble Pump (+67.0)

Landing Gear and Floats

201. Two 30 inch Hayes H3-44A wheels and smooth contour tires and tubes (+84.0)
202. 12.50 Hayes D3-46A tail wheel with smooth contour, channel type tire and tube (+335.0)

Electrical and Radio Equipment

301. Generator, 24 volt, 50 amp. (Leece-Neville type M-3) (+30.5)
302. Battery (Exide G-1) 24 volt (+99.0)
303. Two retractable landing lights (AN3095-3) (+105.5)

Interior Equipment

401. One CO₂ fire extinguisher bottle (Walter Kidde) 24 lbs. (+66.5)
402. Two hand fire extinguishers (1 qt.) 5.5 lbs. ea. (+95.4) & (+188.0)

Miscellaneous

600. Miscellaneous items listed in the approved weight and balance report.

NOTE 1. A weight and balance report including a list of equipment included in the certificated empty weight must be submitted for each aircraft with original inspector's report and each subsequent report covering change in equipment.

Each airplane must be weighed to determine its weight and balance prior to original certification unless a satisfactory Army weight and balance report is available.

NOTE 2. Prior to certification as a civil aircraft the following must be accomplished:

- (a) The following placards must be installed in full view of the pilot:
 - (1) "Intentional Spins Prohibited."
 - (2) "Use 15° flaps for take-off."
 - (3) "Use rear fuselage fuel tank in level flight only."
- (b) Mark instruments for approved operation limits.
- (c) Date of conversion to certificated status must be marked on identification plate.
- (d) Fuel gauges must be checked for accuracy.
- (e) Tie downs suitable to prevent shifting of cargo must be provided if cargo is to be carried.
- (f) Passenger seats and safety belt installations other than originally provided by the manufacturer must be of an approved type or shown to meet the strength requirements of CAR 04. Bucket type seats are acceptable.
- (g) All fuel tank filler caps or adjacent surface must be marked to indicate the minimum octane fuel and the tank capacity.
- (h) The oil tank filler cap must be marked "Oil" and indicate capacity.
- (i) (1) For day operation, non-trip-free circuit breakers in circuits used in day operation must be replaced with trip-free breakers as soon as such breakers become generally available. Airplane should be restricted to day operation.
- (2) To make the airplane eligible for night operation, the following must be accomplished:
 - Install approved landing flares.
 - Replace all non-trip-free circuit breakers with trip-free breakers as soon as such breakers become generally available.
 - Install approved type position lights.

NOORBUYN ARMY UC-64, UC-64A, UC-64B (SEE NOTE 3), 8 PCLM, 2-578, Approved January 25, 1946 (continued)

- (j) Inspect the carburetor hot air intake system to ascertain that there is no leakage of cold air between the hot air shroud and the carburetor. Also determine that the butterfly gate assembly and valve spring fit properly. These items must be satisfactory to obtain adequate carburetor air heat rise. Also ascertain that the carburetor air mixing chamber is securely braced to the engine to prevent failure due to the excessive overhang.
- (k) Adjust the elevator control system stops to provide the correct movement.
- (l) Seal any openings in the firewall with material equivalent to the firewall material.
- (m) The engine nameplate must have the following information added: "C.A.A. Specification No. 5E-2".

NOTE 3. The UC-64 and UC-64B are similar and differ from the UC-64A principally in regard to the airframe structure, the electrical system and the fuel tank construction. The UC-64A landing gear accommodates larger shock struts.

NORTH AMERICAN FOKKER UNIVERSAL, 7 PCL-SM, ATC 9

Engine	Wright J-6 220 hp
Fuel	78 gals.
Oil	5 gals.
No. pass.	6
Baggage	--
Standard weight	4000 lbs.
Spec. basis	Approved Type Certificate No. 9
Serial Nos.	403 to 436 eligible.
Class I equipment;	(Seaplane) Hamilton floats.
Class III equipment;	(Landplane) Tail wheel.

NORTH AMERICAN FOKKER STANDARD UNIVERSAL, 7 PCLM, ATC 164

Engine	Wright R-975 330 hp
Fuel	79 gals.
Oil	10 gals.
No. pass.	6
Baggage	119 lbs.
Standard weight	4300 lbs.
Spec. basis	Approved Type Certificate No. 164
Serial Nos.	437 to 444 eligible (See NOTES 1 and 2)

Class III equipment; Engine ring cowl 20 lbs.; Wheel streamlines 27 lbs.; Streamline fairing at wing brace strut intersection and wing strut fitting at wing 6 lbs.

NOTE 1. Serial No. 444 is eligible as a seaplane with the following:

No. pass.	4 (Crew 1)
Baggage	77 lbs. (incl. anchor and rope 35 lbs.)
Standard weight	4650 lbs.

Class I equipment; Edo W floats; Engine ring cowl; Battery; Earth inductor compass.

NOTE 2. Serial No. 438 is eligible as a seaplane with the following:

No. pass.	5 (Crew 1)
Baggage	50 lbs.
Standard weight	4650 lbs.

Class I equipment; Edo K floats; Battery 70 lbs.; Starter 35 lbs.; Generator 19 lbs.; Adj. metal prop.

NORTH AMERICAN FOKKER SUPER UNIVERSAL, 8 PCLM OR 7 PCSM.

<u>ATC 52</u>	
Engine	P&W Wasp C1 420 hp
Fuel	120 gals. or 180 gals.
Oil	12 gals.
No. pass.	Landplane 7 Seaplane 6
Baggage	--
Standard weight	5550 lbs.
Spec. basis	Approved Type Certificate No. 52
Serial Nos.	870 to 880 eligible
Class I equipment;	(Seaplane) Hamilton floats
Class II equipment;	(Seaplane) Edo J (5300) floats.
Class III equipment;	(Landplane) Tail wheel.

NORTH AMERICAN ARMY BC-1A, AT-6 (Navy SNJ-2), AT-6A (Navy SNJ-3), AT-6B, AT-6C (Navy SNJ-4), 2-575

NORTH AMERICAN ARMY BC-1A, AT-6 (Navy SNJ-2), AT-6A (Navy SNJ-3), AT-6B, AT-6C (Navy SNJ-4), 2-575 (continued)

I - Model Army BC-1A, Army AT-6 (Navy SNJ-2), 2POLM, Approved November 6, 1946

Engine Pratt & Whitney Military model R-1340-47, R-1340-49 or R-1340-AN-1

Fuel 87 min. octane aviation gasoline

Engine limits Maximum, except take-off
(Sea level), 34.0 in. Hg., 2200 rpm (550 hp)
(5000 ft.) 32.5 in. Hg., 2200 rpm (550 hp)
Take-off (one minute)
36.0 in. Hg., 2250 rpm (600 hp)

Airspeed limits Level flight or climb 189 mph (TIAS)
Glide or dive 226 mph (TIAS)
Flaps extended 111 mph (TIAS)

C.G. range (+27.5) (21.3% MAC) to (+31.2) (26.4% MAC) with landing gear extended.

Datum Leading edge wing center section.

MAC 76.2 in. L.E. MAC (+11.07)

Leveling means Lugs left side rear cockpit

Maximum weight 5340 lbs.

No. seats 2 (1 at +45) (1 at +97)

Baggage 100 lbs. maximum at (+126)

Fuel capacity 170 gal. (+37) (One integral tank in center section with dividing partition. Each compartment has total capacity of 85 gal. including the 20 gal. reserve)

Oil capacity 15.5 gal. (-8)

Control surface movements

Wing flaps		Down 41°
Elevators	Up 30°	Down 20°
Elevator trim tabs	Up 6°	Down 17°
Ailerons	Up 30°	Down 16°
Aileron balance tabs	Up 15°	Down 27°
Rudder	Right 36°	Left 36°
Rudder trim tab	Right 4°	Left 10°

Serial Nos. eligible - All Army and Navy serial numbers.
(See NOTE 2a)

Required equipment - Items 1, 2, 101, 103, 104, 105, 109, 111, 201(a) or (b), 202 (a) or (b), 203 (a) or (b), 301 (a), 405 (a), (b) or (c), 406 (a), 407 and 602.

II - Model Army AT-6A (Navy SNJ-3), Army AT-6B, AT-6C (Navy SNJ-4), 2 POLM, Approved February 1, 1946

Engine Pratt & Whitney Military model R-1340-47, R-1340-49 or R-1340-AN-1

Fuel 87 min. octane aviation gasoline

Engine limits Maximum, except take-off
(Sea level) 34.0 in. Hg., 2200 rpm (550 hp)
(5000 ft.) 32.5 in. Hg., 2200 rpm (550 hp)
Take-off (one minute)
36.0 in. Hg., 2250 rpm (600 hp)

Airspeed limits Level flight or climb 189 mph (TIAS)
Glide or dive 226 mph (TIAS)
Flaps extended 115 mph (TIAS)

C.G. range (+27.5) (21.4% MAC) to (+32.5) (28.0% MAC) with landing gear extended.

Datum Leading edge wing center section

MAC 75.98 in. L.E. MAC (+11.26)

Leveling means Lugs left side rear cockpit

Maximum weight 5300 lbs.

No. seats 2 (1 at +45) (1 at +97)

Baggage 100 lbs. maximum at (+126) (See NOTE 2(d))

Fuel capacity 111 gal. (+36) (Two 55.5 gal. tanks in wing center section. 20 gal. reserve included in 55.5 gal. capacity of left tank).

Oil capacity 10 gal. (-9)

Control surface movements

Wing flaps		Down 45°
Elevators	Up 30°	Down 20°
Elevator trim tabs	Up 8°	Down 16°
Ailerons	Up 29°	Down 16°
Aileron balance tabs	Up 15°	Down 30°
Rudder	Right 36°	Left 36°
Rudder trim tab	Right 4°	Left 10°

Serial Nos. eligible - All Army Serial numbers up to and including 42-49004.
All Navy Serial numbers up to and including 27626 (See NOTE 2a)

Required equipment - Items 1, 2, 101, 103, 104, 105, 109, 111, 201(a) or (b), 202(a) or (b), 203(a) or (b), 301(a), 405(a), (b) or (c), 406(a), 407 and 602.

Specifications Pertinent to All Models
Certification basis Airworthiness Certificate only (CAR 04 in effect prior to November 9, 1945)

Eligible for export as follows subject to inspection for equipment specified in Chapter XII of the Inspection Handbook:

- (a) Canada - Laminplane
- Skiplane - not eligible
- (b) All other countries except Great Britain, Australia and New Zealand

Equipment: (Items included in required lists under specifications pertinent to individual models may not be removed unless replaced by approved equivalent items. The effect upon balance of all equipment changes must be computed and the aircraft operation record revised accordingly. Values in inches shown in parenthesis after each item represent horizontal arms to the C.G. of the item measured minus (-) ahead and plus (+) to the rear of the datum. A plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change between that item and the equivalent required item.)

Propeller and Propeller Accessories

- Propeller - Hamilton Standard constant speed, hub 12DMG, blades 6L01A-12 to -14 incl. 175 lbs. (-57)
Diameter - 9'1" Max., 8'10-5/8" Min,
Pitch settings at 42 in. sta: 11.5° low, 27° high
 - Constant speed governor (Ham. Std. 1M12-A, -G, or 1P12-A) 5 lbs. (-50)
- Engine and Engine Accessories - Fuel and Oil System**
- Carburetor air heater
 - Air filter, Air Maze 5 lbs. (-23)
 - Engine-driven fuel pump (Army Type B-21 or P-10) 1 lb. (-30)
 - Wobble pump and strainer (Army Type B-3) 12 lbs. (+16)
 - Oil temperature regulator (8" dia. radiator) 21 lbs. (-9)
 - Oil dilution system 3 lbs. (+2)
 - Exhaust gas analyser 5 lbs. (+20)
 - Engine-driven vacuum pump (Pesco Type B-12) 6 lbs. (-26)
 - Engine-driven hydraulic pump (Pesco IP-265-A)

110. Starter

- (a) 12 volt (Eclipse type C-20 or H-2) 33 lbs. (-19)
- 111. Cylinder head temperature gauges**
(See NOTE 2k)

Landing Gear and Floats

- 201. Main wheels, tires and tubes**
- (a) 27" smooth contour wheels and brakes (AC-25258 or Hayes Model 2750A) with 6 ply tires 131 lbs. (+10)
- (b) 27" smooth contour wheels and brakes (AN-M-6 or Hayes Model 2750A) with 8 ply tires 136 lbs. (+10)
- 202. Tail wheel, tire and tube**
- (a) 10" smooth contour wheel with 6 ply tire 6 lbs. (+234)
- (b) 12.5" smooth contour wheel with 6 ply tire 10 lbs. (+234)
- 203. Tail wheel gear (less wheel, tire and tube)**
- (a) Steerable 26 lbs. (+230)
- (b) Free swivel with lock 28 lbs. (+230)

Electrical and Radio Equipment

- 301. Battery and case**
- (a) 12 volt - 68 amp. hr. (5 hr. rate) (Exide 6-TAB-17) 71 lbs. (-1)
- 302. Generator**
- (a) 12 volt - 50 amp. (Leece-Neville E-5A) 32 lbs. (-26)
- 303. Landing Lights** 3 lbs. (+21)
- 304. Radio installations**
- (a) Antenna and mast 7 lbs. (+29)
- (b) Marker beacon receiver and antenna 5 lbs. (+63)
- (c) Radio compass and loop 42 lbs. (+14)
- 305. Interphone** 10 lbs. (+62)
- 306. Electric heated pitot** 1 lb. (+7)
- Interior Equipment**
- 401. Fire extinguisher and bracket** 7 lbs. (+101)
- 402. Cabin heater and ventilator** 17 lbs. (-18)
- 403. Oxygen system**
- (a) High pressure 30 lbs. (+136)
- (b) Low pressure 29 lbs. (+116)

CHAPTER XVIII

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NORTH AMERICAN ARMY BC-1A, AT-6 (Navy SNJ-2), AT-6A (Navy SNJ-3),
AT-6B, AT-6C (Navy SNJ-4); 2-575 (Continued)

404. Provisions for 90 lbs. of photographic equipment at(+113)	
405. Front seat	
(a) Dural	8 lbs. (+52)
(b) Wood	12 lbs. (+52)
(c) Magnesium (Warren McArthur or Shick-Johnson)	8 lbs. (+52)
406. Rear seat	
(a) Swivel type	28 lbs. (+101)
407. Safety Belts, A-3, B-11, B-12, or B-14	
Miscellaneous (not listed above)	
600. Miscellaneous items as noted under this item in approved weight and balance report	
601. Blind flying hood	4 lbs. (+105)
602. Control surface tabs, dural or wood	No weight change
603. Mooring kit	11 lbs. (+140)
604. Engine cover	15 lbs. (+140)
605. Wood horizontal stabilizer	-3 lbs. (+222)

NOTE 1. Weight and balance report including list of equipment included in certificated weight empty must be submitted for each aircraft with original inspector's report and each subsequent report covering change in equipment. (See also NOTE 2(d) and 2(n).)

NOTE 2. The following must be accomplished prior to original certification of the aircraft;

- (a). Aircraft must have aluminum alloy wing outer panels and fuselage aft sections.
- (b). Placard rear cockpit, "Solo Flying From Front Seat Only".
- (c). Placard both cockpits, "Intentional Spinning Prohibited".
- (d). Placard baggage compartment; "Maximum Capacity 100 lbs. With both seats occupied - Lbs. Maximum" The latter weight to be determined per NOTE 1, the limiting factor being the rearward center of gravity.
- (e). Mark fuel tank filler caps, "Fuel capacity ___ gal., 87 min.oct."
- (f). Mark oil tank filler cap, "Oil capacity ___ gal."
- (g). Mark instruments for approved operating limits.
- (h). Provide oil measuring stick for oil tank.
- (i). For day operation, electrical protective devices in circuits to all equipment used in such operation should be accessible to the pilot in flight. The airplane should then be restricted to day operation.
- (j). In order for these aircraft to be eligible for night operation, it will be necessary that the following changes be made;
 1. Install certificated position lights.
 2. Remove position light resistors and eliminate the word "Dim" at the position light switch.
 3. Relocate all electrical circuit protectors so that they are accessible to the pilot in flight.
- (k). The cylinder head temperature gauge be marked to indicate a limiting temperature of 500°F.
- (l). On models BC-1A, AT-6 and SNJ-2 only, inspect fuel tank to determine whether gasoline can flow from one compartment into the other. If so, the following placard should be placed adjacent to the fuel selector valve; "Refer to both fuel gages to determine remaining fuel".
- (m). Add the following information to the engine nameplate; "C.A.A. Spec. No. 5E-2".
- (n). Fixed ballast not to exceed 24 lbs. may be installed at Station 240 to prevent exceeding forward center of gravity. Ballast weight installation must be approved and is to be placarded. "Removal requires weight and balance check."

NORTH AMERICAN O-47B, 1 PCLM, 2-572, Approved August 1, 1945

Engine	Wright Cyclone GR-1820C-102 with 3:2 reduction gearing																									
Fuel	90 min. octane (CPR) aviation gasoline																									
Engine limits	Maximum, except take-off (Sea level) 36.7 in. Hg., 2200 rpm (900 hp) (Straight line manifold pressure variation with altitude to 8000 ft.) 35.0 in. Hg., 2200 rpm (900 hp) Take-off (one minute) 43.0 in. Hg., 2350 rpm (1100 hp) or 43.0 in. Hg., 2200 rpm (1100 hp)																									
Airspeed limits	Level flight or climb 210 mph True Ind. Glide or dive 252 mph True Ind. Flaps extended 135 mph True Ind.																									
C.G. range	(Landing gear extended - see Note 2) (+21.2)(19.2% MAC) to (+26.3)(24.5% MAC)																									
Datum	Leading edge of wing root																									
MAC	95.9 in. L.E. MAC (+2.8)																									
Leveling means	Leveling lugs on right side above wing center section (outside of fuselage)																									
Standard weight	8380 lbs.																									
No. of seats	Pilot (+18)																									
Baggage	(See NOTE 1)																									
Fuel capacity	200 gals. (four tanks - two fuselage 60 gals. ea. (-2) and (+86) and two wing 40 gals. ea. (+45))																									
Oil capacity	18 gals. (-29) (See NOTE 4)																									
Control surface movements	<table border="0"> <tr> <td>Wing flaps</td> <td></td> <td>Down 45°</td> </tr> <tr> <td>Elevator tab</td> <td>Up 6°</td> <td>Down 10°</td> </tr> <tr> <td>Elevator</td> <td>Up 29.5°</td> <td>Down 21°</td> </tr> <tr> <td>Aileron tab</td> <td>Up 12°</td> <td>Down 12°</td> </tr> <tr> <td>Aileron</td> <td>Up 20°</td> <td>Down 14°</td> </tr> <tr> <td>Rudder tab</td> <td>Right 6°</td> <td>Left 11.5°</td> </tr> <tr> <td>Rudder</td> <td>Right 33.5°</td> <td>Left 30°</td> </tr> <tr> <td>Stabilizer</td> <td>Fixed</td> <td></td> </tr> </table>		Wing flaps		Down 45°	Elevator tab	Up 6°	Down 10°	Elevator	Up 29.5°	Down 21°	Aileron tab	Up 12°	Down 12°	Aileron	Up 20°	Down 14°	Rudder tab	Right 6°	Left 11.5°	Rudder	Right 33.5°	Left 30°	Stabilizer	Fixed	
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Rudder tab	Right 6°	Left 11.5°																								
Rudder	Right 33.5°	Left 30°																								
Stabilizer	Fixed																									
Serial Nos. eligible	All AAF numbers when modified in accordance with NOTE 1																									
Required equipment	1, 2, 101, 103, 104, 107, 108, 201, 202, 301, 302, and 401																									
Certification basis	Airworthiness Certificate only (CAR 04 prior to November 9, 1945)																									
Eligible for export as follows, subject to inspection for equipment specified in Chapter XII of Inspection Handbook:																										
(a) Canada - Landplane	Skiplane - not eligible																									
(b) All other countries except Australia and New Zealand.																										
Equipment: Items included in required lists under specifications pertinent to individual models may not be removed unless replaced by approved equivalent items.																										
The effect upon balance of all equipment changes must be computed and the aircraft operation record revised accordingly.																										
Values in inches shown in parenthesis after each item represent horizontal arms to the C.G. of the item measured minus (-) ahead and plus (+) to the rear of the datum.																										
A plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change between that item and the equivalent required item.																										
Propellers and Propeller Accessories (except De-Icing Equipment)																										
1. Ham. Std. propeller, hub 3E50, blades 611A-12 to 611A-14, incl. Dia. 10'6-3/8" max., 10'3-5/8" min.	Low pitch setting 17° at Sta. 42																									
2. Propeller governor (Ham. Std. W-535)	345 lbs. (-76)																									
Engine and Engine Accessories - Fuel and Oil System	(-69)																									
101. Oil radiator (U.A.P. 10 in. type C8)	25 lbs. (-32)																									
102. Starter (Eclipse model 10, type 426)	48 lbs. (-29)																									
103. Hydraulic pump (Eclipse type GE-1)	3 lbs. (-39)																									
104. Fuel pump, engine-driven (Chandler-Evans type AN4101CE)	(-25)																									
106. Exhaust gas analyzer (Breeze) (Army 27872)	(-23)																									
106. Oil dilution system																										
107. Wobble pump (Aero type D-2)	3 lbs. (-24)																									
108. Oil filter (Cuno type AR4)	(-42)																									
109. Vapor eliminator (King Seeley type A-6) (With relief valve)	(-38)																									
Landing Gear and Floats																										
201. 33 in. wheels (Bendix No. 55902) with 13 x 2 1/2 brakes (Bendix No. 55941) and 8-ply smooth contour tires	188 lbs. (+8)																									
202. 12.5 in. tail wheel (Hayes D-3746A) with 4-ply smooth contour tire	10 lbs. (+262)																									
203. Parking brake																										

NORTH AMERICAN O-47B, 1 PCLM, 2-572 (continued)

Electrical and Radio Equipment	
301. Generator (Eclipse type B-7)	52 lbs. (-35)
302. Battery (58 amp. hr. (6 hr. rate))	71 lbs. (-25)
303. Two landing lights (fixed)	2.6 lbs. each
304. Passing light	1 lb.
305. Radio, variable. Weight and location of items should be shown in weight and balance report.	
Interior Equipment	
401. Vacuum pump (Type B-5)	8 lbs. (-39)
402. Flare rack	6 lbs. (+188)
403. Cabin heater	
404. Oxygen control valve and cylinder	23 lbs.
405. Oxygen bottles	20 lbs. (+125)
Miscellaneous (not listed above)	
600. Miscellaneous items as noted under this number in approved weight and balance report.	

NOTE 1. Eligible for civil certification for solo flying or carriage of cargo or goods only. Prior to original certification the following must be accomplished:

- (a) Carburetor Anti-icing.
 - (1) Add an alcohol anti-icing system of not less than 5 gal. tank capacity. The anti-icing fluid pump must be capable of delivering a flow rate of not less than 10 gals. per hour.
 - (2) As an alternate to (1) above, an improved preheat system capable of providing a 100°F heat rise at 75% power in 30°F outside air may be installed.
- (b) In order to be eligible for certification for day operation, fuses in circuits to electrical equipment used in such operation must be made accessible to the pilot in flight.
- (c) In order to be eligible for night operation the position lights must be replaced with approved type lights. In addition, fuses in circuits to electrical equipment used in such operation must be made accessible to the pilot in flight.
- (d) Seats. Remove the center and rear seats and install suitable cargo tie-downs or cargo compartments.
- (e) Dual Flight Controls. Remove the dual flight controls from the center compartment, or "box-in" these controls in such a manner as to render them inoperative as well as to preclude the possibility of interference by cargo.
- (f) Submit a weight and balance report, loading schedule and/or loading placard showing the cargo load and disposition and order of fuel tank usage. 200 lbs. (maximum) may be carried in the baggage compartment and 200 lbs. (plus weight of seats and other equipment removed) may be carried in the center and rear seat compartments.

The changes made to comply with Items (a), (c), (d), and (e) should be submitted to the nearest Aircraft and Components Branch of the Civil Aeronautics Administration for approval.

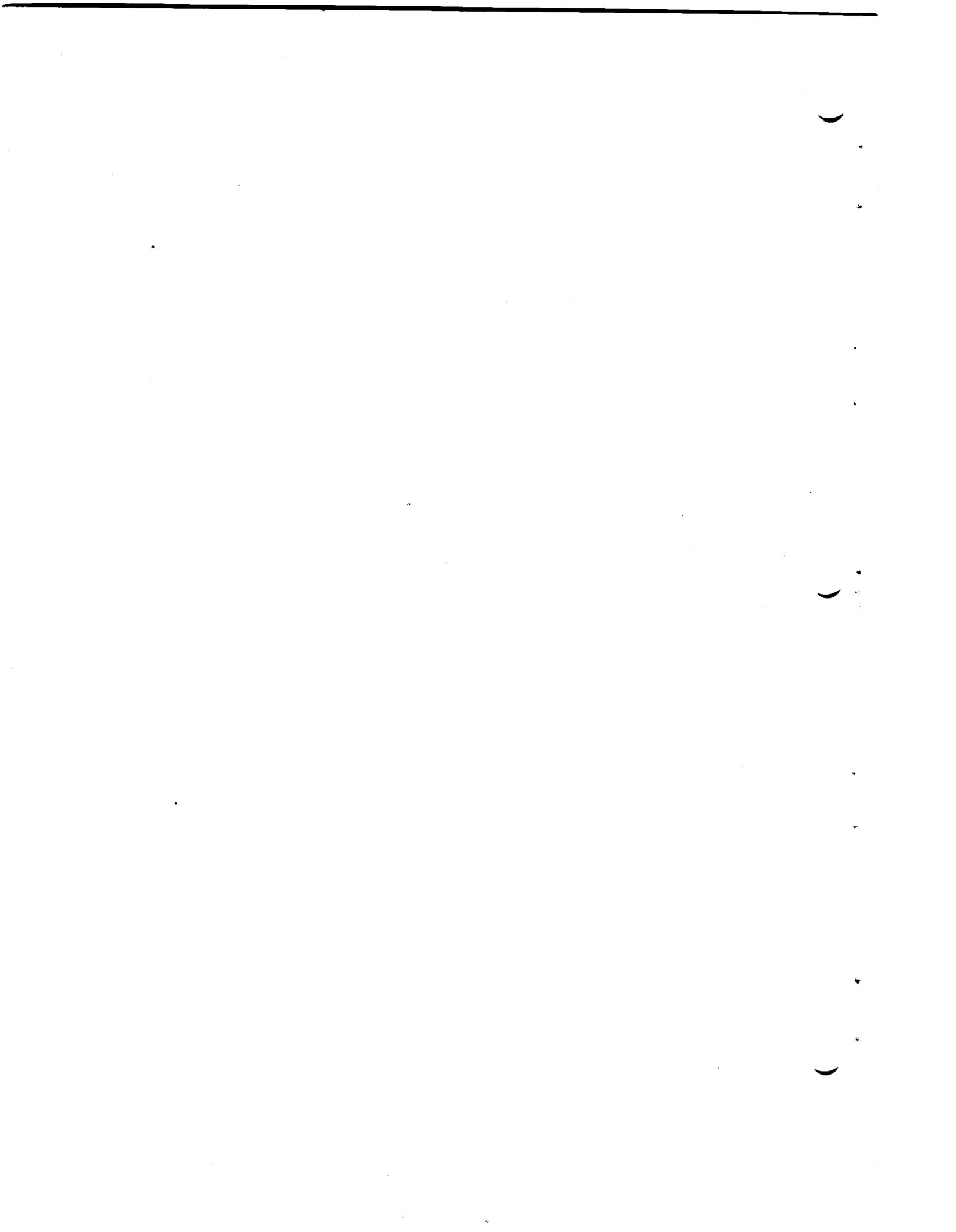
NOTE 2. The C.G. limits were determined with the landing gear extended. The airplane must be loaded so that its C.G. position with the landing gear extended is always between the limits shown.

NOTE 3. The following placards must be displayed on the instrument panel in full view of the pilot:

- (a) "Do not lower landing gear when speed is above 125 mph."

- (b) "Intentional aerobatics prohibited."

NOTE 4. Unless suitable oil measuring device installed, oil tank must be placarded, "Fill at least until oil can be drained from petcock."



NORTHROP DELTA 1-D, 7 PCLM, ATC 553

Engine	Wright Cyclone SR-1820F-3 (See item 22)
Placard limits	Maximum, except take-off 34.5 in.Hg., 1950 rpm (710 hp) Take-off (one minute) 36.5 in. Hg., 1950 rpm (735 hp)
Placard speeds	Level flight or climb 194 mph Ind. Glide or dive 256 mph Ind. Flaps extended 100 mph Ind.
Fuel	328 gals. (In center section wing; 2 front 47 gals. each (+18), 2 center 55 gals. each (+36), 2 rear 62 gals. each (+55))
Oil	22 gals. (-29)
No. pass.	6
Baggage	189 lbs. (Aft of cabin compt.) (+170) (See item 21 and Note 1)
Standard weight	7350 lbs.
C.G. limits	(+25.0) and (+40.5)
Spec. basis	Approved Type Certificate No. 553
Serial Nos.	38 and up mfrd. prior to 9-30-39 eligible. Approval expired as of that date.

EQUIPMENT: (Datum is center section wing leading edge)
(* Means net increase) (See NOTE 1)

Class I:

1. Exhaust collector ring	70 lbs. (-43.7)
2. Engine ring cowl	48 lbs. (-43)
3. Oil radiator and brackets	17 lbs. (-29.6)
4. Starter (Electric)	40 lbs. (-35.6)
5. Generator	33 lbs. (-34.2)
6. Battery - 12V	65 lbs. (+108.5)
7. Two landing lights - retracting in wings	14 lbs.
8. Two flares	44 lbs. (+78)
9. Heater and ventilator	15 lbs. (+110)
10. Pressure fire extinguisher	17 lbs. (-29)
11. Radio receiver	
12. 36x8 wheels with brakes and 6-ply tires	172 lbs. (+13)
13. Wheel streamlines	66 lbs. (+15)
14. Shock struts (Bendix Type EE-1)	89 lbs. (+14.5)
15. 13.25 in. streamline tail wheel tire and shock strut (Northrop 452032)	26 lbs. (+299)
16. Split T.E. wing flaps, elec. operated, 30 amp. fuse required	
17. Elevator and rudder equipped with tabs and balance weights	
18. SR-1820F-3 engine	
19. Propeller - controllable metal (Ham. Std. hub 8484, blades 6091-B, -8 or -10, low pitch setting 18°)	215 lbs. (-72.7)

Class II:

20. One-place couch	60 lbs. (+99)
21. Couch baggage compt. (Maximum capacity 35 lbs.)	35 lbs. (+106)
22. SR-1820F-2 engine (below serial No. 22768) <u>Net decrease</u>	25 lbs. (-54.6)
Placard limits	
Maximum, except take-off	
34.5 in. Hg., 1950 rpm (735 hp)	
36.0 in. Hg., 1950 rpm (735 hp)	
23. Standard passenger seats removed, deduct 20 lbs. each (Roman numerals in parentheses signify number of seats removed)	
24. Propeller - controllable (Ham. Std. hub 3D40, blades 6095-0)	21 lbs. (-72.7)
25. Toilet equipment	7 lbs. (+145)
26. Toilet compt. curtain	6 lbs. (+130)
27. Container and 2 gals. water	18 lbs. (+155)
28. Miscellaneous items as noted in approved weight and balance report.	

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

NOTE 2. Fuel dump valves must be made positively inoperative pending satisfactory completion of dump tests in accordance with EI-11c.

NORTHROP DELTA 1-D, 5 PCLM, 2-484

Engine	Wright Cyclone SR-1820F-3
Placard limits	Maximum, except take-off 34.5 in.Hg., 1950 rpm (710 hp) Take-off (one minute) 36.5 in.Hg., 1950 rpm (710 hp)
Propeller	Controllable metal (Ham. Std., hub 3D40, blades 6101-B, low pitch setting 15°) 236 lbs. (-72.7)
Placard speeds	Level flight or climb 194 mph Ind. Glide or dive 256 mph Ind. Flaps ext. 100 mph Ind.
Fuel capacity	328 gals. (In center section wing; 2 front 47 gals. ea. (+18); 2 center 55 gals. ea. (+36); 2 rear 62 gals. ea. (+55))
Oil capacity	19 gals. (-29) (2 additional gals. in system)
No. passengers	3
Baggage	212 lbs. (Aft of cabin compt.) (+170) (See NOTE 1)
Standard weight	7350 lbs.
C.G. limits	(+25.0) and (+40.5)
Spec. basis	Aero. Bulletin 7A, Section 3
Serial number	28 only eligible.

EQUIPMENT: (Datum is leading edge of center section wing)
(* Means net increase)

Class I:

1. Exhaust collector ring	70 lbs. (-43.7)
2. Engine ring cowl	48 lbs. (-43.0)
3. Oil radiator & brackets	17 lbs. (-29.6)
4. Starter (Electric)	40 lbs. (-35.6)
5. Generator	33 lbs. (-34.2)
6. Battery (12V)	65 lbs. (+108.5)
7. Two landing lights (in wing retracting)	14 lbs.
8. Two flares	44 lbs. (+78.0)
9. Heater & ventilator	15 lbs. (+110.0)
10. Pressure fire extinguisher	17 lbs. (-29.0)
11. (a) Radio (2-way)	75 lbs. (+105.0)
(b) Radio bonding & shielding	
12. 36x8 wheels, brakes & 6-ply tires	172 lbs. (+13.0)
13. Wheel streamlines	66 lbs. (+15.0)
14. Shock struts (Bendix Type EE-1)	89 lbs. (+14.5)
15. 13.25 in. streamline tail wheel tire and shock strut (Northrop 452032)	26 lbs. (+299.0)
16. Split T.E. wing flaps, elec. operated, 30 amp. fuse required	
17. Elev. & rudder equipped with tabs & balance weights.	
18. Container & 2 gals. water	18 lbs. (+155.0)
19. Toilet equipment	15 lbs. (+145.0)
20. 5 parachutes in fixed covers	116 lbs.
21. Fuel dump valves (4 tanks, center & rear) (See NOTE 3)	
22. Exhaust gas analyzer	10 lbs.
23. Constant speed propeller unit	3 lbs. (-72.7)

NOTE 1. Placard aft of cabin compartment as follows:
"Not less than 38 lbs. baggage (tools or equivalent weights) must be carried in this compartment at all times."

NOTE 2. Eligible for export to all countries except Australia, Canada and Great Britain. (March 6, 1937)

NOTE 3. Fuel dump valves must be made positively inoperative pending satisfactory completion of dump tests in accordance with EI-11c.

NORTHROP GAMMA 2-D, 1 PO-CLM, ATC 549

Engine	Wright Cyclone SR-1820F-3 710 hp
Placard speeds	Glide or dive 296 mph Ind. Flaps extended 100 mph Ind.
Fuel	354 gals. (In wings: 2 front 51 gals. each, 2 center 54 gals. each, 2 rear 62 gals. each)
Oil	22 gals.
No. pass.	None
Baggage	1340 lbs. (Single compt. in fwd. fuselage) (Pay load includes parachute 20 lbs.)
Standard weight	7350 lbs.
Spec. basis	Approved Type Certificate No. 549
Serial Nos.	8 and up mfrd. prior to 9-30-39 eligible. Approval expired as of that date.

Class I equipment:

101. Engine ring cowl	50 lbs.
102. Wheel streamlines	66 lbs.
103. Landing lights	18 lbs.
104. Battery - 12V	67 lbs.
105. Flares and brackets	44 lbs.
106. Starter (Electric)	40 lbs.
107. Generator - 50 amp.	32 lbs.
108. Oil radiator and brackets	15 lbs.
109. Heater	15 lbs.
110. 36x8 wheels (Bendix) and tires	172 lbs.
111. Bendix shock strut Type KE-1	
112. Tools	2 lbs.
113. Radio	127 lbs.
114. Pressure fire extinguisher	17 lbs.
115. 13.5 in. streamline tail wheel	
116. Elevator and rudder equipped with tabs	
117. T.E. split wing flaps electrically operated.	
118. Propeller - controllable metal (Ham.Std. hub 88484, blades 6091-8, low pitch setting 20 ¹⁰)	

NORTHROP GAMMA 2D-2 (Continued)

5. Generator (Eclipse E-5)	33 lbs. (-32)
6. Battery (Eclipse 6XT-13)	80 lbs. (+144)
7. Landing lights (in wing) (S & M)	8 lbs. (+36)
8. Flares & holders	45 lbs. (+73)
9. Heater	15 lbs. (+46)
10. Pressure fire extinguisher (Lux)	18 lbs. (-10)
11. (a) Radio receiver (WE 20-B)	17 lbs. (+170)
(b) Radio transmitter (WE 13-C)	49 lbs. (+179)
(c) Radio remote controls	7 lbs. (-105)
12. 36x8 wheels & brakes (Bendix)	95 lbs. (+12)
13. 36x8 tires 6-ply (Goodyear)	56 lbs. (+12)
14. 36x8 tire tubes	10 lbs. (+12)
15. Wheel streamlines	68 lbs. (+17)
16. 4 Shock struts (Airoil XY225M)	89 lbs. (+280)
17. 13 ¹ / ₂ in. streamline tail wheel & 4-ply tire	9 lbs. (+280)
18. Tail wheel shock strut (thorp 452032)	
19. Split TE wing flaps, elec. operated, 30 amp. fuse required.	
20. Elevator & rudder equipped with tabs and balance weights	
21. Instruments (front cockpit)	30 lbs. (+66)
22. Instruments (rear cockpit)	3 lbs. (+120)
23. Automatic pilot mech.	85 lbs. (+75)
24. Movable pump	4 lbs.
25. Cockpit enclosures	

NOTE 1. Placard rear instrument board as follows: "Not to be flown solo from rear cockpit."
NOTE 2. Eligible for export to all countries except Australia, Canada and Great Britain. (April 20, 1937)
NOTE 3. Same as Model Gamma 2D except for equipment and internal fuselage arrangement.

NORTHROP GAMMA 2D-2, 2 PO-CLM, 2-535

Engine	Wright Cyclone SR-1820F-3
Placard limits	Maximum, except take-off 34 in. Hg., 1950 rpm (710 hp) Take-off (one minute) 37 in. Hg., 1850 rpm (710 hp)
Propeller	Cont. metal (HS, hub 8484, blades 6091-8, low pitch setting 20°) 215 lbs. (-64) (With propeller ground clearance 13")
Placard speeds	Level flight or climb 200 mph Ind. Glide or dive 260 mph Ind. Flaps ext. 100 mph Ind.
Fuel capacity	402 gals. (In wings: 2 front tanks 11 gals. each (+18); 2 center tanks 54 gals. each (+36); 2 rear tanks 62 gals. each (+56); in fuselage 1 main tank 68 gals. (+26))
Oil capacity	25 gals. (-21)
No. passengers	1 (+141) or 0 (Crew 1 +94 or 2, See NOTE 1)
Baggage	450 lbs. (Fuselage compt.) (+14 ¹ / ₂)
Weights	Empty Use actual (Serial No. 12 as originally equipped 4321 lbs. (+30.8) with Class I items) Standard - 7350 lbs.
C.G. limits	(+28.7) and (+38.0) (level on top of fuselage over wing)
Spec. basis	Aero. Bulletin 7A, Section 3
Serial number	12 only eligible

EQUIPMENT: Datum is leading edge of the center section (wing)

Class I:

1. Exhaust collector ring	70 lbs. (-42)
2. Engine ring cowl	60 lbs. (-46)
3. Oil radiator & brackets (UAP 6")	20 lbs. (-28)
4. Starter (Eclipse E-160)	30 lbs. (-32)

OGDEN OSPREY, 6 PCLM, ATC 332

Engines	3 American Cirrus Mark III 100 hp
Fuel	90 gals.
Oil	5.3 gals.
No. pass.	6
Baggage	50 lbs.
Standard weight	4548 lbs.
Spec. basis	Approved Type Certificate No. 332
Serial Nos.	102 to 106 eligible

OVERCASHIER O-12, 3 PCLM, 2-214

Engine	Curtiss OX5 100 hp or OX16 102 hp
Fuel	30 gals.
Oil	3½ gals.
No. pass.	2
Baggage	—
Standard weight	2344 lbs.
Spec. basis	Aero. Bulletin 7A, Section 3
Serial Nos.	1 to 4 eligible

OVERLAND SPORT TRAINER, 2 POLB, ATC 417

Engine	Rearwin LeBlond 5DE 70 hp
Fuel	18 gals.
Oil	2 gals.
No. pass.	1
Baggage	6 lbs.
Standard weight	1366 lbs.
Spec. basis	Approved Type Certificate No. 417
Serial Nos.	114 and up mfrd. prior to 9-30-39 eligible. Approval expired as of that date.

Class I equipment: Battery; 6.50-10 tires; Exhaust ring.