DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

A-726
BOEING
SA-307B
SA-307B-1

July 10, 1950

AIRCRAFT SPECIFICATION NO. A-726

Manufacturer	Boeing Aircraft Company Seattle, Washington

I - Model SA-307B, 38 PCLM Approved May 4, 1940

Engines	4 Wright cyclones GR-1820G-105A or 718C9GB1; with two 4 1/2 N. dampers and either 16:11 or 3:2 reduction gear ratio
Fuel	90 min. octane aviation gasoline
Engine limits	Maximum continuous, Low impeller ratio (7.14:1) (Sea level) 37.5 in.Hg., 2300 rpm (900 hp) (Straight line manifold pressure variation with altitude to 6700 ft.) 35.4 in. Hg., 2300 rpm (900 hp) High impeller ratio (10:1) (11000 ft.) 36.0 in.Hg., 2300 rpm (775 hp) (17300 ft.) 33.6 in.Hg., 2300 rpm (775 hp) Take-off (one minute) 43.5 in.Hg., 2350 rpm (1100 hp)
Airspeed limits (T.I.A.S.)	Level flight or climb 230 mph; Glide or dive 262 mph; Flaps extended 126 mph.
C.G. range	(322)(21.3% MAC) to (337) (29.6% MAC) (Landing gear extended) The effect of retracting the landing gear may be accounted for by subtracting 48,835 in.lbs. When elevator hydraulic boost is disconnected, the fwd. C.G. limit is 25% (wheels down) for take-off and landing and 21% in flight.
Datum	50 in. fwd. of nose of fuselage
MAC	179.5 in. L. E. MAC (283.7)
Leveling means	Lugs on left-hand compression strut in accessory compt. under cabin floor between spars
Weight limits	Landing 42,000 lbs. Take-off 45,000 lbs. Weights may be increased 252 lbs. when complete de-icer is installed. See NOTE 3 for dump valve requirements
No. seats	38 maximum day type, 30 maximum sleeper type (16 in berths). Crew 3 to 5. Minimum crew 3 (two pilots at (113) and one flight engineer at (147)). For information regarding passenger seat locations refer to Item 104 as listed in the approved weight and balance report. When steward and hostess seats are installed in accordance with BAC Dwg. 15-4804, or TWA Dwg. 7240 the following pertinent placards must be installed appropriately: "Hostess only, maximum load 135 lbs."; "Steward only, maximum load 135 lbs."

Maximum baggage — Maximum capacity of compartments:

	Vol. Cap. (Cu.Ft.)	Weight (Lbs.)	Cap. (Kgs.)	Compt. C.G.
Rear main belly cargo compartment	200.0	3200	1450	(465)
Fwd. main belly cargo compartment	168.0	2690	1220	(240)
Fwd. aux. belly cargo compartment	44.0	700	317	(153)
Stowage compartment	26.0	420	190	(191)
Linen closet (Fwd. L.H. side)	7.7	125	57	(188)
Coat compartment (aft center)		100	45	(642)
Night luggage compartment fwd.		20	9	(308)
Night luggage compartment center		20	9	(404)
Night luggage compartment aft		20	9	(500)
Bedding baggage compartment between seats		25	11	(212)
Bedding baggage compartment between seats		50	22	(308)
Bedding baggage compartment between seats		50	22	(404)
Bedding baggage compartment between seats		50	22	(500)
Bedding baggage compartment between seats		25	11	(596)
Galley supply compartment		366	166	(679)

Fuel capacity — 1700 gals. total (two main tanks in wing 425 gals each (331.6), two inboard auxiliary tanks in wing 212.5 gals. each (341.6), two outboard auxiliary tanks in wing 212.5 gal. each (373.8))

Oil capacity — 100 gals. total (One 25 gal. tank in each inboard nacelle (276), one 25 gal. tank in each outboard nacelle (281))

Control surface movements — Not available

Serial Nos. eligible — 2004 and up

Required equipment — Items 101(a), 102 (See NOTE 3), 103, 105 and 106

II - Model SA-307B-1, 44 PCLM Approved August 23, 1945

Engines — 4 Wright Cyclones 731C9GC2 or 702C9GC5 with two 4 1/2 N dampers and 16:9 reduction gear ratio

Fuel — AN Grade 91/96

Engine limits

731C9GC2
Maximum continuous, (Low impeller ratio (7.13:1)
(Sea level) 39.5 in.Hg., 2400 rpm (1000 hp)
(Straight line manifold pressure variation with altitude to 6900 ft.)
38.0 in. Hg., 2400 rpm (1000 hp)
Take-off (two minutes), (Low impeller ratio 7.13:1)
45.5 in.Hg., 2500 rpm (1200 hp)
702C9GC5
Maximum continuous
(Sea level) 40.0 in.Hg., 2400 rpm (1000 hp)
(Straight line manifold pressure variation with altitude to 6500 ft.)
38.0 in. Hg., 2400 rpm (1000 hp)
Take-off (two minutes), 45.5 in.Hg., 2500 rpm (1200 hp)

Airspeed limits (T.I.A.S.) — Level flight or climb 225 mph; Glide or dive 274 mph; Flaps extended, power off, 144 mph: Flaps extended, power on, 106 mph.

C.G. range

(Landing gear extended.) The effect of retracting the landing gear may be accounted for by subtracting 73,500 in.lbs.

Take-off

At loaded weight of 54,000 lbs. (325.3) (23.2% MAC) to (341.1)(32.0% MAC)

At loaded weight of 47,000 lbs. or less (323.0) (21.9% MAC) to (341.1) (32.0% MAC)

In Flight

At loaded weight of 54,000 lbs. (325.3) (23.2% MAC) to (348.0)(35.8% MAC)

At loaded weight of 47,000 lbs. or less (323.0) (21.9% MAC) to (348.2) (35.9% MAC)

Landing

At loaded weights of 47,000 lbs. or less (323.0) (21.9% MAC) to (340.6) (31.7% MAC)

Datum

50 in. fwd. of nose of fuselage

MAC

179.5 in. L. E. MAC (283.7)

Leveling means

Lugs located on vertical struts in the accessory compartment bordering the door

Weight limits

Landing 47,000 lbs.
Take-off 54,000 lbs.
See NOTE 3 for dump valve requirements

No. seats

44 maximum day type. Crew 3 to 6. Minimum crew 3 (Two pilots at (113) and one flight engineer at (147)).
For information regarding passenger seat locations refer to Item 104 as listed in the approved weight and balance report. When steward and hostess seats are installed in accordance with BAC Dwg. 15-4804, or TWA Dwg. 7240 the following pertinent placards must be installed appropriately:
"Hostess only, maximum load 135 lbs."; "Steward only, maximum load 135 lbs."

Maximum baggage

Maximum capacity of compartments:

	Vol. Cap. (Cu.Ft.)	Weight (Lbs.)	Cap. (Kgs.)	Lbs. (Sq Ft)	Compt. C. G.
Compartment below floor level:					
(a) Rear main belly cargo compartment	200	2400	1089	75	(465)
(b) Fwd. main belly cargo compartment	168	2690	1220	(240)	
Compartments on floor level:					
(c) Left fwd. compt. between Sta. 165 1/2 and 212	86	1000	469	75	(189)
(d) Left rear compt. between Sta. 212 and 298 when used for cargo	83	996	452	40	(255)
(e) Right fwd. compt. between Sta. 165 1/2 and 212	90	1000	490	75	(189)
(f) Right rear compt. between Sta. 212 and 298 when used for cargo	116	1440	653	40	(255)
(g) Galley supply compt.		260	118		(678)
(h) Cost compt. (aft center)		100	45		(642)

Total load in compartments (B), (C), (D), (E) and (F) shall never exceed 6516 lbs. It is permissible to increase compartment (A) capacity to 3200 lbs. (465) when passenger weights aft of the rear spar are reduced accordingly.
When loads are placed in the seats of compartments (D) and (F), not more than 170 lbs. shall be carried in each seat.
When cargo is carried in compartments (D) and (F) with the seats installed, the loads placed between each pair of facing seats shall not exceed 140 lbs.

Fuel capacity	1780 gals. total (two main tanks in wing 445 gals. each (331.6), two inboard auxiliary tanks in wing 223 gals. each (341.6), two outboard auxiliary tanks in wing 222 gals. each (373.8).)
Oil capacity	180 gals. total (One 45 gal. tank in each inboard nacelle (254), one 45 gal. tank in each outboard nacelle (279).)

Control surface movements

Wing flaps			Down	45°
Elevator trim tab	Up	11°	Down	11°
Elevator	Up	20°	Down	14°
Aileron trim tab	Up	15°	Down	15°
Aileron	Up	12°	Down	12°
Rudder trim tab	Right	24°	Left	24°
Rudder	Right	30°	Left	30°

Serial Nos. eligible	1996, 1998 and up
Required equipment	Items 1, 103, 105 107 (See NOTE 3), and 108

III - Model SA-307B - Executive Conversion in accordance with Hughes Aircraft Company, Culver City, California, data, or equivalent.

Engines	4 Wright GR-2600-B5 (586C14BA1); with crankshaft vibration dampers, front 7th order, rear 3 1/2 order, and either 16:9 or 16:7 reduction gear ratio.
Fuel	95 min. octane aviation gasoline.
Engine limits	Maximum continuous, (Low impeller ratio (6.96:1) (Sea level) 31.8 in.Hg., 2250 rpm (1100 hp) (Straight line manifold pressure variation with altitude to 12,500 ft.) 28.1 in. Hg., 2250 rpm (1100 hp) High impeller ratio (10.06:1) (12500 ft.) 34.8 in.Hg., 2300 rpm (1100 hp) (18500 ft.) 33.1 in.Hg., 2300 rpm (1100 hp) Tke-off (without limits), 39.2 in.Hg., 2400 rpm (1500 hp)
Airspeed limits (T.I.A.S)	Level flight or climb (Under 45,000 lbs. G.W.) 230 mph Level flight or climb (45,000 lbs. to 48,300 lbs. G.W.) 225 mph Glide or dive 262 mph Flaps extended, 0° to 23° 125 mph Flaps extended, 23° to 50° 105 mph
C.G. range	(323) (21.7% MAC) to (331) (26.2% MAC) (Landing gear extended.) The effect of retracting the landing gear may be accounted for by subtracting 54,527 in.lbs. When elevator hydraulic boost is disconnected, the forward C.G. limit shall be 25% (wheels down) for take-off and landing and 21% in flight. The elevator boost system must be operative at all time during take-off and landing. In the event of boost system failure in flight, the C.G. before landing shall be shifted as far aft as possible, not exceeding 26.2% MAC, gear down. See Section I of the Airplane Operating Manual (Hughes Report No. 199) for boost-off landing procedures.
Datum	50 in. fwd of nose of fuselage
MAC	179.5 in. L. E. of MAC (283.7)
Leveling means	Lugs on left-hand compression strut in accessory compartment under cabin floor between spars

Weight limits	Landing 42,000 lbs. Take-off 48,300 lbs. Weights may be increased 252 lbs. when complete de-icer is installed. See NOTE 3 for dump valve requirements
Minimum crew	3 (Two pilots at (113) and one flight engineer at (147)
Maximum baggage	Rear main belly compt. 3200 lbs. (465)
Fuel capacity	1700 gals. total (two main tanks in wing 425 gals. each (331.6), two inboard auxiliary tanks in wing 212.5 gals. each (341.6), two outboard auxiliary tanks in wing 212.5 gal. each (373.8))
Oil capacity	100 gals. total (One 25 gal. tank in each inboard nacelle (276), one 25 gal. tank in each outboard nacelle (281)

Control surface movements

Wing flaps			Down	50°
Elevator trim tab	Up	11°	Down	33°
Elevator control tab	Up	21°	Down	22.5°
Elevator	Up	28°	Down	20°
Aileron trim tab	Up	15°	Down	15°
Aileron	Up	12°	Down	12°
Rudder trim tab	Right	24°	Left	24°
Rudder	Right	30°	Left	30°

Serial Nos. eligible	1997
Required equipment	Items 101(b), 105, 106, 109 (See NOTE 3) and 401. (See also NOTE 4)

Specifications Pertinent to All Models

Certification basis	Type Certificate No. 726
Production basis	None. Prior to original certification of each aircraft manufactured subsequent to June 21, 1944, a CAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data, and a check of the flight characteristics.
Export eligibility	Eligible for export to all countries subject to the provisions of ASR 312 (MOP 2-4 contains same information) except as follows: (a) Canada - Landplane eligible Skiplane - not eligible

Equipment:

Propellers and Propeller Accessories Except De-Icing Equipment)

1. Propellers - Ham. Std. hubs 33D50, blades 6493A-18 to 6493A-20, incl. Dia. 11'7" max., 11'4" min. For interchangeable blade models See NOTE 6 of Propeller specification No. 749. Low pitch setting 20.5° at 42 in. sta. (Model SA-307B-1 only)

101.(a) Propellers - Ham. Std. hubs 23E50, blades 6153A-18 to 6153A-20, incl. Dia. 11'6-3/8" max., 11' 3-3/8" min. For interchangeable blade models see Propeller Specification No. 603 (NOTE 6). Min. low pitch setting 16° at 42 in. sta. (Model SA-307B except serial No. 1997)

(b) Propellers - Ham. Std. hubs 23E50, blades 6359A-24 to 6359A-22. Dia. 12' 3/8" max., 11' 9-1/4" min. For interchangeable blade models see Propeller Specification No. 603 (NOTE 6). Min. low pitch setting 26° at 42 in. sta. (Serial No. 1997, only)

Engines and Engine Accessories - Fuel and Oil System

102. Fuel dump valve installation per BAC Dwg. No. 15-5958
(See NOTE 3 for restrictions)
106. Residual fuel and oil for Model SA-307B. Weight and arm not determined.
Necessary to fill all oil and fuel tanks, operate all engines and drain tanks before weighing.
107. Fuel dump valve installation per BAC Dwg. No. 15-17716 (See NOTE 3 for restrictions)
108. Residual fuel and oil for Model SA-307B-1 278 lbs. (239)
109. Fuel dump valve installation per Hughes Aircraft Co. Dwg. Nos. C-2237, P-2265, D-2266 and B-2271 for serial No. 1997 only.
(See NOTE 3 for restrictions)

Interior Equipment

103. CAA Approved Operating Manual (current issue) for Models SA-307B, except serial 1997, and SA-307B1.
401. CAA Approved Airplane Flight Manual (or Operating Manual) Hughes Report No. 199 (Serial No. 1997 only)

De-Icing Equipment (Propeller, Wing and Windshield)

201. De-Icer installation
A. Model SA-307B
(a) Wing and control surface - Goodrich C-102
(1) Boots and attachments - wing (removable) 84 lbs. (303)
(2) Boots and attachments - empennage (removable) 25 lbs. (788)
(3) Valves, fittings, etc. (removable) 27 lbs. (427)
(4) Wing, fuselage and empennage lines, valves, and fittings (fixed) 100 lbs. (376)
(5) Wing slot de-icer boots, attachment and plumbing (T.W.A. dwg. 2562)
(b) Propeller
(1) Four slinger rings (Ham. Std. 52903) (removable) 12 lbs. (191)
(2) Two motor driven pumps (Eclipse M3454) (removable) 10 lbs. (315)
(3) One 10-gal. tank (removable) 6 lbs. (332)
(4) 10 gals. de-icer fluid 75 lbs. (332)
(5) Two fuselage ice protection plates (removable) 29 lbs. (180)
(6) Misc. lines, fittings, brackets, etc. (fixed) 3 lbs. (332)
(7) Goodrich propeller deicer fluid feed shoes extending to 45 in. prop. sta.
Reduce ceiling by 400 ft. when these shoes are installed.
(8) Goodrich propeller de-icer fluid feed shoes extending to 60 in. prop. sta.
Reduce ceiling by 900 ft. when these shoes are installed.

B. Model SA-307B-1
(a) Wing and control surfaces (S-102, 4-102, 2-163)
(1) Boots and attachment wing (removable) 82 lbs. (307)
(2) Boots and attachments empennage (removable) 39 lbs. (819)
(3) Valves, fittings, etc. (removable) 20 lbs. (298)
(b) Propeller
(1) One 22-gal. tank (removable) 14 lbs. (165)
(2) Pump units (Adel D7817-23 (removable) 13 lbs. (150)
(3) 22 gals. de-icer fluid 143 lbs. (165)
(4) Misc. lines, fittings, brackets, etc. (removable) 18 lbs. (203)

Miscellaneous (Not listed above)

105. Wing slots in accordance with BAC Dwgs. 15-6395 and 15-6396

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. The following placards shall be placed on the instrument panel in full view of the pilot:
For Model SA-307B, "This airplane shall be operated in accordance with Part I of the C.A.A. Approved Operating Manual for Boeing Model SA-307B which shall be carried in the pilots' compartment at all times."
For Model SA-307B-1, "This airplane shall be operated in accordance with Part I of the C.A.A. Approved Operating Manual (or C.A.A. Approved Airplane Flight manual) for Boeing Model SA-307B-1 which shall be carried in the pilots' compartment at all times."

NOTE 3.
A. Item 102, 107 or 109 is considered required equipment only when the airplane is operated at weights in excess of the maximum landing weight. If provisions other than Item 102, 107 or 109 are made for dumping, the fuel dump valves shall be made positively inoperative.
B. It Item 102, 107 or 109 is installed, the aircraft operation record shall incorporate one of the following statements, as the case may be:
(1) Non-Air Carrier. "Fuel shall not be dumped with flaps extended."
(2) Air Carrier.
(a) With authorized weight in excess of maximum landing weight - "Landing shall not be made at a weight in excess of maximum landing weight except in accordance with CAR 61.7811. Fuel shall not be dumped except in accordance with CAR 61.7811 and with flaps retracted, and then only if the pilot deems it safer than landing at a weight in excess of maximum landing weight."
(b) With authorized weight not in excess of maximum landing weight - "Fuel shall not be dumped except in accordance with CAR 61.7811 and with flaps retracted."

NOTE 4. Carburetor anti-ice fluid provisions are required for the GR-2600-B5 engine installation on Model SA-3C7B, Serial 1997, because of inadequate carburetor heat rise. For details, see Hughes Aircraft Company Dwg. Nos. G-2303, D-2304B, D-2305, D-2306, D-2307, and C-2310A.

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