BEECH

47-6-8 Beech (Was Service Note 1 of AD-757-2 and Service Note 1 of AD-2-582-2.)

Applies to AT-11 and C18S Aircraft.

Compliance required immediately and after each 100 hours of operation thereafter.

Remove the battery covers from the right- and left-hand wing stubs. Inspect the starter solenoid and main buss lead wires. In the right wing these wires are numbered 4 and 5. In the left wing they are numbered 2 and 3. If these wires show signs of chafing on the cold air duct junction box or any other part of the structure they should be supported by an insulated clip to give ample clearance.

(Beech Service Bulletin No. C18-5 covers this same subject.)

47-6-9 Beech (Was Mandatory Note 1 of AD-2-582-2 and Mandatory Note 4 of AD-757-2.) Applies to All AT-11 and C18S Airplanes Equipped With 33-Inch Tires.

Compliance required at next periodic inspection.

To prevent collapse of the landing gear due to cracking of the shock cylinder retracting leg attachment lugs or failure of the retracting legs the following items should be complied with:

(1) Check the rear leg and lug lengths to ascertain whether they have been previously modified. Rear legs (Beech P/N 18820) 22⅞ inches between hole centers should be installed only with cylinders having original lugs (approximately 1⅞ inches from centerline of holes to outside of cylinder wall). Rear legs 23 19/64 inches between hole centers should be installed only with cylinders having short modified lugs (approximately ⅞ inch from centerline of holes to outside of cylinder wall). Legs 23 19/64 inches long with a 1¾ inches diameter reinforcing tube welded to the original ends should be replaced with Beech P/N 804-188416 (23 19/64 inches long, 1⅝ inches diameter tube).

(2) Inspect the shock cylinder lugs for cracks. If cracks are found in the lugs either the cylinder must be replaced or the cracks repaired. Contact FAA, Kansas City, Mo., for repair methods.

(Beech Service Bulletin C18-6 covers this same subject.)

47-30-6 Beech (Was Mandatory Note 2 of AD-2-582-2.) Applies Only to AT-11 Airplanes Equipped With M-3 Generators Which Do Not Have Three-Pole-Single-Throw Relays Installed for Generator Control.

To be accomplished prior to certification or, if certificated, on next periodic inspection but not later than October 1, 1947.

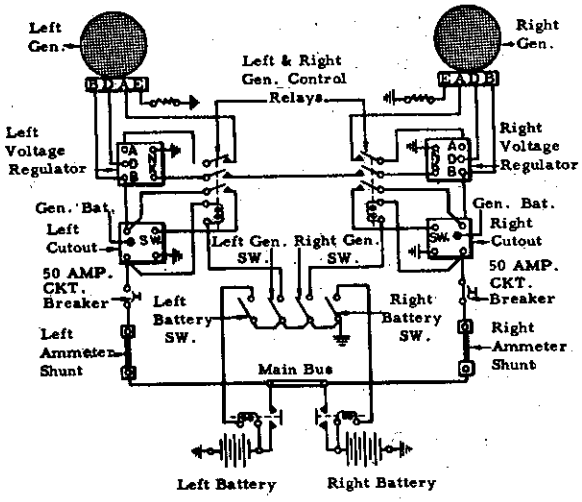


FIGURE 1

In accordance with Figure 1 install a three-pole-single-throw relay, General Electric No. CR2791-B100G3 or equivalent, for the control of each generator. The operating coil of the left generator relay should be controlled by a single-pole-single-throw "ON-OFF" switch mounted on the pilot's control panel adjacent to the left battery switch, and should be labeled "LEFT GEN. SW.". The operating coil of the right generator relay should be controlled by a single-pole-single-throw "ON-OFF" switch mounted on the pilot's control panel adjacent to the right battery switch and should be labeled "RIGHT GEN. SW.". The battery and generator switches should be located adjacent to each other in the order shown on Figure 1,

and should be provided with a suitable gang-bar such that pilot can throw the four switches to the "OFF" position in a single operation.

The generator control relays may be mounted in any convenient junction box or in a separate box provided therefor. Choice of relay location should be such that the length of generator field leads are kept to a minimum.

47–30–7 Beech (Was Mandatory Note 3 of AD–2–582–2.) Applies Only to AT–11 Aircraft Which Are Not Equipped With Generator Circuit Protective Devices.

To be accomplished prior to certification or, if certificated, on next periodic inspection but not later than October 1, 1947.

In accordance with Figure 1 install a 50-ampere trip-free circuit breaker, Spencer Thermostat Co. PLM–50 or equivalent, between the battery terminal of each generator cutout and its respective ammeter shunt. The circuit breakers should be accessible in flight and labeled respectively: "LEFT GEN. CIRCUIT" and "RIGHT GEN. CIRCUIT."

47–33–3 Beech (Was Mandatory Note 5 of AD–757–2 and Mandatory Note 4 of AD–582–2.) Applies to AT–11 and C18S Aircraft.

To be accomplished prior to certification or, if certificated, on next periodic inspection but not later than November 1, 1947.

In order to provide better tail cone drainage, add two drain holes in the tail cone and two ¼-inch drain holes in the fuselage bulkhead No. 15 as shown in Figure 2.

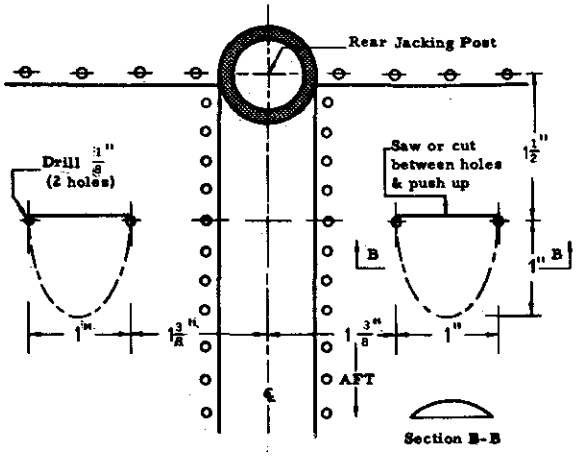


FIGURE 2

(Beech Service Bulletin No. C18–7 covers this same subject.)

47–33–4 Beech (Was Service Note 2 of AD–757–2.) Applies to C18S Aircraft.

Compliance required prior to October 15, 1947, and each 100 hours of operation thereafter.

Inspect gaskets between fuel tank liquidometer units and tanks for fuel leakage. If leakage is evident, replace gasket with Armstrong No. 710 gasket, Beech P/N 189631, without use of sealing compound. (Installation of 189631 gasket eliminates necessity for continued inspections.)

47–33–5 Beech (Was Service Note 3 of AD–75777–2 and Service Note 1 of AD–765–1.) Applies to AT–11, C18S and D18S Aircraft.

C18S and AT–11 Airplanes: Inspection required prior to certification or, if certificated, on next periodic inspection but not later than November 1, 1947, and each 100 hours of operation thereafter.

D18S Airplanes (Serial Numbers prior to A–378): Inspection required each 25 hours of normal operation or each 10 hours where the airplane is flown for pilot's transition or instrument training.

Inspect the horizontal stabilizer front spar and subspar for cracks at the points of attachment to the fuselage. At each annual inspection remove stabilizer and the stabilizer lower front skin panel and check for evidence of cracks. If cracks are found the center section of the main spar must be revised or replaced with one having the lower flange-web radius cutout approximately 2 inches from either end. Two 0.064-inch dural channels (404–186053) should be installed between the new attachment fittings (437–186095 and 6) and the main spar web. At the main attachment fittings and 0.032-inch dural doubler (404–186052) should be riveted to the lower skin, the main spar, and the center nose rib flanges.

The forward part of the upper flanges of each stabilizer-fuselage attaching angle should be cut off as far back as the sixth screw hole. The corresponding 12 holes in the stabilizer should be plugged. A three-screw outboard section of the gang nut on each side of the stabilizer subspar should be removed and the corresponding holes in the No. 13 bulkhead angle plugged. The revision of the stabilizer at-

tachments eliminates the necessity for further inspection for cracks except as made during the normal periodic inspection.

(Beech Service Bulletin No. D-18-48 revised April 1, 1948, covers this same subject.)

47-33-6 Beech (Was Mandatory Note 1 of AD-770-1 and Mandatory Note 1 of AD-765-1.) Applies to D18C, D18S and D18C-T Aircraft Serial Numbers AA-1 to AA-21, Inclusive, and AA-23 to AA-26, Inclusive.

Compliance required prior to November 1, 1947.

To eliminate the possibility of cracks developing in the stabilizer main spar and subspar, the center section of the main spar must be replaced with one having the lower flange-web radius cutout approximately 2 inches from either end. Two 0.064-inch dural channels (404-186053) should be installed between the new attachment fittings (437-186095 and 6) and the main spar web. At the main spar attachment fittings, an 0.032-inch dural doubler (404-186052) should be riveted to the lower skin, the main spar, and the center nose rib flanges.

The forward part of the upper flanges of each stabilizer-fuselage attaching angle should be cut off as far back as the sixth screw hole. The corresponding 12 holes in the stabilizer should be plugged. A three-screw outboard section of the gang nut on each side of the stabilizer subspar should be removed and the corresponding holes in the No. 13 bulkhead angle plugged. The revision of the stabilizer attachment eliminates the necessity for further inspection for cracks except as made during the normal periodic inspection.

(Beech Service Bulletin No. D18C-3 covers this same subject.)

47-33-7 Beech (Was Mandatory Note 2 of AD-770-1 and Mandatory Note 3 of AD-765-1.) Applies to D18S, D18C and D18C-T Airplanes With Static Alternate Source Selector Valve.

Compliance required prior to October 15, 1947.

The present alternate static source does not comply with the Civil Air Regulations. The static selector valve should be removed and the AN 6270-4-22 flexible hose connected to the Beech 407-184756 static pressure tube by means of an AN 815-4D union.

(Beech Service Bulletin D18-47 covers this same subject.)

47-34-1 Beech (Was Mandatory Note 2 of AD-765-1.) Applies to D18C and D18S Airplanes Having Inside Filler Neck on 80-Gallon Nose Fuel Tanks.

Compliance required prior to November 1, 1947.

To prevent flight with the nose tank fuel cap off or unlocked, and to eliminate a fire hazard in the event of fuel tank or cap leakage, the following items are to be accomplished:

(a) On tanks equipped with a cam type filler cap, install new filler neck, filler neck gasket, and screws suitable for use with the expansion type filler cap. (Tanks having an expansion type filler cap previously installed do not require this change.)

(b) Replace the cam or expansion type filler cap with revised expansion type filler cap assembly, Beech P/N 404-189676.

(c) Install a safety guard, Beech P/N 404-189689, on forward side of nose door cover plate in a manner to prevent closing the nose compartment door when the filler cap is not in place or locked.

(d) Drill a ¼-inch diameter hole in the lower skin of the nose compartment just forward of bulkhead No. 2 at the centerline of the airplane to provide drainage for the forward compartment under the fuel tank.

(Beech Service Bulletin D18-49 covers this same subject.)

47-34-2 Beech (Was Mandatory Note 3 of AD-770-1 and Mandatory Note 4 of AD-765-1.) Applies to D18S, D18C and D18C-T Airplanes Which Do Not Have Drain Provisions at Bulkhead No. 15.

Compliance required prior to December 1, 1947.

To provide additional drainage, to prevent freezing of trapped moisture in the tail cone which could jam the elevator control system, a ¾-inch diameter hole should be drilled near the front of the tail cone outer section on the centerline of the lower surface. A suitable marine grommet should be installed to provide for negative pressures. Also a ½-inch diameter hole should be drilled on each side of the

jack pad through the lower part of bulkhead No. 15.

(Beech Service Bulletin D18-46 covers this same subject.)

47-34-3 Beech (Was Service Note 2 of AD-765-1.) Applies to D18S and D18C Airplanes Having 80-Gallon Nose Fuel Tanks.

Inspection required each 100 hours of operation.

Inspect the pinked tape applied with EC 870 cement to the sheet metal fuel cell enclosure for general condition and attachment to the fuel cell enclosure. Effect repairs, if necessary, to maintain the cell enclosure fume and fuel tight.

For 80-gallon nose fuel tanks having an inside filler neck, inspect the filler cap assembly for security of the chain and its attachment to the filler cap and anchor bar. If necessary, repairs should be accomplished to maintain the fuel cap assembly in good condition.

(Beech Service Bulletin No. D18-49 covers this same subject.)

47-47-7 Beech (Was Mandatory Note 1 of AD-777-1.) Applies to Model 35 Serial Numbers D1 to D491, Inclusive.

Compliance required prior to next annual inspection.

Replace the engine identification plate containing either E-165-4 or E-165-4A model designation with an identification plate, furnished by the engine manufacturer, having E-185-1 stamped in the engine designation block. The engine model designation, E-165-4 or E-165-4A, stamped on the airplane's identification plate should be permanently deleted through the use of a sharp-pointed instrument.

(Beech Service Bulletin No. 35-3 covers this same subject.)

47-47-8 Beech (Was Mandatory Note 2 of AD-777-1.) Applies to Model 35 Serial Numbers D210 to D558 Inclusive, D560 to D574 Inclusive, D580 to D668 Inclusive, and D670 to D678 Inclusive.

Compliance required as soon as possible but not later than January 15, 1948.

To prevent the top carburetor baffle from cutting through the aluminum alloy fuel line located between the engine driven fuel pump and the carburetor, remove the rubber grommet in this baffle and enlarge the cut out in the baffle for the grommet to permit a minimum of ½ inch clearance between the fuel line and the baffle. No grommet is required for the above modification. Inspect the fuel line for chafing or wear at the point where the line passes through the baffle. If necessary, replace the line with a new part, Beech P/N 35-924058 or the equivalent.

(Beech Service Bulletin No. 35-4 covers this same subject.)

47-51-10 Beech Applies to D18C-T Serial Numbers AA-8, AA-9, AA-11, AA-13, AA-16, and AA-18.

Compliance required prior to March 1, 1948.

Replace the present windshield glass with birdproof glass in accordance with Beech Drawing No. 407-185500, Pilot's Windshield and Window Installation.

(Beech Service Bulletin D18C-4 covers this same subject.)

48-8-1 Beech Applies to Model 35 Airplanes Having Serial Numbers Below D-1095 Except D-923, D-925, D-940, D-954, D-975, D-983, D-1003, D-1006, D-1013, D-1025, D-1031, D-1038, D-1042, D-1048 Through D-1050, D-1052, D-1053, D-1056 Through D-1062, D-1064, D-1066 Through D-1068, D-1071, D-1072, D-1074, D-1075, D-1077 Through D-1081, D-1083, and D-1085 Through D-1093.

Compliance required by November 1, 1948.

To preclude possible engine malfunctioning as a result of starter gear chipping caused by improper engagement of the starter mechanism, accomplish the following:

(1) Remove the starter assembly from the engine and replace the original starter pinion and clutch assembly with the new assembly, P/N DR1885537. Check the solenoid linkage adjustment to ascertain that the pinion and clutch assembly can move rearward to contact the starter adapter. If the linkage prevents full disengagement of the pinion, remove the toggle link pin and turn the plunger shaft outward until full retraction is obtained. Check to make sure that at least two threads are still engaged. Reinstall the starter assembly.

(2) Install the new resistor coil, P/N DR 1885541, on the starter battery and ground power terminals. The coil must hang downward from the terminals.

(3) Make all electrical connections as covered in Beech Starter Latching Relay Installation Instructions.

(Continental Service Bulletin No. M47–19 dated August 31, 1947, and Beech Service Letter No. 10, Model 35, cover this same subject.)

48–13–1 Beech Applies to All D18S, D18C Airplanes Equipped With Pilot's Reclining Seats and Having the Generator Control Box Mounted on Bulkhead No. 5.

To be accomplished not later than July 1, 1948.

To prevent a short circuit between the hot terminal of the generator control box and bulkhead No. 5, rivet a 0.016 phenolic sheet 1¾ x 3 inches between the bulkhead web and the first horizontal angle immediately above the generator control box. The sheet should extend downward from the angle to the web cutout and provide positive insulation between the web and the hot post of the generator control box. If a phenolic strip has previously been installed at this point, an additional strip will not be necessary.

(Beech Service Letter No. D18–23 covers this same subject.)

48–14–3 Beech Applies to Models AT–11 and C18S.

Compliance required by next periodic inspection but not later than July 1, 1948.

Inspect the lower member of the center section main wing spar in the landing gear nacelle area for evidence of wear caused by chafing of the cabin heater control housing. To prevent chafing either use clamps to support housing or cover control housing with 20-inch length of synthetic rubber hose.

48–16–1 Beech Applies to Models D18C and D18C–T Only.

Compliance required at each 1,000 hours periodic inspection.

In order to determine that no fatigue cracks are present in or near the welds of the outer wing panel front spar lower root fitting, cut a 2-inch hole (if not already provided by previous precautionary action) through the lower skin 3⅛ inches outboard of the wing fillet between the two rows of rivets at the front spar and by removing the rivets attaching the lower gap strip near the spar, cut the outer skin and doubler back 1 inch, remove the paint, and inspect the fitting welds and the tube near the fitting end for cracks with a magnifying glass of at least 10-power and adequate light.

(Beech Service Bulletin No. D18C–6, revised January 9, 1948, covers this same subject.)

48–34–1 Beech Applies to All Models AT–11, C18S Airplanes Which Have Been Modified in Accordance With Beech Service Bulletin D18–48 Referred to in AD 47–33–5 and All D18C, D18S and D18C–T Airplanes Which Have Been Modified in Accordance With Beech Service Bulletin D18C–3 Referred to in AD 47–33–6.

Inspection required at next periodic inspection.

Inspect the NAS 144 bolts, (identified by the stamped bolt head), installed in the revised stabilizer attachment fittings to determine that the depth of the outer dimension of the bolt head conforms to the acceptable limit of 0.226 inch ±0.010 inch. Bolts that do not meet this specification are under strength and must be replaced. Inspect the fuselage to stabilizer attachment fitting, P/N 437–186096, to determine that this fitting has not cracked where the lower ¼-inch rivet attaches the fitting to the fuselage.

(Beech Service Bulletin No. D18–51 covers this same subject.)

48–51–1 Beech Applies to AT–11, C18S, D17S Airplanes Equipped With Beech Half-Circle Type Control Wheels.

To be accomplished as soon as possible, but not later than March 1, 1949.

To preclude the possibility of failure of the control column wheel shaft due to too great a counterbore depth in the shaft, the following inspection should be accomplished: (Bow-tie type control wheels attached to the control shaft by three bolts through a flange on the shaft are satisfactory and need not be inspected).

(1) Drill a ⅜-inch hole in the center of the hub of the control wheels. Do not allow the drill to go more than 1 inch into the hub or the pin securing the wheel will be damaged.

(2) Place a narrow scale or straight wire through the ⅜-inch hole and obtain the distance from the bottom of the counterbore (not the peak of the counterbore cone) to the face of the hub.

(3) Insert a small hook scale or bent wire in the hole and obtain the distance from the end of the shaft to the face of the hub.

(4) Subtract the distance obtained in step No. 3 from the distance obtained in step No. 2 to obtain the depth of the counterbore in the end of the shaft. If this distance is over $1\frac{7}{16}$ inches, the shaft must be replaced. All shafts having a counterbore less than $1\frac{7}{16}$ inches deep are satisfactory.

(Beech Service Bulletin No. C–18–9 dated November 22, 1948, covers this same subject.)

49–4–1 Beech Applies to Model 35 Serial Numbers D–1 to D–1300, Inclusive, Except D–69, D–315, D–356, D–754, D–827, D–1117, D–1120, D–1201, D–1251, D–1274, D–1278, D–1285, D–1289, D–1290, D–1291, D–1293, D–1295, D–1296, D–1298 and D–1299.

To be accomplished at next 100-hour inspection but not later than May 1, 1949.

Remove aileron control wheel drive chain assembly from the control arm of the specified aircraft, which have not had the chain replaced by Beech facilities, and visually inspect the pin through each link for proper up-set heads on each end of the pin. Chains having end ferrules dyed green have been replaced by Beech facilities and need not be inspected.

(Beech Service Bulletin No. 35–8, revised January 3, 1949, covers this same subject.)

49–15–3 Beech Applies to All Models C18S and AT–11 Aircraft Equipped With: (1) Nose Fuel Tank or (2) Wing Fuel Tank Vents Which Discharge Below the Wings.

Compliance required not later than next annual inspection.

As a result of fuel or vapors discharged from fuel tank vents entering the tail wheel well, fuel fumes in hazardous concentrations may collect in the airplane's cockpit and cabin. To preclude this condition, the following must be accomplished:

(1) If the airplane is equipped with a nose fuel tank, install adjacent to the fuel tank selector valve a suitable placard which reads "Use Nose Tank for Warm Up—Take-Off on Main Tanks—At Safe Altitude Use Nose Tank."

(2) On airplanes with wing tank vents extending below the wing, accomplish either 2 (a) or 2 (b) or 2 (c).

(a) Using an adequate tube splice, extend the rear fuel tank vents to a distance of 7 inches below the wing skin. The ends of these vents are to be scarfed at 45° with the scarfed surface facing aft.

(b) Relocate the outlet end of each rear tank vent to a point approximately 27 inches outboard of its present position.

(c) Install a suitably designed fabric or equivalent fumeproof panel over the opening of fuselage bulkhead No. 12 to act as a draft barrier.

(3) If the wing fuel tanks are equipped with two vent systems (one system having the vent outlet below the wing and the other, above) the system with the vent outlet below the wing should be removed from the rear tanks unless item 2 is complied with.

(Beech Service Bulletin No. C18–10 dated January 31, 1949 covers this same subject.)

49–26–1 Beech Applies to All Models 35 and A35 Airplanes Equipped With an Automatic Reel Trailing Antenna.

Compliance required by January 1, 1950.

Because of reported cases of jamming of the controls due to the rear antenna guide rail being knocked loose by the movable pully assembly (P/N 1X007) when the antenna wire was broken or came loose in flight, the following should be accomplished:

(1) Tack a plywood block to the wood antenna strip in the aft section of the fuselage, with $\frac{3}{4}$ inch No. 18 flathead nails. The rear end of the block should be at least $1\frac{1}{4}$ inches forward of the centerline of the aft pulley.

(2) Stretch a rubber bumper ring over the block.

(Beech Service Bulletin Model 35 No. 13 and Model A–35 No. 4 dated March 15, 1949, covers this same subject.)

49–29–2 Beech Applies to All Models D18S, D18C and D18C–T Aircraft.

Compliance required not later than December 1, 1949.

Inspect the control linkages with rudder return springs for wear at the forward end of the springs. If the linkages are worn $\frac{1}{32}$ inch or more below the surface for half the tube circumference or greater they should be replaced, otherwise the linkage is considered serviceable. Synthetic rubber bushings should be installed

between the springs and the linkages at the forward end of the spring to prevent further wearing of the linkages. To hold the bushings, retaining clips should be installed over the ends of the springs and the last coil of the spring closed by tack welding to prevent the clip from backing off.

If the rudder return springs have not been installed previously on the rudder control linkages the complete linkages should be replaced with those incorporating springs and synthetic bushings. It will also be necessary to install spring brackets to the rear stabilizer spar.

(Beech Service Bulletin D18–54 covers this same subject and cancels and supersedes Service Bulletins D18–36 and D18–50 and Service Letter D18–26.)

This supersedes AD 47–51–9.

49–31–1 Beech Applies to Models 35 and A35 Aircraft, Serial Numbers D–1 to D–1935, Inclusive, Equipped With Hand Emergency Fuel Pumps Which Have Not Been Modified to Incorporate the Double "O" Ring Shaft Seal, Beech P/N 35–924070.

Compliance required not later than October 1, 1949, and each 100 hours of aircraft operation thereafter.

To prevent possible hazardous loss of engine power resulting from introduction of air into the airplane's fuel system, inspect the hand emergency fuel pump installation for indications of a defective "O" ring shaft seal. A defective shaft seal may be indicated by fluctuating engine fuel pressure, fuel fumes in the cabin or evidence of fuel leaks around the hand pump's shaft. If a defective shaft seal exists, accomplish proper repair or replace the single "O" ring shaft seal with the double "O" ring shaft seal, Beech P/N 35–924070. After the double "O" ring shaft seals are installed, the 100-hour inspection is no longer required.

(Beech Service Bulletin Model 35, No. 14, Model A35, No. 5 dated July 6, 1949, covers this same subject.)

49–48–1 Beech Applies to All Models 35 and A35 Airplanes Equipped With Thompson TF–1100, TF–1100–1 or TF–1100M Engine Driven Fuel Pumps.

Compliance required not later than February 1, 1950.

To prevent complete or partial loss of carburetor fuel inlet pressure resulting from misalinement of pump relief, valve spring, replace Thompson TF–1100, TF–1100–1 or TF–1100M engine driven fuel pump with improved Thompson pump, TF–1100–M2 or TF–1100–2, or another eligible pump listed on Aircraft Specification A–777. Thompson TF–1100, TF–1100–1 and TF–1100M pumps may be converted to TF–1100–M2 or TF–1100–2 pumps by the pump manufacturer.

(Beech Distributor Letter No. D–49–615 dated September 23, 1949, covers this same subject.)

50–5–2 *See* Shakespeare Equipment.

50–28–1 Beech Applies to All Models AT–11 and C18S Aircraft.

To be accomplished at next 100-hour inspection and at each 100 hours inspection thereafter.

Inspect the wing center section steel truss joints in the nacelle region for fatigue cracks using magnetic particle inspection with portable equipment as recommended by Beech Service Bulletin No. C18–11, dated February 1, 1950, and revised June 23, 1950. If cracks are found they are repairable within the limits of part B of this Service Bulletin provided the oleo drag legs, Beech Part 734–188005, or Martin Part 90–1000001, are installed in accordance with the manufacturers' recommendations.

Upon installation of the oleo drag legs, the inspection period may be extended to 1,000-hour intervals.

Airplanes repaired in accordance with Beech Service Bulletin No. C18–8, dated November 10, 1948, (AD 48–50–2) are considered airworthy until such time as cracks are found on inspection when inspected in accordance with part A of Beech Service Bulletin No. C18–11 dated February 1, 1950, (Revised June 23, 1950). Upon installation of the oleo drag legs and compliance with part A of Beech Service Bulletin C18–11 in its entirety the inspection period may be extended to 1,000-hour intervals.

Beech Service Bulletin No. C18–11 may be obtained from the Beech Aircraft Corp., Wichita 1, Kansas. In requesting this bulletin from Beech, provide serial number and identification number of aircraft involved.

In lieu of compliance with the above inspection at the next 100 hours inspection period, the aircraft may be operated an additional 100 hours provided the affected areas of the steel truss are given a daily visual inspection using an 8-power magnifying glass after the affected joints are thoroughly cleaned of all grease and dirt and other foreign material. If cracks are found on visual inspection the truss must be given magnetic particle inspection together with full compliance with Beech Service No. C18S-11 revised June 23, 1950.

This supersedes AD 50-20-2.

50-32-1 *See* Continental Engines.

50-42-1 Beech Applies to Model A35 Aircraft, Serial Numbers D-1501 to D-2200 Inclusive Not Having the Cambered Elevator Tabs Installed.

Compliance required at next 100 hours inspection but not later than November 15, 1950.

All aircraft should be modified as follows:

(1) Replace the elevator tabs (noncambered) with cambered tabs (lower surface cambered) P/N 35-660040-52 and -53 or,

(2) Restrict rear c.g. limit by appropriate revisions to loading schedules and Airplane Flight Manual to comply with the following c.g. limits:

(+83.7) to (+84.4) at 2,650 pounds
(+75.9) to (+84.4) at 2,140 pounds or less

Straight line variation between forward c.g. limits.

(Beech Service Bulletin No. A35-8 dated April 3, 1950, covers this same subject.)

51-14-1 Beech Applies to All Models 35 and A35 Aircraft Equipped With Unmodified Adel 20653 Electric Fuel Pump Installation.

Compliance was required as soon as possible, but in any event, not later than April 1, 1949.

To prevent the possibility of air leakage into the airplane's fuel system through a leaking shaft seal of the unmodified 20653 pump, this pump and associated installation components are to be removed from the airplane. Aircraft equipped with a modified fuel booster pump installation, which consists of a modified Adel 20653 electric-driven fuel pump (identified by either a ⅛ inch red band around the pump body, or the suffix "H" in the pump serial number, in series with a modified Thompson TF-1100 engine-driven fuel pump (identified by a "2" or "M2" stamped after the TF-1100 on the nameplate)) installed in accordance with Beech Installation Instructions, revised March 31, 1949, are not affected by this Airworthiness Directive.

(Beech Letter D-49-540 dated January 7, 1949, and Installation Instructions for the Model 35 Electric-Driven Auxiliary Fuel Pump, revised March 31, 1949, covers this same subject.)

This supersedes AD 49-28-2.

53-1-2 Beech Applies to Models 35, A35, B35 and C35 Airplanes, Serial Numbers D-1 Through D-2900, Equipped With Beech 35-921171 or 35-924065 Fuel Selector Valve—Hand Pump Units.

Compliance required as soon as possible but not later than June 1, 1953.

To prevent binding or stiff operation of the fuel selector valve, accomplish inspections and rework in accordance with Beech service instructions as follows: (1) Install AN 934-6 "O" ring on indexing ball plug in place of lead washer, Beech P/N 105090-L-067-6-020, (2) Provide 1/32-inch clearance between selector valve cone and index ball retaining plug, (3) Install Beech 35-921217 spacer beneath fuel selector valve cone to restrict possible vertical cone movement to 1/32 inch. The 35-924065 and 35-921171 fuel units are identifiable by the feature permitting the fuel tank selector valve and hand emergency fuel pump to be operated by the same handle.

(Beech Service Bulletin 35-22, A35-16, B35-9, C35-7, dated October 1, 1952, covers this same subject.)

53-20-2 Beech Applies to Models 35, A35, B35 and C35 Airplanes, Serial Numbers D-1 Through D-2900, Equipped With 35-924065 Fuel Unit.

Compliance required not later than December 1, 1953.

Unless the handle of the 35-924065 fuel unit is down and engaged with the selector valve rotor, mismanagement of the fuel system may occur during tank selection and result in complete loss of engine power from fuel starvation. To assure that all flight personnel are properly informed regarding selector valve operation, Beech 35-534353 precautionary placard is to be

installed on the instrument panel in front of and in clear view of the pilot. An acceptable location is above the fuel gage switch between the altimeter and the cutout for the directional gyro. The 35–921171 and 35–924230 fuel selector units installed in some Model 35 Series aircraft do not require selector valve handle engagement for proper tank selection. Replacement of the 35–924065 fuel unit in affected aircraft with the 35–924230 fuel unit will eliminate the need for compliance with this directive.

(Beech Service Letter No. 35–27, A35–19, B35–12 and C35–10 dated October 15, 1953, covers this same subject.)

53–26–1 *See* Briggs and Stratton Equipment.

55–22–1 Beech Applies to All Model 35 Airplanes, Serial Numbers D–1 Through D–550, Equipped With Unmodified Oil Tank Check Valves.

Compliance required as soon as possible but not later than January 1, 1956.

To prevent complete loss of the engine oil supply resulting from failure of oil supply line hose connects caused by engine counter rotation, the check valve located at oil tank outlet requires valve modification or removal of the valve internal parts. Modified valves supplied by Beech Aircraft (Beech P/N 35–939082) include 1/16-inch holes drilled in the face of the valve poppet to prevent pressure buildup in the oil supply line in case of engine counter rotation. Modified valves are not available from Beech Aircraft. Unmodified valves should have the internal parts (poppet pivot pin, spring and poppet) removed.

(Beech Service Bulletin Model 35, No. 30, issued July 15, 1955; Service Letter Model 35, No. 44, issued March 28, 1950, and Service Letter Model 35, No. 18, issued July 18, 1947, cover this same subject.)

56–20–1 Beech Applies to All Model E18S Aircraft.

Compliance required as soon as possible but not later than November 15, 1956.

The nuts on the tailwheel truss axle should be checked to determine that they rotate when the gear is retracted with the airplane on jacks. If not, remove the axle and check for distortion and replacement of axle if necessary.

The side play between the tailwheel truss and the fuselage axle fittings should be checked by loosening one of the axle nuts. If total side play exceeds 0.030 the axle should be removed and a maximum of two washers between the truss and fitting on each side should be installed to take up the side play. *The side play should not be taken up by tightening the axle nuts.* As the axle is to rotate in the fuselage fittings the nuts should be finger tight plus sufficient turning to allow insertion of the cotter keys.

(Beech Service Bulletin No. 22, issued August 8, 1956, covers this same subject.)

57–8–4 *See* Hartzell Propellers.

57–18–1 Beech Applies to All Model 35 Series Aircraft.

A. Applies to Model 35 Aircraft, Serial Nos. D–1 Through D–1500.

Compliance required within the next 100 hours operation but not later than December 1, 1957, whichever occurs first, and each 100 hours operation thereafter.

Visually inspect fuselage bulkheads 256.9 and 272 (stabilizer front and rear spar attachment bulkheads) for cracks, buckles, or distortion and associated cracks or buckles in the fuselage skin in the vicinity of the bulkheads. All damaged structure must be repaired or replaced.

(Beech Service Bulletin No. 35–26, dated May 20, 1953, covers this same subject.)

B. Applies to All Model 35 Series Aircraft.

Compliance required as indicated.

Within the next 100 hours operation, unless already accomplished, check the static balance of the ruddevator (as originally manufactured) on airplane Serial Numbers D–1 through D–1500, and on all other aircraft where the ruddevators have been repainted or repaired, to ascertain that the static balance is within acceptable limits. This check of the static balance must also be made each time the ruddevators are repaired or repainted.

(Guidance material on this subject is contained in CAM 18.30–17(f). Beech Service Bulletin No. 35–26, dated May 20, 1953, and Bonanza Maintenance Manual 35–590073–9 cover this subject.)

This supersedes AD 53–11–1.

58–4–2 *See* Hartzell Propellers.

58–13–2 Beech Applies to Models B50, C50, D50, E50 and F50.

Compliance required as soon as possible but not later than November 15, 1958.

The AN 3158 tail light assembly does not meet the requirements of the Civil Air Regulations for intensity and light pattern. It must be replaced by an assembly meeting those requirements. Beech Kit 50–169 provides an acceptable assembly.

(Beech Service Bulletin 33, 24, 17, 9 and 2 for B50, C50, D50, E50 and F50, issued April 1958, covers this same subject.)

59–8–1 Beech Applies to Models A35, B35, C35; Serial Numbers D–1501 Through D–2800.

Compliance required prior to July 1, 1959.

Several cases of landing gear actuation failure have been attributed to malfunctioning of the landing gear limit switches due to oil accumulation in the switch. Inspect the switches in the gear box area and if they are located under the gear box they must be:

(1) Cleaned and sealed at the switch case parting surfaces with polyethelene, vinyl or rubber cement and reinstalled in the same location; (use minimum cement to assure that none gets inside switch) or

(2) Replaced with new switches installed in a location to preclude oil contamination. Beechcraft Service Bulletin 35–21, A35–14, B35–7, and C35–5, dated June 1, 1953, and Supplement dated August 15, 1953, provide an acceptable procedure for relocation of the switches.

59–13–4 Beech

Superseded by AD 62–27–1.

59–18–2 Beech Applies to All Model C45G, TC45G, C45H, TC45H and D18S Airplanes.

Compliance required as indicated.

Corrosion of fuel supply lines in the wing root area can result from the flexible cockpit hot air duct touching the aluminum fuel line. Fuel line leaks due to this corrosion may cause fuel system malfunctioning or hazardous accumulations of fuel and fumes in the wings or cabin. To prevent these conditions, accomplish the following:

(a) Compliance required not later than October 15, 1959.

(1) Inspect the $\frac{5}{8}$-inch O.D. fuel line (Beech P/N's 407–189686 LH and 407–189731 RH) beneath each battery installation on both sides of the airplane for indications of corrosion. Replace the lines if damaged.

(2) Install $\frac{5}{8}$-inch I.D. x $\frac{1}{16}$-inch tubing (Tygon tubing manufactured by U.S. Stoneware, Akron 9, Ohio) split lengthwise over the fuel lines (407–189686 LH and 407–189731 RH) in the area of the cockpit hot air duct. Secure the split tubing by taping.

(3) Obtain adequate clearance between the fuel line and the cabin hot air duct by installing a suitable double clamp on the line and duct.

(b) Compliance required at each periodic airplane inspection after accomplishment of (a).

(1) Remove split Tygon tubing from fuel supply lines (407–189686 LH and 407–189731 RH) and inspect lines for corrosion. Replace fuel lines if necessary.

(2) Reinstall split Tygon tubing and double clamp between cabin hot air duct and fuel line as outlined in (a) (2) and (a) (3).

(Beech Service Bulletin No. 68, Model D18S issued February 1959, covers this same subject.)

60–16–1 Beech Amdt. 186 Part 507 Federal Register August 4, 1960. Applies to All Model C45G, C45H, TC45G, and TC45H Airplanes Which Have Been Converted From Military Status to Civil Certification.

Compliance required not later than October 1, 1960.

The emergency position switch of the electrical turn and bank indicator that bypasses the master switch arrangement contrary to CAR 3.688, must be removed. The live wire connected to the switch must be disconnected at the battery terminal and either removed from the airplane or carefully insulated and secured.

Passenger seats (P/N 734–183302) which partially block the emergency exit must be removed, relocated, or reversed to provide a clear

and unobstructed opening as required by CAR 3.387. Two configurations of seat P/N 734–183302 were delivered to the military only one of which has been structurally substantiated for aft facing mounting. This seat can be identified by the triangular shaped closed rear leg formed from 2 sheets of 0.040 alal with a long stiffening bead on the outer face of the leg. FAA approval must be obtained for any modification of the seating arrangement, other than removing or reversing (if applicable) the obstructing seat.

61–10–1 Beech Amdt. 287.
Superseded by AD 62–2–1.

61–15–1 Beech Amdt. 310 Part 507 Federal Register July 21, 1961. Applies to D18S Airplanes, Serial Numbers A–1 Through A–471 and A–474 Through A–482.
Compliance required as indicated.

Cracks have been found above the landing gear slide tube socket cluster. As a result, the following must be accomplished within the next 500 hours' time in service unless already accomplished within the last 500 hours' time in service, and every 1,000 hours' time in service thereafter.

(a) For aircraft with a maximum landing weight above 9,000 pounds inspect the wing center section steel truss joints in the nacelle at the lower slide tube clusters of the landing gear using the magnetic particle inspection method. If cracks are found the part must be repaired or replaced prior to further flight. Repair is acceptable only if the cracks are within the limits specified in Part B of Beech Service Bulletin No. D18–58 dated September 1951, revised February 1961, or Beech Drawing 404–001081.

(b) For aircraft with a maximum landing weight of 9,000 pounds or less which do not have either the truss reinforcements, P/N's 513412–10 and –11 prescribed in Beech Service Bulletin D18–58, or the oleo drag legs, the inspection, repair or replacement given in (a) must be accomplished. When the truss reinforcements and/or the oleo drag legs are installed the inspection may be discontinued.

(Beech Service Bulletin D18–58 dated September 1951, and revised February 1961, covers this subject.)

This supersedes AD 53–6–3.

This directive effective August 22, 1961.

61–26–1 Beech Amdt. 377 Part 507 Federal Register December 15, 1961. Applies to All Model A45 (Converted T34A) Airplanes.
Compliance required as indicated.

Deteriorated flexible oil pickup hoses located within the engine oil tank will allow air to be drawn into the engine oil supply line. This can cause serious engine and propeller overspeeds due to improper propeller governing or engine damage from inadequate lubrication. To preclude such occurrences, the following inspection is required within the next 25 hours' time in service after the effective date of this directive unless already accomplished within the last 100 hours' time in service and at intervals of not more than 100 hours' time in service. Visually inspect the flexible oil pickup hose for condition. This will require removal of the oil tank inspection plate, disconnection of the pickup hose at its upper end and removal of the hose from the oil tank for inspection. Examine the hose for deterioration with close attention directed to the hose corrugations for cracks or checks in the minimum diameter sections. Deteriorated or defective hoses are to be replaced.

If new flexible hoses are installed, the 100-hour inspections must be continued. If a rigid type oil pickup line (Beech Kit 45–327 or equivalent) is installed so as to properly supply oil from the bottom of the tank, no further special inspections are required. FAA approved Airplane Flight Manual Supplement dated August 14, 1961, prohibiting inverted flight maneuvers, is required with the rigid type oil pickup line.

(Beech Service Letter T34A, No. 3 dated September 1961, covers this same subject.)

This directive effective January 16, 1962.

62–2–1 Beech Amdt. 390 Part 507 Federal Register January 20, 1962. Applies to All Model 35 Aircraft Serial Numbers D–1 Through D–1500.
Compliance required as indicated.

Service records disclose that the visual inspections required by previous issues of this airworthiness directive have not adequately covered the entire wing center section steel trusses. Also, since the magnetic particle inspection is superior to other types of inspections in this application, longer intervals be-

tween such inspections are acceptable. Therefore, the following inspection in accordance with either (a) or (b) shall be accomplished.

In order to gain access to the forward and rear trusses, remove the front seat bottom, rear seat, front spar forward partition, rear spar partition and all floorboards adjacent to the forward and rear spars and disconnect the air duct located on the right side of the forward spar. Also remove any other adjacent installations as found necessary for access.

(a) Dye Penetrant or Visual Inspection.

Within 100 hours' time in service since the last inspection performed in accordance with AD 61–10–1, inspect the center section front and rear wing carry through spar steel trusses for cracks using either the dye penetrant inspection method or a thorough visual inspection with adequate lighting, a 3-power magnifying glass and mirror. The entire truss must be inspected; however, the areas most prone to cracks are the tubes and end fittings adjacent to the four wing attach points on each truss, and in the center sections where the diagonal and vertical tubes attach. Boiled linseed oil or linoil deposits on the truss exterior are likely indications of a crack through the tube wall. Give particular attention to areas near welds. If no cracks are found, repeat the above inspection each 100 hours' time in service. If indications of cracks are found verify by a magnetic particle inspection in accordance with (b). Cracked trusses shall be replaced or repaired prior to further flight in accordance with Beech Service Bulletin 35–24 as revised December 1961, or FAA approved equivalent. If the repairs permitted by Service Bulletin 35–24 are accomplished, the subsequent inspections shall be performed each 100 hours' time in service from the time the repairs were made. If a truss is replaced by one of the same type, the initial repetitive inspection shall be performed within 500 hours' time in service thereafter for the center section front truss and within 1,000 hours' time in service thereafter for the rear truss, and repeated every 100 hours' time in service thereafter.

(b) Magnetic Particle Inspection.

Within the next 100 hours' time in service since the last inspection performed in accordance with AD 61–10–1 inspect the center section front and rear wing carry through spar steel trusses for cracks using the magnetic particle inspection procedures outlined in Beech Service Bulletin 35–24 as revised December 1961, or FAA approved equivalent. If no cracks are found reinspect within each 500 hours' time in service thereafter for the center section front truss and within each 1,000 hours' time in service thereafter for the rear truss. Cracked truss shall be replaced or repaired prior to further flight in accordance with Beech Service Bulletin 35–24 as revised December 1961, or FAA approved equivalent. If the repairs permitted by Service Bulletin 35–24 are accomplished, the two subsequent inspections of the affected truss shall be performed at 100 hours' and 400 hours' time in service from the time the repairs were made. If no cracks are found in the repaired truss during these two inspections or if a truss is replaced by one of the same type, the 500-hour or 1,000-hour intervals become applicable from the time of repair or replacement.

(c) If the front truss is replaced with the new heavier truss P/N 35–410030–17, the repetitive inspection of the front truss required by (a) and (b) shall not commence until 2,000 hours' time in service after replacement. This new truss is readily identifiable since all clips are clamped on instead of welded to the truss. Inspect the rear truss in accordance with either (a) or (b) even though the front truss is replaced.

(d) The inspection agency shall indicate on the airplane log whether one or both trusses were inspected.

(Beech Service Bulletin No. 35–24 as revised December 1961, covers this same subject.)

This supersedes AD 61–10–1.

This directive effective January 20, 1962.

62–8–3 Beech Amdt. 421 Part 507 Federal Register April 17, 1962. Applies to All Models 35, 50, 65, and 95 Series Aircraft With White Plastic Rams Horn Control Wheels Installed As Original Equipment Or By Kit Installation In the Field.

Compliance required as indicated.

As a result of cracks in and one failure of the white plastic rams horn control wheel, accomplish the following:

(a) Within the next 5 hours' time in service after the effective date of this AD and there-

after at each 100 hours' time in service or twelve calendar months, whichever occurs first visually inspect the white plastic rams horn control wheels for cracks. Give particular attention to the area on the forward side of the hub and in the area of the attachment pin.

(b) If cracks are found, replace the control wheel prior to further flight.

(c) Inspections may be discontinued when metal replacement control wheel P/N 35–380057 for Models 35 and 95 Series and P/N 50–350025 for Models 50 and 65 Series or FAA approved equivalent is installed.

(Beech Service Bulletin dated March 23, 1962, titled "Inspection of Plastic Rams Horn Type Control Wheels" covers this same subject.)

This directive effective April 30, 1962.

62–24–1 Beech Amdt. 508 Part 507 Federal Register November 14, 1962. Applies to All Models 45 (YT–34), A45, B45 (T–34A) and D45 (T–34B) Aircraft With 1,000 Hours or More Total Time In Service.

Compliance required within the next ten hours' time in service after the effective date of this AD unless already accomplished within the last 490 hours' time in service and thereafter at intervals not exceeding 500 hours' time in service from the last inspection.

Remove both horizontal stabilizers from the aircraft and thoroughly inspect the front and rear spars between the butt rib and the inboard end for cracks, using the dye penetrant method or FAA approved equivalent. If any crack is found in either the spar or reinforcing doubler, replace the stabilizer.

NOTE: Operators are requested to send a completed Form FAA 1226 to their local FAA General Aviation District Office if replacement of the stabilizer is required by this AD.

(Beech Service Bulletin 45 (YT–34), B45—No. 35, A45 (T–34A)—No. 5, and D45 (T–34B)—No. 2 covers this same subject.)

This directive effective November 26, 1962.

62–27–1 Beech Amdt. 518 Part 507 Federal Register December 14, 1962. Applies to All Models A45 (T–34A), and B–45 Aircraft Incorporating FAA Certification Kit No. 45–322A.

Compliance required within the next 50 hours' time in service after the effective date of this AD, and thereafter at intervals not exceeding 100 hours' time in service.

(a) Disconnect the turnbuckles on the 45–524504 and 45–524505 rudder-aileron bungee interconnect cable assemblies and thoroughly inspect the cables. Replace any cables that show evidence of fraying, excessive wear or internal breakage.

(b) Disconnect the two AN 161–8RS forks that attach to the 45–524028 bellcrank assembly and inspect the $\frac{3}{16}$-inch diameter holes in the bellcrank for elongation or cracks. If elongation exceeds 0.02 inch or if cracks are found, replace bellcrank prior to further flight.

(c) The inspections required in (a) and (b) may be discontinued when larger pulleys, P/N MS–20219, are installed per Beech Kit 45–325 and bronze bushings, Beech P/N 105740B–ZF–0105, are installed in the aileron bellcrank holes per Beech Drawing 45–000060, Revision C.

(Beech Service Bulletin No. 32 on Models A45 (T–34A) and B45 covers the cable inspection.)

This supersedes AD 59–13–4.

This directive effective January 15, 1963.

BELL

47–32–1 Bell (Was Mandatory Note 1 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 2 Through 13.

Compliance required at next 100-hour inspection.

Rework the stabilizer damper frame clamp with a 1/16-inch saw cut, as shown in Bell Service Bulletin No. 47C7, revised June 12, 1947, in order to permit a clamping action which will prevent the loosening of the subject part of the main rotor mast.

47–32–2 Bell (Was Mandatory Note 2 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 2 Through 6 and 8 Through 28.

Compliance required not later than next 25-hour inspection after September 15, 1947.

The correct amount of fixed ballast for the Model 47B helicopters, as listed in Bell Service Bulletin 47C27, dated June 25, 1947, should be installed in accordance with the instructions also contained in that Bulletin. Compliance is required in order that the correct center of gravity range may be maintained.

47–32–3 Bell (Was Mandatory Note 3 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 2 Through 6, 10 Through 17, and 20 Through 22.

Compliance required not later than next 25-hour inspection after September 15, 1947.

To insure proper operation of the tail rotor control pedal adjustment mechanism at all times, replace the existing pawl stop, P/N 47–722–059–1 in each pedal assembly with a modified pawl stop, P/N 47–722–057–1. Check length of each pedal adjustment mechanism and adjust if necessary to $4\frac{27}{64}$ inches, tolerances +000, $-\frac{1}{32}$ inch, measured from the center of the pedal adjustment mechanism assembly AN 329–41 pin to lower end of pawl.

(Bell Service Bulletin 47C23 dated April 10, 1947, also covers this subject.)

47–32–4 Bell (Was Mandatory Note 4 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 2 Through 6, 10 Through 17, and 20 Through 22.

Compliance required not later than next 25-hour inspection after September 15, 1947.

Placard the antitorque rotor blades, "Do Not Use for Handling Helicopter," to warn ground personnel against using the antitorque rotor blades as handholds when hand-maneuvering the rotorcraft on the ground. Mishandling of these blades may cause unseen damage to them, which, in turn, may result in failure of the blades in flight. The stainless steel leading edge should be inspected carefully, particularly near the root, for cracking.

(Bell Service Bulletin 47C16 dated March 25, 1947, covers this same subject.)

47–32–5 Bell (Was Mandatory Note 5 of AD–1H–1.) Applies to Model 47B.

Compliance required before next flight.

Remove the main rotor mast spinner assembly from all Model 47B helicopters, in order that the possibility of its jamming the mast control tubes, in the event it becomes loose during flight, is eliminated.

(Bell Service Bulletin 47C38 dated May 15, 1947, also covers this same subject.)

47–32–6 Bell (Was Mandatory Note 6 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 5, 8, 9, 10, 11, 12, 15, 16, 20, 21, 22, 24, 25, 26, 27, 30, 31, 35, 36, 37, 39, 41, 42, 43, 45, 51 and 52.

Compliance required before next flight.

Replace the 14ST pillow blocks 47–120–111–1, on the main rotor hub, with 4340 steel pillow blocks, 47–120–111–5, and inspect the hub assembly in accordance with Bell Service Bulletin 47C45 (Revised) dated May 27, 1947. In order to avoid possible structural failure of pillow blocks if extreme misapplication of flight controls are applied, reference "Flight Manual" 47B Series, Section II, paragraph 14B.

47–32–7 Bell (Was Mandatory Note 7 of AD–1H–1.) Applies to All Model 47B With Aircooled 6V4–178–B3, –B32, O–335–1, or O–335–3 Engines.

Compliance required not later than next 25-hour inspection after September 15, 1947.

To eliminate chafing of intake manifold balance pipe against the oil tank an extra piece of hose, Aircooled P/N 11868, should be installed on the pipe at the side of the tank where the oil filter is mounted and approximately 1⅜ inches from the hose which connects the two manifold pipes.

(Franklin Service Bulletin No. 55 dated May 28, 1947, pertains to this same subject.)

47–32–8 Bell (Was Mandatory Note 8 of AD–1H–1.) Applies to Models 47B and 47B3 Serial Numbers 2 Through 5, 7 Through 11, 13 Through 17, 19 Through 25, 27 Through 78.

Compliance required not later than 25 hours operation after September 15, 1947.

The stabilizer bar dampers should be inspected for the presence of an "AL" stamped on one of the attachment lugs. If such a marking does not appear, thoroughly inspect visually for leakage or other defects and replace if necessary with P/N A12141 (Houds) (stamped "AL"). A cracking or failing of the phenolic abutments has been reported, wherein the subject dampers have been rendered ineffective, thus affecting the flight characteristics of the helicopter.

(Bell Service Bulletin 47C47 covers this same subject.)

47–32–9 Bell (Was Mandatory Note 9 of AD–1H–1.) Applies to Models 47B and 47B3 Helicopters.

Compliance required not later than next 25-hour inspection after September 15, 1947.

Diagonal external brace, 47–267–036 or 42–267–037, as applicable, should be installed on the horizontal stabilizer, of all Model 47B Series helicopters. These braces will provide external support to the stabilizers.

(Bell Service Bulletin 47C21 dated June 11, 1947, covers this same subject.)

47–32–10 Bell (Was Mandatory Note 10 of AD–1H–1.) Applies to Models 47B and 47B3 Helicopters.

Compliance required at the next 50-hour transmission teardown inspection.

Replace the main rotor mast assembly with mast assembly, 47–130–100–2.

(Bell Service Bulletin 47C24, dated June 26, 1947, also covers this same subject.

47–32–11 Bell (Was Mandatory Note 11 of AD–1H–1.) Applies to Models 47B and 47B3 Helicopters.

Compliance required not later than the next 25-hour inspection after September 15, 1947.

The antenna mast should be supplemented with antenna mast support, 47–762–023–1. This support is intended to relieve the antenna loads from the lead-in mast.

(Bell Service Bulletin 47C33 dated June 12, 1947, also covers this same subject.)

47–32–12 Bell (Was Mandatory Note 12 of AD–1H–1.) Applies to Models 47B and 47B3 Helicopters.

Compliance required not later than the next 25-hour inspection after September 15, 1947.

In order to provide more strength in the lateral cycle control system, the disc links should be replaced with forward and aft links, 47–725–047.

(Bell Service Bulletin 47C35 dated June 18, 1947, also covers this same subject.)

47–32–13 Bell (Was Mandatory Note 13 of AD–1H–1.) Applies to Models 47B and 47B3 Helicopters.

Compliance required at the next 100-hour teardown inspection.

Additional strength in the antitorque rotor control system has been found desirable as a result of service experience. This may be accomplished by replacing the aluminum alloy rivets in the tail rotor pitch adjustment rod assembly with steel rivets.

(Bell Service Bulletin 47C44 dated June 16, 1947, also covers this same subject.)

47–32–14 Bell (Was Service Note 1 of AD–1H–1.) Applies Only to Model 47B Serial Numbers 5, 6 and 10.

Inspection required at intervals not to exceed 100-hours.

In order to prevent misalinement of the tail rotor drive quill and tail rotor drive shaft and powerplant installation, due to the shifting of the engine mount assembly, caused by the insufficient clamping of the engine mount to the rubber mounts, the following action should be taken:

(1) Inspect AN 365–524 nuts on AN 5–20A bolts in the "clamp" ends of the 47–612–111–1

engine mount assembly for bottoming of nuts. If this condition is found, proceed as outlined in steps (2), (3), and (4).

(2) Remove bolts from "clamps" and install AN 960–516 washers as required under the head of each bolt. Replace bolts in "clamps" and install nuts loosely.

(3) Check installation of engine mount assembly on rubber mounts 47–600–011–1. Front face of left mount "clamp" must be $\frac{5}{32}$ inch aft of front face of metal case of rubber mount.

(4) Torque nuts to 100–140 inch-pounds.

(Bell Service Bulletin No. 47C10 also covers this same subject.)

47–41–2 Bell (Was Mandatory Note 14 of AD–1H–2.) Applies to Models 47B and 47B3 Helicopters.

Compliance required prior to next flight after receipts of parts from Bell Aircraft Corp., but, in any event, not later than January 1, 1948.

To prevent excessive vibration and subsequent failure of the main oil line from the oil cooler to the oil filter, two additional supports must be installed for this oil line, one each at the bends near the oil filter and oil cooler.

(Bell Service Bulletin 47C28 (revised), dated July 1, 1947, covers this same subject.)

47–41–3 Bell (Was Mandatory Note 15 of AD–1H–2.) Applies to Models 47B and 47B3 Helicopters.

Compliance required not later than next 50-hour inspection after December 1, 1947.

To prevent failure of the fuel line connecting the fuel shutoff valve and auxiliary fuel pump, replace the rigid aluminum line with a flexible hose line. On Serial Numbers 2 through 5, 7 through 11, 13 and 14, replace P/N 47–686–001–37 with P/N AN 856A6A or AN 6270–6–14.

(Bell Service Bulletin 47C46 dated June 19, 1947, covers the above installation.)

47–41–4 Bell (Was Mandatory Note 16 of AD–1H–2.) Applies to Models 47B and 47B3 Helicopters.

Compliance required not later than next 50-hour transmission teardown inspection after December 1, 1947.

To improve attachment of the inner race bearing on the bottom of the main rotor mast and to prevent possible chipping, the lower mast plug should incorporate a bolted retaining washer.

(Bell Service Bulletin 47C41 dated June 26, 1947, covers the detail installation.)

47–41–5 Bell (Was Mandatory Note 17 of AD–1H–2.) Applies to All Models in 47B Series, Through Serial Number 78.

Compliance required at next 100-hour inspection.

In order that the bearings will be securely locked in the gimbal ring, the fiber bearing seals should be replaced with steel bearing seals, P/N 27–120–127–1.

This alteration is covered by Bell Service Bulletin 47C30 dated July 10, 1947.

47–41–6 Bell (Was Mandatory Note 18 of AD–1H–2.) Applies to All Models of 47B Series, Through Serial Number 71.

Compliance required prior to next periodic inspection.

The butt plate screws of the main rotor blade should be staked in accordance with Bell Service Bulletin 47C50 dated July 22, 1947, to prevent them from working loose in service.

47–41–7 Bell (Was Mandatory Note 19 of AD–1H–2.) Applies to All Models of 47B Series, Through Serial Number 60.

Compliance required at next 25-hour inspection.

Steps should be taken to prevent the possibility of the lateral cyclic control bungee spring jumper from jamming the controls, in the event of a failure of the bungee spring, by falling down and becoming wedged against the tubular fuselage structure. Such action may be accomplished by riveting Bell P/N 47–725–034–5 to the lateral bungee jumper, with two AN 470–AD3–5 rivets spaced laterally $\frac{3}{16}$ inch apart, in such a position that it will straddle the lower rod end of the vertical control rod emanating from bellcrank 47–725–016–1.

This alteration is covered in detail by Bell Service Bulletin 47C34 dated July 16, 1947.

47–41–8 Bell (Was Mandatory Note 20 of AD–1H–2.) Applies to All Models of 47B Series, Through Serial Number 78.

Compliance required at next 100-hour inspection.

The stabilizer bar mixing levers should be reworked by cutting away the lower inboard edge of a 2-inch radius from a center position 1½ inches from the vertical centerline of the center hole. The cut should not be more than ⅛ inch at its deepest point and the sharp corners, resulting from the removal of this segment, should be rounded by a ½-inch radius. This reworking will eliminate the interference between those levers and the stabilizer bar damper, which may exist when the stabilizer bar is depressed 5°.

(Complete instructions are carried by Bell Service Bulletin 47C52, dated July 9, 1947.)

47–51–11 Bell Applies to Model 47B Series Helicopters.

Service experience indicates that the transmission pinion gear bearing life can be extended to 100 hours of operation providing rework in accordance with Bell Service Bulletin No. 47C4 dated December 4, 1947, has been accomplished. New bearings P/N 47–820–358–1 must be installed in the upper spider assemby pinion gears and bearings P/N 47–620–357–1 must be installed in the lower stage spider assembly pinion gear at the 100-hour teardown inspection. (In order to assist in determining the service life of these bearings, it is recommended that removed bearings be tagged with any pertinent information and returned to Bell Aircraft Corp., Attention: Helicopter Division, Fort Worth, Texas.)

(Bell Service Bulletin 47C4 revised December 4, 1947, covers this same subject.)

This supersedes AD 47–41–9.

48–2–1 Bell Applies to All 47B Series, Through Serial Number 78.

Compliance required before next 25 hours of operation.

Reinforce the tail rotor drive shaft bearing hangers by riveting reinforcement plates, Bell P/N 47–267–001–152, –153, –154, –155, –156, and –157, to the appropriate hangers with AN 470–AD3–4 rivets.

(Bell Service Bulletin 47C56 dated September 10, 1947, also covers this subject.)

48–3–6 Bell Applies to All 47B Series Through Serial Number 78.

Compliance required at next 25-hour inspection.

If the play between the two bolts which connect links 47–612–048, to the side and aft sprag systems and the adapter plate, exceeds 0.010 inch, bushing 78B6–8–11 should be added to the tube assembly fittings and the clevis end of the link; bushings 75B6–8–11–5 should be added to the opposite end of the link; and bushings 75B6–8–8, 47–612–053–1 or 47–612–053–2 should be installed in the adapter plate.

(Bell Service Bulletin 47C62 dated December 2, 1947, covers this subject and gives more detailed reaming and dimensional information.)

48–10–2 Bell Applies to Models 47B Series and 47D.

Compliance required by April 1, 1948.

As a precautionary measure, remove main wood rotor blades and inspect area between the outboard edge of face plates and inboard edge of fiberglas cover, and also the extreme butt end for wood checks or cracks. When inspection is completed, the extent of check, cracks and wood condition found should be reported to the manufacturer who has provided forms for this purpose in his Service Bulletin. Report also if inspection results reveal no checks or cracks.

Upon completion of inspection and prior to flight the cracks should be filled with Minnesota Mining and Manufacturing Co. 3M adhesive filler No. EC612. After the filler has dried, five brush coats of Minnesota Mining and Manufacturing Co. adhesive sealer No. EC498 should be applied to the inspected area. If no checks or cracks are present, only the five brush coats of sealer must be applied.

(Bell Service Bulletin No. 47C47, revised March 4, 1948, contains more detailed information on this subject.)

48–11–5 Bell Applies to Model 47B Series.

Compliance required at next 25-hour inspection.

To provide increased strength, install main rotor drag brace, Bell P/N 47–110–146–2, in place of the existing part.

(Bell Service Bulletin 47C31 also covers this subject.)

48–12–5 Bell Applies to Models 47B Series and 47D.

Compliance required at next 100-hour teardown inspection if less than 600 hours have been accumulated. (If over 600 hours have been accumulated, this change must be accomplished immediately.)

Replace the dural shear screws in the transmission spider assembly with steel shear screws (P/N 47–620–485–1).

(Bell Service Bulletin No. 47C66, revised February 10, 1948, also covers this same subject.)

48–13–2 Bell Applies to Model 47 Series Equipped With Franklin 6V4–178–B3 and B32 Engines.

Compliance required at next preflight inspection.

Inspect fuel pump rocker pins to determine type. If pin has retaining rings which snap on each end, replace with new type pin having a head on one end and a staked washer on the other. Until new type pin is installed, daily inspection to determine the condition of the snap ring locks is required. A red paint dab for identification should be placed on all fuel pumps incorporating rocker pin change. Replacement pins are available through Aircooled Motors, Inc.

(Franklin Service Bulletin No. 64 covers this same subject.)

48–19–1 Bell Applies to All Models 47B, 47B3, and 47D Helicopters.

Compliance required by June 15, 1948.

To provide continuous oil submersion of stabilizer bar damper replenishing valves, the dampers should be rotated 30° down from their present position. This is accomplished by replacing the existing damper support frames, 47–140–132–1, with redesigned frames, 47–140–013.

(Bell Service Bulletin 64 covers this subject.)

49–34–2 Bell Applies to All Model 47D1 Helicopters.

Compliance required as soon as possible but not later than September 2, 1949, and daily thereafter.

As a result of several fatigue failures of the attaching clamps on the ventral fin and at the attaching bolt holes of the fixed tab, these parts should be visually inspected daily until a permanent fix is available. If cracks are detected, either in the AN 735 clamps, the ventral fin, or the fixed tab, the effected part should be replaced prior to the next flight.

(Bell Service Bulletin No. 70 covers the same subject.)

49–47–2 Bell Applies to All Models 47B, 47B3, 47D, and Model 47D1 Serial Numbers 145 Through 164.

Compliance as indicated.

As a result of recent failures occurring to the tail rotor drive system the following inspections and replacements must be accomplished:

1. Not later than the next 25 hours of operation and at each 50-hour period thereafter the following inspection procedure must be accomplished until the tail rotor drive shaft parts as described below are incorporated:

(*a*) Remove and disassemble tail boom extension for complete inspection.

(*b*) Visually inspect bearings for wear, cracks, chips, and brinelling.

(*c*) Inspect surfaces of shaft for dents, cuts, and signs of fatigue.

(*d*) Conduct a magnaflux inspection of the tail boom extenstion drive shaft, examining particularly the shaft surface for approximately 3 inches of length from each end of the shaft.

(*e*) Magnaflux 47–644–C14 sleeve inspecting for cracks at thread roots closest to flange.

2. To compensate for shaft misalinement and flight distortion of the shaft assembly, the following modifications shall be accomplished not later than February 15, 1950:

(*a*) Installation of a redesigned extension drive shaft P/N 47–644–126 and 47–644–181.

(*b*) Installation of a spline coupling in tail rotor drive shaft forward of the universal joint P/N 47–644–177 and 47–644–130.

(Bell Service Bulletin No. 69, dated November 11, 1949, covers this subject.)

49–52–2 Bell Applies to All Models 47B, 47B3, 47D, and 47D1 Series Helicopters.

Compliance required as indicated.

As a result of recent accidents, the following precautionary measures should be taken:

1. The main rotor hub (Bell P/N 47–120–136–1) must be replaced if it has been involved

in an accident or sudden stoppage, for any reason, in which the following has occurred:

(*a*) One or both main rotor blades were damaged to the extent that the steel core shows through the wood at any point.

(*b*) A drag brace end fitting or the equalizer horn, or both, are damaged or distorted.

(Bell Service Bulletin No. 65, dated August 2, 1949, covers the subject of this portion of the directive.)

2. All aluminum main rotor hubs (Bell P/N 47–120–136–1) must be replaced after 600 hours of operation unless it is necessary to replace them sooner as a result of being affected by the requirements of paragraph 1. In order to assist those operators who possess a part which has over 600 hours accumulated at the time of receipt of this directive, the following latitude in replacing the parts is permitted:

Accumulated Time on Hub at Time of this Directive	*Replacement Limit*
0–500 hours	At 600 hours
501–800	Within the next 100 hours
801–899	At 900 hours
900 and up	Before the next flight

Hubs with less than 300 hours must be inspected visually (with a 10- to 20-power glass) at 300 hours, in addition to the inspections required by the manufacturers "Erection and Maintenance Manual" for the particular model. During this inspection, specific attention must be directed toward locating fatigue cracks in the shotpeened fillet radius, particularly on the leading edge side. The discovery of cracks in any portion of this radius is cause for immediate replacement of the part. In addition to the execution of the Form FAA 1226, "Malfunctioning and Defects Report," such a discovery should be reported immediately to the Bell Aircraft Corp., together with the number of hours accumulated on the hub, the serial number of the hub, model and serial number of the helicopter on which it was installed, and a statement to indicate whether or not the part had been involved in an accident such as described in paragraph 1.

This supersedes AD 49–35–2.

50–6–1 Bell Applies to All Model 47D1 Helicopters.

Compliance required not later than March 31, 1950.

Ventral fin installation, Bell P/N 47–267–058 should be replaced by the revised ventral fin and fixed tab installation, Bell P/N 47–267–063. The new installation is designed to eliminate the possibility of those fatigue failures which have been experienced in the old design.

Upon completion of the above modifications, the inspections required by AD 49–34–2 may be discontinued.

(Bell Service Bulletin No. 71 covers the same subject.)

50–38–2 Bell (*a*) Applies to All Models 47B, 47B–S, 47B3, 47B3–S, 47D and 47D–S; (*b*) Applies to Model 47D1, Serial Numbers 145 Through 164, 174 Through 183.

Compliance required before November 15, 1950.

Service difficulties have been experienced involving fan bearing failure due to improper adjustment of the cooling fan belt. This allows the cooling fan to move forward and jam the cyclic controls. To prevent such failures, fan belt tension should be properly adjusted. In addition, a fan shaft washer should be incorporated to prevent the fan from jamming the cyclic control in case bearing failure does occur.

(Bell Service Bulletin No. 61 dated July 20, 1950, covers this subject for models under (*a*). Bell Service Bulletin No. 72 dated August 4, 1950, covers this subject for models under (*b*).)

51–26–1 Bell Applies to All Models 47B, 47B3, 47D, 47D1 Helicopters.

A. Compliance required by October 15, 1951, unless Bell Service Instruction 67S1 has been accomplished already.

To provide additional strength to preclude the possibility of tail rotor failures, wrap each tail rotor blade across the junction of the stainless steel leading edge at the root end area of each blade with two strips of unidirectional fiberglas cloth, Bell P/N 47–642–020–14.

(Bell Service Bulletin No. 75 covers this same subject.)

B. Compliance required daily.

Inspect the tail rotor stainless steel leading edge for evidence of loosening or lifting. Carefully inspect the $\frac{3}{32}$ radius, the flanges of leading edge at forward edge of reinforcement plates, and the entire root area for cracks.

Replace blades immediately if any of these conditions exist.

(Bell Service Bulletin No. 75, revised October 11, 1951, covers this same subject.)

This supersedes AD 51-23-1.

51-27-1 Bell Applies to All Model 47 Helicopters Incorporating Engine Mount Assembly P/N 47-612-111-1 or -5.

Compliance required as indicated.

1. Compliance required daily after first 300-hour inspection.

(*a*) Remove paint from welds in tube cluster at mount housing at both sides of mount assembly. Use solvent to remove paint.

(*b*) With the engine mount under load, either by operating the engine with maximum collective pitch without becoming airborne, or by placing equivalent pilot and passenger weights in the seat and hoisting helicopter until wheels are clear of ground (or any equivalent loading means), inspect the outboard surface of welds with at least a 10-power magnifying glass and the inboard surfaces of welds with an inspection mirror (use magnifying if available). Give particular attention to forward tube in left cluster (from top of mount to housing) and aft tube in right cluster. Oil appearing on surface of weld or tube after cleaning is evidence of a crack and must be examined carefully. Replace mount if crack is found.

(*c*) Clean welds in upper forward tube (under collective pitch disc bracket) with a cloth. Carefully inspect welds under disc bracket for cracks using a flashlight and mirror. Give particular attention to weld which joins diagonal tube (right side) to forward tube. Replace mount immediately if a crack is found in these areas. Apply grease or other corrosion preventive on areas where paint has been removed.

2. Compliance required at each 600 hours of engine mount service.

Replace engine mount assembly after 600 hours of operation have been accumulated.

(Bell Service Bulletin No. 74, revised February 2, 1953, covers this same subject.)

This supersedes AD 51-23-2.

51-29-1 Bell Applies to All Models 47B, 47B3, 47D, 47D1 Helicopters.

Compliance required as indicated.

1. Replace the tail rotor gearbox shaft, P/N 47-645-028-1 or 47-645-051-1, when it has accumulated 900 hours of operation.

2. Any shaft having already accumulated 900 hours of operation must be replaced by February 1, 1952. In the interim, conduct the following inspection after every 25 hours of operation: Remove tail rotor and inspect attachment bolt hole for cracks. Replace the shaft if a crack is found, or the hole is elongated over 0.010 inch.

(Bell Service Bulletin No. 83 covers this same subject.)

52-1-1 Bell Applies to All Models 47B, 47B3, 47D Helicopters and to Model 47D1 Helicopters Serial Numbers 145 to 164, Inclusive.

Compliance required at next 300-hour overhaul, but not later than March 1, 1952.

To provide locks of increased tensile strength which will resist shearing should the blade grip adapters tend to loosen, remove the existing lockwire or blade grip adapter locks (P/N 47-120-154-1), check the torque (3,000-3,300 inch-pounds) of the adapters and install revised locks (P/N 47-120-154-2).

(Bell Service Bulletin No. 76 covers this same subject.)

52-1-2 Bell Applies to All Models 47B and 47B3 Helicopters and to Model 47D Helicopters Serial Numbers 1 to 79, Inclusive.

Compliance required at next 300-hour overhaul, but not later than March 1, 1952.

To increase the safety of the main rotor blade equalizer horns and drag brace fittings, which have failed in accidents involving damage to the main rotor, replace the existing equalizer horn (P/N 47-120-027-2) and drag brace fitting (P/N 47-110-145-2) with revised parts P/N 47-120-167-1 and P/N 47-110-235-1, respectively.

(Bell Service Bulletin No. 77 covers this same subject.)

52-1-3 Bell Applies to All Models 47B and 47B3 Helicopters and to Model 47D Helicopters Serial Numbers 1 to 100, Inclusive.

Compliance required at next 300-hour overhaul, but not later than March 1, 1952.

To provide lubrication to prevent seizing of the bearings, replace the existing damper lever

and link assemblies (P/N 47–140–158 and –159) with the 47–140–158–1 lever and 47–140–159–1 link assembly.

(Bell Service Bulletin No. 78 covers this same subject.)

52–1–5 Bell Applies to All Models 47B and 47B3 Helicopters and to Model 47D Helicopters Serial Numbers 1 to 110, Inclusive.

Compliance required at next 300-hour overhaul, but not later than March 1, 1952.

To provide a tail rotor blade grip retaining bolt of increased service life, replace each existing 47–641–026–1 bolt with the 47–641–052–1 bolt, and torque to 160–190 inch-pounds. Also, replace the 47–641–036–1 flat washer type micarta seal in the blade yoke on Models 47B and 47B3 helicopters with the 47–641–042–1 cup seal type.

(Bell Service Bulletin No. 80 covers this same subject.)

52–1–6 Bell Applies to All Model 47 Series Helicopters Having Covered Tail Booms.

Compliance required at next 300-hour overhaul, but not later than March 1, 1952.

To prevent the main rotor striking the tail boom as a result of boom deflection when yawing at high forward speed, install the 47–706–211–1 or –2 spoiler on the tail boom. (Note: Spoiler must not be installed on any helicopter having an uncovered tail boom.)

(Bell Service Bulletin No. 81 covers this same subject.)

52–1–7 Bell Applies to All Model 47D1 Helicopters Having 47–661–030–1 Hub Assembly in the Cooling Fan. Refer to Bell Service Bulletin No. 72.

Compliance required at the next 300-hour overhaul, but not later than March 1, 1952.

To reduce the possibility of throwing blades in flight, rework the existing 47–661–030–1 hub and reassemble the fan using the parts provided in the modification kit. (Note: Do not install old fan blades.) Balance modified fan assembly (assigned P/N 47–661–036–5) in accordance with specified erection and maintenance procedure prior to installation.

(Bell Service Bulletin No. 82 covers this same subject.)

52–5–3 Bell Applies to All Model 47 Helicopters Incorporating Engine Mount Assembly, P/N 47–612–11–1 or –5.

Compliance recommended upon receipt of parts, but required not later than the next 25-hour inspection following receipt of parts or April 1, 1952, whichever occurs first.

As a precautionary measure against the serious consequences resulting from the failure of this particular engine mount, Safety Strap Kit, P/N 47–612–132, must be installed. This kit can be obtained free of charge from the Bell Aircraft Corp., and must be installed in accordance with Bell Service Bulletin No. 87.

AD 51–27–1 remains in effect and is used in conjunction with this directive.

(Bell Service Bulletin No. 87 dated February 12, 1952, covers this same subject.)

52–7–1 Bell Applies to All Model 47D1 Helicopters Prior to Serial Number 477.

Compliance required by May 15, 1952.

To provide simplified loading limitations, remove the existing loading chart decal from the left side of the instrument panel and install loading limitation decal 47–796–109–1 at the same location. In addition, provide stowage space and install the fuel tank dip stick 47–686–205.

(Bell Service Bulletin No. 86 covers this same subject.)

52–21–1 Bell Applies to Model 47 Helicopters as Noted Below.

Compliance required by October 15, 1952.

To prevent engine mount shifting on the rubber Lord mounts, the following applicable Lord mount guards must be installed:

1. 178 H. P. Engines—Models 47B, 47B3, and 47D Helicopters. If not already incorporated, install two 47–612–123–1 guards on engine mount. When properly installed, a $\frac{5}{32}$ inch torque offset exists between engine mount clamp and rubber Lord mount. This offset is at the rearward side of right hand Lord mount and the forward side of left hand Lord mount.

2. 200 H. P. Engines—All Model 47 Helicopters. Inspect the two 47–612–123–3 guards to be sure they have $\frac{7}{32}$ inch ears. If no guards are installed or the ears are less than $\frac{3}{16}$ inch they must be replaced with the new type guards. When properly installed, a $\frac{1}{4}$ inch torque offset exists between engine mount clamp and rubber Lord mount. This offset is at the rearward side of right hand Lord mount and the forward side of left hand Lord mount.

(Bell Service Bulletin No. 79, Revision A, dated July 7, 1952, covers this same subject.)

This supersedes AD 52–1–4.

52–28–3 Bell Applies to All 47 Series Helicopters With the 47–645–002 Gearbox Installed.

Compliance required as directed.

Replace the tail rotor gearbox shaft, P/N 47–645–077–1, when it has accumulated 900 hours of operation.

(Bell's Mandatory Service Bulletin No. 83, Revision A, dated October 2, 1952, covers this same subject.)

52–28–4 Bell Applies to Models 47B, 47B3, 47D and 47D1 Helicopters (Prior to Serial Number 477).

Compliance required as soon as possible, but not later than January 10, 1953.

Magnetically inspect tail rotor pinion shaft, P/N 30–613–361, for damage and for cracks originating the keyway or fillet area. Replace shaft immediately if worn, damaged, cracked or if it does not pass the magnetic inspection satisfactorily. If the shaft passes the above inspections satisfactorily, or if a new shaft is being installed, accomplish the following prior to assembly: Place shaft in a lathe which is equipped with a grinding attachment. Use a ⅛-inch grinding wheel to increase the width of the recess at each side of bearing boss and grind a 0.030 to 0.040 inch radius at bottom of recesses. Reworked diameters of the shaft at the recesses at each side of the bearing boss are acceptable down to 0.763 inch and 0.604 inch respectively. These minimums must not be exceeded. Width of recesses are not to exceed 0.140 inch. There must not be any signs of the old radii or scratches.

(Bell Mandatory Service Bulletin No. 84, Revision B, dated April 29, 1953, covers the same subject.)

53–1–1 Bell Applies to Model 47D1 Helicopters, Serial Numbers 477 to 625, Inclusive.

Compliance required at next 300-hour teardown inspection but not later than February 28, 1953.

In order to improve the method of mounting the tail rotor gearbox assembly and to avoid the possibility of distorting the S10R bearing when tightening the existing clamp, install sleeve P/N 47–640–058–1 on assembly 47–640–044–3. Clamping ring P/N 47–644–197–1 and clamp P/N 47–640–046–1 are replaced by the riveted sleeve.

(Mandatory Service Bulletin No. 90, Revision B, dated December 8, 1952, covers this same subject. Service Bulletin No. 90, Revision A, also covers the same subject but Revision B simplifies the installation and completes the parts called out.)

54–24–1 Bell Applies to All Models 47B, 47B3, 47D, 47D1, 47E, 47G Except 47G Serial Numbers 1286, 1287, 1294, 1295, and 1299 and Subsequent.

Compliance required no later than next 25-hour inspection.

In order to preclude improper installation of antitorque pedal assembly for dual controls, install two stop assemblies, P/N 47–722–165–1.

(Bell Mandatory Service Bulletin No. 98 dated October 29, 1954, covers this same subject and outlines the details for the installation.)

55–5–1 Bell Applies to All Models 47B, 47B3, 47D, 47D1, 47G Helicopters.

Compliance required at the expiration of 50 flying hours total time. Twenty-five additional flying hours may be acceptable provided the inspection called for in Bell's Mandatory Service Bulletin No. 97, Revision A, is complied with.

In order to prevent seizing, binding or brinelling of pitch control link bearings in the tail rotor pitch control links, P/N 47–641–032–1, it is necessary that these links be replaced with a newly designed tail rotor control link, P/N 47–641–070–1. This new control link incorporates a spherical type bearing in place of the self-alining ball type bearing.

(Bell Mandatory Service Bulletin No. 97, Revision "A" dated December 3, 1954, covers this same subject and outlines the details for the installation.)

55–14–1 Bell Applies to Model 47G Helicopters Below Serial Number 1317.

Compliance required as soon as possible, but no later than September 15, 1955.

In order to provide additional support for the No. 1 bearing hangar, P/N 47–664–148–15, and the forward cross tube of the tail boom, P/N 47–267–088–1, it is mandatory that the support bracket installation be completed in accordance with Bell Drawing 47–267–402–1.

(Bell's Mandatory Service Bulletin No. 99, dated April 29, 1955, covers this same subject and outlines the details for the installation.)

NOTE: This does not eliminate the need for the mandatory daily preflight inspection for cracks in the No. 1 bearing hangar area called for in Bell's Maintenance and Overhaul Manual.

55–16–1 Bell Applies to All Model 47 Helicopters With 47–641–025–1 or 47–641–057–1 Tail Rotor Hubs, and All Spares.

Compliance required prior to next flight.

Recent serious accidents have been caused by failure of the tail rotor hubs P/N 47–641–025–1 and 47–641–057–1. Imperfections such as corrosion, tool marks, scratches, and pitting in the fillet set up stress concentrations which cause failure of the hub spindle. Consequently, immediate and complete inspection of the fillet area of the tail rotor hub must be accomplished as follows:

1. Inspect the inboard fillet area on both spindles of the hub for accuracy of the radius using a 10-power magnifying glass. Fillets must have a true continuous radius all around the spindles and also must have a smooth machine finish free of corrosion and pitting. When inspected under a magnifying glass, tool marks appear greatly exaggerated, and by a smooth machine finish is meant having extremely fine, uniform, closely-spaced and uninterrupted tool marks. No copper plating is allowed in the fillet.

2. Hubs not meeting these requirements must be replaced.

(Bell Service Bulletin No. 96, Revision B dated July 15, 1955, covers this subject.)

(This covers the same inspection as the CAA telegram of July 13, 1955.)

55–25–1 Bell Applies to Model 47G Helicopters Below Serial Number 1450 Which Have Hydraulic Boost System Installed.

Compliance required as soon as practical but not later than January 15, 1956.

The manufacturer advises that the lateral cyclic bellcrank, P/N 47–725–073–1 attachment bolt P/N AN 174–34 is too short, positioning the threaded area in the forward lateral bellcrank support bracket hole, which may result in the threads flattening out and elongating the support bracket bolt hole.

It is therefore requested that the bolt holes in the bellcrank support bracket be inspected for elongation and the bolt replaced with a longer bolt. If the bolt holes are found elongated beyond permissible tolerance (maximum hole diameter of 0.2520 inch) doubler plates must be added. Redrill and line ream new holes. Replace the AN 174–34 bolt with a new longer bolt P/N AN 174–35, unless doubler plates are added, in which case install AN 174–36 bolts.

(Bell's Mandatory Service Bulletin No. 104, dated November 11, 1955, covers this same subject.)

56–1–1 Bell Applies to Model 47G, Serial Numbers 666 Through 1411 and Model 47G2, Serial Numbers 1342 Through 1412.

Compliance required as soon as possible, but not later than January 31, 1956.

Ventral fin support angle braces, P/N 47–267–085–5 and –6 chafe the tail boom longeron, P/N 47–267–057–111 due to interference of these parts. The longeron must be inspected on both sides for wear and damage. Any damage of the longeron in excess of 0.008 inch, based on the diameter of the undamaged tube, must be repaired. $\frac{1}{32}$ inch clearance must be provided between the support angle braces and the longeron. Additional rework of the 47–267–057–167 angle brace by the welding of a $\frac{1}{16}$-inch steel plate, $\frac{3}{4}$-inch x 3 inches, to the back of this part may be necessary to provide adequate clearance, if repair of the longeron by means of a split tube sleeve has been accomplished.

(Bell Mandatory Service Bulletin No. 103 dated September 30, 1955, covers this same subject and outlines the details of the inspection and repairs.)

56–5–1 Bell Applies to Model 47 Helicopters: Model 47D1 Serial Number 477 and Subsequent, Model 47G Serial Numbers 667 Through 692, 694 Through 1511, Model 47G2 Serial Numbers 1342 Through 1418, Model 47H1 Serial Numbers 1347, 1349 Through 1356, 1358, and 1360, All Model 47 Modified to Include 47–644–172–3 Tail Rotor Extension Drive Shaft and All 47–644–172–3 Shafts in Stock.

Compliance required by March 1, 1956.

As a result of manufacturing error some Bell Model 47 tail rotor extension drive shafts P/N 47–644–172–3 were bored too deep resulting in a weakened wall section. Bell has issued Service Bulletin No. 106 requiring an immediate mandatory inspection by X-ray or by method described in the Service Bulletin.

This supersedes telegraphic AD of February 3, 1956.

56–15–1 Bell Applies to Model 47H1 Helicopters, Serial Numbers 1347 Through 1356.

Compliance required as soon as possible, but not later than August 15, 1956.

In order to prevent tail boom skin cracking in the area of the aft ballast, it is necessary to complete a revised aft ballast provision installation utilizing Bell Kit No. 47–2406–1B. In addition it is also necessary to install Bell Kit No. 47–2406–1A, Antitorque Control Pulley Brackets Installation, at this same time to permit the installation of the new tail rotor control cable assembly, P/N NAS 302 R–66–5537. This revised antitorque control system installation is required to provide adequate clearance with the new aft ballast provision installation.

(Bell Mandatory Service Bulletin No. 110 dated June 1, 1956 covers this same subject.)

56–15–2 Bell Applies to All Model 47 Series Helicopters Having the 47–150–184–1 or 47–150–184–3 Swashplate Control Ring Installed, Except the Following: Model 47G, Serial Numbers 1378, 1524, 1529 Through 1533 and 1687 and Subsequent. Model 47G2, Serial Numbers 1467, 1469 Through 1471, 1478, 1479, 1481, 1483, 1484, 1487 Through 1499 and 1500 and Subsequent. Model 47H1, Serial Numbers 1347, 1348, 1361, 1366 and Subsequent.

Compliance required as indicated.

Cracking of the control ring horns in the area of the control horn ears has been found. It is necessary that the following action for the 47–150–184–1 and 47–150–184–3 swashplate control ring, lateral, fore and aft control horns be taken as soon as possible but not later than August 15, 1956: Disconnect the control rods from the swashplate control ring horns and using a 10-power magnifying glass inspect the area around the control horn ears for evidence of cracks. If cracks are found, remove the swashplate and replace immediately. If no cracks are found, remove the sharp edge from the top of the fore and aft control horn between the ears and file a 0.062 inch radius in each corner of the fore and after control horn between the ears before replacing.

(Bell Mandatory Service Bulletin No. 108, dated May 1, 1956 covers this same subject.)

56–15–3 Bell Applies to Model 47H1 Helicopters, Serial Numbers 1347 Through 1349 and 1351 Through 1371.

Compliance required as soon as possible but not later than August 15, 1956.

Failure of a control cable of the synchronized elevator control system can result in loss of control of the helicopter. Installation of the fail safe synchronized elevator centering spring, Bell Kit No. 47–2573–1, is mandatory and provides a self-centering device for the synchronized elevator so that control of the helicopter can be maintained in event of elevator control cable failure.

(Bell Mandatory Service Bulletin No. 109 dated June 15, 1956, covers this same subject.)

56–20–3 Bell Applies to All Models 47B, 47B3, 47D, 47D1, 47G, 47G2 and 47H1.

Compliance required as soon as possible but not later than October 20, 1956.

Failure of the tail rotor hub retention bolts P/N 47–641–052–1 has occurred in service. The probable cause of the bolt failures experienced to date has not been determined and this problem is currently being investigated. At the conclusion of this investigation Bell anticipates supplying a newly designed hub retention bolt as a replacement for the present bolts. In the interim it is mandatory that a service life of 300 hours be established for the subject bolt. At this time it is necessary to remove the two tail rotor retention bolts and replace them with new retention bolts of the same part number.

(Bell Mandatory Service Bulletin No. 112 dated August 8, 1956, covers this same subject.)

56–21–1 Bell Applies to All Models 47G, 47G2, and 47H1 Helicopters Except As Noted Below and All Spare Hydraulic Boost Power Cylinders Part Numbers 1090, 1190 and All 1270 Cylinders Prior to and Including Serial Number 733. Model 47G, Serial Numbers 1530 and 1687 and Up;

Model 47G2, Serial Numbers 1494, 1505, 1506, 1508, 1617 and Up; and Model 47H1, Serial Numbers 1534 and Up Will be Modified Prior to Delivery.

Compliance required as indicated.

Malfunctioning of the hydraulic boost cylinder in service has necessitated the replacement of the hydraulic boost power cylinder barrels and clamps in the fore and aft and lateral cyclic boost power cylinder units and the establishment of a service life of 100 hours on the cylinders which have not been modified. These hydraulic boost cylinder barrels must be replaced by the time 100 hours service is obtained, except barrels that have already accumulated 100 hours service prior to the date of this directive may be used until 125 hours are obtained or until December 1, 1956, whichever occurs first.

(Detail procedures for installation of cylinder barrel P/N 1097 and clamps P/N 1029 are contained in Bell's Mandatory Service Bulletin No. 114 dated August 27, 1956.)

56–25–2 Bell Applies to All Model 47 Series Helicopters Except the Following: Model 47G Serial Numbers 1529, 1530, 1687 and Up; Model 47G2 Serial Numbers 1505, 1506, 1508, 1617 and Up; Model 47H1 Serial Numbers 1369, 1371 and Up; Model 47J.

Compliance required by December 22, 1956.

Excessive tolerance resulting from wear of the tail rotor pitch change rod assembly can result in the loss of the S1RP or 7R4AX1C bearings. To preclude loss of these bearings, the AN 960–416 washer or washers, P/N 47–641–113–1, made to the dimensions 0.562–0.557 inch must be replaced with washers that have an O.D. dimension not greater than 0.552 inch or less than 0.549 inch.

(Bell Mandatory Service Bulletin No. 113 Revision B dated October 23, 1956, covers this same subject.)

This supersedes AD 56–20–2.

57–7–1 Bell Applies to All Model 47H1 Helicopters Serial Numbers 1347 Through 1349, 1351 Through 1360, and 1362 Through 1371.

Compliance required as indicated.

Due to reported looseness of synchronized elevator assemblies and cracking of elevator shafts, the following daily inspection and rework are required:

1. Daily Inspection: In order to determine that looseness of the elevator assembly is not excessive, the following inspection must be conducted daily until rework, item 2 is accomplished:

(*a*) Hold end of elevator and move gently in vertical and horizontal directions (both sides) to check for looseness. Looseness may be in the four rivets that secure the shoulder fittings to the elevator shaft, between the shoulder fittings and the elevator shaft, or in the bolts and tapered bushing securing the two sections of the elevator at the elevator splice coupling.

(*b*) If looseness is found, the elevator assembly should be removed so that the rework and additional inspections of item 2 be accomplished.

2. Rework or replacement of loose or cracked elevator assemblies must be completed prior to the next flight.

(*a*) Inspect elevator shafts at tapered bushing holes for cracks or hole elongation. Remove rivets which attach shoulder fittings, P/N 47–267–404–3, to elevator shaft and to inboard elevator rib. Slide shoulder fittings away from ribs and inspect elevator shafts and shoulder fittings with a 10-power glass for cracks or rivet hole elongation.

(*b*) If shafts are cracked, replace the elevator assembly.

(*c*) If shoulder fittings are cracked, replace the shoulder fittings.

(*d*) If no cracks are found, remove burrs from holes and rework elevator shafts in accordance with Bell Service Bulletin No. 117.

This bulletin describes in detail the procedure for removing existing filler plugs from elevator shafts, inserting new plugs, P/N 47–267–420–5, attaching shoulder fittings to the elevator ribs and shafts, installing and securing a spring pin, P/N MS171600, reassembling splice coupling, P/N 47–267–433–1, reassembling elevator assemblies with two additional AN 173–20A bolts and the four 79B1–3–4 tapered bushings previously removed. If the tapered bushing holes are elongated, four 79B1–3–5 tapered bushings must be used in place of the –4 tapered bushings removed.

(Bell Service Bulletin No. 117 covers this same subject.)

57-7-2 Bell Applies to Model 47 Helicopters Except the Following: Model 47G 1529, 1689 and Up; 47G2 1506, 1957 and Up; Model 47H1 1361, 1534 and Up; Model 47J 1420, 1421, 1423, 1424, 1428 and Up; Model 47K.

Compliance required as indicated.

1. In order to insure that rotor hub equalizer link assembly, P/N 47–120–025–1, is assembled with sufficient threads engaged to meet safety requirements, the following inspection must be conducted and part reworked as necessary by April 15, 1957, unless item 2 has been accomplished.

(*a*) Inspect rod end, P/N 47–120–025–7, for adequate distance between end of shank to safety inspection hole, 0.230 to 0.270 inch required.

(*b*) Inspect for adequate distance between shank end of P/N 47–120–025–5 rod end shank end of P/N 47–120–025–7 rod end. Maximum of $^{15}/_{32}$ (0.468) inch is allowed. NOTE: If dimension between rod ends exceeds $^{15}/_{32}$ (0.468) inch, hub assembly must be rerigged and link assemblies must be adjusted until this dimension is below this valve.

2. Rework on, or before, next overhaul of main rotor hub assembly. Rework link assemblies, P/N 47–120–025–1, which do not meet conditions described in above inspection, item 1(*a*) as follows:

(*a*) Remove link assembly, P/N 47–120–025–1 from main rotor hub assembly and remove rod end, P/N 47–120–025–7 from link assembly.

(*b*) Drill a No. 50 (0.070) inch diameter hole through shank at a point 0.230–0.270 inch from shank end and 90° from existing inspection hole.

(*c*) Reassemble link assembly, install on hub assembly, and rerig hub assembly. Use new safety inspection hole to determine that rod end has sufficient threads engaged.

(Bell Service Bulletin No. 118SB dated February 1, 1957, covers this same subject.)

57-8-1 Bell Applies to All 47 Series Helicopters With Tail Rotor Drive Shafts, P/N 47–644–115–1, 47–644–126–3, 47–644–172–3, 47–644–177–1, 47–644–179–7, 47–644–180–1, 47–644–186–1, 47–644–187–1, 47–644–187–5, and 46–644–214–1, Having Less Than 100 Hours Service Time and All Spares of These Part Numbers.

Compliance required as indicated.

Due to suspected defective materials, the listed tail rotor drive shafts must be inspected for evidence of longitudinal cracks, as follows:

1. Inspect all spare shafts by magnaflux methods immediately.

2. Shafts installed on helicopters and having less than 100 hours service time must be thoroughly cleaned and inspected daily with at least a 10-power magnifying glass, and inspected by magnaflux methods not later than the next 10 flying hours. The daily inspections may be discontinued upon completion of the magnaflux inspection.

3. Spare shafts and helicopters delivered from Bell after April 15, 1957, have these inspections accomplished and may be identified by a double interlocking magnaflux stamp in approximately the centers of the shafts.

(This AD covers the same inspections required by CAA telegraphic instructions, dated April 12 and 17, 1957.)

57-8-2 Bell Applies to All Models 47B3, 47D, 47D1, 47G, and 47H1 Helicopters Equipped With Parker Check Valves in the Oil System.

Compliance required at next oil change and every 25 hours thereafter until replacement is accomplished.

Several failures of the hinge in the oil system Parker check valve, P/N 1111–517703, 1111–517704, or 1111–517744, have occurred resulting in restriction of the flow of oil from the pump. To preclude recurrence of such failures, the following must be accomplished:

1. At the next oil change and every 25 hours thereafter, remove, disassemble, and inspect the oil system Parker check valve, P/N 1111–517703, 1111–517704, or 1111–517744, for wear or failure of the hinge and freedom of operation. If defects are found, replace the valve.

2. James Pond Clark check valve, P/N 879A–10TT, has been approved as a replacement valve. The 25-hour inspection outlined above may be discontinued when the valve is installed.

(Bell Service Bulletin No. 119 dated March 15, 1957, covers this same subject.)

57-12-1 Bell Applies to Model 47H1 Helicopters Serial Numbers 1347 Through 1349 and 1351 Through 1371.

Compliance required as soon as possible but not later than August 1, 1957.

Due to possible misalinement in the fore and aft synchronized elevator control pulley quadrant which may cause the control cables to be misalined and cause chafing, the following inspection and rework is necessary.

1. Inspect the synchronized elevator control cables for alinement into the cable groove on the forward 47-267-112-5 pulley quadrant and the aft 47-267-410-1 elevator pulley quadrant. Inspect the forward 47-267-112-5 pulley quadrant support bracket bolt holes for elongation. If alinement and bolt holes are satisfactory, no rework to the support bracket is necessary.

2. If bolt hole elongation or misalinement exist, the rework as outlined in Bell Service Bulletin No. 111 is required.

(Bell Service Bulletin No. 111, dated March 15, 1957, covers this same subject.)

57-12-2 Bell Applies to Model 47H1 Helicopters Serial Numbers 1349, 1351 Through 1360, 1362, 1363, 1365 Through 1371.

Compliance required as soon as possible but not later than August 1, 1957.

In order to prevent possible failure of the tail boom attach bolts the following inspection and rework should be accomplished.

1. Visually inspect the four (4) tail boom attach fittings 47-265-026-1 and -2 on the forward bulkhead to determine if all eight (8) bolt hole locations (2 in each fitting) have been spot faced. It is necessary to remove the baggage compartment floor section in order to make this inspection.

2. If it is found that any or all the bolt hole locations have not been spot faced, it is required that they be spot faced in accordance with the instructions given in Bell Mandatory Service Bulletin No. 116, dated November 9, 1956.

57-12-3 Bell Applies to Model 47J Helicopters Serial Numbers 1420 Through 1426, 1429 Through 1433, 1435 Through 1439, and 1441, 1559, 1562, 1574.

Compliance required prior to July 1, 1957.

In order to preclude the failure of the engine sprag spindle P/N 47-612-167-1, due to overtorquing of the AN 320-10 nut, the following modification must be accomplished.

1. Remove spindle after first removing the 47-612-166 links from the spindle and 47-612-158 brace assemblies.

2. Install one AN 6-17 bolt with one AN 960-616L washer under the head in the spindle.

3. Reinstall the previously removed links on the spindle. Drill a No. 52 (.062 dia.) hole in one castellation of the AN 320-10 nut for safety wire. Reinstall an AN 960-1016 washer and AN 320-10 nut. After positioning links, torque AN 320-10 nut to 150 inch-pounds.

(NOTE: One AN 364-1018 nut may be substituted for the drilled AN 320-10 nut.)

4. Install one AN 960-616L washer and one AN 310-6 nut on end of AN 6-17 bolt. Torque to 160-190 inch-pounds and install one AN 381-3-12 cotter key.

5. Replace spindle. Resafety attach bolts and safety AN 320-10 nut (if used) to the spindle attach bolts.

6. Connect the links, using previously removed hardware.

(Bell Mandatory Service Bulletin No. 120 dated March 29, 1957, covers this same subject.)

57-12-4 Bell Part A Below Applies to the Following Model 47 Helicopters Having Metal Tail Rotor Blades: 47B, 47B3, 47D, 47D1, 47G, 47G2, 47H1, and 47J. Part B Below Applies to the Following 47 Helicopters Having Metal Tail Rotor Blades P/N 47-642-102-5; 47B, 47B3, 47D, 47D1, 47G, 47G2, and 47H1.

Compliance required as soon as possible but not later than August 1, 1957.

Part A. Due to the possibility of excessive play in the metal tail rotor blade and hub assembly and the pitch control mechanism which can result in blade flutter, the inspection as required in Part A of Bell Mandatory Service Bulletin No. 121SB, dated April 2, 1957, must be accomplished.

Part B. Metal tail rotor blades, P/N 47-642-102-5 should be inspected for proper thickness at blade station 14.00. This thickness should be a minimum of 0.750 inch at the thickest part of the blade. Blades measuring less than 0.750 inch are required to be removed and replaced with acceptable blades.

(Part B of Bell Mandatory Service Bulletin No. 121SB dated April 2, 1957, covers this same subject.)

58-2-1 Bell Applies to All Model 47J Helicopters, Using Main Rotor Blade P/N 47-110-401-7, -9 and -11.

Due to the possibility of a faulty bond between the butt plate laminates and the wood portion of the blade, causing a subsequent separation of the subject parts with possible catastrophic results, the following mandatory inspection is required:

1. Inspect butt plate laminates for indication of bond separation by grasping blade at tip and coning blade downward slightly after static stop is contacted, then coning blade upward to extent that tip is above level line of yoke. If separation is found no repair is allowed, remove blades and notify Bell Helicopter Corporation. Inspection required after each refueling until blades accumulate a total of 50 hours flight time and then daily thereafter.

2. Inspect on one-time basis butt plate laminates for bonding voids by tapping lightly completely around exposed surface of each laminate with a four or six inch wrench. Each laminate will have a different sound; however, an obvious variation in sound on an individual laminate tends to indicate a void. If void indicated, notify Bell Helicopter Corporation immediately.

This supersedes AD 58-1-2.

58-9-1 Bell Applies to Model 47J Helicopters.

Compliance required prior to next flight.

1. All 47-110-401-13 main rotor blades known to have hit an object, or to have contacted the universal joint cover on the tail boom causing an indentation over ¼-inch deep in the universal joint cover, must be removed from service for further detail inspection, and repair if necessary. Such internal inspections and repairs are to be made by the blade manufacturer.

2. Visually inspect the stainless steel leading edge of the -13 blades for cracks and remove cracked blades. No field repairs are authorized. Cracked blades are to be returned to the blade manufacturer for detail inspection and repair.

3. Remove all 47-110-401-9 main rotor blades. These blades must be reworked to the -13 configuration prior to return to service.

CAA telegraphic instructions of April 28, 1958, covered this subject.

58-17-1 Bell Applies to All 47J Helicopters.

Compliance required as indicated.

To preclude the possibility of failure of the 47-110-287-9 counterweight bracket assembly, the service life of this part has been established at 200 hours. All 47-110-287-9 bracket assemblies which have accumulated 200 hours or more of service must be replaced no later than August 31, 1958, and every 200 hours of service thereafter.

This replacement consists of the removal of the two 47-110-287-9 main rotor counterweight bracket assemblies and the installation of new counterweight bracket assemblies. Change and replace bracket assemblies in accordance with applicable instructions contained in the Maintenance and Overhaul Instruction Handbook.

(Bell's Service Bulletin No. 127 SB dated July 14, 1958, covers this same subject.)

58-23-1 Bell Applies to All 47B, B3, D, D1, G, G2 and H1 Helicopters.

Compliance required as indicated.

Service experience indicates numerous failures of the tail rotor pitch change control bearing, P/N R4AF4 and alternate P/N's SIRP and 7R4AXIC. Failures of this bearing have been partly attributed to the pitch change control shaft being bent.

To preclude the possibility of losing tail rotor control, the tail rotor pitch change bearings, P/N R4AF4, also identified by Bell P/N 47-641-146-1, and alternate P/N's SIRP, and 7R4AXIC must be retired from service upon accumulation of 200 hours' time in service, except that bearings identified by Bell P/N 47-641-146-1 which have already accumulated 190 or more hours' time in service on the effective date of this amendment must be retired from service within the next 10 hours' time in service. (Effective September 21, 1961.)

The bearing service life of 200 hours is predicted by the maintenance of a concentric pitch change control shaft to within the allowable

tolerances. To insure straightness of the pitch change control shaft, P/N 47–641–034 or P/N 47–641–045, a 600-hour inspection for runout is required. The shaft must be inspected at the next 600-hour inspection or not later than December 15, 1958, and every 600 hours thereafter.

Inspect shaft for allowable runout as follows:

1. Remove shaft from tail rotor gear box in accordance with Bell Service Manual.

2. Mount shaft at acme screw thread end in collet.

3. Measure concentricity of bearing shaft diameter. This diameter must be concentric within 0.060 TIR.

4. If diameters are not concentric within 0.060, shaft must be straightened within this tolerance.

(Manufacturers Urgent Action Maintenance and Overhaul Instructions, Nos. S58–41 thru S58–47, H58–10, H58–11 and H58–12, dated October 3, 1958, cover same subjects.)

58–26–1 Bell Applies to All Models 47G2 and 47J Helicopters With Engine Cooling Fan Index Plate Assembly, P/N 47–661–801–5 Installed.

Compliance required within next 25 hours of operation.

Fabricating procedures used on the engine cooling fan index plate assembly, P/N 47–661–801–5, which involve silver brazing have resulted in a possible defective bond between the fan index plate and the fan shaft. To prevent failure of this joint, all Models 47G2 and 47J helicopters having silver brazed index plate assemblies must be reworked as indicated:

1. Locate the longitudinal center line of portion of the 47–669–117–5 shaft on which the fan mounts and drill one 0.2130-inch diameter hole (blind) 0.63-inch deep through the 47–669–106–5 or –7 index plate and into the end of 47–669–117–5 fan shaft.

2. Locate the intersections of a line between the two end indexing holes and the end of the 47–669–117–5 shaft which projects through the indexing plate and drill 0.2130-inch diameter holes.

3. Tap all three holes using a ¼–28UNF3A tap and install AN 4H4A bolts and AN 960–416 washers. Safety wire the heads of all three holes with AN 995C32 lockwire.

Model 47G2 helicopters, Serial Numbers 2213, 2214, 2229, 2230, 2231, 2232, 2235 and subsequent, and Model 47J helicopters, Serial Numbers 1420, 1581, 1713, 1731, 1734, 1737, 1743, 1744, 1747, and subsequent will have reworked or heli-arc welded index plate assemblies, identified as P/N 47–661–801–25 or P/N 47–661–801–21, installed prior to delivery and are not affected by this directive. In addition, some early 47G2 and 47J helicopters equipped with fan index plate assemblies marked as P/N 47–661–801–5 are steel welded in a satisfactory manner and need not be reworked. These may be identified by a ¼-inch deep by 0.56-inch diameter counterbore in the aft end of the engine cooling fan shaft. A flashlight and mirror are needed to determine the existence of the counterbore.

(Bell Mandatory Service Bulletin No. 126SB dated October 2, 1958, covers this same subject.)

58–26–2 Bell Applies to All Model 47 Series Helicopters Equipped With Marvel-Schebler Automatic Altitude Compensating Carburetor Model MA4–5AA.

Compliance required within next 25 hours of operation.

With a Marvel-Schebler Model MA4–5AA carburetor installed, it is possible to start and run the engine with the carburetor mixture control in the idle cutoff position if the throttle is partially or fully opened. However, as soon as the throttle is fully closed, the idle cutoff will operate and shut off the engine. Therefore, it would be possible to start the engine, takeoff, and fly with the mixture in idle cutoff as long as the throttle is never closed. The first time the throttle is closed, however, as in autorotation, an immediate engine stoppage would occur.

To prevent inadvertent engine stoppage in flight due to failure to place the carburetor mixture control in the "auto" position before takeoff, the following must be accomplished:

(a) For Models 47D1, 47G, 47G2, 47H1, and 47J, spring load the cockpit mixture control to the rich or "auto" position by installing a tension spring (Bell P/N 47–631–226–1 or equivalent) between the mixture control cable support bracket (P/N 47–631–125–18) adjacent to the control quadrant and the control

cable end of the quadrant mixture control lever. On Models 47D1 and 47H1, attach the spring to the mixture control lever using existing cotter pin hole through flexible control attaching clevis pin. On Models 47G, 47G2, and 47J, attach spring to mixture control lever through existing lower hole in lever. On Model 47D1, remove corners of jog in quadrant mixture control slot. Check that mixture control will return to "auto" position when pulled to "idle cut off" position and released.

(b) For Model 47D, remove the quadrant mixture control lever and push-pull mixture control. Place the carburetor mixture control arm in the rich or "auto" position and secure with lockwire. This procedure may be used in lieu of that outlined in (a) for Models 47D1, 47G, 47G2, 47H1, and 47J if preferred.

(This same subject is covered in Bell Service Bulletins No. 124SB for Models 47D1, 47G, and 47H1, No. 124SB Supplement 1 for Model 47D, and Service Instruction 257SI for Models 47G2 and 47J.)

59–5–1 Bell Applies to All Model 47 Helicopters Having Metal Tail Rotor Blades, P/N's 47–642–102–1; –5; –7; –9; –17; and –19 Installed.

Compliance required as indicated.

As a result of several cracks having occurred (in most instances following known damage due to the tail rotor striking water, tall grass, or underbrush) the following inspection of the metal tail rotor blades, to preclude loss of tail rotor control, must be accomplished as indicated:

(1) On trailing edge of blade, remove paint in the area of Numbers 3, 4, 5 and 6 rivets to the bare metal, with a suitable lacquer thinner only. Feather edges of remaining paint with thinner. DO NOT use sandpaper, steel-wool, or other sharp objects to remove paint. DO NOT use a paint stripper. NOTE: The removal of paint does not affect the balance.

(2) Visually inspect for chordwise cracks along the trailing edge of blade, in the area of rivets Numbers 3, 4, 5 and 6 counting from the butt end towards tip end. It is mandatory that the tail rotor blades be replaced if any cracks are found.

(3) If no cracks are found, it is mandatory that the bare metal portion of blades be left unpainted to facilitate daily inspection. To protect the bare metal, a thin coat of clear lacquer, cosmolene, or grease shall be applied to the area.

(4) Tail rotor blades, installed on float equipped helicopters or which have had *any* service time on float equipped helicopters, shall be inspected *prior to each flight.*

(5) Tail rotor blades installed on helicopters *not* operated on floats shall be inspected *daily.*

(Bell Service Bulletin No. 128SB, dated January 27, 1959, covers the same subject.)

60–10–1 Bell Amdt. 146 Part 507 Federal Register May 10, 1960, revised by Amdt. 179 Federal Register July 15, 1960, Amdt. 194 Federal Register August 19, 1960. Applies to All Helicopter Models: 47B, 47B3, 47D, 47D1, 47G, and 47H1, all Serial Numbers; 47G2 Serial Numbers 1327 Through 2467, 2469, 2470, 2472 Through 2477, 2556 Through 2558; 47J Serial Numbers 1420 Through 1776 (Except For Helicopters On Which Kit No. 47–3410–1 (333SI) Has Been Installed); 47E, and 47K.

Compliance required as indicated except Model 47G2, Serial Numbers 2451, 2452, 2457, 2459 through 2467, 2469, 2470, 2472 through 2477, 2556 through 2558, for which compliance date is September 2, 1960.

As the result of a number of recent failures of the scissor lever pivot bolts due to excessive wear, the following is required unless already accomplished.

(a) Prior to June 30, 1960, except 47E and 47K as to which compliance is required prior to August 15, 1960, inspect the scissor lever pivot bolts, AN 174–31, and bolt holes in the brackets of the collective pitch sleeve weld assembly, P/N 47–150–117–5 for wear. Wear limits and reinspection intervals are specified in the following items (1), (2), (3), and (4).

(1) If the diameter of the two AN 174–31 bolts is less than 0.2465 inch in any area, bolts must be replaced prior to next flight.

(2) If the diameter of the bolt holes in the brackets of the collective pitch sleeve assembly is 0.2550 inch or more, install four bushings, P/N 47–150–260–3 or equivalent, and new AN 174–31 bolts within the next 25 hours' time in service.

(3) If the diameter of the bolt holes in the brackets of the collective pitch sleeve assembly is between 0.2500 and 0.2550 inch, the bolts and bolt holes must be reinspected dimensionally every 25 hours' time in service until bushings P/N 47–150–260–3 are installed.

(4) If the diameter of the bolt holes in the brackets of the collective pitch sleeve assembly is 0.2500 inch or less, the bolts and bolt holes must be reinspected dimensionally every 100 hours' time in service until bushings P/N 47–150–260–3 are installed.

(b) Upon installation of the bushings P/N 47–150–260–3, the bolts and bushing holes must be inspected every 300 hours' time in service thereafter.

(c) Upon installation of the four bushings, P/N 47–150–260–3, designate the reworked collective pitch sleeve weld assembly as P/N 47–150–117–21.

(Bell Service Bulletin No. 129SB, dated March 18, 1960, covers this same subject.)

61–3–1 Bell Amdt. 249 Part 507 Federal Register February 7, 1961. Applies to All Model 47J–2 Helicopaters Except Those Equipped With Lycoming VO–540–B1B3 Engines (Third Order Torsional Dampers). (Effective May 13, 1961.)

Compliance required as indicated.

To preclude failures of the pinion gear on the inboard end of the P/N 47–620–539–1 cooling fan drive assembly which are associated with a poor tooth mesh condition, the following inspections and corrective action must be accomplished no later than the next 10 hours of flight time after the effective date of this directive, and by the completion of the 25 hour, 50 hour, 100 hour, and 300 hour flight time periods subsequent to the accomplishment of the initial inspection. Inspections accomplished in accordance with Bell Mandatory Service Bulletin 130SB prior to the effective date of this directive need not be repeated and only those remaining inspections necessary to complete the series are required.

(a) Remove cooling fan drive assembly, P/N 47–620–539–1, from transmission in accordance with instructions contained in Bell Model 47J–2 Maintenance and Overhaul Instructions, and inspect driven side of pinion gear teeth (P/N 47–620–530–1).

(b) Replace gear if conditions defined by Figure 2 of Bell Service Bulletin 130SB are found.

(c) If replacement of the pinion gear is required, further disassembly as necessary and inspection of the cooling fan driving gear (P/N 47–620–207–1) must be conducted. If conditions defined by Figure 4 of Bell Service Bulletin 130SB are found, this gear must also be replaced.

(d) If replacement of either gear is required, back lash and gear pattern must be established in accordance with instructions contained in Maintenance and Overhaul Instructions except that back lash in the plane of rotation must be 0.0052 to 0.0072 inch.

(e) Reassemble cooling fan drive assembly in accordance with Maintenance and Overhaul Instructions except that nut, P/N 47–620–565–1 shall be torqued to 960 inch-pounds and fan pulley bolt AN 6H5A shall be torqued to 300 inch-pounds.

(f) If either or both gears are replaced, perform the above inspections at 10, 25, 50, 100 and 300 hours of flight time following gear replacement. This procedure must be reconducted until a satisfactory wear pattern on the pinion gear and drive gear is maintained through 300 hours of flight time, after which inspections in accordance with this directive may be discontinued.

(Bell Mandatory Service Bulletin 130SB covers this same subject.)

This directive effective February 22, 1961.

61–14–2 Bell Amdt. 300 Part 507 Federal Register July 1, 1961. Applies to All Models 47J, 47J–2, 47G–3, and 47G–2A Helicopters With Float Gear Kit No. 47–706–661 installed.

Compliance required as indicated.

Several cases of failures have been reported of the forward cross tube failing near the left attaching point (cross tube to centerframe) through drilled holes which have been welded closed and filed smooth.

To remove defective tubes and preclude the possibility of float cross tube No. 47–512–111–9 failing during landing, the following one-time inspection is required:

(a) Within the next 10 hours' time in service after the effective date, remove paint from

around the P/N 47–512–111–9 cross tube for an area approximately 2 inches on each side of the stop plates, P/N 47–500–024–1 and visually inspect for any indication of welded holes in this area.

(b) If no evidence of welds is found, prime and repaint as necessary.

(c) If any indication of a weld exists, replace the cross tube with an FAA approved part within the next 5 hours' time in service following the above inspection.

(Bell Service Bulletin No. 132 dated May 23, 1961 covers this subject.)

This directive effective July 12, 1961.

61–22–1 Bell Amdt. 361 Part 507 Federal Register November 7, 1961. Applies to All Model 47 Series Helicopters.

Compliance required as indicated.

To preclude failure of the main rotor pitch link rod end bearing P/N RE4F7 which causes loss of main rotor control, the following one-time only inspection is required to determine that the bearing is correctly installed.

(a) Within the next 10 hours' time in service after the effective date of this AD, on all Model 47 Series helicopters, inspect the main rotor control pitch link located between the stabilizer bar mixing lever and the main rotor blade control horn to see that the rod end bearing sides are parallel to the clevis slot. These surfaces must be adjusted parallel to prevent binding of the rod end bearing at extreme ends of travel, as specified in all applicable model maintenance manuals.

(b) Within the next 10 hours' time in service after the effective date of this AD, inspect all Models 47D, 47D–1, 47H–1, 47G, 47G–2, and 47J helicopters equipped with Fafnir P/N RE4F7 rod end bearing as follows:

(1) Remove the RE4F7 rod end bearing in accordance with the applicable maintenance manual and visually inspect for obvious damage or defect of the outer race such as nicks and gouges adjacent to the shield, looseness, roughness, distortion or kinks in bearing shields.

(2) If any damage or defect is found, replace the bearing prior to further flight.

(3) If no damage or defect is found, the bearing may be reinstalled.

(4) The installation of the bearings under subparagraphs (2) or (3) shall be made in accordance with the applicable maintenance manual making positive that requirements of paragraph (a) are followed.

(c) Helicopters listed in paragraph (b) that are not equipped with the Fafnir P/N RE4F7 bearings are equipped with Bell P/N 47–140–241–3 rod end bearings. These bearings are of a different make and only require the inspection called for in paragraph (a).

(Bell Service Instruction 345 SI covers this same subject for the models listed under (b)).

This directive effective November 7, 1961.

62–10–1 Bell Amdt. 428 Part 507 Federal Register April 21, 1962. Applies to All Model 47J Helicopters Serial Numbers 1420 Through 1802 With Rollpins P/N 49–040–187–1750 or Clevis Pins P/N MS 20392–2–49 Installed In Elevator Spar, and With End Rib P/N 47–267–453–1 (0.025–Inch Thick) Installed; Except Those Helicopters That Have Bell Kit No. 47–3746–1 or 47–3746–2 Installed.

Compliance required as indicated.

Numerous reports have been received of fatigue cracking of the tubular spar of both the right and left elevator at the Rollpin hole at B.L. 7.0, and fatigue cracking of the inboard rib of the elevators. To preclude failure of the elevator, the following shall be accomplished:

(a) Within 25 hours' time in service after the effective date of this AD:

(1) Remove the elevators from the tail boom in accordance with the Bell Maintenance Manual.

(2) Clean the area around the Rollpin hole and remove any zinc chromate putty from any plugged hole in the tubular spar at B.L. 7.0 for both right and left elevators.

(3) Inspect for cracks in the tubular spar of both elevators at the Rollpin hole at B.L. 7.0 using a 5-power or higher magnifying glass.

(4) Inspect the inboard rib for cracks using a 5-power or higher magnifying glass.

(b) If cracks are found in the tubular spar modify the elevator with Bell Helicopter Kit No. 47–3746–1 or 47–3746–2, "Improved Design Synchronized Elevator," or FAA engineering approved equivalent prior to further flight.

(c) If no cracks are found in the tubular spar, install clevis pin in accordance with subparagraphs (1) through (4) or Bell Service Letter No. 56 and reinspect in accordance with subparagraph (5).

(1) Position coupling assembly P/N 47–267–483–1 on elevators and line drill through Rollpin holes with a "D" (0.2460-inch diameter) drill. Remove sharp edges from holes. Install MS 20392–3–49 clevis pins, AN 960–4162 washers, and AN 381–3–6 cotter pins. A finger tight slip fit of the clevis pins is desired, approximately 0.0005 inch loose.

(2) Reinstall the elevator on the helicopter, shim as required to prevent preload or end play at bearings.

(3) Check clearance between skin and end of clevis pins. Trim skin, if necessary, to obtain clearance.

(4) Rerig elevator in accordance with the Bell Maintenance Manual.

(5) Reinspect in accordance with (a)(1) through (a)(3) within each succeeding 50 hours' time in service until Bell Helicopter Kit No. 47–3746–1 or 47–3746–2, "Improved Design Synchronized Elevator", or FAA approved equivalent is installed.

(d) If cracks are found in the inboard rib, repair the elevator as specified below, or modify with Bell Helicopter Kit No. 47–3746–1 or 47–3746–2, or FAA engineering approved equivalent prior to further flight.

(1) Remove the inboard rib by drilling out the rivets and remove the Bell P/N 47–267–404–7 shoulder from the rib by drilling out the rivets.

(2) Add a doubler of 0.032 thickness, or a new rib of 0.032 thickness, material aluminum alloy 2024–0, or a Bell rib P/N 47–267–453–7 (one required per elevator).

(3) Rivet Bell P/N 47–267–404–1 shoulder to the old rib and new doubler or the new rib. Use the rivet pattern in the shoulder with AN 470–AD3 or –4 rivets.

(4) Install the rib assembly, using the rivet pattern in the elevator skin with MS 20600 AD4 or –5 rivets.

(e) If no cracks are found in the inboard rib:

(1) Reinstall the elevator on the helicopter in accordance with Bell Maintenance Manual.

(2) Reinspect rib for cracks in accordance with (a)(4) within each succeeding 50 hours' time in service until Bell Helicopter Kit No. 47–3746–1 or 47–3746–2, "Improved Design Synchronized Elevator", or FAA engineering approved equivalent is installed.

(f) Upon request of the operator, an FAA maintenance inspector subject to prior approval of the Chief, Engineering and Manufacturing Branch, Southwest Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Bell Service Bulletin No. 135 SB dated July 27, 1961, covers this same subject. Bell's Service Letter No. 56 covers an acceptable fix for paragraphs (c)(1) through (c)(4) of this AD.)

This directive effective May 22, 1962.

62–23–2 Bell Amdt. 498 Part 507 Federal Register October 23, 1962. Applies to All Model 47 Series Helicopters.

Compliance required as indicated.

Excessive wear and evidence of impending failure of the main rotor mast thrust bearing have occurred. To preclude progression of bearing deterioration to a hazardous degree, accomplish the following:

(a) Within the next 25 hours' time in service following the effective date of this AD and thereafter at periods not to exceed 25 hours, conduct a close visual inspection of the engine oil filter.

(b) If metal particles are found during any inspection of the engine oil filter, the following shall be accomplished prior to further flight:

(1) The source of the contaminant shall be located and eliminated and other components of the engine and transmission which may be jeopardized by metal particles shall be inspected and overhauled as prescribed by the appropriate Bell maintenance manual; and

(2) The main rotor mast thrust bearing, P/N 47–130–110–1, shall be thoroughly inspected and replaced with a like component if found not to be in a serviceable condition.

(c) Clean engine oil filter carefully before reinstalling.

NOTE: For the purpose of this AD, the operations outlined under (a) and (c) are considered to be preventive maintenance and may, therefore, be accomplished by persons specified in § 18.10(c) of the Civil Air Regulations.

This directive effective October 29, 1962.

62-27-2 Bell Amdt. 522 Part 507 Federal Register December 28, 1962. Applies to All Model 47 Series Helicopters Equipped With P/N 47-642-020-1 Wood Tail Rotor Blades. Compliance required as indicated.

There have been several failures of wood tail rotor blades resulting from wood deterioration. To preclude further wood blade failures the following must be accomplished:

(a) Within 50 hours' time in service after the effective date of this AD:

(1) Remove wood tail rotor blades in accordance with the applicable Bell Maintenance and Overhaul (M&O) Manual.

(2) Remove the fiberglas wrapping from the root end area of blades and remove the fiberglas blade covering from areas underneath the wrapping in accordance with the applicable Bell M&O instructions for repair of wood main rotor blades. Cut blade covering by lightly sanding cover as a knife or other sharp instrument can cause damage.

(3) Inspect root end of blades from root end of blade to 6 inches outboard for:

(i) Elongated bolt holes. Maximum allowable diameter 0.260 inch.

(ii) Decay of wood. Detection of decay can be made visually by noting discoloration of the basic material. (Generally decay will start as a grayish discoloration and deepens to a brown color during the later stages.)

(iii) Cracks in the stainless steel leading edge strip and grip plates using at least a 5-power magnifying glass.

(4) Blades found with bolt hole diameters exceeding 0.260 inch, with decay, or with any cracks, shall be removed from service prior to further flight.

(5) Blades without defects may be returned to service after:

(i) Recovering the blade root area in accordance with patching procedures given in the applicable Bell M&O Manual; and

(ii) Rewrapping the root area with two pieces of MIL-P-8013 No. 181 fiberglas cloth 2 x 27 inches in accordance with Bell Service Bulletin No. 75 dated September 17, 1951.

(b) Blades returned to service after compliance with (a) shall be retired from service prior to the accumulation of 200 hours' time in service since reinstallation in accordance with (a).

This directive effective January 29, 1963.

BELLANCA

(*See Downer for Model 14-19*)

46-41-1 Bellanca (Was Mandatory Note 2 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1060 to 1111, Inclusive.

Compliance required prior to November 15, 1946.

Replace rudder bellcrank (Bellanca P/N 9817) located at the left and right ends of the rudder torque tube with parts furnished by the manufacturer which are stamped "heat-treat" in ink.

(Bellanca Service Bulletin No. 2 dated August 26, 1946, covers this same subject.)

46-41-2 Bellanca (Was Mandatory Note 1 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1061, 1063 to 1075 Inclusive.

Compliance required prior to November 15, 1946.

Remove the steel bushing at the aileron control column sprocket and replace with a bronze bushing. Also remove the cadmium plating for the pin (AN 395) in the area of the bushing. The sprocket should turn freely when reassembled.

(Bellanca Service Bulletin No. 1 dated July 16, 1946, covers this same subject.)

46-41-3 Bellanca (Was Mandatory Note 3 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1060 to 1065, Inclusive.

Compliance required prior to November 15, 1946.

Replace universal joints connecting the control wheel axle with the control system yoke with the "Apex UJ-402" universal joints furnished by the airplane manufacturer.

(Bellanca Service Bulletin No. 3 covers this same subject.)

47-7-1 Bellanca (Was Mandatory Note 4 of AD-773-5.) Applies to Models 14-13, 14-13-2 All Serial Numbers Up to and Including 1200.

To be accomplished not later than next periodic inspection.

Check fuel selector valve handle for proper indexing on valve by setting handle in L-ON and in R-ON position, by disconnecting the fuel line, and by blowing through line when there should be free passage of air. After tank positions have been set, the valve handle and shank should be permanently marked to identify the index position. Attach handle positively to shank by drilling through one side of the handle and halfway through the shank with a drill of number 53 size and inserting a pin of $\frac{1}{16}$-inch diameter drill rod.

(Bellanca Service Bulletin No. 4 covers inspection of the valve handle installation.)

47-14-1 Bellanca (Was Mandatory Note 5 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1060 to 1409, Inclusive.

Compliance required prior to June 1, 1947.

Replace the aluminum alloy inboard flap hinge brackets with X4130 steel brackets, Bellanca P/N 7998-1.

Bellanca Service Bulletin No. 7 dated January 14, 1947, covers this same subject.)

47-25-9 Bellanca (Was Mandatory Note 6 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1060 through 1560, Inclusive.

Compliance required prior to August 1, 1947.

Inspect the fin and stabilizer fittings to which the tail bracing tie rods attach for cracks and at each 25-hour inspection thereafter up to the next 100-hour check. Replace fitting if cracks are found not later than the next 100-hour check or September 1, 1947, whichever comes first and add reinforcing gussets.

(Bellanca Service Bulletin No. 6 covers this same subject.)

47-32-17 Bellanca (Was Mandatory Note 7 of AD-773-5.) Applies to Models 14-13, 14-13-2 Serial Numbers 1060, and Up.

Compliance required prior to October 15, 1947.

Improper positioning of the inspection covers on the top surface of each wing at the landing gear retracting sprocket can cause malfunctioning of the gear retracting mechanism. This cover is held in place by two spring clips, and if the cover is installed with the clips running in a chordwise direction, it is possible that the ends of the clips will bear against the chain and force it off the sprocket, jamming the system. Inspect the covers on your airplane for proper installation, and paint arrows on the cover and wing surface so that the arrows point toward each other when the spring clips run spanwise.

(Bellanca Service Bulletin No. 10 covers this same subject.)

47–32–18 Bellanca (Was Service Note 1 of AD–773–5.) Applies to Models 14–13, 14–13–2 Serial Numbers 1075, and Up.

Compliance required prior to October 15, 1947, and after each 25 hours of operation.

Remove the washer and cotter pin from the clevis bolt which holds on the aileron idler sprocket located at the top center of the control yoke and back off the sprocket. Lubricate the entire bearing surface of the clevis pin with oil. Reinstall sprocket and washer, and safety with new cotter pin of same type (AN 380–3–3).

(Bellanca Service Bulletin No. 9 covers the same subject, and the installation of a grease fitting to avoid removing the sprocket.)

47–50–13 *See* Universal Propellers.

47–51–13 Bellanca Applies to Model 14–13 Serial Numbers 1060 Through 1513, 1545, 1548, 1551 Through 1560.

Compliance required not later than May 1, 1948.

To eliminate the possiblity of an engine compartment fire entering the fuselage through the firewall cabin heater opening, remove the aluminum cabin heat control valve and replace with a steel valve of new design Bellanca Drawing No. 15067–40.

(Bellanca Service Bulletin No. 11 dated June 20, 1947, covers this same subject.)

48–5–3 Bellanca Applies to 14–13 and 14–13–2 Serial Numbers 1060 Through 1576.

Compliance required by March 15, 1948.

Install a 3/16-inch bolt with self-locking nut and three washers (installed as spacers) through each of the brackets which retain the trim tab brass trunnions at the tab and elevator. Install the bolt 7/16 of an inch above the trunnion centerline to prevent spreading of the brackets.

(Bellanca Service Bulletin No. 14 covers this same subject.)

48–13–6 Bellanca Applies to Models 14–13, 14–13–2 Serial Numbers 1060 Through 1310.

Compliance required after each 25 hours of operation.

To prevent failure of the four engine-cowl-support brackets, Bellanca P/N 9892–13, mounted on the firewall and possible cowl loss in flight, the brackets should be closely examined for cracks. If cracks are noted, heavier brackets available from the factory should be installed, in which case inspection is no longer required.

(Bellanca Service Bulletin No. 16 dated December 8, 1947, covers this same subject.)

48–21–1 Bellanca Applies to All Aircraft Equipped With Franklin Model 6A4–150–B3 and B31 Engines.

Compliance required after each 25 hours of operation.

To prevent possible binding of accelerator pump linkage in Marvel-Schebler MA–3–SPA carburetor, check for worn accelerator pump linkage. Worn parts should be replaced. Marvel-Schebler have a kit (Part A666–581) available for this purpose.

(Franklin Service Bulletin No. 61 covers this same subject.)

48–50–1 *See* Aircooled Motors.

49–13–2 Bellanca Applies to Models 14–13, 14–13–2 and 14–13–3 Aircraft As Indicated by Serial Numbers Below.

Compliance required by July 1, 1949.

1. (Applies to Serial Numbers 1060 through 1567, and 1570 through 1573.) In order to strengthen the fitting on the rear wing spar to which the landing gear drag strut attaches, Bellanca P/N 7560, a 0.065 x 1¼ x 1⅜ 4130 steel plate should be welded in place at the forward intersection of the two channel sections.

(Bellanca Service Bulletin No. 18 covers this same subject.)

2. (Applies to all Serial Numbers prior to 1589.) In order to prevent overstressing the

landing gear drag strut, a suitable stop should be provided at the lower end of the landing gear retracting screw. The stop should be so installed and adjusted as to limit the drag strut travel to that necessary to fully extend the gear.

(Bellanca Service Bulletin No. 24 covers this same subject.)

50-47-1 *See* Sensenich Propellers.

51-16-1 Bellanca Applies to All Models 14-13 and 14-13-2 Airplanes.

Compliance required within the next 25 hours of operation, but not later than August 1, 1951.

As a result of a recent failure of the elevator trim tab in flight, the modification of the trim tab attachment to the elevator as shown

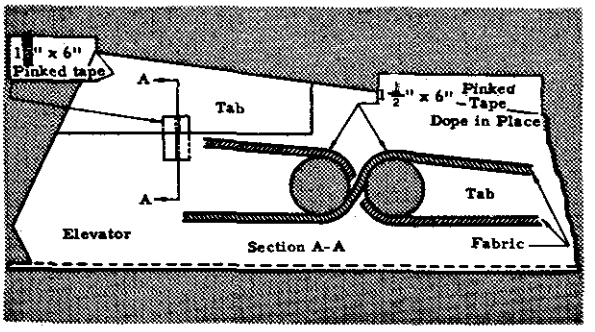


FIGURE 1

in Figure 1 should be made.

(Bellanca Service Bulletin No. 14, Models 14-13 and 14-13-2, covers this same subject.)

52-17-1 Bellanca Applies to All Model 14-13 Series Aircraft.

Compliance required by August 15, 1952, with chain tension inspections to be repeated at intervals not to exceed 100 hours.

In order to prevent landing gear retracting chain malfunctionings, install chain guard, Bellanca P/N SK 491 or equivalent (see Figures 2 and 3), in both wings at the rear spar landing gear chain sprocket. Chains should be inspected and adjusted for proper tension. When correctly adjusted, chains should feel approximately as tight as the aileron cables.

(Bellanca Service Bulletins No. 20, dated March 22, 1948, and No. 27, dated September 11, 1950, cover the same subject.)

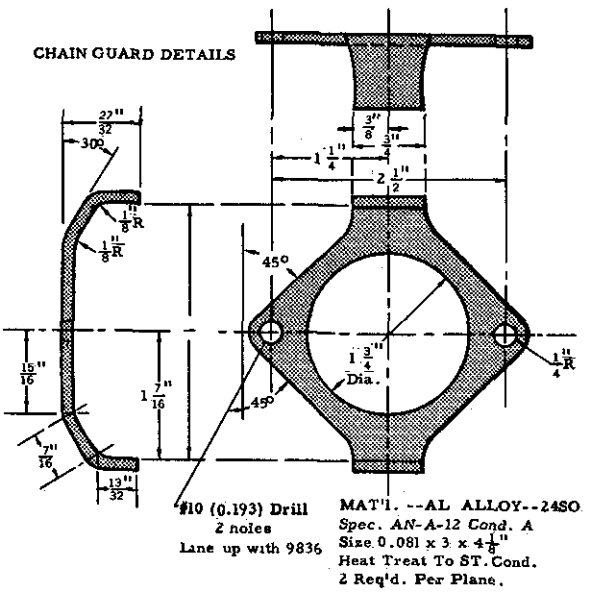


FIGURE 2

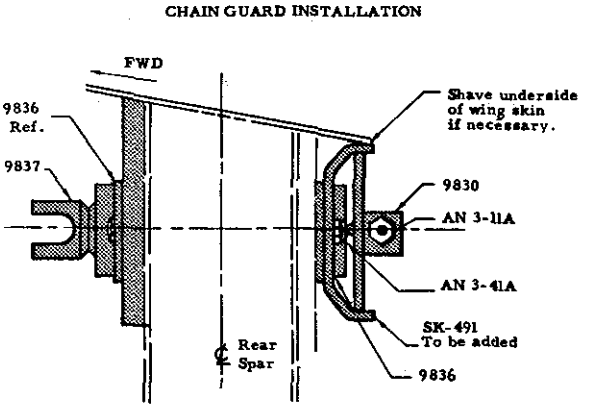


FIGURE 3

52-28-2 Bellanca Applies to Models 14-13, 14-13-2, 14-13-3 Aircraft, Serial Numbers Up to Number 1584.

Compliance required as soon as practicable, but not later than next engine overhaul after January 1, 1953.

In order to eliminate possible hazard due to excessive pressure from the engine-driven fuel pump, install a high-pressure relief valve between the fuel pump outlet and the inlet side of the hand wobble pump.

(Bellanca Service Bulletin No. 23 covers this same subject.)

62–19–1 Bellanca Amdt. 479 Part 507 Federal Register August 29, 1962. Applies to 14–13 Series, (Downer) 14–19, and 14–19–2 Aircraft.

Compliance required as indicated.

As a result of instances of elongation of the control cable attachment bolt hole in the rudder bellcrank, P/N 9817, accomplish the following inspection within the next 25 hours' time in service after the effective date of this airworthiness directive, unless accomplished within the last 75 hours' time in service, and thereafter within each 100 hours' time in service.

Remove the left and right rudder bellcranks, P/N 9817, located at the left and right ends of the rudder torque tube. (This may be accomplished by working from inside the cabin and through the inspection hole in the bottom cabin cowl.) If the control cable attachment bolt hole in the rudder bellcrank is elongated beyond maximum diameter of 0.210 inch, the rudder bellcrank must be replaced with a new rudder bellcrank of the same part number (P/N 9817), or FAA approved equivalent prior to further flight. The new rudder bellcrank must be inspected thereafter within each 100 hours' time in service.

This directive effective September 28, 1962.

BOEING

44–20–2 Boeing (Was Service Note 1 of AD–719–1 and Service Note 1 of AD–726–1.) Applies to 307 Series Aircraft.

Inspect by visual means all square aluminum alloy 24SRT tubing for cracks in the following locations: wing spars, front spar fuselage bulkhead, rear spar fuselage bulkhead, and fin and stabilizer attachment bulkheads. These inspections shall be conducted at intervals specified and in the following manner:

A. *SA–307B.* In the inspection of 24SRT members in this model airplane, it is recommended that the visual inspection procedure outlined for Boeing Model 314 and A–314 under AD 45–4–1 be followed. If defects are located, they shall be reported to the FAA for evaluation. Past experience has shown that once cracking starts, it may progress at a rapid rate, thus requiring closer inspections and corrective action. It shall also be the operator's responsibility to keep a record of all cracks on this model airplane. This record shall be revised periodically to show the status of existing cracks and to record newly developed cracks. Copies of the original report and all revised pages should be submitted to the FAA for examination.

1. *Inspections of Readily Accessible Areas.* These inspections shall be conducted at intervals not to exceed 150 hours of operation or 90 days, whichever occurs first. This inspection is intended to cover only those portions of 24SRT tubing that are accessible to visual inspection through available inspection panels, removal of gap strips and the openings in the nacelles.

2. *Detailed Inspections.* These inspections will be conducted annually or at engine overhaul periods, whichever occurs first. This inspection is required of all 24SRT tubing visible through all available inspection panels, removal of gap strips, leading edges, wing tips, stress plates and fuel tanks. The use of at least a 10-power glass will be required. To more thoroughly cover the wing area, it will be necessary for a man to crawl outboard in the wings as far as possible.

3. *X-Ray Inspection.* This type of inspection is required annually. Inspect by X-ray all inaccessible portions of the 24SRT spar chord members for their entire length. This inspection may coincide with the annual inspection noted under 2.

B. *SA–307B–1.* At intervals not to exceed 850 hours of operation or 120 days, whichever occurs first. If defects are located, they shall be repaired in a manner satisfactory to the FAA.

C. *S–307.* At intervals not to exceed 700 hours of operation or 120 days, whichever occurs first. If defects are located, they shall be repaired in a manner satisfactory to the FAA.

44–52–1 Boeing (Was Service Note 1 of AD–558–1 and Service Note 1 of AD–524–1.) Applies to 247–D Aircraft.

Inspect immediately and every 250 hours thereafter the outer wing panel 17SRT aluminum alloy spar chord members for cracks. Unless special openings are installed, the outer panels may have to be removed to permit thorough inspection. If cracks are found, the members should be repaired or replaced in a manner satisfactory to the FAA. If replacement 24ST tubing is installed no further inspection will be necessary. Boeing Service Bulletin No. 1 of D–6134 describes a satisfactory method of installation of inspection openings in the lower surface of the outer wing. Boeing Service Bulletin No. 2 of D–6134 covers replacement of 17SRT spar chords with 24ST spar chords.

45–4–1 Boeing (Was Service Note 1 of AD–704–1.) Applies to 314 Aircraft.

The 24SRT aluminum alloy tubular members must be inspected for stress corrosion and fatigue cracks by visual and X-ray methods in accordance with the instructions listed below:

STRESS CORROSION CRACKS

Inspection Periods and Locations

(*a*) Inspection required every 250 hours of operation or 60 days, whichever occurs first. Inspect the visible portion of all readily acces-

sible aluminum alloy 24SRT members for cracks.

(*b*) Inspection required every 750 hours of operation or 120 days, whichever occurs first. Inspect the visible faces of all aluminum alloy 24SRT tubing structure for cracks. In addition, inspect by X-ray the inaccessible face of the spar chord members from Station 6 to Station 13 which is hidden by the wing skin attach to the chord (i. e., chord face areas hidden by gusset plates used to attach web members are excluded).

(*c*) Inspection required annually. Inspect by X-ray all inaccessible portions of 24-SRT spar chord members for their entire length. This inspection period may coincide with the inspection periods in paragraph (*b*) above.

INSPECTION PROCEDURES

The required visual inspection for new or elongated cracks shall be done in a manner satisfactory to FAA. The following procedure is an acceptable method for making these visual inspections:

(*a*) Clean the surfaces of the members with a rag as necessary and closely examine the members (especially around gussets) with the naked eye. Direct a light on each member at varying angles so that no defects will be overlooked. Make certain to inspect all sides of each member using a mirror where necessary.

(*b*) Examine any suspicious indication with a magnifying glass (10 power or over preferred). A crack will appear to have jagged edges and considerable depth. A scratch will appear to have smooth edges and the bottom of the groove should be visible.

(*c*) If a new crack is found, the finish (if other than Roxalin Clear Primer) should be removed around the crack to facilitate inspection. Extreme care should be exercised while stripping areas immediately adjacent to gusset plates in order to prevent the stripping solvent from entering the inaccessible regions between the gussets and members. The crack should be further inspected for corrosion and its length measured to the nearest $\frac{1}{16}$ inch. The two ends of a stress corrosion crack should be marked with a sharp indelible pencil, and Roxalin Clear Primer No. 3200 brushed over the stripped area.

(*d*) Inspect known cracks for elongation by noting the pencil lines placed at the previous ends of each crack the same as for new cracks. (See (*c*) above.)

The required X-ray inspections should be done with suitable equipment and by a company or personnel that have demonstrated to the FAA that their procedure will adequately show the condition of the hidden faces of the chord members.

IDENTIFICATION AND LIMITS

Stress corrosion types of failures are denoted by longitudinal fissures in the members. These cracks may have a small transverse component. They vary in length and, as time elapses, may run together or continue from one rivet hole to another. If stress-corrosion cracks are within certain limits the airplane may be operated without reinforcing the affected member; however, if the magnitude, direction, or location of the crack is such as to violate any of the following provisions, the affected member shall be reinforced or replaced in a manner satisfactory to the FAA.

(1) No crack should be allowed to exceed 8 inches in length. Diagonal (or transverse) cracks should in no case extend transversely in the member for a distance greater than the largest rivet or bolt diameter in the nearest fitting.

(2) Cracks should not be allowed in joints, fittings, rivet holes, reduced sections, etc., unless it can be determined that the affected area is not critical or that adequate margins of safety exist to compensate for such cracks.

(3) If two or more parallel cracks exist in the same face, none should exceed 6 inches in length.

(4) If numerous small longitudinal cracks exist in one face of a member but are not joined by diagonal or transverse cracks, the length of the member so affected should not exceed 12 inches.

FATIGUE CRACKS

Inspection Periods and Locations. Inspection required every 35 hours of operation. Inspect the visible portions of all the wing spar 24SRT diagonal tube members, between Stations 1 and 30 on the front spar and between Stations 5 and 23 on the rear spar, for fatigue cracks at intervals not to exceed 35 hours flight time.

Inspection Procedures. Same as parts (*a*) and (*b*) of the inspection procedures for stress-corrosion cracks.

Identification and Limits. Fatigue types of failures are denoted by fine hairline transverse cracking in the members. These cracks generally emanate from rivet holes under gussets and progress transversely or diagonally around the periphery of the tube. They may also originate from a longitudinal crack, scratch or other stress-raising discontinuity. In case fatigue cracks of any length are found, the defective member should be reinforced before flight is continued and upon arrival at the home base, the member should be replaced. A proposed repair to take care of this contingency should be submitted to the FAA for approval. It shall also be the operators' responsibility to keep a record of all the cracks on each airplane. This record shall be revised periodically to show the status of existing cracks and to record newly developed cracks. Copies of the original reports and all revised pages should be submitted to the FAA for examination.

46–5–1 Boeing (Was Mandatory Note 4 of AD–558–1 and Mandatory Note 4 of AD–524–1.) Applies to Model 247 Aircraft.

Compliance required not later than next major overhaul.

Replace the elbow located between the engine fuel pump discharge port and the fuel discharge line with a steel elbow of the type AN 822–10 or an equivalent steel elbow to suit the particular pump and discharge line installation. Also, ascertain that there is adequate clearance between the elbow and adjacent engine parts.

(Boeing Service Bulletin No. 3 of D–6134 dated December 17, 1945, covers this same subject.)

47–14–2 Boeing (Was Mandatory Note 3 of AD–719–1 and Mandatory Note 3 of AD–726–1.) Applies to 307 Series Aircraft.

Compliance required prior to May 15, 1947.

Inspect the attachment of the main landing gear motors to the retracting unit. Determine, by testing, that the keys in these locations have been heat treated to 200,000–220,000 pounds per square inch. All keys that do not meet this strength specification should be replaced. Aircraft which have had this attachment revised to include an additional gearbox for the hand retracting drive are not subject to this inspection.

(TWA E.O. No. 3489 covers this same subject.)

49–6–4 Boeing Applies to Model 377 Aircraft.

The 11 convolution type altitude compensating bellows, Bendix P/N 390935, shall be replaced with new bellows after each 100 hours of operation until the 9 convolution type Bendix P/N 391003 is available and has been installed in the carburetor.

50–40–1 Boeing Applies to All Model 377 Aircraft.

A. Compliance required not later than December 15, 1950, unless already accomplished, and at the periodic inspections nearest a 700-hour interval thereafter if not reinforced as indicated below.

Thoroughly inspect the nose gear spindle for circumferential cracks in the area adjacent to the weld between the nose gear spindle shaft, P/N 9–13735, and the spindle bearing, P/N 6–25978. Since these cracks are extremely fine, a close magnaflux, dye penetrant or equivalent inspection is required. (Etching process is not recommended.)

If cracks are found, either of the following steps should be taken:

(1) Remove the cracks with ⅜-inch diameter grinding tool such that not more than 0.08 inch of the spindle shaft and not more than 0.10 inch of the weld is removed.

(Boeing Service Letter No. 94 covers this subject.)

If cracks extend beyond these limits the spindle should be reinforced per item (2) below:

(2) Reinforce the nose gear spindle by machining inside of spindle and inserting a ½-inch wall steel tube 25-inches long, P/N 5–39516–3.

(Boeing Service Letter No. 138A covers this same subject.)

B. (P/N 15–22594) Compliance required as indicated.

1. Thoroughly inspect the nose landing gear terminal P/N 15–22594, for cracks in the trapezoidal cutout as soon as practicable, but not later than November 1, 1952, unless already ac-

complished, and continuing at periodic intervals not to exceed 800 hours thereafter. This cutout is visible by removing the cover plate on the lower end of the strut and turning the nose gear segment. If cracks are found, the strut may be reworked in accordance with item 2 below, and provided cracks are removed, strut may be returned to service.

2. If not already accomplished, at the next landing gear overhaul, grind the sides of the trapezoidal cutout to a 0.50 inch radius at corners to conform to the sketch shown in Boeing's Service Letter 148A. The inspection of item 1 above must also be continued after rework until service experience shows that further cracking will not occur.

51–9–1 *See* Pratt & Whitney Engines.

51–27–2 Boeing Applies to All Model B–377 Aircraft Equipped With Goodrich H–3–626 and H–3–650 Wheel Assemblies.

To be accomplished as indicated below.

As a precautionary measure to preclude serious hazards which may result from fatigue cracks in Goodrich H–3–626 and H–3–650 wheel assemblies, all wheels shall be carefully inspected with at least a 4x magnifying glass at the periodic inspection following each 50th landing. These inspections shall be conducted until the wheels are retired from service. The wheels must be retired at the time replacement wheels are made available. Due to the fact that a large quantity of B–377 wheel halves were delivered to the operators without being assigned a serial number, the following description will identify both the wheel to be replaced and also the replacement wheel. The wheels to be retired from service are those wheels which have a tapered spoke and no reinforcing beading around the inner side of the spoke cut-out area. Replacement wheels are those wheels which have a reinforcing bead around the inner side of the spoke cut-out area and have either straight or tapered spokes.

(Goodrich Service Bulletin No. 27, dated November 14, 1951, covers this identification problem in further detail.)

Type I—Cracks Progressing Across a Spoke.

The wheel should be rejected when there is more than one crack of this type to a spoke, when there is more than one crack in each spoke cutout, or when a crack is in excess of 1 inch in length.

Type II—Cracks Progressing Radially Across the Brake Drum Mounting Flange.

More than one crack of this type in any one spoke cutout will be cause for rejection.

Type III—Cracks in the Tie Bolt Recess and the Junction of the Drum Mounting Area.

This type crack is in a noncritical area and is caused for wheel rejection only when either of the following conditions occur:

1. The crack extends to the spoke cutout.
2. Developed cracks on either side of the recess progress to within 1⅜ inches of each other.

The above wheel crack limitations are based on the recommendations of the B. F. Goodrich Co.

(Goodrich Service Bulletin No. 17 covers this subject and illustrates the three types of wheel cracks.)

52–12–1 Boeing Applies to All Model 377 Aircraft.

Compliance required as specified below.

In order to reduce the hazard of fire resulting from overheating of the freon compressor motors, compliance with the following is required:

A. Compliance required before any installation of overhauled or new compressor motor after October 1, 1952. (Not required if item B accomplished or airplane operated in accordance item C.)

Replace the following Westinghouse compressor motor magnesium parts with corresponding aluminum parts:

	P/N (Mg.)	*P/N (AL.)*
Inlet Cooling Cap	P14A9709	P35A9046
Front Bearing Bracket	P14A9712	P35A9044
Fan	A14B3724	P35A9042

B. Compliance required prior to October 1, 1952. (Not required if both motors previously modified in accordance item A or if airplane operated in accordance item C.)

Install a temperature sensing switch, adjusted to actuate at 100° or less, in the cooling air outlet of each freon compressor motor. Install circuits and equipment so that this overheat switch, as well as the motor thermoguard switch, will illuminate a cockpit warning light or will open the compressor motor power circuit, or both.

C. In the event the modifications outlined in A or B are not completed in accordance with the above requirements, aircraft may be operated with the refrigeration systems made inoperative.

52-15-1 Boeing Applies to All Model 377 Airplanes With Hamilton Standard Propellers.

Items I and II are to be accomplished by means of a progressive modification program to be submitted to and approved by the FAA. This program shall begin no later than August 1, 1952, and shall be completed no later than April 1, 1953.

I. In order to prevent inadvertent actuation of the propeller reversing solenoid valves, protect the reversing solenoid circuits from all other electrical circuits and protect the reversing solenoid circuits from each other. This is to be accomplished in accordance with attachment A (see AD 52-13-2) and the following instructions which pertain to specific features to be considered in isolation of the reversing circuits from other circuits. Other features which are not specifically referred to in this list shall be treated in an equivalent manner.

A. If any multiple pin connector assemblies are used in the reversing solenoid circuits, they are to be modified as specified in item 2 of attachment A.

B. Modify the following terminal strips as specified in item 1 of attachment A:

(1) Terminal strip at RH and LH wing break junction shield.

(2) Terminal strip at pilot's pedestal.

C. Protect the following exposed terminals as specified in item 3 of attachment A:

(1) Exposed terminal to which the solenoid valve leads are connected on "A" relays in propeller relay shield.

(2) Exposed terminals at throttle reversing switches.

D. Reversing solenoid circuit wiring shall comply with Boeing Service Bulletin No. 79 unless the circuits are completely isolated from all other circuits. The shielding on the wire shall be grounded at both ends and a protective cover shall be provided over the shielding wherever it runs in conduit with other wires.

E. Other circuit modifications: All airplanes shall be modified to comply with Hamilton Standard Service Bulletin No. 221.

II. Pedestal assembly. Make one of the following modifications:

A. Increase the height of the quadrant stop at the positive idle position by ⅛ of an inch. In addition, change the present positive taper on the stop and the sliding member of the throttle to a zero taper or a negative taper of not more than 3°.

B. Add a plate to throttle quadrant. The plate is to be hinged at its rearward edge and its forward edge should be so located that it will act as a stop in the forward idle position. It shall not be possible to force the plate open solely by pulling rearward on the throttles. In addition, remove the positive taper from the existing quadrant stop and the sliding member of the throttle and provide a zero taper or a negative taper of not more than 3°.

III. Maintenance practices (to be instituted not later than August 1, 1952):

A. At each nearest scheduled service to 350 hours:

(1) Inspect all points specified in items IB and IC. The inspections of item IB may be discontinued if the modifications made to the system are of the type described in item 1(*a*) or 1(*b*) of attachment A.

B. At any time that an electrical fault occurs in a circuit which is carried in the same bundles or the same conduits as the reversing solenoid circuit, representative terminal points in the faulty circuit are to be inspected to determine whether any damage may have occurred within the bundles or conduit. If there is evidence of possible damage, all the wiring involved is to be removed for inspection. Damaged wiring is replaced as necessary.

C. At each nearest scheduled service to 350 hours, perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switch is open when the throttles are moved forward out of the reverse position, unless it is shown that failure of any of the reverse safety switches to open will be clearly apparent to the flight crew by reason of improper operation of the propeller control system. Because of the many technical considerations involved, analyses showing that the objective of this revision has been accomplished should be referred to the FAA for engineering evaluation and approval.

C. In the event the modifications outlined in A or B are not completed in accordance with B. If the pedestal assembly is modified in accordance with item IIB, the operating instructions for airplanes so modified shall specify that the plate be open for takeoff and that it shall be closed immediately following takeoff. The plate shall remain closed during all other regimes of flight except that it shall again be opened just prior to landing.

V. (Note: Propeller governor design changes which are under development, and whose purpose is to provide a high pressure hydraulic circuit bypass to safeguard against inadvertent reversing and ability to feather even when the reversing solenoid is energized, are still under consideration and may be the subject of a future Directive.)

53–5–1 *See* Curtiss Propellers.

54–1–2 *See* Hamilton Standard Propellers.

55–9–1 Boeing Applies to All Model 377 Aircraft With Hamilton Standard Propellers.

To be accomplished as soon as practicable but not later than June 30, 1955.

Loss of manual r.p.m. control can occur as a result of tripping of the fast-acting magnetic circuit breaker before the slow-acting fuse is blown on a faulted branch. Improved circuit protective coordination and resultant reliability in the manual control function should be provided by replacing the "Manual" 10-ampere magnetic circuit breaker with a 5-ampere thermal type breaker, and replacing the four 5-ampere fuses in the synchronizer unit with 2 ampere Slo-Blo fuses.

(Hamilton Standard Service Bulletin No. 283 dated December 21, 1953, covers this same subject.)

55–9–4 *See* Hamilton Standard Propellers.

55–15–1 Boeing Applies to All Boeing 377 Series Aircraft With Hamilton Standard Propellers.

Compliance required by first scheduled engine change after November 1, 1955, but not later than November 1, 1956.

To increase the fire resistance integrity of the propeller feathering system against damage by a powerplant fire, all flexible hose components of propeller feathering lines forward of the firewall in zone 2 must be replaced with lines and fittings which will meet current fire resistance requirements. The following hose assemblies are considered acceptable for this application:

(*a*) Aeroquip 680–10S hose assemblies with Aeroquip 304 protective sleeves over end fittings (Aeroquip assembly P/N 304000).

(*b*) Resistoflex SSFR–3800–10 hose assemblies.

(*c*) Aeroquip 309009–10S hose assemblies.

56–1–2 Boeing Applies to All Model 377 Aircraft.

Compliance required as indicated.

As a result of cracks discovered at wing spar splice bolt holes the following inspection and possible rework is required.

At the next basic check period and subsequent thereto, at each basic check period but not to exceed an interval of 2,500 hours flight time, the No. 1 bolt hole in each rear spar Station 246 joint and Nos. 1 and 6 bolt holes in each front and rear spar Station 510 joints shall be carefully inspected by use of borescope or equivalent method.

If cracks are found, the splice should be reworked in accordance with instructions contained in Boeing Service Letter No. 289.

Within the next 500 flight hours, unless recently accomplished, the outboard bolt holes in each front and rear spar Station 47.75 joints shall be inspected for cracks by use of borescope or equivalent method. If cracks are found, they shall be repaired in accordance with Boeing Instructions.

This supersedes AD 55–23–1.

58–19–2 *See* Hamilton Standard Propellers.

59–8–2 Boeing Applies to All Model 707–100 Series Aircraft With Bendix Flux Gate Compass System.

Compliance required as indicated.

Reports have indicated that excessive indicator errors can be introduced in the Bendix remote compass system when it is in the slaving mode and when the aircraft is exposed to wing oscillations resulting from rough air, spoiler operation, etc. As an interim safety measure pending further investigation and development by the manufacturer of an improved Bendix flux valve installation, the following aircraft operating limitation is re-

quired for all aircraft incorporating the Bendix system:

Whenever heading information is required by the pilots, the two Bendix systems (two RMI and two CDI indicators) should be frequently checked against each other and against the magnetic standby compass to detect obvious errors in indication.

This information must be included, within the next 10 hours' flight time, on a placard adjacent to the RMI and CDI indicators until an approved Airplane Flight Manual revision covering this subject is available.

The foregoing limitation does not apply to aircraft in which the magnetic sensing device (flux gate) is installed in the fuselage body by the manufacturer or installed in accordance with Boeing 707 Service Bulletin No. 587 "Bendix Compass System Flux Gate Relocation," which describes a satisfactory and approved means of mounting the flux valves.

59–10–1 Boeing Applies to Boeing Model 707–100 Series Airplanes Registration Number N707PA Through N712PA, N70773, N7501A Through 7510A, N732TW Through N736TW.

Compliance required by May 30, 1959.

Remove lining trim strip 65–1910–10 and lining panels 65–1910–3 and –4 from left-hand and right-hand cabin sidewall panel installations. Install suitable plate of 0.032 gage aluminum alloy or 0.062 thick Royalite material on the left-hand and right-hand cabin sidewalls in vicinity of fuselage Station 196.5 such that left outboard and right outboard rudder pedals will have positive clearance throughout the full range of rudder pedal travel.

(Boeing Service Bulletin No. 298 Revision R–1 covers this subject.)

59–14–1 Boeing Applies to the Following Boeing 707–100 Series Aircraft Serial Numbers 17586 Through 17591, 17609, 17628 Through 17637 and 17658 Through 17662.

Compliance required as indicated.

As a result of the complete loss of hydraulic fluid in the utility hydraulic system of a 707–100 Series aircraft caused by the rupture of the aluminum tube assembly in the nose wheel well door-open system, the following modification shall be accomplished. Prior to July 31, 1959, the nose wheel door-open aluminum tube assembly 50–6848–45 shall be replaced with corrosion resistant steel tubing 3/8 inch O.D. by 0.028 inch wall thickness.

(Boeing Service Bulletin No. 412 pertains to this same subject.)

59–16–5 Boeing Applies to 707–100 Series Aircraft With the Following Serial Numbers: Model 707–121 Serial Numbers 17586 Through 17591, Model 707–124 Serial Number 17609, Model 707–123 Serial Numbers 17628 Through 17643, Model 707–131 Serial Numbers 17659 Through 17672, Model VC–137A Serial Numbers 17925 Through 17927.

Compliance required not later than August 21, 1959.

As a result of complete loss of fluid during service operation of the utility hydraulic system, primarily due to failure of engine driven hydraulic pump the following must be accomplished:

(a) Install new pump, Vickers No. AS–61689–L–2E, in place of the AS–61689–L–2B or –2C, or install pump external by-pass valve No. A–90073–Y6 with the –2B or –2C pump. If the pump external by-pass valve is installed the shaft seal on each hydraulic pump must be replaced at the same time.

(b) Install return line filter.

(Boeing Service Bulletin No. 379 and Vickers Service Letter dated June 17, 1959, pertain to item (a). Boeing Service Bulletins Nos. 69 and 213 pertain to item (b).)

59–17–2 Boeing Applies to All Model 707 Series Aircraft.

Compliance required as indicated.

Several reports have been received concerning the complete or partial disintegration of certain type Purolator, P/N 57737–2 filter elements used in pressure filter assembly BAC P/N F–18C–12 (Purolator P/N 57726) and in auxiliary return filter, BAC P/N 10–3333–1 (Purolator P/N 64088).

There are two types of filter elements in use having the same P/N 57737–2. They are easily distinguishable by their design. One has a concave bottom plate and the other one a flat bottom together with nonmetallic mesh on the inner surface of the paper convolutions. Investigation has shown that the filter elements which disintegrated were of the Purola-

tor concave bottom type supplied prior to July 25, 1959.

Although all P/N 57737-2 concave bottom type filter elements may not be unsatisfactory, the number and location of unsatisfactory elements is unknown. Accordingly, to eliminate the existent adverse situation, the following must be accomplished.

(a) All present inventories of the concave bottom type Purolator filter elements P/N 57737-2 supplied prior to July 25, 1959, must be rejected for any further use in any type certificated aircraft.

(b) Replacement filter elements in the above noted pressure filter assembly or auxiliary return filter assembly shall utilize either the flat bottom type filter element, P/N 57737-2, or the concave bottom type P/N 57737-2 obtained from Purolator, and dated after July 25, 1959, or other approved replacement filter elements such as Aircraft Porous Media, Inc., P/N ACS-1790E-12 or Bendix Filter Division, P/N 574615.

(Boeing service message dated July 23, 1959, also covers this subject.)

59-17-3 *See* Hamilton Standard Propellers.

59-20-4 Boeing Applies to the Following 707-100 Series Aircraft Only: Serial Numbers 17586 Through 17591, 17609 Through 17612, 17628 Through 17652, 17658 Through 17672, 17696 Through 17702, 17925 Through 17927.

Compliance required not later than November 15, 1959.

There have been failures of the welded flanges located at each end of the turbocompressor bleed duct mounted on the high pressure bleed port of the engine. These failures have caused damage to the surrounding structure due to excessive pressure and temperature in the cowl and also required engine shutdown due to high EGT and low EPR. Therefore, the following modification(s) shall be accomplished as indicated:

(a) An additional filletweld shall be added to the external side of the three flanges on the turbocompressor engine bleed duct assembly. (Each pod utilizing a turbocompressor.)

(b) The existing boss weld on the turbocompressor engine bleed duct shall be strengthened by welding gussets to both the boss and duct. These gussets are to be fabricated in accordance with Boeing Service Bulletin No. 543 figure 2.

NOTE: The above modification(s) are included in Boeing Airplane Company Service Bulletin No. 543 dated August 14, 1959.

59-21-1 Boeing

Superseded by AD 62-17-2.

59-21-4 Boeing Applies to All 707-100 Series Long Body Airplanes.

Compliance required as indicated.

The rudder characteristics of this airplane are such that when yaw angles in excess of approximately ten degrees are attained, the rudder effectiveness deteriorates quite rapidly with a resultant loss of aircraft directional control. Several incidents have shown that this can produce a dangerous flight condition. In order to minimize the probability of attaining these large yaw angles and to reduce the large rudder pedal forces needed for directional control, especially during flight with one outboard or both engines inoperative on the same side, the following must be accomplished at the next terminal where adequate facilities and personnel are available.

(a) Deactivate the rudder feel spring installation.

(b) The emergency operating instructions section of the Airplane Flight Manual must be changed to include the following precautionary note:

CAUTION. The rudder characteristics of this airplane are such that when side slip angles (yaw angles) in excess of approximately ten degrees are attained, the rudder effectiveness deteriorates quite rapidly with a resultant loss of directional control. In order to minimize the probability of obtaining large side slips (yaw angles) during flight with one outboard or both engines on one side inoperative, maintain directional control with the rudder and maintain this amount of rudder if turns are made. Do not use excessive aileron or bank angles to maintain directional control. Side slip angles (yaw angles) of approximately ten degrees result in nearly full aileron control to maintain heading when inadequate rudder is applied. This provides means for

pilot recognition of inadequate rudder application. Therefore, if during engine-out operation, more than thirty degrees of control wheel rotation toward the operating engines are required to maintain straight flight or steady turning flight, then one or more of the following corrective actions should be taken immediately:

(1) Apply additional rudder if available toward operating engines.

(2) Increase airspeed.

(3) Decrease thrust on the operating engines side.

NOTE: There is a noticeable stiffening of rudder pedal forces during the last two or three degrees of rudder deflection; therefore, if any maneuver requires full rudder deflection; the pilot should be certain to depress the rudder pedal fully.

(Boeing Service Bulletin No. 619 dated October 5, 1959, covers details relative to the deactivation of the subject rudder feel spring installation. Boeing Airplane Company will initiate changes to the emergency operating procedures of the Airplane Flight Manual.)

This airworthiness directive sent by telegram to all operators of Boeing 707–100 aircraft on October 9, 1959.

60–2–1 Boeing Amdt. 80 Part 507 Federal Register January 15, 1960. Applies to the Following 707–100 Series Aircraft Only: Serial Numbers 17586 Through 17591, 17609, 17610, 17628 Through 17638, 17640, 17641, 17658 Through 17667, and 17696.

The occurrence of cracks in seven wing splice plates on early 707–100 Series aircraft, and the subsequent cracking of two plates in service, one after 1,150 flight hours, has led to further investigations which indicate that the plates used in early production can be expected to crack after certain periods of calendar and/or service time. These plates are installed on the wing lower surface at RBL 70.5 and LBL 70.5. Improved plates have been installed on airplanes other than noted above.

The following inspections must be conducted until improved plates are installed at which time these special inspections are no longer required.

(a) Unless already accomplished within the last four months or 750 hours' time in service, within the next 200 to 400 hours' time in service:

(1) Remove left- and right-hand lower wing-body fairings.

(2) Visually inspect all wing lower splice plates for cracks at RBL 70.5 and LBL 70.5.

(3) Replace any splice plate found to be cracked, with Boeing redesigned plate in accordance with Boeing installation procedures.

(b) Repeat the inspections of original plates, as described in (a), every four months or 750 hours' time in service, whichever occurs first. (Boeing Service Bulletin No. 186 (R–1) covers this same subject.)

This supersedes AD 59–3–5.

60–2–2 Boeing Amdt. 75 Part 507 Federal Register January 15, 1960. Applies to the Following 707–100 Series Aircraft Only: Serial Numbers 17586 Through 17591, 17609, 17610, 17628 Through 17641, 17659 Through 17666, 17925, 17926.

Compliance required as indicated.

Service experience has shown that it is possible for the inboard aileron balance panel end seals to loosen and restrict movement of the aileron on some Boeing 707 aircraft. Therefore, certain inspection(s) or modification(s) are to be accomplished.

Part I. Within the next 200 hours' time in service and at each 200 hours' time in service thereafter until Part II of this AD is accomplished, conduct the following inspection(s).

(a) Remove the inboard aileron balance bay access panels on the wing lower surfaces.

(b) Inspect the fasteners retaining the felt end seals P/N 5–87140–8 and P/N 3–94377–1 at each end of the balance panel hinge and retorque as necessary.

(c) Reinstall access panels.

Part II. The Part I inspections may be discontinued after incorporating the following modification(s).

(a) Remove the inboard aileron balance bay access panels on the wing lower surfaces.

(b) Delete felt end seals 5–87140–8 and washer BAC–W10P–69S (8 places) and retaining screw NAS 514P–632–8, washer AN 960–6 and nut (16 places). Open holes are satisfactory.

(c) Delete felt end seals 3–94377–1 (8 places).

(d) Inspect and replace any damaged nuts and nut plates from which bolts were removed.

(e) Delete spacer washer AN 960D10 (8 places).

(f) Reassemble using shorter bolts to compensate for parts deleted or modified.

(g) Check for proper operation of inboard ailerons.

(h) Reinstall access panels.

(Boeing Service Bulletin No. 245 pertains to this same subject.)

60–2–3 Boeing Amdt. 79 Part 507 Federal Register January 15, 1960, revised by Amdt. 123 Federal Register March 29, 1960. Applies to the Following 707–100 Series Aircraft Only: Serial Numbers 17586 Through 17591, 17609 Through 17612, 17628 Through 17650, 17658 Through 17672, 17696 Through 17702, 17925 Through 17927.

Compliance required by June 1, 1960.

Because of the hazardous condition caused by water injection system failures, the following modifications shall be accomplished as indicated:

(a) Relocate the water inlet valve switch from the co-pilot's panel to the flight engineer's panel and add four transient position blue indicating lights (one for each valve). Install a placard for nomenclature.

(b) Change water booster pumps start switch on co-pilot's panel to a two-position toggle switch.

(c) Install an appropriate placard adjacent to the water booster pump switch to specify that this switch is to be turned off after the water pressure lights go out at the end of water injection. This is necessary to avoid damaging the tank mounted water booster pumps after water runout. These modifications are included in Boeing Service Bulletin No. 194 (R–1) dated June 19, 1959.

60–2–4 Boeing Amdt. 86 Part 507 Federal Register January 21, 1960. Applies to the Following Model 707 Series Aircraft Only: Serial Numbers 17586 Through 17591, 17609 Through 17612, 17628 Through 17652, 17658 Through 17672, 17691, 17696 Through 17702, 17925 Through 17927.

To increase the capabilities and reliability of the Mach trim warning lights and the Mach warning and fire warning bell systems the following modification(s) shall be accomplished as indicated:

Unless already completed, the following shall be accomplished by April 30, 1960.

(a) Remove Mach and fire warning bell support bracket, Boeing P/N 69–1640, from below flight engineer's table and rework to accept redesigned warning bell assembly Boeing P/N 69–50013 or equivalent. Install reworked bracket and redesigned components as shown in Boeing Drawing 65–2801. (Boeing Service Bulletin No. 444 pertains to this same subject.)

(b) Install two diodes, Boeing assembly 69–43070–6, in the Mach trim system resistor box and revise the indicating light circuitry such that this light will indicate when the system is not turned on as well as indicating Mach trim system malfunctions. (Boeing Service Bulletin No. 474 (R–1) describes a satisfactory modification.)

60–3–1 Boeing Amdt. 87 Part 507 Federal Register January 26, 1960. Applies to All Model 707 Series Aircraft.

Due to recent failures of the wing foreflaps, the following must be accomplished at times indicated:

(a) Conduct daily inspection of the original type outboard foreflap, P/N's 65–7360–3007 and 65–7360–3008, on outboard mainflap as follows:

(1) Conduct detail visual inspection of foreflaps for any evidence of cracking.

(2) By use of borescope or equivalent, inspect interior web, flanges and cutouts on both the inboard and outboard end ribs for cracks or other damage.

(3) By means of dye check or equivalent, examine skin areas at ends of reinforcement plate on upper surface.

(b) When the original type outboard foreflap on each outboard mainflap has been replaced with the redesigned type, P/N's 65–7360–3023 and 65–7360–3024, the daily inspection, (a) above, may be discontinued. However, the redesigned foreflap must then be inspected at intervals not to exceed 65 hours' time in service as prescribd in (a)(1) and (a)(2) above.

(c) Any outboard foreflap showing evidence of cracking or other damage must be replaced or repaired in accordance with FAA approved manufacturer's instructions prior to next flight.

(d) The special inspections of the outboard foreflap, P/N's 65–7360–3023 and 65–7360–3024, prescribed in (b) above may be discontinued when an inertia damper P/N's 69–11124–1 (left wing) and 69–11124–2 (right wing) has been installed on the foreflaps.

(Boeing Service Bulletins No. 546 (R–2) dated November 18, 1959, and No. 566 dated August 26, 1959, cover criteria on the same subject.)

This supersedes AD 59–25–1.

60–4–2 Boeing Amdt. 104 Part 507 Federal Register February 20, 1960. Applies to All Model 707 Series Aircraft.

Due to recent failures of the wing foreflaps, the following shall be accomplished:

(a) At intervals not to exceed 65 hours' time in service, inspect all foreflaps except the two outboard foreflap sections (P/N's 65–7360–3007 through 65–7360–3010, 65–7360–3023, and 65–7360–3024 [1]) on the outboard flaps as follows:

(1) Conduct detail visual inspection of foreflaps for any evidence of cracking.

(2) By use of borescope or equivalent, inspect interior web, flanges and cutouts on both inboard and outboard end ribs for cracks or other damage.

(b) Any foreflap showing evidence of cracking or other damage must be replaced or repaired in accordance with FAA approved manufacturer's instructions prior to next flight.

(c) The special inspections in (a) above may be discontinued when an inertia damper P/N's 69–11124–1 (left wing) and 69–11124–2 (right wing) has been installed on the foreflaps.

(Boeing Service Bulletin No. 546 (R–2) dated November 18, 1959, covers criteria on the same subject.)

60–6–1 Boeing Amdt. 111 Part 507 Federal Register March 8, 1960, revised by Amdt. 226 Federal Register November 18, 1960. Applies to all Model 707 Series Aircraft.

Compliance required as indicated.

Due to failures found in the nose landing gear outer cylinder as a result of initial defects, the following inspections are required unless already accomplished:

(a) Conduct a daily visual inspection with a 10-power magnifying glass for cracks in the outer surface of the nose gear outer cylinder in the upper barrel area of the trunnion, and in the area below the towing collar. Outer cylinders with cracks appearing on the outer surface must be replaced prior to further flight. Further inspection is not required on replacement part. This inspection must be continued until item (b) is accomplished.

(b) Within 20 calendar days, inspect the areas described in (a) with probe type ultrasonic shear wave equipment or equivalent. Outer cylinders with cracks on the outer surface or with crack indications that exceed 1 inch in length must be replaced prior to further flight. Cylinders with crack indications 1 inch or less in length may be retained in service, provided:

(1) A daily visual inspection as in (a) is continued and the ultrasonic inspections or equivalent are repeated every 20 landings.

(2) A dye penetrant inspection or equivalent of the interior surface of the outer cylinder is accomplished within 550 hours' time in service and every 550 hours' time in service thereafter.

(c) If no cracks or crack indications are found by inspections (a) and (b), the nose landing gear may revert to normal inspection procedures and periods except for accomplishing (d).

(d) Conduct a dye penetrant inspection or equivalent for cracks on the interior surface of all nose gear outer cylinders within the next 3,000 hours' time in service. Outer cylinders with cracks on the interior surface that exceed 1 inch in length or that extend to the outer surface must be replaced prior to further flight. Cylinders with cracks 1 inch or less in length on the interior surface may be retained in service provided the cracks do not extend to the outer surface and the cylinders are inspected in accordance with (b)(1) and (b)(2). Operators may accomplish this inspection within the next 1,500 landings occurring subsequent to March 8, 1960, in lieu of

[1] Foreflaps, P/N's 65–7360–3007, 65–7360–3008, 65–7360–3023, and 65–7360–3024 are covered by another airworthiness directive.

the next 3,000 hours' time in service. (It will be necessary for operators to maintain a record of landings to ascertain compliance. If past records are unavailable, the number of prior landings may be estimated.)

(Boeing Wire Service Bulletin No. 739 pertains to the above subject.)

60–6–2 Boeing Amdt. 113 Part 507 Federal Register March 11, 1960. Applies to all 707 Series aircraft operating in accordance with Parts 40, 41, and 42 of the Civil Air Regulations.

Compliance required as indicated.

As a result of detailed examinations of flight recorder data subsequent to recent incidents involving 707 Series aircraft, it has been determined that the prime power switch for the flight recorder, now actuated by the displacement of a landing gear oleo strut, does not insure all elements of the flight recorder to be operating at the start of the takeoff roll and continuing until the landing is completed at an airport. Therefore the following modification shall be accomplished as indicated.

Unless already accomplished, compliance required not later than May 15, 1960.

Install a three-position switch, AN 3027–8 type or equivalent, in the pilot compartment and connect to appropriate circuits in the flight recorder for "TEST-OFF-ON" functions. Switch positions shall be appropriately marked.

Removal of the presently installed oleo actuated power switch is optional, and if not removed, it shall not be considered as an equivalent to the required three-position manually operated switch. (Boeing Service Bulletin No. 77 (R–1) pertains to the circuitry revision.)

60–10–3 Boeing Amdt. 144 Part 507 Federal Register May 7, 1960. Applies to The Following 707 Series Aircraft Only: Serial Numbers 17586 Through 17596, 17609 Through 17612, 17628 Through 17648, 17658 Through 17672, 17696 Through 17702, 17925 Through 17927.

Compliance required as indicated.

As a result of one known incident wherein aggravated dutch roll was experienced due to improper rigging of the outboard aileron balance tab, the following modifications shall be accomplished:

Unless already accomplished, prior to July 1, 1960:

(a) Replace aileron quadrant rod assembly P/N 90–2480–3001 with redesigned rod assembly P/N 69–10829 (LH and RH side).

(b) Replace support channel P/N 6–83872–2000 located on beam installation P/N 9–65133 (aileron lockout crank) with new channel P/N 69–10833. Adjust stop in accordance with maintenance manual procedure.

(c) Revise rigging of outboard aileron balance tab to 1.5 degrees (plus-minus 0.5 degrees) down with the aileron in the neutral position.

(Boeing Service Bulletin No. 583 dated September 24, 1959, pertains to this same subject.)

60–11–1 Boeing Amdt. 158 Part 507 Federal Register May 24, 1960. Applies to the Following 707–200 and –300 Series Airplanes And All Spare Quick Change Engine Build-Up Units Which May Be Available. Serial Numbers 17592 Through 17606, 17613 Through 17618, 17623 Through 17626, 17673 Through 17684, And 17692 Through 17695. Boeing will incorporate the modification required by this airworthiness directive on all production airplanes other than those listed above.

Compliance required by July 1, 1960.

As a result of several failures which have occurred to the engine nose dome installation of the Boeing 707–300 Series airplanes resulting in major engine failures, inspections and modifications to the nose dome attaching means is required. To preclude further difficulty the following shall be accomplished as indicated:

(a) Inspect and rework each engine nose dome and attachment in accordance with the information included in Boeing Service Bulletin No. 799 dated January 28, 1960.

(b) Rework the nose dome stub and bolt, Boeing P/N's 66–2079 or 66–2078 and 66–2075 in accordance with the instructions contained in Boeing Service Bulletin No. 790 dated January 27, 1960.

60–16–2 Boeing Amdt. 184 Part 507 Federal Register August 2, 1960. Applies to the Following 707–100, –200, –300 Aircraft Only: Serial Numbers 17586 Through 17605, 17609 Through 17616, 17623 Through 17625, 17628 Through 17652, 17658 Through 17680, 17692 Through 17702, 17925 Through 17927.

Compliance required by December 31, 1960.

When the fuel dump chutes are in the stowed position, the dump chute roller may not be fully engaged and the dump chute not locked in position. This has resulted in thirteen incidents of the fuel dump chutes inadvertently extending in flight. In five cases all or part of the chute and/or door was lost. In eight cases some damage was done to the chute and/or door. In order to eliminate this problem a new uplatch assembly has been designed which incorporates a position lock for the dump chute roller and a mechanism to indicate the position of the latch when the dump chute is stored. As a result of the above, the following modifications shall be accomplished as indicated:

(a) Remove the fuel dump chute uplatch assembly and rework or install new uplatch assemblies in accordance with Boeing Service Bulletin Nos. 689 (R–3), 895 and 895A.

(b) After completion of item (a) conduct the pressure check-out procedure as outlined in item (a1) of Boeing Service Bulletin No. 689 (R–3). This pressure check procedure must be conducted each time the fuel dump chute is removed and reinstalled.

(c) A placard must be added on the exterior side of the dump chute closure panel adjacent to the indicator hole. For nomenclature and method of fabricating this placard follow procedure outlined in item (am) of Boeing Service Bulletin No. 689 (R–3).

(d) Perform functional test as outlined in Boeing Service Bulletin Nos. 689 (R–3), 895 and 895A.

60–20–2 *See* Hamilton Standard Propellers.

60–23–1 Boeing Amdt. 216 Part 507 Federal Register November 4, 1960. Applies to the following 707–100 Series aircraft: Serial Numbers 17586 through 17591, 17628 through 17651, 17658 through 17672, 17696 through 17702, and 17925 through 17927.

Compliance required within 2,500 hours' time in service after effective date.

Incidents have occurred of the engine start lever slipping toward the "OFF" position causing engine flame-out. One such incident occurred during takeoff. These incidents were caused by insecure placement of the start lever in the "idle" position. In addition, inspections have disclosed the presence of incorrect parts and improper installations on some airplanes.

Also, in the present starting ignition system, on some airplanes, the igniter plug fires during initial engine rotation. This has caused combustion chamber explosions when fuel vapors were present.

To correct the above unsatisfactory conditions, the following modifiications or FAA approved equivalents and inspections are required:

I. Modify and inspect the start lever system as follows:

a. Machine an additional slot at the start position of the start lever latch in each of the start lever guides as shown in Fig. 1 of Boeing Service Bulletin 369 dated April 15, 1959.

b. Ascertain that the control stand start lever spacers, P/N 66–19067–1 and –2, and lever guide fillers P/N 66–9256–3, are correctly installed as follows:

(1) The two outboard spacers must be P/N 66–19067–1 and –2 and installed in accordance with Boeing Drawing 65–1795. (Boeing 707 Parts Catalog Fig. 25–2–11 is in error in calling for P/N 66–9256–1 and –2 for Items 28 and 33. Correct P/N's are 19067–1 and –2 as indicated above.)

(2) The middle lever guide filler, P/N 66–9256–3, must be installed with the wide section at the top and not at the bottom. (Item 17 in Fig. 75–2–11 of Boeing 707 Parts Catalog is incorrect in that it shows the wide section at the bottom.)

c. Ascertain that the start lever detents have a minimum distance of 0.53 inch between the stop strap and the idle detents in accordance with Bulletin 369.

d. After reinstallation of the start levers, ascertain that the start lever system is properly rigged as covered in Chapter 76 Boeing 707–100 Series Maintenance Manual. This applies only to airplanes which require removal of the start lever detents for machining the slot.

II. Modify the starting ignition system as follows:

a. Remove the jumper wire between the "COMMON" terminal and "NO" terminal of each engine start lever switch (S192, S193, S194, S195).

b. Install a wire from the "ON" contact flight start and control switches (S188, S189, S190 and S191) on the pilot's overhead panel to the corresponding engine ignition circuit breaker bus on the P6 circuit breaker panel. Remove the No. 18 jumper wire between the flight start and ground start terminals of the engine start and control switch. Boeing Service Bulletin No. 195 (R–1) dated July 8, 1959, and Supplement No. 195 (R–1) A dated August 4, 1959, covers these changes.

This directive shall become effective December 6, 1960.

61–6–1 Boeing Amdt. 265 Part 507 Federal Register March 11, 1961. Applies to All Models 707–100 and 707–200 Aircraft With Main Landing Gear Oleo Cylinders That Have Experienced 800 Flights and All 707–300 and 707–400 Aircraft With Main Landing Gear Oleo Cylinders That Have Experienced 1,000 Flights. (It will be necessary for operators to maintain a record of flights to ascertain compliance with this AD. If past records are unavailable, the number of flights prior to this AD may be estimated.) Compliance required as indicated.

Due to failure of main landing gear oleo outer cylinders in the area of upper torsion link lugs, the following inspections are required:

(a) The following must be accomplished on Models 707–100 and 707–200 Series aircraft unless spacer, Boeing P/N 69–11430 or equivalent, has been installed in accordance with (c).

(1) Clean and remove paint from the outer cylinder surface within three inches of the outer cylinder torsion link lugs, excluding the area between lugs, using perchloroethylene or FAA approved equivalent.

(2) Using a 10-power glass, conduct a daily inspection of the area described in (a) (1).

(3) Every 65 hours' time in service, inspect the area described in (a) (1) using fluorescent dye penetrant at temperatures of 50° F. or above, or equivalent.

(b) The following must be accomplished every 65 hours' time in service for all Models 707–300 and 707–400 Series aircraft:

(1) Clean and remove paint from the outer cylinder surface within three inches of the outer cylinder solid torsion link lug using perchloroethylene or FAA approved equivalent.

(2) Inspect the outer cylinder lug using fluorescent dye penetrant at 50° F. or above, or equivalent.

(c) When spacer, Boeing P/N 69–11430 or equivalent, is installed between the outer cylinder torsion link lugs to interference fit of 0.001 to 0.005 inch on Models 707–100 and 707–200 Series aircraft, the following inspection may be substituted for the inspection required in (a): At the time of spacer installation, and every 65 hours' time in service thereafter, inspect the outer cylinder lugs using fluorescent dye penetrant at 50° F. or above, or equivalent.

(d) If cracks are found during any of the above inspections, perform the following rework and inspections:

(1) Rework the affected area with a hand file and smooth with No. 320 emery paper. Complete removal of crack must be verified by dye penetrant inspection or FAA approved equivalent. If cracks are completely removed as verified by such inspection, remove an additional 0.03 inch of material. After all rework is completed, the maximum allowable depth of material removed is 0.08 inch using a 1.00 inch minimum radius.

Parts previously reworked in accordance with the crack limitations contained in Amendment 136 Part 507 Federal Register April 26, 1960, need not be reworked again to incorporate 0.03 inch insurance material removal. If crack reappears in this reworked area, or a new crack develops, rework must be accomplished in accordance with the above instructions.

(2) Cylinders with defects that cannot be removed within the rework limits given in (d) (1) must be replaced prior to further flight.

(e) When the redesigned outer cylinder, P/N 65–5763 or FAA approved equivalent for Models 707–100 and 707–200 Series aircraft, or P/N 65–5764 or FAA approved equivalent for Models 707–300 and 707–400 Series aircraft, has been installed in accordance with the latest revision of FAA approved Boeing Service Bul-

letin 979, the inspection intervals noted above may be cancelled and the redesigned outer cylinder inspection interval will revert to normal frequency. (Effective April 19, 1961.)

(f) Upon request of the operator, an FAA maintenance inspector, subject to prior approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator. (Effective November 3, 1961.)

(Boeing Service Bulletin No. 717 (R–1), Boeing Telegraphic Service Bulletin No. 717 (R–1) dated March 7, 1960, and Service Bulletin 979 cover this subject.)

Ultrasonic inspection using Sperry reflectoscope type UR or equivalent with Sperry surface wave crystal, style 50A656, frequency 2.25 MC, may be used in lieu of fluorescent dye penetrant inspection procedures. The ultrasonic inspection instrument should be set per instructions in Boeing Service Letter 6–7161–6–597 dated March 16, 1960.

This supersedes AD 60–9–1.

This directive effective March 11, 1961.

61–18–1 Boeing Amdt. 326 Part 507 Federal Register August 24, 1961. Applies to Boeing 707 Series Aircraft Serial Nos. 17586–17652, 17658–17690, 17692–17712, 17718–17724, 17903–17906, 17918–17919, 17925–17930, 18012 and 18054 and Boeing 720 Series Aircraft Serial Nos. 17907–17917, 18013–18020, 18023, and 18041 As Indicated.

Due to failure in a main landing gear trunnion support, the following inspections, contained in paragraphs (a), (b), and (c), are required on all specified 707 Series aircraft until paragraph (d) has been accomplished. Paragraph (e) is required on all specified 707 Series aircraft after paragraph (d) is accomplished and on all specified 720 Series aircraft.

(a) Within the next 200 hours' time in service, unless already accomplished within the last 150 hours' time in service, and thereafter at every 350 hours' time in service:

(1) Clean the web, upper and lower chord areas and aft flanges on the inboard and outboard side of 220,000 p.s.i. heat treat steel main landing gear trunnion support rib and conduct a visual inspection of the cleaned areas for evidence of cracks.

(2) Clean and visually, or radiographically, inspect the forward trunnion support fitting for evidence of cracks on the forward and aft side in the region of the bearing collar.

(3) If evidence of cracks is found in (a) (1) or (a) (2) above, conduct more detail inspections using fluorescent dye penetrant at temperatures of 50° F. or above, X-ray, or equivalent.

(b) Within the next 35 hours' time in service, unless already accomplished within the last 30 hours' time in service and thereafter at every 100 hours' time in service, clean the main landing gear aft trunnion bearing support, paying particular attention to the areas listed below, and conduct a fluorescent dye penetrant inspection or equivalent for cracks:

(1) Area around the barrel nut hole, both forward and aft sides.

(2) A strip ½-inch wide around upper bearing support, from the upper barrel nut to lower 1.31 diameter inboard (tension) bolt hole, on aft side.

(3) A strip ½-inch wide around upper bearing, from upper barrel nut to trunnion support rib, on forward side.

(c) If cracks exceeding allowable lengths specified in the latest revision of Boeing Service Bulletin No. 859 (R–2 or later) are found during inspections (a) and (b), the affected components must be replaced or repaired in accordance with FAA approved Boeing procedures prior to further flight. When cracks less than the maximum allowable lengths specified in S.B. 859 (R–2 or later), are found, the following shall be accomplished:

(1) Stop drill in accordance with S.B. 859 (R–2 or later) instructions and inspect for crack progression at each 350 hours' time in service after stop drilling. If cracks progress beyond the stop drilled hole, contact Boeing for FAA approved Boeing repair procedures to be incorporated prior to further flight.

(2) If cracks are not accessible for stop drilling prior to further flight FAA approved Boeing instructions must be obtained for the required inspection intervals and procedures for the specific crack location and length.

(d) Unless already accomplished at the factory or by the operator within the next 3,500 hours' time in service conduct the following detail inspections and rework as indicated:

(1) Remove the main landing gear and trunnion in accordance with BAC Maintenance Manual Procedure.

(2) Remove all nuts and washers along the periphery of the trunnion support rib.

(3) Rework the main landing gear trunnion support fittings per the latest revision of FAA approved S.B. No. 874 (August 9, 1960, or later).

(4) Following the rework, clean the aft and forward trunnion support fittings and perform a thorough magnetic particle and visual inspection for cracks.

(5) Conduct a thorough visual inspection for evidence of cracks in the main landing gear trunnion support rib and flanges using a low powered (2- or 3-power) wide-field (at least 2½-inch diameter field of view) magnifying glass or FAA approved equivalent, and covering every square inch of exposed area (both sides) with special emphasis around each and every bolt hole on all flanges and boundaries. Any suspected discrepancy should be confirmed with dye penetrant or equivalent after paint removal.

(6) If cracks are found during inspections (d)(1) through (d)(5), the affected components must be replaced or repaired in accordance with FAA approved Boeing procedures prior to further flights.

(7) After reinstalling nuts and washers in accordance with Part I, Subparagraph (e), S.B. 859 (R–2 or later), measure the gap between the upper and lower flanges and skin at several points along the forward 8 inches of each flange using a thickness gage. See latest revision of FAA approved S.B. 859 (R–2 or later) Part I, Subparagraph (f) for instructions if any gap exceeds 0.02 inch.

(e) The following repetitive inspections are required on all specified 707 Series aircraft upon completion of the inspections and rework outlined in (d) and on all specified 720 Series aircraft.

(1) Every 350 hours' time in service, visually inspect the forward and aft trunnion support fittings for cracks.

(2) Every 700 hours' time in service visually inspect the web and flanges on the inboard and outboard sides of the trunnion support rib for cracks.

(3) Every 4,000 hours' time in service clean all areas of the main landing gear trunnion support assembly of dirt and grease using Naphtha TT–N–95 or BNS 3–2. After cleaning, together with mirror and lighting as required, and using a low powered (2- or 3-power) wide-field (at least 2½-inch diameter field of view) magnifying glass, or FAA approved equivalent, conduct the following inspections as indicated:

(i) Visually inspect the web and flanges on the inboard and outboard sides of the trunnion support rib for evidence of cracks.

(ii) Visually inspect the forward trunnion support fitting for evidence of cracks of the forward and aft sides in the region of the bearing collar.

(iii) Visually inspect the aft trunnion support fitting for evidence of cracks.

(iv) Crack indications found in (i), (ii), and (iii) should be confirmed by dye penetrant inspection. Allowable crack limits and FAA approved rework information for (i) is shown in FAA approved Service Bulletin No. 859 (R–2 or later) (Figure 2).

(4) If cracks are found in the inspections of (e), the affected components must be replaced or repaired in accordance with FAA approved Boeing procedures prior to further flight.

(5) Upon request of the operator, an FAA maintenance inspector, subject to approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Boeing Service Bulletin Number 859 (R–2) pertains to this subject.)

This supersedes AD 60–8–1.

This directive effective September 23, 1961. Revised January 26, 1962.

61–19–1 Boeing Amdt. 332 Part 507 Federal Register September 14, 1961. Applies to All Model 720 Series Aircraft Which Have Not Previously Been Modified By Installation Of Micro P/N 5EN11–6B.

Compliance required as indicated.

Faults occurring in the fuel dump chute safety switch of the retractable dump chute system have caused burning of the lead wires at the switch and, in one case, caused a fuel dump valve to cycle open and close allowing fuel to enter the fuel dump manifold and leak out through the dump chute secondary seal. To prevent this, the following inspection and modification shall be accomplished:

(a) Commencing within 10 days after the effective date of this AD unless the lead wire insulation has been reinforced by wrapping with suitable electrical tape at the switch, conduct daily inspections of the fuel dump chute safety switch (Micro P/N 5EN11–6) to determine if the wires are burned or charred where they protrude. If wires are found burned or charred, prior to further flight replace safety switch with improved type Micro P/N 5EN11–6B, after which the daily inspection can be discontinued.

(b) Unless already accomplished in accordance with paragraph (a), within the next 350 hours' time in service after the effective date of this AD, replace fuel dump valve safety switches Micro P/N 5EN11–6 with switch Micro P/N 5EN11–6B, using standard Boeing Maintenance Manual procedures. Upon installation of switch Micro P/N 5EN11–6B the daily inspection required by (a) can be discontinued.

(c) Upon request of the operator, an FAA maintenance inspector, subject to approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Boeing Service Bulletin No. 1305, dated May 22, 1961, covers this modification.)

This directive effective September 14, 1961.

61–24–1 Boeing and Douglas Amdt. 369 Part 507 Federal Register November 23, 1961. Applies to all 707/720 Series and DC–8 Series aircraft equipped with Pratt & Whitney Aircraft JT3C–12, JT3D–1, JT3D–1–MC6, JT3D–1–MC7, and JT3D–3 engines.

Compliance required as indicated.

A recent failure of the low compressor turbine shaft resulted in overspeeding and separation of the low compressor turbines. To prevent recurrence of this difficulty, the following action is required on any turbine engine that has been disassembled since last overhaul to the extent of exposing any bearing compartment:

At periods not to exceed 12 hours' time in service, the main oil screen shall be disassembled, inspected and cleaned in accordance with Pratt and Whitney Overhaul Manual. The inspection shall be repeated until the screen is free of contamination for two successive inspections. If contaminants indicative of engine part failure or contaminants in sufficient quantity to plug the oil screen are found during any inspection the engine shall not be operated until the cause of the difficulty has been determined and satisfactorily corrected.

Upon request of the operator, an FAA maintenance inspector, subject to prior approval of the Chief Engineering and Manufacturing Branch, FAA Eastern Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Pratt and Whitney telegram to all turbojet engine operators dated November 9, 1961, covers the same subject.)

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated November 10, 1961.

Revised February 13, 1962, and June 7, 1962.

61–26–4 *See* Pratt & Whitney Engines.

62–2–2 Boeing and Douglas Amdt. 385 Part 507 Federal Register January 16, 1962. Applies to All 707/720 Series and DC–8 Series Aircraft Equipped With Pratt and Whitney JT3D–3 Turbofan Engines.

Compliance required as indicated.

(a) For engines previously inspected by the procedure described in paragraph (c), reinspect in accordance with paragraph (c) every 225 hours' time in service thereafter.

(b) For engines not previously inspected by the procedure described in paragraph (c) inspect in accordance with paragraph (c) as follows:

(1) Inspect engines with 200 or more hours' time in service within the next 25 hours' time in service and every 225 hours' time in service thereafter.

(2) Inspect engines with less than 200 hours' time in service by the time 225 hours' time in service have been accumulated and every 225 hours' time in service thereafter.

(c) Due to recent failures of P/N 393504 fourth stage compressor rotor disc, inspect the disc for cracks adjacent to the inside edge of the tie bolt circular rib in the disc web. Such cracks may progress along the inside of the rib and then toward the disc bore through the bore stiffening section.

To accomplish the inspection, remove the front accessory drive support assembly (N1 gearcase) and the front accessory drive main spur gear (N1 gearcase coupling). Using a strong light and borescope or similar optical device, visually inspect the fourth stage compressor rotor disc in the area noted above. If any cracking is found, the engine must be removed for disc replacement prior to further flight.

(d) The requirement for main oil screen inspection per AD 61–24–1 does not apply when the No. 1 bearing compartment is exposed for this disc inspection. (Effective October 12, 1962.)

(Pratt and Whitney Aircraft telegraphic message of December 19, 1961, covers the same subject.)

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated December 22, 1961.

62–2–3 Boeing Amdt. 389 Part 507 Federal Register January 19, 1962. Applies to Models 707 and 720 Series Airplanes Which Have Not Previously Been Modified In Accordance With Boeing Service Bulletin No. 1359, Dated June 30, 1961, (Service Bulletin No. 1359 Contains a List of Such Airplanes), and to Model 707 Airplanes on Which Retractable Dump Chutes Have Been Installed Per Boeing Service Bulletin No. 1200.

Compliance required as indicated.

In order to prevent leakage through the secondary seal of the fuel dump chute when fuel is allowed to enter the manifold for any reason, the following modification shall be accomplished within 3,250 hours' time in service after the effective date of this directive:

Remove the secondary fuel seal assembly, Boeing P/N 66–2538, and rebuild, using new parts from Boeing kit, P/N 65–9566–1. Upon completion of the rebuilding, change the part number of secondary seal assembly to 69–16258–1. Use new "O" ring seal P/N MS29513–238 when installing secondary seal assembly, P/N 69–16258–1.

(Boeing Service Bulletin No. 1359, dated June 30, 1961, covers this modification.)

This directive effective February 20, 1962.

62–8–4 Boeing Amdt. 413 Part 507 Federal Register April 7, 1962. Applies to All Models 707 and 720 Series Aircraft Which Incorporate Magnesium Skin On the Horizontal Stabilizer Balance Panel Covers.

Compliance required within 85 hours' time in service following the effective date of this AD unless already accomplished within the last 85 hours, and thereafter at periods not to exceed 170 hours' time in service from the last inspection.

As a result of cracking of the magnesium skin on the horizontal stabilizer balance panel covers the following shall be accomplished:

(a) Conduct close visual inspection of all upper and lower horizontal stabilizer balance panel covers which incorporate magnesium skin, to detect any evidence of skin cracks.

(b) Cracked covers must be repaired, replaced or modified in accordance with one of the following prior to further flight:

(1) Repair in accordance with Boeing Structural Repair Manual 51–9–1;

(2) Replace with a new standard cover incorporating magnesium skin;

(3) Replace with a new standard cover incorporating aluminum alloy skin;

(4) Replace with a cover incorporating honeycomb panel construction, Boeing P/N 65–28201, –28202, –28203, –28204, –28205, –28206, –28207, or –28208, as appropriate; or

(5) Modify in accordance with FAA approved technical data.

(c) The repetitive inspections of any specific cover may be discontinued when the standard magnesium cover is replaced or modified in accordance with paragraphs (b)(3), (b)(4), or (b)(5).

(d) Upon request of an operator, an FAA maintenance inspector, subject to prior approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Boeing Advance Service Bulletin to all 707/720 operators dated February 5, 1962, pertains to this same subject)

This directive effective April 7, 1962.

62–8–5 Boeing Amdt. 422 Part 507 Federal Register April 17, 1962. Applies to All 707 and 720 Series Aircraft.

As a result of a recent incident involving loss of the electrical system and accumulation of dense smoke in the cockpit and cabin, the following is required:

(a) Unless already accomplished in accordance with recommendations contained in the telegram dated March 23, 1962, issued by Boeing Aircraft Company, within the next 25 hours' time in service, inspect electrical components and wiring within the J6 electrical panel to determine that:

(1) Lugs and braided leads are tightly secured to the contactor studs;

(2) Braid jumpers are adequately separated from adjacent jumpers to prevent contact;

(3) There is no evidence of overheating in wiring and braided leads; and

(4) There is no evidence of capacitor leaks, swelling or overheating.

(b) If any of the foregoing items require corrective action, repair in accordance with acceptable maintenance practices.

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated March 30, 1962.

62–9–1 Boeing Amdt. 426 Part 507 Federal Register April 19, 1962. Applies to All Models 707 and 720 Aircraft Serial Numbers 17586–17652, 17658–17690, 17692–17724, 17903–17930, 18012–18037, 18041–18050, 18054–18071, 18083–18085, 18154, 18167, 18334, 18351–18353, 18381–18384, With More Than Or Upon Accumulation of 1,500 Hours' Time In Service.

Compliance required as indicated.

To prevent failure of control cable pressure seals which can cause jamming or dislodging of the cable, accomplish the following:

(a) Unless already accomplished within the last 300 hours' time in service, within the next 65 hours' time in service and at periods thereafter not to exceed 360 hours' time in service from the last inspection, conduct a close visual inspection of all control cable pressure seals except those for engine control cables, landing gear and landing gear door cables.

(b) Unless already accomplished within the last 360 hours' time in service, within the next 360 hours' time in service and at periods thereafter not to exceed 720 hours' time in service from the last inspection, conduct a close visual inspection of the nose wheel steering cable pressure seals. (Effective May 23, 1962.)

(c) All seals which have failed or which show evidence of cracking, abnormal swelling or sponginess, or other signs of deterioration which could lead to seal failure shall be replaced with new seals prior to further flight.

(d) Replacement seals of the same part number shall be inspected in accordance with (a) or (b) prior to the accumulation of 1,500 hours' time in service and at intervals not to exceed 360 hours' time in service thereafter for flight control cable pressure seals and 720 hours' time in service thereafter for the nose wheel stering cable pressure seals. (Effective May 23, 1962.)

(e) The special periodic inspection of any S11K–3R, S11K–4R, or S11R–4R seal may be discontinued upon replacement with a new type seal P/N S11K–3RA, S11K–4RA, or S11R–4RA respectively, together with a seal retention assembly installed in accordance with Boeing Service Bulletin 1358 or FAA approved equivalent.

(f) Upon request of the operator, an FAA maintenance inspector, subject to prior approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals speci-

fied in this AD to permit compliance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Boeing Service Bulletin 1358 pertains to this same subject).

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegrams dated April 3, 1962, and April 6, 1962.

62–12–1 Boeing Amdt. 441 Part 507 Federal Register May 23, 1962. Applies to All Models 707 and 720 Series Aircraft With DC Type Toilet Flushing Motors Installed.

Compliance required as indicated.

There have been several cases of fires originating in the electrical system of the DC type toilet flushing motor. To eliminate this unsafe condition, rework of the toilet motor electrical circuit and added protection against moisture entering the circuit components in the toilet area are required. Within the next 360 hours' time in service for paragraph (a) and 1,000 hours' time in service for paragraphs (b), (c), and (d) after the effective date of this AD, unless already accomplished, the following shall be accomplished in accordance with Modification Instructions of Monogram Precision Industries' Service Bulletin No. 35 BAC, dated February 22, 1962, or an FAA approved equivalent.

(a) Reduce the exposure of the system to DC voltage by changing the wiring inside the timer so that voltage is applied to the flushing motor during the flushing operation only.

(b) Increase the protection from moisture of the connector attached to the pigtail of the flushing motor by moving the connector from the bracket on the flushing motor to a bracket mounted behind the vertical shroud support.

(c) Provide an improved moisture seal where the wires enter the flushing motor by trimming back the shielding and installing thermo fit sleeving over the wires, and repotting.

(d) Reduce the susceptability of moisture entering connectors by replacing the potting compound of the connectors attached to the harness and to the motor pigtail with resilient inserts and grommets and supporting the wires with cable clamps attached to the connectors.

(Monogram Precision Industries' Service Bulletin No. 35 BAC, covers this same subject.)

This directive effective May 23, 1962.

62–12–2 Boeing Amdt. 444 Part 507 Federal Register May 23, 1962. Applies to All Models 707 and 720 Series Aircraft Incorporating Boeing Production Revision 14324 Which Installs Sprague JN 10–220 and/or Genistron GF–1997–1 or –2 Combined Filter Ballast Units On The Outboard Side of The Cove Light Raceway Panel at Each Cabin Cove Light Assembly.

Compliance required as indicated.

To prevent a fire hazard due to failure of a filter-ballast in the cabin cove light circuit unit, accomplish the following:

(a) Unless already accomplished, within the next 10 hours' time in service after the effective date of this AD, deactivate the cove light circuit and do not reactivate until the filter-ballast unit is relocated in accordance with (b).

(b) Relocate the filter-ballast unit (Sprague JN 10–220 and/or Genistron GF–1997–1 or –2) from the outboard side of the cove light raceway panel, Boeing P/N 65–18270, to the inboard side of the panel in accordance with the instructions in the modification data portion of Boeing Alert Service Bulletin No. 1601, dated February 14, 1962, or an FAA approved equivalent.

(Boeing Alert Service Bulletin No. 1601 dated February 14, 1962, covers this same subject.)

This directive effective June 2, 1962.

62–13–2 Boeing Amdt. 446 Part 507 Federal Register May 30, 1962. Applies to 707 and 720 Series Aircraft Listed in Boeing Service Bulletin No. 1698 Dated May 16, 1962.

Compliance required as indicated.

As a result of several cases of damaged wiring in the automatic pilot trim servo wire bundle, accomplish the following one-time inspection:

Within the next 150 hours' time in service after the effective date of this AD unless already accomplished, inspect the wire bundle connected to the autopilot trim servo, stabilizer limit switches, and stabilizer posi-

tion transmitter in accordance with Boeing Service Bulletin No. 1698 dated May 16, 1962. If damage is found, repair or replace the wire bundle prior to further flight.

This directive effective May 30, 1962.

62-16-1 Boeing Amdt. 465 Part 507 Federal Register July 24, 1962. Applies to All Models 707 and 720 Series Aircraft.

Compliance required within the next ten hours' time in service unless already accomplished.

To eliminate arcing and subsequent fire hazard resulting from presence of moisture and lint accumulation between the electrical razor outlet terminals, deactivate all electrical razor outlets by pulling all applicable AC and DC circuit breakers. Secure circuit breakers in open position. Outlets may be reactivated upon accomplishment of Boeing Service Bulletin No. 1736 or an FAA approved equivalent.

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated July 6, 1962.

62-17-2 Boeing Amdt. 469 Part 507 Federal Register July 31, 1962, as amended by FAA telegram dated August 1, 1962. Applies to All Models 707 and 720 Aircraft.

Compliance required within the next 100 hours' time in service after the effective date of this AD and thereafter at intervals not exceeding 100 hours' time in service and as indicated in paragraphs (d) and (e).

As a result of failures of the landing gear truck beam and related components, accomplish the following:

(a) Clean the truck beams in accordance with following:

(1) Prerinse the area using Stoddard Solvent P-S-661 type 1 or water.

(2) Using a soft bristle or fiber brush, apply one of the following cleansing agents, or equivalent approved by FAA Engineering and Manufacturing Branch, Western Region, to the soiled areas;

(i) Oakite 204, full strength,

(ii) Oakite 74L, one part with five parts water,

(iii) Wyandotte Aerowash A, full strength,

(iv) Kelite Formula 29, full strength,

(v) An emulsion cleaner listed in Chapter 13 of Boeing Overhaul Manual.

(3) Allow cleansing agent to remain on the parts for five minutes. Do not permit the area to dry. Agitate the cleaner applied to beam and allow to remain on the parts an additional five minutes. Agitate again with the brush and thoroughly pressure rinse with water, preferably warm, but not exceeding 120° F. In lieu of, or as a supplement to the pressure rinse with water, the cleaners may be removed by use of solvents listed in Chapter 13 of Boeing Overhaul Manual.

(b) After cleaning, make a thorough visual inspection of the truck beam using mirrors as necessary and a strong light to detect any evidence of jack marks, scratches, gouges, corrosion or impact dents. Remove any straps around the beam which show evidence of damage. Particular attention shall be given to:

(1) The lower section of the beam for evidence of jack marks caused by jack slippage or improperly placed jacks;

(2) The forward area of the beam where contact is possible with the torsion link pivot pin retaining bolt (on the lower torque link lug on the Model 720); and

(3) To the aft area of the beam where contact is possible with the shock strut inner cylinder upon snubber failure.

(c) Truck beams exhibiting evidence of corrosion, scratches, jack marks, dents or gouges shall be replaced prior to further flight unless repaired in accordance with FAA approved Boeing Service Bulletin No. 142 (R-2) or later FAA approved revisions. Evidence of jack marks or dents shall be inspected with a dial indicator or FAA approved equivalent to determine the depth of such damage. No repair is permitted if the depth exceeds 0.005-inch.

(d) Prior to further flight after any jacking operations and after main landing gear snubber failure clean and inspect the truck beam as follows:

(1) Clean truck beam with one of the approved Boeing solvents for cleaning of high heat-treat steel listed in Chapter 13 of the Boeing Overhaul Manual.

(2) Inspect and, as necessary, rework or replace the truck beam in accordance with paragraphs (b) and (c).

(e) If a truck beam shield, fabricated and installed in accordance with American Airlines Engineering Change Order No. B1743, dated October 8, 1962, or FAA Western Region engineering approved equivalent, is installed, the following inspection procedure may be followed in lieu of that required by (d). (Effective November 14, 1962.)

(1) Prior to further flight after any main landing gear jacking operation, clean the truck beam shield with Navee 427 or FAA approved equivalent, and inspect it for evidence of dents, gouges, cracks, pressure marks or other damage. (Effective November 14, 1962.)

(2) If no evidence of dents, gouges, cracks, pressure marks, or other damage is found, further inspection of the truck beam is not required. (Effective November 14, 1962.)

(3) If evidence of dents, gouges, cracks, pressure marks, or other damage is found, remove the shield and clean and inspect the truck beam in accordance with (d)(1) and (2). If the shield is still serviceable, it may be reinstalled provided that any dents, gouges, cracks, pressure marks, or other damage is painted over with yellow paint to indicate old damage. (Effective November 14, 1962.)

NOTE: When a shield is installed on the truck beam in compliance with paragraph (e), compliance with the remaining provisions of the AD is still required. (Effective November 14, 1962.)

(f) The 100-hour repetitive inspection interval may be increased to 500 hours' time in service when the automatic brake cylinder and the piston in the main landing gear metering valve are replaced with new Boeing actuator assembly 69–10763, and the landing gear snubber assembly and main landing gear centering cylinders have been reworked in accordance with Boeing Service Bulletin Nos. 535 and 535B. Concurrent with the increase to 500-hour repetitive inspection interval, the cleaning procedures of paragraph (d) may be used in lieu of those of paragraph (a).

NOTE: Some aircraft have been modified prior to delivery to incorporate the work required by Boeing Service Bulletins Nos. 535 and 535B.

(g) The main landing gear shall not be jacked and/or supported at points other than the forward and aft truck beam jack pads, unless the aircraft is otherwise supported in accordance with section 32 of the Boeing Maintenance Manual.

(h) Upon request of the operator an FAA maintenance inspector, subject to prior approval of the Chief, Engineering and Manufacturing Branch, Western Region, may adjust the repetitive inspection intervals specified in this AD to permit complance at an established inspection period of the operator if the request contains substantiating data to justify the increase for such operator.

(Boeing Service Bulletin No. 142 (R–2) covers this same subject.)

This supersedes AD 59–21–1.

This directive effective July 31, 1962, and amendment effective August 1, 1962.

62–24–2 Boeing Amdt. 506 Part 507 Federal Register November 10, 1962. Applies to 707/720 Airplanes, Serial Nos. 18385–18397, 18400–18404, 18374, 18414–18419, 18411, 18372, 18373, 18335–18339, 18079–18082, 18423–18425, 18376, 18377, 18451–18453 Inclusive; Also Applies to Airplanes Which Have Been Modified By Operators to Incorporate Motor Operated Valves Per Boeing Service Bulletins 1414, 1483, 1484, 1489, 1490, 1491, 1492 and 1493.

Compliance required within 350 hours of airplane time in service after the effective date of this directive, unless already accomplished.

Hydraulic system motor operated valves, Whittaker P/N 146505–1, incorporated in both the utility and auxiliary hydraulic systems, have failed in service due to stress corrosion in the end cover retaining nut. All failures have occurred in parts with the original heat treatment. To prevent such failures:

(1) Modify all valves by installing new end covers and nuts of the same Whittaker part number but identified by a blue anodized color; and

(2) Replace the valve shear seals and the bearing with new longer seals and a new bearing.

(Whittaker Service Bulletin SBC 2021 covers this same subject.)

This directive effective November 10, 1962.

62–25–1 Boeing Amdt. 509 Part 507 Federal Register November 21, 1962. Applies to Models 707 and 720 Series Aircraft.

Compliance with certain service bulletins pertaining to the Model 707 and Model 720 flight control systems is considered necessary to provide for significant improvement in the safety and reliability of operation of those aircraft models. Accordingly, the aircraft models listed below shall be inspected and/or modified within the compliance times and in accordance either with the service bulletins as indicated or with equivalent methods approved by the Chief, Engineering and Manufacturing Branch, FAA Western Region. Airplanes modified in accordance with later FAA approved revisions of the service bulletins listed below will be considered to have complied with the appropriate provisions of this AD.

(a) Compliance required within the next 400 hours' time in service following the effective date of this AD:

Modification	Model	Service Bulletin No.
1. Stabilizer trim actuator auxiliary brake retaining nut.	707 and 720	984.

(b) Compliance required within the next 650 hours' time in service following the effective date of this AD:

Modification	Model	Service Bulletin No.
1. Rudder pedal pushrod attachment.	707	337.
2. Inboard aileron tab nose weight attaching screws.	707	860.
3. Spoiler and emergency flap switch placard installation.	707 and 720	*1524.

* BAC P/N 10–60424–621 (Type I) and P/N 10–60424–184 (Type I) are approved equivalents.

(c) Compliance required within the next 2,700 hours' time in service following the effective date of this AD:

Modification	Model	Service Bulletin No.
1. Bearing retainer installation for center and inboard hinges for inboard aileron tab.	707	307 (R–1) and 307 (R–1)A.
2. Guard installation for chain in stabilizer trim unit.	707	655 and 655B.
3. Flap drive torque tube guard installation in wheel well area.	707	680 and 680A.
4. Rudder control input stop modification and directional bushing replacement.	707	735 (R–1).
5. Replacement of stabilizer trim actuator.	707 and 720	889.
6. Flap takeoff warning switch relocation.	707 and 720	1016 (R–1) and 1016 (R–1)C.
7. Stabilizer trim actuator motor replacement.	707	1247.
8. Emergency flap switch installation.	707 and 720	1251.
9. Rudder power control unit replacement, "Extension Sleeve Revision".	707 and 720	1479 (R–1) Part I only.
10. Rudder pressure control valve bypass installation.	707 and 720	1482 (R–1).
11. Rudder control centering spring cable modification.	707 and 720	1625.
12. Rudder control centering spring cable guard installation.	707 and 720	1680 and 1680A.

(d) Compliance required within the next 3,500 hours' time in service following the effective date of this AD:

Modification	Model	Service Bulletin No.
1. Inboard aileron centering spring cartridge.	707 and 720	1344.
2. Control wheel stabilizer trim switch installation.	707 and 720	1410** and 1410B.
3. Replacement of rudder hydraulic system solenoid valve.	707 and 720	1490 (R–1).

** BAC P/N 10–3265–6 is an approved equivalent.

(e) Compliance required within the next 5,000 hours' time in service following the effective date of this AD:

Modification	Model	Service Bulletin No.
1. Stabilizer trim actuator brake unlock gear ball bearing adapter addition.	707 and 720	1128 and 1128A.
2. Stabilizer trim actuator brake pawl spring.	707 and 720	1237.
3. Outboard spoiler shutoff valve consolidation.	707 and 720	1336 (R–1) and 1336 (R–1)B.
4. Replacement of spoiler hydraulic system shutoff valve.	707 and 720	1484.

This directive effective December 20, 1962.

BOEING (Wichita Division)

46–24–1 Boeing (Was Mandatory Note 4 of AD–743–3.) Applies to A75L3, 75, A75, B75, E75, A75J1, A75N1, B75N1, D75N1 Series Aircraft.

Compliance required at next periodic inspection.

The lower wings lack adequate drainage just forward of the ailerons with the result that water is entrapped by the dural angle forming the lower rear edge of the wing at the aileron gap. Since this will cause eventual deterioration of the rib ends a No. 30 hole should be drilled through the fabric and the dural angle just outboard of the rib at the inboard end of the aileron cutout and each of the 12 ribs outboard of this station. The holes should be drilled aft of the rear spar and just forward of the 120° bend in the dural angle. Care should be exercised to avoid damage to the rear spar while effecting this work. As a safety measure, a stop should be used on the drill to prevent penetration in excess of ½ inch.

49–23–1 Boeing Applies to All Model 75 Series Airplanes With Crop Dusting or Seeding Hopper Installations.

Compliance required prior to next periodic inspection.

Inspect to determine whether fuselage bottom truss was altered for installation of hopper throat. All alterations involving the removal or revision of the truss members require that equivalent structural strength be provided. One open bay in the bottom truss either immediately forward or immediately aft of the cross member (streamline tube) at Station 2L is permissible provided that it is limited to a rectangle bounded by the longerons, the above-mentioned cross member and a ⅞ x 0.035, or larger, x4130 tube parallel to the streamline tube and not more than 8 inches forward or aft thereof. The inside corners of this open rectangle should have 0.065-inch x4130 gussets, or equivalent, extending along the longerons at least 2 inches.

(Boeing Report No. WD–10645 covers this same subject and includes an alternate alteration recommended as preferable to the above. Copies of the report are obtainable from the Boeing Airplane Co., Wichita Division, Wichita 1, Kansas.)

This supersedes AD 46–31–3.

50–6–2 Boeing Applies to All Model 75 Series Aircraft.

Compliance required at each annual inspection. For military aircraft, compliance also required prior to original certification.

Remove the center section gas tank and inspect both front and rear spars for cracks, checks and warping. Defective spars should be replaced or repaired in accordance with CAM 18. Ascertain that all drain holes are open.

Repeated removal of the tank at each annual inspection is not necessary, if after accomplishment of the items mentioned above, the gap between the gas tank and the upper surface of the center section is sealed by doping on grade A fabric tape, or equivalent sealing means, to prevent moisture entering the tank compartment.

This supersedes AD 45–51–1.

60–8–2 Boeing Amdt. 131 Part 507 Federal Register April 9, 1960. Applies to All Model 75 Series Aircraft Operated in Restricted Category With a Gross Weight Exceeding 3,200 Pounds.

Compliance required not later than June 1, 1960, and at each 100 hours' time in service thereafter.

Due to reports of cracked longerons, the following shall be accomplished:

Visually inspect the fuselage longerons and fuselage diagonal bracing for cracks in the vicinity of the lower wing front spar attach fittings. All cracked structural members shall be repaired or replaced in accordance with CAR 18.

BRANTLY

60–6–3 Brantly Amdt. 112 Part 507 Federal Register March 10, 1960. Applies to all Brantly B–2 helicopters Serial Numbers 1 through 29 with tail rotor guard upper fitting, P/N B2–416–2 installed.

Compliance required within the next 10 hours' time in service and at each 10 hours' time in service thereafter.

A fatigue crack has been found around the forward end of the weld joining the tail rotor guard to the sheet metal bracket at the upper tail rotor gear box. To preclude the possibility of the tail rotor loss because of entanglement with the tail rotor guard, the following shall be accomplished:

(a) Remove paint in the area of the weld joining the upper guard fitting P/N B2–416–2 and the tail rotor guard P/N B2–416–3 and inspect the weld area for cracks using a dye penetrant method or equivalent.

(b) If a crack is found the defective parts must be replaced or repaired prior to further flight. The fitting may be repaired by stop drilling the crack and adding a reinforcing plate of 0.035 inch by 1 inch by 1 inch SAE 4130 steel over the crack, welding all four edges to P/N B2–416–2. The reinforcing plate may be located under the head of the screw attaching the guard fitting to the tail rotor gear box, provided the plate is drilled for this screw and extends completely under the screw head.

(c) When an improved upper fitting as specified in Brantly Service Bulletin No. 1 is incorporated, the provisions of this directive no longer apply.

60–7–2 Brantly Amdt. 117 Part 507 Federal Register March 23, 1960. Applies to Model B–2 Helicopters.

Compliance required as indicated.

(a) Applies to Serial Numbers 1 through 31. Compliance required prior to next flight.

Failures of the tail rotor drive shaft through the cooling fan drive pulley bolt hole have occurred. These failures result in loss of directional control. To relieve stresses in this area and preclude recurrence of these failures, the tail rotor drive system must be modified to incorporate:

(1) New long tail rotor drive shaft P/N 108–31 incorporating 2½-inch long plug pinned in forward end of shaft at support location for cooling fan drive pulley,

(2) Redesigned cooling fan drive pulley bearing support sleeve P/N 339–19,

(3) New cooling fan drive pulley P/N 339–4,

(4) New housing spacer P/N 339–18.

(5) New pin retainer P/N 339–17,

(6) New tail rotor shaft forward support bearing P/N 88505,

(7) New cooling fan attach bolt AN 173–14A with AN 960–10 washer and AN 365–1032 nut. (Brantly Service Bulletin No. 2 covers this same subject.)

(b) Applies to all Model B–2 helicopters. Compliance required every 100 hours of operation after compliance with item (a).

Remove the oil cooler fan drive pulley, forward long tail rotor drive shaft bearing and bearing support, nylon pin retainer, and flush drive pin. Visually inspect the AN 173–14A pulley attach bolt and P/N 108–59 pin for wear, and the bolt and pin holes in the P/N 339–4 fan drive pulley and P/N 108–31 long tail rotor drive shaft for elongation. Thoroughly clean the long tail rotor drive shaft in the vicinity of the bolt and pin holes and dye penetrant inspect the shaft in this area with a 10-power glass for cracks. Any defective parts must be replaced prior to further operation. (Brantly Service Bulletin No. 3 covers this subject.)

60–10–2 Brantly Amdt. 151 Part 507 Federal Register May 12, 1960. The AD published in the Federal Register as Amendment 143 was superseded by the following:

Applies to All B–2 Helicopters With 248–40 and 248–46 Main Rotor Blades Installed.

Compliance required as indicated.

The retirement time on 248–40 and 248–46 blades is increased from 50 hours of time in service specified in Amendment 143 of Part 507, to 500 hours of time in service, provided

the following inspection is performed prior to flight subsequent to each refueling:

(a) (1) Visually inspect upper and lower skin for cracks in the vicinity of rivet heads on the inboard one-third of the outboard main rotor blades.

(2) Blades found with more than one crack or with a single crack exceeding one inch in length must be replaced prior to further flight.

(3) Blades found with a single crack of one inch or less in length must be stop-drilled with a ⅛ (0.125) inch diameter drill prior to further flight. (Paragraphs (a) (1), (2), and (3), effective March 10, 1961.)

60–26–3 Brantly Amdt. 235 Part 507 Federal Register December 20, 1960. Applies to All Brantly Model B–2 Helicopters Prior To Serial No. 44 Not Previously Modified In Accordance With Brantly Service Bulletin No. 4.

Compliance required within 25 hours' time in service after the effective date of this directive.

(a) Remove the B2–108–34 drive shaft extension and the B2–108–35 coupling from between the transmission and the oil cooler fan drive pulley. Using Brantly alining jig No. AT–108–31 and following instructions in Brantly Service Bulletin No. 4, check alinement of the tail rotor drive shaft installation. Adjust bearing positions as necessary per instructions to obtain satisfactory alinement.

(b) Using Brantly drill jig No. MT–339–16 and in accordance with instructions in Service Bulletin No. 4, install an additional flexible coupling on the aft end of the B2–108–34 drive shaft extension. Brantly parts B2–108–45 (one), B2–14–14 (two), plus associated standard attachments prescribed in Service Bulletin No. 4 are required for this modification. Orientation of the two flexible couplings on the shaft with respect to each other in accordance with Modification Step No. 15 of Service Bulletin No. 4 is imperative.

This directive effective December 20, 1960.

61–4–1 Brantly Amdt. 252 Part 507 Federal Register February 10, 1961. Applies to All B–2 Helicopters.

Compliance required as indicated.

Instances have occurred wherein the centrifugal clutch has failed to release at engine shutdown and subsequent restarting has sheared the bolts which transmit torque from the B2–8–14 clutch disc assembly into the fabric coupling and from the fabric coupling into the lugs of the free-wheeling clutch housing. To preclude recurrence of this condition the following must be accomplished:

(a) Within the next 10 hours of flight time after the effective date of this directive, inspect all 6 of the AN 4–10A bolts which secure the fabric coupling to the B2–8–14 clutch disc assembly and to the free-wheeling clutch housing for shear failure. This inspection is to be accomplished by inserting an appropriately sized wrench through the lubrication access hole in the B2–7–17 clutch dust cover and checking each bolt for snugness. Any sheared bolts must be replaced prior to further operation.

(b) Within the next 10 hours of flight time after the effective date of this directive a placard shall be installed immediately aft or incorporated with the operating limitations placard located between the fuel mixture control and the carburetor heat control levers to read: "PRIOR TO EACH ENGINE START, TURN ROTOR BACKWARD BY HAND THROUGH 30 DEGREES MINIMUM TO CHECK CLUTCH FREEDOM." The purpose of this placard is to insure that these coupling bolts are not subjected to damage resulting from failure of the clutch to release.

(Brantly Service Bulletin No. 6 covers this same subject.)

This directive effective February 22, 1961.

61–11–1 Brantly Amdt. 288 Part 507 Federal Register May 23, 1961. Applies to All B–2 Helicopters.

Compliance required within the next 10 hours' time in service after effective date of this directive.

A failure in the skid landing gear drag brace rod end bearing (Kahr Bearing Co. P/N HE–3SFN) occurred during ground handling resulting in collapse of the landing gear. This failure occurred through the area of the lubrication fitting.

To preclude the possibility of additional failures, check the shoulder dimension of the two (2) Kahr P/N HE–3SFN rod end bearings at

the forward ends of the Brantly P/N B2–259–1 and B2–259–2 landing gear drag struts. If the dimension shown in the sketch is less than 0.5 inch, the part must be replaced before further flight with a new bearing, Brantly P/N B2–259-11, or an FAA approved equivalent.

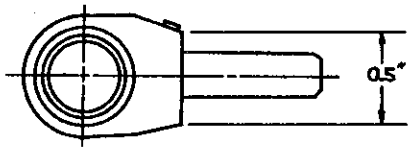


FIGURE 1

(Brantly Service Bulletin No. 11 covers this subject. Note: Service Bulletin No. 11 refers to P/N B2-259–11 as "new type.")

This directive effective May 31, 1961.

61–11–2 Brantly Amdt. 292 Part 507 Federal Register May 30, 1961. Applies to All Model B–2 Helicopters Prior to Serial No. 95.

Compliance required within the next 25 hours' time in service after effective date of this directive.

Severe oil leaks have been reported recently from failure of the welded seam of the mixture heater oil jacket, Lycoming P/N 72396, on the Lycoming VO–360 engines in Brantly B–2 helicopters. As this condition introduces a fire hazard as well as the probability of engine failure from oil starvation, the following modifications must be accomplished.

(a) Disconnect the oil system hose assemblies from the inlet and outlet ports of the mixture heater oil jacket. Join these assemblies with AN 815–8D union, thus by-passing the mixture heater oil jacket. Support the joined hose assemblies with AN 742–D–14C hose clamps at the right rear starter mount bolt and the left rear transmission mount tube. Remove the mixture heater oil jacket, clean thoroughly, apply zinc chromate to the oil passage cavity, and reinstall with the oil ports capped with AN 928–8 cap assemblies.

(b) Modify engine cooling boxes in accordance with Brantly Service Bulletin No. 12. This modification includes adding covers over the rear openings in the right hand cooling box, deleting the cylinder barrel baffle assemblies from around No. 2 and No. 4, cylinders, making a 1¾-inch diameter cutout in the bottom of the left hand cooling box under the No. 3 cylinder, and relocating the cylinder head temperature thermocouple from the No. 4 cylinder to the No. 3 cylinder.

(Brantly Service Bulletin No. 12 covers these modifications.)

This directive effective May 30, 1961.

61–16–3 Brantly Amdt. 317 Part 507 Federal Register August 4, 1961. Applies to All B–2 Helicopters Prior to Serial No. 104.

Compliance required within the next 25 hours' time in service after the effective date of this AD.

Three accidents have resulted from the restriction of collective control due to interference by the seat. This interference is caused by improper seat installation which allows the seat to slide forward of its normal position. To minimize the possibility of restriction to the collective control by the seat, all Brantly B–2 helicopters prior to Serial No. 104 shall have the left hand seat angle at the rear of each seat modified to incorporate seat safety brackets, Brantly P/N 163–22 or equivalent.

(Brantly Service Bulletin No. 13, dated June 8, 1961, pertains to this same subject.)

This directive effective August 4, 1961.

61–16–4 Brantly Amdt. 319 Part 507 Federal Register August 4, 1961. Applies to Model B–2 Helicopters as indicated.

Compliance required within the next 25 hours' time in service after the effective date of this directive.

Failures of the right forward mount lug of the upper transmission case have occurred on three Brantly B–2 helicopters. These failures are fatigue in nature and apparently are associated with an undesirable pre-stress in the mount lug introduced during assembly procedures. Since this condition is likely to exist in other such aircraft, it is necessary to require the following modifications:

(a) Applies to all Model B–2 helicopters prior to Serial Number 56 except Serial Numbers 16, 31, 44, 51, 52, and 53.

(1) Remove the main rotor and transmission and the three vertical control rods which protrude through the steel plate at the top of the forward firewall.

(2) Rework the upper surface of the left and right forward transmission mount pads as follows: Insert a 5/16-inch diameter bolt down-

ward through an AN 960–516 washer into the transmission mount bolt hole. File approximately 0.015 inch from the top surface of the mount pad except where protected by the washer. Remove bolt and washer.

(3) Rework the lower surface of the left and right forward transmission mount pads as follows: Enlarge the lower 1/4 inch of the 5/16-inch diameter transmission mount bolt hole by drilling upward with a 21/64-inch drill. Use of a drill stop is strongly recommended to avoid exceeding the 1/4-inch depth of this rework.

(4) Apply zinc chromate finish to reworked areas and reinstall transmission, rotor assembly, and control rods in accordance with Brantly Maintenance Manual procedures.

(Brantly Service Bulletin No. 9 covers this same subject.)

(b) Applies to all Model B–2 helicopters prior to Serial Number 103 except those with 0.375-inch thick mount lugs on P/N B2–104–2 upper transmission case.

(1) Remove the NAS 145–22 bolt through the right forward transmission mount lug and the two AN 3–24A bolts through the upper transmission case (P/N B2–104–2) immediately inboard of the mount lug.

(2) Install transmission bracket P/N B2–151–19 on top of the right forward transmission case mount lug and attach with new bolts and nuts through mating holes in transmission case previously exposed by (b) (1). These parts are furnished by Brantly Helicopter Corporation as their Modification Kit No. 20.

(3) Insure a close fit of faying surfaces between the upper transmission case and bracket P/N B2–151–19 by accomplishing the following steps: Break sharp edges of the upper transmission case ledge to avoid interference with the inner radii of the new bracket; remove material from the upper transmission case ledge or from the lower surface of the bracket in contact with the case lug, as necessary. Failure to insure proper fit of this bracket will introduce undesirable pre-stress into the transmission mount lug.

(Brantly Service Bulletin No. 14 covers this same subject.)

This directive effective August 14, 1961.

61–18–2 Brantly Amdt. 327 Part 507 Federal Register August 24, 1961. Applies to All Model B–2 Helicopters prior to Serial No. 112.

Compliance required within the next 25 hours' time in service after effective date of this directive unless already accomplished.

Investigation of a recent Model B–2 helicopter accident indicated evidence of limited tail rotor control. Accordingly, in order to provide directional control over a wider main rotor r.p.m. range, the following modification and rerigging of the tail rotor is required:

(a) Modify the rudder control arm P/N B2–284–1 as follows.

(1) Disconnect the vertical rudder rod P/N B2–251–5 at its top end by removing the AN 3–10A bolt.

(2) Drill a 1/16-inch diameter hole and then enlarge to 0.187-inch diameter 1/2 inch inboard (center to center) from the existing hole in the rudder control arm P/N B2–284–1. Deburr edges.

(3) Cut off the end of the rudder control arm P/N B2–284–1 with the old 0.187-inch hole 0.344-inch outboard from the centerline of the new 0.187-inch hole (0.250-inch edge distance from new hole) and perpendicular to the longitudinal axes of the rudder control arm. Break all sharp edges.

(4) Rerig the tail rotor in accordance with the manufacturer's instructions, Service Bulletin No. 15.

(Brantly Service Bulletin No. 15 dated June 23, 1961, covers this subject.)

This directive effective August 29, 1961.

61–23–1 Brantly Amdt. 364 Part 507 Federal Register November 3, 1961. Applies to All Model B–2 Helicopters Equipped With B2–248–53 or B2–248–53A Outboard Main Rotor Blades.

Compliance required as indicated.

As the result of bond separation between the skin and foam filler on the inboard end of the B2–248–53 and –53A main rotor blades and cracks around the root fitting in both the upper and lower skins the following inspections are required:

(a) Within the next 10 hours' time in service unless already accomplished within the last

15 hours' time in service and at the expiration of each 25 hours' time in service thereafter, inspect the upper and lower skins of the inboard end of the B2-248-53 and -53A blades as follows:

(1) Inspect for bond separation by feel or sound tests. If the skin is separated from the foam filler a sponginess will be felt or a dullness in tone will be heard when tapped with a coin. Blades with voids exceeding 12 inches in length shall be replaced prior to further flight.

(2) Inspect for cracks between rivets in the skins with a 5-power or greater magnifying glass. If any cracks are found around two or more rivets the blade must be replaced prior to further flight.

(b) When blades are replaced they must be replaced with either B2-248-53M or B2-248-101 blades. Brantly Service Letter No. 31A must be complied with when B2-248-101 blades are installed.

(c) In addition to the inspection interval specified in (a), the inspection required in (a)(1) also must be made prior to each flight after the initial inspection.

(d)(1) The inspections required in (a) shall be made by a person as authorized by CAR 18.11.

(2) The inspections required in (c) and appropriate log book entries thereon are hereby authorized to be made by the pilot.

(Brantly Service Letter No. 28A applies to this same subject.)

This directive effective November 4, 1961.

62-5-2 Brantly Amdt. 402 Part 507 Federal Register February 28, 1962. Applies to All Model B-2 Helicopters With Serial Numbers Prior to 180.

Compliance required within the next 25 hours' time in service after the effective date of this directive.

To preclude failure of the seals in the engine driven fuel pump due to excessively high temperature conditions in the engine compartment, modify the engine driven fuel pump, Lear-Romec Model RD7790D3, to incorporate high temperature seals in accordance with Brantly Service Bulletin No. 16 and Lear-Romec Service Bulletin No. 3.

Reidentify modified units by revising the pump nameplate as follows:

(a) Add suffix "-3" to the pump serial number.

(b) Change pump model number to "RG7790G".

(Brantly Service Bulletin No. 16 and Lear-Romec Service Bulletin No. 3 both cover this same subject.)

This directive effective February 28, 1962.

62-6-1 Brantly Amdt. 410 Part 507 Federal Register March 16, 1962. Applies to All Model B-2 Helicopters Equipped With Seat Back Adjustment Wire P/N B2-334-32.

Compliance required within the next 10 hours' time in service after the effective date of this AD.

To prevent the sudden movement of the seat backs to the full aft adjustment position, the following must be accomplished:

Remove the seat back adjustment wire P/N B2-334-32 from the left and right seat backs.

This directive effective March 23, 1962.