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TITLE 24—HOUSING AND HOUSING CREDIT

Chapter II — Federal Housing Administration, Housing and Home Finance Agency

MISCELLANEOUS AMENDMENTS TO CHAPTER

Chapter II of Title 24, Code of Federal Regulations, is amended as follows:

Subchapter C—Mutual Mortgage Insurance and Servicemen's Mortgage Insurance

PART 221—MUTUAL MORTGAGE INSURANCE; ELIGIBILITY REQUIREMENTS OF MORTGAGE COVERING ONE- TO FOUR-FAMILY DWELLINGS

Section 221.19 is amended to read as follows:

§ 221.19 *Interest rate.* The mortgage may bear interest at such rate as may be agreed upon by the mortgagee and mortgagor, but in no case shall such interest rate be in excess of 5 percent. Interest shall be payable in monthly installments of the principal then outstanding.

(Sec. 211, 52 Stat. 23; 12 U. S. C. 1715b)

Subchapter D—Multifamily and Group Housing Insurance

PART 232—MULTIFAMILY HOUSING INSURANCE; ELIGIBILITY REQUIREMENTS OF MORTGAGE COVERING MULTIFAMILY HOUSING

Section 232.7 is amended to read as follows:

§ 232.7 *Interest rate.* The mortgage shall bear interest, not exceeding 4½ percent per annum, on the amount of the principal obligation outstanding at any time, as may be agreed upon between the mortgagor and the mortgagee. All charges made in connection with the mortgage transaction shall be subject to the approval of the Commissioner.

(Sec. 211, 52 Stat. 23; 12 U. S. C. 1715b. Interprets or applies sec. 207, 52 Stat. 16, as amended; 12 U. S. C. 1713)

PART 241—COOPERATIVE HOUSING INSURANCE; ELIGIBILITY REQUIREMENTS FOR PROJECT MORTGAGE

Section 241.10 is amended to read as follows:

§ 241.10 *Interest rate.* The mortage shall bear interest, not exceeding 4½ percent per annum, on the amount of the principal obligation outstanding at any time, as may be agreed upon between the mortgagor and the mortgagee.

(Sec. 211, 52 Stat. 23; 12 U. S. C. 1715b. Interpret or apply sec. 213, 64 Stat. 54, as amended; 12 U. S. C. 1715e)

PART 243—COOPERATIVE HOUSING INSURANCE; ELIGIBILITY REQUIREMENTS FOR INDIVIDUAL MORTGAGES COVERING PROPERTIES RELEASED FROM LIEN OF PROJECT MORTGAGE

Section 243.11 is amended to read as follows:

§ 243.11 *Interest rate.* The mortgage may bear interest at such rate as may be agreed upon between the mortgagee and the mortgagor but in no case shall such interest be in excess of 5 percent per annum computed on unpaid balances.

(Sec. 211, 52 Stat. 23; 12 U. S. C. 1715b. Interpret or apply sec. 213, 64 Stat. 54, as amended; 12 U. S. C. 1715e)

Issued at Washington, D. C., December 3, 1956.

[SEAL] NORMAN P. MASON,
Federal Housing Commissioner.

[F. R. Doc. 56-9946; Filed, Dec. 3, 1956; 10:32 a. m.]

TITLE 14—CIVIL AVIATION

Chapter II—Civil Aeronautics Administration, Department of Commerce

PART 507—AIRWORTHINESS DIRECTIVES

Section 1.24 of the Civil Air Regulations provides, "Where the Administrator finds, as a result of service experience, that an unsafe condition exists with respect to a design feature, part, or characteristic of any product, and that such a condition is likely to exist or develop in other products of the same type, he shall provide notice thereof for all operators of products of that type." Implementation of the provisions of this section will be accomplished by the Administrator through the issuance of Airworthiness Directives, and publication thereof in the FEDERAL REGISTER as Part 507 of the regulations of the Administrator.

(Continued on p. 9449)

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FEDERAL REGISTER

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CONTENTS—Continued

CODIFICATION GUIDE

A numerical list of the parts of the Code of Federal Regulations affected by documents published in this issue. Proposed rules, as opposed to final actions, are identified as such.

CODIFICATION GUIDE—Con.

Airworthiness Directives issued prior to June 17, 1950, were published in Appendix A to Part 1 of the Civil Air Regulations (15 F. R. 3872–3926). This part supersedes Appendix A to Part 1, and includes all Airworthiness Directives issued subsequent to the issuance of such appendix, so that all Airworthiness Directives issued by the Administrator will be codified in one part for the convenient reference of the users thereof.

Since the substance of the Airworthiness Directives contained in this part have been published in Appendix A to Part 1, or by individual notice to operators of aircraft; and since compliance with the provisions of such directives cannot, in the interest of safety, be suspended to permit normal rule-making procedures in accordance with section 4 of the Administrative Procedure Act, the following regulations are adopted to become effective on publication in the FEDERAL REGISTER.

Section 1.2–1 and Appendix A—Airworthiness Directives of Chapter I of this title, as published in 15 F. R. 3872–3926, June 17, 1950; amended 15 F. R. 8623–8627, December 6, 1950, are hereby rescinded and the following Part 507 is adopted to read as follows:

Subpart A—General

Sec.
507.1 Basis and purpose.
507.2 Definitions.
507.3 Criteria for determining compliance dates.

Subpart B—Airworthiness Directives

507.10 General.

AUTHORITY: §§ 507.1 to 507.3 issued under sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply sec. 601, 603, 52 Stat. 1007, 1009; 49 U. S. C. 551, 553.

SUBPART A—GENERAL

§ 507.1 *Basis and purpose*—(a) *Basis.* The basis of this part is § 1.24 of the Civil Air Regulations.

(b) *Purpose.* The purpose of this part is to provide notice to aircraft operators when, as a result of service experience, an unsafe condition is discovered in a product; and to prescribe the conditions and limitations, including inspections, under which the product may be operated.

§ 507.2 *Definitions.* Unless otherwise specified herein, all words and phrases defined in Part 1 of the Civil Air Regulations shall have the same meaning when used in this part.

§ 507.3 *Criteria for determining compliance dates.* The following criteria will be used by the Administrator in determining the compliance date a product must be modified to comply with the Airworthiness Directives in Subpart B of this part:

(a) When an unsafe condition is discovered in a product, which renders the aircraft unairworthy, the corrective action specified in the Airworthiness Directive must be taken immediately.

(b) When an unsafe condition is discovered in a product, which may at some future date render the aircraft unairworthy, a compliance date in the future will be prescribed in the Airworthiness Directive.

(1) In determining the compliance date under paragraph (b), the Administrator will take into account the nature and amount of work involved, the availability of parts, recommendations of the manufacturer and operators, and the effectiveness of operating restrictions which may mitigate the condition.

SUBPART B—AIRWORTHINESS DIRECTIVES

§ 507.10 *General.* The Airworthiness Directives listed in this subpart specify the products for which an unsafe condition has been found by the Administrator, and the conditions, limitations, or inspections, if any, under which the product may continue to be operated:

(a) *Summary of airworthiness directives.*

39–24–1 Douglas (Was Service Note 1 of AD–618–3 and Service Note 1 of AD–669–3)

A. *Inspection.*

1. *Attach angles.* Inspect wing attaching angles, part numbered 570602–20 and –21, for cracks between the attaching bolt holes. The inspection should be conducted with at least a four power magnifying glass at each periodic inspection not to exceed 450 hours flight time. A more detailed inspection should be made at the time of removal of the wings for the wing doubler inspection specified below. All paint should be removed from the angles at that time to permit examination with a high power magnifying glass.

2. *Wing doublers.* Inspect the wing attach angle doublers for cracks along the bent up flange portion at the wing attachment joint at the following intervals of wing doubler time:

(a) On aircraft having less than 8,000 hours doubler flight time; inspect at 8,000 hours, or less, and at intervals not to exceed 4,000 hours thereafter.

(b) On aircraft having more than 8,000 hours doubler flight time; where doublers have not been inspected during the last 4,000 hours, such doublers should be inspected immediately and intervals should not exceed 4,000 hours thereafter. Where doublers have been inspected during the last 4,000 hours, inspection should be made at the next 4,000-hour period and at intervals not to exceed 4,000 hours thereafter.

The wings should be completely removed to permit thorough cleaning of the doublers and inspection with a high power glass. Dy-Chek may be used in lieu of a high power glass in conducting the inspection.

3. *Center section line in outer wing joint.* Inspection and rework should be made in accordance with the procedures outlined in A. D. Note 52–22–3.

B. *Replacement required.* (Jig fixtures, Douglas Parts A652–5110506–1–1F2 and A652–5110506–1F2 or equivalent, must be used to accomplish the replacement of the following attach angles and doublers.)

1. *Defective angles.* In case defective angles are found, they must be replaced by angles extruded 99° or the heavier type angles as outlined in Douglas Service Bulletin No. 146, before allowing further operation. In case defective angles are found and they are identified as being angles extruded 99°, they must be replaced by the heavier type angles as outlined in Douglas Service Bulletin No. 146 before allowing further operation.

2. *Doublers.* In case cracked doublers are found at any of the specified inspections, they must be replaced. All lower surface outer panel wing attach angle doublers (Part Nos. 570602–206, –207, –208, and –209) must be replaced at or before 16,000 hours total doubler time. After October 15, 1944, no aircraft will be permitted to continue in operation having 16,000 hours total doubler time except as covered under Section C below. (Douglas Service Bulletin No. 220 dated March 11, 1944, contains information on acceptable methods of accomplishing this rework.) After replacement of the doubler as described in the paragraph above, it will be satisfactory to add the auxiliary gussets and shims, as shown on Douglas Drawing 570602, Change LLL.

3. *Refer to A. D. Note 52–22–3.*

C. *Outer wing heavy doubler installation.* When the numbers 570602–206 and –207 doublers have been replaced with 0.072 material instead of 0.064 material and the 570602–208 and –209 doublers have been replaced with 0.064 material instead of 0.051 material as recommended in Douglas Service Bulletin DC–3 No. 220, they need not be replaced at 16,000 hours provided the following are accomplished:

1. Complete inspection as required by A–2 above is conducted at 16,000 hours and no cracks are found.

2. Complete inspection as required by A above is conducted at intervals not to exceed 2,000 hours after the 16,000-hour inspection has been completed.

3. Canceled August 15, 1955.

41–47–1 Douglas (Was Service Note 3 of AD–618–3 and Service Note 3 of AD–699–3)

Each time a control surface is overhauled or repaired, the surface should be rebalanced. Douglas Service Bulletin No. 207 contains instructions on rebalancing.

43–7–1 Fairchild (Was Service Note 2 of AD–724–2)

At each periodic inspection, examine the wing center-section front and rear spars for wood deterioration and weakened glue joints due to moisture accumulation. Method of inspection and repair, if necessary, are covered in Fairchild Service Maintenance Bulletin 45–62–1 dated March 10, 1945, which has been reproduced for CAA personnel.

43–12–1 Douglas (Was Service Note 4 of AD–669–3)

At each periodic inspection, check the elevator hinge brackets and if cracks are present the brackets should be replaced. Due to the possibility of vibration causing fatigue failures, continuous operation of the airplanes in the range of engine speeds between 1,300 and 1,600 r. p. m. should be avoided. A minimum engine speed of 1,700 r. p. m. during cruising flight is recommended. (Douglas Service Letter dated January 15, 1943, covers this same subject.)

44–20–2 Boeing (Was Service Note 1 of AD–719–1 and Service Note 1 of AD–726–1)

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 A. D. 45–4–1 be followed. If defects are located, they shall be reported to the CAA 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 CAA 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.

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 CAA.

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 CAA.

44–52–1 Boeing (Was Service Note 1 of AD–558–1 and Service Note 1 of AD–524–1)

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 CAA. 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 S. B. 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)

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 accessible 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 attached 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 24SRT 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 the Civil Aeronautics Administration. 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 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 Civil Aeronautics Administration 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 Civil Aeronautics Administration.

(1) No crack should be allowed to exceed eight 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 six 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 twelve 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 Civil Aeronautics Administration 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 Civil Aeronautics Administration for examination.

46–1–1 Cessna (Was Service Note 1 of AD–722–5)

Improper flap chain operation, characterized by jumpy chain action, may lead to the chain jumping the idler and jamming. Improper operation is probably due to incorrect chain tension or excessively worn sprockets or both. The chain tension can be checked at the flap screw inspection opening by pressing the chains together at a point approximately 4 inches inboard of the flap screw sprocket. The distance between the chains should not be less than 1/4 nor more than 3/4 inches. The chain tension may be adjusted by means of the adjustable arm or the idler. The sprockets are considered excessively worn and should be replaced when the teeth are one-half the thickness of the sprocket web. In addition, the chain guard on the idler should be checked to make certain that it has not been bent or worn through. Inspect all chain links for cracks and replace any links that are found cracked. It is recommended that the chain be replaced every 1,000 hours. (Cessna Service Bulletin No. 100 dated July 13, 1945, covers this same subject.)

46–1–2 Cessna (Was Service Note 2 of AD–722–5)

When airplane has been subjected to a hail storm, a careful inspection should be made for damage to plywood reinforcements under fabric covering, even when hail has not caused apparent damage. (Cessna Service Bulletin No. 101 dated July 19, 1945, also covers this subject.)

46–4–1 Culver (Was Service Note 7 of AD–730–2)

Inspect immediately and after every 100 hours of operation, the landing gear throttle stop operation and mechanism for proper clearance. Install placard (Culver Dwg. 7132) "Never unlock landing gear with throttle retarded below cruising setting." (Culver Service Memorandum No. 22 dated October 26, 1945, covers this same subject.)

46–4–2 Culver (Was Service Note 6 of AD–730–2) (Applies only to Model LCA having Stromberg Model NA–S3A1 carburetors installed)

When inspecting or replacing carburetor float needle or needle seat, a check should be made to assure that when a rubber tipped needle is used, a seat having rounded edges

is installed. Sharp edged seats, when used with a rubber tipped needle, will cause sticking and cutting of the rubber tip. (This matter is also covered by Continental Service Bulletin No. M45-6 dated May 25, 1945, and Stromberg Aircraft Carburetor Service Bulletin No. 71.)

46-5-1 BOEING (Was Mandatory Note 4 of AD-558-1 and Mandatory Note 4 of AD-524-1)

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 AN822-10 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.)

46-6-1 RYAN (Was Service Note 5 of AD-749-1) (Applies only to serials 1001 to 2249, inclusive)

At each periodic inspection examine the front fin spar at its attachment to the fuselage for cracks. If no cracks are found and if spar has been reinforced at the critical section by means of a wood plug pressed into the end of the spar, no further action is mandatory. If cracks are found, the spar should be repaired by cutting the spar member approximately 3¼ inches above the lower bend and splicing on, by means of 3/16-inch bolts, a 1⅛ by 0.058 inch x-4130 spar replacement section. (Ryan Service Bulletin No. 1044 covers the installation of the wood plug and Ryan drawing SK-1879 covers the splice repair.)

46-6-2 KINNER (Was Mandatory Note 8 of AD-749-1 and Special Note 11 of AM-231) (Applies only to airplanes with R-5 Series 2 engines with the following serial numbers: 371, 378, 379, 380, 383, 386, 398, 399, 400, 401, 404, 405, 406, 407, 409, 410, 411, 413, 414, 415)

Install master rod (Part No. 835) before exceeding 200 hours total operation with the early type rod. This replacement should preclude further master rod failures and involves the rebalancing of the crankshaft and rod assembly. (Kinner Service Bulletin No. E-1-8 dated July 24, 1942, covers this same subject.)

46-6-3 KINNER (Was Mandatory Note 5 of AD-707-2; 9 of AD-749-1; Special Note 12 of AM-231 and 4 of AD-336) (Applies only to airplanes having R-5 Series 2 (military R-540-2) engines, R-55 (R-540-1) engines or the following R-56 (R-540-3) engines: 12005 to 12319 inclusive, 12805 to 12846 inclusive, 12938 to 12948 inclusive, 12950 to 12952 inclusive, 12954 to 12961 inclusive, 12963 to 12973 inclusive, 12975 to 12976 inclusive, 13034 to 13037 inclusive, 13040 to 13056 inclusive)

Rework required immediately, if total engine time has already exceeded 500 hours, or if not, rework must be accomplished before exceeding 500 hours.

Grind the master rod knuckle pin holes to a fit of 0.0003 to 0.0008 inch (tight) with the knuckle pins. This will necessitate reboring the connecting rod bushings, replacement of the knuckle pins and wrist pin bushings. The letter "O" preceding the engine serial number will indicate that this rework has already been accomplished. (Kinner Service Bulletins No. KCE-3 and KCE-4 cover this same subject.)

46-6-4 CONSOLIDATED VULTEE (Was Service Note 3 of AD-2-571-2) (Applies only to airplanes equipped with a propeller spinner)

Inspect the propeller spinner attaching lugs after each 25 hours of operation for cracks or signs of impending failure. If cracks are found, the lugs should be reinforced or the spinner should be removed entirely.

46-6-5 STINSON (Was Service Note 1 of AD-556-1)

After each 100 hours of operation, make a visual inspection (using at least a four power magnifying glass) of the main spar lower fittings at the outer wing panel to inner wing panel connection for small fatigue cracks at the fish-mouth weld connecting the fittings to the chord tubes of the spar. These cracks are most likely to originate at the inboard corners of the fish-mouth weld on the outer panel fitting. If any cracks are found, repairs should be made before further operation of the aircraft. Proposed methods of repair should be submitted for engineering approval.

46-11-1 NORTH AMERICAN (Was Service Note 2 of AD-2-575-3) (Applies only to Army serial numbers below 41-34249 and Navy serial numbers below 0-43692)

Inspection required at each periodic inspection unless doubler angles are installed.

Inspect the inboard end of the landing gear retracting strut attachment support channel, Part No. 55-14102 or 66-14102-1 at the wing outer panel joint, for cracks. If cracks are found in any channel, it shall be reinforced as follows:

A. For cracks less than 2 inches long, install 0.062-inch-29/32-inch x 1-inch x 6¾-inch long SAE No. 4130 steel, cadmium-plated (or 0.091 inch-24ST alclad) doubler angles in the upper corners of the inboard ends of each cracked channel. Drill a ⅛-inch stop hole at the end of each crack. Attach the 29/32-inch leg by picking up the existing rivet pattern through the wing skin and the channel upper flange. The rivets through the wing attach angle should be replaced with AN3 bolts, or equivalent. Attach the 1-inch leg to the side of the channel using a row of seven AN442-AD4 rivets or equivalent, at approximately 1⅛-inch spacing.

B. For cracks over 2 inches long, install 0.062-29/32-inch x 1⅜-inch x 6¾-inch long SAE No. 4130 steel, cadmium-plated, doubler angles in the upper corners of each channel containing a crack over 2 inches long. Drill a ⅛-inch stop hole at the end of each crack. Attach 29/32-inch leg as described in Paragraph A. Attach 1⅜-inch leg to the side of the channel using two rows of seven AN442-AD4 rivets, or equivalent, at approximately 1⅛-inch spacing.

C. For cases where no cracks are found, install the same doubler angles as required in Paragraph A, except that they need not exceed 4 inches in length, or inspect at each periodic inspection.

In order to permit installation of rivets with the wing outer panel installed on the airplane, approved type blind 5/32-inch rivets may be used in the 1-inch or the 1⅜-inch leg of the doubler angle.

(Supplement No. 1 to North American Service Bulletin dated March 6, 1946, covers this subject also.)

46-11-2 DOUGLAS (Was Mandatory Note 1 of AD-762-7)

To be accomplished not later than July 1, 1948.

The co-pilot oxygen regulator must be relocated from its position below the autopilot control handle to station 101 aft of the windshield defroster control plate and knob, in order to eliminate a fire hazard and contamination of the oxygen regulator in the event hydraulic fluid drips on the regulator from the autopilot control valve. (Douglas Service Bulletin No. C-54-247 dated November 16, 1945, covers this same subject.)

46-11-3 DOUGLAS (Was Mandatory Note 2 of AD-762-7.) (Applies only to all C54-DC (R5D) airplanes built at Santa Monica and to all C54A (R5D-1), C54B (R5D-2) and C54D-DC (R5D-3) airplanes built at Chicago up to and including C54D-DC AAF Serial No. 42-72698, and R5D-3 Navy Serial No. 56519. All subsequent airplanes have been reworked prior to delivery by the Douglas Company)

To be accomplished not later than next engine change.

Due to the possibility of the landing gear door stud shearing and preventing the landing gear from extending, the old thin stud, Douglas Dwg. No. 1167048 should be replaced with the new thick stud, Douglas Dwg. No. 1329227. In order to accomplish this change, the thin stud should be removed from each landing gear door sleeve assembly, part No. 4167071. The existing stud hole should be drilled to (0.4459, 0.4531) diameter and tapped ½-20 NF-3 to a depth of ½ inch. The new thick stud, Douglas part No. 1329227 should be installed and locked in place with an 0.063 inch drill rod pin ⅜ inch long pressed through the side of the sleeve assembly end, Dwg. No. 2167063. (Douglas Service Bulletin No. C-54-275 dated January 21, 1946, which is reproduced for Civil Aeronautics Administration personnel, covers this same subject.)

46-21-1 CESSNA (Was Mandatory Note 8 of AD-722-5) (Applies only to AT-17 and UC-78 Series airplanes)

Inspection required immediately.

On all AT-17 or UC-78 Series airplanes that have not been recovered with Grade A fabric at time of (or subsequent to) the original civil certification, inspect the fabric on wings and control surfaces to determine that the fabric complies with Grade A fabric standards and has a sample breaking strength of at least 56 lbs. The lacing cord should also be checked and should have a breaking strength of at least 56 lbs. when tested double. This inspection will require the testing of one or more samples of fabric and cord, the location from which the samples are to be taken and the number necessary will be determined by the Civil Aeronautics Administration representative.

46-12-2 DOUGLAS (Was Service Note 12 of AD-669-3)

Inspection required immediately and every 100 hours thereafter on all aircraft which have beryllium copper engine mount to fire wall attach fittings installed.

Inspect the Engine Mount to Fire Wall Attach Fittings, P/N 5-81486-4 (with four-power magnifying glass min.) in the fillet of the spot face for cracks or flaws in the material. If evidence of defects are found, replace with P/N 1042764. If cracks are not found, inspect every 100 hours until next engine change. P/N 5-81486-4 should be replaced with P/N 1042764 at engine change.

(Douglas Service Bulletin No. 238 covers this same subject.)

46-13-1 LOCKHEED (Was Service Note 2 of AD-723-2)

When replacing the landing gear actuating cylinder flexible hose, Part No. 55252-3, the length of ferrules should be compared. If longer ferrules are found on the new hoses, an elbow should be inserted between the hose and the cylinder aft port, to prevent possible damage to the hose by the landing gear scissors. (Lockheed Service Letter No. 18-28, dated June 15, 1945, revised December 10, 1945, covers this same subject.)

46-13-2 LOCKHEED (Was Mandatory Note 18 of AD-723-2) (Applies only to airplanes used in scheduled air carrier operation)

Compliance required not later than April 30, 1946.

In order to comply with CAR Special Regulation 333, the present fuel system plumbing equipment shall be replaced with a dual fuel system in accordance with Lockheed Service Bulletin No. 18/SB-113, dated August 17,

1945, or any other dual fuel system approved by the Administrator.

46-13-3 LOCKHEED (Was Mandatory Note 6 of AD-723-2)

Compliance required before next 10 hours of operation.

The oil tanks should be examined to determine whether or not they are of the hopper type, and appropriate action in one of the following manners must be taken:

1. If a hopper type oil tank is installed and is to be retained in accordance with Aircraft Specification A-723-4 (for use with oil dilution), the following action must be taken (Applies only to serial numbers 2294 and up):

(a) Install a propeller feathering reserve oil tank (part No. 174399) forward of the firewall. (Lockheed Service Bulletin No. 18/SB-115 dated April 18, 1945, covers this same subject.)

(b) Rework the hopper assembly to provide better support at the sump by installing a new support assembly (part No. 174321). After every 100 hours remove plate and elbow on bottom of sump housing (part No. 114690) and inspect hopper with a light and mirror. (Lockheed Service Bulletin No. 18-99 dated September 29, 1943, covers this same subject.)

2. If the hopper type oil tank is to be removed, the following action must be taken (applies only to serial numbers 2294 and up, except serial numbers 2359, 2403, 2464, and 2465):

Remove the hopper type oil tank and propeller feathering lines and replace with a conventional type tank (part No. 73662), fitted with a standpipe to provide a reservoir of oil for propeller feathering, and install a separate feathering line from the oil tank to the feathering pump. (Lockheed Service Bulletin No. 18-100 dated March 3, 1944, covers this same subject.)

3. On airplanes which have conventional oil tanks other than part No. 73662, the standpipe at the outlet in each tank must be revised in one of the following manners, whichever is applicable. (Applies to all Series 18 airplanes, except Models 18-07 and 18-40, with serial numbers 2293 and below, 2359, 2403, 2464, and 2465.)

(a) If the tanks are equipped with the standard $3\frac{31}{32}$-inch long standpipes (part No. 164101), the standpipe in each tank should be removed and a new $4\frac{15}{16}$-inch standpipe (part No. 164101, Change "D") installed.

(b) If the tanks are equipped with oil stick gauge foam guards, the existing standpipe in each tank should be cut off near the bottom of the tank, the foam guard cut off approximately 5.38 inches from the bottom surface of the oil tank outlet connection boss, and a new standpipe assembly (part No. 173806) installed.

(Lockheed Service Bulletin No. 18-105 dated October 19, 1943, covers this same subject.)

46-13-4 DOUGLAS (Was Service Note 10 of AD-618-3 and Service Note 11 of AD-669-3) (Applies to all models except conversions from the C-47 series)

1. Inspect visually for cracks all landing gear rear brace strut fittings, P/N 230659, that have not been removed and magnetically inspected at last airplane overhaul. This inspection should be accomplished prior to next flight.

2. If crack is less than $\frac{1}{8}$ inch long it may be ground or filed out, being careful to remove all marks and scratches, without removing the fitting until the next overhaul. If cracks are found to be longer than $\frac{1}{8}$ inch, the fitting must be removed and repaired in accordance with paragraph 3 below.

3. Cracks in weld area can be repaired by grinding away all existing weld and rewelding. If cracks extend through spacer plate, the spacer plate may be cut back beyond the end of crack, all old weld removed, and a new section of spacer plate lap welded to the remaining portion of the spacer plate and then seam welded to the side plates. Cracks extending through the side plates for a maximum of $\frac{1}{4}$ inch may be repaired by grinding a "V" on the outside surface of the plate to a minimum of $\frac{1}{16}$ inch beyond the end of the crack and welding. The weld must be ground smooth.

4. If fitting is removed, rivets may be replaced with spacers and $\frac{3}{16}$-inch AN bolts having a ream fit through the bulkhead and fitting in order to facilitate installation.

5. In order to insure that parts in the airplane continue to remain satisfactory for service, the following inspection procedure should be followed:

a. Visually inspect landing gear rear brace strut fitting at periods not to exceed 1,000 hours.

b. Remove and magnetically inspect rear brace strut fitting at each major overhaul.

(The Inspection and Repair outlined above are covered by Douglas Service Bulletin No. 233, Section IV.)

The inspections outlined above will not be necessary when the landing gear rear brace strut fitting, P/N 230659, is replaced by the new fitting, P/N 4341810.

(Supplement to Douglas Service Bulletin No. 233, as revised October 24, 1946, covers this same subject.)

46-13-5 DOUGLAS (Was Mandatory Note 10 of AD-618-3 and Mandatory Note 12 of AD-669-3)

To be accomplished not later than April 1, 1947.

Replace all canvas control boot assemblies either with the new rubber control column boot assemblies of the same part number (No. 5035184-16 and -17), as called for on Douglas Service Bulletin No. 231, or with one of the following boot assemblies:

(a) Thompson Co. (H. I. Thompson Company, 1733 Cordova St., Los Angeles 7, California), No 11-21001, Change B, for Models DC3-C/C-47 and DC-3-D/C117A.

(b) Thompson Co. No. 11-21002, Change A, for Model DC-3.

(c) American Airlines Drawing No. CDS-6132.

Pending replacement, the canvas boots should be inspected prior to each flight to determine that the top of the boot is tight around the control assembly and the pocket around the base is eliminated.

46-14-1 FAIRCHILD (Was Mandatory Note 5 of AD-724-2)

Inspect indexing of fixed pitch wood propeller on engine crankshaft. To reduce possibility of crankshaft failure, fixed pitch wood propeller must be installed in the 90° position (blades at right angles to the crankthrow.)

46-14-2 FAIRCHILD (Was Mandatory Note 4 of AD-724-2)

Compliance required immediately.

The aluminum alloy cockpit heat control valve box and valve must be replaced with a valve and box made of ferrous metal at least .018 inch thick. If ordinary steel is used, it should be suitably protected against corrosion. In lieu of the foregoing it will be satisfactory to remove the valve box and to seal the opening in the firewall with an overlapping sheet of ferrous metal secured with the present bolts and nuts. (Fairchild Service Bulletin No. 45-62-10 dated July 9, 1945, covers this same subject.)

46-17-1 NORTH AMERICAN (Was Mandatory Note 5 of AD-2-575-3)

To be accomplished prior to original certification or at first periodic inspection thereafter.

Inspect the universal joint pins in the flap control push-pull tubes, part No. 19-152642, connecting the outer and inner flap for broken pins. Replace all broken pins with new pins and install a close fitting rubber hose over each universal joint to hold in place any pins which may break in the future. (North American Service Bulletin dated March 6, 1947, covers this subject also.)

46-21-1 FAIRCHILD (Was Mandatory Note 6 of AD-702-2; 2 of AD-706-1; 4 of AD-517-2; 5 of AD-535-2; 4 of AD-564-2; 5 of AD-633-2; 5 of AD-600-2; 4 of AD-667-2)

Compliance required at next periodic inspection.

To correct the freezing of the upper and lower universal joints on the landing gear oleo shock struts, install new universal joints, Fairchild parts Nos. 3330 and 3328. (Fairchild Service Bulletin 46-24-1-A, revised December 23, 1946, covers this same subject.)

46-23-1 ERCO (Was Mandatory Note 4 of AD-718-6) (Applies only to serial numbers 113 to 362, inclusive)

To be accomplished within next 50 hours of operation.

Trouble in service has indicated the necessity for replacing the original muffler on the serial numbers listed above with a new muffler, Erco part No. 145-40517. (Erco Service Department Memorandum No. 7 dated February 1, 1946, covers this same subject.)

46-23-2 ERCO (Was Mandatory Note 5 of AD-718-6) (Applies only to serial numbers 113 to 263, inclusive)

The flexible hose in the engine breather line should be inspected immediately. If the inner liner of this hose is an amber color, it is susceptible to contraction and possible clogging. Hose which shows evidence of clogging should be replaced at once by hose supplied by Erco or by equivalent hose such as AN-884 or AN-878. If hose has an amber lining but is still in satisfactory condition, it may be continued in service for a maximum of 25 hours, whereupon it must be replaced by satisfactory hose as described above. (Erco Service Department Memorandum No. 11 dated February 1, 1946, covers this same subject.)

46-23-3 ERCO (Was Mandatory Note 3 of AD-718-6) (Applies only to serial numbers 113 to 1306, inclusive)

To be accomplished immediately.

Due to the possibility of a defective fitting on the upper end of the control column shaft (Erco part No. 415-52129) in the aileron control system, the system should be tested to a load of 94 pounds, applied at the periphery of the control wheel. The ailerons should be blocked for the test. Each control wheel should be tested. The neutral position of the wheel should be noted before the test and if undue slack exists in the system it should be tightened. After the test, again note the neutral position and, if the position has changed more than about 5 degrees, the control column (part number above) should be replaced. If, after the test, the neutral position is within about 5 degrees of the original position, the ailerons should be freed and the system operated with the nose wheel on and off the ground. If the system operated freely and a visual inspection indicates that the system is in good condition, no change is necessary. An appropriate log book entry shall be made to indicate that the above has been complied with. (Erco Service Bulletin No. 7 covers this same subject.)

46-23-4 GLOBE (Was Mandatory Note 1 of AD-766-5) (Applies only to serial numbers 33 to 54, inclusive, plus 54, 56, 57, 58, 60, 61, and 64)

Due to an inadvertent error in the manufacture of these airplanes, the following reinforcement of the rivet seam attaching the upper skin of the outer wing panels to the main spar is to be accomplished as follows. In lieu of immediate accomplishment, the maximum weight may be reduced from 1,570

pounds to 1,490 pounds. This may require elimination of the baggage allowance. In any case, the reinforcement outlined below must be accomplished not later than September 1, 1946. After completion of the reinforcement, the placard may be removed and the weight increased to the maximum specified in the Aircraft Specification.

In the length of the seam from 1½ inches to 4¾ inches outboard of the outer panel attachment bolt, the number of rivets should be increased to not less than five. Since the heads of the bolts through the end fitting of the spar cause interference at the originally intended spacing, the rivets may be spaced unequally, but the minimum spacing may not be less than ⅜ inch. In the length of the seam from 4¾ inches to 11½ inches outboard of the outer panel attachment bolt, sufficient rivets should be added to make the spacing approximately ⅜ inch. The added rivets may be either Cherry CR163-4-10 or AN456-AD4. (Globe Customer Service Maintenance Bulletin No. 1 covers this same subject.)

46-23-5 NOORDUYN (Was Mandatory Note 1 of AD-2-578-1)

Required at next periodic inspection.

Inspect the trailing edge of the horizontal stabilizer to determine whether or not drain holes are present in the metal trailing edge cover. If the holes are not present, it will be necessary to remove enough fabric to permit inspection of the ribs. Defective or deteriorated wood must be replaced and drain holes approximately 1/16 inch diameter spaced to drain all pockets must be drilled.

46-23-6 NOORDUYN (Was Mandatory Note 2 of AD-2-578-1) (Applies only to airplanes equipped with fuel-burning cabin heaters)

Required at next periodic inspection.

The Surface Combustion fuel-burning heater must be made inoperative by disconnecting and plugging the fuel line as near the engine as practicable unless the following modifications are accomplished:

(a) A fire resistant bulkhead must be installed between the heater and the belly fuel tank. A firewall having the fire resistant qualities specified in CAR 03.4700 will be acceptable.

(b) A fuel shut-off valve, controllable from the pilots' compartment must be installed in the fuel line between the engine and the heater.

(c) Shrouds must be installed on the heater exhaust and drain lines to isolate the lines from the airframe.

46-24-1 BOEING (Was Mandatory Note 4 of AD-743-3)

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 twelve 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 one-half inch.

46-24-2 DOUGLAS (Was Mandatory Note 3 of AD-762-7)

To be accomplished not later than next periodic inspection.

Revise the magneto wires forward of the firewall in accordance with Douglas Service Bulletin No. C-54-283 dated March 19, 1946. This is necessary to prevent burning of the magneto ground wire conduit which will cause the magneto to short out. (The reference service bulletin is reproduced for CAA personnel.)

46-27-1 DOUGLAS (Was Mandatory Note 5 of AD-762-7)

To be accomplished not later than November 1, 1946.

Inspect immediately the spar webs in the wing integral tank area to ascertain if reinforcements have been installed in accordance with Douglas Service Bulletin C-54-205 dated October 1, 1945. If not already installed, reinforcements must be added by November 1, 1946. Pending rework, airplanes which do not have reinforcements may be operated if daily inspection shows there is no leakage. Fuel should be carried in outer wing tanks as cracks may develop that might not be detected. (The reference bulletin is reproduced for CAA personnel.)

46-27-2 DOUGLAS (Was Mandatory Note 4 of AD-762-7)

Inspection to be accomplished immediately and at periods not to exceed 35 hours thereafter.

Numerous reports have been received of cracks occurring in the nose wheel brace strut collar, P/N 5102824, in the region where the steering lugs meet the collar body. If cracks are found, repairs should be made as outlined in Douglas Service Bulletin C-54-209S (Supplement) dated May 31, 1946. After repairs have been accomplished, inspection must be continued at intervals not to exceed 35 hours.

Douglas Service Bulletin C-54-209S (Supplement) dated August 12, 1946, contains the information which is included in the supplement dated May 31. In addition, the later supplement outlines a method for the installation of steel brace rods to the nose wheel brace strut collar. Although the addition of the steel brace rods is not mandatory, it is recommended by the Douglas Company. If the steel brace rod installation has been incorporated in addition to the rework to the nose wheel brace strut collar which is required in the above paragraph, the 35-hour periodic inspections will not be required. (The reference bulletin is reproduced for CAA personnel.)

46-30-1 LUSCOMBE (Was Mandatory Note 1 of AD-694-4) (Applies only to serial numbers 2201 to 2614, inclusive; 2616 to 2632, inclusive; 2635; 2637; 2639; 2642; and 2645)

Compliance required prior to completion of next 10 hours of operation.

Replace the adjustment screw now installed in the lower end of the control stick horn, which is located beneath the floor boards with an AN520-10-44 screw in order to prevent interference with the lower fuselage skin on the forward flange of the landing gear bulkhead. (Luscombe Service Bulletin No. 2-46 covers this same subject.)

46-31-1 STINSON (Was Mandatory Note 1 of AD-764-1)

Compliance required at time of civil certification or, if already certificated, prior to next periodic inspection.

The hinged back of the rear seat must be permanently fastened to preclude the possibility of interference with the rear control stick.

46-31-2 STINSON (Was Service Note 1 of AD-764-1)

After each 25 hours of operation make a visual inspection of the torque tube on welded bellcrank assemblies located in the fuselage immediately aft of the rear seat for cracks in the bellcrank around the torque tube. If any cracks are found, replace or reinforce part before further operation of the aircraft. Bellcranks manufactured from a casting and installed on L-5 airplanes, serial number 42-98885 and subsequent, are considered satisfactory. If inspection indicates that this more satisfactory part is installed, the 25-hour inspections may be discontinued.

46-31-3 BOEING (Was Mandatory Note 5 of AD-743-3) (Applies to all airplanes with crop dusting or seeding hopper installations)

Superseded by 49-23-1.

46-33-1 GLOBE (Was Mandatory Note 3 of AD-766-5) (Applies only to serial numbers 3 to 184, inclusive; 189; and 191 to 196, inclusive)

Replace present aluminum alloy torque knees on main landing gear struts with forged steel knees, Globe part No. 64B19-3. On any of the above-listed airplanes equipped with Adel main landing gear struts this replacement is not required. (Globe Customer Service Maintenance Bulletin No. 3 covers this same subject.)

46-33-2 GLOBE (Was Mandatory Note 2 of AD-766-5) (Applies only to serial numbers 3 to 174, inclusive)

Compliance required prior to October 1, 1946.

Install stiffeners, Globe part No. 11-213-1471-1 R&L, on the flange of the upper bulkhead at Fuselage Station 167, with six rivets per stiffener, to prevent the formation of cracks originating at the joggles in the flange outboard of the stabilizer attachment points. Any crack should be stop drilled. If it extends into the web of the bulkhead an 0.040-inch 24ST alclad reinforcing plate extending to the flange should be installed on the web with rivets spaced not more than three-fourths of an inch apart. (Globe Customer Service Maintenance Bulletin No. 2 covers this same subject.)

46-36-1 CONTINENTAL (Was Mandatory Note 8 of AD-675-2; 11 of AD-728-1; 1 of AD-761-2; 1 of AD-759-3; 2 of AD-751-1; 11 of AD-729-1; 6 of AD-718-6; 8 of AD-746-1; 11 of AD-696-3; 11 of AD-691-1; 10 of AD-694-4; 9 of AD-737-1; 8 of AD-730-2; 8 of AD-720-1; 6 of AD-709-1; 5 of AD-740-1; 9 of AD-725-1; 9 of AD-703-1 and 2 of AD-611-1) (Applies to airplanes having Continental A-65 Series engines with serial numbers from 3456658 to 4109568, inclusive; or Continental A-65, A-75, or A-80 Series engines which have had A-21422 piston pins or new three-ring pistons installed since September 25, 1945)

Compliance required immediately if possible, but in any event not later than 50 hours of engine operation after August 27, 1946.

A certain percentage of piston pins installed in engines of the above numbers and distributed as replacement parts are subject to failure without warning. The weakness of these pins cannot be detected by normal inspection methods. Piston pin breakage can result in complete engine failure. It is the owner's responsibility to avoid this risk by making the changes outlined in (A) and (B) below at the earliest possible time.

(A) Replace piston pin part No. A-21422 (0.626-inch isnide diameter) with thick wall piston pin No. A-25127 (0.5945-inch inside diameter). The engine manufacturer has given assurance that every possible effort will be made to supply the required quantity of replacement piston pins.

(B) Simultaneously with (A) above, all pistons should be examined for skirt cracks and the necessity for rework of the bottom rib. This rework involves reducing the height of the rib until it is at least 1/16 inch wide and rounding all sharp corners.

(C) As an acceptable alternate to (A) and (B) above, cam ground pistons, part No. 40731, which necessitate using piston pins of greater outside diameter, may be installed. This change will likewise remove the possibility of piston pin failure and piston skirt

cracking. (Continental Motors Service Bulletin M46-6 covers this same subject.)

46-36-2 PIPER (Was Mandatory Note 3 of AD-780-3) (Applies to serial numbers 12-1 to 12-207, inclusive)

Compliance required prior to November 1, 1946.

Several instances have been reported of loosening of the cap screws attaching the air scoop to the carburetor on these aircraft, thus creating a hazard. These cap screws should be removed and drilled for safety wire. They should then be reinserted and safety wire installed.

(Piper Service Bulletin No. 90 dated July 17, 1946, covers this same subject.)

46-36-3 PIPER (Was Mandatory Note 2 of AD-780-3) (Applies only to serial numbers 12-1 to 12-285, inclusive)

Compliance required not later than next periodic inspection.

To prevent possible failure of the tail pipe and cracking of the muffler, install the additional brace tube, Piper part No. 10860 and new clamp, part No. 80002-28. The new brace will form, together with the original brace, a "V" instead of a single leg. A careful inspection of the muffler should be made and if any cracks are present, a new muffler should be installed. (Piper Service Bulletin No. 92 dated August 7, 1946, covers this same subject.)

46-37-1 PIPER (Was Mandatory Note 12 of AD-691-2 and Mandatory Note 1 of AD-780-3) (Applies to J3C-65 and J3C-658, serial numbers 14027 and up and all PA-12)

Compliance required by November 1, 1946.

To prevent possible failure of the fuel strainer bowl, replace the present thin fuel strainer bowl gasket with a ⅛ inch thick cork and neoprene gasket supplied by Piper. The bowl seat nut should be tightened only finger tight. The bowl should be carefully examined for signs of flaws or cracks and should be replaced if any are found. (Piper Service Bulletin No. 89 dated July 11, 1946, covers this same subject.)

46-37-2 PIPER (Was Mandatory Note 13 of AD-691-2) (Applies to serial numbers 14027 through 17959, inclusive)

Compliance required immediately.

Affected airplanes should be examined immediately to ascertain that the fuel strainer is properly installed. The strainer should be installed with the IN port adjacent to the firewall and the OUT port facing the carburetor. If the strainer is not installed as above, it should be reversed for proper fuel flow. (Piper Service Bulletin No. 91 covers this same subject.)

46-38-1 GRUMMAN (Was Mandatory Note 4 of AD-654-1)

Compliance required prior to November 1, 1946.

Reroute to vacuum system tubing in the engine compartments to prevent raw fuel from lodging in the check valve, thus deteriorating the valve and possible seeping through. The flap system storage tank should be inspected and if fuel is found it should be thoroughly flushed. The check valves in the vacuum system are to be removed and inspected for wear and deterioration. Presence of fuel in the flap system storage tank is sufficient cause for the replacement of the check valves. (Grumman Service Bulletin No. 19 dated July 18, 1946, covers this same subject.)

46-38-2 ERCO (Was Mandatory Note 8 of AD-718-6) (Applies to serial numbers 113 to 2706 except 2683, 2685, 2687, and 2691)

Compliance required prior to November 1, 1946.

(a) To provide additional bearing area and more positive locking action for the aileron control stop adjustment screw, add an AN315-3R nut on the adjustment screw at the forward side of the stops and a star type AN936-B10 lock washer (external teeth) between the jam nut and rear side of stops (Ercoupe part No. 415-52145).

(b) Inspect the welds which attach the aileron control stops to the control column cross member carefully for cracks. Also determine that welds are complete around the ends of the stops. Repair if cracked welds or insufficient welds are found.

(c) Inspect the adjustment of the two upper turnbuckles in the chain and cable system to be certain these turnbuckles do not touch the sprockets before the quadrant touches the stops. Readjust all three turnbuckles if necessary to insure freedom from this turnbuckle-sprocket interference. Erco Service Department Bulletin No. 13 covers this same subject.)

46-38-3 ERCO (Was Mandatory Note 7 of AD-718-6) (Applies to serial numbers 345 to 2134, inclusive)

To be accomplished prior to November 15, 1946.

In order to prevent possible fuel system failure, the dural elbow fitting AN914-2D between the fuel filter and the carburetor should be replaced with elbow fitting AN-914-2. (Erco Service Bulletin No. 12 dated July 11, 1946, covers this same subject.)

46-39-1 STINSON (Was Mandatory Note 5 of AD-709-1 and Special Note 6 of AD-346)

Inspect the lower tube members of the oleo truss for wear where the drip pan contacts the tubes. Damaged members should be repaired or replaced. The flanges on both sides of the drip pan should be bent to eliminate abrasive contact with tube members. (Stinson Division Service Bulletin No. 224 covers this same subject.)

46-39-2 DOUGLAS (Was Mandatory Note 8 of AD-762-7)

Superseded by 48-12-2.

46-39-3 DOUGLAS (Was Service Note 2 of AD-762-7)

Pending accomplishment of Note 46-24-2, the magneto wires forward of the firewall must be inspected for chafing each 100 hours of operation.

46-39-4 DOUGLAS (Was Mandatory Note 7 of AD-762-7)

To be accomplished not later than November 15, 1946.

Instances of valve freezing, due to ice forming in the detent chamber, have been reported on fuel tank selector and crossfeed valves. To prevent valve freezing, the Parker and Hydro Aire valves must be reworked by filling the detent chamber with Dow Corning compound No. 4 and installing a washer to retain the compound and to act as a water shield. (Douglas drawings 4331597 and 2331524 cover this same subject.)

46-39-5 DOUGLAS (Was Mandatory Note 6 of AD-762-7) (Applies only to C-54 B and other C-54 series airplanes having the C-54 B fuel system)

To be accomplished not later than December 1, 1946.

The main fuel line supporting brackets at wing stations 357, 378, and 399 are subject to vibration failure and are to be replaced with redesigned brackets. In addition, the United Carr clips at wing station 378 are to be replaced by Adel clips. (Douglas Service Bulletin No. DC-4-5 covers this same subject.)

46-39-6 DOUGLAS (Was Service Note 1 of AD-762-7)

Superseded by 48-3-1.

46-40-1 FAIRCHILD (Was Mandatory Note 4 of AD-707-2; 3 of AD-706-1; 3 of AD-667-2; 4 of AD-600-2; 4 of AD-633-2; 4 of AD-535-2)

To eliminate the possibility of engine failure due to air-lock in the fuel system, the fuel tank selector valve should be placarded immediately to specify that fuel be fed from only one tank at a time. This placard should read: "Caution. Operate on One Tank at a Time Only." (Fairchild Service Bulletin No. 44-7-C dated February 10, 1944, covers this same subject.)

46-40-2 FAIRCHILD (Was Mandatory Note 2 of AD-667-2; 3 of AD-633-2; 3 of AD-535-2; 3 of AD-564-2; 3 of AD-600-2) (Applicable to serial numbers 3300 to 3319, inclusive, and 3350 to 3358, inclusive, except seaplanes)

Compliance required at next 100-hour inspection.

Unless previously accomplished, reinforce the oleo tubes at the piston end by installing sleeve. Fairchild part SK-1636. Sleeve may be attached by using two AN-435-5-4 rivets or by welding through four 5/16-inch holes drilled in the piston tube. All damaged parts should be replaced. (Fairchild Service Bulletins 40-5, revised July 3, 1945, and 44-6-C dated May 8, 1944, cover this same subject.)

46-41-1 BELLANCA (Was Mandatory Note 2 of AD-773-5) (Applies to serial numbers 1060 to 1111, inclusive)

Compliance required prior to November 15, 1946.

Replace rudder bellcrank (Bellanca part No. 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 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 from 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 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.)

46-42-1 GLOBE (Was Mandatory Note 4 of AD-766-5) (Applies only to serial numbers 3 to 228, inclusive)

Compliance required prior to December 1, 1946.

Replace the aluminum alloy cabin heater valve assembly with one constructed completely of firewall material equivalent to Globe Valve Assembly, part No. 11-440-3623. This will provide a complete firewall of firewall material. (Globe Customer Service Maintenance Bulletin No. 4 covers this same subject.)

46-43-1 DOUGLAS (Was Service Note 13 of AD-669-3 and Service Note 11 of AD-618-3) (Applies only to DC3C and DC3D series airplanes and to DC3 airplanes having C-47 type outer wings installed)

Inspection required at next periodic inspection and at intervals not to exceed 450 hours thereafter.

Inspect the outer wing attach angles for signs of corrosion. This corrosion may be found in the form of blisters on the surface of the angle with small cracks running across the surface of the blister. Cavities often exist under the blisters and if the corrosion has progressed sufficiently, may extend through the angle. This corrosion is inter-

granular in type and if found, the complete wing attach angle affected must be replaced. Evidence of the corrosion can be found on the outer surfaces of the angles; therefore, the wings need not be removed to complete the inspection. This inspection may be accomplished at the same time as the attach angle inspection required in Note 39-24-1. (Douglas Service Bulletin No. 243 covers this same subject and gives additional information regarding the causes of this difficulty.)

46-43-2 DOUGLAS (Was Mandatory Note 12 of AD-618-3 and Mandatory Note 13 of AD-669-3) (Applies only to DC3 series aircraft having the No. 4118923 magnesium alloy casting Rudder Pedal Slide Tube Support)

To be accomplished not later than January 1, 1947.

Install a third AN3-21 bolt in the existing hole between the two holes now having AN3-21 bolts in the attachment of the Rudder Pedal Slide Tube Support, No. 4118923 and -1, to its Pedal Assembly (5118929, 5118931, and 5118928). If necessary, to correct misalignment among the three holes, it is permissible to use 24ST or 4130 bushings with 1/32-inch wall thickness. This additional bolt is necessary to insure the 100 percent margin of safety required on the magnesium casting. (Douglas Service Bulletin C-47-101 covers this same subject.)

46-44-1 CESSNA (Was Mandatory Note 1 of AD-768-4) (Applies only to serial numbers 8001 to 8108, inclusive)

Compliance required prior to January 1, 1947.

Remove the auxiliary rudder stops (two bolts) to eliminate the possibility of the flange of the bellcrank on the rudder bars catching on the bolt heads and locking the system. These bolts are at the center of the cockpit just forward of the rudder pedals. Removal of the fairing which forms a tunnel along the floor from the seat to the pedals is necessary for access to the bolts. (Cessna Service Letter No. 2-140 covers this.)

46-44-2 CESSNA (Was Mandatory Note 2 of AD-768-4) (Applies only to serial numbers 8001 to 9619, inclusive)

Compliance required prior to January 1, 1947.

Reinforce attachment of the safety belt brackets to the skin of the fuselage by the addition of three AN 456 AD 5 rivets at the safety belt end of each bracket. Make certain that the rivets pass through both bracket and fuselage skin to insure a good connection. (Cessna Service Letter No. 10-120 and 140 covers this same subject.)

46-44-3 CESSNA (Was Mandatory Note 3 of AD-768-4) (Applies only to serial numbers 8001 to 9619, inclusive)

Compliance required prior to January 1, 1947.

Rework attachment of windshield upper edge by the installation of a retaining channel deeper than the original and extending the entire width of the fuselage. The channel consists of two pieces; one a 0.040-inch 24ST alclad strip, 1⅜ inches x 42 inches, outside of the windshield and with the rear edge inserted between the fuselage top skin and the front flange of the spar U channel; the other a 0.032-inch 24ST alclad strip, 1 13/16 inches x 44 inches, inside of the windshield and overlapping the above-mentioned spar flange. These strips are secured to the top skin and spar flange by a single row of 44 AN 456AD4 rivets. A piece of felt, 2¾ inches x 44 inches x 1/16 inch thick, SAE F-55 or equivalent, should be folded over the edge of the windshield and cemented thereto to provide a seal and a tight fit in the channel. This modification is necessary to insure that the windshield will not pull out at the top and alter the airflow, thereby seriously affecting the operational characteristics of the airplane. (Cessna Service Letter No. 14-120 and 140 covers this same subject.)

46-44-4 CESSNA (Was Mandatory Note 4 of AD-768-4) (Applies to serial numbers up to and including 9721)

Replacement required prior to December 1, 1946.

All U. S. Rubber Co. P-212 and P-212L Series flexible ducts installed in the carburetor hot air system should be replaced by U. S. Rubber Co. P-208-S duct or P-208 duct coated with Neoprene by Cessna or its distributors. (Cessna Service Letter No. 16-120 and 140 covers this same subject.)

46-44-5 CESSNA (Was Mandatory Note 5 of AD-768-4) (Applies only to serial numbers 8001 to 8517, inclusive)

Compliance required prior to January 1, 1947.

Replace each of the four internal wrenching bolts which attach the engine to the engine mount with an AN6 bolt and a special offset washer. AN6-47 bolts should be used at the upper fittings and AN6-35 bolts at the lower fittings. The special washer is made of 4130 steel ⅞ inch in diameter and ¼ inch in thickness with a through hole 0.377 inch in diameter and the O. D. machined to a 0.600-inch diameter a depth of ⅛ inch. The 0.600-inch diameter offset fits into the aft end of the attachment fitting and the head of the replacement bolt bears directly on the special washer. Also, an AN960-616 washer should be added between the nut and the AN970-6 washer at the front face of the rubber bushing. This change is made to prevent the bolts from pulling through the 1½-inch diameter x 0.049-inch plate welded to the front of each fitting. (Cessna Service Letter No. 18 covers this same subject.)

46-46-1 ERCO (Was Mandatory Note 9 of AD-718-6) (Applies only to serial numbers 2623 to 2994, inclusive)

Compliance required prior to January 1, 1947.

Install a new fuselage gas tank overflow line (Erco part No. 415-48162) and replace the imperial brass compression sleeve number 60F with a rubber washer number A549, Kohler Company of A-64-3, Hayes Industries, Inc. (Erco Service Department Bulletin No. 15 dated August 24, 1946, covers this same subject.)

46-46-2 NORTH AMERICAN (Was Mandatory Note 6 of AD-2-575-3)

To be accomplished prior to January 1, 1947.

Inspect all airplanes having Vest Two-Place Chum Seats installed prior to October 9, 1946, to determine that an elevator rear stop is installed on the horizontal stabilizer rear spar directly in front of the elevator horn and that the modification incorporates revised self-aligning rudder balance brackets, rudder balance cable, rudder pedal adjustment bar and reinforcement plates on forward side of firewall at the balance pulley bracket attachment points in accordance with Vest Installation Instructions dated October 9, 1946.

46-46-3 CESSNA (Was Mandatory Note 10 of AD-722-5)

Inspection required not later than January 1, 1947.

Inspect the aileron and flap hinge brackets for evidence of cracking where the bearing is staked into the hinge bracket. If cracks are found, the hinge brackets should be replaced.

46-46-4 CESSNA (Was Mandatory Note 9 of AD-722-5)

Superseded by 49-20-1.

46-49-1 ERCO (Was Mandatory Note 10 of AD-719-6) (Applies to all airplanes equipped with Magnesium Die Cast Nose Wheel, casting No. 34206)

Compliance required prior to February 1, 1947.

Due to an increasing number of failures of the Magnesium Die Cast Nose Wheel (which bears the number 34206 in raised letters), it appears essential that this wheel be replaced by a Permanent Mold Aluminum Alloy Nose Wheel (casting No. 34204) which the manufacturer is making available to all distributors and dealers. The replacement wheel, tire, and tube should be statically and dynamically balanced before use. Care should be exercised in removing the old nose wheel to avoid damaging the axle, oleo, and supporting structure. (Ercoupe Service Department Bulletin No. 16 dated October 28, 1946, covers this same subject in greater detail.)

46-50-1 WACO (Was Special Note 2 of AM-166)

Inspection required before next flight—rework (if needed) not later than April 1, 1946.

Inspect the fuel line (or lines) connecting the fuel strainer and the carburetor to determine that this line is made up of either:

(a) Rigid metal tubing with flexible hose connections at each end, or

(b) Approved type flexible hose assembly.

Aircraft found to have fuel line installations not conforming to either (a) or (b) shall be altered to conform as soon as possible. (Waco Service Bulletin No. 154 also covers this subject.)

47-2-1 DOUGLAS (Was Mandatory Note 9 of AD-762-7)

To be accomplished at next engine change.

Replace present low carbon steel bolts and brass nuts on exhaust collector rings with stainless steel bolts and nuts. This change is necessary in order to eliminate stretching of these bolts, corrosion, and other maintenance problems connected with the present type bolts used in the exhaust collector system. (Douglas Service Bulletin DC-4 No. 10 covers this same subject.)

47-2-2 DOUGLAS (Was Mandatory Note 10 of AD-762-7) (Applies to all C-54 series aircraft and DC-4 aircraft, serial numbers 42904 to 42943, inclusive; 42948 to 42952, inclusive; 42982 to 42996, inclusive; and 43065)

To be accomplished not later than July 1, 1947.

Inspect the clevis shear bolts in the vertical stabilizer forward attach fitting (Station 953), P/N 4106204 and -1, for loose or stretched bolts. In some instances, the lower 5/16-inch bolts, when being checked for tightness, have broken. In order to overcome the difficulty, the stabilizer attaching fittings should be reworked and bolts be replaced with high heat-treated bolts. (Douglas Service Bulletin DC-4, No. 11, covers this same subject.)

47-2-3 DOUGLAS (Was Mandatory Note 11 of AD-762-7)

To be accomplished not later than August 1, 1947.

Because of failures in service of the main 9-inch Douglas aluminum accumulator, it is necessary to replace it with at least one 7½-inch steel accumulator, Bendix P/N 406920 or Vickers P/N AA14308B, or Vickers 10-inch accumulator Model AA-14310. (Douglas Service Bulletin DC-4 No. 9, and Addendum dated January 6, 1956, cover this same subject.)

47-2-4 DOUGLAS (Was Mandatory Note 12 of AD-762-7) (Revised May 24, 1948)

To be accomplished not later than March 15, 1947.

Relocate engine primer solenoid to prevent fuel leaking into firewall junction box. This change shall be accomplished in accordance with Item 25 of Douglas Service Bulletin C-54-266, dated May 17, 1946, or Part 2A, Item 4; and Part 2C, Item 12 of Douglas Service Bulletin DC-4 No. 66, dated June 18, 1947.

47-2-5 DOUGLAS (Was Mandatory Note 13 of AD-762-7)

To be accomplished not later than next periodic inspection.

Inspect the entire electrical system for evidence of damage due to chafing, heat, or foreign matter; and of loose terminals and connections. Pay particular attention to wiring subjected to heat from voltage regulators; the buss to the main cabin junction box; and any screws projecting into cable ducts. Correct any unsatisfactory conditions.

47-2-6 DOUGLAS (Was Service Note 3 of AD-762-7) (Applies to C54-DC series airplanes incorporating brake pressure accumulators and all DC-4's up to serial number 43065)

Rework the hydraulic hand pump shutoff valve 5241991 by replacing the valve retainer, spring and plunger with a sleeve and new type packings. The existing part Nos. 5241991 and 4242103 are to be removed and Nos. 2343816-4 and 2343816-6 restamped on the valve assembly and valve body, respectively. Also, change placard at the hand pump shutoff valve control to read "brakes, cowl flaps, nose wheel steering and windshield wiper" in the forward position and "landing gear, wing flaps, and main accumulator" in the rear position. (Douglas Service Bulletin DC-4, No. 3, covers this same subject.)

47-2-7 CULVER (Was Service Note 1 of AD-778-2)

Inspection required after each 100 hours of operation.

Inspect landing gear retraction system to determine that adjustments are as follows:

(1) With the landing gear extended and no load on the wheels, the push-pull rod adjustments should be such that the center joint of the retraction links attached to each shock strut will withstand a minimum upward pressure of 25 pounds without movement.

(2) The length of the push-pull rods in the wing should be so adjusted that the retraction links attached to both main gear struts are under equal pressure.

(3) The down limit switch should be adjusted to cut off when the gap between the down stop and the horn on the actuating mechanism is 0.015 inch to 0.020 inch. Maintenance of these adjustments is necessary to prevent damage to the retraction system. (Culver Service Memorandum No. 12, dated November 27, 1946, covers this same subject.)

47-2-8 CULVER (Was Mandatory Note 1 of AD-778-2) (Applies only to serial numbers V-1 to V-21, inclusive)

Compliance required prior to April 1, 1947.

To provide a complete firewall constructed material, remove the cold air scoop from the firewall and cover the firewall opening with a plate of suitable firewall material. (Culver Service Bulletin No. 5 covers this same subject.)

47-2-9 CULVER (Was Mandatory Note 2 of AD-778-2) (Applies only to serial numbers V-1 to V-150, inclusive)

Compliance required prior to April 1, 1947.

Replace the brazed cabin heater valve box mounted on the firewall with a similar welded valve box which has fire resistant properties equivalent to the firewall. (Culver Service Bulletin No. 7 covers this same subject.)

47-2-10 DOUGLAS (Was Service Note 14 of AD-669-3) (Applies to all DC-3C (C-47 Series) Aircraft and all DC-3 Aircraft having C-47 Elevators Installed)

Reports have been received indicating that the 5115210-5 and 5115210-9 elevator ribs at the inboard and outboard ends of the trim tab cutout were found to be cracked on the left hand elevator. All reports thus far were on surfaces which incorporated ribs made of 0.020 material. In September 1944, the ribs were increased in gauge to 0.040 for new production and so far no difficulties have been reported. It is recommended that all 0.020 ribs be inspected at intervals not to exceed 130 hours. These ribs can be reinforced by the addition of an 0.040 doubler as shown in Figure 1 of Douglas Service Bulletin 244, Section I. After the doubler has been installed, these parts should be inspected at each engine change period. The elevators should be rebalanced after the reinforcing doublers have been installed.

It is also recommended that all surfaces incorporating 0.040 ribs be inspected at each engine change period in order to preclude the possibility of cracks occurring in these heavier ribs.

(Douglas Service Bulletin No. 244, Section I, outlines the recommended doubler installation mentioned above.)

47-5-1 CESSNA (Was Mandatory Note 11 of AD-722-5) (Applies only to Model T-50 airplanes having a fuel shutoff valve located in each engine nacelle. These valves are controlled by "T" shaped handles located below the pilot and copilot seats)

Compliance required prior to original certification or, if previously certificated, not later than March 1, 1947.

To prevent the pilot or copilot from inadvertently operating the fuel shutoff valves by striking the "T" shaped fuel shutoff valve handles with their feet, the "T" shaped handles are to be changed to circular shaped handles. To accomplish this a ring having an inside diameter of 3½ inches is to be formed of ¼-inch x 0.035 steel tubing and slid over each "T" shaped handle and welded in place. This will result in a handle of this appearance:

47-5-2 CESSNA (Was Service Note 3 of AD-722-5)

Superseded by 51-18-1.

47-6-1 GLOBE (Was Service Note 1 of AD-765-5)

To be accomplished prior to April 1, 1947, and upon each 100 hours operation thereafter.

Inspect main landing gear retraction system to determine that adjustments are as follows:

(1) When the side brace is against the down stop the middle joint should be ⅛ inch to ¼ inch above dead center. (3/16 inch to 5/16 inch if measured from edges of links in accordance with Globe Customer Service Maintenance Bulletin No. 7).

(2) When the side brace is against the down stop and the down lock plunger is fully extended, covering at least one-half of the adjustment screw head, the clearance between the plunger and the screw head should be from 0.001 inch to 0.005 inch.

(3) When the side brace is against the down stop the limit switch plunger should be depressed approximately 1/32 inch beyond the cut-off point.

(4) The turnbuckle in the emergency extension cable should be adjusted so that on manual extension of the gear both down locks operate before the hand crank has been wound to the full down position. After it has been determined that the turnbuckle adjustment is satisfactory in this respect it should be determined also that with the hand crank wound to the full up position the cable length is sufficient to permit the up limit switches to cut off.

(Globe Customer Service Maintenance Bulletin No. 7 covers this same subject.)

47-6-2 GLOBE (Was Mandatory Note 5 of AD-766-5) (Applies only to serial numbers 3 to 408, inclusive; 1004 to 1319, inclusive; and 2001 to 2329, inclusive)

Compliance required prior to April 1, 1947.

Replace the warning placard located at the landing gear emergency extension crank with a revised placard, Globe part No. 11-532-3735, having the added instruction: "Crank back to the full up position before the next retraction of the landing gear." Complete rewinding is necessary to prevent damage to the retraction system. (Globe Customer Service Maintenance Bulletin No. 6 covers this same subject.)

47-6-3 GLOBE (Was Mandatory Note 6 of AD-766-5) (Applies only to serial numbers 314 to 408, inclusive; 1038 to 1350, inclusive; and 2011 to 2350, inclusive)

Compliance required prior to April 1, 1947.

Replace the present collars at the attachment of the elevator cables to the control wheel shafts with redesigned collars, Globe part No. 11-532-1818-2. This is necessary to prevent fouling of the elevator cable links with the control wheel shafts. (Globe Customer Service Maintenance Bulletin No. 8 covers this same subject.)

47-6-4 GLOBE (Was Mandatory Note 7 of AD-766-5) (Applies only to serial numbers 3 to 408, inclusive; 1004 to 1224, inclusive; and 2001 to 2324, inclusive)

Compliance required prior to April 1, 1947.

Replace the AN960-616 washers under the nuts at the attachment of the main landing gear retraction links to the shock struts with AN940-616 washers. This is necessary for proper retention of the bushings in the retraction links. (Globe Customer Service Maintenance Bulletin No. 10 covers this same subject.)

47-6-5 GLOBE (Was Mandatory Note 8 of AD-766-5) (Applies to serial numbers 2 to 408, inclusive; 1001 to 1216, inclusive; and 2001 to 2137, inclusive)

Compliance required prior to April 1, 1947.

Replace the present battery vent plugs of the tubular (deeply inserted) type of the Reading Model R-24L battery with the high non-spill ball seat type vent plugs. Clean and treat that part of the firewall and fuselage which has been subjected to the spill battery acid with a solution of sodium bicarbonate. This is necessary to prevent corrosion due to acid spillage. (Globe Customer Service Maintenance Bulletin No. 14 covers this same subject.)

47-6-6 GLOBE (Was Mandatory Note 9 of AD-766-5) (Applies only to serial numbers 3 to 408, inclusive; 1001 to 1460, inclusive; and 2001 to 2329, inclusive)

Compliance required prior to April 1, 1947.

Cut off the egress end of the engine breather line to terminate the line one inch above the grill opening. This will prevent clogging of the line due to formation of ice during cold weather operation or the entry of foreign matter caused by the propeller blast. (Globe Customer Service Maintenance Bulletin No. 11 covers this same subject.)

47-6-7 DOUGLAS (Was Service Note 12 of AD-618-3, Supplement 1; Service Note 15 of AD-669-3, Supplement 1)

To be accomplished not later than the next periodic inspection, or in the case of scheduled air carrier aircraft, at the next major inspection.

Check the pull necessary to trip the trigger on the CO_2 fire extinguishing system. If the trigger pull exceeds 50 pounds due to wear of the aluminum conduit covering the fire extinguisher release cable, this conduit must be replaced immediately. This procedure is to be repeated at each specified inspection period until such time as the aluminum cable conduit is replaced by stainless steel conduit. (Douglas Service Bulletin DC-3 No. 246, dated November 22, 1946, covers this same subject.)

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

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 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 Aircraft Division, 8th Floor, City Hall Building, Kansas City 6, Missouri, for repair methods. (Beech Service Bulletin C18-6 covers this same subject.)

47-6-10 CESSNA (Was Mandatory Note 6 of AD-768-4) (Applies to serial numbers up to and including 9669)

Compliance required prior to April 1, 1947.

Install carry-through bar between the ends of the aileron control chain that is installed at the top of the control "T" to make a continuous loop at this chain installation so that both control wheels operate positively in the same direction. This is necessary to prevent possible locking of aileron system at full throw. (Cessna Service Letter No. 17, dated September 19, 1946, covers this same subject.)

47-6-11 CESSNA (Was Service Note 1 of AD-768-4) (Applies only to serial numbers 8001 to 8799, inclusive)

Compliance required at next periodic inspection and upon each 100 hours of operation thereafter until revised door posts are installed.

Inspect the forward door posts for cracks, particularly the flange section leading from the post to the instrument panel at the base of the windshield and the post itself below the rivet cluster at the top. All inside fairing attached to the post between the top and the floor should be removed to permit a thorough inspection. Cracks in the above mentioned flange not over ¾ inch in length may be repaired by stopdrilling. If there are longer cracks in the flange or any cracks in the door post structure itself, the door post should be replaced with the later type post, Cessna part Nos. 0411867-2 and 0411867-3, in accordance with installation instructions supplied by Cessna. (Cessna Service Letter No. 20 dated October 8, 1946, covers this same subject.)

47-7-1 BELLANCA (Was Mandatory Note 4 of AD-773-5) (Applies to 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 half-way through the shank with a drill of number 53 size and inserting a pin of 1/16-inch diameter drill rod. (Bellanca Service Bulletin No. 4 covers inspection of the valve handle installation.)

47-7-2 FAIRCHILD (Was Service Note 3 of AD-724-2)

At each periodic inspection, determine if any looseness exists in elevator hinge attachments to rear spar of stabilizer. All loose hinges should be tightened. This will necessitate cutting oval shaped openings in the lower surface of the stabilizer just forward of the rear spar. After nuts are drawn up and safetied the openings should be covered with fabric patches. (Fairchild Service Bulletin 44-2-C dated January 14, 1944, covers this same subject.)

47-7-3 FAIRCHILD (Was Service Note 4 of AD-724-2)

Prior to original certification and at each periodic inspection thereafter, and as otherwise noted make the following inspections:

(1) Inspect the wing center section bottom surface for cracks. This inspection should be made after each severe landing. Cracks extending into the spar flange area indicate cracked spar flanges and should be investigated very thoroughly.

(2) Inspect the butt ends of the spars to assure that the putt plates are in place and properly attached.

(3) Inspect the strap hinge fittings for looseness. Clearance between the spar webs and hinge plates is not critical as long as the plates are bolted tight to the bushings if the bushings protrude. If bushings are loose, replace.

(4) Inspect the plywood spar webs for checks or cracks. This inspection should always be made after any damage to the landing gear. Cracks other than those parallel to the face grain generally indicate serious damage to the spar web.

(5) Inspect the trailing edge of the wing center section and outer panel over flap area for deterioration due to accumulated moisture.

(6) Inspect the forward face of front spar and belly skin at engine cut out in wing center section for oil soaking and skin separation.

(These inspections and methods of repair are covered in greater detail in Fairchild Service Bulletin 47-62-1 dated January 24, 1947, which has been reproduced for C. A. A. personnel. Owners may obtain copies from Fairchild Personal Planes Division of Fairchild Engine and Airplane Corp., Hagerstown, Maryland.)

47-7-4 FAIRCHILD (Was Mandatory Note 6 of AD-724-2)

Compliance required at next periodic inspection.

In order to eliminate the possibility of the control sticks becoming disengaged, both front and rear control sticks should be reworked by drilling through stick and socket, and installing and safetying an AN393-51 clevis pin. Washer AN960-10L and Cotter AN380-2-2. (Fairchild Service Bulletin 44-62-2 dated October 31, 1944, covers this same subject.)

47-7-5 FAIRCHILD (Was Mandatory Note 7 of AD-724-2)

Compliance required at next periodic inspection.

In order to eliminate the possibility of foreign objects entering the torque tube, install a boot at the point where the elevator control enters the torque tube in the front cockpit, and where the control stick enters the torque tube bracket in the rear cockpit. Also install cover plates on the sides of the torque tube bracket in the rear cockpit. (Fairchild Service Bulletin 44-62-5 dated October 10, 1944, covers this same subject.)

47-7-6 FAIRCHILD (Was Mandatory Note 8 of AD-724-2)

Compliance required at next periodic inspection.

In order to reinforce the forward attachment of the vertical fin, trim the leading edge as required and install bracket, Fairchild part No. 66317 and either maple filler block, Fairchild part No. SK-2089-1, or blocks, Fairchild part Nos. 66300-22 and 66300-23. (Fairchild Service Bulletin 44-62-1 dated October 31, 1944, covers this same subject.)

47-10-1 CESSNA (Was Mandatory Note 7 of AD-768-4) (Applies only to serial numbers 8001 to 12695, inclusive)

Superseded by 48-5-4.

47-10-2 LOCKHEED (Was Mandatory Note 1 of AD-763-3) (Applies only to serial numbers 2021 to 2054, inclusive)

Compliance required prior to March 1, 1947.

Install an AN-3161-P15 (or equivalent) nontrip-free circuit breaker in the elevator tab control circuit. The breaker is to be located in the pilots' control stand, with access through a plate immediately forward of the control quadrant. Minor wiring changes to connect the circuit breaker are also necessary. (LAC Service Bulletin 049/SB-4 covers this same subject.)

47-10-3 LOCKHEED (Was Mandatory Note 2 of AD-763-3) (Applies only to serial numbers 2021 to 2079, inclusive)

Compliance required prior to March 1, 1947.

(NOTE: 47-10-2 must be complied with prior to or in conjunction with this Note.)

Install non-trip-free circuit breakers in the rudder and elevator auxiliary boost motor circuits, in place of switches and relays, and revise the wiring of the circuits as necessary. (LAC Service Bulletin 049/SB-22 covers this same subject and is reproduced for CAA personnel.)

47-10-4 LOCKHEED (Was Mandatory Note 4 of AD-763-3) (Applies only to serial numbers 2021, 2022, 2026, 2027, 2028, 2034, and 2035)

Compliance required prior to March 15, 1947.

Add 12 grounding jumpers between the engine autosyn transmitters and their support brackets. (LAC Service Bulletin 049/SB-20 covers this same subject.)

47-10-5 LOCKHEED (Was Mandatory Note 6 of AD-763-3) (Applies only to serial numbers 2021 to 2088, inclusive)

Compliance required prior to March 15, 1947.

Inspect landing gear selector valve (Bendix part No. 403875-0-1) installed in forward cargo compartment. Those valves bearing serial numbers 1 through 120 and identified by letter "R" following the serial number have been reworked to incorporate a new type poppet. All unreworked valves should be replaced with reworked valves. (LAC Service Instruction 049/SI-34 covers this same subject.)

47-10-6 LOCKHEED (Was Mandatory Note 7 of AD-763-3) (Applies to all serial incorporating Parker 4-1042-11-2 plug valves in the fuel system)

Compliance required prior to March 15, 1947.

Rework all fuel tank shut-off and fuel cross transfer valves by installing new type shaft sealing rings, valve caps, packing caps, cap gaskets and cap attachment screws. This rework also applies to valves previously reworked, as identified by the use of countersunk head screws with star lock washers or fillister head screws. (LAC Service Instruction 049/SI-74, revised September 9, 1946, or subsequent, covers this same subject.)

47-10-7 LOCKHEED (Was Mandatory Note 8 of AD-763-3) (Applies only to serial numbers 2021 to 2088, inclusive)

Compliance required prior to April 1, 1947.

Replace the existing restrictor valve (part No. 664044) in each main landing gear down line with a winterized type restrictor valve (LAC part No. 667489) (LAC Service Instruction 049-SI-75, covers this same subject.)

47-10-8 LOCKHEED (Was Mandatory Note 9 of AD-763-3) (Applies only to serial numbers 1975 to 1978, inclusive; 1980; and 2021 to 2059, inclusive)

Compliance required prior to August 9, 1946.

Rework the elevator booster shifter horn assembly by reducing the width of the teeth on 278488 gear. 0.120 inch should be removed from each end of all the teeth. (LAC Service Bulletin 049/SB-19 covers this same subject.)

47-10-9 LOCKHEED (Was Mandatory Note 11 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required after each engine change.

When found necessary as a result of engine replacement in a quick-change power plant unit, add seal plates to the engine oil lines where they pass through the engine fire seals, and add cover plates to the alternate oil line cutouts in the fire seals. (LAC Service Instruction 49/51-39 and LAC Service Bulletin 49/SB-63 cover this same subject for Models 49-51 and 49-46, respectively.)

47-10-10 LOCKHEED (Was Mandatory Note 12 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required immediately.

Remove all soundproofing pads adjacent to and surrounding the voltage regulators. (LAC Service Bulletin 49/SB-171 covers this same subject.)

47-10-11 LOCKHEED (Was Mandatory Note 13 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required not later than 200 hours of operation after March 1, 1947.

Replace all Fenwal Type S-2223 fire detector units on fire seals and firewalls and in nacelles and cabin heater compartments with Type 17343-3-450 fire detector units (100 units for each Model 49-51 aircraft, 116 units for each Model 49-46 aircraft). (LAC Service Bulletin 49/SB-65 covers this same subject.)

47-10-12 LOCKHEED (Was Mandatory Note 14 of AD-763-3) (Applies to all Model 49-51 aircraft, serials up to and including 2088)

Deleted.

47-10-13 LOCKHEED (Was Mandatory Note 15 of AD-763-3 (Applies to all serials up to and including 2075)

Compliance required prior to July 1, 1947.

(a) On all firewalls, replace aluminum alloy bulkhead fittings for fuel, oil, and hydraulic lines with nickel steel fittings or others of equivalent fire resistance. (LAC Service Bulletin 49/SB-108 covers this same subject.)

(b) In nacelle zones 1 and 2 replace all tubing having cut-length hose connections with flexible coupled hose assemblies. (LAC Service Bulletin 49/SB-103 covers this same subject.)

47-10-14 LOCKHEED (Was Mandatory Note 16 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required prior to April 15, 1947.

Install a single flexible hose assembly between each fuel pump and flowmeter in place of the combination of short hose assembly and tube with hose couplings. (LAC Service Bulletin 49/SB-143 covers this same subject.)

47-10-15 LOCKHEED (Was Mandatory Note 17 of AD-763-3) (Applies to all serials up to and including 2075)

Compliance required prior to recertification.

Prior to recertification of all aircraft whose certificates were revoked by direction of the Administrator on July 11, 1946, the following Service Documents must be complied with.

Lockheed Service Bulletins:

*49/SB-50, revised August 24, 1946—Revision of Cabin Air Recirculating Fan.

49/SB-58, dated July 22, 1946—Sealing of Main Landing Gear Doors.

49/SB-86, dated July 18, 1946—Rerouting of Thermocouple Wires.

*49/SB-91, revised September 10, 1946—Replacements of Electrical Power Feed-Through Studs.

*49/SB-93, revised August 11, 1946—Rework of Exhaust System Ball Joints and Collector Segment.

49/SB-95, dated July 22, 1946—Insulation of Generator Circuit Breakers.

(a) 49/SB-97, revised October 28, 1946—Sealing, Draining, and Ventilation of Nacelles.

49/SB-98, dated July 26, 1946—Removal of Engine Filtered Air Components and Plumbing.

*49/SB-100, revised August 27, 1946—Replacement of Fuel Pressure Warning Units.

49/SB-101, revised August 6, 1947—Modification of Hydraulic Pump Case Drain Lines.

49/SB-102, dated July 23, 1946—Relocation of Engine Fuel Pump Lines.

49/SB-104, revised July 23, 1946—Replacement of Windshield Wiper Motor Circuit Fuse.

49/SB-106, dated July 22, 1946—Replacement of Windshield Heater Wire.

49/SB-109, revised August 22, 1946—Provision for Vacuum Pump Cooling.

49/SB-113, revised August 6, 1946—Replacement of Aluminum Electrical Wires and Terminals.

49/SB-114, revised July 31, 1946—Protection of Electrical Receptable.

49/SB-115, dated July 23, 1946—Insulation of Galley Circuit Breaker.

49/SB-116, revised August 2, 1946—Installation of Generator Field Circuit Breaker (Switch Type).

*49/SB-117, revised September 5, 1946—Insulation of Right Angle Electrical Terminals and Electrical Wiring.

49/SB-118, revised August 10, 1946—Support of Electrical Wiring in Main Gear Wheel Well.

49/SB-119, revised July 27, 1946—Sealing of Main Landing Gear Door Hinge.

49/SB-119A, revised August 13, 1946—Sealing of Main Landing Gear Doors.

*49/SB-121, revised September 16, 1946—Installation of Fire Resistant Hoses and Double Hose Clamps in Nacelle Zones 2 and 3.

49/SB-122, dated July 25, 1946—Installation of Stainless Steel CO_2 Lines.

*49/SB-123, revised August 27, 1946—Replacement of Alcohol Tank, Supply Lines and Vent Line (4—pump system).

49/SB-125, dated June 23, 1946—Removal of Cargo Compartment Insulation.

49/SB-126, dated July 23, 1946—Protection of Electrical Junctions and Disconnects at Fire Wall.

49/SB-127, revised July 31, 1946—Sealing of Cabin Heater Panel.

49/SB-131, revised August 10, 1946—Rerouting of Drain Line for Deicer Distributor Oil Separator.

49/SB-132, revised August 12, 1946—Attachment of Electrical Wire Bundles in Forward Passenger Compartment.

49/SB-133, revised July 31, 1946—Installation of Brass Liners and Double Hose Clamps in Line Between Sump Tank and Propeller Feathering Pump.

(a) 49/SB-134, revised October 28, 1946—Installation of Protective Shield for Engine Torquemeter Plumbing.

49/SB-135, revised August 11, 1946—Addition of Fuselage Drain Provisions.

49/SB-136, dated July 31, 1946—Protection of Cabin Heater Flexible Fuel Line.

49/SB-137, dated July 27, 1946—Addition of Double Hose Clamps on Inboard Fuel Tank Interconnection Line.

*49/SB-138, revised September 25, 1946—Provisions for Increase of CO_2 Capacity.

*49/SB-155, revised August 28, 1946—Installation of Copper Wires in Lieu of Aluminum Wires.

**49/SB-161, dated August 29, 1946—Replacement of Alcohol Tank, Supply Lines, and Vent Line (2—pump system).

Lockheed Service Instructions:

*49/SI-22, revised October 10, 1946—Installation of Engine Plumbing and Electrical Wiring Heat Protective System.

*49/SI-41, revised August 16, 1946—Nacelle Fire Extinguishing System Revisions.

49/SI-105, revised August 7, 1946—Replacement of Hydraulic Secondary Return Line.

Lockheed Service Information Letters:

*No. 42, revised September 10, 1946—Inspection and Maintenance of Exhaust System Ball Joints (Canceled).

No. 56, dated August 10, 1946—Periodic Inspection of Vacuum Pump Pressure Hose.

No. 57, revised August 15, 1946—Fuselage Fire Control and Smoke Elimination Procedures.

No. 58, revised August 15, 1946—Combatting Belly Cargo Compartment and Fuselage Fires.

No. 60, dated August 10, 1946—Inspection of Fuel Line Between Engine Pump and Flowmeter (Canceled).

TWA Engineering Order (for TWA Aircraft only):

TWA Engineering Order No. 2762—Rework of Auxiliary Hydraulic Supply Tank and Discharge Line.

47-10-16 LOCKHEED (Was Mandatory Note 18 of AD-763-3) (Applies to all Model 49-46 serials up to and including 2075 and to all Model 49-51 airplanes) (This Note supersedes Supplement No. 1 to AD-763 (Special) dated August 26, 1946)

Compliance required prior to June 1, 1947.

All Model 49-51 aircraft shall be converted to Model 49-46 aircraft. Prior to recertification of Model 49-46 aircraft converted from Model 49-51 aircraft, the following Service Bulletins in addition to those listed in Note 47-10-15 must be complied with:

***49/SB-1, revised June 7, 1946—Installation of Two-Speed Supercharger Controls.

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* Service Documents identified by an asterisk and by (a) have been revised subsequent to issuance of AD-763 (Special) dated August 21, 1946, as indicated by the later revision date effective in each instance. Aircraft previously recertificated in accordance with AD-763 (Special) should be checked for compliance with these later revisions within next 200 hours of operation.

** Service Bulletin 49/SB-161 was not called for in AD-763 (Special), but has subsequently been found necessary, inasmuch as Bulletin 49/SB-123 does not adequately describe changes to 2—pump anti-icing systems. Aircraft incorporating 2—pump anti-icing systems should be checked for conformity with Bulletin 49/SB-161 prior to certification.

*** Service Bulletin 49/SB-1 was not listed in AD-763 (Special), Supplement No. 1, dated August 26, 1946, but must be complied with to permit use of new performance values shown in the Operation Manual for Model 49-46 aircraft, Lockheed Report No. 5817. All Model 49-46 aircraft certificated in accordance with that Supplement to AD-763 (Special) should be checked for compliance with Bulletins 49/SB-1, 230 and 231 within next 200 hours of operation.

*49/SB-14, revised July 27, 1946—Installation of Bendix Direct Fuel Injection System.
49/SB-24, dated June 5, 1946—Rework of Engine Cowl Diaphragm Structure.
49/SB-124, revised July 27, 1946—Rewiring of Engine Fire Detector System.
Wright Aeronautical Corporation Bulletin C18-23, dated October 4, 1946—Fuel Injection Tube Installation.
**49/SB-230, dated November 3, 1946—Engine Oil Cooler Temperature Control Regulators—Recalibration of.
**49/SB-231, dated November 2, 1946—Engine Oil Pump Pressure and Engine Oil Pressure Gauge Range Markings—Adjustment of.

47-10-17 LOCKHEED (Was Mandatory Note 19 of AD-763-3) (Applies to all serials up to and including 2075)
Compliance required prior to resumption of cabin supercharger operation.
Prior to resumption of cabin supercharger operation, the following Lockheed Service Bulletins must be complied with:
49/SB-107, revised November 22, 1946—Replacement of Cabin Supercharger Drive Shafts.
49/SB-141, revised August 7, 1946—Replacement of Cabin Supercharger.
49/SB-156, revised September 17, 1946—Installation of Supercharger Oil Temperature Indicator.
The revision dates given for these three Bulletins are later than those listed in the Supplement to AD-763 (Special) dated September 25, 1946. Aircraft on which the cabin supercharging equipment was rendered operative in accordance with that Supplement should be checked for compliance with these later revisions dates within the next 150 hours of operation.

47-10-18 LOCKHEED (Was Mandatory Note 20 of AD-763-3) (Applies to all Model 49-46 aircraft)
Compliance required not later than 100 hours of operation after March 1, 1947, or during conversion of Model 49-51 aircraft to Model 49-46 aircraft, whichever occurs first.
The hose connections in the fuel line between air metering chamber and fuel injection pump shall be changed to incorporate fire resistant hose and double hose clamps, using Wright Aeronautical Corporation part Nos. 856864 and 855408.

47-10-19 LOCKHEED (Was Mandatory Note 21 of AD-763-3) (Applies to all serials up to and including 2088, except as noted)
Compliance required not later than 100 hours of operation after June 10, 1947.
(a) In each cabin heater installation, relocate and waterproof the fuel solenoid valve and replace and reroute the fuel pump bypass line. (LAC Service Bulletin 49/SB-73 covers this same subject.)
(b) In zone 2 of each nacelle, install heat protective shield between propeller feathering line and cowl diaphragm. (LAC Service Bulletin 49/SB-150 covers this same subject.) (Applies to all serials up to and including 2082.)

(c) In each outboard nacelle main junction box, replace existing mounting nuts (Tinnerman) and PK screws with AN 366 nuts and NAS 221 screws. (LAC Service Bulletin 49/SB-152 covers this same subject.)
(d) Drill one ¼-inch drain hole on lower center line of spinner fairing lower panel assembly for each engine. (LAC Service Instruction 49/SI-95 covers this same subject.)

47-10-20 LOCKHEED (Was Mandatory Note 22 of AD-763-3) (Applies to all serials up to and including 2075)
Compliance required prior to June 1, 1947.
Replace all existing alcohol tanks with new type heavier tanks, LAC part No. 296424. Replace existing tank cradles with new cradles, LAC part No. 296465. (LAC Service Bulletin 49/SB-110, revised October 2, 1946, or subsequent, covers this same subject.)

47-10-21 LOCKHEED (Was Mandatory Note 23 of AD-763-3) (Applies to serials up to and including 2088)
Compliance required prior to July 1, 1947.
Install steel torque links, LAC part No. 293882, on each main landing gear. (LAC Service Instruction 49/SI-100A covers this same subject.)

47-10-22 LOCKHEED (Was Mandatory Note 24 of AD-763-3) (Applies to serials 1975, 1976, 1977, and 2021 through 2065)
Compliance required prior to March 1, 1947.
Install steel retainer washer (American La France part No. 2CD-3054C) in place of existing aluminum alloy retainer washer on fire extinguisher selector valve. (LAC Service Bulletin 49/SB-27 covers this same subject.)

47-10-23 LOCKHEED (Was Mandatory Note 25 of AD-763-3) (Applies to serials 1975, 1976, and 2021 through 2059)
Compliance required immediately.
Install AC364-524 steel nuts in place of any AC364-B524 brass nuts which may be installed on bolts through bathtub fittings at wing station 80 (5 nuts per fitting, 170 nuts per airplane should be checked). (LAC Service Bulletin 49/SB-42 covers this same subject.)

47-10-24 LOCKHEED (Was Mandatory Note 27 of AD-763-3) (Applies to all serials up to and including 2088)
Compliance required prior to June 1, 1947.
Install thermal relief valve and bypass line in fuel cross-feed line adjacent to No. 4 cross transfer valve. (LAC Service Bulletin 49/SB-48 covers this same subject.)

47-10-25 LOCKHEED (Was Mandatory Note 28 of AD-763-3) (Applies to all serials incorporating Eclipse Type 1193, Model 1, Style A generators on which the serials numbers are not followed by the letter "M")
Compliance required prior to March 1, 1947.
Replace the twelve mounting head to yoke bolts in each generator with new ¼-inch bolts (part Nos. 63937 referred to in Eclipse-Pioneer Bulletin No. 70). (LAC Service Bulletin 49/SB-64 covers this same subject.)

47-10-26 LOCKHEED (Was Mandatory Note 29 of AD-763-3) (Applies to all serials up to and including 2075)
Compliance required prior to June 1, 1947.
Reroute flap and fan motor drain lines to return direct to main hydraulic system instead of through aspirator, and install check valves at points where drain lines connect to the main system. (LAC Service Bulletin 49/SB-169 covers this same subject.)

47-10-27 LOCKHEED (Was Mandatory Note 30 of AD-763-3) (Applies to all serials up to and including 2078)
Compliance required prior to July 1, 1947.
Install new type fuel tank vent outlets and add extension to fuel dump chutes. (LAC Service Bulletin 49/SB-201 covers this same subject.)

47-10-28 LOCKHEED (Was Mandatory Note 31 of AD-763-3) (Applies to all serials up to and including 2088)
Compliance required prior to July 1, 1947.
Enlarge holes in elevator cable seals in aft pressure bulkhead to 0.19±0.031-inch diameter. (LAC Service Bulletin 49/SB-208 covers this same subject.)

47-10-29 LOCKHEED (Was Mandatory Note 32 of AD-763-3) (Applies to all serials prior to 2080 on which metal ailerons are installed)
Compliance required prior to April 1, 1947.
Between aileron stations 69.5 and 99.7, install drain holes in the lower aileron surface outboard of each rib and forward of each stringer (17 holes total). (LAC Service Bulletin 49/SB-214 covers this same subject.)

47-10-30 LOCKHEED (Was Mandatory Note 33 of AD-763-3) (Applies to serials 2047 up to and including 2075 and to serials prior to 2047 which have had 68092 surge box flapper valves replaced by 285750 valves in accordance with Lockheed SI-15, dated June 18, 1946)
Compliance required prior to April 1, 1947.
Replace fuel tank surge box flapper valves, LAC part No. 285750, with new type valve, LAC part No. 285750-600 (LAC Service Instructions 49/SI-15, revised August 10, 1946, and 49/SI-15A, revised August 3, 1946, or subsequent, cover this same subject.)

47-10-31 LOCKHEED (Was Service Note 1 of AD-763-3) (Applies to all serials up to and including 2088)
At periods not to exceed 100 hours the webs of all landing gear torque arms should be examined closely at the knee bolt ends for the presence of cracks. When a nose gear arm is found to be cracked, it should be replaced with a new part. When either main gear arm is found to be cracked, the 283557 or 292132 aluminum alloy torque link assemblies on both main gears should be replaced with 293882 steel torque link assemblies. When Note 47-10-21 is complied with, this periodic inspection procedure for the main gear may be discontinued.

47-10-32 LOCKHEED (Was Service Note 2 of AD-763-3) (Applies only to serial numbers 2021 to 2067, inclusive)
At each periodic inspection, examine the upper wing surface forward of the aileron beam and just outboard of station 458 joint for the presence of buckles. If serious buckles are found the skin in that area should be replaced and gussets added. After the entire affected area (approximately 5 inches by 36 inches) has been reworked in this manner, no further periodic inspections will be required. (LAC Service Instruction 49/SI-26 covers this same subject.)

47-10-33 LOCKHEED (Was Service Note 4 of AD-763-3)
Difficulties have been experienced with cylinder heads turning or unscrewing slightly on certain Wright 739C18BA1 and 2 engines. This condition has occurred on older type cylinders having barrels designated as "light type" barrels. Later type cylinders have "heavy type" barrels on which this turning tendency has been eliminated. Heavy type cylinder barrels have a circumferential groove on the mounting flange to distinguish them from the light type barrels.
Following procedure shall be established for inspection and replacement as necessary of light barrel cylinders:
(a) Prior to certification or next 60 hours of operation:
(1) Mark detonation pick-up bosses on light barrel cylinders with yellow paint for ready identification.
(2) Scribe front of these light barrel cylinders by marking heavy flange near bottom of cylinder head and continuing scribe line down seven barrel fins. Dark paint may be used as background for scribe lines. Wright Aeronautical have provided a scribing tool which may be used for this purpose. The

* Service Bulletin 49/SB-14 has been revised subsequent to issuance of AD-763 (Special), Supplement No. 1, dated August 26, 1946. Model 49-46 aircraft certificated in accordance with that AD Supplement should be checked for compliance with this later revision within next 200 hours of operation.
** Service Bulletin 49/SB-1 was not listed in AD-763 (Special), Supplement No. 1, dated August 26, 1946, but must be complied with to permit use of new performance values shown in the Operation Manual for Model 49-46 aircraft, Lockheeed Report No. 5817. All Model 49-46 aircraft certificated in accordance with that Supplement to AD-763 (Special) should be checked for compliance with Bulletins 49/SB-1, 230 and 231 within next 200 hours of operation.

scribe line should be on front of cylinders where it can be easily seen with engines installed in airplanes.

(b) After each succeeding 35 to 60 hours of operation:

(1) Inspect scribe lines for signs of cylinder head turning.

(2) Cylinder heads which have turned 1/32 inch or more since prior inspection should have valve clearances checked and reset to normal cold clearances if necessary, provided total head turning does not exceed 1/8 inch.

(3) Cylinders on which heads have turned more than 1/8 inch total shall be replaced immediately with heavy barrel cylinders.

(c) At first engine overhaul, light barrel cylinders Nos. 1, 11, 13, 15, and 17 shall be replaced with heavy barrel cylinders. Replaced cylinders may be used in other locations provided total amount of turning has not exceeded 1/8 inch.

47-10-34 LOCKHEED (Was Service Note 5 of AD-763-3) (Applies to all serials up to and including 2088)

(a) Revised exhaust system ball joint assemblies (Solar part Nos. CV-611 and CV-615-1 through CV-615-18), reworked in accordance with Solar E. O. Nos. 16696 and 16697, as called for in LAC Service Bulletin 49/SB-93 and Note 47-10-15, above, may continue to be used, provided a rigid inspection for condition is made in accordance with LAC Service Information Letter No. 42, except that the lowest periodic inspection interval listed on each operator's approved aircraft maintenance specification may be used instead of the 30 hour period referred to in the Lockheed Letter.

(b) The revised exhaust system ball joints described in part (a) of this Note may be reinstalled after completion of the 250 hour period referred to in LAC Service Information Letter No. 42, provided that each ball joint is disassembled as far as practicable at the end of these 250 hour periods and unsatisfactory parts are replaced. This 250 hour disassembly period may be increased upon application by an operator and approval by the CAA, provided the service record of the components used by the operator justified the increase requested.

(c) When the revised exhaust system ball joints, described in part (a) of this Note, are replaced by new type Solar ball joint parts as listed in LAC Service Bulletin 49/SB-94, the overhaul period for exhaust system ball joints may be established as the same as the engine overhaul period approved for the operator involved. Intermediate inspections similar to those described in LAC Service Information Letter No. 42 shall be conducted on the new type ball joint assemblies at intervals as specified in the operator's approved aircraft maintenance specification.

47-10-35 LOCKHEED (Was Service Note 6 of AD-763-3)

Superseded by 48-18-3.

47-10-36 LOCKHEED (Was Service Note 7 of AD-763-3) (Applies to all serial numbers up to and including 2088)

Between the edges of the inboard and outboard nacelle attach angles, the rivets used to attach the leading edge lower skin to the front beam should be inspected for looseness at periods not to exceed 200 hours of operation. When loose rivets are found the following corrective action should be taken:

Add stiffener to lower surface of leading edge skin between stations 287 and 299, install 5/32-inch rivets in place of existing 1/8-inch rivets used to attach lower leading edge skin to front beam between station 287 and outboard nacelle, and install six 10-32 screws in place of six rivets in this same rivet line (two each at stations 263, 287, and 312). After this rework has been accomplished, no further periodic inspections will be required. (LAC Service Instruction 49/SI-121 covers this wing leading edge reinforcement and rivet replacement.)

47-10-37 LOCKHEED (Was Service Note 8 of AD-763-3) (Applies to all serials up to and including 2071)

At periods not to exceed 500 hours, check the tightness of the inboard pair of bolts in the outboard fulcrum and the outboard pair of bolts in the inboard fulcrum of each main landing gear, using a torque wrench. A continuous record should be kept to show whether these bolts become more loose with time; therefore, these bolts should not be tightened during the periodic inspection.

When any of these eight bolts loosen to a torque wrench reading of approximately 900 inch pounds, all fulcrum bolts (16 per airplane) should be removed, the fitting holes counter sunk 0.064 x 45° to accommodate the bolt head fillets, the bolts replaced and tightened to a torque wrench reading of 2300-2500 inch pounds. The 500-hour inspection may then be discontinued. (Lockheed Service Bulletin 49/SB-51, revised March 3, 1947, covers this same subject.)

47-10-38 LOCKHEED (Was Service Note 9 of AD-763-3) (Applies to all serials up to and including 2059)

At periods not to exceed 500 hours, inspect the shank end of each main landing gear drag link crosshead assembly for signs of cracks in the fillet region. If cracks are found, install new type crosshead assembly, LAC part No. 288982, and, if necessary, replace the 283418 drag links with 285983 drag links. The periodic inspection procedure may be discontinued when the new type crosshead assembly is installed. (LAC Service Instruction 49/SI-27 covers this same subject.)

47-10-39 LOCKHEED (Was Service Note 10 of AD-763-3) (Applies to all serials up to and including 2046 on which all-metal ailerons are not installed)

At periods not to exceed 250 hours, inspect the aileron inboard of the trim tab for evidence of cracks in the trailing edge and in the aft portions of the ribs. When cracks are found, parts of heavier gauge should be installed and the aileron rebalanced. The periodic inspection may be discontinued when this modification has been made. (LAC Service Bulletin 49/SB-52 covers this same subject.)

47-10-40 LUSCOMBE (Was Mandatory Note 11 of AD-694-4) (Applies to serial numbers 1934 to 2200, inclusive)

Compliance required prior to May 1, 1947.

Determine if the attachment of the rudder control arm to the torque tube has been reinforced by a steel strap that extends completely around the torque tube and is securely welded to both the fore and aft flanges of the rudder control arms and the torque tube. If the reinforcing steel strap is not properly located and welded to both flanges, a repair should be made. (Luscombe Service Bulletin No. 4-46 covers this same subject.)

47-11-1 NORTH AMERICAN (Was Mandatory Note 1 of AD-782-3) (Applies only to serial numbers NAV-4-2 to NAV-4-550, inclusive)

To be accomplished immediately.

Remove present rudder-nose gear steering bellcrank, part 145-34175 and replace with new part of the same number furnished by North American. The replacement part is to be identified by a yellow dot and the stamp (SPL). (North American Service Bulletin No. 21 dated January 23, 1947, covers this same subject.)

47-11-2 NORTH AMERICAN (Was Mandatory Note 2 of AD-782-3) (Applies to all airplanes equipped with Hartzell HC12x20-1 propeller hubs and 8628 blades)

To be accomplished not later than May 1, 1947.

Vibration tests of the Hartzell HC12x20-1 propeller with these airplanes indicate that the propeller diameter should be reduced from 86 inches to 84 inches. This is accomplished by cutting one inch from the tip of each 8628 blade, and making the shortened blade 8428R. Ths blade rework must be performed either by the Hartzell Factory or by a certificated propeller repair agency. (Paragraph "B" of North American Field Service Bulletin No. 20 dated January 28, 1947, covers this rework.)

Upon compliance with this Note, the presently required placard against engine operation between 1950 and 2150 RPM and over 2250 RPM may be removed.

47-12-1 DOUGLAS (Was Mandatory Note 14 of AD-762-7) (Applies to all C-54 and R5D series airplanes, and the following DC-4 airplanes: 42904 to 42943, inclusive; 42948 to 42952, inclusive; 42982 to 42996, inclusive; 43065 to 43069, inclusive; 43071; 43072; and 43102. DC-4 production airplanes Nos. 43070, 43090, and subsequent except 43102, as noted above, will be modified prior to delivery)

To be accomplished not later than January 1, 1948.

If the clear view panel in the windshield is opened in flight when the landing gear and flaps are extended, exhaust fumes enter the cabin. This causes considerable discomfort to passengers and may create a hazard which would affect the safe operation of the airplane. In order to prevent the exhaust fumes from entering the cabin under these conditions, all openings around the control cables and flap buss system at the side of the fuselage must be sealed and additional means for exhausting main cabin and cockpit ventilating air provided, unless tests made by the operator of the individual airplane show no unsatisfactory condition of carbon monoxide entering cabin with open windows when landing gear down and flaps extended. (Douglas Service Bulletin No. DC-4, No. 32, covers this same subject.)

47-12-2 DOUGLAS (Was Mandatory Note 15 of AD-762-7) (Applies only to DC-4 and C-54 series airplanes equipped with Pratt & Whitney R-2000-11 engines)

To be accomplished not later than July 15, 1947.

A considerable number of center main bearing failures have occurred in the R-2000-11 engine. These failures include roller bearing part No. 24966 and plain bearing part Nos. 97387 and 97387-B.

To remedy this unsatisfactory condition as soon as possible, the following shall be accomplished:

Remove from service at the first opportunity, but in no case later than July 15, 1947, all plain type center main bearings of the above part numbers. Install either the super-inspected roller bearing (same part number as above) or incorporate the 2SD13-G or equivalent type main components of the power section crankcase, details of which can be obtained from Pratt & Whitney instructions dated January 15, 1947, entitled "Power Section Service Fix for R-2000-7 and R-2000-11 Engines." Super-inspected roller bearings may be procured through Pratt & Whitney or bearings in stock may become eligible if they are disassembled, inspected, and the inner race magnafluxed.

In cases where operating specifications do not so provide, main oil screen (on right side of rear accessory housing) checks will be accomplished at each routine inspection or at least at every 75 hours of operation to detect failure of bearing. This precautionary inspection must be conducted immediately and also after change to the super-inspected roller bearing. However, this precautionary inspection is waived after complete modification has been accomplished to the 2SD13-G or equivalent type components in view of the greatly improved reliability and durability which these components have demonstrated in comparable service.

47-13-1 TAYLORCRAFT (Was Mandatory Note 12 of AD-696-3)
Superseded by 51-9-3.

47-13-2 TAYLORCRAFT (Was Service Note 1 of AD-696-3)
Inspection required each 25 hours of engine operation on Taylorcraft Models BC-65, BCS-65, BC12-65, BCS12-65, BC12-D, BCS12-D, and BC12-D1 airplanes.

This inspection applies only to fuel hose bearing white dash lines and having end fittings marked "CAA, SNA, (date)." Examine the two flexible fuel lines to determine whether the hose inner liner has collapsed or failed thus causing a restriction to the flow of fuel. Particular attention should be given to the hose close to the fittings on the fuel strainer. Defective hose appears soft or spongy when squeezed with the fingers. Any defective hose is to be replaced immediately. (This information is contained, in part, in Taylorcraft Service Bulletin No. 60 dated June 14, 1946.)

47-14-1 BELLANCA (Was Mandatory Note 5 of AD-773-5) (Applies to 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 part No. 7998-1. (Bellanca Service Bulletin No. 7 dated January 14, 1947, covers this same subject.)

47-14-2 BOEING (Was Mandatory Note 3 of AD-719-1 and Mandatory Note 3 of AD-726-1)
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 gear box for the hand retracting drive are not subject to this inspection. (TWA EO No. 3489 covers this same subject.)

47-16-1 DOUGLAS (Was Mandatory Note 16 of AD-762-7)
To be complied with not later than September 1, 1947.
A. In those aircraft having the ammeter shunts in the positive generator leads, install two circuit breakers or circuit breaker switches in each nacelle junction box and reconnect each ammeter lead through one of these circuit breakers. Any type or variety of 10-ampere circuit breaker may be used, with the exception of the automatic-reset type.
B. Install a circuit breaker or circuit breaker switch in the main junction box and connect in series with the voltmeter circuit wire PJ-34 at the (d. c.) buss. Any type or variety of 10-ampere circuit breaker may be used, with the exception of the automatic-reset type. The non-override variety of circuit breaker is preferable.
C. Install four Heinemann type AM 1614-15-28-2 or equivalent, 15-ampere circuit breaker switches or circuit breakers, at the regulator location, in the leads to the "B" terminal of the voltage regulators; wires PA-530, PA-531, PA-730, and PA-731. The usual thermal circuit breaker or fuse does not provide sufficient protection to meet the peculiar requirements of a protective device for a generator field circuit application.
Additional information on the foregoing changes are described by Douglas Drawing No. 4350951 entitled "Rework of Generator Field Lead and Volt-Ammeter Lead Circuit Protection." A Douglas Aircraft Service Bulletin on this subject is also being issued.

47-16-2 DOUGLAS (Was Mandatory Note 17 of AD-762-7)
To be accomplished not later than June 1, 1947.
In case of leakage of the oil dilution solenoid, fuel may flow down the flexible conduit between the solenoid and the firewall junction box and into the junction box, thus creating a fire hazard. To correct this condition, remove the existing flexible conduit and wire between the solenoid and junction box and install new 18-gauge wire. Support wire with AN755-4-4-8 clamps spaced approximately ten inches apart.
This change is similar to the removal of the flexible conduit for the primer solenoid as covered in item 25 of Douglas Service Bulletin 266 in accordance with Note 47-2-4. (Part 2A, Item 4 of Douglas Service Bulletin DC-4 No. 66, dated June 18, 1947, covers this same subject.)

47-16-3 TAYLORCRAFT (Was Mandatory Note 11 of AD-700-1; Mandatory Note 12 of AD-699-1; and Mandatory Note 13 of AD-696-3)
Compliance required immediately.
Inspect wing strut attachment fittings on lower fuselage longerons for cracks or evidence of poor weld. If cracks or defects are found, the fitting should be replaced or reinforced.

47-20-1 AERONCA (Was Service Note 1 of AD-759-3 and Service Note 1 of AD-761-2)
Inspection required each 25 hours of engine operation.
The metal gascolator bowls installed in these aircraft should be removed to completely clean the strainer screen and to remove accumulations of water from the gascolator bowl. The wings should be slowly rocked prior to this cleaning in order that water lying on the flat bottom of the tank will settle into the gascolator bowl. In addition, if operating conditions are such that large quantities of water are found in the gascolator bowl during these inspections, the bowl should be removed more frequently and the carburetor bowl should also be drained periodically. (Aeronca "Service Helps and Hints" No. 15, dated August 23, 1946, No. 18, dated November 25, 1946, and the supplement to these bulletins, dated September 26, 1947, cover this same subject.)

47-20-2 AERONCA (Was Mandatory Note 2 of AD-761-2 and Mandatory Note 2 of AD-759-3) (Applies to 7AC airplanes having serial numbers 226 to 3721; and 11AC, serial numbers 1 to 351)
Compliance required at next periodic inspection but not later than August 1, 1947.
To prevent the oleo strut assembly from separating in flight, replace the fibre piston with aluminum pistons. (Supplementary to Aeronca Service Helps and Hints No. 12 dated February 11, 1947, covers this same subject.)

47-20-3 ERCO (Was Mandatory Note 11 of AD-718-6) (Applies to all Ercoupes up to and including serial number 3642 which incorporate fuel pumps with a metal filter bowl, and bearing AC part No. 1539076 on the pump mounting flange)
Inspection to be accomplished immediately, alteration to be made not later than the next periodic inspection.
Inspect immediately and at each 25 hours thereafter until the following alteration is completed, the fuel pump lines near the pump for failure and leakage due to chafing. Alter fuel pump lines not later than next periodic inspection as follows:
Remove the fuel pump top and rotate it 120° clockwise (two screw holes from the original position). Replace the pump inlet port fittings with AN 842-4D elbow and the outlet port fittings with (415-48101-40) elbow having 1/16-inch restriction. Drill two 3/4-inch diameter holes in right front engine cooling baffle and install grommets (AN 931-9-13). Route fuel pump hoses through respective holes; shorten outlet hose (415-48101-2) and install fuel pump hose (415-48101-2 and 415-48101-3) onto respective elbows securing them with two hose clamps (AN 746-4). Safety-wire clamps.
Close extra unused hole in baffle with button plug (415-40589-1) or equivalent. (Erco Service Department Memorandum No. 42 dated January 9, 1947, covers this same subject.)

47-20-4 ERCO (Was Mandatory Note 12 of AD-718-6) (Applies to serial numbers 113 through 4399)
To be accomplished prior to August 1, 1947.
A positive locking device must be installed on the zipper in the baggage compartment bottom to prevent its opening and permitting articles to fall through and foul the controls. (Erco's Ercoupe Service Department Bulletin No. 17 dated January 6, 1947, covering this same subject, provides a satisfactory method for safetying the bottom baggage compartment zipper.)

47-20-5 ERCO (Was Mandatory Note 13 of AD-718-6) (Applies to serial numbers 800 through 2037)
Compliance required prior to October 1, 1947.
Cracks have occurred in the belly skin at the rear-most rivet attaching the center section belly skin outer stiffeners (Erco part No. 415-13056 L/R) to the belly skin.
To prevent similar failures where cracks have not yet developed, install 0.064-inch 24ST alclad angles 1/2 inch wide with legs of 1 3/32 inches and 1/2 inch (Erco part number 415-13068). Attach the 1 3/32 inches leg to the outboard side of the aft end of each belly skin outer stiffener with two AN470AD3-4 rivets (3/32-inch diameter, universal head, A17ST, 1/4 inch long) and to the center section rear beam with one AN470AD3-5 rivet. (AN430 type round head rivets may be used.)
If cracks are found in the belly skin, drill relief holes at the ends of the cracks and install triangular shaped patch plates as follows in addition to the angle stiffeners described above. Prepare the patch plates of 0.032 inch 24ST alclad material of such a shape that it will pick up the last two rivets which attach the aft end of the belly skin outer stiffener to the belly skin and the three rivets attaching the rear beam to the belly skin which are in line with and to either side of the stiffener. Remove the above-mentioned existing rivets and attach the patch plates through these holes using AN470AD3-3 and -4 rivets. Attach the patch plate to the belly skin with six additional AN470AD3-3 rivets, three through each side of each plate. (Erco's Ercoupe Service Department Bulletin No. 18 dated January 9, 1947, covers this same subject.)

47-20-6 ERCO (Was Mandatory Note 14 of AD-718-6) (Applies only to serial numbers 113-3784, inclusive, except the following which have new design incorporated: 3719, 3720, 3723, 3724, 3726, 3729, 3732, 3735, 3738, 3741, 3742, 3744, 3745, 3747, 3750, 3753, 3756, 3759, 3762, 3764, 3765, 3767, 3768, 3771, 3774, 3777, 3780, 3783)
Compliance required not later than next 100-hour inspection unless visual inspection indicated immediate repair is required.
Flexing of the lower aileron skin has resulted in fatigue cracks in the beam in the balance weight area. Inspect the beam and lower aileron skin carefully for cracks and drill relief holes at the ends of all cracks. Then add reinforcement plates (Erco part Nos. 415-16039-5 and -6) to the front face of the aileron beam and lower surface of the lower aileron skin, respectively, following the procedure outlined in Ercoupe Service Department Bulletin No. 20. (Blind, Type A, AN 450-4-10 may be used in lieu of Dupont Explosive DR134A-8 and DR134A-10 rivets, respectively.) Use new longer AN526C632-7 truss head screws to reinstall the balance weight. Check the aileron rigging and the aileron bellcrank pushrod for

freedom from binding in the rod end under full aileron travel before again placing the airplane in operation. (Ercoupe Service Department Bulletin No. 20 dated February 17, 1947, covers this subject in greater detail.)

47-20-7 Erco (Was Mandatory Note 15 of AD-718-6) (Applies only to serial numbers 113 to 3335, inclusive)

Compliance required not later than next 100-hour inspection unless visual inspection indicated immediate repair is required.

Cases of fatigue failure indicate a need for reinforcing the rudder at the control horn attachment. Remove the rudders from the airplane and rudder control horns and the center rudder hinges from the rudders. Clean surface of both the inboard and outboard skin in the area of the control horn, inspect carefully for cracks and, if cracks are found, drill relief holes at their ends. Drill number 27 (0.144-inch) holes through the outboard skin in line with the center and aft rudder horn attachment bolt holes. Install the "T" shaped reinforcement plate (ERCO part No. 415-24-14-3) between the existing reinforcement plate (415-24007) and the rudder channel on the outboard side (hinge side). Replace the rudder control horn using the special bolts (Erco part Nos. 415-24014-1 and 415-24014-2) through the forward and center hinge attachment holes, taking care to use the longer screw in the center hole. Lock special screws by adding washers, AN960-A6L, and self-locking nuts, AN365-632, to the ends projecting through the outboard skin. Drill two No. 9 (0.196-inch) holes in reinforcement plate to match hinge holes and replace hinge taking care to realign with the upper and lower hinges. Replace rudders on airplane taking care to avoid looseness or binding at pushrod attachment to the rudder horn. Check rigging in accordance with Ercoupe Service Department Memorandum No. 35. (Ercoupe Service Department Bulletin No. 23, dated February 4, 1947, covers this subject in greater detail.)

47-20-8 Erco (Was Mandatory Note 16 of AD-718-6)

Compliance required prior to July 1, 1947.

(a) Install a new battery box drain tube to extend at least ½ inch below the fuselage belly skin if this has not been already incorporated in the airplane.

(b) Examine the fuselage structure and controls carefully for corrosion. If corrosion is found on the structure, the affected areas should be washed with an alkaline solution and followed by a thorough clear water rinse. Corroded controls should be replaced.

(c) Examine the baggage compartment for deterioration. If damage is evident, wash the affected area with a diluted alkaline solution and rinse with clear water. Reinforce any damaged areas with 10½-ounce single filled water-resistant canvas, double sewn with 16-4 glace finished thread.

(d) Install decalcomania (Erco part No. 415-54062) on the top of the battery box cover.

Ercoupe Service Department Memorandum No. 44 dated February 17, 1947, and Ercoupe Service Department Bulletins No. 8 dated May 24, 1946, and No. 22, dated February 3, 1947, also cover the above subjects.

47-20-9 Erco (Was Service Note 1 of AD-718-6)

Compliance required at each 100-hour inspection and immediately after each electrical system malfunction.

Check the operation of the voltage regulator by observing the ammeter reading after starting and until the battery becomes charged. A normal operation would indicate a charging rate up to 11-13 amperes for periods of time up to 20 minutes after starting. The charging rate should reduce to two amperes or less within two hours of operation. (Ercoupe Service Department Memorandum No. 23 covers this same subject.)

47-21-1 Fairchild (Was Mandatory Note 7 of AD-707-2 and Mandatory Note 4 of AD-706-1) (Applicable to all airplanes not equipped with No. 8 terminal wire)

Compliance required prior to August 1, 1947.

Replace the terminal wire which runs from starter relay to buss bar with a No. 8 wire, AN Spec. AN-J-C-48a, Fairchild part No. FS6108-26. (Fairchild Service Bulletin 47-24-1 dated January 8, 1947, covers this same subject.)

47-21-2 Fairchild (Was Mandatory Note 8 of AD-707-2 and Mandatory Note 5 of AD-706-1)

Compliance required prior to July 1, 1947.

Replace the landing light fuse with one of 20 ampere capacity. (Fairchild Service Bulletin 47-24-1 dated January 8, 1947, covers this same subject.)

47-21-3 Fairchild (Was Mandatory Note 9 of AD-707-2 and Mandatory Note 6 of AD-706-1) (Applicable to model F24W41A, serial 373 and up, and all models F24W46, F24W46S, F24R46, F24R46A and F24R46S)

Compliance required before August 1, 1947.

Inspect forward rudder cable turnbuckles which attach to idler brackets located in lower fuselage truss aft of baggage compartment. Turnbuckles should swivel freely. Turnbuckle eyes with shank bent or filed down or which are otherwise damaged should be replaced. Select an eye which swivels freely in idler bracket and use a clevis bolt of sufficient length to prevent binding. If shank of eye is bent, check alignment of rudder cable. (Fairchild Service Bulletin No. 47-24-2 dated April 22, 1947, covers this same subject.)

47-21-4 North American (Was Mandatory Note 3 of AD-782-3) (Applies to serial numbers NAV4-2 through 21, 24 through 29, 32, 35, 36, 40, 42 through 47, 57, 192, 199, 251)

To be accomplished not later than August 1, 1947.

The original fuel filler scupper will collect spilled gasoline since no drain line is provided. In addition, the thickness of material is insufficient to prevent damaging by the filler hose nozzle. To eliminate these conditions, a redesigned scupper with drain line is to be installed per NAA Drawing 145-89010. (NAA Field Service Bulletin No. 2 covers this same subject.)

47-21-5 North American (Was Mandatory Note 4 of AD-782-3) (Applies to serial numbers NAV4-11 through 21 and 44 through 47)

To be accomplished not later than August 1, 1947.

Replace the original propeller control with one that incorporates a positive friction lock in accordance with NAA Kit Drawing 145-89011. (NAA Field Service Bulletin No. 5 covers this change.)

47-21-6 North American (Was Mandatory Note 5 of AD-782-3) (Applies to serial numbers NAV4-11 through 22, 24, 26 through 29, 32, 33, 41, 42, 44 through 47, 62, 63, 192, 199)

To be accomplished not later than at first engine overhaul.

On certain Continental E-185 engines it is necessary to increase the compressive force on the valve springs to prevent rough engine operation at or near rated RPM. This may be accomplished by installing Continental No. 520023 spacers under all valve spring inner retainers. All engines having serial numbers 1395 and above have been modified by Continental Engines having this rework are identified by a yellow mark underneath the engine data plate. (NAA Field Service Bulletin No. 11 and Continental Motors Bulletin No. E-112 cover this rework.)

47-21-7 North American (Was Mandatory Note 6 of AD-782-3) (Applies to serial numbers NAV4-10 through 20, 22 through 26, 28, 29, 31 through 49, 51, 52, 55 through 58, 60, 63, 73, 76, 79, 82 through 84, 88 through 95, 99 through 104, 106, 108, 110, 112 through 116, 120 through 122, 124, 125, 130, 133, 141, 151, 153, 158, 163, 171)

To be accomplished prior to August 1, 1947.

Some airplanes were delivered with a cork or rubber filler strip cemented to the upper surface of the 145-42201-71 carburetor air intake scoop where the scoop fits over the flange of the air mixing chamber. This strip may become dislodged and drawn into the air induction system. To prevent this, replace the filler strip with a 3⅛-inch by ⅝-inch dural strip of 0.093-inch thickness, flush-riveted to the scoop. (NAA Field Service Bulletin No. 15 covers this subject.)

47-21-8 North American (Was Mandatory Note 7 of AD-782-3) (Applies to serial numbers NAV4-2 through 411)

To be accomplished not later than August 1, 1947.

Short circuits have been reported caused between the generator lower terminal and the fitting on the hydraulic pump inlet hose. To prevent such short circuits, install a self-threading insulator No. 145-54053 (or equivalent) on the generator lower terminal stud. (NAA Field Service Bulletin No. 18 covers this change.)

47-21-9 North American (Was Mandatory Note 8 of AD-782-3) (Applies to all serials up to and including number NAV-4-947)

Compliance required prior to September 1, 1947.

Due to malfunctioning of the hydraulic system, which has resulted in the failure of components of that system, including actuating cylinders, the following modifications must be accomplished.

(a) If an engine driven hydraulic pump is installed in the airplane, rework the hydraulic power system to install the manually controlled relief valve, North American part No. 145-58027, and replace the existing placard "Hyd. System Pull Off" with new placard "Hyd. Power On." (North American Field Service Bulletin No. 26 covers this same subject.)

(b) Install the swivel head type nose gear actuating cylinder, North American part No. 145-58014. (North American Field Service Bulletin No. 19 covers this same subject.)

(c) Visually inspect all flap and landing gear actuating cylinders for evidence of cracks or other damage. Any cylinders found to be damaged should be replaced.

47-21-10 North American (Was Mandatory Note 9 of AD-782-3) (Applies to serial numbers NAV4-2 through NAV4-1010 which incorporate Hartzell HC12X20-1 propellers)

To be accomplished not later than September 1, 1947.

The propeller control piston guide pins, Hartzell part No. A-11, require additional safetying in order to prevent loosening and subsequent loss of engine oil. This is accomplished by the installation of a 3/32-inch steel dowel through the guide pin. (NAA Field Service Bulletin No. 30 covers this rework.)

47-21-11 Republic (Was Mandatory Note 1 of AD-769-2) (Applies to serial numbers 5 to 174, inclusive)

Compliance required prior to July 1, 1947.

In order to prevent short circuiting of terminal studs on the firewall, remove each stud, enlarge the hole (0.316 drill) and insert a bushing (part No. 17F82080-1). (Republic Seabee Service Bulletin No. 1, dated December 18, 1946, covers this same subject.)

47-21-12 REPUBLIC (Was Mandatory Note 2 of AD-769-2) (Applies to serial numbers 66 to 239, inclusive)

Compliance required prior to July 1, 1947.

To correct a production error, place "No Smoking" decalcomania in a conspicuous location in the airplane. (Republic Seabee Service Bulletin No. 3 dated December 31, 1946, covers this same subject.)

47-21-13 REPUBLIC (Was Mandatory Note 3 of AD-769-2) (Applies to serial numbers 5 to 234, inclusive)

Compliance required prior to July 1, 1947.

Inspect the rivets of the forward end of the elevator control push-pull tube in front of the instrument panel for size, looseness and replacement as necessary. If the installation has been made with four 5/32-inch diameter rivets, replace with six 3/16-inch rivets (3 on each side evenly spaced). If four 3/16-inch diameter rivets are already installed and looseness exists, replace the loose rivets and install two additional 3/16-inch rivets (one on each side evenly spaced). Republic Seabee Service Bulletin No. 6 dated January 16, 1947, covers this same subject.)

47-21-14 REPUBLIC (Was Mandatory Note 4 of AD-769-2) (Applies only to serial numbers 5 to 500, inclusive)

Compliance required at the next 25-hour inspection or by August 1, 1947, whichever occurs first.

To prevent fouling of the lower elevator cable on the elevator balance weight in the tail boom, incorporate Republic part No. SK-17-14052-2 in the lower elevator control cable system. This elevator control cable guide is installed on the cross channel, in the tail boom, with the existing bolts holding the two inboard rudder pulley brackets. (Republic Service Bulletin No. 14 dated March 31, 1947, covers the same subject.)

47-21-15 REPUBLIC (Was Mandatory Note 5 of AD-769-2) (Applies to serial numbers 488 to 602, inclusive)

Compliance required as soon as possible, but not later than July 1, 1947.

Inspect the radio filter mounted on left-hand rear engine baffle. Filters in steel boxes 4 inches by 2 inches should be further inspected and reworked or replaced as described below, in order to minimize the possibility of a short circuit. Those filters which are in a smaller box need not be reworked.

1. If the coil is bolted to the box and the condenser is fastened in place with a clamp, the filter is satisfactory. If the coil is bolted to the box but the condenser is glued in place, the filter may be used provided a 1⅛-inch diameter clamp is added to fasten the condenser in place.

2. Filters in which the coil is not bolted to the box should be replaced by a new filter assembly, Republic part No. SK-17-83053-1. (Republic RC-3 Seabee Service Bulletin No. 15 dated April 8, 1947, covers this same subject.)

47-21-16 REPUBLIC (Was Mandatory Note 6 of AD-769-2) (Applies to serial numbers 5 to 250, inclusive)

To be accomplished not later than the next 25 hours of operation subsequent to July 1, 1947, and in any case not later than September 1, 1947.

In order to provide a fuel strainer drain which is leakproof and air-tight:

1. Remove the existing drain cock or plug from the fuel strainer located near the right hand wing fairing.

2. Install adapter 17P65058-1 in the strainer and install W7600-1/8 drain cock in the end of adapter. Use seal-lube when installing these parts. (Seabee Service Bulletin No. 7 dated February 5, 1947, covers the same subject.)

47-21-17 REPUBLIC (Was Mandatory Note 7 of AD-769-2) (Applies to serial numbers 5 to 125, inclusive)

To be accomplished not later than the next 25 hours of operation subsequent to July 1, 1947, and in any case not later than September 1, 1947.

In order to provide an improved backfire screen, remove existing screen from flexible hot air tube, install new type screen with flush end at the carburetor air duct end of hot air tube, locating it to prevent interference with the carburetor air duct or the old screen which will be reinstalled. Securely attach new screen to tube (Republic Seabee Bulletin No. 2 covers this same subject.)

47-21-18 REPUBLIC (Was Mandatory Note 8 of AD-769-2) (Applies to serial numbers 5 through 303, 305 through 367, 369 through 398, 400 through 445, 448 and 449, 451 through 454, 456 through 459, 461 through 466, 469 and 470, 472, 474, 479 and 482)

Compliance required prior to next flight.

Prior to each flight until reinforced support bracket is installed, inspect mixture control support at carburetor air filter housing for evidence of cracking. Support bracket must be installed not later than the next 25 hours of operation after July 1, 1947, and in no case later than August 1, 1947. (Republic Seabee Service Bulletin No. 11 dated March 10, 1947, covers this same subject.)

47-21-19 REPUBLIC (Was Mandatory Note 9 of AD-769-2) (Applies to serial numbers 5 to 238, inclusive)

Compliance required not later than the next 25 hours of operation subsequent to July 1, 1947, but in no case later than September 1, 1947.

Inspect parking brake, battery, mixture and carburetor heat flexible controls for presence of brass ferrule or AN 742D3 clamp on split sleeve at operating end of these controls. If clamp or ferrule is not installed, split metal sleeve can open permitting casing to slide out when control is actuated thus rendering the control ineffective. The above clamp should be installed immediately. (Seabee Service News No. 10, dated January 13, 1947, covers this subject.)

47-21-20 REPUBLIC (Was Mandatory Note 10 of AD-769-2) (Applies to serial numbers 426 through 484, except 446, 447, 452, 455, 460, 468, 471, 473, 475, 480, 481 and 483)

Compliance required not later than the next 25 hours of operation subsequent to July 1, 1947, and in any case not later than September 1, 1947.

In order to prevent excessive loss of oil through oil pressure gauge line in case of its failure, install a restrictor fitting at the engine end of that line. (Seabee Service Bulletin No. 13, dated March 17, 1947, covers this same subject.)

47-21-21 REPUBLIC (Was Service Note 1 of AD-769-2) (Applies to serial numbers 5 to 236, inclusive)

Inspection required immediately and periodically as noted below.

Inspect two slots at upper end of each tip float strut (part No. 17W23001) very carefully for cracks. Slots are located inside of wing contour, therefore, struts must be removed from wing at upper attachment for proper inspection. If any cracks are present, strut shall be replaced prior to further operation. All struts without relief holes at ends of slots as recommended by manufacturer shall be inspected for cracks at 50-hour intervals. (Republic Seabee Service Bulletin No. 12 covers this same subject.)

47-21-22 REPUBLIC (Was Service Note 2 of AD-769-2)

Inspection required before next flight and at each subsequent 25 hours of operation.

If no tab type lock washers are installed, check tightness of engine mounting bolts to torque of 25 foot-pounds on ⅜-inch bolts and 30 foot-pounds on 7/16-inch bolts. If it is found that loosening has occurred it will be necessary to install tab type lock washers under all engine mounting bolts. (AMI part No. 15175 for ⅜-inch bolts, AMI part No. 15176 for 7/16-inch bolts.)

If tab type lock washers have been installed previously and tabs are in place, inspection is required only at the regular 100-hour periods. (Aircooled Motors Service Bulletin No. 47 pertains to this subject.)

47-21-23 REPUBLIC (Was Service Note 3 of AD-769-2) (Applies to engine serial numbers 23001 to 24083, inclusive)

Compliance required before the next flight and after 5 hours of operation following each installation of fan.

Inspect the engine cooling fan capscrews for tightness. If tab locks are installed ascertain whether the locks are still in place. If the capscrews or the locks have loosened remove the capscrews, fan and pulley sheave. Clean and inspect parts for wear. Reassemble carefully using part No. 17778 drilled head capscrews with plain washers. Torque to 20 foot-pounds, operate engine up to 1500 r. p. m. for 5 minutes, retorque and safety with 0.041-inch stainless steel wire. Visually inspect locking wire and capscrews after 5 hours of operation. Reassemble in this manner every time the fan is removed.

Obtain the new capscrews, washers, and wire from your Seabee distributor or the engine manufacturer. (Franklin Service Bulletin No. 57 dated June 9, 1947, which supersedes Bulletin No. 50 covers this same subject.)

47-22-1 LUSCOMBE (Was Mandatory Note 12 of AD-694-4) (Applies only to airplanes equipped with Edo 60-1320 floats)

Compliance required immediately if possible but in any event not later than August 1, 1947.

All seaplanes should be inspected to determine whether the bulkhead reinforcements of Luscombe Drawing 48701 are presently installed at fuselage station 4 (rear float strut attachment). If not, those reinforcements shown on Luscombe Drawing 58730 must be installed to insure the structural integrity of the float installation. Each seaplane should also be inspected to determine conformity of Model 8A with Luscombe Drawing 58700 and Models 8C and 8D with Luscombe Drawing 58725.

47-22-2 FREEDMAN (Was Mandatory Note 13 of AD-694-4; 7 of AD-778-2; 13 of AD-766-5 and 11 of AD-768-5) (Applies only to airplanes equipped with Freedman Propellers)

Superseded by 48-48-1.

47-22-3 PIPER (Was Mandatory Note 4 of AD-780-3) (Applies only to serial numbers 12-1 and up to 12-249 except serial numbers 12-221, 12-236, 12-239 and 12-244)

Compliance required prior to August 1, 1947.

Reinforce the upper end of the tie strap on the landing gear with a 0.125 x 1½ x 4½, 4130 steel plate. Bend and trim to fit and install over end of strap by edge welding. (Piper Service Bulletin No. 93 dated August 8, 1946, covers this same subject.)

47-25-1 CULVER (Was Mandatory Note 3 of AD-778-2) (Applies to serial number V-1 and up)

Compliance required prior to August 15, 1947.

In order to correct the possibility of unequal fuel feed from the two tanks, with the attendant possibility of air lock, rework the fuel system to incorporate a sump tank (PN11202-1) in former location of feed "T" fitting and revised fuel feed and vent lines. (Culver Service Bulletin No. 17 covers this same subject.)

47-25-2 CULVER (Was Mandatory Note 4 of AD-778-2)

Compliance required prior to August 15, 1947.

Install wing fillets, Culver part No. 10477, at junction of fuselage and wing trailing edge. Attach with #6 x ¼ P. K. screws (12)

or equivalent (Culver Service Bulletin No. 13 covers this same subject.)

47-25-3 CULVER (Was Mandatory Note 5 of AD-778-2) (Applies only to serial numbers V-1 to V-130, inclusive)

Compliance required prior to August 15, 1947.

Inspect the nose gear drag link for the type of connection used to attach the aft fitting. The ¾-inch diameter tube must butt the aft fitting. If otherwise, replace the link or rework accordingly. (Culver Service Bulletin No. 1 covers this same subject.)

47-25-4 CULVER (Was Mandatory Note 6 of AD-778-2) (Applies only to aircraft certificated for night flying)

Compliance required prior to August 15, 1947.

Provide adequate illumination for compass by installing a Lucite reflector. Culver part No. 11850, between the instrument panel and sub-panel. The reflector is attached by means of the two upper attachment screws for the compass with its straight end extending to the nearest instrument light bulb. All paint should be scraped off the top half of this bulb. Other means of providing equivalent illumination of the compass are acceptable. (Culver Service Bulletin No. 14 covers this same subject.)

47-25-5 CULVER (Was Service Note 2 of AD-778-2)

Inspect the nose-main gear interconnection tube located in the nose wheel well for evidence of corrosion and apply AN-G-3a grease to the unpainted aft end every 50 hours of operation. Since the aft end of the tube slides through a trunnion just aft of the wing spar any pitting or scaling of the tube surface in this area may result in binding and failure of the landing gear retraction system and necessitates replacement of the tube. Where climatic conditions promote accelerated corrosive action, as in coastal regions, the tube should be inspected during each daily line check. (Culver Service Memorandum dated September 25, 1946, covers this same subject.)

47-25-6 GLOBE (Was Mandatory Note 10 of AD-766-5) (Applies only to serial numbers 3 to 157, inclusive, and No. 159)

Compliance required prior to August 1, 1947.

Remove the carburetor flexible air duct, part No. 11-440-3405 and metal air intake scoop, at point of attachment at rear right engine cylinder and outboard connection to the right exhaust heater shroud. Replace with flexible air duct, Globe part No. 11-440-3648, and elbow, Globe part No. 11-440-3729. This is necessary to prevent collapsing of the air duct when the carburetor air heater is used. (Globe Customer Service Maintenance Bulletin No. 5 covers this same subject.)

47-25-7 GLOBE (Was Mandatory Note 11 of AD-766-5) (Applies only to serial numbers 1001 to 1119, inclusive)

Compliance required prior to August 1, 1947.

If an oil radiator is or has been installed, inspect the forward end of the engine's left oil galley outlet port and remove steel sleeve, Continental part No. 25206, if found to be installed. This is necessary to insure that positive lubrication is being provided the No. 6 cylinder connecting rod bearing. (Globe Customer Service Maintenance Bulletin No. 13 covers this same subject.)

47-25-8 GLOBE (Was Mandatory Note 12 of AD-766-5) (Applies only to serial numbers 2001 to 2329, inclusive)

Superseded by 51-2-2.

47-25-9 BELLANCA (Was Mandatory Note 6 of AD-773-5) (Applies to 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 fittings 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.)

47-25-10 CONSOLIDATED VULTEE (Was Service Note 4 of AD-2-571-2) (Applies to all serials equipped with wood elevator tabs)

Compliance required not later than September 1, 1947, and each 20 hours of operation thereafter.

The elevator tabs should be closely inspected to determine if any sign of glue failure, dry rot, or cracking of plywood exists adjacent to glue joints. Attachment of aluminum alloy extension to tab may have weakened the trailing edges of wood tabs or weathering of wood may have caused deterioration. If any failure or deterioration is found, the tab should be immediately replaced or repaired in an adequate manner.

47-26-1 CESSNA (Was Mandatory Note 9 of AD-768-4) (Applies only to serial numbers 8001 to 13799, inclusive)

Superseded by 48-4-1.

47-26-2 CESSNA (Was Mandatory Note 10 of AD-768-4) (Applies to serial numbers 8000 to 13777, inclusive)

Pending compliance with this note the following placard shall be installed immediately on the instrument panel: "All Acrobatics Prohibited. Reduce Cruising Airspeed in Rough Air."

Compliance with modifications listed below required prior to August 1, 1947. After August 1, placard is not valid, and airplanes are not to be flown until modifications are accomplished.

Inspect the wing leading edge for indications of buckling in the skin which may result from failure of the spot welds attaching the skin to the nose ribs. If there is any buckling of the skin at the ribs, other than at the extreme nose radius, the fabric should be cut open on the bottom surface just forward of the front spar for thorough inspection of the affected nose ribs. Any buckled nose ribs should be repaired or replaced. Upon completion of the above the following reinforcements should be accomplished.

1. Leading edge:

(a) On covered wings install four Cherry CR 163-4-4 rivets in the upper surface leading edge at each nose rib from No. 2 to No. 10, inclusive. No. 30 holes should be drilled through the fabric skin and rib flange at chordwise locations determined by use of a template supplied by Cessna. (If template is not available holes can be located by finding 3/32-inch jig hole (or flush rivet in early airplanes) in leading edge skin at tip of each nose rib and drilling holes 1½ inches, 2¾ inches, 4 inches, and 5¼ inches aft from the jig hole, as measured along the curved surface of the leading edge, and exactly in line with the jig hole and the rivet through the skin and nose rib flange just forward of the front spar.) Use only light pressure on drill to avoid bending rib flange where spot welds have failed. Be sure that hole is drilled through both the skin and the nose rib flange.

(b) On wings being recovered the Cherry rivets should be carefully drilled out before removing the fabric. Before the new fabric is applied AN 456-AD4 rivets should be installed.

2. Upper Surface Fabric Attachment:

(a) On covered wings install four Cherry CR 163-4-4 rivets in each rib one rivet midway between each of the fabric attachment clips (5 inches clip spacing) from No. 1 to No. 5, as numbered aft from the front spar. No. 30 holes should be drilled for the rivets through the fabric at the middle of the reinforcing tape and through the rib flange. A 7/16-inch x 0.015-inch pyralin washer should be used under each rivet head and should be stuck to the fabric with dope. On wings having P-K screws installed in accordance with Cessna Service Letter Nos. 35 and 37, replacement of the screws with Cherry rivets is optional.

(b) On recovering wings, the rivets should be carefully drilled out before removing the fabric to prevent damage to the ribs. When the new fabric covering is applied, standard Cessna fabric attachment clips may be substituted for the Cherry rivets of P-K screws. In this event a clip should be installed midway between each of the present clips from the front spar to the rear spar and from the rear spar to the trailing edge. Holes for the additional clips should be made with a No. 40 drill and a template supplied by Cessna.

(Cessna Service Letter No. 42 dated May 20, 1947, also covers this subject and supersedes Cessna Service Letters Nos. 37 and 28.)

47-27-1 WACO (Was Mandatory Note 4 of AD-648-1)

Compliance required not later than next periodic inspection.

Inspect tank area in wings for damage to plywood tank support and wing spars caused by collection of moisture in the boxed area of the fuel tank.

1. Remove the left and right fuel tanks and inspect the condition of the plywood tank support and the front and rear spars.

2. If the plywood supports are found to be in poor condition they should be replaced using new plywood.

3. If the spars have been affected by the accumulated moisture, repairs should be made in accordance with C. A. A. requirements or in extreme cases the spar should be replaced.

4. In order to provide drainage of the tank compartment three holes 3/16 inch in diameter should be drilled through the plywood support at the extreme rear of the support as close to the rear spar as possible without damaging the spar. These drain holes should, of course, extend through the fabric covering.

5. The drain holes should be drilled in all tank compartments at the time the fuel tanks are removed for this inspection.

The above inspection and recommended remedial measures also covered by Waco Aircraft Company Service Letter No. 3.

47-27-2 DOUGLAS (Was Service Note 4 of AD-762-7) (Applies to all C-54-DC series and DC-4 airplanes)

Inspection required at intervals not to exceed 150 hours.

Open the quick-opening type inspection doors in the bottom of the outer wing and center wing section surfaces forward of the front spar and aft of the center spar. Inspect spar web structure for loose rivets, cracks, or other irregularities. Pay particular attention in the fuel tank areas for evidence of fuel leaks which will indicate cracked spar webs or rivet and seam leaks.

All spar web cracks which are found after accomplishment of Note 46-27-1 (Service Bulletin C-54-205, "Rework—Integral Fuel Tanks") or cracks that are located in areas to which the Service Bulletin C-54-205 does not apply, should be repaired in accordance with Douglas Drawings No. 5354811, "Service Rework—Station 463, Outer Wing, Center Spar," and No. 3344236, "Repair—Integral Tank Spar Web Crack."

47-27-3 DOUGLAS (Was Service Note 5 of AD-762-7) (Applies to all DC-4, C-54 series aircraft)

Superseded by 51-9-2.

47-27-4 DOUGLAS (Was Mandatory Note 18 of AD-762-7) (Applies to all C-54 and DC-4 series airplanes having exhaust collector rings made up of top segments parts Nos. 5174842-56 L. H. and 5174529-56 R. H.)

To be accomplished not later than the first engine change subsequent to July 15, 1947, but in any event not later than October 15, 1947.

Several reports have been received of cracking failure of the collector ring "Y" outlet assembly due to breathing of the exhaust stack. This induces failure which creates a fire hazard. This type of exhaust collector "Y" is not reinforced with a flange and is shown on page 4, Douglas Service Bulletin No. DC-4 #31. To correct this condition weld a scalloped stiffener flange on the exhaust collector aft of the "Y" outlet assembly. (Douglas Service Bulletin No. DC-4 #68 covers this same subject.)

Until this repair is accomplished, inspection for cracks should be made immediately and at periods not to exceed 50 hours of operation.

47-30-1 AERONCA (Was Mandatory Note 3 of AD-759-3 and Mandatory Note 3 of AD-761-3) (Applies only to serial numbers 7AC-1 to 4795, inclusive, and 11AC-1 to 11AC-502, inclusive)

Compliance required not later than November 1, 1947.

To prevent failure of lift strut wing fitting due to tie-down loads, replace front lift strut wing attachment fittings with Aeronca No. 2-893 fittings. (Aeronca Service Helps and Hints #13 dated August 14, 1946, and supplement thereto covers this same subject.)

47-30-2 CESSNA (Was Mandatory Note 12 of AD-722-5)

Compliance required no later than next 100-hour inspection.

Inspect the ends of the brake pedal links, part No. 53046, for reinforcing doubler plates around the fitting holes. If the doubler is not in evidence, remove the links and rivet two 0.040-inch x ½-inch x approximately 2-inch length—24ST aluminum alloy reinforcing doubler plates to each end of each link using two ⅛-inch A17ST rivets through both doublers and the link on the far side of the joggle from the fitting holes.

47-30-3 CESSNA (Was Mandatory Note 13 of AD-722-5) (Applies to all UC-78 and AT-17 series airplanes)

Compliance required prior to October 15, 1947.

Inspect the wing of 5,400 and 5,700 pound gross weight airplanes to determine that the wing has been properly identified as a 5,700 pound wing. The 5,700 pound wing has the following salient identification features:

a. Laminated (8 to 10 ply) birch plywood reinforcement on the rear face of the rear spar (instead of spruce block found on the 5,100 pound wing) extending continuously through the center section from nacelle to nacelle. Ends of this plywood plate are scarfed out just inboard of each nacelle bearing block.

b. Continuous plywood flanges 1 to 1½ x 1/16 inch are found on both sides of the lower cap strips of wing ribs between the front and rear spars on 5,700 pound wings.

c. The diagonal in nose ribs of the 5,700-pound wing is 5/16 x 7/16 instead of 5/16 x 5/16 found in the 5,100-pound wing.

Wings which cannot be identified as outlined above are not eligible for certification above 5,100 pounds gross weight.

47-30-4 CESSNA (Was Service Note 4 of AD-722-5)

Inspect the landing gear chains and chain dampener mechanism for the following at each 100-hour inspection. The landing gear chain should be tight and pressing firmly against the drive and idler sprockets. With the chain pulling tight against the idler sprockets the slotted dampener link should permit movement of the spring dampeners. The dampener spring is correctly adjusted when compressed to ⅜ inch. All sprockets should be inspected for excessive wear. The sprockets are considered excessively worn and should be replaced when the teeth are one-half the thickness of the sprocket web. All guards should be inspected to make sure there is no danger of binding or jamming. Inspect all links of the landing gear chain for cracks and replace any links that are found cracked. It is recommended that the chain be replaced every 1,000 hours.

47-30-5 AERONCA (Was Service Note 2 of AD-759-3 and Service Note 2 of AD-761-3)

Inspection required not later than September 15, 1947, and each 50 hours thereafter on Model 7AC airplanes having serial numbers prior to No. 7AC-6797 and Model 11AC airplanes having serial numbers prior to No. 11AC-1697.

Due to difficulties in the manufacture of the exhaust stacks for these airplanes, it is necessary to inspect the stack "Y" junction for evidence of failure or deterioration. This inspection should be accomplished as follows:

A. Initial inspection (not later than September 30, 1947). The exhaust stacks on these airplanes should be removed from the airplane and checked visually in the vicinity of the "Y" junction for evidence of burning or flaking, tapped with a hammer for evidence of soft spots, and inspected to determine whether the stack is obstructed in any way.

B. Periodic inspection (each fifty hours). The exhaust stacks should be reinspected visually in the vicinity of the "Y" junction by removing the cabin and carburetor heater muffs each fifty hours of engine operation.

This information is also contained in Aeronca Service Helps and Hints No. 25 dated May 13 1947.

47-30-6 BEECH (Was Mandatory Note 2 of AD-2-582-2) (Applies only to 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.

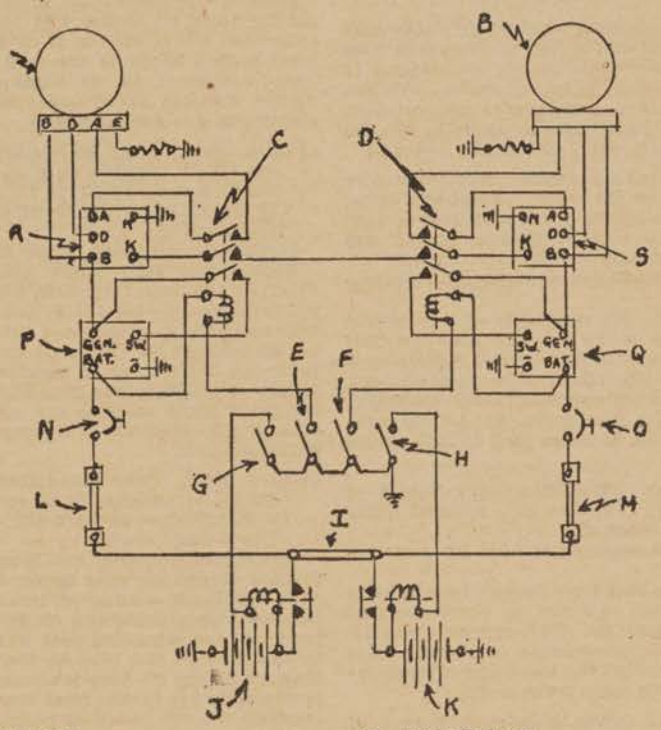
In accordance with Figure 1 (Page 39) install a three-pole-single-throw relay, General Electric No. CR2791-B100G3 or equivalent, for the control of each generator. The operating coil of the left generator relay should be controlled by a single-pole-single-throw "On-Off" switch mounted on the pilot's 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 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 amp trip-free circuit breaker, Spencer Thermostat Co. PLM-50 or equivalent, between the battery terminal of each generator cut-out and its respective ammeter shunt. The circuit breakers should be accessible in flight and lobeled respectively: "Left Gen. Circuit" and "Right Gen. Circuit."



A—Left Generator.
B—Right Generator.
C—Left Gen. Contr. Relay.
D—Right Gen. Contr. Relay.
E—Left Gen. Switch.
F—Right Gen. Switch.
G—Left Battery Switch.
H—Right Batt. Switch.
I—Main Bus.
J—Left Battery.
K—Right Battery.
L—Left Ammeter Shunt.
M—Right Ammeter Shunt.
N—50 amp. Circuit Brkr.
O—50 amp. Circuit Brkr.
P—Left Cutout.
Q—Right Cutout.
R—Left Volt. Regulator.
S—Right Volt. Regulator.

FIGURE 1.

47-30-8 AERONCA (Was Mandatory Note 9 of AD-675-2 and Mandatory Note 7 of AD-702-1)

Compliance required not later than September 30, 1947.

In order to prevent the seat belt anchorage from failing during a crash landing, it has been found necessary to modify the seat installation as follows:

1. If there is no need for an adjustable seat, the rear sliding lugs on each side of the seat should be bolted to the slide tube using 3/16-inch AN bolts. Location of bolt approximately 1 1/8 inches below and 3/8 inch forward of center of seat cross tube.

2. If the seat is to remain adjustable, the rear sliding lugs on the seat are to be reinforced with two 0.094-inch, 1025 steel gussets. Weld corner gussets between fore and aft sides of seat cross tube and back face of seat slide lugs. Gussets are "L" shaped approximately 1 inch wide, extending around bottom lip of lugs. (Aeronca Service Memorandum M-76 dated May 15, 1947, covers this same subject.)

47-31-1 NORTH AMERICAN (Was Mandatory Note 10 of AD-782-3) (Applies to all serials up to and including number NAV-4-947)

To be accomplished not later than October 1, 1947.

To reduce the possibility of nose gear hydraulic actuating cylinder line failures due to inflexibility, the cylinders must be removed and reinstalled with the lines therefrom leading aft. Each of the present lines must be replaced with a longer line incorporating a U-bend. (North American Field Service Bulletin No. 28 covers this same subject.)

47-31-2 NORTH AMERICAN (Was Mandatory Note 11 of AD-782-3) (Applies to serial numbers NAV-4-2 through NAV-4-850)

To be accomplished not later than November 1, 1947.

Remove carburetor vapor return line hose part No. 75696 and install fire-resistant hose part No. 76701. This change is necessary to prevent premature failure of the vapor return line in the event of an engine compartment fire. (NAA Field Service Bulletin No. 23 dated April 11, 1947, covers this rework.)

47-31-3 NORTH AMERICAN (Was Mandatory Note 12 of AD-782-3) (Applies to serial numbers NAV-4-2 through NAV-4-1010 which incorporate Koehler Model 2250 fuel strainers)

To be accomplished not later than November 1, 1947.

To preclude the possibility of loss of fuel pressure due to air leakage into the fuel system through the CCA-1550-1/8 drain cock on the Koehler Model 2250 fuel strainer, remove this drain cock and install Whittaker Model 7600-1/8 drain cock. (NAA Field Service Bulletin No. 32 dated May 1, 1947, covers this rework.)

47-32-1 BELL (Was Mandatory Note 1 of AD-1H-1) (Applies only to 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 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 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, part No. 47-722-059-1 in each pedal assembly with a modified pawl stop, part No. 47-722-057-1. Check length of each pedal adjustment mechanism and adjust if necessary to 4 23/64 inches, tolerances +000, -1/32 inch, measured from the center of the pedal adjustment mechanism assembly AN-392-41 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 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 anti-torque rotor blades, "Do Not Use for Handling Helicopter," to warn ground personnel against using the anti-torque rotor blades as hand-holds 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)

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 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 serial numbers 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 part #11868, should be installed on the pipe at the side of the tank where the oil filler is mounted and approximately 1 3/8 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 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 part No. 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)

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)

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)

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)

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)

Compliance required at the next 100-hour teardown inspection.

Additional strength in the anti-torque 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 serial numbers 5, 6 and 10)

Inspection required at intervals not to exceed 100 hours.

In order to prevent misalignment of the tail rotor drive quill and tail rotor drive shaft and power plant 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 AN365-524 nuts on AN5-20A 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 AN960-516 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

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.)

47-32-15 SIKORSKY (Was Mandatory Note 1 of AD-2H-1)

Compliance required prior to next flight.

Inspect the chain and sprockets of the control system for an accumulation of excessive grease and foreign matter. Excessive grease and any foreign matter adhering to the chain and sprockets should be removed prior to the next flight in order to prevent possible malfunctioning of the flight control system. The recommended procedure as contained in the Sikorsky Service Information Circular No. 17 dated June 2, 1947, should be followed at the first disassembly of these parts.

47-32-16 SIKORSKY (Was Service Note 1 of AD-2H-1)

Superseded by 48-17-3.

47-32-17 BELLANCA (Was Mandatory Note 7 of AD-773-5) (Applies to 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 #10 covers this same subject.)

47-32-18 BELLANCA (Was Service Note 1 of AD-773-5) (Applies to 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.)

47-33-1 DOUGLAS (Was Mandatory Note 19 of AD-762-7) (Applies to all DC-4 and C-54 type aircraft except production DC-4 aircraft serial numbers 42952, 42992, and subsequent)

The following is to be accomplished to reduce the possibility of wear of the outboard elevator hinge parts: Inspect immediately for wear, proper installation and operation unless already accomplished, and at periods thereafter not to exceed 250 hours flight time, or in the case of Scheduled Air Carrier Operations, at each major inspection closest to 250 hours until the following mandatory rework is accomplished.

This mandatory rework shall be accomplished not later than October 15, 1947.

(a) Each horizontal stabilizer outer hinge bracket, P/N 5109899, must be reworked as follows:

(1) Line ream 0.3745–0.3755-inch diameter holes through the two lugs at each hinge point.

(2) Press in 3323406-A-2 Bushings, 2 req., made from 9/16 inch diameter Corrosion Resistant Steel Bar, Spec. An-QQ-S-771, Comp. FM, Cond. B., or bushing, P/N 1356866, which may be purchased from the airplane manufacturer.

(3) Machine shoulders of bushings on inside of lugs to obtain clearance for bearing in eyebolt of 0.563 inch, plus 0.005 inch and minus 0.001 inch. Minimum thickness of shoulder on each bushing after machining should not be less than 0.020 inch.

(4) Line ream hole 0.3120–0.3140 inch in diameter through bushings after pressing into hinge fitting.

(5) Remove outboard elevator hinge eyebolt assembly, P/N 2110992, and install new assembly, P/N 2328991.

(6) Re-install elevators using 2357035-15 bolt through bushed hinge bracket and new eyebolt assembly, with 1357162 washer (two required—one under head of bolt and one under nut), AN310-5 nut and AN380-2-2 cotter pin.

(b) The horizontal stabilizer outer hinge bracket, P/N 5109899, was replaced in later production aircraft and on some aircraft in the field with P/N 3323406. This latter bracket incorporates a 5/16-inch bolt with eyebolt P/N 2328991, and must be reworked in accordance with parts 1, 2, 3, 4, and 6 of paragraph (a) above.

(Douglas Service Bulletin DC-4, #73 dated September 23, 1947, covers this same subject. An earlier issue of this Service Bulletin dated June 12, 1947, called for NAS 55-15 bolts in paragraph (a) (6), above. It is satisfactory to leave the NAS 55-15 bolts installed on airplanes reworked as per the original issue of the Service Bulletin.)

47-33-2 DOUGLAS (Was Mandatory Note 14 of AD-618-3, Supplement 2 and 15 of AD-669-3, Supplement 2)

To be accomplished not later than the first engine change after September 1, 1947, but in any event not later than December 1, 1947.

In order to preclude cowl flap hydraulic line failures and possible subsequent fires, replace grommets and lines forward of the firewall with AN833-4 elbows and AN924-4 nuts, or equivalent, and new fire resistant flexible hose assemblies of proper length.

47-33-3 BEECH (Was Mandatory Note 5 of AD-757-2 and Mandatory Note 4 of AD-582-2)

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 one-quarter inch drain holes in the fuselage bulkhead No. 15 as shown in Figure 2. (Beech Service Bulletin No. C18-7 covers this same subject.)

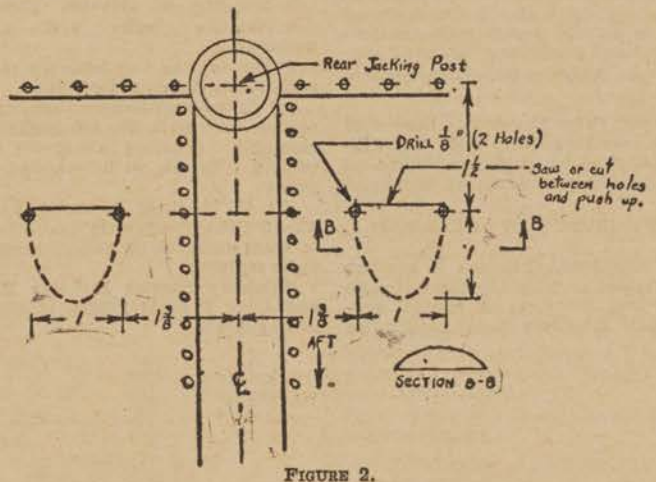


FIGURE 2.

47-33-4 BEECH (Was Service Note 2 of AD-757-2)

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 part No. 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-757-2 and Service Note 1 of AD-765-1)

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 sub-spar 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 cut-out 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 sub-spar should be removed and the corresponding holes in the #13 bulkhead angle plugged. The revision of the stabilizer attachments eliminates the necessity for further inspection for cracks except as made during the normal periodic inspection. (Beech Service Bulletin No. D18-48 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 serial number 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 sub-spar, the center section of the main spar must be replaced with one having the lower flange-web radius cut-out 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 sub-spar should be removed and the corresponding holes in the #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 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 AN6270–4–22 flexible hose connected to the Beech 407–184756 static pressure tube by means of an AN815–4D union. (Beech Service Bulletin D18–47 covers this same subject.)

47–34–1 BEECH (Was Mandatory Note 2 of AD–765–1) (Applies to 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 part No. 404–189676.

(c) Install a safety guard, Beech part No. 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 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 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.)

47–35–1 SIKORSKY (Was Mandatory Note 1 of AD–7L–1) (Applies to serial numbers 43–46500 to 43–46502 and 43–46504 to 43–46539, inclusive)

Compliance required before November 15, 1947.

To reduce the possibility of loss of flight control due to failure of the main rotor links from lack of lubrication, the links should be reworked in accordance with the following instructions. This change involves the removal and inspection of main rotor link, part No. VS 36181 and machining of oil grooves.

1. Strip paint from the subject links with a paint remover or lacquer thinner, Specification No. AN–TT–T–256 or equivalent. Do not use scraper or wire brush on links, because small cracks may be filled in and covered.

2. Visually inspect main rotor links, part No. VS 36181 by one of the following methods for cracks around link pin hole and longitudinally along what was the flash line in original forging. (See Figure 3.) If cracks are present, links should be scrapped.

(a) Visual inspection after re-anodizing; or

(b) By caustic etching; or

(c) By an approved fluorescent-black light method.

3. Machine oil grooves. (See Figure 3.)

4. Remove burrs and clean after machining.

5. Inspect the two bearings removed from each of the three subject links.

(a) If bearings removed are part No. AT–16, replace with part No. AT–16–OH bearings on assembly. (Bearing AT–16–OH is an AT–16 bearing with an oil hole added to its outer race.)

(b) If bearings removed are part No. AT–16–OH and retainers washers are damaged or show evidence of foreign matter, they are to be replaced.

(Sikorsky Service Bulletin R–4B No. 10 and Army T. O. 01–230HA–15 also cover this same subject.)

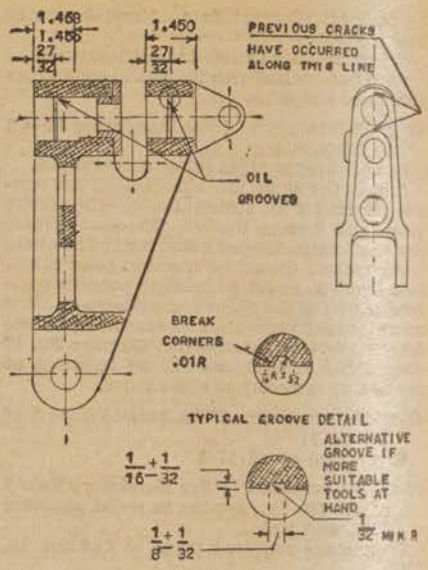


FIGURE 3.

47–35–2 SIKORSKY (Was Mandatory Note 2 of AD–7L–1) (Applies to AAF serial numbers 43–46500 and 43–46504 to 43–46567, inclusive)

Compliance required prior to November 15, 1947.

To compensate for an increased overhang of the tail rotor gear box, a diagonal brace that changes the aft boom load distribution shall be installed in accordance with the following instructions:

a. Fit the two tube brace assemblies, Sikorsky part Nos. S38566 and S38567, in telescopic position, to lower right longeron and upper left longeron. (See Figures 4 and 5.)

(1) Insert bolts, part No. AN4–13, into halves of clamp of each section of brace; attach washers, part No. AN960–416, and nuts, part No. AN310–4.

(2) Locate brace so that its center and that of vertical tube, part No. S38505–23, forward of it, are a maximum of 1⅛ inches apart. (See Figure 4.)

(3) Tighten securely four bolts, part No. AN4–13, which hold subject brace in position.

(4) Secure nuts, part No. AN310–4, with cotter pins.

b. Mark with a pencil the overlap of tube brace assembly, part No. S38566, on assembly, part No. S38567. (See Figure 5.)

c. Fashion a wedge, using a piece of wood 1 x 3 x 14 inches, and "V" notch both ends. (See Figure 6.)

d. Insert wedge approximately parallel to telescopic brace.

(1) Tap alternately the ends of wedge forcing the subject assembly to extend ⅛ inch beyond the pencil line requested in paragraph 2, b. (Extra extension of ⅛ inch permits brace to assume the desired stress load.)

(2) Wrap longerons with friction tape at point of wedge contact, or insert cardboard

or any suitable material at ends of wood wedge to prevent paint abrasion.

e. With wedge securely in position, using drill No. 40 (0.098 inch), drill two holes through brace at 90 degrees to each other. (See Figure 5.)

(1) Enlarge holes, using drill No. C (0.242 inch) and ream to 0.250 inch.

f. Bolt two sections of brace together with bolts, part No. AN24-17, nuts, part No. AN320-4, and secure with cotter pins.

g. Remove the wood wedge.

h. If paint on longerons of tail fuselage has been damaged, touch up with paint.

(Sikorsky Service Bulletin R-4B No. 8 and Army Technical Order 01-230HA-11 also cover this same alteration.)

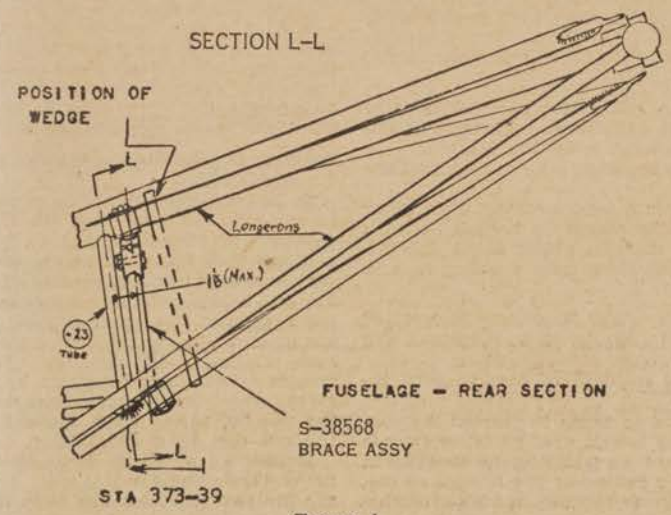


FIGURE 4.

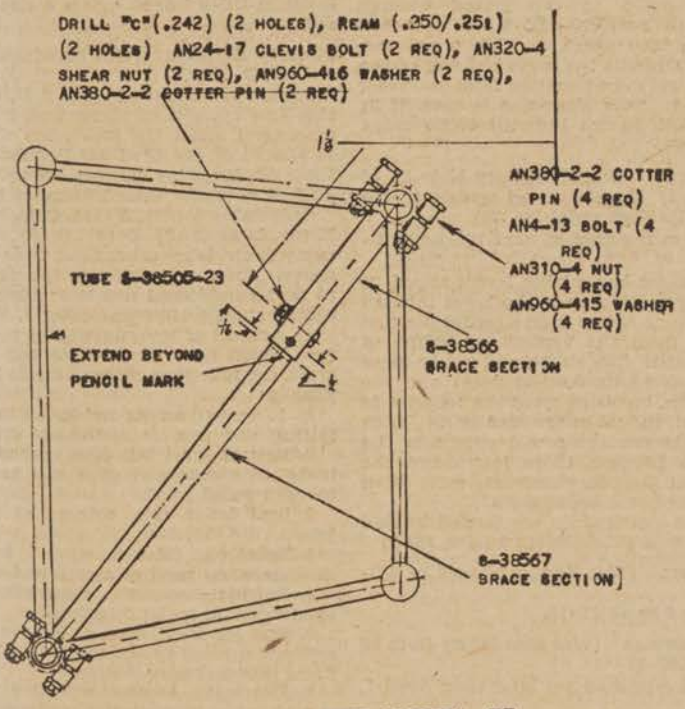


FIGURE 5.

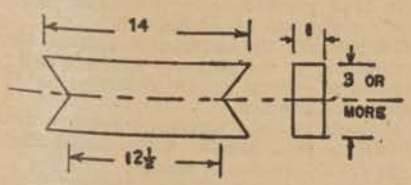


FIGURE 6.

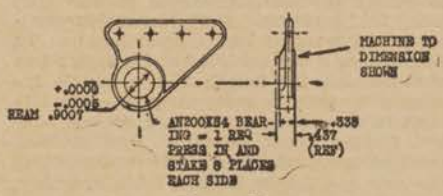


FIGURE 7.

47-36-1 DOUGLAS (Was Mandatory Note 1 of AD-3L-1)

Compliance required prior to November 15, 1947, on all serial numbers.

To reduce the possibility of failure of the wing bulkhead assemblies and subsequent loss of the ailerons:

1. Machine face of boss on fitting assemblies part Nos. 4154028 and 4154028-1, to 0.335 inch, and ream bore to 0.9007 plus 0.0000, minus 0.0005 inch. (See Figure 7.) Replace bearing AN209K4A with self-aligning bearing, part No. AN200KS4 and stake in six places each side. Install reworked fitting assemblies, part Nos. 4154028 and 4154028-1, on original bulkheads as follows:

(a) On installations using two screws, part No. 1029421-416-11, or two bolts, part No. AN4-6A, and three rivets, enlarge the rivet holes in the fitting and bulkhead to 0.191 inch diameter and countersink the holes in bulkhead 100 degrees. Install fitting using two screws, part No. 1029421-416-11 or NAS214-11, or two bolts, part No. AN4-6A, originally installed, two washers, part No. AN960D416, and two nuts, part No. AN365-428, in the top and bottom holes, and three screws, part No. S-1029421-10-12, three washers, part No. AN960D10, and three nuts, part No. AN365-1032, in the three remaining holes.

(b) On installations using four or five screws, part No. S-1029421-10-12, reinstall fitting assemblies with original screws, washers, and nuts.

2. Inspect bulkhead assemblies, part Nos. 5153663 and 5153663-1, for cracks. If cracks are found, replace bulkhead as follows:

Remove damaged bulkhead by drilling out the attaching rivets. Using damaged bulkhead as a pattern, fabricate a new bulkhead from 0.081-inch 24S0 aluminum alloy sheet, condition A, annealed (Specification No. QQ-A-362 or AN-A-13). After forming new bulkhead, heat-treat in accordance with AN 01-1A-1, Section V, then apply one coat of zinc chromate primer.

Hold new bulkhead in place on the airplane and check for proper alignment between the upper and lower surfaces of the wing and wing tip. (Drill holes to match existing holes in the angle, skin, and fitting.) Install bulkhead using rivets, part No. AN426AD-(o), length and diameter as required).

Install reworked fitting assemblies on new bulkheads as follows:

(a) For fitting assemblies which incorporate two ¼-inch bolt holes and three rivet holes, enlarge the rivet holes to 0.191 inch diameter. Drill corresponding holes in bulkhead and countersink 100 degrees. Install fitting assembly using two screws, part No. 1029421-416-11 or NAS214-11, two washers, part No. AN960D416, two nuts, part No. AN365-428, three screws, part No. S-1029421-10-12, three washers, part No. AN960D10, and three nuts, Part No. AN365-1032.

(b) For fitting assemblies which incorporate four 0.191-inch diameter holes, drill corresponding holes in new bulkhead and countersink 100 degrees. Install fitting assembly using four screws, part No. S-1029421-10-12, four washers, part No. AN960D10, and four nuts, part No. AN365-1032.

Reinstall aileron and check alignment of fitting assembly. Install washers, part No. AN960D416 or AN960A416L, or shim stock, as required, to take up the end play between the bearing inner race and bracket assembly, aileron hinge support.

Army Technical Order 01-40AT-40 covers this same subject.

47-36-2 DOUGLAS (Was Mandatory Note 2 of AD-3L-1)

Compliance required prior to operation in cold weather and not later than next engine overhaul.

To preclude collapse of the oil screen during cold weather starting, replace oil screen assembly No. 51887 with oil screen assembly Nos. 51887M or 107547. Part No. 51887 may be reworked to part No. 51887M by incorporating reinforcing spring No. 107542 and adding the letter "M" to the part number.

47-40-1 NORTH AMERICAN (Was Mandatory Note 13 of AD-782-4) (Applies to serial numbers NAV-4-2 through NAV-4-1110) Superseded by 48-8-3.

47-40-2 CONTINENTAL ENGINES (Was Mandatory Note of Airworthiness Directive Supplement dated October 3, 1947) (Applies only to the following: Airplanes having Continental C75-12 or -12F engines with serial numbers below 1794-6-12 except 1788-6-12; airplanes having Continental C85-12, -12F or -12FHJ engines with serial numbers below 20668-6-12 except; 20656-6-12, 20658-6-12, 20659-6-12, 20661-6-12, and 20666-6-12; airplanes having Continental C125-1 or -2 engines with serial numbers below 1046-6-12 except: 1034-6-12, 1037-6-12 through 1042-6-12, and 1044-6-12)

Compliance required immediately if engine has attained or passed 600-hour major overhaul period, but in any event not later than December 31, 1947, or 600 hours of operation, whichever occurs first.

A certain percentage of piston pins installed in engines of the above numbers and distributed as replacement parts are subject to failure without warning. The weakness of these pins cannot be detected by normal inspection methods. Piston pin breakage can result in complete engine failure. It is the owner's responsibility to avoid this risk by making the following change at the earliest possible time.

Replace Piston Pin Assembly No. 22248-A1 (0.6875 inside diameter) with thick wall Piston Pin Assembly No. 25121-A1 or 25262-A1 (0.5945 inside diameter). Supplies of the heavy wall pins are adequate so that immediate replacement can be effected. (Continental Service Bulletin No. M47-9 covers this same subject.)

47-41-1 NORTH AMERICAN (Was Mandatory Note 7 of AD-2-575-4) Superseded by 50-38-1.

47-41-2 BELL (Was Mandatory Note 14 of AD-1H-2)

Compliance required not later than next after receipt of parts from Bell Aircraft Corporation, 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, 2 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)

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

To prevent failure of the fuel line connecting the fuel shut-off 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 Part No. 47-686-001-37 with Part No. AN856A6A or AN6270-6-14. (Bell Service Bulletin 47C46 dated June 19, 1947 covers the above installation.)

47-41-4 BELL (Was Mandatory Note 16 of AD-1H-2)

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 No. 78)

Compliance required at next 100-hour inspection.

In order that the bearings will be securely locked in the gimbal ring, the fibre bearing seals should be replaced with steel bearing seals, Part No. 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 No. 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 No. 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 Part No. 47-725-034-5 to the lateral bungee jumper, with 2-AN470-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 No. 78)

Compliance required at next 100-hour inspection.

The stabilizer bar mixing levers shoud be reworked by cutting away the lower inboard edge of a 2-inch radius from a center position $1\frac{1}{2}$ inches from the vertical centerline of the center hole. The cut should not be more than $\frac{1}{8}$ inch at its deepest point and the sharp corners, resulting from the removal of this segment, should be rounded by a $\frac{1}{2}$-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.)

47-41-9 BELL (Was Service Note 2 of AD-1H-2)

Superseded by 47-51-11.

47-42-1 DOUGLAS (Was Mandatory Note 20 of AD-762-7)

To be accomplished not later than April 1, 1948.

To prevent the possibility of the gust lock control becoming engaged in flight or during taxiing, a latch assembly must be installed to safety the control handle in the gust lock "Off" position. Early aircraft incorporated a short gust lock control handle. In later aircraft, the control handle design was changed and the length of the handle increased to provide more leverage. On aircraft incorporating the short gust lock control handle, latch assembly, P/N 3356892, must be installed. In aircraft incorporating the new and longer handle, latch assembly, P/N 4356957, must be installed and the gust lock handle link assembly, P/N 4248396, must be reworked by removing and replacing the spring, P/N 2356732 (or 1248420), and plunger, P/N 1248421, with new bolt, P/N 1356885.

In addition to the above, the elevator and rudder gust lock in the tail section and the aileron gust lock in the fuselage center section must be reworked by removing shaft, P/N 1165889, and replacing with new piston, P/N 2356840. After completing the rework, care must be exercised in properly rigging the gust lock control system.

(NOTE: Some operators have obtained approval of a gust lock latch of their own design. In such cases, the Douglas designed latch need not be installed, however, the remainder of the rework described above must be accomplished.) (Douglas Service Bulletin DC-4 #79 covers this same subject.)

47-42-2 DOUGLAS (Was Mandatory Note 21 of AD-762-7)

To be accomplished as soon as possible but in any case not later than the first engine change after November 15, 1947.

It has been found that on some airplanes certain rework has been accomplished on the fire seal between the accessories section and the nacelle at the upper cowling former at the point where the carburetor airscoop skin rests on top of the firewall. This rework creates a hazardous condition by providing an opening from the accessories section into the nacelle, through the access hole under the non-ram air intake fairing.

Inspect all airplanes to ascertain that a fire seal is provided in this area. If the cowling fire seal has been cut away it must be replaced either with the original type seal or with a new type seal. (Douglas Service Bulletin DC-4 No. 19 covers a new type fire seal.)

47-42-3 DOUGLAS (Was Mandatory Note 22 of AD-762-7)

All the provisions of items A through O of this Note apply to airplanes used for carrying passengers under the provisions of Parts 41, 42 and 61 of the Civil Air Regulations. On these airplanes the changes are to be accomplished not later than November 1, 1948.

Only items A (12), A (15), C, D, F, J, K (1), K (2), L, M, O (2), O (4), O (5), and O (7) apply to airplanes other than those indicated above. On these airplanes the changes are to be accomplished not later than the first engine change after November 1, 1948.

As a result of investigation of power plant fires which have occurred in this type aircraft, the following changes are to be accomplished:

A. 1. Seal all cracks and baffles in oil cooler fairing and provide additional drain holes.

2. Rework cowl tail pipe shroud to eliminate all cracks and gaps and seal shroud to cowl panel joint.

3. Seal inner ring corners at oil cooler joints.

4. Reinforce exhaust shroud to prevent damage when used as a step and seal same.

5. Provide accessory compartment vent opening in oil cooler fairing panel.

6. Seal joints between all engine accessory sections cowling panels to prevent leakage of flame into accessory section.

7. Eliminate engine accessory compartment vent opening in the side accessory section cowl panel.

8. Seal pressure transmitter and fire warning switch holes on firewall.

9. Close gap between aft oil cooler fairing and nacelle skin aft of fire wall.

10. Rework the hydraulic suction line connecting to the shut-off valve aft of the firewall to prevent failure at fittings due to rigidity of the line.

11. Relocate the hydraulic pressure and automatic pilot lines to move them farther away from the exhaust shroud.

12. Add a check valve in the automatic pilot delivery line behond the firewall.

15. Change the nacelle firewall miscellaneous line connector assembly on the right side of the firewall from dural to steel.

16. Change carburetor air scoop adapter sleeve to provide a tight and flexible connection.

17. Replace exhaust stack nuts with special long-type nuts, extending past stud ends, on exhaust pipe attachments to engine and safety wire the nuts in place.

18. Change nuts and bolts used on the four bolt flanges at the top of the exhaust collector ring to stainless steel.

19. Seal main landing gear door hinges on inboard nacelles.

20. Install means to prevent exhaust nipples from telescoping and pulling out of cylinder exhaust ports, in the event of exhaust port stud failure.

(Douglas clamp assembly Part No. 4244017 may be used.)

(Douglas Service Bulletin C-54-250 covers the above items respectively. Items 13 and 14 of that Bulletin are not required by this note.)

B. Rework forward edge of exhaust shroud to eliminate gaps leading into engine accessory section. (Part I, Douglas Service Bulletin C-54-234, covers this same subject.)

C. Add two fire detectors on forward face of firewall in vicinity of shut-off valve location. (Douglas Service Bulletin No. C-54-252 covers this same subject.)

D. Relocate engine primer Solenoid to prevent fuel from running into electrical junction box on rear face of firewall. (Item 12, Douglas Service Bulletin DC-4 #66, covers this same subject.)

E. Install extended tail pipes on exhaust collectors. (Douglas Service Bulletin C-54-289 covers this same subject.)

NOTE: Some of the above-mentioned changes were accomplished at the time Army or Navy airplanes were converted for civil certification. However, it will be necessary to check for compliance, in order to insure that items A to E, inclusive, are complied with.

F. Improve the seal at the point where the top of the oil radiator duct fits against the cutout in the bottom of the accessories section diaphragm. (Part 1 of Douglas Service Bulletin DC-4 #49 covers this same subject.)

G. Revise sealing of engine section drain line support adjacent to oil cooler shroud by installing a drain manifold. (Part B of Douglas Service Bulletin DC-4 #66 covers this same subject.)

H. Replace dural oil inlet elbow on oil cooler with new type steel elbow. (Part F, 9 of Douglas Service Bulletin DC-4 #66 covers this same subject.)

I. Improve sealing of engine accessories section diaphragm at the four cutouts for the exhaust collector ring supports. (Part 2 of Douglas Service Bulletin DC-4 #49 covers this same subject.)

J. Replace micarta fairleads with fairleads of fire resistant material for propeller governor and carburetor air preheat control cables on inner ring and for all engine control cables on firewall. (Douglas Service Bulletin DC-4 #55 covers this same subject.)

K. 1. Install seven fire warning detectors in Zone 1 (engine power section), on the cowl flap ring brackets and install separate set of warning lights in the cockpit for each engine.

2. Add an additional fire warning detector in Zone 2 (engine accessories section), on top of the oil cooler housing at approximately the center of the section. (Douglas Service Bulletin DC-4 #57 covers the above two items.)

L. Replace open relays in junction box behind firewall with sealed relays and provide a drain for the junction box. (Douglas Service Bulletin DC-4 #61 covers this same subject.)

M. Attach nacelle junction box cover plate on forward face of firewall directly to firewall rather than to the junction box. (Douglas Service Bulletin DC-4 #65 covers this same subject.)

N. Inspect and seal all holes in the inner ring around the carburetor air preheat control and install fire resistant fairlead in retainer. (Douglas Service Bulletin DC-4 #55 covers this same subject in part.)

O. 1. Inspect and rework, or seal if necessary, inner ring cut-outs for cowl flap actuating bell cranks to provide metal-to-metal contact between inner ring and cowl flap bell crank bracket on aft side of inner ring. Dimple inner ring to accomplish metal-to-metal contact, or fill gap with washers made from Johns Manville #96 wire woven asbestos sheet impregnated with neoprene.

2. Inspect and rework diaphragm, inner ring and firewall for excess holes, gaps and rubber grommets. Close and seal all holes and gaps, and install fireproof grommets or equivalent.

3. Inspect and seal, with Johns Manville #96 or equivalent, gaps that may exist where the carburetor airscoop casting passes through the accessory section inner ring.

4. Inspect and seal with Johns Manville #96 split seal or equivalent the hole where the engine oil line (from the intermediate rear section to the main oil sump) passes through the plate in the accessory section diaphragm at the bottom of the engine.

5. Inspect and seal with Johns Manville #96 or equivalent any gaps that may exist where the plate mentioned in item 4, above, mates with the outer section of the accessory section diaphragm.

6. Inspect and seal gaps existing between the diaphragm and the three engine crank case bosses. The magneto vent lines pass through the gaps around two of these bosses; the manifold pressure take-off line at right top of engine being the third.

7. Provide a fluid shut-off means at a point behind the firewall in the line leading from the oil tank to the feathering pump on airplanes having the feathering pump located on the engine side of the firewall. This may be accomplished by a shut-off valve tied in to the present shut-off valve linkage aft of the firewall, or a flapper type check valve.

NOTE: Items 0-1 through 0-7 are to be developed and accomplished by the operators affected, since Douglas has not prepared Service Bulletins to cover these changes.

47-42-4 DOUGLAS (Was Mandatory Note 1 of AD-781-1)
Superseded by 48-6-1.

47-42-5 DOUGLAS (Was Mandatory Note 2 of AD-781-1) (Applies to the following DC-6 airplanes: AAL serial numbers 42854 to 42865, inclusive; serial numbers 42879 and 42880; UAL serial numbers 42866 to 42875, inclusive; and Panagra serial numbers 42876 to 42878, inclusive)
To be accomplished not later than August 1, 1948.

In order to prevent window curtain interference when opening emergency exit doors, remove hook assemblies, 2346313, -500, from curtain track, 5337482, and from the window curtain assemblies, 3343932-512, and replace with new slides, 1335554 and hooks 1345849 on each side of the four forward and the two aft cabin emergency exit door window frames. (Douglas Service Bulletin DC-6 number 15 covers this same subject.)

47-42-6 DOUGLAS (Was Mandatory Note 3 of AD-781-1) (Applies to the following DC-6 airplanes: AAL serial numbers 42854 to 42865, inclusive; serial numbers 42879, 42880 and 42882 to 42891, inclusive; UAL serial numbers 42866 to 42875, inclusive; and 43000 to 43009, inclusive; Panagra numbers 42876 to 42878, inclusive; NAL serial numbers 43055 and 43056; and AAF number 42881).
To be accomplished not later than August 1, 1948.

In the main cabin, Station 890, stencil "Fire Extinguisher" on forward side of bulkhead 12 inches from the floor at the right hand edge of the lounge door. (Douglas Service Bulletin DC-6 number 18 covers this same subject.)

47-42-7 DOUGLAS (Was Mandatory Note 4 of AD-781-1) (Applies to the following DC-6 airplanes: AAL serial numbers 42855 to 42858, inclusive; and UAL serial numbers 42866 to 42869, inclusive)
To be accomplished not later than next engine change.

In order to prevent possible injury to flight crew members, it is necessary to install a spring in the handle operating mechanism of both windshield corner window assemblies. The purpose of the spring is to return the operating mechanism handle to a flush position when released in the open window position. To accomplish this, remove the AN393-35 pin and the NAS 75-3-007 bushings from the attaching point of 2335660 wedge and the upper end of 4335656 channel on 5243829 windshield corner window assembly. Install 5243829F-4 clips on the inside of each leg of channel. Rework 2335658F-6 link. Install 5243829F-2 spring to clips and eye bolt. Install wedge to upper end of channel. Repeat the foregoing operations for removal and installations of identical parts to 5243829-1 windshield corner window assembly. (Douglas Service Bulletin DC-6 number 19 covers this same subject.)

47-42-8 DOUGLAS (Was Mandatory Note 5 of AD-781-1) (Applies to DC-6 airplane serial numbers 42854, 42855, 42857, 42858, 42860 to 42865, inclusive; 42867, 42869 to 42880, inclusive; 42882 to 42891, inclusive; 43000, 43001, 43003 to 43009, inclusive; 43055 and 43056)
To be accomplished not later than next No. 3 inspection (or not later than next 150 hours for non-air carrier operations).

Certain cases have been found wherein the 5240452 horizontal stabilizers do not have the rivet pattern specified on drawings numbers 5248752 and 5249045. The following specific cases should be inspected and rivets should be added if the numbers are less than the following:

Referring to Drawing 5248752 "Horizontal Stabilizer Rear Spar Assembly," zone 4, directly outboard of station 63:

1. There should be at least 12 AD5 rivets top and bottom through the web and cap between the -14 and -12 stiffeners, not counting those through the stiffeners.

2. There should be at least 4 AD5 rivets through the -68 doubler, spar web and spar cap.

3. There should be at least 6 AD5 rivets top and bottom between the -12 stiffener and the -68 doubler through web and cap.

With reference to drawing number 5249045 "Horizontal Stabilizer Panel and Spar Structure Assembly," zone 3, section L-L, directly inboard of station 69.5 both top and bottom, the existing rivet pattern of either 1/8 or 5/32 rivets should be continued inboard with AD5 rivets using the present pattern of 3/4 inch O. C. to within 3 1/16 inches from the end of the spar cap. Existing 1/8-inch rivets are satisfactory.

It should be noted that the foregoing inspections and riveting can be accomplished without removing the elevators. (Douglas Service Letter A-214-529.010/RLT and attached sketches, dated July 14, 1947, covers the same subject.)

47-42-9 DOUGLAS (Was Mandatory Note 6 of AD-781-1) (Applies to serial numbers 42854, 42855, 42858 through 42865, 42869 through 42880, 42882 through 42891, 43000 through 43009, 43055 and 43056)
To be accomplished not later than next No. 3 inspection (or not later than next 150 hours for non-carrier operations).

Certain cases have been found where the aileron hinge plates at wing stations 421, 485, 585, and 675 were fabricated from overgauge stock resulting in an interference fit between the plate and the clevis fitting. The following hinge plates and fittings should be

inspected to determine whether or not they conform with the tolerances listed below. If plates are found which exceed the widths noted below, they should be reworked with emery cloth to specified limits and touched up with zinc chromate primer. Fittings which have been installed over an over-size plate should be anodized and carefully inspected before being reinstalled.

Station	Hinge No.	Plate	Thickness	Fitting	Slot width
421	1	3320118	0.249 .237	4334619	0.249 .254
485	2	3323460	*.238 .243	4345756	.334 .350
585	3	3323461	.311 .297	4345755	.311 .316
675	4	3323462	.249 .237	4345754	.249 .254

*Thickness of .093 angle not included.

Total thickness should not exceed .334. (Douglas Service Letter A-214-529.004/RLT dated July 21, 1947, and attached sketches cover this same subject.)

47-42-10 DOUGLAS (Was Mandatory Note 7 of AD-781-1) (Applies to the following airplanes: serials 42854 through 42887, inclusive, and serials 43000, 43001 and 43055)

To be accomplished not later than January 1, 1948.

Some operators have experienced malfunctioning of the DC-6 landing gear anti-retract mechanism, thereby preventing retraction of the landing gear. Pending redesign of the anti-retract mechanism of the landing gear control valve assembly, P/N 3319922, the anti-retract mechanism may be permanently disconnected if desired, however if connected, it must be revised in accordance with this note.

In order to correct this unsatisfactory condition, which is due to slippage and lost motion in the anti-retract cable system, it is necessary to accomplish the following:

1. Remove clamp P/N 1338701 from Arens downlock control cable assembly, P/N 4334802. Install 21-inch dural tube, P/N 1356157, around lower end of the Arens control cable (the upper end of the tube should be flanged). Install AN-735-7 clamp at lower end of tube. (Prior to installing dural tube push 4-inch (7/16 I. D. x 9/16-inch O. D.) synthetic rubber tube over lower end until it clears sufficiently to allow installation of clamp below it.)

On upper end of dural tube, P/N 1356157, install trunnion, P/N 1356154, which incorporates a bushing, P/N B-162-0688, and clips, P/N 1356156. Attach this assembly to the wheel well cover plate stiffener approximately 21 3/8 inches below upper end of cover plate.

Remove down-lock control cable clamp, P/N 1340559, located 4 1/16 inches from Station 114.5 and install new clamp, P/N 1356158, on angle, P/N 5249561-366, 1 1/16 inches from Station 114.5.

(Douglas Drawing 5334338, Change "H" covers this modification.)

2. To correctly adjust the landing gear downlock mechanism in order to maintain the required load of 100 pounds on the cable number 108 with the oleo fully extended, the oleo should be fully retracted into the shock strut cylinder and then permitted to fully extend, at least 8 to 10 times, checking and maintaining the 100-pound load after each operation.

(Douglas Drawing 7354206, page 28, covers this same subject.)

47-42-11 DOUGLAS (Was Mandatory Note 8 of AD-781-1) (Applies to the following aircraft: serial numbers 42854 to 42894, inclusive; 43000 to 43012, inclusive; 43055, 43056, and 43062)

Rework to be accomplished not later than December 15, 1947. (See Note 47-42-19.)

Cracks have been found near the ends of the tail stub extension of the horizontal stabilizer front spar caps, top and bottom, just inboard of the stabilizer joint. In order to prevent cracks from traveling to a point which may impair the airworthiness of the aircraft, the rework described below shall be accomplished. Until such time as the rework is accomplished, inspect the area in question at every number 2 inspection period according to instructions contained in Douglas Telegram A-214-529, 012/RLT, dated July 25, 1947.

A. Cut a 7/8-inch diameter hole through skin and doubler only, 1 5/16 inches inboard and 2 1/32 inch aft of inboard fitting attaching bolt. Use special tools furnished by Douglas Aircraft Company, being careful not to scratch the spar cap. Strip primer off 7/8-inch diameter area on spar cap and inspect for cracks with high power lens (40-power). If cracks are found, make a record of the location and extent of crack.

B. Drill 0.250-inch diameter stop hole through spar cap, 1 5/16 inches inboard and 2 1/32 inch aft of inboard fitting attaching bolt and burr, regardless of whether cracks are found. If cracks are found that will extend inboard beyond the location of the stop hole, do not operate airplane until further salvage rework instructions have been obtained. Cover holes in skin and doubler with sheet metal plug and fabric patch cemented in place. (Douglas E. O. number 5339013 (Salvage E. O. serial number 375) describes the rework of installing the stop hole.)

47-42-12 DOUGLAS (Was Mandatory Note 9 of AD-781-1) (Applies to DC-6 serial numbers 42866, and 42868 to 42875, inclusive)

To be accomplished not later than February 1, 1948.

In order to provide adequate fastening of the rubber cushions on the reinforcing strap assembly of the astrodome, the following must be accomplished:

1. Remove the existing rubber strip cushions, P/N 5249604-36, all traces of cement and adhering rubber from reinforcing strap assembly, P/N 5249604-38.

2. Butt cushion assembly P/N 2356419 against pad P/N 5249604-42, locate and drill four No. 40 (0.098) holes through strap P/N 5249604-38 and attach with AN-426-AD-3-5 rivets.

3. Reinstall reinforcing strap assembly P/N 5249604-38, using eight AN-960-D-10L washers and eight AN-365-1032 nuts.

(Douglas Service Bulletin DC-6 number 45 covers this same subject.)

47-42-13 DOUGLAS (Was Mandatory Note 10 of AD-781-1) (Applies to serial numbers 42854 to 42896, inclusive; 43000 to 43018, inclusive; 43035 to 43042, inclusive; 43055 to 43057, inclusive; 43062 to 43064, inclusive; and 43105)

To be accomplished not later than April 1, 1948.

To prevent the possibility of the gust lock control becoming engaged during flight or in taxiing, a latch control assembly, P/N 4356957, is to be installed to safety the control handle in the gust lock "Off" position. The gust lock link assembly, P/N 4248396, must also be reworked by removing and replacing spring, P/N 2356732 (or 1248420) and plunger, P/N 1248421, with new bolt P/N 1356885.

In addition to the above, the elevator and rudder gust lock in the tail section and the aileron gust lock in the fuselage center section must be reworked by removing shaft, P/N 1165869, and replacing with new piston, P/N 2356840. After completing the rework, care must be exercised in properly rigging the gust lock control system. (Douglas Service Bulletin DC-6 number 75 covers this same subject.)

47-42-14 DOUGLAS (Was Mandatory Note 11 of AD-781-1) (Applies to serial numbers 42854 to 42880, inclusive; 42882 to 42884, inclusive; 43000 and 43001)

To be accomplished not later than first blower overhaul after January 1, 1948.

To prevent bearing failures in the Voltage Regulator Blowers, replace the bearings formerly packed with lubricant Z815 with new bearings containing lubricant Z801. (Douglas Service Bulletin DC-6 number 43 describes the complete rework.)

47-42-15 DOUGLAS (Was Service Note 1 of AD-781-1)

Canceled June 28, 1948.

47-42-16 DOUGLAS (Was Service Note 2 of AD-781-1)

Remove combustion chamber of surface combustion model 63A66 thermal anti-icing heaters and model A63A68 cabin and thermal anti-icing heaters for inspection and pressure test at each 500-hour interval of heater operation. Also carefully inspect downstream end of the combustion chambers at each periodic inspection.

47-42-17 DOUGLAS (Was Service Note 3 of AD-781-1) (Applies to the following aircraft serial numbers: Douglas 43061; AAL 42854 to 42865, inclusive; 42879 to 42880, inclusive; 42882 to 42896, inclusive; and 43035 to 43044, inclusive; UAL 42866 to 42875, inclusive; and 43000 to 43024, inclusive; Panagra 42876 to 42878, inclusive; National 43055 to 43058, inclusive; Sabena 43062 to 43064, inclusive; Braniff 43105 to 43106, KLM 43111 to 43112, inclusive; and AAF 42881)

Inspection required at each 300 hours (or at each 150 hours for non-air carrier operations).

Inspect the center spar web between stations 167 and 184 for cracks in the web along the lower row of rivets which attach the spar web to the leg of the upper spar cap. For aircraft with the 10 tank fuel system this inspection can be properly made only by removing the fuel tank inspection opening near the affected area, since the spar web attaches to the forward side of the spar cap leg and small cracks in the web cannot be detected without close examination. If cracks are found during this inspection or, if between the inspections, leaks occur which are caused by cracks in the center spar web between stations 167 and 184, the spar web must be reinforced by installing a doubler in accordance with Douglas Drawing 5356664.

When the spar web reinforcement has been incorporated the special inspection required by this Note may be eliminated. All DC-6 aircraft not mentioned above will be reinforced at the factory. (Douglas Service Bulletin DC-6 Number 29, "Rework Center Spar Web, Station 167-184, Integral Wing Fuel Tank DC-6 Airplane," covers the same reinforcement as described on Drawing 5356664.)

47-42-18 DOUGLAS (Was Service Note 4 of AD-781-1)

Superseded by 48-42-1.

47-42-19 DOUGLAS (Was Service Note 5 of AD-781-1) (Applies to the following aircraft: serial numbers 42854 to 42894, inclusive; 43000 to 43012, inclusive; 43055, 43056, and 43062)

Inspection required at every engine change.

After the stop holes are drilled in the tail stub extension of the horizontal stabilizer front spar caps, as required by A. D. Note 47-42-11, inspect for signs of cracks, or progress of cracks, at each engine change period. If the aircraft has been modified to incorporate the Elevator Fifth Hinge Modification, the inspection period may be extended to every other engine change period, but not to exceed 3,000 hours of airplane operation. If cracks progress beyond the stop hole, operation of the airplane must be discontinued

until additional corrective measures have been determined.

47-42-20 Erco (Was Mandatory Note 17 of AD-718-7) (Applies only to serial numbers 1033 to 1327, inclusive)

Compliance required not later than next 100-hour inspection.

One of the above airplanes may contain a control column shaft, Part No. 415-52129, which is defective at its lower bearing fitting.

In order to ascertain whether the fitting is defective withdraw the shaft from the control column so the surface of lower control shaft fitting, Part No. 415-52126, which bears on the lower bakelite bushing, can be examined. If a steel sleeve is found brazed to this lower shaft fitting's bearing surface, the shaft should be replaced and the defective shaft returned to the manufacturer. (Ercoupe Service Policy Letter No. B-10, covering the subject will be issued to each Ercoupe distributor.)

47-42-21 Erco (Was Service Note 2 of AD-718-7) (Applies only to serial numbers 113 to 4729, inclusive)

Superseded by 54-26-2.

47-43-1 Cessna (Was Mandatory Note 12 of AD-768-5) (Applies to serial numbers up to and including 11842)

Compliance required prior to January 1, 1948.

Reroute the lower end of the primer line located on the left side of the firewall and rotate the strainer fitting so that it points downward and to the left at an angle of 60 degrees to the horizontal. Slip approximately 6 inches of vinylite tubing over the upper and lower ends of this primer line and install a shield around this line between the two pieces of vinylite tubing. This will preclude the possibility of fuel coming in contact with the left exhaust manifold in the event of a failure in this primer line. (Cessna Service Letter No. 34, dated March 24, 1947, covers this same subject.)

47-43-2 Cessna (Was Mandatory Note 13 of AD-768-5) (Applies to serial numbers 8001 to 8480, inclusive)

Compliance required prior to January 1, 1948.

To eliminate the possibility of confusion in the operation of the fuel selector valve, remove the embossed pointer from the selector valve handle and ascertain that the selector valve handle is installed so that the handle indicates correctly the position of the selector valve as shown by the valve placard.

47-43-3 Cessna (Was Mandatory Note 14 of AD-768-5) (Applies only to seaplanes operated without spreader struts between floats)

Compliance required prior to January 1, 1948.

Due to the independent suspension of the floats, racking loads imposed by rough water operation can cause extensive structural damage. As a result, the following inspections and modifications are necessary:

1. Replace all loose and sheared rivets at the joints between the instrument panel and door posts and between the instrument panel and the fuselage skin with AD-5 rivets. In case of damage to the instrument panel at the sheared rivets, an 0.040-inch 24ST alclad channel, 1 inch wide with $\frac{5}{8}$-inch flanges, extending the full length of the rivet pattern should be installed with one flange against and riveted to the skin and with the web picking up the rivets through the door post and panel.

2. Inspect the formed brace channel fittings which attach the front and rear door posts to the rear edge of the fuselage carry through spars for cracks in the flanges. If cracks are found the fitting should be replaced or repaired by stop drilling the crack and installing a flat 0.051-inch 24ST alclad strip, cut to the width and contour of the flange, with 2 or 3 AD-4 rivets above and below the crack.

3. Inspect the front carry through spar for cracks, particularly below the inboard bolt hole in the attachment of the door post to the spar. If cracks are found the channel should be replaced.

4. Inspect fuselage fitting, Cessna part No. 0440109, to which rear outboard float brace attaches, for cracks in flange at bolt head and along weld bead. Replace with new fitting if cracked.

5. Inspect fitting at fuselage, Edo part No. 88-S-145, to which front outboard float brace attaches, for cracks in weld at bend in top plate and at inboard end of insert where weld is ground off. If cracked, replace with revised fitting having three welded inserts at bend.

6. Replace inboard float brace struts to which outboard struts attach directly, with struts modified to incorporate a universal joint at the attachment of the outboard struts.

7. Add spreader struts, Edo part No. 88-5-175, and diagonal wires, Edo part No. 92-S-200-4, between the floats.

8. Rivet 0.051-inch 24 ST alclad doubler, Cessna part No. 0440113, to the fuselage skin below each door just aft of the main landing gear bulkhead. If the fuselage skin is buckled in this area sufficient $\frac{1}{4}$-inch rivets should be added to the standard pattern to remove the buckles.

Cessna Service Letters No. 45 dated July 30, 1947, and No. 47 dated August 15, 1947; Edo Drawing 88-03-00A, Change 1, dated May 15, 1947; and Edo Service Bulletin No. 3 dated August 30, 1947, cover this same subject.)

47-43-4 Cessna (Was Service Note 2 of AD-768-5) (Applies to serial numbers 8001 to 12349, inclusive)

Inspection required upon each 100 hours of operation until horns are reinforced.

Remove the forward part of the tunnel fairing on the cockpit floor and inspect the control cable horns on the rudder bar for signs of bending which probably is caused by excessive foot pressure during application or release of the parking brakes and results in a reduction of the rudder travel. Bent parts which can be straightened without cracking should be reinforced by the installation of Cessna part No. 0411303 or its equivalent. Cracked parts should be replaced with Cessna part No. 0310168 made of 0.080-inch steel. (Cessna Service Letter No. 43 dated July 7, 1947, covers this same subject.)

47-43-5 Cessna (Was Service Note 3 of AD-768-5) (Applies to serial numbers 8001 to 13780, inclusive)

Inspection required upon each 100 hours of operation until reinforcing channels are installed at all hinge fittings.

Inspect for fatigue cracks in the elevator spar web at the hinges. These cracks start either at the rivets or at an edge of the fitting and progress around the fitting until the elevator breaks loose from the hinge fitting. If cracks less than one-half inch in length are found a reinforcing channel, Cessna part No. 0434151 at the outboard hinge or 0434152 at the inboard hinge, should be installed on the aft side of the spar with the flanges riveted between the spar flanges and the skin with two AN455AD3 rivets per flange. Four AN442AD4 rivets should be used to attach each fitting to the spar web and reinforcing channel. If any cracks are longer than one-half inch the spar should be replaced and the reinforcing channels added. (Cessna Service Letter No. 46 dated July 31, 1947, covers this same subject.)

47-43-6 Cessna (Was Service Note 4 of AD-768-5) (Applies to serial numbers 8001 to 10209, inclusive)

Inspection required whenever airplane is tied down in high winds without controls locked and upon each 100 hours of operation until Cessna parts 0422200-2 and 0422200-3 are installed.

Inspect the aileron support ribs for indications of buckling or cracking, particularly in the narrow part of the web at the aft edge of the lightening hole and in the top flange just forward of the doubler plate. Any damaged support rib should be replaced with Cessna parts 0422200-2 (left) and 0422200-3 (right) which are made of 0.051-inch material and have a shorter lightening hole. (Cessna Service Letter No. 46 dated July 31, 1947, covers this same subject.)

47-43-7 Cessna (Was Service Note 5 of AD-768-5) (Applies to serial numbers 8001 to 10650, inclusive)

Superseded by 51-21-1.

47-43-8 Cessna (Was Service Note 6 of AD-768-5) (Applies to all aircraft equipped with Beech R003 propeller having R003-201 blades and Continental C-85 series engine)

Compliance required prior to January 1, 1948, and thereafter upon completion of each 25 hours of operation.

Remove the R003-201 propeller blades and visually inspect the propeller blade retainer ferrule for cracks at the fillet joining the cylindrical outer surface of the ferrule with the retaining face of the flange. Particular caution should be exercised not to injure or contaminate the thrust bearing which must be pressed away from the flange for the inspection. The propeller manufacturer's assembly and service instructions are to be followed during disassembly and reassembly of the propeller. If any indication of a crack is found, both blades should be replaced with the R003-225 blades. The 25-hour inspection may be discontinued if R003-225 blades are installed. The R003-225 blades are sufficiently similar to the R003-201 blades to be considered aerodynamically interchangeable in the same diameter without a flight test. (Beech Aircraft Co. propeller Service Letter No. 1 covers this same subject.)

47-43-9 Boeing (Was Service Note 3 of AD-743-4) (Applies to all aircraft equipped with Army-McCauley propeller having 41D5926 hub and SS135-6 blades)

Superseded by 54-12-2.

47-43-10 Lockheed (Was Mandatory Note 21 of AD-723-3) (Applies to all serial numbers)

Compliance required prior to February 1, 1948.

Inspect all Alfite Model 2CD1722 operating heads for the CO_2 bottles (fire extinguishing system) and nitrogen bottles (emergency landing gear extension system) to determine whether these heads have been stamped with the letter "L" adjacent to the swivelnut. If the head is not marked in this manner, disassemble the head and examine the cable sheave for part number. All 2CD2248 sheaves should be reworked by rounding the inner shoulder of the ramp at its lower end throughout a distance of $1\frac{1}{4}$ inches, to eliminate possible jamming of the mechanism. When reworked sheaves are installed, the operating heads should be identified by the letter "R" stamped adjacent to the swivelnut. (Lockheed Service Bulletin 18/SB-140 covers this same subject.)

47-43-11 Lockheed (Was Mandatory Note 22 of AD-723-3) (Applies to all serial numbers)

Compliance required prior to next periodic inspection.

Remove bolts connecting the elevator push-pull rod to the elevator horn and bellcrank and ascertain that the shank diameter falls within the limits of 0.248 to 0.250. Bolts outside these limits should be replaced with NAS 54-12 bolts. In view of the similarity of the Lockheed bolts with the standard AN

bolt, it is suggested that they be replaced with close tolerance bolts, NAS 54–12 and the push-pull rod, part No. 72149 placarded "Use NAS 54–12 bolt."

47–47–1 PIPER (Was Mandatory Note 5 of AD–780–3) (Applies to serial numbers 12–221, 12–236, 12–239, 12–244, 12–250 and up to 12–3561 and 12–3901 to 12–3988)

Compliance required prior to January 15, 1948.

Reinforce the upper end of the tie strap on the landing gear with a 4130 steel plate (Piper #10028–13). Install over end of strap by edge welding. As a further reinforcement, install a trapezoidal gusset plate (Piper #10028–14) on each side of this upper strap attachment by forming and edge welding on assembly. (Piper Service Bulletin Number 97 dated July 10, 1947 covers this same subject.)

47–47–2 PIPER (Was Mandatory Note 6 of AD–780–3) (Applies to serial numbers 12–1 to 12–796 inclusive, 12–815, 12–817 to 12–822 inclusive, 12–825 to 12–831 inclusive, 12–833, 12–835 to 12–848 inclusive, 12–863 to 12–893 inclusive, 12–895 to 12–901 inclusive)

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

To eliminate the possibility of a short circuit occurring between the battery terminal bases and the battery box, a wood filler block ¼ inch x 1½ inches x 10 inches (Piper part No. 11367) should be fastened to the upper inside edge of the battery box with 2 #6–32 x ½ flat head machine screws. Any insulating spacer which will accomplish this same objective may also be used. On completion of this change appropriate entry shall be made in the aircraft log book.

If the Reading R24L Battery has been replaced with an S24 Battery and proper spacer channels (Piper parts no. 10926 and 10927) are installed, the above change is unnecessary. (Piper Service Bulletin No. 98 dated July 28, 1947 covers this same subject.)

47–47–3 PIPER (Was Mandatory Note 7 of AD–780–3) (Applies to all PA–12S seaplanes equipped with Edo 89–2000 Floats)

Compliance required by January 15, 1948.

Racking loads imposed by rough water operation can result in damage to the airplane fuselage structure. The following inspection and modification, therefore, is necessary:

1. Inspect fuselage members to which the float braces are attached, particularly in the left side truss. Any parts damaged or bent shall be properly repaired or replaced.

2. Install wire pulls (Edo Part No. 89–S–176) inboard at the lower end of the front and rear float struts and add the diagonal brace wires (Edo Part No. 92–S–200–9) between the floats. (Edo Service Bulletin No. 4 dated September 5, 1947 contains detailed instructions for this change.)

47–47–4 PIPER (Was Mandatory Note 8 of AD–780–3) (Applies to serial numbers 12–1 to 12–1989 inclusive, 12–1991 to 12–1993 inclusive, 12–1997, 12–1999, 12–2001 to 12–3443 inclusive, 12–3461 to 12–3465 inclusive, 12–3481, 12–3535 to 12–3542 inclusive, 12–3553, 12–3901, 12–3903 to 12–3934 inclusive, 12–3936, 12–3940, 12–3941, 12–3943 to 12–3954 inclusive, 12–3961, 12–3964 to 12–3970 inclusive, 12–3988)

Compliance required prior to February 1, 1948.

To prevent possible malfunctioning of the starter solenoid and damage to the starter cable installation, the following changes shall be accomplished as soon as practicable:

1. The starter solenoid, Part No. 1456 shall be replaced by the solenoid, Part No. 1453, or Part No. 1464.

2. To eliminate the possibility of pinching by the landing gear, the starter cable installation, running from the starter solenoid forward under the fuselage to the engine, shall be rerouted in accordance with Piper Drawing SK–206.

(Piper Service Bulletin No. 102 dated October 6, 1947, covers this same subject.)

47–47–5 MARTIN (Was Service Note 1 of AD–795–1)

The Stewart-Warner 921–B heaters in the cabin heating and wing thermal de-icing systems shall be inspected in accordance with the following: Any heaters indicating impending failure as a result of these inspections shall be replaced immediately:

1. Inspect combustion chamber and heat exchanger end plates on each end of the cabin heaters for signs of cracks at each 30 hours of airplane operation. For wing heaters this inspection should be conducted at each 60 hours of airplane operation.

2. Remove cabin heater for complete inspection and pressure test every 300 hours of airplane operation. In the case of wing heaters this inspecion should be conducted at not less than every 600 hours of airplane operation.

3. Item (2) is to be repeated every 100 hours of airplane operation after the first 300 hours inspection for cabin heaters and every 200 hours of operation after the first 600 hour inspection in the case of wing heaters.

NOTE: The above inspection periods may be varied within reasonable limits to suit the normal inspection periods of scheduled air carrier operators at the discretion of the assigned C. A. A. Maintenance Inspector. If heater operating time is logged separately from airplane operating time, the inspections specified in (2) and (3) above may be conducted on the basis of heater operating time except that, if this is done, both wing and cabin heaters should be inspected after the first 300 hours and each 100 hours thereafter.

47–47–6 MARTIN (Was Service Note 2 of AD–795–1) (Applies to all airplanes with HSP 23260 propellers with YB2H17F3–48R blades and Westinghouse D–30 generators)

Compliance required at first major (long period) inspection and thereafter as specified below.

Carefully inspect the engine accessory section rear cover for signs of fatigue cracks particularly near the generator mounting pad at the first long period inspection and at every short period inspection thereafter until engine overhaul. After engine overhaul, the same inspection sequence shall be observed.

47–47–7 BEECH (Was Mandatory Note 1 of AD–777–1) (Applies to 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. 85–3 covers this same subject.)

47–47–8 BEECH (Was Mandatory Note 2 of AD–777–1) (Applies to 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 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 Part No. 35–924058 or the equivalent. (Beech Service Bulletin No. 35–4 covers this same subject.)

47–47–9 CULVER (Was Mandatory Note 9 of AD–778–3) (Applies only to aircraft equipped with Sensenich Model C2FB1 propeller with C276A2 blades)

Superseded by 50–47–2.

47–47–10 REPUBLIC (Was Mandatory Note 13 of AD–769–2)

Compliance required prior to February 1, 1948.

To prevent possible float strut failures during rough water landings, install Wing Reinforcing Angles 17W21028, Float Strut Brace Assemblies 17W22013, Spacers 17W22011 and Lugs 17W22010. (Republic Service Bulletin No. 19 dated September 9, 1947 covers this same subject.)

47–47–11 REPUBLIC (Was Mandatory Note 14 of AD–769–2)

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

To prevent inadvertent reversal of propeller if propeller reverse control wire fails at control valve attachment, install a spring between the reverse control link and the bracket supporting the reverse control. (Seabee Service Bulletin No. 21 dated October 14, 1947 covers this subject.)

47–47–12 REPUBLIC (Was Mandatory Note 12 of AD–769–2) (Applies to RC–3 serial numbers 5 through 1035 inclusive except the following which have been modified at the factory: 767, 915, 948, 949, 957, 959 through 999 inclusive, 1004 through 1010 inclusive, 1014, 1019 through 1025 inclusive. Serial 1036 and up have been modified at the factory prior to delivery).

Compliance required not later than December 31, 1947.

To prevent excessive drop-off in engine RPM when carburetor heat is used, anti-swirl vanes, Republic Part No. 17P 68014–20 must be installed in the air duct below the carburetor. (Republic Seabee Service Bulletin No. 18 dated August 26, 1947 covers this same subject.)

47–47–13 REPUBLIC (Was Mandatory Note 11 of AD–769–2)

To be accomplished not later than next 100-hour inspection or January 15, 1948.

If the Hartzell propeller hub model on your airplane is HC–12X20–3, determine the counterweight length and position on the hub in order that the hub designation can be amended as necessary in accordance with the following:

a. Plain counterweights 4.650 inches in length—the designation HC–12X20–3 is unchanged.

b. Notched counterweight 4.50 inches in length—add suffix letter "C" to designation so that it reads HC–12X20–3C.

c. Plain counterweight 4.50 inches in length—a ⅛-inch slug must be added to these counterweights and suffix letter "A" added to the hub designation so that it reads HC–12X20–3A. Any of these hubs on which the slugs have not been added to the counterweights must be removed from service until the counterweight slugs are affixed.

Revise the reverse thrust operation placard as follows:

For airplanes with 6A8–215–B8F engines, serial numbers 23,001 to 23,280, inclusive and HC12X20–2 propeller:

Warning. Reversing propeller in flight prohibited. Operate reverse lever in low pitch only. Maximum 1,750 r. p. m. in reverse pitch.

For airplanes with 6A8-215-B8F engines, serial numbers 23,001 F to 23,280 F, inclusive, and 23,281 and up and all -B9F engines and (a) HC-12X20-3 or 3-A propellers:

Warning. Reversing propeller in flight prohibited. Operate reverse lever in low pitch only. Maximum 2,300 r. p. m. in reverse pitch.

or (b), HC-12X20-2 or -3C propellers:

Warning. Reversing propeller in flight prohibited. Operate reverse lever in low pitch only.

47-47-14 REPUBLIC (Was Service Note 4 of AD-769-2) (Applies to engine serial numbers 23001 to 24065 inclusive)

Compliance required at each 25-hour inspection.

Drain the oil from the engine and inspect the sump oil inlet screen assembly as follows:

Insert a finger through the drain hole in the sump; locate the oil screen and with direct side pressure attempt to move the oil screen horizontally. If appreciable horizontal movement is caused by hard pressure or if the oil screen is not directly over the drain hole, the oil inlet assembly may be cracked and requires replacement. The late type assembly includes a non-floating oil screen. Until this late type float and assembly is installed fill with no more than 11 quarts of oil and mark the filler cap accordingly.

When the late type parts have been incorporated, the above inspection is no longer required and 12 quarts of oil may be placed in the sump and the filler cap should be re-marked accordingly.

The above inspection should be made immediately when any unexplained oil pressure drop is apparent. (Franklin Service Bulletin No. 58 dated June 11, 1947 covers this same subject.)

47-49-1 LOCKHEED (Was Mandatory Note 34 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required prior to December 31, 1947.

Relocate the rudder trim tab cockpit control unit to comply with provisions of CAR 04.439-T regarding plane and sense of motion of control.

(LAC Service Instruction 49/SI-18 covers this same subject.)

47-49-2 LOCKHEED (Was Mandatory Note 35 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required prior to February 15, 1948.

Inspect nose landing gear emergency extension line in nose wheel well (LAC Part No. 272239-164) to ascertain whether adequate clearance exists with respect to the nose gear actuating cylinder. If adequate clearance does not exist, replace this line with a new part, LAC 285106-311 or equivalent (LAC Service Bulletin No. 49/SB-164 covers this same subject.)

47-49-3 LOCKHEED (Was Mandatory Note 36 of AD-763-3) (Applies to all serials up to and including 2080, except 2033, 2058 and 2071 through 2075)

Compliance required at next engine change period.

Inspect all attachments of rudders to torque tube flanges for evidence of stripped threads or elongated holes. (This does not require removal of rudders.) When such evidences are found, redrill holes to next larger size and/or install new nuts as required. (LAC Service Bulletin 49/SB-256 covers this same subject.)

47-49-4 LOCKHEED (Was Mandatory Note 37 of AD-763-3) (Applies to serials 2068—2088 inclusive)

Compliance required within next 50 hours of operation unless the 1 3/16 inches headless drive pin has been installed.

Inspect attachments of rudder pedal lever arms to the clip assembly in the 284587 rudder pedal slot cover guide assemblies to determine whether it is possible for the flat head pin to cause jamming of the system. If any possibility of jamming exists, the flat head pin should be replaced with a headless drive pin 1 3/16 inches long. (LAC Service Bulletin 49/SB-260 covers this same subject.)

47-49-5 LOCKHEED (Was Mandatory Note 38 of AD-763-3) (Applies to all serials up to and including 2088)

Compliance required prior to February 15, 1948.

Replace quick-disconnect fasteners used to attach aileron control cable housing on radio operator's floor (LAC Part No. 28717-8) with screws and AN366F8-32 nut plates. (LAC Service Bulletin 49/SB-300 covers this same subject.)

47-49-6 LOCKHEED (Was Mandatory Note 39 of AD-763-3) (Applies to serials 2076 to 2088, inclusive)

Compliance required not later than next No. 3 inspection (or not later than next 150 hours for non-air carrier operations).

The rear oil pressure gage operational placard on the flight engineer's panel, LAC Part No. 296770, must be removed or replaced with new placard, LAC Part No. 296995 or equivalent (LAC Service Bulletin 49/SB-245 covers this same subject).

47-49-7 LOCKHEED (Was Mandatory Note 40 of AD-763-3) (Applies to all serials up to and including 2088, unless equipped with MLG drag strut dampers)

Compliance required prior to February 1, 1948.

a. Replace the NAS58A65 bolt used to connect the two halves of each MLG upper drag link assembly, LAC Part Nos. 283418 and 288983, with a 5/8-inch diameter high strength bolt, LAC Part No. 297902. (LAC Service Bulletin 49/SB-368 covers installation of MLG shock strut dampers.)

b. Reduce MLG shock strut inflation pressures to provide a static extension of two inches at maximum landing weight.

47-49-8 LOCKHEED (Was Service Note 8 of AD-763-3) (Applies to all serials up to and including 2046)

At periods not to exceed 250 hours, inspect the aileron leading edge ribs at stations 571 and 577, the adjacent leading edge skin and the counterbalance supports for signs of cracks. When cracks are found, install heavier supports, new rib elements, new leading edge skin, and rib reinforcements, as required. When both ribs have been reinforced and heavier supports installed, this periodic inspection may be discontinued. (LAC Service Bulletin 49/SB-162 covers this same subject.)

47-49-9 LOCKHEED (Was Service Note 9 of AD-763-3) (Applies to all Model 49 serials up to and including 2088 and to Model 649 and 749 serials 2501 through 2513, inclusive)

At each engine change period, inspect the wing attaching pins at station 80 to determine whether any of these pins are working upward through the fittings. If any pin has worked up until only the lower chamfered portion protrudes, replace the station 80 cover strip with a new 0.064 24ST alclad strip. When this strip has been replaced the periodic inspection of that joint may be discontinued. (LAC Service Bulletin 49/SB-151 covers this same subject.)

47-49-10 LOCKHEED (Was Service Note 10 of AD-763-3) (Applies to all Model 49-46 airplanes which are equipped with astrodomes during pressurized cabin operations, unless permanently sealed off)

a. Prior to next flight, provide an internal cover plate for the astrodome opening fabricated of 3/16-inch 24 ST aluminum alloy or equivalent, with provisions for installing this plate in the astrodome opening in the event of loss of the astrodome (LAC Service Bulletin 49/SB-331 covers this same subject).

b. Prior to the next flight, provide a navigator's safety harness with suitable attachments to the floor structure beneath the astrodome. (LAC Service Bulletin 49/SB-264 covers this same subject.)

c. Prior to next flight, install a placard adjacent to the astrodome opening, reading as follows: "Wear safety harness whenever using astrodome. Check security of harness attachment to floor after each installation."

d. Prior to each flight, closely inspect each astrodome for cracks, crazing or other defects, with particular attention given to area around radius adjacent to the flange. When any defects are found, the dome should be replaced at least before the next departure from a terminal base. (LAC Service Information Letter No. 101 covers the necessary inspection procedure.)

e. If new type laminated astrodome assembly and ring, LAC Parts 298679 and 298735, respectively, are installed with necessary seals and attachments, the requirements of parts (a), (b), and (c), above, may be disregarded. The preflight inspection called for in (d) above, should be continued. (LAC Service Bulletin 49/SB-324, revised April 30, 1947, covers installation of the new type astrodome and mounting ring.)

47-49-11 LOCKHEED (Was Service Note 11 of AD-763-3) (Applies to serials as noted)

At periods not to exceed 50 hours of operation, inspect the following fuel system elements to determine that they are tight and will not permit leakage or other hazardous conditions:

a. Fuel dump valve shaft gland nuts (serials up to and including 2075).

b. Valves on drain lines from outboard portion of inboard fuel tanks, fuel system crossfeed lines, and cabin heater fuel lines (serials 2047 to 2088 inclusive, and 2501 to 2503 inclusive).

If safety wiring of these items is provided, the required inspections may be discontinued. (Lockheed Service Bulletin 49/SB-215 covers item a. above, and Lockheed Service Instruction 49/SI-10A covers item b. above.)

47-49-12 LOCKHEED (Was Service Note 12 of AD-763-3) (Applies to all serials which incorporate short type metal aft doors for the main landing gear)

At periods not to exceed 250 hours inspect the metal aft doors of the main landing gear for signs of cracks in the vicinity of the forward hinge attachments. When cracks are found, satisfactory reinforcements and doublers should be installed.

When doublers have been installed (doublers only are necessary if the doors are not already cracked) the periodic inspections may be discontinued. (LAC Service Bulletin 49/SB-274 covers this same subject.)

47-50-1 AERONCA.

Superseded by 49-2-3.

47-50-2 CESSNA Applies to Serial Nos. up to and including 14,289.

Inspection required upon each 100 hours of operation until fuselage rear bulkhead (tail post) has been reinforced.

Inspect the lower right-hand corner of the cut-out in the fuselage rear bulkhead for cracks which usually extend down to the rivet holes at the nearest anchor nut. If cracks are found, install the new type bulkhead with reinforcement channel added per Cessna Drawing No. 0412169. (Cessna Service Letter No. 46 dated July 31, 1947, covers this same subject.)

47-50-3 PIPER.

Inspection required after each 100 hours of operation.

Inspect the front and rear canvas seat installations and note the condition of canvas,

eyelets, and lacing. Any parts showing signs of wear, tearing, fraying or sub-standard material the failure of which could cause possible interference with the control system should be replaced. Check the tautness of the canvas to insure that position clearance with all parts of the elevator control system exists when the seats are occupied. (Piper Service Bulletin No. 45 covers this same subject.)

47-50-4 STINSON.

Compliance required as soon as possible but not later than March 1, 1948.

To prevent loss of elevator control, the elevator push pull tube assemblies, P/N 76-62204, should be inspected for security and proper staking of nut which secures rod end and D-4 bearing in housing P/N 76-62206. If there is no cotter pin securing this nut, it should be staked to the rod in at least three places.

47-50-5 AERONCA, PIPER, LUSCOMBE Applies to airplanes equipped with Edo Model 92-1400 floats.

Compliance required by February 15, 1947.

To prevent the possible failure of the wirepull attachment on Edo Model 92-1400 floats, install redesigned wirepull (Edo Part No. 92-S-239 on J3C-50S and J3C-65S, Edo Part No. 92-S-229 on PA-11S, Edo Parts No. 92-S-237 and -239 on 57AC, Edo Part No. 92-S-237 on S11AC, and Edo Parts No. 92-S-233 and -235 on Luscombe 8 series) under each of the front and rear strut attachment fittings. (Edo Service Bulletin No. 2 dated August 15, 1947, contains detailed instructions for making this change.

47-50-6 PIPER Applies to all J3 series airplanes incorporating landing gear approved for 1220 lbs. maximum weight and PA-11 airplane Serial Nos. 11-1 to 11-352 inclusive, 11-354 to 11-357 inclusive, 11-359, 11-361 to 11-369 inclusive, 11-371 to 11-375 inclusive, 11-377 to 11-385 inclusive, 11-387, 11-396 to 11-402 inclusive, 11-413, 11-414, and 11-430.

Compliance required at next periodic inspection but not later than March 15, 1948.

Inspect the shock struts for cracks at the ends of the stop bolt slots. Damaged struts shall be properly repaired or replaced. To eliminate possible cracking of the shock struts at the ends of the slots, the rubber stop discs, Piper Part No. 81232-13, four per airplane, shall be replaced with four leather discs, Piper Part No. 81232-30 or may be made from belting leather, $1\frac{1}{16}$ inch diameter x $\frac{3}{16}$ inch thick. (Piper Service Bulletin No. 103 dated September 29, 1947, covers this same subject.)

47-50-7 PIPER.

Superseded by 48-37-1.

47-50-8 SIKORSKY.

Compliance required at each 200-hour inspection COMIOD.

Disassembly and inspection of the vertical hinge pins and bearings is a mandatory procedure and should be accomplished at each 200-hour inspection period.

The helicopters which utilize Torrington No. 4479 bearings at the vertical hinge pins are subject to replacement of these bearings at each 200-hour inspection period.

The procedure followed is explained on page 4 of Sikorsky Service Bulletin No. 7 dated August 4, 1947.

Helicopters which utilize Smith 14TR-X1 bearings at the vertical hinge pins are subject to inspection at each 200-hour interval and replacement of the bearings is not required unless the installation shows sign of serious wear or damage.

Helicopters which utilize Torrington No. 4479 bearings at the vertical hinge pins can be reworked to incorporate Smith 14TR-X1 bearings at the vertical hinge pins if desired by the owner.

The procedure to follow for this exchange of bearings is as explained on page 2 of Sikorsky Service Bulletin No. 7 dated August 4, 1947.

47-50-9 FAIRCHILD.

Inspection required each 100 hours of operation.

Inspect the landing gear fittings near the lower longeron attachment and also the fuselage fittings for cracks. Cracks in the strut not exceeding $\frac{1}{8}$ inch in length may be repaired by electric arc welding. Cracks in excess of $\frac{1}{8}$ inch in length should be stop drilled and oxyacetylene welded, and the landing gear strut should be reheat treated to 180,000 pounds per square inch. (Fairchild Service Bulletin No. 41-8 dated June 23, 1941, covers this same subject.)

47-50-10 ERCO Applies to Serial Nos. 113 through 2468 for fuselage tank replacements; Serial Nos. 113 through 2622 for wing tank replacements.

Superseded by 55-22-2.

47-50-11 STINSON.

Compliance required prior to March 1, 1948.

The front ash trays shall be modified to the self-contained type or a "No Smoking" placard installed.

(Stinson Service Bulletin No. 246 covers a satisfactory method of modifying these ash trays.)

47-50-12 STINSON Applies to Serial Nos. 108-1 through 108-3500.

Compliance required every 100 hours of operation.

Inspection of the stabilizer leading edge attachment to the fuselage should be made for fatigue cracks after each 100 hours of operation. If fatigue cracks are present, reinforcements to the stabilizer fitting should be added. Inspection may be discontinued after reinforcement is installed. (Stinson Service Bulletin No. 254 dated September 5, 1947, covers this same subject.)

47-50-13 BELLANCA, STINSON Applies only to aircraft equipped with Koppers Model Aeromatic F200 propellers.

Compliance required no later than the next 25-hour propeller lubrication and at 25 hours of operation thereafter.

Inspect propeller hub as follows:

Remove balancing band from both ends of hub barrel after index marking each to facilitate proper reassembly. Examine the other surfaces of the hub completely for indications of line cracks or fractures. The areas of primary concern are (1) those beneath the balancing bands, (2) the weld joint where hub barrel and mounting tube meet, and (3) the weld joint where mounting tube and mounting flange meet.

Defective hubs should be removed from service. (Koppers Service Bulletin No. 12, dated October 9, 1947, covers this same subject.)

47-51-1 CURTISS (Applies to Model E serial numbers AAF 43-47403 through 43-47419, Models A&D modified by United Services for Air, Inc., and Model F)

Superseded by 54-14-1.

47-51-2 CURTISS (Applies to all Model E and F horizontal stabilizer and elevator assemblies)

Compliance required by March 1, 1948.

The attachment bolts in the elevator hinges and the spring and trim tab bellcranks, located in the stabilizer, tend to loosen with resultant elongation of the holes and grooving of the bolts.

1. Replace the eight AN5-14 hinge bolts on the 20-130-5701 elevator installation with NAS55-14 or AN175-14 bolts.

2. Replace the eight AN4-26 bolts on the 20-130-5700 elevator installation with NAS54-26 or AN174-26 bolts.

3. Replace four AN23-11A and two AN23-12A bolts through 20-110-5020 or 20-110-5112 blocks on each of the outboard stabilizer ribs with four NAS53A-7 or AN173-7A and two NAS53A-10 or AN173-10A bolts. Replace six existing bolts on each of the inboard hinges with NAS53A-7 or AN173-7A bolts.

4. Fabricate spacers from 24ST material having an O. D. of 0.590 to 0.594 inch, 1.562 + 0.005, — 0.000 inches in length and drill concentric hole lengthwise 0.250 inch in diameter. Install spacer between the two hub bearings on "Idler Assem-Elev Trim Tab" P/N 20-530-5722 and "Idler Assem-Elev Trim Tab (L. H.)" P/N 20-530-5775 so that the AN24 bolts attaching the idlers to their mating bracket may be so tightened as to prevent rotation of the bolt in the inner bearing race or in the holes of the bracket.

5. Fabricate 0.75 diameter × 1.012 inches +0.005, −0.000 spacers (Curtiss part No. 20-530-5709-1201) from 24ST alclad and drill 0.250. Install these spacers between the two hub bearings in the 20-530-5709 spring tab bellcranks.

6. Part No. 1007-D-4-250 shoulder bushings should be installed in each 20-130-5775-2 bracket.

47-51-3 CURTISS (Applies to Model E serial numbers AAF43-47403 through 43-47419 and Model F)

Inspection required every 100 hours of operation until rework is accomplished.

The aileron closure rib assembly 20-030-5039 has failed on some aircraft by cracking at the point of attachment to gusset and adjacent to the bolts which secure the aileron hinge assembly.

1. The rib assembly should be inspected and if cracks are found the following rework should be accomplished.

(a) Remove the aileron from the airplane.

(b) Remove aileron hinge assembly 20-030-5042 from the aileron closure rib 20-030-5039 located at wing station 273.875.

(c) Drill out the ten 671D-5AD-5 rivets and two C71D-5AD-8 rivets which secure gusset 20-030-5039-6 to the bottom of ribs 20-030-5039-504 and 20-030-5039-505.

(d) Drill out the eight AN442AD5-5 rivets which secure gusset 20-030-5039-6 to the sides of ribs 20-030-5039-504L and 20-030-5039-505.

(e) Open the inspection doors nearest each side of the aileron closure rib assembly.

(f) Working thru these inspection doors drill out the fourteen AN442AD4-4 rivets which secure angles 20-030-5039-3 to the sides of the ribs 20-030-5039-504 and 20-030-5039-505. It will not be necessary to remove the twenty-eight 671D-4AD-4 rivets which secure the angles 20-030-5039-3 to the wing trailing edge closure skin.

(g) Working through same inspection doors drill out the eighteen AN 442 AD4-4 rivets which secure the angels 20-030-5039-506 to ribs 20-030-5039-504 and 20-030-5039-505. The ribs are now free and can be removed from the airplane.

(h) Fabricate new lower ribs 20-030-5037-504 and 20-030-5039-505 using the removed ribs as templates.

(i) Fabricate one left-hand and one right-hand angle "A" 7.06 inches long x 0.90-inch leg x 0.70-inch leg, bend radius 0.09, from 0.064-24 SO-AlC (AN-A-13 Condition A) and heat treat to 56,000 p. s. i. (Spec. AN-QQ-H-186).

(j) Fabricate one left-hand and one right-hand angle "B" 9.25 inches long x 0.90-inch leg x 0.70-inch leg, bend radius 0.09, from 0.064-24 SO-AlC (AN-A-13 Condition A) and heat treat to 56,000 p. s. i. (Spec. AN-QQ-H-186).

(k) Working through the inspection doors located in the trailing edge closure skin secure the ribs 20-030-5039-504 and 20-030-5039-505 to angles 20-030-5039-506 and 20-030-5039-3.

(l) Install angles "B" with a 0.90-inch leg against ribs 20-030-5039-504 and 20-030-5039-505 in upper inside corners of assembly using six AN 442 AD4-4 rivets for each angle. Rivet the 0.70-inch flange to top gusset using four AN 442 AD6-8 rivets outboard and five

LS 1127-6-8 rivets inboard of opening in gusset. Trim angle to match openings in rib and gusset and end curvature of ribs.

(m) Install angles "A" with 0.90-inch leg against ribs 20-030-5039-504 and 20-030-5039-505 in lower inside corners of assembly using two AN 442 AD4-4 rivets at inboard end and four AN 442 AD5-6 rivets to pick up leg of gusset 20-030-5039-6L and 6R and 671D-5AD rivets on bottom. Trim end of angle to curvature of rib.

(n) Drill the necessary bolt holes in ribs 20-030-5039-504 and 20-030-5039-505 for attaching hinge assembly 20-030-5042 and install same using AN24-8A bolts, AN960D416 washer and AN364-428 nuts.

(o) Install the aileron.

Curtiss-Wright Service Information Letter SBS:GS:wd-1482 dated January 6, 1947, and its enclosures, also cover this same subject. This letter and its enclosures may be obtained from the Curtiss-Wright Corp., Airplane Division, Columbus, Ohio, upon request.

47-51-4 CURTISS (Applies to all C-46 series airplanes incorporating Hamilton Standard propellers)

Compliance required by March 1, 1948.

To eliminate failure of the propeller flexible feathering line, an anti-heat shield shall be installed in accordance with the following instructions:

(a) Remove the engine cowling adjacent to the propeller feathering line and inspect the flexible propeller feathering hose and lagging material (if installed) for disintegration and deterioration. Replace hose if deterioration is evident.

(b) Fabricate the anti-heat shield and attaching clamps as shown in Figure 8.

(c) Place anti-heat shield over the flexible hose and mount the shield on the engine mount by use of the clamps shown in Figure 8. The shield should be centered over the flexible hose. It may be necessary to rebend the metal feathering line slightly to achieve proper centering.

(d) Upon completion of installation, check operation of propeller feathering system.

The above information is also contained in Army Air Forces Technical Order 01-25L-105 dated April 2, 1947. Copies of this Technical Order are not available for distribution by the CAA.

47-51-5 CURTISS (Applies to Model E, serial numbers AAF43-47403 through 43-47419, and Model F)

Compliance required by March 1, 1948.

The aileron horns part 20-050-5715 have failed due to cracking of the horn between the attaching bolt holes and the outer edge. Inspection should be made to determine if this part has been replaced by part No. SK-10213. If not, part 20-050-5715 which is a casting should be replaced by a machined horn manufactured from 24ST material in accordance with Curtiss-Wright Drawing No. SK-10213.

Army Technical Order 01-25L-102 also covers this same subject.

47-51-6 CURTISS (Applies to all C-46 series aircraft)

Superseded by 48-44-2.

47-51-7 CURTISS.

Compliance required not later than March 1, 1948, and each 1,000 hours of operation thereafter.

Inspect the landing gear drag strut support structure inside nacelle to determine if landing gear drag strut No. 20-720-1018 attaching bolts at the 70 percent spar have loosened and if angle assembly 20-720-1024-1 and bulkhead assemblies 20-720-1021-1 and 20-720-1023-6 are loose. All defective parts, loose or sheared attachment rivets should be replaced and loose bolts tightened.

To accomplish the above, it is necessary to remove one outer panel or provide an access door in order to gain access to the interior of the center panel.

Curtiss-Wright Service Information Letter No. 735 dated August 20, 1947, covers an acceptable wing panel door installation.

47-51-8 REPUBLIC (Applies to all Seabee airplanes with steerable tailwheels)

Compliance required not later than the next 25-hour inspection.

To preclude the possibility of the steerable tail wheel control cable fouling on the tail wheel quadrant arms, install horns $3\frac{9}{16}$ inches long, fabricated from 0.091 aluminum plate, pointing rearward to arms of quadrant assembly No. 17F42093-1. Drill out stop rivet and attach using AN441-4-5 rivets. Then attach cable clips over horn and arm with AN24-11 bolts. (Republic Service Bulletin No. 17, Supplement No. 2, dated October 16, 1947, also covers this same subject.)

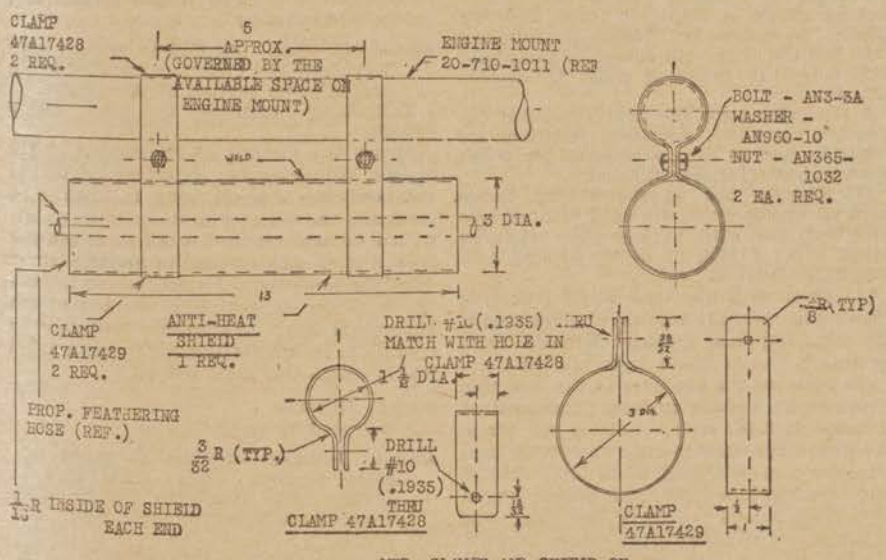


FIGURE 8.

47-51-9 BEECH

Superseded by 49-29-2.

47-51-10 BEECH (Applies to 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.)

47-51-11 BELL.

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 part No. 47-820-358-1 must be installed in the upper spider assembly pinion gears and bearings part No. 47-620-357-1 must be installed in the lower stage spider assembly pinion gear at the 100 hour tear-down 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 Corporation, Attention: Helicopter Division, Buffalo, New York.) (Bell Service Bulletin 47C4 revised December 4, 1947, covers this same subject.) This note supersedes 47-41-9.

47-51-12 DOUGLAS (Applies to all converted C-47 series aircraft with ram non-ram (hydraulic) type carburetor air scoop)

To be accomplished not later than March 1, 1948.

Compliance with the following items is necessary to preclude carburetor icing:

1. The carburetor alcohol system must be used.

2. The accessory cowling and engine fire seal must maintain not more than ¼-inch clearance of the collector ring.

3. The cable system for operation of the hot air door must be rigged to 30 pounds tension.

(Part B of Douglas Service Bulletin DC-3 #251 dated April 15, 1947, covers this same subject. Part A of the same Bulletin is not mandatory, but optional compliance may be accomplished when parts are available.)

47-51-13 BELLANCA (Applies to serial numbers 1060 through 1513, 1545, 1548, 1551 through 1560)

Compliance required not later than May 1, 1948.

To eliminate the possibility 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.)

47-51-14 SIKORSKY.

Compliance required at each removal and replacement of the power take-off assembly.

In order to prevent failure of the pinion and ring gears in the main gear box due to improper installation of the power take-off assembly, the following tear down, inspection, and assembly procedure should be followed:

(a) Disconnect and remove the front end of the intermediate drive shaft.

(b) Remove the cotter pin and nut in the center of the spline coupling, part No. S635104, and remove the spline coupling with attached brake disc.

(c) Check the backlash in the power take-off gears. This should be .003 to .005 inch between the ring gear and pinion.

(d) Remove the five retaining nuts and washers securing the power take-off to the main gear box lower housing.

(e) Using a fibre mallet, for starting, remove the power take-off.

Caution: Do not use a screwdriver or pry bar on the mating surfaces, as the slightest deformation of the surfaces may cause gear failure.

(f) Inspect the shims, part No. S-635117, and gasket, part No. S-635115, for dents and tears. Only shims and gaskets in perfect condition should be considered serviceable.

Also, the mating surfaces of the housings should be free from rough spots or tool deformations.

(g) With a micrometer, measure the total thickness of the shims. If it is necessary to replace a shim, and the backlash was within limits, the replacement shim must have the same total thickness as the parts removed.

(h) Lightly coat with Prussian blue the teeth of the power take-off pinion.

(i) Place gasket part No. S-635115 in gasket recess.

(j) Replace the shims over the five studs in the lower case of the main gear box, install the power take-off housing assembly, and secure the five washers and nuts.

(k) Check the backlash between the ring gear and pinion, which must be between 0.003 to 0.005 inch.

(l) After the power take-off has been fastened securely in place, the gear box must be operated by hand by turning the end of the pinion shaft protruding from the power take-off. After a few revolutions, remove the power take-off and check the tooth pattern. The correct tooth pattern is shown in Figure 9. The necessary adjustment for proper tooth pattern and backlash should be accomplished by shimming with power take-off housing shims. Shims are to provide adjustments for both mounting distance of ring gear and pinion and also tooth pattern.

(m) When the proper tooth pattern and backlash have been obtained, install the power take-off and securely tighten retaining nuts.

(n) Replace the spline coupling with brake disc attached and secure with washer, nut, and cotter pin.

(o) Reassemble the front end of the intermediate drive shaft.

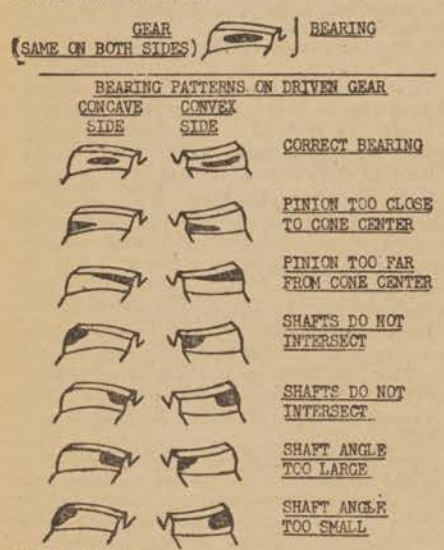


FIGURE 9.

Similar instructions are contained in AAF Technical Order No. 01-230 HC-16, dated March 6, 1946, and in Bureau of Aeronautics Aircraft Bulletin No. 6 dated March 28, 1947.

47-51-15 DOUGLAS (Applies to serial numbers 42854 through 42880; 42882 through 42888; 42890; and 42891; 43000 through 43003; 43005 through 43009; 43055; and 430546)

To be accomplished not later than next No. 3 inspection.

In order to prevent malfunctioning of the brakes, the original Raybestos brake lining, part No. 9520535 must be replaced with Goodyear BL-56 lining, part No. 9521091. This new lining is identified with two yellow dots. (Douglas Service Bulletin DC-6 #1 covers this same subject.)

47-51-16 DOUGLAS (Applies to serial numbers 42854 through 42880, inclusive; 42882 through 42891, inclusive; 43000 through 43009, inclusive; 43055; and 43056)

To be accomplished not later than August 1, 1948.

In order to increase the strength of the flap support assembly at wing station 378 and to replace the temporary rework outlined in Douglas Company Service Letter of May 12, 1947, which was necessitated by failure of the flap hinge support assembly on an airplane in flight, the following must be accomplished:

(a) Remove the two Shafer bearings, p/n AB-4A from flap link assembly, p/n 4325008 and press in new Shafer bearings, p/n AB-5A and stake in place.

(b) Remove outboard flap link support assembly, p/n 5107188, and line ream (0.312-0.313) diameter through to permit use of 5/16-inch bolt for attachment of upper end of link assembly, p/n 4325008. Assembly, p/n 5107188 becomes p/n 5107188-500 after rework.

(c) Press out old bushings, p/n 1338719, two places in flap hinge bracket assembly, p/n 3320998, and press in new bushings, p/n 1338719-500.

(d) After replacing p/n 5107188-500, replace p/n 4325008, using bolts, p/n 2356375-22; washers, p/n 124682-5-12-6 and p/n AN960-516; nut, p/n AN310-5 and cotter pin, p/n AN380-2-3.

(Douglas Service Bulletin DC-6 #66 covers this same rework.)

48-1-1 DOUGLAS.

Because of cracking and failure in the locking groove of Goodyear Model 20DHBM wheels, Assembly No. 530402-M, resulting from the use of the old one-piece flange and lock ring, the following must be accomplished:

I. Not later than the next scheduled inspection at which necessary facilities are available, and at each succeeding No. 3 inspection until II is accomplished:

(1) Remove the wheel-retaining flange from all wheels which are used with, or ever have been used with, the one-piece retaining flange P/N's 511033 or 530405-M and lock ring P/N 511051-1.

(2) Clean and etch the wheel lock ring groove and carefully inspect to determine if any cracking has started. Remove from service all wheels found to be cracked.

(3) Measure the diameter of the lock ring groove at the locking surface. The nominal diameter is 0.440 inch +0.002 inch. When the groove has worn to more than 0.500 inch diameter and less than 0.563 inch, remove wheel from service until it has been reworked to provide a true radius in the outer side of the groove and the thrust surface is made parallel to the end of the wheel. This radius should be 0.220 inch +0.001 inch. Wheels reworked in this manner must be inspected at each 500 hours or the closest major inspection period thereto. Remove from service any wheels in which the groove has worn to a diameter equal to or exceeding 0.563 inch.

II. To be accomplished not later than August 1, 1948.

Remove from service all one-piece flanges and lock rings and replace by two-piece flange P/N 530735-M and studs P/N511284-6. (Goodyear Service Bulletin No. 1 covers this same subject.)

48-1-2 PIPER (Applies to Serial Nos. 12-1 through 12-1989; 12-1991 through 12-1993; 12-1997; 12-1999; 12-2001 through 12-3443; 12-3445 through 12-3450; 12-3452 through 12-3457; 12-3461 through 12-3465; 12-3481; 12-3535 through 12-3542; 12-3553; 12-3901; 12-3903 through 12-3934; 12-3936; 12-3940; 12-3941; 12-3943 through 12-3954; 12-3961; 12-3964 through 12-3970; and 12-3988)

Compliance required by February 1, 1948, and at each periodic inspection with modification not later than June 1, 1948.

Inspect for interference between the nose cowl and starter ring gear casting and for tightness of the cowl attachments. Replace gear casting if scored deeper than 1/32 inch.

Prior to June 1, 1948, install cowl support braces, Piper P/N 11410, to insure proper position and support of cowl. (Piper Service Bulletin No. 100 dated October 20, 1947, covers this same subject.)

48-1-3 REPUBLIC.

Compliance required by February 1, 1948, and at each 25-hour inspection until bushing is installed.

Inspect elevator trim tab for excessive play by holding control rod and measuring vertical movement of trailing edge. If play exceeds 1/8 inch, ream clevis pin hole in horn and press in a 1/4-inch O. D. cadmium plated steel bushing. If wear has reduced edge distance below 5/32 inch, a new horn with steel bushing should be installed (Republic Seabee Service Bulletin No. 20 dated October 10, 1947, and Supplement No. 1 thereto dated November 10, 1947, contain detailed information on this subject.)

48-2-1 BELL (Applies to all 47B Series, through Serial No. 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.)

48-2-2 DOUGLAS (Applies to aircraft with Wilcolator Fire Detectors installed in the engine power section of the nacelle)

Compliance required by next engine change.

Revise the method of attachment of the A-4981 Wilcolator fire detectors located on the cowl flap support wing in Zone 1 by clamping the detector to its mounting plate with a retainer strip of 0.062 thickness low carbon steel sheet, cadmium plated, secured with the same screws which attach the detector to the support box. Failure of the supports is caused by vibration during engine operation. (Douglas Service Bulletin DC-4 No. 75 covers this same subject.)

48-2-3 DOUGLAS.

Superseded by 48-15-3.

48-2-4 DOUGLAS (Applies to Serial Nos. 42854 through 42880; 42882 through 42896; 43000 through 43017; 43035 through 43038; 43055, 43056, 43062, and 43063)

Compliance required by the next No. 3 inspection.

To prevent the brake lining from becoming wedged between brake disc and housing, replace the present adjustment pin Goodyear P/N 511940-1 and spring plate Goodyear P/N 512139 by the single piece adjusting pin Goodyear P/N 9510744. (Douglas Service Bulletin DC-6 No. 90 covers this same subject.)

48-2-5 DOUGLAS (Applies to Serial Nos. 42854 through 42880; 42882 through 42884; 43000 and 43001)

Compliance required by the first engine change after March 1, 1948.

To prevent the hot exhaust burning through the exhaust stack recess sheet on the upper and lower outboard accessory cowling, remove the present shield on the inboard side of the cowling and install a screw fastened exhaust chute of 0.042 thickness corrosion resistant steel sheet on the outboard side of the recess sheet. An air gap must exist between the exhaust chute and the recess sheet to allow a flow of ram air for heat dissipation. (Douglas Service Bulletin DC-6 No. 30 covers this same subject.)

48-2-6 DOUGLAS (Applies to Serial Nos. 42854 through 42896; 43000 through 43018; 43025; 43055 through 43057; 43062 through 43064; and 43105)

Compliance required by March 1, 1948.

As a fire protection measure, close off the dead air space between the upper and lower wing surfaces within the engine nacelle by installing cover plates over the open access hole in the lower surface of the wing in the right and left inboard nacelles between center and front spars and between stations 130 and 167. (Douglas Service Bulletin DC-6 No. 92 covers this same subject.)

48-3-1 DOUGLAS (Applies to airplanes with Pratt & Whitney Military R-2000 and Twin Wasp D Series engines)

To avoid crankshaft bending and associated failures, effective immediately, avoid steady operation between 2,310 and 2,510 r. p. m. Not later than March 1, 1948, marck tachometer with a red radial band in the above range. (P and W operation instructions are being revised to include this limitation.)

48-3-2 DOUGLAS (Applies to all Model C-54DC and DC-4 aircraft)

In order to prevent the emergency air brake valve from seizing due to infrequent operation, the following should be conducted. At intervals not to exceed 1,000 hours, except at the discretion of the CAA agent, the interval may be increased to coincide with a regular overhaul period, but should in no case exceed 1,700 hours.

Connect a gauge to one brake port on each side of the airplane and discharge the air brake cylinder from one of the flight compartment controls. The initial air pressure indications on the gauges at the brakes should not be less than 400 p. s. i. Allow 5 minutes for change in pressure due to temperature and again note the air pressure indications on the gauges at the brakes. These second observed pressure indications should hold steadily for a period of at least 5 minutes. This will check the functioning of one of the pull mechanisms, the air brake control valve, shuttle valve, lines and fittings. Push in the control to release air pressure on brakes and operate other air brake control to insure that both pull mechanisms are operating properly.

48-3-3 PIPER (Applies to Serial Nos. 11-1 through 11-301, and 11-1350 through 11-1400, except Serial Nos. 11-233, 11-243, 11-261, 11-266, 11-281, 11-296, and 11-300)

Compliance required by April 1, 1948.

In order to prevent engine malfunctioning due to insufficient fuel flow when less than five gallons of fuel are in the wing tank and the airplane is operated in prolonged glides and dives, a header tank (Piper part No. 10725) must be installed in the fuel system. Until the header tank is installed, avoid prolonged glides and dives when less than five gallons fuel are in the main tank. (Piper Service Bulletin No. 99 dated July 29, 1947, covers this subject.)

48-3-4 GRUMMAN (Applies to Serial Nos. J-1 through J-25)

Compliance required within the next 100 hours of operation.

To prevent landing gear hydraulic hose failures due to chafing against the landing gear strut, install landing gear hinge type flex hose guides Grumman parts Nos. 109557-1 and 109557-2 in accordance with Grumman Service Bulletin No. 3 dated November 4, 1947.

48-3-5 CURTISS-WRIGHT.

Compliance required by March 1, 1948.

To eliminate hydraulic leaks which can cause a fire, hydraulic tube P/N 20-575-1116-64 located at fuselage station 50.5 between the brake accumulator and brake metering valve, should be inspected for evidence of chafing on tube assembly tension arm P/N 20-530-1130-1. If insufficient clearance exists, the hydraulic lines must be rerouted and damaged lines replaced.

48-3-6 BELL (Applies to all 47B Series through Serial No. 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.)

48-4-1 CESSNA.

Superseded by 48-25-3.

48-4-2 AERONCA (Applies to 7AC Serial Nos. 7AC-1 through 7AC-7129; 11BC Serial Nos. 11BC-1 through 11BC-173; and 11AC Serial Nos. 11AC-1 and up)

Compliance required by March 1, 1948.

Inspect the wing leading edge for buckled nose ribs or loose PK screws by pressing leading edge skin with hand to nose ribs. If the skin can be depressed beyond the normal wing contour, other than the extreme nose radius, indicated by section A-A in Figure 10, the fabric should be cut open on the bottom surface just forward of the front spar for thorough inspection. Item No. 1 below should be accomplished on all wings whether damage has occurred or not, whereas Item No. 2 pertains only to damaged ribs found in the above inspection. Repair need not be made if buckling is confined to area forward of section A-A of Figure 10.

1. To help prevent further failures of the nose ribs five additional No. 4 x 1/4 PK screws or, as an alternate, Cherry CR163-4-2 rivets or equivalent are to be installed in all nose ribs. Four PK screws or rivets are to be installed on the top surface and one PK screw or rivet is to be installed in the bottom as shown in Figure 10. Apply dope liberally under the PK screw head before tightening. It is not necessary to remove the fabric to accomplish this modification.

2. Damaged ribs should be cut away at the top and bottom of spar. The new nose ribs are installed by means of two gussets on the side of the ribs as shown in Figure 10. Factory kits, Aeronca part Nos. 5-185-2 and 5-190-2, are to be used.

(Aeronca Helps and Hints No. 17 with three supplements thereto covers this same subject.)

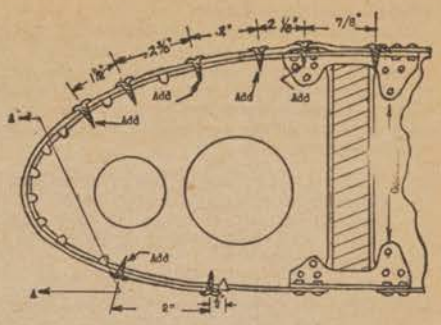


FIGURE 10.

1. All dimensions are approximate.

2. Insure maximum edge distance in repair flange when drilling holes for PK screws or rivets.

3. Insure that PK screw or rivet does not go through skin at dimple of flange or at flange cut-out on repair rib.

48-4-3 DOUGLAS.

To be accomplished at every 8,000 hours of total airplane flight time.

Superseded by 49-38-2.

48-5-1 DOUGLAS (Applies to all aricraft equipped with Pacific Aviation oil shutoff valves)

Compliance required at first engine change after March 1, 1948, but not later than May 1, 1948.

Replace the present "O" rings in the oil shutoff valves with rings of H222-90 high temperature material or AMS-3228B material. There has been reported leakage attributed to the fact that the material in the "O" rings is not capable of withstanding the operating temperature of the oil. (Douglas Service Bulletin DC-3 No. 256 covers this same subject.)

48-5-2 SUPERIOR (Formerly Culver).

Superseded by 50-4-2.

48-5-3 BELLANCA (Applies to 14-13 and 14-13-2 Serial Nos. 1060 through 1576)

Compliance required by March 15, 1948.

Install a 3/16-inch bolt with self-locking nut and 3 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.)

48-5-4 CESSNA.

Compliance required by April 1, 1948.

Install the following operational limitations placard in full view of pilot:

"This airplane is to be operated in accordance with the flight limitations of the Operation Manual."

This refers to the various Airplane Flight Manuals which are required equipment for landplane, skiplane, and seaplane as listed in Aircraft Specification A-768, Item 403 and NOTE 9, and which must be carried in the aircraft at all times. Airplane Flight Manuals may be obtained from Cessna dealers and the Cessna Aircraft Company, Wichita, Kansas. (Cessna Service Letters Nos. 32 and 40 dated February 10 and May 6, 1947, respectively, cover this same subject.)

48-5-5 GRUMMAN.

Superseded by 54-26-1.

48-6-1 (Applies to all aircraft having 6 or more seats (including crew) installed used in scheduled and non-scheduled passenger air carrier operations.)

Cancelled July 12, 1948.

48–6–2 COMMONWEALTH.

Compliance required by March 15, 1948.

Inspect the jury struts for indication of excessive corrosion (inside) or cracks and if either is noted, replace the jury strut. Drill a 1/8-inch diameter hole at the lower rear edge of all jury struts to provide adequate drainage.

48–6–3 RYAN (Formerly North American) (Applies to all airplanes equipped with Hartzell propeller blade Models 8428, 8428C, and 8428R having Serial Nos. below 61,000)

Compliance required by April 15, 1948.

Examine all Model 8428, 8428C, and 8428R blades having Serial Numbers below 61,000 in bright daylight or strong artificial light on the front face in the area approximately 4 inches outboard of the blade clamp. Any fillers used in the blade will be discernible to the naked eye. If fillers are found in this area, the paint should be carefully removed and the fillers removed from the blade. Defects that can be eliminated by removing material to form a shallow saucer not over 1/8 inch at its deepest point, 3/8 inch in width overall, and 1 inch in length overall, should be repaired. Following removal of the defects, the area from which paint has been removed should be repainted and the propeller rebalanced before being returned to service. Blades having defects that cannot be repaired by the above method or by methods described in the applicable portions of CAM 18, should be returned to the propeller manufacturer. The exact location and the extent of rework necessary to remove any defect should be recorded in the log book. Areas having maximum material removed may not have additional material removed for subsequent injuries.

48–6–4 LOCKHEED.

Canceled June 6, 1949.

48–6–5 DOUGLAS.

Compliance required by November 1, 1948.

To prevent failure of the aileron hinge eyebolts and the rudder trim tab and elevator trim tab hinges and control horns, the following changes must be made:

1. On airplanes having aileron assemblies P/N 5166075, –1, –500, –501, or –503, replace No. 3 hinge eyebolt P/N 1166013 with new eyebolt P/N 5078609. Airplanes having aileron assemblies P/N5078609, –1, –500, –501, –502, or –503, do not require this hinge replacement.

2. On elevator and rudder trim tabs replace all hinges and control horns with new parts made of steel.

3. Replace the standard AN bolts in elevator trim tab and rudder trim tab hinges and control horns with new special close tolerance high strength bolts using new AN310 type nuts, AN960 washers and AN380 cotter pins.

Inspection should be accomplished in accordance with Note 51–9–2 except in the case of aircraft in which the standard "AN" rudder and elevator hinge bolts have not been replaced with new close tolerance high strength bolts using new AN310 type nuts, AN960 washers and AN380 cotter pins. In such cases, inspection should be accomplished at intervals not to exceed 1000 hours. (Douglas Service Bulletin DC–4 No. 83 covers the above rework.)

48–7–1 CESSNA (Applies to 120 and 140 Serial Nos. 8001 through 14329)

Compliance required by May 1, 1948, and at each annual inspection thereafter.

Inspect the two bolts attaching the horizontal stabilizer to the fin post for tightness and proper length. If no bolt threads extend through the fiber lock rings of the anchor nuts inside the stabilizer attachment fitting, or if the bolts show any indication of having backed off when checked with a wrench, they should be replaced with AN4–5A bolts on Serial Nos. 10091 and up, or AN3–5A bolts on earlier serial numbers. In making the tightness check use caution to avoid stripping the threads in the anchor nut. If the new bolts do not develop at least three inch pounds torque in the anchor nut, AN4–H5A or AN3–H5A (drilled head) bolts should be substituted and safetied together with wire. Check the clearance of the elevator horn and horn bolts with respect to the cutouts in the fin spar and increase it to a minimum of 1/8 inch wherever necessary. (Cessna Service Letter No. 52 covers this same subject.)

48–7–2 DOUGLAS (Applies to DC–6 Serial Nos. 42854 through 42896; 43000 through 43024; 43035 through 43064; and 43015 through 43110)

To be accomplished not later than the first engine change after March 1, 1948, but in any event not later than June 1, 1948.

To prevent failure in the engine supercharger control actuator when shifting from low to high blower and vice versa, it is necessary to provide over-travel in the engine supercharger control linkage by installing a new Geneva-Loc supercharger actuator lever, a new Bendix link-supercharger actuating link and a new four-hole mounting support bracket. (Douglas Service Bulletin DC–6 No. 127 covers this same subject.)

48–7–3 DOUGLAS (Applies to DC–6 Serial Nos. 42854 through 42896; 43000 through 43024; 43035 through 43053; 43055 through 43064; 43103 through 43119; 43129 and 43132) (NOTE: Some of the above airplanes may have had part of the changes installed before delivery from the factory.)

Compliance required by September 15, 1948.

To provide safer and more satisfactory operation of all the doors, the following reworks must be accomplished:

1. Install new latch bolts on all emergency exit doors, main passenger door, crew door, heater compartment door, and belly cargo compartment doors, to incorporate a notch which allows slow depressurization before the door can be fully opened in the event the handles are inadvertently turned toward the "Open" position while the cabin is pressurized.

2. Rework the operating and locking mechanisms of the passenger, crew, and emergency exit doors, to increase their strength and prevent malfunctioning.

3. Install visual inspection plugs in the passenger, crew, and emergency exit doors to allow individual inspection of each lock bolt to determine if it is properly locked.

(4) Install an assist handle above the main cabin door handle to prevent accidental grabbing of the inside door handle. (NOTE: Even in cases where the door handles have been changed so that the handle points downward when the door is closed and locked, it will still be necessary to install the assist handles.)

48–7–4 FAIRCHILD.

Superseded by 48–45–1.

48–8–1 BEECH (Applies to Model 35 airplanes having Serial Nos. 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, Part No. 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 DR1885541, 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.)

48–8–2 AERONCA AND LUSCOMBE (Applies to all Aeronca 7 and 11 Series and Luscombe 8 Series aircraft equipped with Cleveland Model 6:00 DMB wheels, Assembly No. C–38500)

Compliance required after initial 500 hours of operation and each 100 hours of operation thereafter.

Remove the tires and inspect the wheel flanges for fatigue cracks. The wheel should be replaced if cracks are found.

48–8–3 RYAN (Formerly North American) (Applies to Serial Nos. NAV–4–2 through NAV–4–1110)

To be accomplished as soon as possible but not later than April 1, 1948.

To insure full opening of the fuel shut-off valve when the control knob is pushed to the full "On" position, conduct the following inspection:

Determine that the fuel shut-off valve flexible control is adequately supported along its length from the instrument panel to the shut-off valve to prevent buckling of the flexible control when it is moved to the "On" position while valve motion is restrained by the fingers to simulate moderate valve friction. One additional support clip must be added adjacent to the present support clip at the valve end of the flexible control to prevent rotation of the present clip and resultant misalignment of the flexible control if the clip attaching screw should become loose. Other additional support clips along the flexible control may be necessary. Also determine that the control is properly rigged with respect to valve detents and that excess wire has been cut from the valve end of the control wire to prevent snagging of the end of the wire in the upholstery.

48–8–4 LUSCOMBE.

Superseded by 48–49–1.

48–9–1 DOUGLAS.

To be accomplished not later than April 15, 1948.

Because of the hazards involved, the transfer of fuel between tanks must be prohibited. The following placard shall be installed in the cockpit in full view of the pilots:

"Fuel cross-feed system not intended for transferring fuel from one tank to another and should not be used for this purpose. When using cross-feed system, turn off tank(s) not in use."

In addition to the placard, the CAA approved Flight Manual must be revised to incorporate proper fuel system operation procedures in accordance with the above placard. Approved Flight Manual pages may be obtained from the airplane manufacturer.

48–9–2 DOUGLAS.

To preclude the probability of short circuits occurring in the electrical distribution bus which runs from nacelles number one to four, and which is impracticable to protect by circuit protective devices, the following must be accomplished to assure that this bus will be in a fault-free condition.

I. Inspection required by April 1, 1948, and thereafter at intervals not to exceed 400 hours (or in the case of scheduled air carrier operators at each routine check period).

Determine that at least ½-inch clearance is maintained between the bus and protuberances likely to "ground" the bus in the nacelle areas. Note particularly this clearance at the engine control pulleys and the pulley guide brackets.

II. Inspection required not later than July 1, 1948, and thereafter at intervals not to exceed 8,000 hours.

In those installations where the large No. 1/0 nacelle-to-bus feeder cables are run in metallic conduit, such cables must be pulled out for inspection. Replace by new cable ANA Spec. ANJC48a or Douglas DESSM2001, where chafing or mechanical deterioration of the insulation is evident.

(NOTE: Oil-soaked insulation alone is not considered as sufficient cause to require the replacement of this cable.)

III. Not later than June 1, 1948.

Determine that the bus supporting brackets are of approved Douglas Aircraft Company standard quality and that Adel or equivalent cushioned nongrounding type bus clamps are used for clamping the bus onto the brackets. Any sub-standard brackets and clamps must be replaced.

(Douglas Service Letter No. A214TS-1245/WRD-530 dated October 10, 1947, covers this same subject.)

48-9-3 LUSCOMBE (Applies to airplanes below Serial No. 5682 equipped with Kollsman airspeed instruments)

Compliance required by April 1, 1948.

To obtain more accurate airspeed readings remove small baffle LAC P/N 181112, which is attached to the fuselage at the airspeed static tube opening. Installation of this baffle provides inaccurate airspeed readings ranging from approximately +6 MPH at stall to approximately +15 MPH at minimum trim speed.

48-10-1 DOUGLAS.

To be accomplished prior to return to service in class "A" operation—with cabin supercharging and thermal de-icing operative (with the exception of heat windshield de-icing) and with cabin heaters inoperative.

Rework must be accomplished in accordance with the following Douglas Company data:

Service Bulletin DC-6 #204A, "Procedure for Disconnecting #2 and #3 Alternate Fuel Cells," dated December 18, 1947, or Service Bulletin DC-6 #204B, "Fuel Tank Vent System Revision," as revised February 19, 1948.

Service Bulletin DC-6 #200, "Revised Heater Fuel Pressure Regulator Diaphragms," as revised February 26, 1948.

Service Bulletin DC-6 #201, "Removal-Heater Fuel Pressure Regulator Static Balance Lines," dated December 6, 1947.

Service Bulletin DC-6 #202, "Heater Fuel Pump Check Valve—Rework," dated December 9, 1947.

Service Bulletin DC-6 #208, "Cabin Heater and De-icer Fuel System Revision," as revised February 20, 1948.

Service Bulletin DC-6 #226, Section I of V, "Fire Extinguisher System for Boiler Room," as revised February 19, 1948.

Service Bulletin DC-6 #226, Section II of V, "CO_2 Piping," as revised February 21, 1948.

Service Bulletin DC-6 #226, Section III of V, "Installation Fire Detector Boxes and Conduit," dated February 12, 1948.

Service Bulletin DC-6 #226, Section IV of V, Electrical Rework," as revised February 26, 1948.

Service Bulletin DC-6 #226, Section V of V, "Sealing of Forward and Aft Baggage Compartment and Inverter Compartment Blower Duct," as revised February 24, 1948.

Service Bulletin DC-6 #233, "Fuel Overboard Drains for Wing Nose Area," dated January 14, 1948.

Service Bulletin DC-6 #247, "Drainage Holes and Dams for Fuselage and Wings," as revised February 18, 1948.

Service Bulletin DC-6 #252, "Heater Exhaust Louver Removal," as revised February 17, 1948.

Service Bulletin DC-6 #262, "Installation of Combustion Heater Backfire Switches," dated February 24, 1948.

Superchargers with #7357594 stamped on gear box housing and 5357091 stamped on the impeller housing (scroll) are satisfactory for "A" operation. These superchargers will be eligible for either "A" or "C" operation when reworked and identified as shown in Douglas Service Bulletin DC-6 #258.

Service Bulletin DC-6 #225, "Alcohol Windshield De-icing System," as revised February 24, 1948.

Service Bulletin DC-6 #246, "Relocation of Manual and Automatic Pressure Relief Valve," as revised February 17, 1948.

Service Bulletin DC-6 #224, "Transparent Openings for Belly Compartments," as revised February 24, 1948.

Service Bulletin DC-6 #217, "Installation of Fire Axe," as revised December 23, 1947.

Service Bulletin DC-6 #214, "Modification of Main Junction Box and Annex," as revised February 16, 1948.

Service Bulletin DC-6 #230, "Rerouting of Heater Accessory Compartment Power Cables," as revised February 16, 1948.

Service Bulletin DC-6 #149, "Fuse Protection for Flight Instrument Transformers," dated December 5, 1947.

Service Bulletin DC-6 #237, "Addition of Fuse on Master Switch for Buffet," as revised February 21, 1948.

Service Bulletin DC-6 #248, "Conduit Clipping to Combustible Fluid Lines," as revised February 13, 1948, and Addendum dated February 13, 1948.

Service Bulletin DC-6 #212, "Protective Shield at Forward and Aft Cargo Compartment Lights," as revised January 7, 1948.

Service Bulletin DC-6 #206, "Rework of Battery Leads to Prevent Shorting," dated December 9, 1947.

Service Bulletin DC-6 #218, "Addition of Phenolic Sheet Insulation to AC Circuit Breaker Guard Assembly," dated December 17, 1947.

Service Bulletin DC-6 #221, "Revision of Heater Fire Extinguisher Buttons," dated December 20, 1947.

Service Bulletin DC-6 #210, "Protection for Outer Wing Booster Pump Lead-In," as revised December 22, 1947.

Service Bulletin DC-6 #213, "Starter and Generator Power Cable in Wing," as revised December 19, 1947.

Service Bulletin DC-6 #242, "Relocation of Tail Heater Control Can," as revised February 17, 1948.

Service Bulletin DC-6 #203, "Hand Fire Extinguisher Support Bracket Revision," as revised February 17, 1948.

Service Bulletin DC-6 #260, "Installation of AAL Type Master Switch Arrangement and Emergency Inverter," as revised February 24, 1948. (This installation not required on aircraft incorporating one set of vacuum operated flight instruments.)

Service Bulletin DC-6 #267, "Installation Heater Safety Relays," dated Fabruary 27, 1948.

Service Bulletin DC-6 #205, "Rework of DC-6 Fuel Tank and Cell Vent Chambers," as revised February 23, 1948.

Service Bulletin DC-6 #207, "Guard for Fuel Booster Pump Switches," as revised December 19, 1947.

Service Bulletin DC-6 #253, "Fireproofing of Wing De-icer Ducts in Nacelles," as revised February 24, 1948.

Service Bulletin DC-6 #219, "Rework of Whittaker Firewall Shut-Off Valves," dated December 19, 1947.

Service Bulletin DC-6 #114, "Fuel Flow Transmitter Line Replacement," dated October 29, 1947.

Service Bulletin DC-6 #261, "Installation of Oil Separator for Vacuum Pump Drain Lines," dated February 25, 1948.

Service Bulletin DC-6 #249, "Boiler Room Duct Revision," dated February 24, 1948.

Service Bulletin DC-6 #232, "Wing Heater Exhaust Insulation Cover," as revised February 16, 1948.

Service Bulletin DC-6 #234, "Tail Heater Ground Blower Check Valve Revision," as revised January 23, 1948.

The rework outlined in the data listed above is based upon an airplane which incorporates certain production changes. Therefore, in order to satisfactorily complete the required rework, some aircraft[1] must also be revised in accordance with the following:

Service Bulletin DC-6 #62, "Rework-Cabin Pressure Control Valve Linkage," dated September 2, 1947.

Service Bulletin DC-6 #111, "Cabin Heater Fire Extinguisher Bottle," dated October 22, 1947. (Partial accomplishment only is required, which is to include: Support #5333704-10, Pipe #5332568-518 and attaching parts.)

Service Bulletin DC-6 #119, "Aft Baggage Compartment Smoke Detector Pick-Up Pipe Revision," dated December 6, 1947. (To be accomplished only if Modification Item 59 has not been accomplished.)

Service Bulletin DC-6 #16, "Installation of Additional Dams and Drain Plug in Fuselage Bottom," dated June 26, 1947.

Service Bulletin DC-6 #161, "Rear Lounge Hot Air Supply Duct Sound Trap Installation," dated January 30, 1948. (Need not be accomplished on Serial Nos. 42854 thru 42891, 43000 thru 43009, 43055, and 43061 unless Service Bulletin DC-6 #59, "Improved Aft Lounge, Heating," dated September 16, 1947, has been accomplished.)

Service Bulletin DC-6 #95, "Revision-Ground Blower Duct and Check Valve and Air Duct Connection Improvement," dated October 21, 1947. (Accomplish portion covered by Service Change No. 354 and that portion of Service Change No. 358 which includes cable assemblies 1342327-502 and -504, hook #1342315, latch assembly 1342314, AN960-10L Washers, AN486-4 Clevis, AN393-11 and -13 pins, AN380-2-2 cotters and AN365-428 nuts.)

In addition to the above, the following must also be accomplished on all aircraft:

1. Inspect the Wing Structure around the fuel tanks in accordance with Douglas Service Letter to all operators dated December 29, 1947 (ref. A214TS-2521/WRD 529.37). Any damage found as a result of the inspection must be satisfactorily repaired.

2. The Airplane Flight Manual for each airplane must be revised to include CAA approved procedures covering "Fuel Usage," "Fire Fighting" and "Smoke Evacuation from the Cockpit." This information, pages 1 and 2 of Section I, and pages 31 through 65 of Section III, as revised February 26, 1948, for aircraft incorporating Hamilton Standard Propellers, or pages 1 and 2 of Section I, and pages 31 through 71 of Section III, as revised February 26, 1948, for aircraft incorporating Curtiss Propellers, should be obtained from the Douglas Company.

3. Disconnect the cabin heater electrically and block off all fuel lines to this heater.

48-10-2 BELL.

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 fiber glass cover, and also the extreme

[1] (Serial Nos. of airplanes affected by this rework are listed on the pertinent Service Bulletin(s).) (Also, additional information may be obtained from the "Supplement" to "Cross Reference List-Service Changes and Modification Items" which has been prepared and revised by the Douglas Company as of February 11, 1948.)

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.)

48–11–1 DOUGLAS.

To be accomplished prior to return to service in class "B" operation—with cabin heating and thermal de-icing, including windshield, operative, but with cabin supercharging inoperative.

Rework must be accomplished in accordance with the following Douglas Company data:

1. Accomplish all rework covered by data listed in Note 48–10–1 for Class "A" operation with the exception of the rework outlined in Service Bulletins #258, #225 and #230. Also accomplish paragraphs "1" and "2" but do not accomplish "3" of Note 48–10–1.

2. Rework in accordance with the following must also be accomplished:

Service Bulletin DC–6 #223, "Stainless Steel Heater Discharge Ducts and Windshield Anti-Icing Ducts," as revised February 24, 1948.

Service Bulletin DC–6 #38, "Heater Fire Warning Switch—Installation of" dated October 6, 1947.

Service Bulletin DC–6 #250, "Cabin Heater Shut-Off Control," dated February 19, 1948.

Service Bulletin DC–6 #211, "Main Cabin Heater Exhaust—Revision of," as revised February 23, 1948.

Service Bulletin DC–6 #227, "Cabin Heater Scoop Segregation," as revised February 24, 1948.

Service Bulletin DC–6 #243, "Revise Cabin Heater Ignition Conduit in Boiler Room and Hell-Hole Area," as revised January 26, 1948.

Service Bulletin DC–6 #245, "Heater and Buffet Power Cable Conduit," as revised February 24, 1948.

The rework outlined in the data listed above is based upon an airplane which incorporates certain production changes. Therefore, in order to satisfactorily complete the rework required, some aircraft [2] must also be revised in accordance with the following:

Service Bulletin DC–6 #40, "Heater Exhaust Fire Detector—Replacement of," dated September 3, 1947. (Accomplish partially.) [2]

Service Bulletin DC–6 #71, "Installation—Oil Trap and Drain, Cabin Heater Combustion Air Duct," dated September 3, 1947. (Accomplish Electrical Phase of Service Bulletin only.)

Service Bulletin DC–6 #96, "Windshield Deicing Air Discharge Revision," dated December 22, 1947.

Service Bulletin DC–6 #141, "Improvements in DC–6 Cabin Pressure and Cabin Air Conditioning Systems," dated February 19, 1948.

Service Bulletin DC–6 #150, "Revision—Cockpit and Windshield Heat Control System and Windshield Air Exhaust," dated December 11, 1947.

Service Bulletin DC–6 #160, "Cabin Air Mixing Valve Actuator," dated February 2, 1948.

Service Bulletin DC–6 #179, "Ground Blower Electrical Wiring Revision," dated December 29, 1947.

Service Bulletin DC–6 #28, "Installation of Ammeter and Selector Switch for Functional Check of Pitot and Air Scoop Anti-Icing Heaters," dated August 20, 1947. (Must be accomplished completely except that P/N 3320167–516 nameplate, 1 req., shall be deleted.)

In addition to the above, the following must also be accomplished in all aircraft:

a. Disconnect the superchargers and drain and flush supercharger oil system.

48–11–2 DOUGLAS.

To be accomplished prior to return to service in Class "C" operation—with cabin supercharging, cabin heating, and thermal de-icing including thermal windshield de-icing, in operation.

Rework must be accomplished in accordance with the following Douglas Company data:

1. Accomplish all rework covered by data listed in Notes 48–10–1 and 48–11–1 for classes "A" and "B" operation, including paragraphs "1" and "2" but excluding paragraph "3" of Note 48–10–1, and excluding paragraph "a" of Note 48–11–1.

2. Rework in accordance with the following must also be accomplished:

Service Bulletin DC–6 #258, "Cabin Supercharger Revisions and Bearing Oil Leakage Control," dated February 13, 1948. (Also, all superchargers must incorporate low speed drive shaft per Douglas Installation Drawing No. 5350684–C.)

Service Bulletin DC–6 #257, "Relocation of Cabin Supercharger Oil Cooler," as revised February 18, 1948.

The rework outlined in the data listed above is based upon an airplane which incorporates certain production changes. Therefore, in order to satisfactorily complete the rework required, some aircraft [2] must be revised in accordance with the following:

Service Bulletin DC–6 #13, "Installation of an Oil Pressure Warning Switch for Each Cabin Supercharger Gear Box," dated August 28, 1947.

48–11–3 SIKORSKY (Applies to Serial Nos. SS–5102, 5103, 5106, 5107, 5109, 5115, 5117, 5118, 5119, 5121, 5122, 5126, 5127, 5128, 5130, 5132, 5133, and 5135)

Superseded by 50–8–1.

48–11–4 REPUBLIC.

Compliance required by April 15, 1948.

To provide security for the hydraulic pump handle attachment, the four self-locking nuts now used should be replaced by three AN310–4 and one AN310–5 castle nuts and cotters. The fulcrum bolt is already drilled for a cotter. The present clevis bolts may be drilled for the cotter or may be replaced by two AN24–17 and one AN24–13 clevis bolts. (Republic Service Bulletin No. 22 covers this same subject.)

48–11–5 BELL.

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.)

48–12–1 DOUGLAS (Applies to all aircraft as specified by Civil Air Regulations Amendments 41–3, 42–2 and 61–2)

To be accomplished not later than the dates specified in the above amendments as revised by special Civil Air Regulations Serial Nos. 385, 390, 390A, 390B and any subsequent regulations affecting these compliance dates.

All air carrier aircraft must be modified to comply with the fire prevention requirements as outlined in CAR Amendments 41–3, 42–2 and 61–2. The modifications outlined in the following listed Douglas Service Bulletins and Note 47–42–3 are required for compliance with these amendments. Other modifications shown to be equivalent to those covered by the Service Bulletins will also be acceptable.

Service Bulletin #62, "Install Smoke Detector in Belly Baggage Compartment"; Service Bulletin #66, "Engine Section Piping and Fitting Revision"; Service Bulletin #69, "Installation of Enclosed Waste Container in Lavatory."

In addition to the above it will be necessary to ascertain that all interior materials and finishes comply with the applicable sections of CAR 04.3824, .3825, .4913 and .493. Safety Regulation Release 259 outlines acceptable procedures for complying with these particular requirements.

48–12–2 DOUGLAS (Applies to all C–54DO Series and the following DC–4 airplanes: 42904 through 42943, 42948 through 42952, 42982 through 42996, 43065 through 43068, 43071, 43072, 43093, 43094, and 43102)

To be accomplished not later than the date established in accordance with the provisions of special civil air regulation serial number SR–329, or any subsequent regulation affecting this compliance date.

As a result of investigation of heater fires, the following changes are to be accomplished in the nose and cabin heater installation:

1. Install steel firewall at station 260 (cabin forward bulkhead) from ceiling level to top of bulkhead to provide isolation between heater compartment and the space between cabin ceiling and top of fuselage. Also, replace present wood panels under heaters with metal panels. (Douglas Service Bulletin DC–4 No. 47 covers this same subject.)

2. (a) Install all heater control components in airtight steel containers.

(b) Replace present heater fuel supply pumps with a single electric driven pump attached to No. 2 main fuel tank.

(c) Provide shrouds around all heater fuel line fittings in fuselage.

(d) Install a fire detector and extinguisher system for the nose heater and cabin heaters.

(Douglas Service Bulletins DC–4 No. 64 and 64 addendum cover this same subject.)

In some cases, operators have obtained approval from CAA regional offices for systems which differ in arrangement and detail from the above provisions. Designs which have been separately approved in this manner are considered to meet the intent of this Note.

This supersedes Note 46–39–2.

48–12–3 LOCKHEED (Applies to all aircraft as specified by Civil Air Regulations Amendments 41–3, 42–2 and 61–2)

To be accomplished not later than the dates specified in the above amendments as revised by special Civil Air Regulations Serial Nos. 385, 390, 390A, 390B and any subsequent regulations affecting these compliance dates.

All air carrier aircraft must be modified in all necessary respects to comply with the aircraft fire prevention requirements outlined in CAR Amendments 41–3, 42–2, and 61–2. Compliance with those requirements may be completed as follows:

1. Revise the smoke detection system in accordance with LAC Service Bulletin 49/SB–401. (Other rework shown to be equivalent to that covered by this Service Bulletin will also be acceptable.) (Applies to Serial Nos. 2512 through 2515, 2519 through 2543, 2545 through 2550, 2552 through 2555, 2560, and 2561 only.)

2. Inspect all cabin interior fabrics and finishes to determine that any substitutes or replacements for the materials originally installed comply with the applicable sections

[2] (Serial Nos. of airplanes affected by this rework are listed on the pertinent Service Bulletin(s).) (Also, additional information may be obtained from the "Supplement" to "Cross Reference List—Service Changes and Modification Items" which has been prepared and revised by the Douglas Company as of February 11, 1948.)

of CAR 04.3824, .3825, .4913 and .493. Safety Regulation Release 259 outlines acceptable procedures for complying with these particular requirements.

48-12-4 LOCKHEED (Applies to all aircraft as specified by Civil Air Regulations Amendments 41-3, 42-2, and 61-2)

To be accomplished not later than the dates specified in the above amendments as revised by special Civil Air Regulations Serial Nos. 385, 390, 390A, 390B and any subsequent regulations affecting these compliance dates.

All air carrier aircraft must be modified in all necessary respects to comply with the fire prevention requirements outlined in CAR Amendments 41-3, 42-2, and 61-2. Compliance with the requirements may be completed by accomplishing the modifications outlined in the following listed Lockheed Service Bulletins. Other rework shown to be equivalent to that covered by the Service Bulletins will also be acceptable.

49/SB-175, "Installation of Cabin Door Louver Covers and Door Stops"; 49/SB-179, "Inspection and Replacement of Crew Seat Upholstery Covers"; 49/SB-180, "Rework of Receptacles for Used Towels, Paper, and Waste"; 49/SB-181, "Rework of Baggage Compartment Lining"; 49/SB-183B, "Installation of Smoke Detectors"; 49/SB-184, "Installation of CO_2 Provisions in Cargo Compartment"; 49/SB-188, "Enclosure of Cabin Heater Fuel Control System Components"; 49/SB-191, "Replacement of Fire Wall and Fire Seal Fittings and Cable Seals," "Installation of CO_2 Fire Extinguisher Check Valves"; 49/SB-153, "Sealing of Access Doors in Stub Wing Fillet"; 49/SB-216, "Relocation of Fenwal Fire Detectors"; 49/SI-44, "Installation of Metal Main Landing Gear Aft Doors."

48-12-5 BELL.

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.)

48-13-1 BEECH (Applies to all 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.)

48-13-2 BELL (Applies to all aircraft 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.)

48-13-3 PIPER (Applies to airplanes with battery hold-down of metal bracket with fibre insulation at its end.)

Compliance required by October 1, 1948.

To eliminate battery short circuits caused by defective battery hold down brackets, replace brackets by wood blocks, Piper part Nos. 84682-3 and 84682-9 or equivalent. (Piper Service Bulletin No. 105 dated February 18, 1948, covers this same subject.)

48-13-4 PIPER (Applies to Serial Nos. 12-1 through 12-3450; 12-3452; 12-3454 through 12-3467; 12-3469 through 12-3471; 12-3473 through 12-3491; 12-3493 through 12-3504; 12-3506; 12-3507; 12-3511 through 12-3520; 12-3522 through 12-3531; 12-3533; 12-3535 through 12-3543; 12-3545 through 12-3548; 12-3553; 12-3901 through 12-3958; 12-3960 through 12-3962; 12-3965 through 12-3976; 12-3983; 12-3984; 12-3988; 12-3990 through 12-3994)

Compliance required by May 1, 1948.

To avoid arcing between the fuse-clip and the wire attachment plate on the fuse block caused by loosening of the fuse-clip attaching rivets, replace rivets by No. 4 machine screws and stake threads. Piper Service Bulletin No. 105 dated February 18, 1948, covers this same subject.)

48-13-5 LOCKHEED (Applies to all aircraft equipped with Hamilton Standard 2C15 propeller blades)

Canceled June 28, 1948.

48-13-6 BELLANCA (Applies to Serial Nos. 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 fire wall 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.)

48-13-7 AERONCA (Applies to Serial Nos. 11AC-1 through 11AC-931)

Compliance required at next periodic inspection but not later than May 1, 1948.

To eliminate interference and failure of the turnbuckle forks at the attachment points of the two elevator control cables to the horn located on the bottom of the control column, inspect to determine that AN161-16RS turnbuckle forks have been replaced by AN160-16S forks. The distance between the bottom of the fork slot to the center of the attachment bolt on the new fork is $\frac{15}{32}$ inch and the original fork is only ⅜ inch. (Aeronca Service Helps and Hints No. 19 cover this subject.)

48-14-1 PIPER (Applies to Serial Nos. 12-1 through 12-1869; 12-1872; 12-1873; 12-1878; 12-1879; 12-1881; 12-1883; 12-1885 through 12-1900; 12-1901 through 12-1921; 12-2001 through 12-2008; 12-2010 through 12-2012; 12-2016; 12-2017; 12-2036 through 12-2038; 12-2042; 12-2043; 12-2047; 12-2050; 12-2051)

Compliance required prior to August 1, 1948.

To prevent possible fuel leakage at the connection of the elbow fitting with the rear fuel valve, replace elbow with Piper P/N 11610. (Piper Service Bulletin No. 104 dated January 30, 1948, covers this same subject.)

48-14-2 GRUMMAN (Applies to all G-21A (converted TRF-5 and JRF-6B) with reverse direction mixture controls)

Superseded by 50-15-1.

48-14-3 BEECH.

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.

48-14-4 DOUGLAS (Applies to all aircraft prior to Model C-54G)

Compliance required by November 1, 1948.

Because of fire hazard install a tail pipe shroud deflector on each tail pipe shroud assembly to prevent flame from a Zone 1 fire entering the engine accessory section through the space existing between the shroud and cowling. AN3-3A bolts may be substituted for the AN3C-3A bolts called out in the Service Bulletin. (Douglas Service Bulletin C-54-289 addendum covers this same subject.)

48-15-1 MARTIN (Applies to Serial Nos. 9125 and 9159 through 9167)

Compliance required by July 1, 1948.

As a fire protection measure, remove the existing corlac-type cable from the automatic pilot system and install shielded copper type cable. (Martin Service Bulletin No. 9 dated December 30, 1947, covers this same subject.)

48-15-2 MARTIN.

Compliance required by July 1, 1948.

As a fire protection measure, replace the oil tank vent line (Martin P/N 2021A83751) running forward from the fire wall, with fire resistant hose (Martin P/N 2021A84127 or equivalent). (Martin Maintenance Note No. 28 dated January 22, 1948, covers this same subject.)

48-15-3 DOUGLAS.

Compliance required by November 1, 1948.

Because of service failures of hydraulic pressure regulator valves, the following must be accomplished:

1. (a) Modify Douglas hydraulic pressure regulator valve P/N 5104005, P/N 5231848, or P/N 5327293 to the equivalent of Douglas regulator P/N 5332857, or

(b) Convert Douglas hydraulic pressure regulator valve P/N 5104005, P/N 5231848, or P/N 5327293 to Douglas regulator P/N 5332857, or

(c) Install Douglas hydraulic pressure regulator P/N 5332857, or

(d) Install Bendix hydraulic pressure regulator P/N 407484, or

(e) Install Air Associates hydraulic pressure regulator valve P/N HC-3600, or

(f) Install Vickers hydraulic pressure regulator valve P/N AA-34551, P/N AA-34552, or P/N AA-34585 which must have the letter "C" or subsequent terminating the regulator serial number, i. e., "Serial No. 00000C," "Serial No. 00000D," etc.

2. Install a hydraulic fluid filter with Purolator core in regulators listed in 1. (a) through (d) above.

(Douglas Service Bulletin DC-4 No. 22, "Rework of Hydraulic Pressure Regulator Valve" with addendum, "Optional Installation of Hydraulic Pressure Regulators" covers part 1. Douglas Service Bulletin C-54-239, "Installation of Filter in Hydraulic Regulator Operating Line," covers part 2.)

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 3½-inch 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 ten power and adequate light.

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

48-17-1 DOUGLAS (Applies to all aircraft as specified by Civil Air Regulations Amendments 41-3, 41-18, 42-2, 42-8, 61-2, and 61-16)

To be accomplished not later than the dates specified in the above amendments and any subsequent regulations effecting these compliance dates.

All air carrier aircraft must be modified to comply with the fire prevention requirements as outlined in CAR Amendments 41-3, 41-18, 42-2, 42-8, 61-2, and 61-16. The modification outlined in the following listed Douglas Service Bulletins are required for compliance with these amendments. Other modifications shown to be equivalent to those covered by the service bulletins will also be acceptable.

DC-3 #250, "Installation of Fire Detector in Engine Accessory Section and Smoke Detector in Aft Cargo Compartment"; DC-3 #252, "Rear Baggage Compartment Access Door and Vent"; DC-3 #258, "Elimination of Holes in Fire Wall, Addition of Control Cable Seals, Replacement of Dural Plates and Fittings With Steel Plates and Fittings, Replacement of Fluid Carrying Lines Forward of Fire Wall With Steel or Fire Resistant Flexible Hoses"; DC-3 #259, "Installation of Shut-off Valves on Lines Carrying Combustible Fluids Into the Engine Accessory Section." (Installation of additional fuel valves listed on Page 2 of this Bulletin is recommended but is not mandatory.)

NOTE: It will be noted that Service Bulletins DC-3 #258 and #259 apply to all DC-3C and DC-3D (C-47 and C-117) Series airplanes only with P & W R-1830 engines. Since there are various differences in early DC-3 power plant installations with P & W S1C3-G engines and Wright GR-1820 engines, it will be the operator's responsibility to use these two Bulletins as a guide and develop the fire prevention items for other DC-3 Series airplanes accordingly.

In addition to the above, it will be necessary to ascertain that all interior materials and finishes comply with applicable sections of CAR 04b.3824, 04b.3825, 04b.4913, and 04b.493. Safety Regulation Release 259 outlines acceptable procedures for complying with these particular requirements.

48-17-2 MARTIN (Applies to Serial Nos. 9125 through 9127; 9129 through 9131; and 9158 through 9167)

Compliance required by June 1, 1948.

To eliminate the fire hazard due to the insulation becoming saturated with hydraulic fluid, remove the fibre glass and rubberized hair and vinyl linings from both the forward and aft belly cargo compartments. (Martin Service Bulletin No. 26 dated February 24, 1946, covers this subject.)

48-17-3 SIKORSKY.

Compliance required at each 400-hour inspection.

In order to preclude any malfunctioning of the main rotor gear box due to the normal wear which may be expected to occur in the primary and secondary planet pinion shafts (Sikorsky P/N S-535524), these parts should be rotated 180° or replaced by new parts after 400 hours of operation. If rotated, replacement by new parts should be made after an additional 400 hours. (Sikorsky Aircraft Service Information Circular No. 8 Revision "B" dated January 13, 1948, covers this same subject.)

48-17-4 DOUGLAS (Applies to all aircraft equipped with Pesco Vacuum Pumps and Separators)

To be accomplished not later than the date established in accordance with the provisions of special civil air regulation serial number SR-329, or any subsequent regulation affecting this compliance date.

In case of malfunctioning of vacuum pumps or other vacuum pump system components, fire can occur within the lines and burn through the hose connections into the engine compartment. To prevent such occurrences a hose liner must be installed between the exhaust port vacuum pump fitting and the separator line or a stainless steel flexible hose must be installed between the pump and the separator. (Douglas Service Bulletin DC-4 No. 85 as revised March 10, 1948, covers this same subject.)

48-18-1 GRUMMAN (Applies to all G-21A (converted OA-9, JRF-1 through JRF-5, and JRF-6B under TC 654))

Superseded by 53-24-1.

48-18-2 SIKORSKY (Applies to Serial Nos. SS-5101 through SS-5157)

Compliance required at first main gear box overhaul but in any event not later than the next 400 hours of operation.

To prevent cracks caused by stress concentration at the corners of the internal splines on the bevel drive gear (Sikorsky P/N S-535360), a 1/32-inch radius relief should be formed at the lower end of each spline. The procedure for accomplishing this modification is given in Sikorsky Aircraft Information Circular No. 40 and No. 40 Revision "A".

48-18-3 LOCKHEED.

Compliance required every 300 hours of operation.

1. Cabin supercharger drive shafts should be inspected at periods not to exceed 300 hours of operation in accordance with instructions and procedures specified in LAC Service Bulletin 49/SB-107, revised November 22, 1946. Concurrent with the foregoing inspection, the rear drive shaft universal joint, clutch end bearing, carbon oil seal and overriding clutch, should be completely overhauled. All defective parts are to be replaced and clutch end bearing 111GE is to be replaced regardless of condition. The sheet-metal retainer (LAC P/N 257643) is to be replaced as soon as practicable with bronze retainer (LAC P/N 299449).

2. The replacement of clutch end bearing 111GE will not be necessary if the supercharger is reworked to provide a double bearing support for the rear universal joint, and overrunning clutch assembly. This rework will also require replacing the present carbon faced oil seal with a slinger type and modify the supercharger housing to suit. The preflight inspections for oil seal damage can be dispensed with when slinger type seals have been installed. (LAC Service Bulletin 49/SB-393 covers this same subject.)

48-18-4 LOCKHEED (Applies to Serial Nos. 1975 through 1980 and 2021 through 2088)

Compliance with the following was required prior to September 19, 1947, by direct notification of operators.

Add thermocouple to cabin supercharger bevel gear housing, and direct reading indicator in cockpit to record temperatures of the rear supercharger universal coupling support bearing. (LAC Service Bulletin 49/SB-390 covers this same subject.)

48-19-1 BELL.

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.)

48-19-2 LOCKHEED.

Compliance required at next No. 1 inspection, and thereafter at periods not to exceed 550 hours of operation.

Inspect the two fittings, P/N 256019, "Lever-Cockpit Torque Tube," in the elevator control system for the presence of cracks or other signs of failure at the rivet attachment points, particularly at the base of the arm. Remove and replace any defective parts. The periodic inspection may be discontinued if the two levers are replaced with new parts, LAC No. 302349, or are reinforced with additional fittings, LAC No. 302337, or their equivalents. (LAC Service Bulletin 49/SB-456 covers the lever substitution or reinforcement.)

48-19-3 DOUGLAS (Applies to Serial Nos. 42854 through 42896; 43000 through 43024; 43035 through 43052; 43055 through 43058; 43061 through 43064; and 43105 through 43110)

Compliance required by September 15, 1948.

Due to two failures in flight and to reported excessive looseness in the elevator trim tab operating mechanism, the following must be accomplished:

1. Rework drum, P/N 4344461 into drum, P/N 4357010-4, by boring hole in end of drum 0.8755-0.8745 diameter, 0.188-0.189 deep and concentric within 0.002 full indicator reading, and press in bushing 4357010-2 into hole. Remove nut, P/N 2335472, press in nut, P/N 2357008, in place so that two holes in nut match two holes in drum, P/N 4357010-4, and insert two pins, P/N 1335480, and stake in place. This rework changes Jackshaft mechanism assembly, P/N 434460, into P/N 4357010.

2. Rework push-pull tubes, P/N 2344790, into P/N 2357984-2 by cutting off swaged end of tube 1/8 inch so that new tube length is 10 inches. Insert large end of plug, P/N 2357980, into tube 1¾ inches, drill two 0.161 diameter holes (#20 drill) and attach plug to tube with two rivets, P/N AN 430 AD5-16. Machine hex end on socket, P/N 2331924, and install in end of tube opposite to plug, P/N 2357980. Rework end assemblies, P/N 2331925 into end assemblies, P/N 2357983, and install with locknuts, P/N AN 316-5R and washer 1357982.

Reassemble trim tab mechanism and install on aircraft. (Douglas Service Bulletin DC-6 No. 123 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.)

48-22-1 PRATT & WHITNEY DOUBLE WASP ENGINE (Applies to aircraft powered with Double Wasp Engines equipped with water alcohol injection system)

Compliance required prior to next flight.

If water injection lines to carburetor are incorporated, the water system should be blanked off. This should be accomplished by disconnecting water feed line and installing 1/2-inch pipe plug in regulator entrance. Water vent line should be disconnected at regulator and 1/4-inch pipe plug installed. Water tank should be drained and pump disconnected to preclude inadvertent water flow or pump failure from dry running. If impracticable to secure lines with tape to prevent vibration, they should be removed and stored until system reactivated. Operation of aircraft should be restricted to dry take-off powers pending correction.

Water alcohol injection systems may be reactivated provided either of the following two modifications are accomplished:

1. (a) Incorporate general control solenoid valve part 40R1009 (or equivalent approved by Pratt and Whitney (P & W No. 139262)) in vapor vent line extending from water tank to water regulator and,

(b) Incorporate Mansfield and Green Company check valve 31-B (P & W No. 139263) in water feed line extending from water pump to water regulator. The installation of these parts should be accomplished in accordance with instructions issued by Pratt and Whitney.

2. (a) Incorporate hydraulically operated check valve Airite Products No. 1015 (or equivalent approved by Pratt and Whitney) in vapor vent line extending from water tank to water regulator and,

(b) Incorporate Parker check valve No. 527-10D (or equivalent approved by Pratt and Whitney) in water feed line extending from water pump to water regulator. The installation of these parts should be accomplished in accordance with Consolidated-Vultee drawing 6121501-P.

48-22-2 RYAN (Formerly North American) and BEECH (Applies to all aircraft equipped with Continental E185-1 and -3 engines having Serial Nos. 1000 through 4566 and 10,000 through 10,025)

Superseded by 49-2-4.

48-23-1 RYAN (Formerly North American)

Superseded by 48-40-1.

48-24-1 MARTIN (Applies to Serial Nos. 9125 through 9133, and 9158 through 9167)

Compliance required by September 1, 1948.

Reinforce the Nos. 1 and 2 (top and middle) rudder hinge brackets and fairing in accordance with Martin Service Bulletin No. 31, dated March 22, 1948. Other reinforcements shown to be equivalent to those covered in the Service Bulletin will also be acceptable.

48-24-2 DOUGLAS.

Superseded by 49-27-3.

48-25-1 DOUGLAS. (Applies to all C-54DC Series and DC-4 airplanes prior to Serial No. 43095, operated in scheduled and non-scheduled air carrier passenger service)

Compliance required by May 1, 1949.

Because of previous fires and the fire hazard which exists in Zone 3, it is necessary that the following be accomplished:

1. To increase the effectiveness of the fire warning system in the nacelles, seven fire detector units must be installed in the nacelle (Zone 3) aft of the firewall at the following approximate locations:

(a) 1 unit at the top of nacelle approximately 15 inches forward of the front spar.

(b) 1 unit at each wing section fireseal.

(c) 1 unit at the aft end of the nacelle area under the fuel tank and near the fuel supply lines.

(d) 3 units on the aft face of the firewall (one near the top and one at each side).

These fire detectors should be connected into the existing engine accessory compartment fire detector circuit, and the entire system wired into the circuit of the audible warning system. (Douglas Service Bulletin DC-4 No. 60 covers this same subject.)

2. Revise the present fire extinguisher system in nose wheel well in order to install two additional 15 pounds CO_2 bottles. Provide additional plumbing aft of the firewall in each nacelle by running a perforated line across the top of the nacelle directly aft of the oil tanks and then diagonally aft and down to a point under the bottom wing skin aft of the front spar, at which point it will cross the nacelle and run diagonally forward and up to the original starting point. The discharge pipes tee into the present ¾ ring O. D. supply pipes for the accessory section. All aluminum CO_2 supply pipes between firewall and front spar and between the inboard and outboard fireseal ribs of each nacelle are to be replaced with steel pipe. (Douglas Service Bulletin DC-4 No. 67 covers this same subject.)

48-25-2 CESSNA (Applies to all aircraft equipped with Cessna welded exhaust muffler assemblies)

Inspection required each 25 hours of operation.

Remove the carburetor air-heater muff and cabin heater muff and inspect the muffler assemblies for any evidence of cracks paying particular attention to the areas of the mufflers and stacks adjacent to where the exhaust stacks and tailpipe are welded to the muffler assembly. The present placard calling for inspection of the mufflers every 100 hours should be revised to call for this inspection every 25 hours. This directive is intended to apply to only those aircraft equipped with exhaust muffler assemblies that are fabricated by welding exhaust stacks to muffler.

48-25-3 CESSNA.

Inspection required each 100 hours of operation.

Inspect wing drag wire system for loose or broken drag wires and inspect ribs for damage. Inspection openings should be installed aft of the rear spar just inboard of Rib 5 and just outboard of Rib 10 if not already installed. Drag wires should be rerigged if loose, or replaced if broken, and drag ribs should be repaired or replaced if buckled. No. 6 drag wires in the outer wing panel found broken are to be replaced with No. 8. Buckling of the intermediate rib flanges at the spar cutouts does not render the wing unairworthy; however, reinforcement with Cessna P/N 10004-58 is recommended. If the flanges are cracked the reinforcement should be installed. (Cessna Service Letters 27 and 39 cover this same subject.)

48-26-1 LOCKHEED (Applies to aircraft equipped with Curtiss C632S-A14/850-4C2-0 propellers)

Compliance required by July 7, 1948, and August 1, 1948.

To avoid failures under certain operating conditions, the following engine speed restrictions must be observed and two placards covering these restrictions must be installed in the cockpit. (Temporary placards must be installed not later than July 8, 1948, and permanent placards to be supplied by Lockheed installed not later than August 1, 1948.) One placard must be in full view of the pilots and one in full view of the flight engineer. Placard should read as follows:

"In flight avoid continuous operation below 1,625 r. p. m. and between 1,725 and 1,850 r. p. m., 1,900 and 2,000 r. p. m. and between 2,100 and 2,375 r. p. m. On ground avoid continuous operation between 1,200 and 1,450 r. p. m." For visual reference, all tachometers in the airplane must be marked as follows not later than August 1, 1948: "Red Band 1,200 to 1,625 r. p. m. Green band 1,625 to 1,725 r. p. m. with green radial line at 1,675 r. p. m. Red band 1,725 to 1,850 r. p. m. with green radial line at 1,875 r. p. m. Red band 1,900 to 2,000 r. p. m. Green band 2,000 to 2,100 r. p. m. with green radial line at 2,050 r. p. m. Red band 2,100 to 2,375 r. p. m. with green radial line at 2,400 r. p. m. Yellow band 2,400 to 2,800 r. p. m. with red radial line at 2,800 r. p. m."

48-26-2 REPUBLIC.

Superseded by 49-3-1.

48-27-1 LOCKHEED (Applies to all Model 49 aircraft modified to permit operation at 93,000 pounds take-off and 83,000 pounds landing weights, and Model 49 aircraft, redesignated as Model 149, and modified to permit 100,000 pounds take-off and 83,000 pounds landing weights)

Compliance required not later than next wing change or aircraft overhaul and in no event later than February 1, 1949.

In order to comply with the requirements of Civil Air Regulations, fuel dump stand pipes must be installed. (LAC Service Bulletin 49/SB-403 and LAC Service Instruction 49/SI-12 dated September 25, 1946, cover this same subject.) Pending the accomplishment of the above change, operations are permissible at the increased weights.

48-27-2 SIKORSKY.

Superseded by 49-4-2.

48-27-3 LOCKHEED (Applies to airplanes equipped with Curtiss C632S-A/850-4C2-0 propellers)

Compliance required by August 1, 1948, and February 1, 1949.

To increase the ability of the propeller hubs to withstand excessive stresses under certain operating conditions the hubs must be returned to Curtiss-Wright Corporation, Propeller Division, for shot peening of the threaded portion of the hub barrels. Effective August 1, 1948, hubs not peened before accumulating 2,500 hours of operating time are to be permanently removed from Constellation operation. Hubs not peened before accumulating 2,000 hours of operating time are to be temporarily withdrawn from operation until shot peened. Peening must be accomplished on all hubs by February 1, 1949, regardless of accumulated operating time.

48-28-1 TEMCO (Formerly Globe)

I. Inspection required at each 20 hours operation until compliance with item II below is made. Cracks are occurring in the last bulkhead (Station 185) of the fuselage at the bottom rudder hinge and stop fitting, and the bulkhead must be inspected for such cracks. If cracks are found, a repair must be made in accordance with Item II below.

II. Compliance required not later than September 1, 1948.

To preclude the possibility of a structural failure in the rear bulkhead of the fuselage, at the bottom rudder hinge and stop, a steel reinforcement must be made as follows:

1. If cracks are found in the bulkhead drill No. 50 (0.07 Diameter) check holes at end of each crack.

2. Fabricate and install a steel reinforcement fitting as defined in TEMCO Drawing 11-213-5074.

The Texas Engineering and Manufacturing Company, Inc., will furnish free of charge the steel reinforcement fitting described in Item 2 above. (TEMCO Customer Service Maintenance Bulletin No. 26 covers this same subject.)

48-28-2 DOUGLAS.

To be accomplished not later than April 1, 1949.

As a fire protection measure in order to prevent burn through, replace the present cabin heater combustion ducts with corrosion resistant steel ducts. (Douglas Service Bulletin DC-4 No. 89 covers this same subject.)

48-29-1 RYAN (Formerly North American) (Applies to all Navion airplanes employing Carter Engine Driven Fuel Pumps not presently equipped with vent drain lines)

To be accomplished as soon as possible but not later than October 15, 1948.

Several instances of rupture of the main diaphragm of Carter fuel pumps have occurred. This is considered a fire hazard, since fuel can then squirt from the pump breather hole onto the engine. To correct this condition the pump breather should be provided with an overboard drain to carry fuel clear of the airplane if the diaphragm ruptures. Before installing the drain line, the fibre screen and snap ring must be removed from the pump breather opening. The drain line should vent into a low pres-

sure area so that any fuel leaving this drain will not be in the proximity of any engine or cabin heater exhaust and will not contact the airplane or enter any air intake line, in ground or flight operation. (Ryan Navion Service Letter No. 47 covers this same subject.)

48-31-1 GRUMMAN.

To be accomplished by September 15, 1948.

Inspect Upper Terminal (P/N 17257-1) of stabilizer strut (P/N 17256) for cracks extending radially from the outside edge of the ears to the inside of the hole in which the shoulder bushings are pressed. Cracked terminals should be replaced with steel terminals. All terminals without cracks may be left in service if inspected every 100 hours. (Grumman Aircraft Engineering Corp. Service Bulletin No. 22 dated July 1, 1948, covers this same subject.)

48-32-1 TIMM (Applies to all serial numbers)

Compliance required as indicated below:

Instances have been reported of throttle quadrants pulling off the fuselage skin to which they were glued and nailed during manufacture. Both front and rear cockpit throttle quadrants must therefore be inspected for looseness immediately and if found loose must be repaired prior to the next flight.

This inspection should be repeated frequently until such time as the throttles are reinforced as described below, or in an equivalent manner. Reinforcements must be installed not later than January 1, 1949.

1. Insert four AN-3 bolts through wood plate on outboard side of throttle quadrants through support blocks and fuselage skin using one bolt at each plate corner. Install large flat washers or metal backing plates beneath bolt heads and nuts to avoid crushing wood. Loose throttle quadrants should be reglued prior to making this reinforcement.

48-33-1 LOCKHEED (Applies to all 49-46, 149-46, 649-79 and 749-79 Models, through serial number 2588)

Compliance with new placard restrictions required immediately. Placards to be installed not later than December 1, 1948.

Remove existing fuel placards and install three new placards covering fuel system operational procedure.

A. The placard to be removed from the 49-46 airplane is located on the Flight Engineer's lower instrument panel and reads:

"Caution:

Do Not Land With More Than 900 Gallons of Fuel In Each Outer Tank."

B. The placard to be removed from the 649 airplane is located on the Flight Engineer's uppermost panel and reads:

"Fuel Load Restrictions Model 749. Take-off: Do Not Take-Off With Less Than the Following Fuel Loads:

The placards to be added read as follows:

1. "This Airplane Must Be Fueled, and Fuel Used, in Accordance With the Charts in the Approved Operating Manual." (LAC, Part M302166.)

2. "At All Times, Fuel in Tanks 2 and 3 Must Not Exceed Fuel in Tanks 1 and 4 respectively." (LAC, Part M302163.)

3. "Fuel Transfer From One Tank to Another Is Not Permitted. When Operating the Fuel System on Crossfeed, the Tanks Not Being Used Must Be Turned Off." (LAC, Part M302109.)

On Models 49-46, 149, 649, and 749 install placard 1 on Pilot's instrument panel and placards 1, 2, and 3 on Flight Engineer's uppermost instrument panel. Placard 3 has been installed on airplane serial number 2577 and subsequent, prior to delivery. (LAC Service Bulletin 49/SB-439, dated March 23, 1948 covers this same subject.)

48-34-1 BEECH (Applies to all Model 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 Beech D18C 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 $\pm$0.010 inch. Bolts that do not meet this specification are under strength and must be replaced. Inspect the fuselage to stabilizer attachment fitting, Part No. 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.)

48-34-2 (Applies to all aircraft engaged in sulphur dusting. Replaces Airworthiness Maintenance Bulletin No. 63.)

Compliance at time of original certification or if previously certificated and Airworthiness Maintenance Bulletin No. 63 has not been complied with, compliance required by October 1, 1948.

To decrease the hazards from fire during dusting operations involving the use of sulphur dust the following fire preventive measures, formerly in Airworthiness Maintenance Bulletin No. 63, must be complied with:

(1) The engine exhaust system must be so arranged that it will not discharge exhaust gases under or along the bottom of the airplane.

(2) The fuselage aft of and in the vicinity of the hopper must be completely bonded. All fittings and struts adjacent to the hopper should be bonded to each other and the hopper to the fuselage.

(3) The agitator should be provided with sealed bearings or the bearings should be readily accessible for lubrication.

(4) The hopper gate should be of non-ferrous material, well fitted to its guide channels to prevent friction and accumulation of dust in the channels and should be bonded to the hopper.

(5) The lower surface of the fuselage, in the immediate vicinity and three feet aft of the spreader discharge opening must be covered with thin gage metal, plywood or equivalent fire resistant material. Where fabric on the bottom of the fuselage is not eliminated in this installation, the protective covering, to be installed on the outside of the fabric, must be secured in such a manner that will prevent accumulation of dust between the protective covering and the fabric. This may be accomplished by using sealants such as acetate doped fabric tape or other adhesives to bond the protective covering to the fabric.

These mandatory measures are discussed in more detail in Safety Regulation Release No. 89.

Aircraft which do not comply with these measures shall be restricted, against the use of sulphur for dusting, on the operation limitations.

48-37-1 PIPER.

Superseded by 48-46-1.

48-38-1 AERONCA (Applies to Serial Numbers 15AC-1 to 15AC-227 inclusive, or S15AC-1 to S15AC-227 inclusive)

Compliance required before operation at temperatures below freezing, but in any case not later than December 1, 1948.

To prevent the possible loss of engine oil pressure and subsequent engine damage during cold weather starting, the present oil cooler installed on the suction side of the engine oil pump must be revised and installed on the pressure side of the pump.

This change involves the following:

1. Installation of an oil cooler adapter assembly, Continental Motors Corporation's Drawing 530536 and 530697, replacing pressure oil screen. This pressure oil screen is then used in adapter assembly.

2. Install new suction oil screen, Continental Motors Corporation's Part No. A 20878.

3. Replace present oil cooler by-pass spring with a 35 p. s. i. spring.

4. Replumb oil cooler with different fittings and line arrangement.

(Aeronca Service Helps and Hints Bulletin No. 35 covers this same subject.)

48-39-1 AERONCA (Applies to all Model 7 Series Aircraft)

To be accomplished as soon as possible but not later than November 1, 1948.

Inspect front and rear control stick socket castings, Part No. 2-705, for cracks at the ears to which the push-pull tube attaches. If found cracked, the castings should be replaced. To prevent future failures the bolt, nut and washer now installed are to be replaced with a clevis bolt, AN24-16 (1$\frac{1}{16}$ grip) and an AN320-4 shear nut so that excessive loads cannot be placed on the socket ears.

48-40-1 RYAN (NORTH AMERICAN).

Superseded by 49-11-1.

48-40-2 MARTIN.

Superseded by 48-44-3.

48-40-3 CONSOLIDATED-VULTEE.

Superseded by 49-43-1.

48-41-1 CONSOLIDATED-VULTEE (Applies to all Model 240 Aircraft)

Compliance required as indicated.

I. Inspect wing bulkhead flanges and stringers at their intersections in the fuel tank area for cracks and repair as necessary at each Number 2 inspection (or equivalent periodic inspection approximating 100 hours) until permanent repairs and rework are accomplished.

II. Complete rework in accordance with CVAC Service Bulletin No. 240-166A dated September 27, 1948 or equivalent should be accomplished not later than the next engine change.

48-41-2 STINSON.

Superseded by 49-18-2.

48-42-1 DOUGLAS (Applies to all DC-6 airplanes)

Superseded by 49-37-1.

48-42-2 LOCKHEED (Applies to all Lockheed Model 18 aircraft operated in scheduled and non-scheduled air carrier passenger service)

To be accomplished not later than the date established in accordance with the provisions of special civil regulation serial number SR-329, or any subsequent regulation affecting this compliance date.

All Lockheed Model 18 aircraft mentioned above must be modified to comply with the fire prevention requirements as outlined in CAR Amendments 41-3, 42-2, and 61-2. Compliance with these requirements may be accomplished by completing the modifications outlined in the following listed Lockheed Service Bulletins. Other rework shown to be equivalent to that covered by the Service Bulletins will also be acceptable.

LOCKHEED SERVICE BULLETINS

Item	CAR 4	No.	Title
1	.3824	18/SB-122	Revision to Waste Paper Container.
		18/SB-123	Installation of No Smoking Placard.
2	.38250	18/SB-124	Installation of Fire Detection and Extinguishing System.

LOCKHEAD SERVICE BULLETINS—Continued

Item	CAR 4	No.	Title
2	.38251	18/SB-125	Installation of Hydraulic Reservoir Oil Tank Guard.
		18/SB-126	Installation of Windshield Alcohol Tank Guard.
		18/SB-127	Sealing of Baggage Compartment.
3	.43	18/SB-135	Material Substitution—Propeller Feathering Reserve Oil Tank Support.
4	.4700	18/SB-130	Firewall Revision.
5	.49 .4900	18/SB-128	Replacement of Power Plant Lines and Fittings.
	.4901	18/SB-129	Installation of Emergency Oil Shut-Off Valves.
	.4902	18/SB-131	Revision to Cabin Heater Ducts.
	.4902	18/SB-133	Replacement of Firewall and Power Plant Lines and Fittings.
		18/SB-136	Installation of Dual Fuel System Fire-Resistant Plumbing Provisions for Selective Shut-off-Propeller.
		18/SB-141	Anti-icing System (Airplanes having Standard Systems) Provisions for Selective Shut-off-Propeller.
		18/SB-141A	Anti-icing System (Airplanes with Tank and Pump in L. H. Nacelle).

In addition to the above, inspect cabin interior fabrics and finishes to determine that these materials or any substitutes or replacements for the materials originally installed comply with the applicable sections of CAR 4.3824, 0.3825, 0.4913 and 0.493. Safety Regulation Release 259 outlines acceptable procedures for complying with these particular requirements.

48-43-1 MARTIN (Applies to all Model 202 aircraft)

To be accomplished as soon as practicable, but not later than January 1, 1949.

In order to eliminate excessive hydraulic fluid leakage, the following shall be accomplished:

1. Replace the system emergency and flap synchronizer by-pass valves, P/N 2021A82089, (Hydro-Aire #4010) with new valves P/N 2021A82089-01 (Hydro-Aire # 4030). (This same subject is covered by GLM Maintenance Note No. 89).

2. Replace the nose gear steer-valve P/N 2021A80590, by new valve P/N 2021A23493, 2021A23508 or 2021A82131. (This same subject is covered by GLM Service Bulletin No. 46.)

3. Replace the two hydraulic test outlet dustcaps, P/N's 155-32-10 and 155-32-20, by new sealing caps, P/N's 2021A82133 and 2021A82134. (This same subject is covered by GLM Maintenance Note No. 88.)

4. Install safety wiring on main and landing gear pressure relief valves, Airex Nos. D-1068-3500 and 1265-900. (This same subject is covered by GLM Service Bulletin No. 67.)

5. Replace all 24ST aluminum alloy tubing used in 3000 psi hydraulic pressure lines with new 61ST tubing. (This same subject is covered by GLM Service Bulletin No. 66.)

6. Install proper size AN6246 leather backup rings at the accumulator and pressure ports of the system unloading valve, Vickers Model AA-34582, at the ports of the emergency brake valve Bendix No. 146251 and at all other ports where a universal type fitting connection is used. (GLM Standard Practice Sheet #35028 describes the correct method of assembling these connections.)

48-43-2 CESSNA AND AERONCA (Applies to all Cessna Model 170 and Aeronca Model 15AC airplanes equipped with Continental C-145-2 engines serial numbers 3001-8-2 to 3775-8-2, inclusive)

Compliance required not later than December 31, 1948.

Some piston pin plugs of the loose fit type with which the engines as noted were originally equipped, are subject to rapid and excessive wear which may eventually cause disintegration of the piston pin plugs, failure of pistons, and complete engine failure due to oil stoppage caused by metal particles on the screen and in the system.

To preclude the possibility of such failures, Piston Pin and Plug Assemblies, Part No. 25262-A1 (with loose fit plugs), should be removed and replaced with Piston Pin and Plug Assemblies, Part 530830 (with press fit plugs) as soon as possible, and in no case later than the compliance date shown.

Pending installation of the new assemblies, oil screens should be inspected prior to each flight. If aluminum particles are evident on the screen the airplane should be removed from service until the change is accomplished. (Continental Service Bulletins Numbers M48-20 and M48-25 cover this same subject.)

48-43-3 CURTISS-WRIGHT.

Deleted 1-31-49.

48-44-1 DOUGLAS. (Applies to all DC-4 and C-54 Series Aircraft)

To be accomplished not later than March 1, 1949.

In order to preclude nose gear retraction malfunction due to particles of disintegrated packing clogging the present upline orifice fitting, it is necessary to install an orifice fitting having a floating pin in the orifice hole and to replace the present packing used on the retracting cylinder with a more satisfactory packing. To accomplish this change:

1. Replace the present upline orifice fitting with a union fitting and rework the existing T fitting to include an orifice fitting (0.063-inch diameter floating pin in 0.090-inch diameter orifice hole) in the pipe threaded end.

2. (a) Replace the existing chevron packing on the nose gear piston assembly with two synthetic chevron packings and two leather chevrons. Install two dural packing rings on each respective end of the piston head.

(b) Replace existing packing on the nose gear cylinder end assembly with one dural packing ring, three synthetic chevron packings, and one leather chevron packing.

(c) Install two new washers over the end of the cylinder barrel. (Douglas Service Bulletin DC-4 #78 dated 5-4-48 covers this same subject.)

48-44-2 CURTISS-WRIGHT.

Compliance required at original certification and at every 7,500 hours of operation thereafter, or at the approved airframe overhaul period for air carriers.

Check the center wing-to-fuselage attaching bolts, parts Nos. AN8-23A, AN8-25A, and AN8-31A, to determine that they are properly torqued. The proper torque value for these bolts is between 480 to 690 inch-pounds as per Curtiss-Wright Drawing No. 20-230-1000.

For access to the 30 percent spar fitting, a 1½-inch diameter hole can be cut in the wing center section lower skin beneath the fitting, just forward of the beam, and far enough inboard so that the resultant opening will be completely covered upon re-installation of the wing root fairing.

This supersedes Note 47-51-6.

48-44-3 MARTIN.

Superseded by 49-9-1.

48-45-1 FAIRCHILD (Applies to all M-62 Series Aircraft)

Compliance required at each annual inspection.

(1) Inspect plywood butt plates for separation from wing spar ends. Remove only if loose and inspect spar end for rot which requires repair or replacement. Separation of spar laminations does not require replacement if the glue joints between spar webs and caps are sound. Glue new butt plates to spar ends working glue into any cracks between laminations.

(2) Cut a total of sixteen ½-inch diameter inspection holes in wing lower skin. These should be centered at the front edges of both spars at four approximately equally spaced sparwise stations in each outer panel. Use caution to avoid cutting the spars and ribs. Inspect spars for rot and separation of the plywood webs from the caps. Deteriorated parts should be scrapped or repaired. Dope fabric patches over holes.

(3) Provide ¼-inch drain holes in lower skin with centers not more than ¼ inch from front face of spars and from outer edge of each rib wherever holes are missing or have greater spacing. Clean out all dirt built up above edges of holes to insure complete drainage. Install seaplane grommets at all drain holes in areas splashed by water from landing wheels.

This supersedes note 48-7-4.

48-46-1 PIPER (Applies to all J3 Series and PA-11 Aircraft)

Superseded by 51-15-1.

48-47-1 CONSOLIDATED-VULTEE.

Superseded by 48-51-2.

48-47-2 BELLANCA.

Superseded by 48-50-1.

48-48-1 FREEDMAN PROPELLERS (Applies to Cessna 120 and 140, Culver V and V2, Globe GC-1A and GC-1B and Luscombe 8E airplanes equipped with Freedman propellers

Compliance required prior to August 1, 1947.

Freedman Aircraft Engineering (formerly Freedman Burnham) hubs, Models PC-203, PX-203 and PY-203 must be removed from engines rated above 80 h. p., with the exception of the PX-203 hub on the Franklin Model 4AC-199 engine. The propellers may be replaced by any propeller listed as approved on the latest revision of the pertinent aircraft specification.

This supersedes Note 47-22-2.

48-48-2 DOUGLAS (Applies to all DC-6 aircraft not equipped with steel vacuum pump discharge lines aft of the firewall and Chicago Metal Hose assemblies from the oil separator to the Pesco pump)

To be accomplished as soon as practicable, but not later than May 1, 1949.

In cases of malfunctioning of vacuum pumps or other vacuum pump system components, fire can occur within the lines and burn through the hose connection into the engine compartment. To prevent such occurrences, replace the present Aeroquip Hose P/N 360-10WD-15½, existing between oil separator and Pesco Vacuum pump, with a new Chicago Metal Hose Assembly No. 9273-1. (Douglas Service Bulletin No. 383 covers this same subject.) Also, to prevent fire from entering the zone behind the firewall, replace the dural vacuum pump discharge line, aft of the firewall, with a steel line. (Douglas Service Bulletin DC-6 #401 covers this same subject.)

48-48-3 CURTISS-WRIGHT (Applies to all C-46A, C-46D, C-46E, and C-46F airplanes)

Superseded by 50-19-1.

48-49-1 LUSCOMBE (Applies to all Model 8 series aircraft)

Compliance required by January 15, 1949.

If the present vertical stabilizer rear spar fuselage attachment fitting number 18419 is fabricated of 0.049 thickness steel or has been replaced by a new 0.049 thickness steel fitting from the Luscombe Airplane Corporation, this Airworthiness Directive does not apply.

Inspect the vertical stabilizer rear spar fuselage attachment fitting number 18419 for evidence of cracks in the flange of the fitting adjacent to the ⅜-inch tube welded across the web between the flanges. If the present fitting has been fabricated of 0.035 thickness steel and the ⅜-inch tube has been welded to the flanges with a satisfactory 360-degree weld and/or a partial weld (180°) provided

the flange of the fitting has been locally widened to a minimum of 3/16-inch edge distance at the 3/8-inch cross tube and there is no evidence of cracks in the flange, the fitting is considered satisfactory. However, if the fitting is cracked or does not have a satisfactory weld around the entire circumference of the bushing, the fitting must be reworked by making a complete 360° weld around the 3/8-inch tube attaching it to the flange in addition to welding any existing crack. As an alternate repair or reinforcement, weld one-half of an AN 960-616 washer or equivalent to each flange of the 18419 fitting so that the flat cut edge is parallel to the web of the fitting. In any event the fitting should be removed for reworking. If more than one crack is found in each flange, or if any crack has occurred between the bushing and the fitting web, the fitting must be replaced.

The Luscombe Airplane Corporation will furnish without charge a new fitting fabricated of 0.049 thickness steel for each old fitting fabricated of 0.035 thickness steel found to be defective. Luscombe Service Bulletin 3-47, dated 11-26-47, covers this same subject.

This supersedes Note 48-8-4.

48-49-2 NOORDUYN (Applies to all Army UC-64, UC-64A, UC-64AS, and UC-64B aircraft)

Compliance required as soon as possible but not later than February 1, 1949.

On airplanes equipped or about to be equipped with EDO Model 55-7170A floats, the float brace wire plates, Part No. 16-31131, must be reinforced in accordance with Noorduyn Service Bulletin No. E5/44, dated August 22, 1944, (obtainable upon request from Canadian Car and Foundry Company, Ltd., Montreal 3, Canada), or Army Air Forces Technical Order No. 01-155CB-13, dated October 9, 1944. Other reinforcements shown to be equivalent to those covered in the Service Bulletin or the Technical Order will also be acceptable.

48-49-3 DOUGLAS (Applies to all DC-6 airplanes)

Compliance required not later than March 1, 1949.

To reduce the probability of a loss of power for electrical circuits considered to be essential in flight, these essential circuits were designed to be connected directly to the master bus. Other less essential circuits are connected to the master bus through a 500 ampere Burndy Limiter (fuse).

In an undetermined number of aircraft some of the essential circuits were inadvertently connected to the distribution bus rather than to the master bus.

It is necessary, therefore, that all DC-6 aircraft be inspected and such rewiring as necessary be done to assure that the following circuit protectors are connected to the master bus:

Radio Master (B1-102), Fuel Booster Pumps (B1-63, 97), Inverter Power (B1-111, 116), Propeller Booster (Curtiss Propellers only, F1-28, 29), Propeller Control (Curtiss: B1-141, 142, 143, 144. Hamilton Standard: B1-188, 189, 190, 191), Propeller Synchronizer (B1-145), Governor Control (Hamilton Standard only, B1-192), Generator Control Panel (Eclipse Generator System only, B1-246, 247, 248, 149. Reference Douglas Service Bulletin DC-6 #329). (Douglas Service Letter A214-T. 3333/TFW dated October 22, 1948 covers this same subject.)

48-50-1 FRANKLIN ENGINES (Applies to all aircraft equipped with Franklin Model 6A4-150-B3 and B31 engines with serial numbers 11,000 to 14,000, inclusive)

Compliance required after each 25 hours of operation.

To prevent possible cylinder base flange failure, visual inspection for cracks just above the base flange should be made every 25 hours of operation on the early type cylinders until replaced by the later type cylinders. Early type cylinders have a flat section which extends 3/8 inch to 7/8 inch from the outer edge of the base flange. On late type cylinders the flat section has been practically eliminated by extending the ribbed section close to the edge of the flange.

It is urgently recommended that early type cylinders be replaced at the earliest opportunity. (Franklin Service Bulletin No. 69 covers this same subject and offers special discounts effective through January 1949, for cylinder replacements).

This supersedes Note 48-47-2.

48-50-2 BEECH.

Superseded by 50-20-2.

48-50-3 MARTIN.

Compliance required prior to reinstalling autopilot servo control systems.

Provide guards at joints of the stabilizer and wing flap torque tube systems in accordance with, or equivalent to, Martin Service Bulletin No. 72, dated October 22, 1948.

48-50-4 CONSOLIDATED-VULTEE.

Compliance required by May 1, 1949.

1. Install steel nose gear upper centering cam, Bendix P/N 157627 in lieu of bronze cam.

2. Install main nose landing gear shock strut bearing and packing nut lock pins, in six places, Bendix P/N 54201 in lieu of lock rings.

3. Rework nose gear steering mechanism.

4. Install nose gear centering guides in nose wheel well.

Consolidated-Vultee Aircraft Corp. Service Bulletin Nos. 240-104A, -161, -162A, -167, and -201; CVAC Service Information Letter No. 310, and Bendix Service Bulletin No. L. G. 504, also cover these same subjects.

48-51-1 BEECH (Applies to 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 3/8-inch hole in the center of the hub of the control wheels. Do not allow the drill to go more than one inch into the hub or the pin securing the wheel will be damaged.

2. Place a narrow scale or straight wire through the 3/8-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 7/16 inches, the shaft must be replaced. All shafts having a counterbore less than 1 7/16 inches deep are satisfactory. (Beech Service Bulletin No. C18-9 dated November 22, 1948, covers this same subject.)

48-51-2 CONSOLIDATED-VULTEE.

Recently reported difficulties concerning the horizontal tail surfaces for Convair Model 240 aircraft have indicated the necessity of conducting thorough and frequent inspections of all critical items to detect any fatigue cracks and to minimize the development of hazardous conditions. The several reported difficulties appear to result from tail vibrations induced by the engines and/or propellers at certain RPM's. Pending completion of the necessary investigations and determination of adequate remedial measures, the following must be accomplished:

A. To be accomplished daily on the left horizonal surfaces. (NOTE: Time limit may be extended to each number three operation upon incorporation of AD 49-44-2 and CVAC Service Bulletins 240-219 and 240-247.)

Utilizing available inspection openings but without removing any surfaces, conduct a close, visual inspection of the following:

1. Horizontal stabilizer skin, rear spar and hinge brackets.

2. Elevator skin, leading edge ribs, spars, hinge brackets and balance weight installations.

3. Tab skin, spar, hinge brackets and balance weight installations.

Particular care should be taken to detect any evidence of loose balance weights, sheared rivets or cracked hinge brackets. Any failed parts should be adequately repaired or replaced prior to the next flight.

NOTE: Inspection procedures which have been satisfactorily demonstrated to the Civil Aeronautics Administration agent to provide equivalent safety may be accepted in lieu of the inspection procedures outlined above.

NOTE: The following static balance tolerances about the respective hinge lines must be retained after rework of any surface:

1. Left elevator, including flight tab: 72-87 inch pounds tail heavy with the seal curtain removed.

2. Right elevator, including trim tab: 0-15 inch pounds nose heavy with the seal curtain removed.

3. Elevator flight tab: 6-8 inch pounds nose heavy.

B. To be accomplished at periods not to exceed 50 hours until close tolerance bolts and bushings have been installed in elevator tab hinges in accordance with CVAC service bulletin 240-205.

Remove all elevator filight tab hinge pins and inspect the pins, bushings and bearings for sign of wear. Worn parts should be replaced.

This supersedes Note 48-47-1.

48-52-1 DOUGLAS (Applies to all DC-6 aircraft)

To be accomplished not later than June 1, 1949.

1. Revise method of connecting power leads to main bus through Burndy limiters.

2. Reroute generator and starter cables in No. 4 nacelle to eliminate possibility of abrasion of power cables.

3. Install stainless steel combustion air intakes ducting on all heaters.

4. Revise wing heater exhaust outlets to preclude nacelle fluids contacting exhaust piping.

5. Install expansion turbine oil drain and filling drain.

6. Install ducting from the wing and tail heater combustion air blowers to the outside skin of the nacelles and tail section. Ducting within the nacelles to be of stainless steel.

7. Delete present wing heater 1.4 pounds CO_2 bottles and eject the fuselage nose CO_2 banks to either wing heater. CO_2 to go into the heater de-icing and combustion air and into the area surrounding the heaters. Controls for the new system to be grouped with and worked in the same sequence as the tail and cabin heater fire extinguishing system.

Douglas DC-6 Service Bulletins No. 220, revised 2/18/48; 270, dated 3/8/48; 231, revised 1/19/48; 259, revised 3/12/48; 255, revised 2/26/48; 256, revised 2/12/48; and 272, revised 4/8/48; cover the above items consecutively.

49-1-1 RYAN (NORTH AMERICAN).

Superseded by 49-28-1.

49-2-1 LOCKHEED.

Canceled January 17, 1949.

49-2-2 ERCO.

Compliance required as indicated.

Superseded by 52-2-2.

49-2-3 AERONCA.

Superseded by 49-11-2.

49-2-4 CONTINENTAL ENGINES. (Applies to all airplanes equipped with Continental Model E185-3 engines serially numbered 4514-D and below, E185-1 engines serially numbered 4566-D and below, and E165-2 engines serially numbered 10024 and below)

Superseded by 50-32-1.

49-3-1 REPUBLIC.

Compliance required by December 1, 1949.

To prevent possible failure of the diaphragms in the two AC fuel pumps on Franklin Model 6A8-215-B8F and -B9F engines and to provide a drain line to carry fuel away from the engine compartment in case of a diaphragm failure replace the fuel pumps with new fuel pumps, AMI Part Nos. 15438 and 15439, and install drain lines. Aircooled Motors, Inc. Kit Part No. 15464 contains parts and instructions for making these replacements. (Franklin Service Bulletin No. 71 covers this same subject.)

This supersedes Note 48-26-2.

49-4-1 BEECH (Applies to Model 35 serial Nos. 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.)

49-4-2 SIKORSKY.

Superseded by 49-21-1.

49-5-1 LOCKHEED (Applies to all 749 aircraft equipped with Curtiss 850-4C2-0 propeller blades)

Compliance required by March 25, 1949.

Magnetically inspect the shank section, as far outboard as the 18-inch station, of all 850-4C2-0 blades delivered before November 1, 1948, having less than 700 hours service and which have not been magnafluxed since delivery, using a coil not greater than 27 inches in diameter and providing at least 8,000 ampere turns. Inspection of blades with lowest service time should be accomplished first wherever possible. Curtiss Service Bulletin No. 47 covers this same subject.

49-5-2 FRANKLIN ENGINES (Applies to all airplanes equipped with Franklin 6A4-150-B3 and 6V4-178-B32 engines having AC fuel pumps)

Compliance required at next major overhaul.

To prevent possible failure of the diaphragm in the AC fuel pumps in Franklin 6A4-15-B3 engines in Bellanca Model 14-13 airplane and Franklin 6V4-178-B32 engine in Bell Helicopter Models 47 by leakage of oil between the diaphragm layers, install a special seal gasket between the lower pump body and the diaphragm. (The special seal gasket is incorporated in the fuel pump overhaul kit, Aircooled Motors Part No. RA-115 or AC Part No. 1539072.) It is advisable to install a new diaphragm at the same time. (Franklin Service Bulletin No. 72 covers this same subject.)

49-5-3 RYAN (Applies to airplanes equipped with Continental Model E185-3 engines having Serial Nos. 4289-D to 5110-D inclusive, and engines which have been equipped at overhaul with Tri-Metal front main bearing inserts and bronze thrust washers in accordance with Continental Bulletin No. M48-7)

To be accomplished as soon as possible but not later than the first major engine overhaul.

Because of unsatisfactory service experience with Continental E185-3 engines equipped with No. 530497 Tri-Metal front main bearing inserts, and with Nos. 530494, 530495, 530544 thrust washers and 530545 dowel pins, these parts must be replaced with the original silver main thrust bearing inserts, Continental No. 40644. (Continental Service Bulletin M48-30 covers this same subject. Ryan Navion Field Service Bulletin No. 5 outlines the interim precautions to be taken on airplanes equipped with the unsatisfactory thrust washers until silvermain thrust bearings are installed in accordance with this note.)

49-6-1 MARTIN.

Superseded by 49-9-1.

49-6-2 DOUGLAS.

To be accomplished at every 8,000 hours of total flight time.

Replace the following attachment bolts: (1) fuselage to center wing, (2) outer wing to center wing, (3) vertical stabilizer to fuselage, (4) horizontal stabilizer to fuselage and, (5) engine mount to firewall. The 8,000-hour period may be extended to 16,000 hours when studs 2325933 or 2340697, 2353832, 4329243 and 4333164 are replaced with studs 2361992, 2361993, 4361995 and 4361994, respectively, having letter "R" stamped on thread end and bolts in all other attacnments listed are placed with NAS bolts with threads rolled after heat treatment. Bolts and studs removed from the airplane are to be scrapped and are not to be used again. (Douglas Service Bulletin DC-6 #410 contains a list of all studs and bolts affected and their replacements.)

49-6-3 BOEING.

Superseded by 50-11-1.

49-6-4 BOEING.

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

49-6-5 STINSON.

Superseded by 49-16-2.

49-7-1 BEECH.

Superseded by 49-28-2.

49-7-2 NORTH AMERICAN.

Compliance required not later than April 1, 1949.

Accidents have occurred in the above model aircraft from engine stoppage on take-offs and landings when operating on the left tank standpipe outlet with the fuel in the tank down to the level of the standpipe.

Such engine stoppages have occurred because pilots not fully familiar with the fuel system have misinterpreted the left tank fuel gage as indicating total available fuel quantity with selector valve on the Left Hand Main (standpipe) position, unaware that the change to Reserve or Right Hand Main position must be made before the fuel level in the left tank drops to 20 gallons.

To preclude the possibility of pilot error with regard to the foregoing, the following placard shall be installed in each cockpit: "CAUTION: Unless Left Tank is full, use Reserve or Right Tank for Take-off and Landing."

49-7-3 CONSOLIDATED-VULTEE.

Compliance required not later than April 1, 1949.

Several accidents have occurred in the above model aircraft from engine stoppage on take-offs and landings when operating on the right tank standpipe outlet with the fuel in the tank down to the level of the standpipe.

Such engine stoppages have occurred because pilots not fully familiar with the fuel system have misinterpreted the right tank fuel gage as indicating total available fuel quantity with selector valve on Right Hand Main (standpipe) position, unaware that the change to Reserve or Left Hand Main position must be made before the fuel level in the right tank drops to 17 gallons.

To preclude the possibility of pilot error with regard to the foregoing, the following placard shall be installed with each cockpit: "CAUTION: Unless Right Tank is full, use Reserve or Left Tank for Take-off and Landing."

49-8-1 BOEING.

Superseded by 50-18-1.

49-9-1 MARTIN.

Superseded by 49-15-2.

49-9-2 RYAN (Applies to airplanes equipped with Adel electric booster pumps. The following Adel pumps do not require modification in accordance with this directive: (1) Pumps with serial numbers above 2451, (2) Pumps having a red painted band on the pump housing, (3) Pumps having the letters "G" or "S" suffixed to the pump serial number)

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

Several instances of air leakage into the fuel system have been reported on Navions equipped with Adel electric booster pumps. It has been determined that air can enter the fuel system through the 0.062-inch diameter hole in the plate at the rear of the Adel pump inlet chamber. This hole was originally provided to prevent overboard drainage of fuel through a faulty pump shaft seal while the pump was running.

All of the pumps affected require blocking of the hole at the rear of the pump inlet chamber. This is accomplished in the field by means of an Adel manufactured wire plug which is inserted into the hole through the pump inlet port. Pumps with serial numbers below 1600 which do not have the letter "R" suffixed to the serial number also require replacement of the pumpshaft running seal spring.

Adel Accessories Service Bulletin No. 147-49 describes these changes. The required plug and spring and copies of the Adel Bulletin and Ryan's covering Service Letter No. 57, may be obtained from the Ryan Aeronautical Company, San Diego, California.

49-11-1 RYAN (Applies to airplanes equipped with Carter fuel pumps, Continental P/N 530509 (Carter M687-S and M688-S) or Continental P/N 50375)

To be accomplished as soon as possible but not later than April 15, 1949.

Due to Carter fuel pump lower diaphragm failures, caused by diaphragm deterioration due to excessive pump temperatures when pumps are run dry, the two Carter pumps should be connected in series to insure that fuel will be continuously flowing both pumps and that the pumps will not overheat.

It is therefore required that all parallel Carter pump fuel systems be converted to the series pump arrangement, or, as an alternative, that either an approved Ryan fuel system incorporating an Adel electric booster pump or an equivalent approved fuel system be installed. Ryan Navion Field Service Bulletin No. 7 also covers this subject and describes means for connecting the fuel pumps in series. In addition, the daily inspections for looseness of the pump lower bowl, which are specified in Section II of Ryan's Bulletin No. 7, should be continued.

This supersedes Note 48-40-1.

49-11-2 AERONCA (Applies to serial numbers 7AC-1 to 7AC-7170 inclusive, 7BCM-1 to 7BCM-339 inclusive; 11CC-150 inclusive; and all 11AC and 11BC serial numbers)

Compliance required at next periodic inspection but not later than May 1, 1949.

To prevent failure of the rear fuselage-wing attachment fitting, reinforcement is to be accomplished by either of the following methods:

1. Cut on both sides of the rear spar fuselage carry through tube, at each end, a vertical slot ¼ inch long. Insert a ⅝-inch by 0.083 (or heavier wall) 4130 steel, square or round tube having a minimum length of 2½ inches and weld both sides of slot top and bottom of tube. Drill and ream bolt hole 0.250 +0.001, −0.000.

2. Insert in each rear spar fuselage wing attachment fitting, on both sides of airplane, a ⅝-inch by 0.083 (or heavier wall) 4130 steel tube having a minimum length of 4⅝ inches. The insert tube should have a 0.250 +0.001, −0.000 hole drilled 9/16 inch from outer end of tube, and reamed prior to installation. Bolt insert tube in fitting, then drill two vertical 0.250 +0.001, −0.000 holes through the fuselage carry though tube and the insert tube at 3 and 4 inches, respectively, from end of fitting. Four AN-4-11A bolts and AN 365/428 nuts or equivalent are required to bolt in the two insert tubes.

3. Insert through the entire length of the rear spar fuselage carry through tube a ⅝ inch by 0.083 (or heavier wall) 4130 round or square tube. The insert tube should have a hole drilled and reamed 0.250+0.001 minus 0.000, 9/16 inch from each end of the tube to line up with the original bolt holes. The insert tube should be secured to the fuselage carry through tube by means of one AN4-11A bolt and AN365-428 nut or equivalent through both tubes anywhere between the longerons (drill and ream 0.250, + 0.001, minus 0.000) or by welding both ends of the tubes together.

Airplanes having the ⅝ inch by 0.065 reinforcement tube installed prior to the issuance of this revision need not change to the 0.083 wall tube. Aeronca Service Helps and Hints No. 43 covers this same subject.

This supersedes Notes 47-50-1 and 49-2-3.

49-12-1 CURTISS WRIGHT (Applies to all C-46A, C-46D, C-46E and C-46F airplanes)

To be accomplished as soon as possible but not later than the next 25 hours of operation and at each 500 hours of operation thereafter.

Inspect the aileron trim tab motor support bracket (Part No. S-20-030-5050), attached to the aft face of the 70 percent rear spar at wing station 178.36 for cracks. Defective parts should be replaced.

49-12-2 RYAN (Applies to all Navion airplanes equipped with Romec engine-driven fuel pumps)

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

On some of the Romec fuel pumps, a 1/16-inch hole has been drilled through the ⅛-inch pipe plug which closes the vent opening at the top of the pump. This is a fire hazard since, in the event of pump seal failure, fuel could squirt from this hole into the generator which is directly above the fuel pump, and into the engine compartment. It is therefore required that all drilled vent plugs be replaced by undrilled plugs.

The Ryan factory has accomplished this change in production, starting with airplane serial number 1823. Undrilled vent plugs are being painted with zinc chromate primer at the Ryan factory.

49-13-1 AERONCA.

Superseded by 49-15-1.

49-13-2 BELLANCA (Applies to Model 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 Part No. 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 over-stressing 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.)

49-14-1 PIPER (Applies to Model J3 Series, Serial Nos. 14027 and up; PA-11, Serial Nos. 11-1 to 11-910; and PA-12, all airplanes)

To be accomplished by April 20, 1949.

Inspect the fittings (Part No. 40861) at each end of the elevator connector tube (Part No. 40261) to determine if the end fittings are riveted to the tube with two rivets 90° apart. If not, attach the end fitting to the tube with two ⅛" diameter, ¾ inch long soft steel, flat or round head rivets 90° apart; or replace with a new connector tube assembly. Full forward position of the control stick will expose the rearward fitting and full rearward position of the stick will expose the forward fitting. (Piper Service Bulletin No. 111 covers the same subject.)

49-14-2 CESSNA.

Superseded by 51-10-4.

49-14-3 CONTINENTAL ENGINES.

Superseded by 49-47-1.

49-14-4 STINSON.

Superseded by 49-18-2.

49-15-1 AERONCA (Applies to all Models 11AC and 11BC aircraft)

To be accomplished not later than July 1, 1949.

In order to prevent the seat belt anchorage from failing during crash landings, it has been found necessary to modify the seat installation as follows:

1. If there is no need for an adjustable seat, the rear sliding lugs on each side of the seat should be bolted to the slide tube using 5/16 or ¼-inch diameter AN bolts.

2. If the seat is to remain adjustable, two ⅛ 7 x 19 steel snare cables looped around each end of the seat frame cross tube and the lower end of the vertical side fuselage tube located aft of the seat should be installed so that they will be taut with the seat in the most forward position. Any approved type cable clamp may be used for joining the ends of the cable. (Aeronca Helps and Hints No. 42 covers this same subject.)

This supersedes Note 49-13-1.

49-15-2 MARTIN (Applies to all Model 202 aircraft)

I. To be accomplished prior to return to service.

The wing splice attachment fitting, Station 187, must be inspected and re-worked in accordance with the procedures outlined in Martin Service Bulletin No. 73, revised May 10, 1949, including the following amendments; Amendment 1, revised October 14, 1948; Amendment 2, revised May 10, 1949; Amendment 3, dated October 5, 1948; Amendment 4, dated October 15, 1948; Amendment 5, dated December 27, 1948; Amendment 6, dated May 10, 1949.

II. Compliance required as indicated.

The inspections outlined in the above Service Bulletin No. 73 must be conducted on all aircraft as follows:

1. Conduct the inspections outlined above in Service Bulletin 73 at maximum intervals of 900 hours and beginning with the last inspection conducted at approximately 1500 hours total flight time, the succeeding intervals shall not exceed 600 hours.

2. Conduct the inspections of amendments 2 and 6 of Service Bulletin 73 between 1500 and 1700 total flight hours and at maximum intervals of 200 hours thereafter.

As an added precautionary measure do not operate the aircraft in excess of ninety percent of the placard V_{ne} and V_{no} speeds as shown on aircraft specification A-795. In the event any turbulence is encountered in flight, immediately reduce the speed to a maximum of 170 m. p. h. and further reduce the speed to a maximum of 150 m. p. h. dependent upon the severity of the turbulence. (Suitable revisions to the operating manual will be provided.)

III. Compliance required as indicated.

1. Compliance with the Glenn L. Martin Schedule No. 202-87-1, calling for the return of 202 aircraft to the Glenn L. Martin Company factory during 1949 for incorporation of modifications described in Martin Service Bulletin No. 87 is hereby directed.

2. After this has been accomplished on each airplane, Items I and II above are no longer applicable to that airplane.

This note, effective April 6, 1949, supersedes 49-9-1.

49-15-3 BEECH (Applies to all Model 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 seven 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 twenty-seven 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.)

49-16-1 GRUMMAN (Applies to Model G-21A Serial Nos. B-34, B-35, B-38 through B-42, B-45 through B-51, B-53, B-54, B-55, B-57 through B-61, B-63, B-64, B-65, B-67, B-68, B-70, B-71, B-74, B-76, B-77, B-82, B-83, B-85 through B-90, B-92, B-96 through B-99, B-101, B-106, B-107, B-111, B-116, B-118, B-119, B-120, B-124, B-125, B-127 through B-134, B-137 through B-141, B-143, B-144, and B-145)

Compliance required as indicated.

By June 1, 1949, inspect the fuel tank baffles at wing stations 42, 54, and 75 through the hand holds in bottom of integral fuel tanks. If baffles are found riveted to angle stiffeners, no further action is required. If baffle stiffeners are attached by spot-welds, inspect for cracks. Airplane may continue in service, if no cracks are found in baffles, providing inspection is repeated each 100 hours. If cracking is not extensive and no spot welds are broken from ribs, the airplane may be operated if inspected each 50 hours. Exten-

sively cracked baffles should be repaired by replacing spot welded baffles with riveted baffles. For further details, contact Grumman Aircraft Engineering Corporation, Bethpage, N. Y.

49-16-2 STINSON (Applies to all Model 108-2 and 108-3 Series aircraft, Serial Nos. 2250 and up)

Compliance required at next periodic inspection but not later than July 1, 1949.

To prevent wing fabric loosening along the upper surface of the front and rear spars in the area of the fuel tank causing a spoiler action, remove the fuel tank and inspect the upper surface wing fabric for proper installation, looseness and deterioration. The fabric should be wrapped securely around spar flange ending at spar web. If fabric is not installed in this manner or it is loose, the following shall be accomplished.

1. Resecure fabric to wing structure using at least a 4-inch width of surface tape as reinforcement. Dope to upper wing fabric along spar and wrap securely around spar flange stopping at spar web.

2. Reinstall fuel tanks.

3. Seal ⅛-inch crevice on upper wing surface (between fuel tank and spare) flush with wing contour using perma-plastic sealing compound compatible with doped fabric surface. (3-M Weatherstrip cement manufactured by the Minnesota Mining and Manufacturing Co., or equivalent, is acceptable.)

4. All rework should be in accordance with Civil Aeronautics Manual 18.

This supersedes Note 49-6-5.

49-17-1 CONSOLIDATED-VULTEE.

Superseded by 49-44-2.

49-18-1 CURTISS-WRIGHT (Applies to all Models of C-46 series airplanes used in passenger operation under provisions of Parts 41, 42, or 61 of the Civil Air Regulations as specified in Sections 41.20 (f), 61.30, and Amendment 42-8)

To be accomplished not later than the dates specified in above amendments as revised by special Civil Air Regulation No. 329 and any subsequent regulations affecting these compliance dates.

(This note pertains only to combustion heater fire protection aspects of the above Regulation Amendments. Separate Notes will be issued covering fire protection for the powerplant installation and for the baggage and cargo compartments of the airplane.)

(1) Each heater exhaust pipe shall be completely enclosed with well-ventilated, fireproof shrouds.

(2) Each heater combustion chamber shall be drained to the exterior of the airplane. All such drain lines shall be of fireproof construction and contain no traps in the normal flight or ground attitudes.

(3) The heater fuel components presently mounted on top of each heater shall be located in fuel and fume proof enclosures, ventilated and drained to the exterior of the airplane.

(4) The thermal overheat switches for each heater shall be rigged to shut-off the fuel supply and ignition circuits of the heaters when overheating occurs. These switches must also be arranged so as to prevent their automatically recycling to "On" once overheating has occurred. The present overheat switches are not intended to be used as cycling switches. If cycling to produce the required heat is necessary, it must be accomplished at a lower temperature by an additional cycling switch controlling a cycling solenoid.

(5) A manual fuel shut-off valve shall be provided. (USAF Technical Order 01-25LA-211 describes such an installation.)

(6) Adequate fire extinguisher and fire detector installations shall be provided for each heater. The fire detector installation shall contain at least one detector centrally located over the heaters in the heater area and one detector in the ventilating air duct of each heater just aft of the combustion chamber. The fire extinguisher system should provide at least 1 pound of CO_2 for each heater directed into the inlet side of the ventilating air stream. Instructions for operating this CO_2 system should also require that the ventilating air duct valve be closed when CO_2 is injected to the heater. With the arrangement as described, no flight tests of CO_2 contamination of the pilot's compartment or cabin area need be conducted. As outlined in the Airworthiness Directive concerning fire protection for the baggage and cargo compartments, however, flight tests to establish smoke evacuation procedures for the cargo compartments when these compartments are carrying cargo, will need to be accomplished. The results of these tests will determine the procedure to be followed to rid the airplane of noxious gases.

(7) Revision pages for the Airplane Flight Manual must be prepared to cover emergency fire procedures as well as smoke and other noxious gas elimination procedures.

49-18-2 STINSON.

Superseded by 49-42-1.

49-19-1 CURTISS-WRIGHT.

Superseded by 52-19-1.

49-20-1 CESSNA Applies to all Model T-50 (AT-17 series and UC-78 series) aircraft.

Compliance required on or before the next periodic inspection but not later than October 1, 1949, and at each annual inspection thereafter except as noted below. For former military aircraft compliance is also required prior to original civil certification.

The annual inspection may be discontinued when neoprene coated felt or equivalent non-absorbing padding under the gas tank has been installed and proper drainage and ventilation of fuel tank compartment is provided (see Note 45-20-1).

Remove fuel tanks and inspect rear spar and the area just outboard of rear spar fuselage fittings at the inside corner of the fuel tank compartment for indications of wood deterioration. If spar deterioration is found and does not exceed 1 inch of spar depth the spar may be repaired by the following method:

Remove the damaged wood of the spar and fit with a matched inlay by gluing to the spar with the ends of the inlay tapered in a ratio of no less than 15 to 1. A bottom reinforcement strip or plate of an approximate thickness of 0.4 of the depth of thickness of the inlay with a maximum of 0.4-inch thickness is to be matched and glued to the bottom surface of the spar. This bottom reinforcing strip should extend approximately 3 inches beyond the end of the glue line of the inlay strip. The installation of this reinforcement plate may require a rework of the spacer block at the attachment fitting and a rework of the fore and aft stringers where they attach to the bottom surface of the spar. The following contingencies apply in the repair of the spars:

(1) In the "5700 pound" wing spar, the material for the inlay lamination and bottom reinforcement strip or plate should be fabricated from birch, maple, or its equivalent.

(2) In the "5100 pound" wing spar, the material for the inlay lamination and bottom reinforcement strip or plate may be fabricated from spruce.

Workmanship, gluing process, quality of materials and other limitations and repair requirements of CAM 18 apply except where otherwise noted. After completion of the spar repair and repair or replacement of deteriorated gussets, stringers, etc., as necessary; the drain holes should be incorporated in wings in accordance with NOTE 45-20-1, if not already installed. If the drain holes are installed, it should be ascertained that they are open. The felt padding under fuel tanks should be inspected for evidence of absorption of moisture, and the padding replaced, if necessary, with neoprene coated felt or equivalent nonabsorbing material.

This supersedes Note 46-46-4.

49-20-2 CONSOLIDATED-VULTEE.

Cancelled September 26, 1949.

49-21-1 SIKORSKY.

Superseded by 49-44-1.

49-22-1 LOCKHEED (Applies to all Model 49, 149, 649 and 749 aircraft)

Superseded by 49-52-1.

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, x-4130 tube parallel to the steamline tube and not more than eight inches forward or aft thereof. The inside corners of this open rectangle should have 0.065-inch x-4130 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 Note 46-31-3.

49-24-1 DOUGLAS.

Superseded by 49-37-1.

49-25-1 CURTISS-WRIGHT Applies to all models of C-46 series airplanes used in passenger operation under provisions of Parts 41, 42, or 61 of the Civil Air Regulations as specified in Sections 41.20 and 61.30 and Amendment 42-8.

To be accomplished not later than the dates specified in the above amendments, as revised by Civil Air Regulation No. 329, and any subsequent regulations affecting these compliance dates.

When engaged in passenger-carrying operations, all applicable cargo-compartment fire-prevention measures including those concerning controls, wiring, lines, equipment, tie-down and lining materials, etc., must be complied with unless these cargo compartment(s) are not utilized and are placarded accordingly.

(NOTE: This Airworthiness Directive pertains only to the baggage and cargo-compartment fire-protection aspects of the above Regulation Amendments. Airworthiness Directives 49-19-1 and 49-18-1 have been issued covering fire protection for the powerplant installation and for the cabin-heater installation, respectively.)

(1) Lower forward cargo compartment. When access provisions suitable for ready entrance by a crew member are available for use, the lower forward cargo compartment can be classified in the "B" category and as such must meet the requirements of CAR 4b.38251 (b). (It is recommended that a mask suitable for protecting a crew member from the effects of both smoke and fire-extinguishing agents be provided, since entry into the compartment will be a necessary part of any fire-fighting procedure.)

(NOTE: That portion of 4b.38251 requiring cargo-compartment fire-detection means need not presently be complied with.)

(2) Lower rear cargo compartment. This compartment must be considered a "C"—category compartment unless provisions suitable for ready entrance by a crew member are provided. As a "C"—category compart-

ment, compliance with CAR 4b.38251 (c) must be shown. If the compartment is modified to provide suitable access, compliance with the requirements of CAR 4b.38251 (b) for a "B"—category compartment must be demonstrated.

(NOTE: That portion of 4b.38251 requiring cargo-compartment fire-detection means need not presently be complied with.)

(3) It must be demonstrated that hazardous quantities of smoke or extinguishing agent cannot enter crew or passenger compartments as a result of a cargo-compartment fire. (4b.38252.) If the cargo compartment is determined to be in the "B" category, utilizing portable fire extinguishers, it is not necessary to test for excessive extinguishing agent concentrations. "C"-category compartments protected by built-in, remotely operated fire extinguishing systems will necessitate tests to determine that hazardous quantities of the agent cannot enter crew or passenger-occupied areas. Crew and passenger compartment smoke evacuation procedures must be established.

Tests to determine smoke evacuation procedures, and, where necessary, to determine fire-extinguishing-agent concentrations in crew or passenger compartments, should simulate fire conditions as nearly as possible in flight. Where it can be established that the airplane is identical or sufficiently similar to others on which tests have been conducted, it will not be necessary to repeat these tests.

(NOTE: Carbon-dioxide concentrations in excess of 3 percent by volume in crew compartment are considered hazardous.)

(4) The provisions of Safety Regulation Release No. 259, "Compliance of Equipment and Materials Used in Air-Carrier Aircraft With Fire-Prevention Requirements," must be considered in demonstrating compliance with this directive.

(5) AIRPLANE FLIGHT MANUAL. Appropriate changes to the Airplane Flight Manual shall be prepared to cover the emergency procedures associated with cargo and baggage-compartment fire control.

49-26-1 BEECH Applies to all Model 35 and A-35 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 pulley assembly (Part No. 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 ¾-inch No. 18 flathead nails. The rear end of the block should be at least 1¼ inches forward of the center line 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.

49-26-2 PRATT & WHITNEY (Applies to all aircraft equipped with Pratt and Whitney R-2800 series engines and with AC Model LS-87 spark plugs)

Superseded by 54-4-1.

49-27-1 CONSOLIDATED-VULTEE Applies to all Army Model BT-13, BT-13A (Navy SNV-1); Army BT-13B (Navy SNV-2); and Army BT-15 aircraft

Compliance required not later than November 1, 1949.

Certain cases of engine failures at take-off in these aircraft have been traced to fuel starvation as a result of accumulations of water or ice in a short segment of the fuel line, between the fuel selector valve and the emergency pump unit. The segment of fuel line from the valve outlet port to a point approximately 12 inches forward forms a water trap which cannot be drained without disconnecting the line.

To preclude the possibility of engine malfunctioning from ice accumulation in this line, either of the following modifications must be accomplished:

1. Provide a new support bracket for the fuel selector valve which will raise the bottom of the valve, and the lowest point of the fuel line from the valve to the emergency fuel pump unit inlet port, to a height slightly above the level of the emergency pump unit inlet when the aircraft is in the 3 point position on level terrain, or

2. Provide a new selector valve, having the outlet port not lower than the inlet ports, and installed in such a manner that there will be a continuous up slope in the fuel lines from the fuel tank outlet to the emergency pump unit inlet when the aircraft is in the 3 point attitude.

49-27-2 PIPER Applies to Model PA-12, Serial Nos. 12-1 and up, and Model PA-14, Serial Nos. 14-1, through 14-193

To be accomplished not later than October 1, 1949.

Several aileron (and flap on Model PA-14) aluminum bellcrank castings (P/N 40092) have been found with cracks across the ears of the forked end. These cracks are believed caused by excessive tightening of the bolt which attaches the push rod to the castings. Inspect the forked end of these bellcrank castings and replace those found cracked. (Piper Service Bulletin No. 109, dated November 9, 1948, covers this same subject.)

49-27-3 DOUGLAS Applies to all Model C54-DC and DC-4 Series aircraft.

To be accomplished as indicated below:

1. Prior to 5,000 hours total airplane time, or at next scheduled inspection at which necessary facilities are available, on airplanes with more than 5,000 hours total time, inspect nose gear yoke and fittings, P/N 5087950 and either 5087951 or 5180402 to determine if the half-inch radius fairs in properly with the journal. All parts having a poor radius condition must be replaced immediately with parts having the correct radius fairing into the journal. This inspection does not have to be repeated if already accomplished.

2. Parts having a good radius must be replaced at each 17,500 hours airplane operation time. If the replacement parts have been shot peened, as per Douglas Aircraft Company recommendations, the replacement time may be extended to 30,000 hours airplane operation time.

3. Unused parts having a poor radius may be used, after being reworked according to Douglas Aircraft Company recommendations.

4. All used nose gear yoke end fittings having not more than 17,500 hours total time may be reinstalled and used for a total time of 30,000 hours if Zyglo Inspection reveals no cracks; the radius of the journal is properly reworked to meet the limiting dimensions of Douglas E. C. 1361954 and the part is shot-peened in accordance with Douglas Aircraft Company Standards.

5. At the time of replacement of parts as per Item 1, or at the next major aircraft overhaul period, rework bushing, P/N 1087938, to incorporate a ⅛-inch radius on the inside diameter at the flanged end of the bushing. Rework ring, P/N 2103390, by providing a 0.031-inch radius on the inside edges.

(Douglas Service Letters A-214-T.51/WBM dated January 7, 1948; A-214 TS2249/WBM dated November 25, 1947; and A-214 TS1572/WBM dated October 20, 1947, cover the above.)

This supersedes Note 48-24-2.

49-28-1 RYAN (NORTH AMERICAN) Applies to all Navion airplanes equipped with Product Techniques, Inc., Propeller Spinners.

To be accomplished as specified below:

In order to preclude the possibility of continued use of any unsatisfactory spinners which may be in existence, the following steps must be taken:

1. Spinners not previously installed on an aircraft must be inspected before installation for the thickness of the bulkhead. This may be accomplished by measuring the thickness of the bulkhead at the perimeter; measurements should be taken about one-half inch from the edge for best accuracy. The manufacturing process used in fabricating the bulkheads reduces the gage of the material about 0.012 inch at the perimeter. Bulkheads measuring less than 0.045 inch at this point must be replaced with heavier gage steel bulkheads.

2. Spinners which have partially completed the inspections previously required by AD Note 49-1-1 may continue in service until the next 10 hour inspection at which time the bulkhead should be gaged as specified above and replaced if under 0.045-inch thickness.

3. Spinners having satisfactorily passed the five inspection periods required by AD Note 49-1-1 must be inspected for bulkhead thickness, as specified above, within the next 50 hours of flight, and replaced if under 0.045-inch thickness.

It has been determined that bulkheads of 0.058-inch and .064-inch cadmium plated steel are satisfactory and do not require the periodic inspections previously specified in Note 49-1-1. However, bulkheads made of thinner gage steel, or of aluminum, are unsatisfactory.

This supersedes Note 49-1-1.

49-28-2 BEECH.

Superseded by 51-14-1.

49-29-1 REPUBLIC, GRUMMAN Applies to all RC-3 and G-44 Aircraft equipped with Hartzell HC-12 x 20 Controllable Propellers

Superseded by 53-6-2.

49-29-2 BEECH Applies to all Model 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 Note 47-51-9.

49-30-1 DOUGLAS AND CONSOLIDATED-VULTEE Applies to all DC-6 and 240 aircraft equipped with Curtiss Model C632S-A propellers

Compliance required as soon as possible but not later than August 15, 1949.

Because of a number of cracks having been discovered in the threaded portion of the hub barrels of the C632S-A propellers preflight visual inspections must be made in accordance with Curtiss Instructions to All Owners, dated May 12, 1949.

It is strongly recommended that wherever the necessary equipment is available, magnetic inspections be made in accordance with Curtiss Instructions entitled, "Field Magnetic Inspection of C632S-A Hubs."

Any hubs revealing cracks must be retired from service immediately.

The above inspections are to remain in effect as long as these propellers are in service regardless of any rework accomplished.

Operational procedures for the Douglas DC-6 during ground run, take-off and climb, as recommended by the Douglas Company telegram of May 25, 1949, must also be complied with.

49-30-2 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft

Compliance required at next scheduled engine change.

Instances have been reported in which the augmenter vanes showed a tendency to bind under high temperature. To preclude the possibility of such instances in the future, the following must be accompanied on each of the four augmenter tubes:

1. Increase the I. D. of the augmenter van shaft bushing to 0.509+0.005 −0.0000 inch.

2. Reduce the O. D. of the augmenter vane shaft to +0.000 −0.005 inch.

This subject is also covered by Convair-Liner Service Information Letter No. 407.

In the event that it is desired to secure the specified clearance between the shaft and bushing by increasing the bushing I. D. only, this is an acceptable alternative. However, the 0.514-inch upper limit for the bushing I. D. should not be exceeded.

49-31-1 BEECH Applies to Model 35 and A-35 aircraft, serial Nos. 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 Part No. 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 Part No. 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.)

49-31-2 REPUBLIC Applies to all Model RC-3 (Seabee) airplanes

Compliance required not later than October 1, 1949.

In order to eliminate the possibility of engine failures resulting from fuel starvation due to incorrect procedures of checking the fuel tank capacity, the following placard must be installed in the vicinity of the fuel tank filler neck:

"*Warning.* Do not check fuel with engine running, or within five minutes after shutdown. Always insert stick with calibrated side facing ground."

Republic Service Bulletin No. 23, dated June 3, 1949, covers the same subject.

49-32-1 FLEETWINGS Applies to all Model F-5 and F-401 aircraft

Compliance required as soon as possible but not later than September 1, 1949.

Because of recent accident believed to be due to failure of the rear engine support strut or its attachments, conduct close inspection of all engine support members and their attachments. Cracked or damaged member should be replaced or repaired.

49-33-1 DOUGLAS Applies to all Model DC-6 airplanes equipped with Hamilton Standard Model 43D60/6851A-0 propellers

Compliance required not later than September 10, 1949.

As a precautionary measure against fatigue failure, Hamilton Standard Model 43D60/6851A-0 propeller blades may not be operated in excess of 3,500 hours unless the taper-bores have been remachined and reshot-peened by the manufacturer. In addition, any blades of this model which have sustained damage sufficient to change their face or edge alignment shall be withdrawn from service pending final results of manufacturers test program.

49-34-1 CONSOLIDATED-VULTEE Applies to all Model 240 airplanes incorporating activated reversing propellers

Compliance required as soon as possible but in any event not later than August 29, 1949.

Two cases have been experienced in which inadvertent reversal of the propellers occurred in flight during approach for landing.

To minimize the possibility of inadvertent reversal, an item shall be added to the "before landing" cockpit check list requiring that the reverse throttle stop override handles be checked to assure that they are in the retracted ("in") position.

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 AN735 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.)

49-35-1 KOPPERS PROPELLERS
Superseded by 49-42-1.

49-35-2 BELL Applies to all Model 47B, 47B3, 47D, and 47D1 Series helicopters
Superseded by 49-52-2.

49-36-1 LOCKHEED
Superseded by 49-49-1.

49-37-1 DOUGLAS Applies to all Model DC-6 airplanes.
Canceled February 6, 1950.

49-38-1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft incorporating original type nose strut outer cylinder, Bendix Part No. 156842.

To be accomplished on number 1 inspection on all nose landing gear struts whose total operating time exceeds 1,000 hours.

Cracking of the nose gear landing struts in the areas directly below the drag link attachment legs, has been experienced on some CV-240 service aircraft whose total time exceeds approximately 1,000 hours. These cracks appear to be the result of repeated loadings experienced by the gear during landings. In order to insure the continued airworthiness of the aircraft, the nose landing gear shall be examined closely, using visual means, for evidence of any cracks in the areas directly below the drag strut attachment lugs.

When cracks are found, it may be possible to repair the damage by grinding, blending and polishing, depending upon the extent and depth of the cracks. All struts not eligible for such repairs are to be retired from service (Bendix Service Bulletin L. G. 509 covers the subject).

The above-described inspection may be discontinued on those struts which have been reinforced by the addition of a support clamp and eye bolts, or their equivalent, to alleviate the loading condition which caused the development of cracks.

Struts reworked in accordance with Bendix Service Bulletin L. G. 511 and incorporating a support clamp and eye bolts in accordance with Bendix Service Bulletin LG 510 are eligible for service and do not require the above inspection. (Bendix Service Bulletin L. G. 310 covers this same subject.)

49-38-2 DOUGLAS Applies to all Model DC-4 and C-54 aircraft.

To be accomplished at every 9,000 hours of total airplane flight time.

In those cases where the present bolts have or will have accumulated more than 9,000 hours time, prior to the next regular overhaul period, the first replacement time may be extended, at the discretion of the C. A. A. inspector, to coincide with a regular overhaul period but in no case should the adjustment time exceed 1,500 hours accumulated after January 26, 1948. Thereafter the bolt replacement shall be at the 9,000 or 18,000 hour period, whichever is applicable.

Replace the following bolts: Fuselage to Center Wing Attachment; Outer Wing to Center Wing Attachment; Vertical Stabilizer Attachment to Fuselage Tail, Station 953; Engine Mount to Fire Wall Attachment; Horizontal Stabilizer to Fuselage Tail Assembly Attachment.

The 9,000-hour period may be extended to 18,000 hours when studs 4105725-1 and -2 in outer wing attachment have been replaced with special studs Nos. 4357723-1 and -2 having letter "R" stamped on thread end and bolts in all other attachments listed are replaced with NAS bolts with threads rolled after heat treatment.

The bolt part numbers and the number of bolts required are shown on pages 4 and 5 of the Douglas Service Magazine of August 1947. Bolts removed from the airplane are to be scrapped and are not to be used again. (Douglas Service Letter No. 66, Supplement No. 2, dated July 18, 1951, covers this same subject relative to wing alignment at Station 421.)

This supersedes Note 48-4-3.

49-39-1 CESSNA Applies to all Model 120 and 140 aircraft, Serial Numbers 8001 to 15035 inclusive.
Superseded by 50-31-1.

49-40-1 LUSCOMBE Applies to all Model 11A aircraft.

Compliance required on or before the next periodic inspection but not later than December 1, 1949.

To preclude the possibility of the elevator trim tab actuating horn becoming disconnected from the trim tab, with consequent serious vibration of the horizontal tail surfaces, it is necessary to rework the attachment of the trim tab horn by adding more rigidity to the attachment.

This rework can be accomplished by fabricating two blocks from solid 24 ST aluminum alloy that will fit inside the inboard end of the trim tab, one located at the extreme inboard end to which the steel trim tab horn attaches and other one located diagonally chordwise inside the trim tab, with the forward end located approximately 2½ inches and the aft end approximately 1 inch from the inboard end of the trim tab. These blocks, which actually are equivalent to solid ribs, should be approximately ⅜ inch wide and shaped in elevation to fit the inside contour of the trim tab. The attachment of these ribs should be effected by four AN456-AD4 rivets in each, drilled on assembly, with the rivets driven through both upper and bottom skins of the trim tab. The trim tab horn should be attached to the trim tab through their regular attaching holes, riveting the horn with two AN456AD4 rivets to the chordwise end of the inboard revised solid rib and the two remaining holes as originally attached with two AN456AD4 rivets. The aluminum alloy blocks or ribs should be finished with a protective coating of zinc chromate prior to assembly to the trim tab. An equivalent modification to that described above and in Luscombe Service Bulletin is acceptable. Luscombe Service

Bulletin No. 1-1149, dated January 25, 1949, covers this same subject.

49-40-2 PRATT & WHITNEY Applies to Double Wasp CA Series (-3, -5, -15, -18) and Military R-2800-C Series (-22, -22W, -34, -34W, -57, -73, -77, -81, -83, -85) engines.

To be accomplished at next overhaul but in no case later than March 1, 1950.

To preclude the possibility of complete loss of power as a result of failure of the supercharger impeller thrust bearing, the engine must be modified to incorporate a new thrust plate Part No. 127770 with larger (No. 51) oil feed holes. Also Part No. 84012 thrust spacer must be reworked to incorporate circumferential oil skates. Details of this modification and rework are given in Pratt & Whitney Service Bulletin No. 892, Rev. B.

As a precautionary measure, it is recommended that the engine be operated with minimum use of high ratio supercharger and that particular attention be directed toward keeping oil sludge to a minimum until the above modification has been accomplished.

49-40-3 PRATT & WHITNEY Applies to all R-3800B series (-21, -27, -43, -51, -59, -63, -71, -75, -79) engines installed in certificated aircraft.

Canceled January 4, 1954.

49-41-1 LOCKHEED Applies to all Model 649, 749 and 749A aircraft equipped with Curtiss Model C632S-A propellers and Wright Model 749C18BD-1 engines.

Compliance required on items 1, 2 and 3 by October 11, 1949.

In order to reduce the possibility of subjecting propellers to excessive stresses and to detect hub cracks which may have been caused by such stresses, the following steps are to be taken:

1. Change present 2100-2375 RPM restriction to 2050-2375. Placard airplane or mark tachometer with green radial line for single point operation at 2025 RPM. Other restrictions listed in AD 48-26-1 still apply.

2. Limit gross weight to 102,000 pounds maximum.

3. On hubs having more than 1,500 hours total service time, visually inspect for cracks the rear outboard portions of the hub barrels. Inspection is to be continued at intervals as close to ten hours as practical but not exceeding 20 hours maximum. It is strongly recommended that whenever the necessary equipment is available, magnetic inspections be made at the same intervals in accordance with Curtiss Instruction entitled "Field Magnetic Inspection of C6832-S-A Hubs." Remove from service any hub showing a crack. To facilitate these inspections, the propeller power unit is covered or sealed to prevent the entrance of water in the unit. As an alternate to the removal of the spinner, these inspections may be conducted through three five inch diameter holes located in the side of the spinner in accordance with instructions issued by Curtiss.

4. All C632S-A hubs (Part 116366) with over 2,000 hours total time shall be retired from service as soon as possible and not later than November 30, 1949.

5. Items 1 and 2 above also apply when the C-632S-B hub (Part No. 129914) is used to replace the C632S-A hub (Part No. 116366).

49-42-1 KOPPERS PROPELLER Applies to all aircraft equipped with Model F200 "Aeromatic" Propellers (Does not apply to "Aeromatic Model 220 Propellers")

Superseded by 50-34-1.

49-42-2 PRATT & WHITNEY.

Superseded by 49-46-2.

49-43-1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft with Muff Type Augmenter Installation.

Compliance required as noted below:

1. To be accomplished immediately and each day thereafter: To avoid a possible fire hazard inspect corrugated augmenter tube for cracks or burned areas. This inspection is to be conducted from the rear end of the augmenter by means of an extension mirror and light, or equivalent means.

2. To be accomplished at each #1 inspection. Inspect the augmenter tube from both the front and rear ends for cracks or burned areas as described above.

3. Cracked or burned augmenters are to be replaced immediately unless the defects fall within the following limits:

(a) Augmenter tubes which are found to have a crack, or cracks, in the outer shell may be flown in scheduled operation to a base station for replacement if the cracks are less than ¾-inch long, no more than three cracks exist in the outer shell, and no two cracks are within 6 inches of each other.

(b) Augmenter tubes found to have small cracks at the ends of seam welds on the wear band (doubler) at the forward end of the outer shell, are considered airworthy. Such cracks, when confined to the wear band, do not affect the safety of the tube and have shown no tendency to progress to a dangerous condition.

4. The inspections specified in (1) and (2) are not necessary on the following augmenter types:

CVAC Part No. 240-6220195 with any of the following forward augmenter sections: 240-6221107, 240-622107-250, -252, -260, -262, -264, -268, -280, -290, -300, -314, -360.

This supersedes Note 48-40-3.

49-43-2 LUSCOMBE Applies to all Model 8 Series aircraft.

Compliance required before December 15, 1949, or at the next 100-hour inspection, whichever occurs first.

As a result of several cases of excessive tightening of the attachment bolts for the stabilizer-fuselage front fittings thereby crushing the spacers and spar flanges, the following inspections and/or replacement are necessary:

Inspect for crushing of the stabilizer front spar and the aluminum alloy reinforcing spacers. A slight set in the spar flange is not considered critical as long as no cracks exist in the spar.

If appreciable crushing of the spar flange or cracks are found, the spar must be repaired and the aluminum alloy reinforcing spacers must be replaced. If spacers are crushed, they must be replaced.

Spacers should be replaced with similar spacers fabricated of 4130 steel of at least 0.049-inch thickness and may be attached to the spar using blind rivets the same size as the original rivets. An acceptable alternate replacement spacer may be made by cutting a ⅜-inch by 0.049-inch steel tube to fit between the spar flanges. The steel spacers should be zinc-chromated prior to reassembly.

Excessive tightening of the attachment bolts should be avoided on reassembly. (A torque value of 50 to 75 inch-pounds should be sufficient.)

49-44-1 SIKORSKY Applies to all Model S-51 Helicopters.

Superseded by 56-13-2.

49-44-2 CONSOLIDATED-VULTEE Applies to all Model 240 Series aircraft.

To be accomplished not later than August 1, 1950.

Due to difficulties being located during the special inspections of the horizontal tail presently required by Airworthiness Directive 48-51-2, mandatory corrective action is now considered to be necessary. These difficulties include cracking of the left elevator leading edge ribs, cracking of the left elevator structure at the elevator flight tab hinge brackets, excessive wearing of the tab hinge pins, and loosening of the balance weights on the elevators and rudder. If allowed to progress, these difficulties could result in tail flutter or other hazardous conditions; therefore, it is considered necessary that the following rework be accomplished on all individual Convair Model 240 Series aircraft:

1. Install the revised elevator flight tab assembly, CVAC Part No. 240-2210401-78. (CVAC Service Bulletin No. 240-56A covers this same subject.)

2. Reinforce the left elevator leading edge ribs outboard of Station 111.6, and strengthen the means of attaching the rudder and both left and right elevator balance weights. (CVAC Service Bulletin No. 340-176A covers this same subject.)

3. Replace the present tab hinge pins and bushings with close tolerance bolts and bushings. (CVAC Service Bulletin No. 240-205 covers this same subject.)

4. Reinforce the left elevator ribs at the flight tab hinge points. (CVAC Service Bulletin No. 240-225 covers this same subject.)

5. Reinforce the left elevator leading edge ribs and the carry-through structure from leading edge ribs to the corresponding ribs aft of the spar, at Stations 111.6 and inboard. (CVAC Service Bulletin No. 240-268 covers reinforcement of the nose ribs. The portion of CVAC Service Bulletin No. 240-219 pertaining to Stations 111.6 and inboard, covers reinforcement of the carry-through structures.)

6. Replace 4 of the 10 rivets in each of the inboard elevator hinge brackets which attach CVAC Part No. 240-2110702 to the bracket assembly with 3/16-inch close tolerance steel bolts or steel rivets. (CVAC Service Information Letter No. 415 covers this same subject and shows location of the specific rivets to be replaced.)

7. Between horizontal stabilizer Station B. L. 50.50 and B. L. 59.50, add 4 rivets (#AN462-4-14 blind rivets may be used) to both the upper and lower surfaces. The rivet line should be 0.44 inch aft of the aft face of the vertical leg of the front spar cap (approximately ½ inch aft of the leading edge of the skin, i. e., ½ inch aft of the butt joint between the stabilizer leading edge skin and the inter-spar skins). The rivets should be evenly spaced between B. L. 50.50 and B. L. 59.50 and not closer than ⅝ inch to any existing rivet. (CVAC Service Difficulties and Parts Failures Report No. 245 covers this same subject.)

Although evidence indicates that horizontal tail failures will be materially reduced after incorporation of the above, some additional cracking may yet occur. Therefore, special inspections required by AD 48-51-2 must be continued until sufficient evidence of trouble-free operation has been applied to the CAA to warrant discontinuance of these inspections.

This supersedes Note 49-17-1.

49-45-1 LUSCOMBE Applies to all Model 11A aircraft.

Compliance required as soon as possible but not later than next 25 hours operation time and at each 25-hour period thereafter until reinforcement of main landing gear aft canted fuselage bulkhead is accomplished.

Inspect for buckling, cracks or other evidence of failure of permanent set of the main landing gear aft fuselage canted bulkhead in the web and/or flange in the area adjacent to the steel landing fear trunnion and fuel line. Inspect fuselage wing lift strut attach fitting for cracks in the radii of the flanges attaching it to each aft fuselage canted bulkhead. Usually evidence of failure of the aft canted bulkhead can be determined by a crack in the fuselage canted bulkhead web extending from the fuel line hole to the flange attaching the bulkhead to the belly skin and/or buckle in the cabin floor located approximately 1 inch directly aft of the bulkhead under the carpet flooring and/or loose rivets attaching the flange of the canted bulkhead to the belly skin. If the

difficulties are not revealed as indicated above, a 2-inch hole cut in the cabin floor located approximately 3 inches aft and inboard of that part of the canted bulkhead supporting the door will allow access for detailed examination of the aft side of the rear fuselage canted bulkhead. Removal of seat and floor carpet is necessary to accomplish this inspection.

If loose rivets in the bulkhead flange at the attachment to the belly skin, cracks or permanent set in excess of ⅛ inch are found in the web of the bulkhead adjacent to the steel trunnion, the bulkhead must either be satisfactorily repaired or replaced. If noticeable permanent set in the web is apparent (under ⅛ inch), the web of the bulkhead may be reworked by straightening. If cracks are found in the fuselage wing lift strut attach fitting it should be replaced or the cracks should be stop drilled and the full length of each cracked flange reinforced with a ¾-inch by ¾-inch by 0.064-inch 24 ST angle.

In addition, the following modifications must be made:

A collar must be incorporated on the front end of the hinge pin that passes through the front and rear main landing gear steel trunnions which are riveted to the two fuselage canted bulkheads. This tubular collar should be fabricated of 4230 steel and be at least ⅝ inch long and of sufficient thickness to effect a snug bearing fit against the forward end of the steel tube composing the socket of the forward steel trunnion. A ¼-inch bolt should be used to attach the collar to the hinge pin using the existing ¼-inch hole in the extreme forward end of the hinge pin.

A curved doubler of 0.064-inch 24ST should be placed over the existing 0.040-inch floor skin connecting the flanges of the two main landing gear canted bulkheads. This doubler should pick up the existing floor skin and bulkhead top flange rivet pattern in the vicinity of the landing gear steel trunnion, extending in length at least 3 inches to either side of a vertical plane through the centerline of the landing gear hinge pin and picking up at least 6 of the existing rivets in each of the canted bulkheads. Blind type rivets may be used to attach this doubler.

The rivet pattern attaching the flange of the aft canted fuselage bulkhead to the belly skin between the openings in the fuselage skin which allow entrance of the main landing gear legs should be inspected for rivet size and pattern. The first 20 rivets inboard from these openings must be 5/32-inch A17ST spaced approximately ½ inch apart.

If the 2-inch inspection holes have been cut in the floor, they must be reinforced by at least a 4-inch diameter 0.040-inch 24ST doubler on the underneath side of the floor skin and a quick removable inspection cover placed on top side to be used for subsequent 25-hour inspections, if applicable.

Any equivalent structural modification to preclude a failure, or permanent set in the aft canted bulkhead at the attachment of the main landing gear trunnion will be considered satisfactory.

49-45-2 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft equipped with Curtiss propellers.

Compliance required not later than the next engine change.

The following must be accomplished to insure proper operation of the throttle reverse stop override installation:

1. Rerig the reverse lock solenoid linkage, reworking and replacing parts of the linkage as shown on Figure 1, Sheets 1 and 2, of Convair Service Bulletin No. 240-273.

2. Determine that the load on the first throttle reverse detent is 15 +3, −0 pounds.

3. Remove the armature (P/N West Coast Electric Company No. 35-31-C-3A) in the reverse throttle lock solenoid and install a new armature (P/N West Coast Electric Company No. 35-31-C-3AS). The new armature has the letter "S" stamped on that end of the armature that has two threaded holes.

The above items are also covered by Convair Service Bulletin No. 240-273.

49-46-1 DOUGLAS Applies to all Model DC-4 and DC-6 aircraft equipped with vacuum systems, incorporating oil Separators Other Than The Type Mentioned in Item 2 Below.

To be accomplished not later than April 1, 1950.

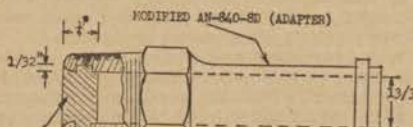
To guard against the possibility of excessive air temperatures in the vacuum system discharge line, one of the following modifications must be accomplished to this system:

1. Install a fusible plug in the side of the vacuum pump discharge port at the right angles to the axis of the discharge port boss. Some pumps incorporate a plugged hole in the discharge port which may be enlarged to a ⅜-inch pipe tapped hole to accommodate the fusible plug. This plug should employ an AN-840-8D fitting with a binary eutectic mixture of 67.8 percent tin and 32.2 percent cadmium, which has a melting point of 351° F. A drawing describing the design of such a plug is shown below. The ⅜-inch fusible plug fitting is intended for pumps such as the Model 3P-211 and 3P-485. For smaller pumps such as the 3P-207, and AN-840-6D fitting, incorporating the same modification as shown below, should be used. Incorporation of an overboard drain line clamped to the fusible plug is recommended but is not mandatory.

Brass fittings of the same design as the above dural fittings are acceptable. On installations which do not use an overboard discharge line the possibility exists that the plug may damage other nacelle components if it can hit them upon being out of the adapter as high velocity. Therefore, if no overboard discharge line is provided, the installation must be made in such a manner that the plug will not be directed toward any vulnerable components when it issues from the adapter.

2. Replace the present oil separator with a new oil separator, Genisco No. 40081 or equivalent. The new separator incorporates a pressure relief valve and can be disassembled for cleaning.

(Douglas Service Letter A-129-T-1271/WB-11-Q-4, dated April 1, 1949, covers this same modification.)



FUSIBLE PLUG (351°F Melting point) 32.2% Cadmium, 67.8% Tin mixture poured to form ¾" plug (5 grams)

VACUUM SYSTEM FUSIBLE PLUG

FIGURE 11.

49-46-2 PRATT & WHITNEY Applies to all Military R-2800 B series engines installed in Certificated Curtiss C-46 aircraft (R-2800-21, -27, -41, -43, -51, -59, -63, -71, -75, -79)

Superseded by 49-48-3.

49-47-1 CONTINENTAL ENGINES. Superseded by 49-50-1.

49-47-2 BELL Applies to all Model 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 extension drive shaft, examining particularly the shaft surface for approximately three 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 misalignment 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 part Nos. 47-644-126 and 47-644-181.

(b) Installation of a spline coupling in the tail rotor drive shaft forward of the universal joint part Nos. 47-644-177 and 47-644-130.

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

49-48-1 BEECH Applies to all Model 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 misalignment 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.)

49-48-2 HARTZELL PROPELLERS Applies to all Hartzell Controllable Propellers with Model 8433 Metal Blades when installed on Continental E-185 Series Engines not having Crankshaft Dampers

Superseded by 53-6-2.

49-48-3 PRATT & WHITNEY. Superseded by 50-7-2.

49-49-1 LOCKHEED Applies to all Model 49 series aircraft equipped with Eclipse-Pioneer Model PB-10 automatic pilots

Compliance required prior to reconnection in aircraft.

Prior to reconnection in the aircraft of the Eclipse-Pioneer Model PB-10 Automatic Pilot, it is necessary to modify the installation to include provisions designed to safeguard the aircraft in the event of malfunctioning of the autopilot. This modification has been determined to consist of the following interdependent changes:

Modify the Master Direction Indicator and wiring at the autopilot controller plug and amplifier to change the direction signal from the rudder channel to the aileron channel; install resistors in series with the variable phase of aileron, rudder and elevator servo motors to reduce servo forces; install aileron servo disconnect interlock switch and change wiring to this switch from the existing rudder servo disconnect interlock switch.

An acceptable method of accomplishing this modification is described in LAC Service Bulletin No. 49/SB-576.

This supersedes Note 49-36-1.

49–50–1 CONTINENTAL ENGINES Applies to all Continental C–75, C–85, C–90, C–125 and C–145 engines equipped with generators, except those engines listed below. (A–65 series engines are no longer subjected to compliance with this note)

To be accomplished prior to May 2, 1949, and upon each 100 hours of operation after inspection has been accomplished, or at major overhaul, as indicated.

To preclude possible engine failure as a result of distintegration of the generator drive coupling rubber disc, inspect and/or replace the disc as follows:

I. Old type—without metal retainer cup.

(1) Inspect rubber disc, Part No. 22348 prior to May 2, 1949 and at 100 hour intervals after this inspection, and replace if deterioration or cracks are noted. Special attention should be given corners of slot to detect beginning of cracks or tears.

(2) Above periodic inspection may be discontinued by installing the improved type of coupling incorporating metal retainer cup Part No. 352030.

II. Improved type—with metal retainer cup.

(1) Rubber disc Part No. 25120 must be replaced at major overhaul.

NOTE: Engines with the following serial numbers are excluded from the inspection requirements of this directive. However, if rubber disc Part No. 25120 is incorporated, it must be replaced at major overhaul.

C–75: Serial No. 5257–7–12 and all higher numbers.

C–85: Serial No. 30568–8–12 and all higher numbers.

C–90: Serial No. 41132–8–12 and all higher numbers and including Nos. 41122 and 41124 through 41127.

C–125: Serial No. 8108–8–2 and all higher numbers.

C–145: Serial No. 3470–8–2 and all higher numbers.

All "C" model engines reworked at Continental Motors Corporation since September 1, 1948.

Description of generator drive couplings is contained in Continental Motors Corporation Service Bulletin Number M49–4.

This supersedes Note 49–47–1.

49–52–1 LOCKHEED Applies to all Model 49, 149, 649, and 749 aircraft.

Compliance required as indicated.

Numerous instances of malfunctioning of the elevator booster system have been reported, causing longitudinal hunting of the airplane and, in one instance, injury to some passengers when operation of the elevator boost shifter mechanism was accomplished. Also, in other instances, it has sometimes been impossible to actuate the shifter mechanism, probably as a result of frozen moisture accumulating on the mechanism. To minimize further difficulties of these natures, the following must be accomplished:

A. Booster unit rework and lubrication. At or prior to next engine overhaul period, rework all aileron, rudder and elevator booster control valves, as follows:

1. Drill six ⅛-inch water drain holes in the valve cap;

2. Line ream the bushing, P/N 266146–3, to 0.6270-inch/0.6285-inch diameter;

3. Replace AN 913–1 plug with AN 286–2 lubricator;

4. Pack cap assembly with AN–G–25 grease, or equivalent;

5. Re-identify valve and cap assemblies by adding a –2 to each part number.

Relubricate booster control valves with AN–G–25 grease or equivalent at each engine overhaul period. This lubrication interval may be increased as substantiated by service experience.

B. Rework of elevator shifter latches. At or prior to the next number 3 inspection, all elevator shifter latches, LAC p/n 278416, shall be reworked to remove the end which hooks around the anchor pin, LAC p/n 278484. (The overcenter spring on the shifter walking beam eliminates the necessity for the locking action of these hooks.) The shifter control system shall then be checked as follows: With the shifter walking beam in "boost on" position, the control system should be rigged so that (1) when cockpit control is in full down position, the reworked latch is in firm contact with the anchor pin but acts as a stop device only; (2) when the cockpit control release button is depressed, the control springback is approximately 0.25 inch.

C. Rework of elevator booster power levers. As soon as practicable but not later than next engine change, the feel lever bolt holes in the elevator walking beam assembly shall be chamfered in accordance with LAC SD 67471.

D. Flight manual revisions. To be accomplished not later than July 15, 1949. Dependent upon the airplane model involved, ascertain that the Model 49 and Model 149 Flight Manuals incorporate approved revision dated March 4, 1949, or that revised Model 649/749 Flight Manual dated February 5, 1949 is being utilized. (The 49/149 revision and Section III, paragraph 2 of the revised 649/749 Manual outline the shifting technique to be followed when shifting is desired.)

(Lockheed Service Bulletin 49/SB–578 dated October 25, 1949 covers Item A and Lockheed Service Information Letter No. 425, dated February 28, 1949, covers Item D, above. Item C is covered by Lockheed telegram to all operators dated January 18, 1949, and similar information is contained in Lockheed Service Bulletin 49/SB–502. TWO EO 4681A describes an approved method of complying with Item B. (The replacement link assemblies called for in LAC Service Bulletin 49/SB–502 utilize new latch hooks, p/n 303689. Installation of these new link assemblies does not preclude the necessity of removing the hook ends of the latches, as specified in Item B of this Note.

This supersedes Note 49–22–1.

49–52–2 BELL Applies to all Model 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 if used with the 178 hp engine and after 300 hours if used with the 200 hp engine, unless it is necessary to replace them sooner as a result of being affected by the requirements of paragraph 1 above. 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 (hours):	*Replacement limit*
0–500	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 shot-peened 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 ACA 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 above.

This supersedes Note 49–35–2.

50–1–1 MOONEY Applies to all Model M–18L aircraft.

Compliance required as soon as possible but not later than next 25 hours operating time and at each 25-hour period thereafter until reinforcement of engine mount lugs is accomplished.

Inspect the four engine mount lugs for cracks. If cracks are evident, reweld the lugs to mate with the mount holes on the engine and weld an X–4130 0.058-inch strap ½ x 3 inches to the lug and the side tube member. Further inspections are not necessary after the above reinforcement of the lugs is made. (Mooney Service Bulletin No. 4 covers this same subject.)

50–2–1 AIR ASSOCIATES Applies to all Model M–264 Safety Belts incorporating Warren McArthur end fittings, P/N 275–AS26 (Air Associates P/N M–1842) installed in aircraft not engaged in scheduled or irregular air carrier operation.

Superseded by 50–18–3.

50–3–1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft.

Superseded by 50–6–3.

50–4–1 BRIGGS AND STRATTON Applies to all aircraft equipped with Army Air Force Type A–8 ignition switches manufactured by Briggs and Stratton.

Initial compliance required not later than March 1, 1950, and every 100 hours operation thereafter.

A serious hazard may exist on this type switch after considerable use has worn the internal switch lever stops, allowing overtravel past the "off" position. Such overtravel may allow the magneto ground to be broken and permit the engine to fire when the switch is in the "off" position.

Type A–8 ignition switches manufactured by Briggs and Stratton can be identified by the name Briggs and Stratton stamped on the rear of the switch case. Another distinguishing feature of this switch is a formed sheet metal lever which is not found on other makes of Type A–8 switch.

1. Inspection should consist of the following: Check switch lever for overtravel past the "off" position. The sketch below shows the location of the switch lever in the "off"

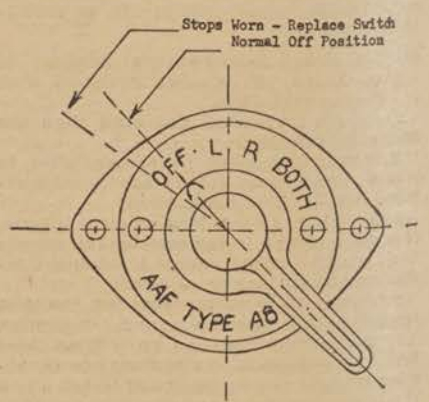


FIGURE 12.

position. The pointer projecting from the lever points to the middle "F" in the word "OFF." When the lever can be turned to a point beyond the centerline of the "O" in the word "OFF," the rotation stops have become worn and the switch should be replaced.

2. This inspection must be repeated at 100 hour intervals.

3. Inspection may be discontinued if switch is replaced by Type A-8 of another make or by some other satisfactory type ignition switch.

50-4-2 SUPERIOR (CULVER) Applies to all Model V, Serial V-3 through V-357 and Model V2, Serial V2-503 through V2-517 not previously modified in accordance with Superior Service Bulletin No. 18.

Compliance required at the next 100-hour inspection but not later than February 1, 1951.

The teeth of the final pinion, Part No. 10528, in the gear reduction train of the landing gear retraction motor have inadequate strength to sustain the shock loads due to abrupt reversal of the landing gear retraction switch and to maladjusted limit switches. As stripping of these teeth makes the emergency extension system inoperative, gears 10528 and 10529 should be replaced with gears 11520 and 11521 which have stronger teeth and are obtainable from the Superior Aircraft Company, University Airport, 2501 North Hillside, Wichita 15, Kansas. (Superior Service Bulletin #18 dated November 19, 1947, covers this same subject.)

This supersedes Note 48-5-2, and eliminates placard installation provisions of that note.

50-5-1 PIPER Applies to all Piper Aircraft manufactured between November 1945 and November 1946, inclusive.

Compliance required at next periodic inspection but not later than March 1, 1950.

In order to minimize the possibility of understrength Nicopress sleeves in the control system, check the major dimension of the pressed portions of all sleeves. If this dimension exceeds .353 inch, the sleeve should be repressed to this dimension by two presses with National Telephone Supply Company's hand tool 51-M-850. The go-gage furnished with the tool may be used to check the .353-inch dimension. In repressing the sleeves, the hand tool used should be carefully adjusted in accordance with the manufacturer's instructions and the sleeves should be recompressed with the larger axis in the same plane as during the original press.

If new Nicopress sleeves are installed, three presses with the hand tool should be used as recommended by the sleeve manufacturer.

50-5-2 SHAKESPEARE CONTROLS Applies to Shakespeare Vernier Type Flexible Push-Pull Controls, Models 3A-42 and 3A-81, installed in Beech Model 35 and A-35, Ryan Navion, and any other certificated aircraft

To be accomplished not later than April 1, 1950.

A serious accident recently occurred on an aircraft employing a Vernier throttle control of the above type due to unscrewing of the male thread adapter which secures the outer casing of the flexible control to the body tube, at the instrument panel end. This resulted in the pilot's being unable to control the throttle. The means employed in these controls to secure this connection is the machining of some imperfect threads on the brass adapter. This method of locking is not considered satisfactory, as assembly and disassembly of these components can result in rendering this locking means ineffective. The control manufacturer has advised that a staking operation to positively secure this connection is now being incorporated on all their Vernier type flexible controls during manufacture.

To prevent the possibility of the adapter becoming separated from the body tube on aircraft in service equipped with the subject Vernier control, all such controls must be inspected to ascertain whether these components are positively secured by staking, drilling and lock-wiring, or equivalent means. If the adapter is not found to be so secured in the body tube, it should be locked by one of the foregoing locking means. Beech Engineering Service Bulletins Nos. 35-16 and A35-7, dated November 23, 1949, cover this subject as it applies to their Model 35 and A-35 airplanes.

50-6-1 BELL Applies to all Model 47D1 helicopters

Compliance required not later than March 31, 1950.

Ventral fin installation, Bell Part No. 47-267-058 should be replaced by the revised ventral fin and fixed tab installation, Bell Part No. 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.)

50-6-2 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 Note 45-51-1.

50-6-3 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft

Superseded by 50-19-2.

50-7-1 ERCO Applies to Ercoupe Models 415C (which incorporate adjustable elevator trim tabs), 415CD, and 415D airplanes.

To be accomplished by September 1, 1950.

To preclude the possibility of elevator flutter in the event the elevator trim tab control wire fails, elevator trim tab stop and spring, Erco Part Nos. 415-SK-287 and 415-22035 should be installed. (Engineering and Research Corporation "Ercoupe Service Memorandum No. 55 and 55A" cover this same subject).

50-7-2 PRATT & WHITNEY Applies to all Military R-2800 B series engines installed in Certificated Curtiss C-46 aircraft (R-2800-21, -27, -41, -43, -51, -59, -63, -71, -75, -79).

Superseded by 50-22-1.

50-8-1 SIKORSKY Applies to all Model S-51 Helicopters.

Compliance required at each 25-hour inspection.

Inspect the upper longerons, Drawing S-520879, of the S-10-20-3003 tail cone mounting assembly for cracks in the area adjacent to the generator support plate and clamps, and in all the welds on the longerons adjacent to the clamps. If cracks are found, the defective member should be reinforced or replaced prior to continuing flight. (Sikorsky Service Information Circular No. 38, Revision A, dated January 4, 1950, covers this same subject.)

This supersedes Note 48-11-3.

50-9-1 NORTH AMERICAN Applies to all Model BC-1A; AT-6, -6A, -6B, -6C, SNJ-2, -3 and -4 aircraft.

To be accomplished prior to original certification.

Inspect the horizontal stabilizer rear spar connection for cracked fittings and the installation of shims as follows:

(1) Remove the fuselage to vertical stabilizer fairing assembly and the rear fairing assemblies at the horizontal stabilizer.

(2) Remove the ¼-inch bolts which attach the rear spar connection fitting to the spar assembly.

(3) Remove paint from connection fittings and inspect for cracks. Check with a machinist's square or other means to determine if fitting is pre-set. Replace any cracked or pre-set fitting and repaint all others. New fittings may be made of 24ST or X4130 bar stock to the same dimensions as the old fittings.

(4) Inspect the fit between the spar and the sides of the base fitting with a feeler gauge. Also inspect the fit between fitting P/N 77-21021 and the spar. If gaps exist, shims are necessary.

(5) Fabricate 24ST shims 3⅛ inches x 15/16 inch and of necessary thickness, and place on either side of spar flanges maintaining a parallel over-all dimension to fit inside of fitting P/N 77-21021 within maximum clearance of 0.010.

(6) Drill holes through the shims to match those in the fitting. Remove all chips and reinstall the various parts.

(North American Service Bulletin dated March 6, 1946, covers this subject also.)

50-10-1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft incorporating original type nose strut inner cylinders, Bendix Part No. 155285

Superseded by 50-36-1.

50-10-2 RYAN (NORTH AMERICAN) Applies to all Navion airplanes, Serial Nos. NAV4-2 through NAV4-1790

To be accomplished as indicated below.

The above aircraft employ flexible hose, Ryan Drawing 145-42202, between the exhaust shroud and the carburetor heat valve. This hose has shown a tendency to deteriorate with age and may collapse, resulting in a considerable loss of engine power.

An inspection of these hoses should be made not later than March 20, 1950 and after each 25 hours of aircraft operation until replacement is made with the hose mentioned below. All hoses found to be in poor condition should be replaced immediately by wire reinforced hose. Arrowhead Rubber Company hose type 8AX (Ryan Drawing No. 145-42202-3) or equivalent is satisfactory.

The installation of the above wire reinforced air intake hose in replacement of the original hose should be accomplished in all aircraft by September 1, 1950. (Ryan Service Letter No. 67 dated February 7, 1950, also covers this subject.)

50-11-1 BOEING Applies to all Model 377 aircraft

Canceled January 2, 1956.

50-12-1 HAMILTON STANDARD Applies to all aircraft equipped with Continental engines, models W-670-6A (R-670-3, -5, W-670-6N (R-670-4), W-670-16 (R-670-8, -11, -11A) and Hamilton Standard Ground Adjustable Propellers having Blades, Model 11C1 (Navy 4350, 4350F, 4350F1).

Compliance required not later than April 15, 1950.

To minimize the possibility of propeller blade shank fatigue failures as a result of non-compliance with a mandatory engine operation restriction, the following precautionary measures should be taken:

(1) Check the marking on the engine tachometer and and correctly mark it, if nec-

essary, with a red arc which covers the entire r. p. m. range above the higher side of the 1,900 r. p. m. graduation.

(2) Install placard in aircraft to read: "Avoid all engine operation above 1,900 r. p. m. except during take-off."

(3) Check position of the propeller and correctly index, if necessary, in the zero degree position (blades in line with crankthrow).

50–13–1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft

Compliance required as indicated.

Failures of the wing portion of the aileron hinge brackets and bracket supports have been experienced on Convair Model 240 aircraft. These failures have been the result of excessive lateral vibration of the ailerons experience mainly during engine operation between 1,000 to 1,200 r. p. m., in aircraft incorporating Hamilton Standard propellers. In order to preclude the possibility of these failures progressing to such a state that the airworthiness of the airplane is impaired, it is considered necessary that the following be accomplished on Convair Model 240 series aircraft:

A. To be accomplished on all individual CV–240 series aircraft incorporating Hamilton Standard propellers at every number 2 operation, until Part B, below, is accomplished.

Inspect the aileron in area of hinge brackets, aileron hinge brackets and bracket supports with a ten-power glass, for signs of fatigue cracking. Special attention should be paid to the areas around the rivet holes utilized for attaching the brackets to the bracket supports and to that portion of the bracket supports in the areas at which the bracket supports extend from the wing trailing edge structure. Any failed parts should be adequately repaired or replaced prior to the next flight.

B. To be accomplished by January 1, 1951, on airplanes incorporating Hamilton Standard propellers.

Incorporate steel aileron hinge brackets and incorporate measures to increase the lateral rigidity of the wing portion of the aileron hinges. (CVAC Service Bulletin 240–289 covers this same subject.)

50–14–1 CURTISS-WRIGHT Applies to all Model C–46E and F aircraft.

Superseded by 51–10–6.

50–15–1 GRUMMAN Applies to all Model G–21A (converted JRF–5, JRF–6B) equipped with reverse direction mixture controls.

Compliance required not later than next 25-hour inspection.

To conform with conventional mixture control operation ("forward" for full rich position) on aircraft equipped with Bendix NAR9B carburetors with manual mixture control, rotate the position of the mixture bellcranks 180° on the carburetors and reverse the tooth segments on the cockpit control end for end. Revise the cockpit control placard accordingly.

On aircraft equipped with Bendix NAR9C2 carburetors with automatic mixture control, the cockpit quadrant is already arranged in the correct sense and requires no revision. It should be noted that an additional Manual Lean position is provided forward of Full Rich and caution must be exercised to prevent inadvertently positioning the control incorrectly if the Manual Lean sector of the quadrant is retained.

This supersedes Note 48–14–2.

50–16–1 DOUGLAS. Applies to all Model DC–6 airplanes below Serial No. 43149.

Compliance required as soon as possible but in any event not later than January 1, 1951.

1. Conduct electrical and mechanical functional check of propeller reverse mechanism, throttle system.

2. a. Rework fish mouth in the 2345735 throttle latch assembly to assure a more positive lock.

b. Rotate the 2333338 arm-throttle reverse 20° clockwise on the shaft of the 4333339 lock assembly or replace with new 2333338 "F" change parts.

(Douglas General Service Letters DC–6 # 19, dated November 18, 1949, and DC–6 # 23, dated January 20, 1950, cover the above two items.)

50–17–1 CESSNA Applies to all Models 120 and 140 aircraft, Serial Numbers 8001 to 15035, inclusive, on which the 0.051 reinforcing channel or 0.040 reinforcing angles have not been installed.

Superseded by 50–31–1.

50–17–2 PIPER-STINSON Applies to all model 108–Series

Compliance required as indicated.

A number of cases have been reported of broken core strands in the rudder cables where they pass over the pulley at Fuselage Station 18.75 (first pulley aft of rudder pedals). To preclude failures, the following is therefore required:

1. Within the next 25 hours and at every 100 hours thereafter the following should be accomplished. Remove the rudder cables from the pulleys, bend the cables in a tight "U" where they pass over the pulley, being careful that permanent kinks are not formed, and inspect either visually or by touch. Replace all cables showing signs of breakage.

2. The above inspection may be discontinued and the normal inspections resumed if the following is done: Remove the AN210–3A pulleys at Fuselage Station 18.75; modify the pulley brackets and install two larger pulleys, Part No. 41001–2, and two cable guards, Part No. SK253–2, in accordance with detailed instructions in Piper Service Bulletin No. 114 or an equivalent modification.

50–18–1 BOEING Applies to all Model 377 aircraft equipped with General Electric BH4 Turbo-superchargers.

Canceled April 30, 1951.

50–18–2 DOUGLAS Applies to all Model DC6 Aircraft equipped with Hamilton Standard 43D60/6841A–O, 6851A–O, and 6873A–O Propeller Blades and R–2800–83AM4, R–2800–83A or CA Type Engines.

To have been accomplished by April 28, 1950.

A recent propeller blade tip failure of a Hamilton Standard 43D60/6851A–O propeller on a DC–6 powered with R–2800–CA–15 engines probably resulted from a worn 4½ order engine crankshaft Torsional damper Part No. 101169. Until further notice or until the engines are known definitely to comply with P & W Service Bulletin No. 1033 dated November 30, 1949, all DC–6 aircraft using Hamilton Standard 6841A–O, 6851A–O and 6873A–O blades and R–2800–83AM4 or CA type engines shall be placarded to avoid all operation between 1,800 and 1,975, between 2,025 and 2,175 and between 2,225 and 2,450 r. p. m. Only acceleration and deceleration through placarded ranges shall be permitted. For gross weights above 80,000 pounds, 2,450 r. p. m. is permissible for normal climb. For gross weights below 80,000 pounds, climbing r. p. m. between 2,450 and 2,600 permissible. For gross weights above 80,000 pounds avoid operation above 2,450 r. p. m. except for takeoff and emergencies. For R–2800–83A engine installations, operating restriction presently covered in Aircraft Specification A–781, Note 5C (1) applicable and until further notice operation between 1,800 and 1,975 and between 2,025 and 2,175 shall be prohibited.

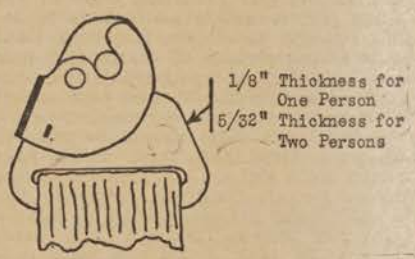
50–18–3 AIR ASSOCIATES Applies to Model M–264 Safety Belts incorporating Warren McArthur end fittings, P/N 275–AS26 (Air Associates P/N M–1842).

Compliance required as indicated below.

Warren McArthur end fittings, P/N 275–AS26, (Air Associates P/N M–1842) have been found to be of insufficient strength for use in two-person belts. These fittings are not marked, have a fitting plate thickness of ⅛ inch, and may be identified by comparison with the sketch shown. One-person belts using these fittings must be modified not later than the next annual inspection (or the next seat overhaul for aircraft on a continued maintenance basis) so that the label will read "Approved for One Person." This may be done by blanking out the words "or two" and the letter "S" in the word "persons" on the label with India ink or an equally effective method. All such belts presently used in two-person applications shall be removed and replaced by other belts approved for two persons not later than May 1, 1950.

Care should be taken not to confuse these fittings with another Warren McArthur fitting P/N 13971 (also known as P/N 314–AS12) which is identical in appearance except that the fitting plate thickness is 5/32 inch.

This supersedes Note 50–2–1.



WARREN MCARTHUR FITTING No. 275–AS26
FIGURE 13

50–18–4 CONTINENTAL ENGINES Applies to all Model C–145 engines.

Superseded by 50–20–1.

50–19–1 CURTISS-WRIGHT Applies to all Model C–46A, D, E and F aircraft.

Superseded by 50–26–1.

50–19–2 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft.

Compliance required as indicated.

Failures of the rudder flight tab balance weight brackets and of the rudder closing spar ahead of the flight tab have been experienced on service aircraft. In order to preclude the possibility of these failures progressing to such an extent that the airworthiness of the airplane is impaired, it is considered necessary that the following be accomplished on all CVAC Model 240 series aircraft:

A. To be accomplished as soon as practicable but not later than next number one inspection and to be repeated at each number two inspection thereafter.

Inspect the rudder flight tab balance weight brackets for cracks in the neck down areas approximately 1 inch from the flight tab and also adjacent to the edges of the counterweight. Inspect the rudder closing spar for cracks in the areas adjacent to the rudder flight tab hinge brackets. All cracks, when found, must be replaced or suitably repaired before next flight.

B. To be accomplished by January 1, 1951.

Reinforce the rudder flight tab balance weight brackets, and the attachment of the brackets to the tab and to the balance weight. (CVAC Service Bulletin 240–355A covers this same subject.)

NOTE: Although evidence indicates that these failures will be materially reduced after incorporation of the above, sufficient evidence of trouble free operation is not available. Therefore, it will be necessary that the inspections outlined under Part A, above, be continued at each Number Three Inspection after the incorporation of Part B, until sufficient evidence of trouble-free operation has been supplied to the CAA to warrant discontinuance of this inspection.

This supersedes Note 50–6–3.

50-20-1 CONTINENTAL ENGINES Applies to all Model C145 engines, Serially numbered 3000 to 5031 inclusive, except: Nos. 3612, 4650, 4652, 4654, 4671, 4676, 4679, 4683, 4690, 4710, 4855, 4889, 4904, 4996, 4997, 5002 through 5021, 5023 through 5029

Compliance required by June 1, 1950, and each 25-hour period of operation thereafter.

To minimize possible engine operation difficulty due to crankcase and/or cylinder barrel failures, the following inspection procedure should be accomplished as indicated.

(1) Visually inspect crankcase for cracks giving special attention to those areas around each cylinder base.

This portion of the inspection need not be accomplished on new type crankcases (P/N's 530836 and 530837) which are incorporated on all serially numbered engines above No. 4383, and on all engines overhauled by the manufacturer after September 1, 1949. This new type crankcase can be identified by thru-bolts (extending through both halves of crankcase) located ahead of the front cylinder and adjacent to nose oil seal. The old style crankcase (P/N's 6642 and 6643) requiring inspection has studs at this location extending through one crankcase half only.

(2) Visually inspect cylinder barrels for cracks at the base flange fillet. New flanged-typed cylinder base nuts, Part Nos. 531001 and 531003 have been made available for service operation. This portion of the inspection may be discontinued upon accomplishing one additional 25-hour inspection including a torque check after installation of these new flanged nuts.

During installation of new cylinder base nuts, special attention should be given to the removal of paint and burrs from the cylinder flange nut seat and to compliance with the engine manufacturer's torque limits of 500 plus or minus 10 inch-pounds for the 7/16 studs and through bolts, and 420 plus or minus 10 inch-pounds for 3/8 studs. Improperly torqued nuts are a major contributing factor to cylinder barrel, cylinder base studs, and crankcase failures. The engines exempted from this inspection, as indicated above, have had the new flanged nuts installed at the manufacturer's plant.

Since small cracks are more easily detectable by oil leaks, it is recommended that each inspection include a run-up with a clean engine.

(Continental Motors Corp. Service Bulletin No. M50-2 covers this same subject.)

This supersedes note 50-18-4.

50-20-2 BEECH Applies to all Model AT-11 and C18S aircraft.

Superseded by 50-28-1.

50-22-1 PRATT & WHITNEY Applies to all Military R-2800 B series engines installed in Certificated Curtiss C-46 aircraft (R-2800-21, -27, -41, -43, -51, -59, -63, -71, -75, -79).

To be accomplished at next overhaul but not later than August 1, 1950, provided the following inspections are made:

1. Prior to next flight, inspect impeller shaft end play as described below, and

2. Continue similar inspections thereafter at intervals not to exceed 40 hours of operation.

The above inspections can be accomplished by removing the carburetor and measuring the end play of the impeller shaft at any convenient point. End play in excess of 0.010 inch is cause for accomplishment of the modification listed below.

Supercharger impeller thrust bearing failures with resulting complete loss of power have been reported; their failure is believed due principally to sludged oil feed passages. As a precautionary measure, it is recommended that the engine be operated with minimum use of high ratio supercharger and that particular attention be directed toward keeping oil sludge to a minimum and maintaining open oil screens until modifications (a) and (b) or (a) and (c) below have been accomplished.

(a) Install a modified thrust bearing plate in accordance with P & W Service Bulletin No. 847. This Service Bulletin covers the use of thrust plates No. 74576 modified to, or which already incorporate, four oil skates and enlarged (3/32") oil holes. Some R-2800-21, -27, -31, -41, -43, -51, -59, -63, -79 engines may already incorporate this part.

(b) Incorporate "outside in" lubrication system modification in accordance with methods approved by C. A. A. This modified system is similar to that incorporated in the R-2800-C engine configuration, and is covered by Pratt & Whitney Special Instruction No. 5F-50. Companies having C. A. A. approval of this modification or other modification which can be accomplished, are as follows:

Air Carrier Engine Service, Miami, Fla. (Bulletin No. B-12-48).

Aircraft Engine Service, Inc., Division of Aerodex, Inc., Miami, Fla.

Aircraft Service Corporation, Miami, Fla. (Engineering Authorization No. 52).

American Airmotive, Miami, Fla. (Engineering Directive No. 28B-1-49).

Opa Locka Aircraft Engine Station, Opa Locka, Fla. (Dwg. No. 2800-01).

Pacific Airmotive, Linden, N. J.

Pacific Airmotive, Burbank, Calif. (Dwg. No. 648 B).

Slick Airways, Inc., San Antonio, Tex.

Miner's Aircraft Engine Service, Seattle, Wash.

Alaska Airlines, Inc., Everett, Wash.

American Air Service, Charlotte, N. C.

The Steward-Davis Co., Gardena, Calif.

Pratt & Whitney Service Bulletin No. A-441, dated July 9, 1945, describes a similar modification. However, copies of this bulletin and the special engine parts required for this modification are no longer available from Pratt & Whitney.

(c) Alternative impeller bearing and lubrication system modifications are acceptable provided they accomplish essentially equivalent lubrication to that of (b) above. Modifications based on design data which differs from the above modifications require C. A. A. engineering approval.

This supersedes Note 50-7-2.

50-23-1 PIPER Applies to all Model PA-17 aircraft and PA-15 aircraft equipped with PA-17 type landing gear shock struts.

Compliance required by July 15, 1950.

Inspect landing gear shock strut end fittings, Part No. 11806 (four per airplane) for cracks or other defects in the small bend radii. Replace fittings found to be defective. Excessive tightening of the attachment bolts may induce failure by restricting rotation of the fitting on the bolt, therefore, the end fittings should be installed free to rotate. (Piper Service Letter No. 129, dated October 28, 1949, covers the same subject.)

50-23-2 DOUGLAS Applies to all Model DC-6 aircraft.

To be accomplished as indicated below:

1. All P/N 5245424 and P/N5248748 nose gear yoke end fittings which have not been shot peened in the journal radius prior to original installation or by subsequent rework should be removed for inspection after being in service for a period not to exceed 6,000 hours. Nose gear yoke end fittings which have already accumulated service time in excess of 6,000 hours should be removed for inspection as soon as practical but not later than September 1, 1950. Shot peening can be distinguished by the dull gray color and coarse surface of the shot peened area.

2. Fittings removed at the 6,000 hour period may be used for an additional 4,000 hours or a total service life of 10,000 hours if inspected and reworked as follows:

a. Strip anodic surface from part, and subject to Zyglo inspection paying particular attention to the journal radius. If no cracks are found, the radius should be polished to remove all blemishes and then shot peened. This inspection and shot peening must be done by the Douglas Aircraft Company, an agency approved by that company, or by a method that has been substantiated as being equivalent to the procedure recommended by the Douglas Company.

b. Inspect the base radius of the spot faces of the six mounting holes. Parts having zero radius (sharp corner) to 0.031 radius at this point must be reworked to obtain an 0.062 spot face radius. It will be permissible to increase the original spot face diameter of 1 1/8 inches to 1 1/4 inches to obtain the 0.062 radius. Parts having 0.031 or better radius need not be reworked. Parts should be reanodized after completion of all work.

c. Inspect the inside diameter of the 2103390 ring. All sharp edges should be given a .031 radius.

d. Inspect the inside diameter of the flanged end of the 2333253 bushing to see that it has a 1/8-inch radius and rework if necessary.

3. Fittings shot peened at time of original installation may be operated for a maximum service period of 10,000 hours provided they do not have the zero spot face radius at the mounting holes. Parts falling in this category should be removed at the normal gear overhaul period of 8,000 hours for rework of the spot face radius.

4. All fittings should be scrapped after reaching a total service life of 10,000 hours.

(Douglas General Service Letter DC-6 No. 26 dated April 7, 1950, covers the same subject.)

50-24-1 RYAN (NORTH AMERICAN) Applies to all Model Navion series aircraft prior to Serial NAV-4-1948, equipped with Landing Gear Fairings.

Compliance required at next periodic inspection but not later than October 1, 1950.

The installation of landing gear fairing on the Navion series airplanes increases the load on the landing gear control lever when it is moved from the "up" to the "down" position. The increase in force has, in a few instances, caused failure of the threaded end fitting, Part No. 145-58145-3, on the gear selector control rod. In order to preclude further failures of this nature, it will be necessary that the above-outlined rod end be replaced on airplanes incorporating landing gear fairings with a similar heat-treated rod end thoroughly checked for hardness in all areas. A rod end which has been thoroughly checked for hardness in all areas and which is identified by a dark gray-black color over the plating, is installed at the factory on airplane serial numbers NAV-4-1948 and subsequent, and is available for replacement purposes. (Navion Field Service Bulletin No. 8 covers this subject.)

50-25-1 PIPER-STINSON Applies to all Model 108 Series aircraft.

Compliance required not later than September 1, 1950.

Reports have been received of fuel seepage into the space between the inner cabin trim and the outer fabric covering of the fuselage. This results in soaking of insulating material in the cabin wall. The source of the fuel can be spillage during filling of tanks, thermal expansion of fuel in full tanks, or tank leakage. This fuel runs to the under surface of the wing, adhering to the lower curved surface of the trailing edge of the wing at the flap well, thence inboard to the fuselage and across the rear window. Since the window seal is often not perfectly tight the fuel may then enter the cabin wall.

To preclude the fire hazard of fuel soaked insulation within the cabin wall due to these causes, a drip strip similar to that shown in the accompanying sketch should

be installed on the underside of each wing. This drip strip will prevent fuel from flowing from the wing to the fuselage. (Piper Service Bulletin No. 115, dated March 31, 1950 covers this same subject.)

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

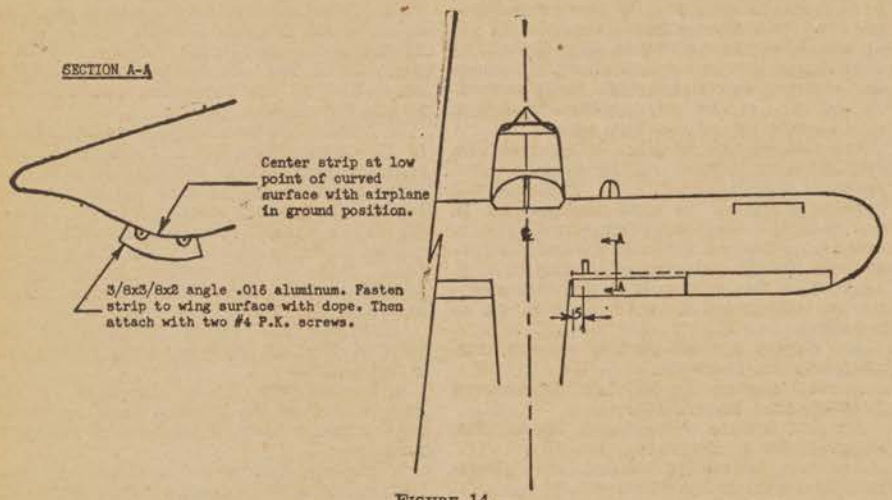


FIGURE 14.

50-26-1 CURTISS-WRIGHT Applies to all C-46A, D, E and F aircraft.

Compliance required not later than August 1, 1950, and at each 500 hours thereafter.

Thoroughly inspect the landing gear side braces Parts Nos. 20-310-1028 and 20-310-1029 for cracks in the vicinity of the welds at either end of the struts, using magnetic or X-ray inspection.

If cracks are found, the following will apply:

1. For one crack only in the weld proper less than ½ inch in length and 0.060 inch deep that does not penetrate into the tube member itself, stress relieve by grinding out the crack and polishing to remove all grinding marks. No rewelding required.

2. For more than one crack in the weld proper or cracks larger than those mentioned in item 1 above that do not penetrate into the tube member itself, repair by grinding out the cracks and rewelding in a welding jig (using the oxyacetylene torch method) and re-heat treat the tube assembly to 180,000 p. s. i. and Rockwell C-38.

3. If cracks are found in the tube member itself, the part should be replaced by a completely new assembly or repaired by replacing the tube and refabricating to the original specifications.

4. Part No. S51E105 is considered a satisfactory replacement for P/N 20-310-1028. When P/N S51E105 is installed it should be inspected by magnetic particle or X-ray method of inspection prior to initial installation and at periods not to exceed 1,000 hours of operation thereafter.

This supersedes Note 50-19-1.

50-28-1 BEECH Applies to all Model 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 manufacturer's recommendations.

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

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 Corporation, 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 Note 50-20-2.

50-29-1 CURTISS-WRIGHT Applies to all Model C-46A, C-46D, C-46E and C-46F aircraft.

Compliance required as soon as practical but not later than the next 25 hours of operation and at each 200 hours thereafter.

Inspect the lower surface of the wing center section for loose rivets (5/32-A17ST modified brazier head) in the area of the front and rear spars between Stas. 82.5 and 107.5. If more than 50 rivets are found loose along either the front or rear spar on either R. H. or L. H. wing center section between the stations mentioned above, they should be replaced immediately following the procedure outlined by Civil Aeronautics Manual 18.20-3 (e) (4) (ii) (a).

If less than 50 rivets are found loose at any of the above specified locations, the rivets need not be replaced until the time of next major overhaul.

50-30-1 REPUBLIC Applies to all Model RC-3 aircraft.

Superseded by 53-23-3.

50-31-1 CESSNA Applies to all Models 120 and 140 aircraft, Serial Numbers 8001 to 15035, inclusive, on which the .051 reinforcing channel or .040 reinforcing angles have not been installed.

Compliance required as soon as possible and not later than August 1, 1950, except as indicated below.

Because two fin spar fatigue failures have occurred in flight, indicating inadequate inspection due to the difficulty of such inspection, the fin must be removed for inspection. Inspection can then be best accomplished by removing five rivets in the fin bottom rib skin attachment and all attaching rivets through the spar and doubler flanges to permit raising the adjacent skin. The front face of the spar and the spar reinforcing channel should then be carefully inspected for flange buckles or cracks with at least an 8-power magnifying glass in the bend radii and in the adjacent flange rivet or clearance holes in the region of the bottom rib attachment. Modify in accordance with item 1 or 2 herein:

1. If failure exists, the spar must be replaced with a spar incorporating an .051 24ST alclad fin spar reinforcing channel, Cessna Part No. 0431129, or equivalent.

2. If no failure exists, reinforcing angles, Cessna Part Nos. 0431145 and 1431145-1 or equivalent, must be installed. (Cessna Service Letter No. 62 dated April 10, 1950 covers this same subject.)

Some of the first airplanes were manufactured using spot welded instead of riveted construction. The following applies to these aircraft and should be accomplished not later than September 1, 1950:

Drill out center of spots with No. 30 drill. Carefully pry skin loose from spar and root rib using a thin lever. Inspect and accomplish 1 or 2 above replacing all drilled spot welds with ⅛-inch rivets as required. In case that sheet or underlying structure is left with a damaged hole which cannot be properly filled with a ⅛-inch rivet, replace with $\frac{5}{32}$-inch rivet or add an additional ⅛-inch rivet on each side of damaged hole.

This supersedes Note 50-17-1.

50-32-1 CONTINENTAL ENGINES Applies to all airplanes equipped with Continental Model E185-3 engines serially numbered 4514-D and below, E185-1 engines serially numbered 4566-D and below and E165-2 engines serially numbered 10024 and below. This includes Ryan (North American) Navion, Beech Model 35 and Luscombe Model 11A airplanes.

Compliance required each 10 hours of operation as indicated.

Note 49-2-4 describes an inspection procedure to preclude the possibility of sudden oil pump failure (and almost immediate complete engine failure resulting therefrom) due to shearing of the square corners of the oil pump drive gear shaft.

There have been a few recent oil pump failures which could have been avoided by continuation of periodic wear checks of the oil pump drive until the related parts are proven satisfactory by tear-down inspection and/or replacement. Therefore, the following should be accomplished on all engines in the serial number ranges indicated above which have not already complied with Continental Service Bulletin No. M48-15:

Remove tachometer drive cable and insert tapered flat end of Continental Drive Fit Indicator (P/N 530757) in slot of tachometer drive shaft, tapping slightly to be sure it is tight in place. By holding the graduated indicator with one finger, and moving the bar with another, a reading (in degrees) of total backlash is obtained. Total backlash should not exceed 15°.

If total backlash does not exceed 15°, the wear check should be repeated at 10-hour intervals until the engine is overhauled and oil pump parts are dimensionally inspected and/or replaced, to determine whether or not excessive wear is accumulating. An accumulation of an additional 5° indicated wear in 20 hours, over the original reading, whether a total of 15° is reached

or not, is sufficient to warrant replacement of parts as hereafter noted.

A reading of more than 15° on the indicator indicates excessive wear, a potential failure, and requires immediate replacement of worn parts prior to further operation of the airplane. Parts affected include the oil pump drive gear, oil pump housing, accessory case, and cam gear. The cam gear need not be replaced if concentricity check shows total runout of square hole to be less than 0.004 inch.

At the time of major overhaul (or first disassembly), oil pump drive parts as per Continental Service Bulletin No. M48-15, should be checked and replaced if necessary. These parts are the oil pump drive gear and cam gear.

The wear check can be made at any Continental Authorized Service Station, and involves only a few minutes for accomplishment. (Continental Service Bulletins Nos. M48-14, with supplements Nos. 1 and 2, and M48-15, cover this same subject.)

This supersedes Note 49-2-4.

50-34-1 KOPPERS PROPELLER Applies to all aircraft equipped with Model F200 "Aeromatic" Propellers (Does not apply to "Aeromatic Model 220 Propellers.")

Compliance required in all cases no later than April 1, 1952.

1. Stinson Model 108-2 and 108-3 aircraft: Compliance required no later than first 200 hours of propeller operation.

2. Stinson Model 108 and 108-1 aircraft: Compliance required no later than first 400 hours of propeller operation.

3. If the total propeller operation time is unknown, or if a reasonably accurate estimate of total time cannot be made, compliance is required not later than the next 50 hours of operation. (Except for Stinson series aircraft, compliance is required by not later than the next 50 hours of operation if the total operation time as of August 29, 1949 exceeds 500 hours.)

Blade retaining flanges, P/N 3277 must be replaced with P/N 3277-1. When this change is accomplished a "-1" (dash one) is to be suffixed to the propeller assembly number on the nameplate to indicate compliance. Koppers Service Bulletin No. 24 covers this same subject.

Stinson Models 108-2 and 108-3 only: (Compliance Required by May 16, 1949). To avoid the possibility of crankshaft or propeller failures resulting from excessive torsional vibration in the 2,700 to 2,800 r. p. m. range, all engine operation must be restricted to 2,650 r. p. m. maximum and propeller readjusted in accordance with Koppers Service Bulletin No. 22. As a further safety measure it is required that propellers which have accumulated any operating time in the 2,650 to 2,800 r. p. m. range be equipped with new blade retainer flanges P/N 3277-1. (Koppers Service Bulletin No. 23-E covers this same subject.)

This supersedes note 49-42-1.

50-36-1 CONSOLIDATED-VULTEE Applies to all Model 240 aircraft incorporating original type nose strut inner cylinders, Bendix P/N 155285.

Compliance required at next No. 1 operation unless already accomplished, on all nose landing gear struts whose total time exceeds 1,000 hours, and at each No. 3 operation thereafter.

Due to recently reported failures of the nose strut inner cylinder the following is required:

Visually inspect P/N 155285 with an 8-power or higher glass for cracks in the area below the scissors lug boss approximately 4 inches above axle housing paying particular attention to the machined radius just below the scissors lug boss. Clean and remove paint from this area. Any evidence of cracks will require replacement of part. Parts with cracks may be repaired in accordance with the limits and procedures specified in Bendix Service Bulletin LG 518. CVAC Service Bulletin 240-366 is reprint of Bendix Bulletin LG 518.

This supersedes Note 50-10-1.

50-37-1 LUSCOMBE Applies to all Model 8C airplanes with a Continental A-75 carburetor engine installed but not equipped with either wing fuel tanks, or an engine-driven fuel pump and the Chevrolet AC-R1 hand pump.

To be accomplished prior to the next annual inspection, but in no case later than October 1, 1951.

It has come to our attention that some Luscombe 8C airplanes equipped with carburetor engines and fuselage fuel tanks are in service without appropriate modifications to the fuel system. Because of the marginal rate of fuel flow which can exist with the gravity feed fuselage fuel tank, engine failure may occur during take-off and climb under low fuel conditions. To eliminate this hazard, the airplane should be modified to provide either an engine-driven fuel pump and a hand operated Chevrolet AC-R1 wobble pump, or two 11.5 gallon wing fuel tanks and revised fuel system replacing the 14 gallon fuselage tank system.

Another satisfactory installation is to provide one 11.5-gallon wing fuel tank. This tank must not feed through the fuselage tank but must feed the engine directly. A placard must also be placed on the instrument panel or at the fuel valve reading, "For take-off and landing, use 11.5-gallon wing tank only."

Luscombe Service Letter, dated August 4, 1947, titled "Method of Effecting Engine Change for Increased Horsepower" pertains to this same subject. This Service Letter can be obtained from the Luscombe Airplane Corporation, Dallas, Texas.

50-38-1 NORTH AMERICAN Applies to all Model AT-6 series aircraft.

To be accomplished at the next annual inspection and at each succeeding annual inspection thereafter.

Several recent incidents have indicated that the inspections presently required are not sufficiently comprehensive to reveal all areas of the airplane which may have been adversely affected by inter-granular corrosion, and that the required inspections should be repeated periodically. Accordingly, in order to minimize the possibility of structural failure due to such corrosion, the following must be accomplished:

Inspect all accessible structural aluminum alloy components for evidence of intergranular corrosion, particularly in the following locations: At the upper and lower deck and the most forward and two aft bulkheads in the monocoque fuselage; frame around the baggage door; inboard end of horizontal stabilizer spars; fuel cell doors in the wing center section; wing attach angles; two inboard ribs on each outer wing; trailing edge ribs above flaps; and the outboard rib of the wings, especially at the trailing edge. Full use should be made of all access provisions to accomplish as thorough an inspection as possible.

In conducting these inspections, full reliance cannot be placed on visual examination alone. A screwdriver or other instrument should be used to explore for dull sounding areas and for material which may be penetrated easily by pressure applied to the screwdriver tip or similar sharp point. Areas adjacent to joints and sheared edges should be examined thoroughly.

Formed material in particular has been found to be subject to rapid inter-granular corrosion, because of poor heat treatment of parts which were formed in the annealed condition, and later heat treated.

All corroded parts must be replaced.

This supersedes Note 47-41-1.

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).

50-39-1 CESSNA Applies to all Models 190 and 195 aircraft, up to and including Serial No. 7586.

Inspection required not later than November 25, 1950, on aircraft having 300 hours or more service and at each 100 hours operation on all aircraft.

Service experience has indicated that close inspection of rudder cables is necessary in order to detect premature cable fraying at the forward pulley. Due to the difficulty of inspection and since some failures may have occurred in core strands, the following methods are recommended: Detach the rudder cable from the rudder bellcrank in the aft fuselage or at the rudder horn at the pedal and pull the cable through the inspection openings immediately aft of the rudder pedal or through the tunnel at the aircraft centerline in the cabin. The cable should then be carefully inspected, by flexing, at a point 9 to 10 inches aft of the swagged fitting at the forward end of the cable for broken strands. Replace all cables showing signs of breakage.

The above inspection may be discontinued when at least the next larger size pulleys are installed. (Cessna Service Kit, SK 9050-1 provides the larger pulley and inspection opening for those aircraft prior to Serial Number 7587.)

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, Part No. 9-13735, and the spindle bearing, Part No. 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, Part No. 5-39516-3. (Boeing Service Letter No. 138A covers this same subject.)

B. (Part No. 15-22594) compliance required as indicated.

1. Thoroughly inspect the nose landing gear terminal Part No. 15-22594, for cracks in the trapezoidal cutout as soon as prac-

ticable, but not later than November 1, 1952, unless already accomplished, 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.

50–41–1 TAYLORCRAFT Applies to all Model B series aircraft, Serial No. 1001 and up.

Compliance required not later than November 15, 1950.

Reports have been received of interference between the elevator horn bolt and the fin cover plate apparently caused by improper field installation of the cover plate through bolt. Cases are known where the bolt has worn through the cover plate and such interference may result in jamming of the elevator control system. An inspection of the parts should be made and if evidence of interference is noted, suitable means of preventing the cover plates from interfering with the elevator horn bolt should be incorporated; a spacer bushing at least ¼ x 0.028 x 1¼ inches installed around the cover plate through bolt is considered satisfactory. (Taylorcraft, Inc., Service Bulletin 65 covers this same subject.)

50–41–2 MARTIN Applies to all Model 202 aircraft.

Compliance required not later than December 1, 1950.

To maintain a sufficient hydraulic reservoir capacity for the operation of the hydraulic units in the event of failure in the emergency brake system, install a hydraulic fuse (Simmonds P/N G45–6E–402–80) or equivalent, adjacent to the main line tee in the emergency brake system between the main line and the emergency brake accumulator. (Martin 202 Service Bulletin No. 105 covers this same subject.) When the manually operated charging valve is installed in accordance with A. D. 51–11–1, this hydraulic fuse is no longer required.

50–42–1 BEECH Applies to Model A35 aircraft, Serial Nos. 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 (non-cambered) with cambered tabs (lower surface cambered) Part No. 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 lbs.

(+75.9) to (+84.4) at 2,140 lbs. or less

Straight line variation between forward c. g. limits.

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

50–43–1 DOUGLAS Applies to all Model DC–6 aircraft.

To be accomplished on or before the next major inspection where facilities are available and in any event by December 15, 1950, unless already accomplished at last previous tire change, and thereafter at the regular major inspection nearest to 330 hours. This inspection period may be extended to tire replacement periods by the assigned CAA agent when the airline's service experience indicates that a satisfactory level of safety is being maintained.

Remove the tires from all Goodyear main wheels, Model L20HBMF, wheel assemblies 9540049 and 9540332, and thoroughly inspect by Zyglo or equivalent methods the critical areas of the wheel, such as:

1. Brake drive flange area.
2. Tire bead radius of the fixed flange.
3. Tire bead seat radius of the demountable flange.
4. Radius of the demountable flange step.
5. The flange retaining ring groove in the wheel.

If cracks are found in any of the critical areas at one of these inspections, the wheel should be retired from service.

50–46–1 DOUGLAS Applies to all Model DC–3 and C–47 series aircraft which utilize a standpipe in the engine oil tank for propeller feathering oil reserve.

Compliance required not later than the first engine change after December 1, 1950.

There have been several cases of inability to feather the propeller due to inadequate feathering oil supply, following loss of engine oil. To correct this condition ascertain the quantity of oil retained in the tank by the propeller feathering standpipe with the airplane in the level flight attitude. If the quantity so retained is less than 1½ gallons, rework the standpipe so that at least this quantity is retained.

Aircraft employing C–47 type oil tanks, Douglas Part No. 5110511 with Douglas Part No. 1355088 standpipe will be considered satisfactory.

50–47–1 SENSENICH PROPELLERS Applies to Sensenich controllable and constant speed propeller models C3FR4, CS3FR5, C2FM and CS2FM. Some of the airplanes on which these are installed are Bellanca 14–13 (165 hp); Goodyear GA–2B; Stinson 108–2 and –3; Monocoupe 90AL–115; Piper PA–12, –14, –16; and Piper PA–20 with Lycoming 0–235–C1 engine.

Compliance required after each 300 hours of propeller operation, except for any aircraft not listed above compliance required after each 500 hours. If the accumulated time is over 300 or 500 hours, compliance is required prior to next 50 hours of operation and after each 300 or 500 hours of operation thereafter, whichever is applicable.

The propeller blades should be removed from the hub, and the wood blade shank and the split retaining ring groove in the blade ferrule should be carefully inspected for cracks. The lag screws should be check-tightened to 160 inch-pounds torque. Blades with broken lag screws, cracked wood shank or ferrule must be removed from service. The ferrule and all ferrous metallic parts of the hub should be magnetically inspected. (Sensenich Service Bulletin Numbers 133 and 135 cover this same subject.)

50–47–2 CULVER Applies to all Model V and V2 aircraft equipped with Sensenich Models C2FB3 or C2FB1 propeller with C276A2, PC276A6, PC276A7 and C276A6 blades.

Compliance required as indicated below:

(1) Replacement required prior to January 31, 1951.

In order to eliminate the continued occurrence of broken blade lag screws and/or cracked blade shanks and ferrules, all C276A2 blades must be retired from service and replaced with blade model PC276A6, PC276A7 or C276A6.

(2) Inspection required every 500 hours of operation after installation of blade models PC276A6, PC276A7 and C276A6.

The propeller blades should be removed from the hub, and the wood blade shank and the split retaining ring groove in the blade ferrule should be carefully inspected for cracks. The lag screws should be check tightened to 160 inch-pounds torque. Blade with broken lag screws or cracked wood shank or ferrule must be removed from service. The ferrule and all ferrous metallic parts of the hub should be magnetically inspected.

The blades are subjected to excessive vibratory stresses when operation beyond the allowable engine RPM ratings inadvertently occurs. It is recommended, therefore, that the accuracy of the tachometer be checked in order to preclude such operation. Operation between 1,800–2,000 r. p. m. is to be avoided when the nose landing gear is extended. (Sensenich Service Bulletins Numbers 133, 134 and 135 cover these same subjects.)

This supersedes note 47–47–9.

50–48–1 MARTIN Applies to all Model 202 and 202A aircraft except Serial Numbers 14081 and 14082.

Compliance required not later than February 1, 1951.

To reduce the possibility of nose gear centering cam failures which result in the inability to extend the nose landing gear, cut off the locking ears of the upper centering cam (P/N 202 SD81541) and fair in this cut area to the cam contour. (Martin 202/202A Service Bulletin No. 115 covers this same subject.)

50–48–2 COLLINS RADIO Applies to all Model 51R–1 and 51R–2 Receivers incorporating Allite or Thordarson 90/150 cycle Filters in their Tone Localizer Indicator Circuits and to all Model 51R–1 Receivers which have not been modified in accordance with Collins 51R–1 Service Bulletin No. 7a. This note applies only to receivers installed in air carrier aircraft.

Compliance required by July 1, 1951.

A. To minimize the possibility of complete or partial in-service failure of the 90/150 cycle tone localizer system, replace all Allite and Thordarson 90 and 150 cycle filters with Collins Radio Company approved replacement filters as follows:

Remove				Replace with—Collins No.
Function	Collins No.	Thordarson No.	Allite (Schrader) No.	
90 cycle...	673 0160 00	T–51677	C–222220–1	673 0206 00
150 cycle..	673 0161 00	T–51678	C–222220–2	673 0207 00

United Transformer Company Part No. F5024, 150 cycle filters, Collins Part No. 673 0161 00, are satisfactory and should not be replaced.

Collins 51R–1 and 51R–2 Service Bulletin No. 14 dated September 21, 1950 covers this same subject.

B. To minimize the possibility of course reversal due to the loss of automatic gain control action, modify the Model 51R–1 receiver in accordance with Collins 51R–1 Service Bulletin No. 7a dated August 29, 1950.

50–52–1 HAMILTON STANDARD Applies to all Convair Model 240 series, Douglas DC–6 and Martin Models 202 and 202A aircraft equipped with Hamilton Standard 2H17 series blades.

Compliance required daily until further notice.

There have been several cases in which a crack has been detected in Hamilton Standard 2H17 blades during routine ground inspections and recently there was a case in which a section of the blade tip shell was lost in flight requiring an unscheduled landing. In order to eliminate the possibility of other blade failures, the following precautionary measures must be taken:

(1) Thoroughly clean the entire surface of each blade to remove oil, grease, dirt, etc., so that an adequate inspection of the entire blade surface can be made.

(2) Carefully examine visually at close range (12"–14") and in detail, the entire surface of each blade for cracks and surface

defects in accordance with Hamilton Standard Service Bulletins Numbers 177 and 193. Any suspected areas should then be more closely examined by using a suitable magnifying glass, permanent magnet or any other suitable means as required.

(3) If any cracks are found in the blade surface, it must be retired immediately from service. All doubtful cases should be referred to the propeller manufacturer.

This Directive supplements previous Hamilton Standard information on the same subject to all affected operators.

51-1-1 DOUGLAS Applies to all Douglas DC-6 aircraft.

To be accomplished as indicated below:

(a) All airplanes at each 300 hours of flight time—Inspect for broken studs at the front spar lower and upper fittings at wing joint Station 421. Also inspect lower, forward front spar fittings, P/N 4332884 and -1, and upper forward fitting, P/N 4332885 and -1, for cracks in area approximately 2 inches outboard of fitting face.

(b) If broken stud is found, replace both studs at spar fittings with parts having threads rolled after heat treat, install bolt with threads rolled after heat treat at center spar, and replace lower fitting P/N 4332884 and -1 and upper fitting P/N 4332885 and -1 with newly designed heavier fittings P/N 4397872 and -1 and P/N 4397873 and -1, respectively. Return of an airplane to service prior to the availability of the newly designed fittings is permissible by installation of new fittings of the old design (P/N 4332884 and 4332885), providing replacement is made at or before 8,000 hours of service on those parts. Spotface new fittings after installation to align with adjacent fittings.

If records show previous case of broken parts at front spar fitting, and only corrective action taken was the replacement of studs with threads rolled after heat treat, inspect fittings at each 300 hours of operation until same replacement action outlined above is taken at next engine change period.

(c) Continue inspections outlined in (a), above, until following replacement action is accomplished:

1. If not previously incorporated, install studs at the front spar and bolts at the center spar which have threads rolled after heat treat. (See A. D. 49-6-2.)

2. Replace the lower forward front spar fittings P/N 4332884 and -1 with new heavier P/N 4397872 and -1 and replace the upper forward front spar fitting P/N 4332885 and -1 with new heavier P/N 4397873 and -1 spot-facing fittings after installation.

(d) Replacement action outlined in Items (c) 1 and 2, above, to be accomplished not later than January 1, 1952. (Douglas General Service Letter DC-6 #61 covers this same subject.) Refer to Douglas Service Letter #66, Supplement #2 dated July 18, 1951, for wing alignment at Station 421.)

51-2-1 DOUGLAS Applies to all Douglas Model DC-3 series aircraft with ramp type main entrance doors hinged at the bottom.

Compliance required as indicated below:

(1) At next number 1 inspection or equivalent and at regular intervals not to exceed approximately 100 hours, inspect the main entrance door hinges and locking and warning mechanisms for alignment and/or adjustment until the rework of item (2) below is accomplished.

(2) Compliance required by July 1, 1951.

A. Install an inspection window for at least the uppermost main entrance door locking bayonet. The installation to be in a manner to permit visual observation of the bayonets in the locked position so that it can be determined by visual means that the door is properly closed and locked. The bayonets and adjacent structure should also be appropriately marked with a paint stripe to indicate when the bayonets are in the locked position.

B. Provide means to retard disengagement of bayonets by creeping due to vibration or other loads in flight. A notched bayonet installation similar to that covered in Metropolitan Airparts Service Bulletin No. MAP-1A for their airstairs Model A; or similar to the notched bayonet installation used on the Douglas DC-6 and Super DC-3 main entrance doors; or a spring loaded positive over center latching mechanism will be considered to meet this objective.

(3) Compliance required by January 1, 1953.

To reduce the possibility of inadvertent opening of the door in flight install stops to positively limit the lock mechanism travel in accordance with Metropolitan Airparts Service Bulletins Nos. MAP-4A, MAP-5A, or MAP-6A (for Models A, C, or D Airstair Doors respectively) or equivalent.

51-2-2 TEMCO (formerly Globe) Applies to all Model GC-1A and GC-1B airplanes through Serial No. 3760, except those equipped with Hanlon-Wilson muffs.

Compliance required by February 15, 1951.

To prevent engine malfunctioning due to pieces of asbestos from the carburetor heat muff entering the carburetor, remove all asbestos strips on the right-hand (carburetor heat) muff. After removal of the asbestos, peen the muff collars to provide a tight fit on the exhaust stacks.

This supersedes Note 47-25-8.

51-3-1 MOONEY Applies to Model M-18 series aircraft, Serial Nos. 1 through 82 and 201 through 236.

Compliance required not later than March 15, 1951.

There have been reported failures of the fuel line due to vibration and relative motion between the fuel tank and the fuel shut-off valve. To preclude the possibility of recurrence of this type failure, cut the fuel line at a point approximately four inches from the fuel tank outlet and install a 4-inch length of 3/8-inch ID approved aromatic resistant flexible hose and hose clamps at this point. (Mooney Service Bulletin No. 6 covers this same subject.)

51-3-2 MARTIN Applies to all Model 202 and 2-2A aircraft.

Compliance required by April 1, 1951, on all aircraft having main landing gears with 4,000 hours service or more, and thereafter every 4,360 cycles of landing gear operation.

Due to reported occurrences of cracks, the main landing gear crankshafts (P/N 202SD82019 and 202SD82021) should be replaced with new crankshafts bearing the same part numbers and having a ground radius around the periphery of the hole for the retract pin. (Martin Service Bulletin No. 128, dated October 4, 1950, covers this same subject.)

51-4-1 MARTIN Applies to all Model 202 aircraft.

Compliance required not later than April 1, 1951.

In order to eliminate a fire hazard due to the possibility of flow from the tank to the engine compartment in case of the failure of the carburetor vapor vent return line, install a swing type check valve at each fuel tank where the vapor vent line attaches to the tank so that flow can take place only toward the fuel tank. (Martin Service Bulletin No. 138, dated November 30, 1950, covers this same subject.)

51-4-2 WARNER ENGINES Applies to all Warner engines except those with the letter "A" stamped after the serial number on the engine nameplate. The letter "A" indicates that the modifications hereinafter discussed have already been accomplished.

Compliance required as indicated.

As a precautionary measure to preclude serious flight hazards resulting from failure of the 5/16-inch cylinder hold-down studs P/N S506, the following inspections or replacements should be accomplished.

A. Compliance required as soon as possible but not later than 4/1/51 and at each 100 hours of operation thereafter.

1. Check the cylinder hold-down nuts to determine that they are tightened to a torque of 180 inch-pounds desired to a 200 inch-pounds maximum.

(a) If one or more of the studs is found to be broken, replace all of the studs for the particular cylinder.

(b) Loose cylinder hold-down nuts are a good indication that the stud may have stretched to the extent that fatigue failure may soon result. If one or more of the nuts is found loose, it is recommended that all of the studs in the cylinder be replaced.

(c) When installing a cylinder with oil on the stud threads, tighten nuts to 200 inch-pounds desired to 225 inch-pounds maximum. (Warner Service Letter No. A-15 discusses procedures for inspecting and replacing 5/16-inch studs and nuts.)

B. Compliance not required, but will eliminate foregoing mandatory inspections.

1. Replace Cylinder stud P/N S506 and Nut N-511 with 3/8-inch Stud S-911 and Nut N-910.

2. Replace gasket between cylinder barrel and crankcase with an "O" type ring.

3. Stamp letter "A" after serial number on engine nameplate when this modification has been completed.

(Warner Service Letter No. A-17 explains the details connected with the replacement of these parts.)

The Warner Aircraft Co., P. O. Box 229, Niles, Mich., which purchased the assets of the Warner Div. of the Clinton Machine Co., Detroit, Mich., have a large supply of replacement part stocks that will be held in their inventory for an indefinite period. Warner Service Letter No. A-17 should be consulted before ordering these replacement parts. If either Letter A-17 or Letter A-15 is not available, copies may be obtained from the Warner Aircraft Co., Box 229, Niles, Mich.

51-5-1 PRATT & WHITNEY Applies to DC-6 and CV-240 aircraft equipped with R-2800-34M1, -83AM3, -83AM4, and Double Wasp CA series engines using anti-detonant injection (wet power) for take-off.

Compliance required as soon as possible but not later than February 15, 1951.

A. Each operator of an airplane covered shall select a power which he undertakes to maintain. If that power is less than the corresponding value available during the type certification tests of the airplane, the operating weights of the entire fleet shall be reduced to values such as will enable the airplanes to perform as indicated in the approved airplane flight manual with the power selected.

B. The power actually developed by each engine shall be measured each time it reaches each of the following stages.

1. Upon installation of overhauled engines in aircraft.

2. At the No. 3 inspection nearest to the midpoint of the authorized service time between overhauls.

3. At the nearest No. 3 inspection or some convenient point near or at the end of the authorized service time between overhauls.

C. The procedures and methods employed in making these power measurements shall be acceptable to the CAA.

1. The frequency of the power measurements should be continued as indicated above until the results obtained on each operator's fleet have been evaluated for the purpose of establishing whether more frequent or less frequent measurements are warranted.

2. Operators not employing line maintenance practices which will reasonably insure

the continued availability of the selected power will start this program making more frequent power measurements than indicated above.

D. An airplane incorporating an engine which at any of the required power measurements, fails to develop the selected power shall not be dispatched unless:

1. The power is restored to the selected value, or

2. The engine is replaced by one developing the selected power, or

3. The operating weights of the individual airplane are reduced as specified in "A".

E. If, on a fleet wide basis, the initial powers measured during any individual power measurement are consistently below the selected power, the operator shall:

1. Initiate or improve line maintenance to the extent necessary to give reasonable assurance that the selected power is continuously available, or

2. Make more frequent measurements of power, or

3. Select a lower value of power representative of the initially measured values and reduce operating fleet weights as specified in "A".

F. An acceptable method for power measurement and data correction utilizing static ground runups in the aircraft is described by AAL in their instructions on "Convair Ground Power Check." This information has been distributed by ATA to all the airlines involved. Alternative methods providing equivalent or greater accuracy will be acceptable.

G. Results of the above power checks are to be submitted regularly and promptly to the assigned CAA field agents.

51-7-1 RYAN (NORTH AMERICAN) Applies to all Navion airplanes having serial numbers 1789 through 2019; 2021 through 2026; 2028 through 2142; 2144 through 2169; 2171 through 2177; and 2180.

To be accomplished as indicated below.

It has been found that on some of these airplanes throttle housing slippage has occurred at the point where the cable housing is swaged to the ferrule at the instrument panel end. This slippage can result in erratic throttle operation. An inspection of these controls for evidence of housing slippage must be made not later than March 5, 1951. Any control showing evidence of slippage shall be replaced immediately.

It has been found that housing slippage may be caused by the inner shaft in the control head striking the end of the housing when the throttle is moved to the full open position. To prevent such occurrence, a special stop nut must be installed on the throttle shaft in place of the existing jam nut. This special nut, which will prevent the inner shaft from striking the end of the housing, is being furnished by the Ryan Company and must be installed by July 15, 1951. (Ryan Field Service Bulletin No. 9, dated September 1, 1950, covers this same subject.)

51-8-1 CONTINENTAL ENGINES Applies to all Continental Model E185 engines serial numbered 2600 and below which have not been major overhauled since November 1, 1947, by Continental Motors Corporation or July 1, 1948, by field overhaul agencies.

Superseded by 51-26-3.

51-8-2 BEECH Applies to all Model 35, A35, and B35 aircraft, Serial Nos. D-583 to D-2500 inclusive with the following exceptions: D-2319; 2459; 2472 through 2474; 2476 through 2483; 2485; 2488; 2489; 2491; 2492; 2494; 2496; and 2498.

Canceled September 26, 1955.

51-8-3 TEMCO (Formerly Globe) Applies to Model GC-1A and GC-1B aircraft—all serial numbers.

Compliance required at next periodic inspection but not later than May 1, 1951.

Inspect the horizontal stabilizer front spar attachment to the fuselage bulkhead for looseness. First remove all fairing or interfering items. Support the horizontal stabilizers on the fuselage so that their position cannot change; remove the four AN3 bolts which attach the front stabilizer spar to the fulselage bulkhead. If there is no deformation or elongation of these bolt holes and if the holes in the stabilizer spar and the fuselage bulkhead are in correct alignment, the AN3 bolts should be reinstalled, torquing them to 25-30 inch-pounds.

If there is a deformation or elongation of the attach bolt holes, a repair can be accomplished by reaming these 3/16-inch holes to 1/4-inch diameter with the stabilizer firmly blocked in the proper position with the fuselage. The AN3 bolts, nuts, and washers are to be replaced with AN 4 bolts, nuts, and washers, and they should be torqued to 80-90 inch-pounds in reassembling the stabilizer front spar attachment. The empennage and fairing which were removed for this inspection and repair are then reassembled on the airplane.

If the AN3 attachment bolts are retained, this inspection should be repeated at each periodic or annual inspection. If the AN4 attachment bolts are installed, only the normal inspections of this attachment need be made.

51-9-1 PRATT & WHITNEY Applies to Boeing Model 377 aircraft equipped with Wasp Major TSB3-G or B5 engines using antidetonant (wet power) for take-off.

Compliance required as soon as possible but not later than May 1, 1951.

A. Each operator of an airplane covered shall select a power which he undertakes to maintain. If that power is less than the corresponding value available during the type certification tests of the airplane, the operating weights of the entire fleet shall be reduced to values such as will enable the airplanes to comply with the transport category performance requirements with the take-off power selected. Appropriate flight manual revisions shall be made to indicate whatever changes in performance have resulted.

B. The power actually developed by each engine shall be measured each time it reaches each of the following stages:

1. Upon installation of overhauled engines in aircraft;

2. At the No. 3 inspection nearest to the midpoint of the authorized service time between overhauls; and

3. At the nearest No. 3 inspection or some convenient point near, or at, the end of the authorized service time between overhauls.

C. The procedures and methods employed in making these power measurements shall be acceptable to the CAA.

1. The frequency of the power measurements should be continued as indicated above until the results obtained on each operator's fleet have been evaluated for the purpose of establishing whether more frequent or less frequent measurements are warranted;

2. Operators not employing line maintenance practices which will reasonably insure the continued availability of the selected power will start this program making more frequent power measurements than indicated above.

D. An airplane incorporating an engine which at any of the required power measurements fails to develop the selected power shall not be dispatched unless:

1. The power is restored to the selected value, or

2. The engine is replaced by one developing the selected power, or

3. The operating weights of the individual airplane are reduced as specified in "A".

E. If, on a fleet-wide basis, the initial powers measured during any individual power measurement are consistently below the selected power, the operator shall:

1. Initiate or improve line maintenance to the extent necessary to give reasonable assurance that the selected power is continuously available, or

2. Make more frequent measurements of power, or

3. Select a lower value of power representative of the initially measured values and reduce operating fleet weights as specified in "A".

F. Results of the above power checks are to be submitted regularly and promptly to the assigned CAA field agents.

51-9-2 DOUGLAS Applies to all Model DC-4 and C54-DC series aircraft.

Compliance required as indicated.

A. To be accomplished at intervals not to exceed 2,000 hours of flight time. Torque check all empennage control surface hinge bolts by first making a visual check of the slippage stripe across the nut and the adjacent area for signs of any relative motion and then applying a tightening force to the nut equal to the minimum torque specified in the Douglas Maintenance Manual for the nut and bolt combination. If the nut does not move with the application of this force and the condition of the stripe indicates no previous movement, the assembly may be left intact. When any looseness is found, the assembly should be removed and thoroughly inspected.

B. To be accomplished at each major overhaul period. In addition to the control surface hinge bolts mentioned in part "A" above, remove the nuts from all rudder and elevator bracket attaching bolts and rudder and elevator hinge eye-bolts. All nuts, bolt or stud threads, and mating surfaces must be cleaned of dirt, grease, oil, or dye and thoroughly dried. All parts should be checked for wear and replaced as necessary. Upon reassembly, all nuts should be torqued to the recommended values specified in the Douglas Maintenance Manual for the particular model airplane. All torqued or re-torqued bolts should be identified by a narrow painted line across the nut and adjacent surface so any movement of the nut will be readily discernible. This marking should be done as soon as possible after torquing. Bolt heads should not be torqued or re-torqued unless it is impossible to reach the nut because of inaccessibility. If it should be necessary to torque or re-torque the bolt head, it should be marked in the same manner as described for the nut.

C. Airline operators with CAA accepted maintenance inspection programs need only torque check 15 percent of fleet or minimum of two airplanes, whichever is greater, at each 2,000-hour period or in multiples of major inspection closest to 2,000 hours. This period may be increased in 1,000-hour steps until the major aircraft over-haul period is reached provided no defects are found. Thereafter, the torque check shall be accomplished on each aircraft at the aircraft major overhaul period. Where the CAA accepted maintenance inspection program includes procedures equivalent to this Airworthiness Directive and above deviation, the CAA accepted maintenance program may be followed in lieu of this Airworthiness Directive.

This supersedes Note 47-27-3.

51-9-3 TAYLORCRAFT Applies to all Taylorcraft aircraft below Serial No. 13001 incorporating a push-pull type fuel shut-off control.

Compliance required not later than June 1, 1951.

To prevent accidental operation of the fuel shut-off valve during flight, a safety device must be installed on this control. The device is to prevent inadvertent operation of the fuel shut-off valve by requiring a definite and positive movement by the pilot before the control can be operated. Taylorcraft Part No. B12-947-3 or equivalent is considered satisfactory. Part No. B12-947 which was previously installed in some Taylorcraft airplanes must be replaced by this improved

part. (Taylorcraft Service Bulletin No. 66 dated December 6, 1950, covers this same subject.)

This supersedes 47-13-1.

51-10-1 DOUGLAS Applies to all Model DC-6 aircraft.

Compliance required at first engine change after receipt of parts but not later than June 1, 1952.

In order to increase the strength of the wing flap operating link assembly at wing station 281, and to replace the temporary reworks of the present links as outlined in Douglas General Service Letter DC-6 No. 60, the following should be accomplished:

a. Replace wing flap operating link assembly, P/N 4330069, with new heavier link, P/N 4393814.

b. Visually inspect 4330069 links every 60 hours of operation until replacement per item "a" above, is accomplished. If links have been reworked and shot-peened per Douglas General Service Letter DC-6 No. 60, inspect every 500 hours of operation until replacement is made. (Douglas General Service Letter DC-6 No. 60 covers this same subject.)

51-10-2 LUSCOMBE Applies to all Model 8 series aircraft.

Compliance required by the next periodic inspection, but not later than June 1, 1951, and at each annual re-certification thereafter.

Due to recurring failures of the control cables, all cables should be carefully inspected at each section which passes either over a pulley or through a fairlead. To properly inspect the cables, they should be removed from the airplane to the extent necessary to expose the sections to be inspected. Care should be taken that the method of inspection is not damaging to the cable; i. e., do not sharply bend any strand or the whole cable and do not "bird-cage" the cable to the extent of putting permanent set in the strands or the whole cable. Any unairworthy cables must be replaced.

In re-installing the control cables, the rigging of the entire control system should be checked and properly adjusted. The control surface travels may be obtained from Aircraft Specification A-694. Care should be taken that none of the cables drag across or rub against any structure or equipment due to misalignment of the fairleads. Luscombe Airplane Corporation Service Bulletin No. 1-51 furnishes further information on this subject and Luscombe Airplane Corporation, Garland, Texas, should be contacted for further information, if needed, in rigging controls.

51-10-3 CURTISS-WRIGHT Applies to all Model C-46 aircraft.

To be accomplished as indicated below:

A. Due to service failures and low margin of safety, retire from service by July 1, 1951 all Goodrich main wheels, Model 1900M (Hayes Assembly No. H-3-38-M-1), having Serial Nos. AE-8701 or lower. Any wheels with prefix serial number "38" are eligible regardless of serial number.

B. Remove the tires and inspect all Goodrich main wheels, Model 1900M (Hayes Assembly No. H-3-38-M-1) at the periodic inspection following each 85th landing or at the regular periodic inspection nearest to 330 hours, whichever occurs first. Regardless of the number of landings, this inspection period may be extended, by the assigned CAA Agent, to the regular periodic inspection nearest to 330 hours, and then to tire replacement periods, when the operator's service experience and quality of wheel maintenance indicates that a satisfactory level of safety is being maintained. The initial inspection period, when applying this A. D. revision, shall consider the accumulated time and number of landings since the last wheel inspection. Inspection shall be by the Zyglo, Dy-Chek, or equivalent method and shall include the critical areas such as: (1) Brake drive flange area; (2) Tire bead radius of the fixed flange; (3) Tire bead seat radius of the demountable flange; (4) Radius of the demountable flange step; (5) The flange retaining ring groove in the wheel.

If cracks or other signs of fatigue failure are found in any of the critical areas, the wheel must be retired from service.

51-10-4 CESSNA Applies to Model 190 aircraft, Serial Nos. 7004 through 7594.

Inspection required not later than May 1, 1951, and every 25 hours of operation thereafter until new cowl mounting ring channels and channel stiffening angles are installed.

Due to cracking and failures of the cowl mounting ring channels which, if undetected, may result in the cowl moving forward into the propeller, the cowl mounting channels must be closely inspected for cracks with particular attention being paid to the sections which bear against the cowl mounting lugs. This inspection must be repeated every 25 hours of operation until the presently installed 1010 steel cowl mounting channels are replaced with 4130 steel cowl mounting channels, Cessna P/N 0352161, 0352163, and 0352163-1, and aluminum alloy cowl channel reinforcing angles, Cessna P/N 0352146, 0352147-1, 0352147-2, 0352152-5, and 0352152-6 are installed. In the event that inspection reveals any indication of cracks, the new cowl mounting channels and reinforcing angles must be installed immediately. (Cessna Service Letter No. 13 dated March 29, 1951, covers this same subject.)

51-10-5 TEMCO (Formerly Globe) Applies to Model GC-1A and GC-1B aircraft, serial numbers 3711 and below.

Compliance required at next periodic inspection but not later than May 1, 1951.

(This Airworthiness Directive Supplements AD-48-28-1.)

The two most forward AN3-4 bolts in each flange of reinforcement 11-213-5074 (4 bolts in all), installed to comply with AD-48-28-1, interfere with the tail wheel shock strut cylinder at the upper extreme of its travel. The tail wheel shock strut should be removed from the airplane and the shock strut and the tail wheel support channel, P/N 11-212-1484, carefully inspected for damage. Any damaged part should be replaced or repaired.

Re-examination of this reinforcement P/N 11-213-5074, shows that the two forward AN3-4 bolts in each flange (4 bolts in all), are not necessary to achieve the required strength. Therefore, remove these bolts, leaving the two most rear AN3-4 bolts in each flange of the reinforcement (4 bolts in all). The flanges of the 11-213-5074 reinforcement may be cut off along a line located $\frac{3}{8}$ inch forward of the center-line of the two rear $\frac{3}{16}$-inch bolt holes in each flange, if necessary to accommodate a repair of the tail wheel shock strut support channel. Re-install the tail wheel shock strut.

51-10-6 CURTISS-WRIGHT Applies to all Model C-46 series aircraft.

Compliance required at next periodic inspection, not to exceed 100 hours, and each 200 hours or nearest regular inspection period thereafter.

Inspect all aileron, rudder and elevator hinge fittings and adjacent structure for cracks, loose rivets, worn bolts and condition of bearings. If defects are found, the part should be replaced by an undamaged part or repaired.

This supersedes note 50-14-1.

51-11-1 MARTIN Applies to all Model 202 and 202A airplanes except as noted.

Compliance required as specified herein. Compliance with this note cancels the requirements of A. D. 50-41-2.

In order to comply with the recommendations of the Martin 202 Modification Board, the following items must be accomplished. In all cases, modifications which are demonstrated to provide a level of safety equivalent to that provided by the modifications listed herein will be acceptable in lieu of the listed modifications.

Compliance required by August 16, 1951.

1. Decrease breaker rating for propeller anti-icing circuit to 5 amperes to accomodate No. 20 wire. (Applies to Model 202 airplanes only.)

2. Install negative pressure scoop on battery vent line.

Compliance required by November 16, 1951.

1. Add manually operated charging valve in the emergency brake hydraulic system in accordance with Glenn L. Martin Company Service Bulletin No. 185.

Compliance required by December 1, 1951.

1. Provide circuit protection for voltmeter.

2. Provide circuit protection at main bus for generator trip light circuit.

3. Provide circuit protection for ammeter wires.

Compliance required by February 1, 1952.

1. Install circuit breaker in circuit breaker panel with wire routed back to auxiliary bus control relay.

51-11-2 CESSNA Applies to all Model 190 and 195 aircraft Serial Nos. 7004 to 7474 and 7476 to 7479, inclusive.

Compliance required not later than June 1, 1951, and upon each 100 hours of operation thereafter until reinforcing doublers are installed at outboard hinge fittings.

Inspect for fatigue cracks in the elevator spar webs at the outboard hinges. This may be accomplished by loosening the two attaching bolts as necessary to facilitate inspection for cracks at the bolt holes. Cracks extending less than $\frac{3}{4}$ inch beyond the hinge fitting should be stop-drilled and reinforcing doublers, Cessna P/N 10008-11-2 and -3, should be installed on the forward side of the spar. If any cracks are longer than $\frac{3}{4}$ inch, the spar should be replaced and the reinforcing doublers added. (Cessna Service Letter No. 10 dated November 18, 1949 covers this same subject.)

51-11-3 FRANKLIN ENGINES Applies to all Franklin 6V4-178 Engines serially numbered 17588 and below and all Franklin 6V4-200-C32 engines serially numbered 26034 and below.

Superseded by 51-28-2.

51-11-4 TEMCO (Formerly Globe) Applies to Models GC-1A and -1B and includes all serial numbers.

Compliance required as indicated.

A. At each 100-hour or annual inspection, all bushings in all landing gear pivot points should be inspected for wear that would allow fore and aft travel of the main landing gear. The total fore and aft travel of the wheels, measured at the center of the axle, due to the cumulative slack in the worn bushing, should not be more than $\frac{3}{8}$ inch. This check should be made with the hydraulic pressure relieved on the system and with the landing gear in two positions: 1) unlocked and in an intermediate position near to, but not in, the full down position; and 2) with the landing gear just entering the wheelwell. If the total fore and aft travel of the wheel of either landing gear is more than $\frac{3}{8}$ inch in either position, the landing gear assembly must be repaired as necessary to reduce this travel to less than $\frac{3}{8}$ inch.

B. At the next 100-hour or annual inspection, whichever occurs first, unless already accomplished, install spacer in Emergency Landing Gear Pull Down System to prevent inadvertent unthreading of drive screw. (Temco Service Bulletin No. 28 covers this same subject.)

C. At each 100-hour or annual inspection, the emergency extension system should be inspected for proper adjustment in accordance with paragraph 8, 9, and 12 of Temco Service Bulletin No. 28.

51–12–1 WRIGHT ENGINES Applies to all Models C9GB, C9GC, C9HD, and Military R–1820 series engines.

Compliance required as soon as possible, but not later than April 1, 1952.

To preclude piston pin failures, piston pins part numbers 68827, 117691, and 131061, which have not been carburized, must be replaced at each engine overhaul. Piston pins numbers 117691 and 131061 retain the same part number when carburized, but may be identified by the symbol "C" on the recessed end of the pin. Piston pins number 68827 were never carburized and therefore should not be reused. It is suggested that orders for carburized piston pins be placed well in advance of required delivery date. (Wright Service Bulletin No. C9–156A covers this same subject.)

51–12–2 MARTIN Applies to all Model 202 and 202A airplanes except as noted.

Superseded by 51–19–4.

51–13–1 MARTIN Applies to all Model 202 and 202A series aircraft as noted.

Compliance required as indicated.

I. Applies to all serial numbers except 9125 through 9127 and 9129 through 9131.

A. Compliance required every other No. 3 inspection period, approximately 620 hours flight time, or 6 months, whichever occurs first.

1. Inspect the wing top cover splice angles with a 2 to 6 power glass (may be conducted with paint on). On Model 202 series aircraft, except serial numbers 9149 and 9150, these angles are P/N U23435 through U23442 (wedge assemblies Nos. 2021A12633 and 2021A12624). On Model 202 aircraft, serial numbers 9149 and 9150, and on all Model 202A series aircraft, these angles are P/N A12025, A12026, U29403, U29404, U29407, and U29408 (wedge assemblies Nos. 2021A12023 and 2021A12024).

2. If cracks are found, the top cover wedge assembly must be replaced as outlined in Item B below.

3. Continue the inspections outlined in Item 1 above until the replacement action outlined in Item B below is accomplished.

B. Compliance required not later than January 1, 1953.

1. Replace all wing top cover wedge angles with new angles as follows: On Model 202 series aircraft, except serial numbers 9149 and 9150, the new angles are P/N 202A-3000068–1 and –2 through 202A3000071–1 and –2 (wedge assemblies Nos. 2021C12336–9 and –10). On Model 202A aircraft, serial numbers 9149 and 9150, and on all Model 202A series aircraft, the new angles are P/N 202A-3000072–1 and –2 through 202A3000074–1 and –2 (wedge assemblies Nos. 2021C12090–9 and –10).

2. At the time of wedge assembly replacement, the outer wings must be reinstalled with the engines removed, and the mating faces shimmed to a maximum permissible gap of 0.020 inch. The rear spar fitting must also be shimmed to a zero gap for approximately the upper half of its area.

3. Each airplane must have a torque check on the attach angle bolts immediately after the first flight after any outer wing installation. If the torque is within 15 percent of the installation torque, it is satisfactory.

4. After the new wedge angles are incorporated, the inspection outlined in above Item A is no longer applicable to that airplane.

II. Applies to serial numbers 9125 through 9127 and 9129 through 9131.

A. Compliance required every 170 hours flight time. Conduct the inspection outlined in above Item 1A on angles P/N U23435 through U23442 (wedge assemblies Nos. 2021A12623 and 2021A12624) until cracks are found and/or the replacement action outlined in Item B below is accomplished.

B. Compliance required not later than May 15, 1952. Replace all wing top cover angles with new angles P/N 202A3000068–1 and –2 through 202A3000071–1 and –2, wedge assemblies Nos. 2121C12336–9 and –10, and when accomplished, the inspections outlined in above Item A are no longer applicable to that airplane.

III. Applies to all Model 202 and 202A series.

A. Compliance required every 12,000 flight hours. Replace all wing top cover attach angle bolts and spar web splice bolt. (Martin 202/202A Service Bulletins Nos. 180, 184, and 187 cover this same subject.)

51–14–1 BEECH Applies to all Model 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 name plate) 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, cover this same subject.)

This supersedes Note 49–28–2.

51–14–2 CURTISS-WRIGHT Applies to all C–46A and D series aircraft.

Superseded by 55–9–2.

51–15–1 PIPER Applies to all Model J3 series and PA–11 aircraft.

Compliance required prior to March 15, 1948, and periodically as noted below:

1. At each 500 hours of flight operation, the four forked clevis ends (Piper Part No. 11281) which thread into the lower end of the wing lift struts should be removed, cleaned and carefully inspected for straightness and cracks at the thread roots. Fluorescent magnetic particle inspection or inspection with at least a 10-power lens should be used or the clevis ends replaced.

2. At each 100 hours of flight operation these same four forked clevis ends should be visually inspected for condition. Defective clevis ends should be replaced.

3. At each 1,000 hours of flight operation, the four clevis end fittings (Piper Part No. 11281) should be replaced with new fittings. The removed fittings must be scrapped.

4. When these aircraft models receive structural damage to the wing structure, wing attaching structure, or fuselage structure in the vicinity of the lift strut attaching points the clevis end fittings must be replaced.

5. Clevis end fittings salvaged from damaged aircraft will not be used as replacement parts.

This supersedes Note 48–46–1.

51–15–2 FRANKLIN ENGINES Applies to all Franklin 6A4–165–B3 engines serially numbered 33046 and below incorporating original crankcase (Left half No. 18305; Right half No. 18306). These two parts form crankcase assembly, P/N 18553. The number of each crankcase half is located on each casting below the Number 1 and 6 cylinder location.

To be accomplished by July 15, 1951.

Effective on and after this date, all applicable crankcase with 500 hours of operation since new or 250 hours since last overhaul should be inspected as follows: Remove crankcase cover and visually inspect the webbing near the main journal area for cracks.

(1) Crankcases found to be free of cracks should be inspected at 250-hour intervals thereafter. In the event that the conditions described in (2) and (3) are detected, the provisions of (2) and (3) will apply.

(2) Crankcases found with (a) surface indications, hairline cracks, or small wall cracks and (b) cracks starting at main bearing stud hole on the opposite side from main bearing support, may be operated further at the option of the owner. Such crankcases should be inspected at 50-hour intervals thereafter to determine progress of cracks.

(3) Crankcases found fractured or with cracks that have progressed to the extent that they enter the main bearing supports (usually from back near (a) main bearing stud hole and (b) drilled oil hole) indicate that a complete break soon will occur. Such crankcases should be replaced with the reinforced crankcase assembly, P/N 18925, at which time no further inspection is required.

Crankcase assembly P/N 18925 may be identified by casting No. 18905 appearing below No. 1 cylinder location and casting No. 18906 appearing below No. 6 cylinder location. (Franklin Service News No. 10 covers this subject.)

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 in the following sketch should be made: (Bellanca Service Bulletin No. 14, Models 14–13 and 14–13–2, covers this same subject.)

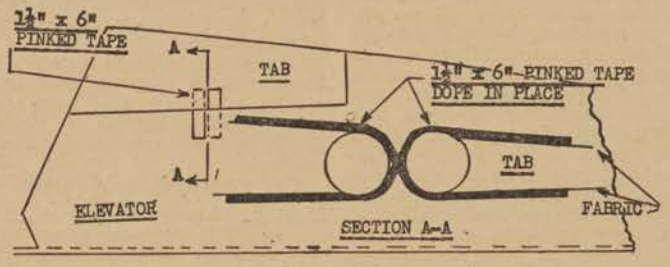


FIGURE 15.

51-16-2 BELLANCA Applies to all Model 14-19 airplanes Serial Nos. 2002 through 2075.

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

As the result of a recent failure of the elevator trim tab in flight, the modification of the trim tab attachment to the elevator as shown in the following sketch should be made: (Bellanca Service Bulletin No. 2, Model 14-19, covers this same subject.)

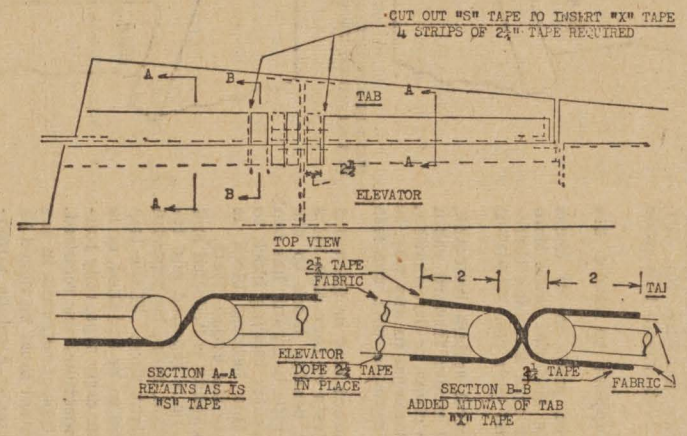


FIGURE 16.

51-18-1 CESSNA Applies to all Model T-50 aircraft.

Compliance required at each periodic inspection.

Two reports of loss of rudder control in flight as a result of fatigue failure of rudder torque tube have been received. Failures occur in the lower rib and pylon area. For complete inspection of the affected area, a section of the fabric should be opened by cutting along the leading edge upwards to permit removal of a ten-inch section of the leading edge wood block then aft along the lower rib flange. This method will facilitate closing. (Replacement of removed wood leading edge section with lacing cord similar to original fastening is satisfactory.) Since the rudder torque tube is not heat-treated, cracks up to approximately ¾ inch in length may be stop-drilled and welded. Where cracks have progressed further, it is recommended that the lower section of the torque tube be replaced by splicing between the No. 1 and No. 2 ribs in accordance with Manual 18 practice.

This supersedes Note 47-5-2.

51-19-1 BELL Applies to all Model 47 helicopters.

Superseded by 51-23-2.

51-19-2 PIPER Applies to Models PA-18 Serial Nos. 18-487 to 18-730 inclusive; PA-20 Serial Nos. 20-554 to 20-690 inclusive; and PA-22 Serial Nos. 22-1 to 22-90 inclusive.

Compliance required by August 31, 1951.

Over age oil radiator hose was installed in an undetermined number of Piper airplanes. Inspect immediately to determine that the proper hose marked with a solid white line and a broken red line and AN-H-35 or MIL H-6000 are installed. Defective hose are marked "Aromatic Resistant Gates Vulco" followed by a date with the opposite side marked by a solid white line and broken red line. All defective hose should be replaced as soon as possible but not later than August 31. This information supersedes that in Piper Service Letter No. 165 dated March 23, 1951.

51-19-3 RYAN Applies to all Navion Model B aircraft.

Superseded by 52-8-2.

51-19-4 MARTIN Applies to all Model 202 and 202A airplanes except as noted.

Compliance required as specified below.

In order to comply with the recommendations of the Martin 202 Modification Board, the following items must be accomplished. In all cases, modifications which are demonstrated to provide a level of safety equivalent to that provided by the modifications listed herein will be acceptable in lieu of the listed modifications.

A. Canceled December 22, 1952.

B. Compliance required by October 15, 1952.

1. Provide system independent of wing heat for windshield anti-icing, de-icing, defogging and birdproofing. Glenn L. Martin Service Bulletins Nos. 176 and 183 together with GLM Dwgs. Nos. 202A5051026, 202A5051027, 202A5051036, and 202A5051037 cover this same subject. (Applies to Model 202 airplanes only.)

C. Compliance required by January 1, 1952.

1. Redesign heater fuel control box to make leak tight and provide adequate draining.

2. Relocate emergency high heat switches to eliminate lag. (Applies to Model 202 airplanes only.)

3. Redesign fire-detection circuit to eliminate stepping relay. (Applies to Model 202 airplanes only.)

D. Compliance required by April 1, 1952.

1. Improve the landing gear position indicating system so as to reduce the possibility of obtaining a "safe" indication when gear is in an unsafe condition. (Martin Service Bulletins Nos. 163A (for Model 202A) and 168 (for Model 202) cover this same subject.)

E. Compliance required prior to reactivation of the autopilot.

1. Accomplishment of the reduced gear ratio and installation of field rheostat in rudder servo motor circuit to reduce stall torque. Prototype installation to be approved by a Regional Office of CAA (Aircraft Engineering). (Martin Service Bulletins Numbers 104A and 114 cover this same subject.) (Applies to Model 202 airplanes only.)

F. Compliance required before accumulation of 8,000 hours total operating time.

1. Accomplish reinforcement of the nacelle structure. (Martin Service Bulletins Numbers 144 (for Model 202) and 145 (for Model 202A) cover this same subject.)

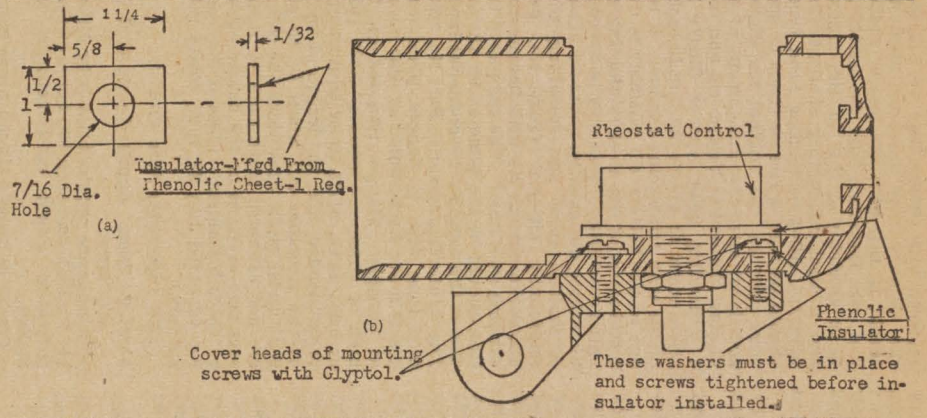
This supersedes Note 51-12-2.

51-20-1 CURTISS-WRIGHT Applies to all C-46A, D, E and F aircraft equipped with C-4 cockpit light assembly.

Compliance required no later than November 1, 1951.

To eliminate an electrical fire hazard existing in the pilot's compartment, the following rework must be accomplished:

1. Rework the C-4 cockpit light rheostat assembly in accordance with Figure 17. Fabricate insulator strip per Figure 17 (a), and install as shown in Figure 17 (b). (U. S. A. F. T. O. Number 03-5G-12, dated September 8, 1950, covers this same subject.)



SECTIONAL VIEW OF COCKPIT LIGHT CASE-TYPE C-4A & C-4, WITH RHEOSTAT INSULATOR INSTALLED.

FIGURE 17.

2. Revise the wiring to the C-4 lamp assembly as shown in Figure 18. (Page 410D, Figure 301B of AN 01-25L-2 covers this same subject.)

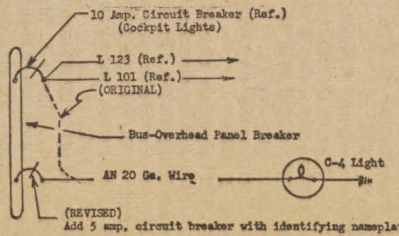


FIGURE 18.

Disconnect the C-4 lamp assembly (Item No. 32) from the 10 amp circuit breaker (Item No. 16) and re-circuit the C-4 lamp through a 5 amp circuit breaker.

51-20-2 MARTIN Applies to all Model 202 and 202A airplanes, except as noted.

Compliance required as specified below.

In order to comply with the recommendations of the Martin 202 Modification Board, the following items must be accomplished. In all cases, modifications which are demonstrated to provide a level of safety equivalent to that provided by the modifications listed herein will be acceptable in lieu of the listed modifications.

1. Compliance required not later than January 1, 1952.

(a) Cover heater ignition interlock relay box tightly. (Applies to Model 202 airplanes only.)

(b) Cover autopilot servo control relay box tightly. (Applies to Model 202 airplanes only.)

(c) Cover AC distribution panel tightly or replace with enclosed relays.

(d) Enclose all uncovered relays in the DC distribution panel in a box or replace with enclosed relays.

(e) Cover heating and ventilating control box tightly.

2. Compliance required not later than November 15, 1951.

Either replace present dural crossfeed line with a continuous piece of fire-resistant hose where it passes through the fuselage and relocate the fittings to a location outboard of the fuselage, or provide adequately drained liquid and vapor-proof shroud for the fuel crossfeed line where it passes through the main electrical compartment in the fuselage. (Glenn L. Martin Service Bulletin No. 173 covers one method of compliance with this item.) (Applies to Model 202 airplanes only).

3. Compliance required not later than March 1, 1952.

Make electrical hydraulic pump explosion proof. (Glenn L. Martin Service Bulletin No. 188, issued for the Model 202A, covers this same subject and may be used for both 202 and 202A airplanes.)

4. Compliance required not later than March 1, 1952.

Install separate circuit breakers for the pitot tube heater circuits. (Glenn L. Martin Service Bulletin No. 118, issued for the Model 202A, covers this same subject and may be used for both 202 and 202A airplanes.)

5. Compliance required not later than March 1, 1952.

Replace all 75ST aileron hinge fittings with steel parts. (Glenn L. Martin Maintenance Note No. 164 covers this same subject.) (Applies to Model 202 airplanes only.)

51-20-3 UNITED Applies to the following aircraft: Model UH-12, Serial Nos. 105 to 135, incl. (Incorporating the collective pitch ballast system); Model UH-12A, Serial Nos. 136 to 176, incl., and 178, 180 and 181.

Compliance required as noted below.

In order to preclude the possibility of protrusion of the bushings from the collective pitch ballast system bracket with resultant reduction of the pitch range of the main rotor blades and restricted controllability, the following should be accomplished:

(a) As soon as possible but not later than September 1, 1951, and at each 25-hour inspection period thereafter, visually inspect the collective pitch ballast system bracket P/N 31125-1 for protrusion of either upper or lower bushing P/N 31120-1. Particular inspection should follow each application of grease to the bracket.

(b) If the bushing(s) are found to be protruding, the assembly should be reworked by installing set screws in accordance with United Helicopters Mandatory Bulletin No. 19.

(c) Inspection of the bracket as specified in Part "a" may be discontinued after the rework described in Part "b" has been accomplished. (Hiller Helicopters Mandatory Service Bulletin No. 19 covers this same subject.)

51-21-1 CESSNA Applies to Model 120 and 140 aircraft, Serial Nos. 8001 to 10650, incl., and/or any other serial numbers not having steel reinforcing channel, Cessna Part No. 0433131 or equivalent installed.

Compliance required prior to December 1, 1951.

Inspect bottom rib of rudder for kinks or cracks in the rib flanges just aft of the rudder horn fitting. If there is any damage, the bottom rib assembly should be replaced with Cessna Part No. 0433106, since the damage may progress until the rib breaks in two with the loss of rudder control. On installing Part No. 0433106, which is an assembly of the rib, the control horn and a steel reinforcing channel (Part No. 0433131), AD-4 protruding head type rivets should be used wherever rivets or spotwelds were used on the original installation; six additional rivets for attachment of aft part of steel channel to bottom rib and four AD-4 protruding head type or Cherry 163-4-4 rivets added to attach the skin to each flange of the steel reinforcing channel. If no damage to the bottom rib assembly is detected, installation of the steel reinforcing channel only is necessary. This may be accomplished by drilling out existing rivets for attachment of control horn and installing the steel reinforcing channel (Part No. 0433131), above the bottom rib with flanges up, using existing rivet holes. The completed installation should be the same as for the installation of the complete lower rib outlined above. The reinforcing channel, Part No. 0433131, is $4^{17}/_{32}$ long with $^5/_8$ flanges, planform to fit inside lower rib installed as near horn flange as possible. Flanges removed on forward inch of channel. Material 0.036 1025 steel or 0.051 24ST, ALCLAD or equivalent. It is recommended that the length of the chains to the steerable tail wheel be so adjusted that under static conditions the coil springs are not extended more than $^1/_8$ inch, since excessive tautness of the chains contributes to the rib failures. (Cessna Service Letter No. 46, dated July 31, 1947, covers this same subject.)

This supersedes Note 47-43-7.

51-21-2 PIPER Applies to all Model PA-12 airplanes.

Compliance required not later than October 15, 1951, and each 100 hours of operation thereafter unless reinforcements are installed.

Carefully inspect aileron hinge brackets to false spar attachment fittings, Part No. N10931, (3 per wing), for cracks at the bend between the channel and flat portions of the fittings. If cracked fittings are found, add reinforcement bracket Part No. 12047. With reinforcement brackets Part No. 12047 installed, special inspections may be discontinued. (Piper Service Bulletin No. 107, dated September 24, 1948, covers this same subject.)

51-21-3 LUSCOMBE Applies to Model 11a airplanes.

Compliance required prior to 50 hours additional flight time and not later than October 15, 1951, and each 50 hours thereafter unless Luscombe part No. 11-5417-D is installed.

Inspect rudder control system bellcrank, P/N 11-5417, located under forward cabin floor, for cracks, loose rivets, or deformation. If this bellcrank is damaged in any way, it must be repaired or replaced with the late type, P/N 11-5417-D.

The early type bellcrank may be identified by its having four rivets or four AN3 bolts attaching the center bearing block to the bellcrank. The late type bellcrank has ten rivets attaching the center bearing block to the bellcrank, and this bearing block is longer to accommodate the added rivets.

If the early type bellcrank is installed and is found undamaged, or is repaired and reinstalled, this inspection must be repeated each fifty hours of flight time. If the late type bellcrank is found to be installed, or is installed to replace the early type, only routine maintenance inspections are required.

In installing either type of bellcrank in the rudder system, the system must be rigged in accordance with Luscombe Airplane Corporation drawing 11-5402. Care must be taken not to overtension the rudder cables, since this overtensioning can cause failure of the bellcrank.

51-22-1 SIKORSKY Applies to all Model S-51 helicopters.

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

Due to the reported failures of Gear Shaft (Generator Drive—Tail Drive Transmission System) P/N S-10-35-1004, all shafts in service shall be replaced by shafts which have been jig drilled (i. e., the taper pin hole is located squarely with respect to the splines) and which have been stoned and polished to deburr and remove any sharp radii where the taper pin hole intersects the splines. (Sikorsky Service Information Circular Number 172, dated August 30, 1951, covers this same subject.)

51-22-2 FRANKLIN ENGINES Applies to Model 6V4-178 and 6V4-200 series engines.

Superseded by 51-28-2.

51-23-1 BELL Applies to all Model 47 helicopters.

Superseded by 51-26-1.

51-23-2 BELL Applies to all Model 47 helicopters.

Superseded by 51-27-1.

51-23-3 PIPER Applies to Model PA-16 aircraft, Serial Numbers 16-1 and up; PA-20 aircraft, Serial Numbers 20-1 through 20-802; and PA-22 aircraft, Serial Numbers 22-1 through 22-348.

Compliance required as soon as possible, but not later than October 15, 1951.

Install insulators of sufficient area inside the battery box cover over the battery terminals to positively prevent a metallic contact between the wing nuts or terminals and cover. Hard fiber rubber or phenolic insulating materials of $^1/_{16}$ inch minimum thickness may be used. (Piper Service Bulletin Number 118 covers this same subject.)

51-23-4 SIKORSKY Applies to all model S-51 helicopters.

Compliance required as indicated.

1. Compliance required prior to next flight. Inspect all main rotor Link Assemblies

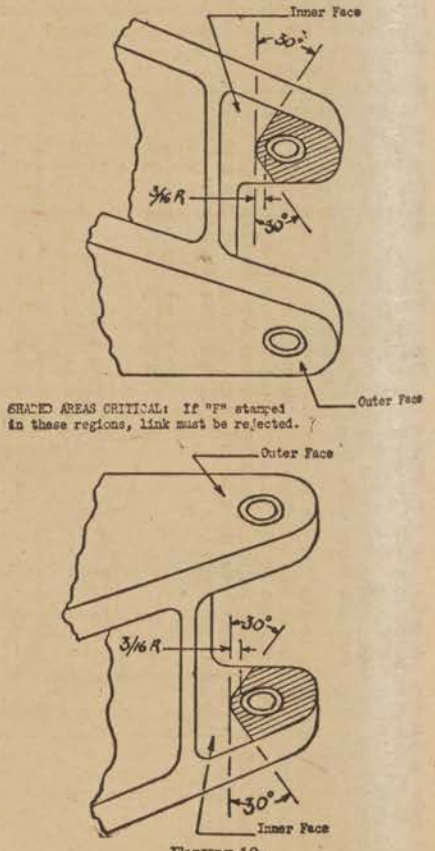


FIGURE 19.

(P/N S510348) received from the manufacturer between June 1 and September 6 inclusive for location of the identification stamp "F". Links with the "F" metal-stamped in the critical area on the inner faces of the ears should be retired from service. Those with the "F" stamped on the outer faces or on non-critical areas of the inner faces of the ears should be polished locally with emery and crocus cloth to remove the "F" and the links may be returned to service. (Sikorsky Information Circular Number 175, dated September 7, 1951, covers this same subject.)

2. Main Rotor Link Assemblies (P/N S510348) shall be retired from service when a total flight time of 720 hours on the link has been accumulated. (Sikorsky Information Circular Number 122, Revision C, dated June 16, 1952, covers this same subject.)

51-24-1 LYCOMING ENGINES Applies to all Lycoming GO-435-C2 Engines serially numbered 1815-11 and below not having the letter "P" stamped on the upper right-hand corner of each cylinder rocker box and installed in Navion Model B aircraft.

To be accomplished by June 1, 1952, or next overhaul, whichever occurs first.

To prevent loosening of the exhaust valve seats in Lycoming GO-435-C2 engines installed in Navion Model B airplanes, the exhaust valve seats are to be peened in the cylinder head. The cylinders must be removed from the engine for this operation. When peening is accomplished, stamp "P" ⅛ inch high on upper right-hand corner of cylinder rocker box flange face near exhaust push rod. (Lycoming Service Bulletin No. 145 also covers this subject.)

51-24-2 MARTIN Applies to all Model 202 aircraft.

Compliance required at the 3,000-hour period following the modification of the fin attachments per Martin 202 service Bulletin Number 99 and every 3,000 hours thereafter.

To insure that the fin to fuselage attachments contain no structural defects, and to reduce the possibility of fretting corrosion, accomplish the following inspections and shim installations:

(1) Determine that the three fin pins (P/N 2021A11549, 2021A14243 and 2021A14244) are not worn to less than 0.292 inch in width, and are securely attached to the fin.

(2) Inspect the three fuselage receptacles (P/N 2021U27375 and 2021U27415 left and right) for the three fin pin attachments. Replace any receptacle whose slot is greater than 0.357 inch in width.

(3) Using a 4- to 6-power glass, inspect the fin forward attach plate (P/N 2021D26541), the fuselage chords (P/N 2021D25001 and 25002), and the four reinforcing straps (P/N 2021U43293, 43294 and 43295 left and right) for evidence of cracks or fretting corrosion.

(4) Cracks or fretting corrosion found in Item 3 should be removed with complete crack removal verified by satisfactory etch inspection. Reworked surfaces should be refinished to a polished finish. All bolt holes should be chamfered and polished to an 0.020-inch radius. If a crack is found in a hole in any reinforcing strap, the strap must be replaced.

(5) Etch inspect the fin rear chords (P/N 2021D14234), using a 10- to 15-power glass, to detect cracks in the chords. Cracks and any surface roughness must be removed. If cracks are found in a splice hole or any splice holes have been distorted, such that the hole bushings are no longer a press fit, the holes are to be reamed oversize and oversize bushings installed. (If the hole had a crack, re-etch inspect the area to insure crack removal.) If the diameter of a hole exceeds 0.843 inch, that fin chord must be replaced.

(6) Minimum thicknesses of refinished structural members are:

Part	Number	Minimum thickness (inch)
Fin attach plate	2021U43641	0.177
Fin rear chord	2021D14233 and 4	.312
Fuselage attach plate	2021D26541	.050
Fuselage chord	2021D25001 and 2	.250
Reinforcing strap	2021U43293, 4 and 5	.187

(7) When reinstalling fin, insert shims of 1310 clear 01 vinyl sheet (or equivalent), press polished both sides, to fit between the faying service of the fin, fuselage and reinforcing straps at the fin rear spar attachment. Insert similar shims between the faying surfaces of the fuselage and fin attach plates at the fin front spar attachment. (Martin 202 Service Bulletin No. 182 covers this same subject.)

51-25-1 CESSNA Applies to all Model T-50 aircraft.

Compliance required prior to February 1, 1952, and as noted.

To preclude trapping water in the horizontal stabilizer forward of the rear spar which may result in glue line deterioration between laminations, compliance with the following items is necessary:

1. Grommets must be installed sufficiently near the forward face of the rear spar and outboard edge of all ribs to drain any water which may be trapped. All grommets not so located must be relocated accordingly. Marine-type grommets are recommended at least at the inboard ribs.

2. All grommets which are plugged must be opened preferably with a sharp edged tool and/or relocated in accordance with Item 1 above. Special care should be taken to make sure that foreign matter is not allowed to build up on the inside around the drain openings.

3. Where grommets are mislocated, plugged, clogged with dirt or extraneous matter or have not been installed, the rear spar must be inspected for deterioration by cutting small triangular openings at the ribs adjacent to the fuselage and at alternate ribs outboard. If lamination separation is disclosed, a new spar should be installed or the stabilizer replaced with one having drainage provisions in accordance with Item 1 above. Upon accomplishment of the above, the grommet openings should be inspected at each 100 hours thereafter to maintain proper drainage. This inspection should include insertion of a bent or curved tool through the grommet openings to ascertain that dirt or other extraneous matter has not built up around the opening to restrict drainage. Where grommets are found clogged, inspection and compliance in accordance with Item 3 above should be repeated.

51-25-2 MARTIN Applies to all Model 202 and 202A airplanes.

Compliance required by January 1, 1952.

Install cover over D7231-125 Inverter Remote Reset Circuit Breaker terminals to prevent inadvertent shorting between "Main" and "Control" terminals. Compliance may be made in same manner or equivalent to Martin Service Instruction Letter No. 8 dated September 10, 1951.

This supersedes the first item in A. D. 51-11-1 requiring the redesign of the DC input circuit breaker mounting.

51-26-1 BELL Applies to all Model 47 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 fiberglass cloth, Bell P/N 47-642-020-14. (Bell Service Bulletin No. 75 covers this same subject.)

B. Compliance required daily.

Inspect the rail rotor stainless steel leading edge for evidence of loosening or lifting. Carefully inspect the 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 A. D. 51-23-1.

51-26-2 LEAR Applies to all L-2 series automatic pilots.

Compliance required at next 100-hour airplane inspection, but not later than January 1, 1952.

Inspect all L-2 series autopilot servos to determine whether servo clutches have a green dot on the shaft at the output end of servo capstan shaft, or a green dot on or below the servo name plate, or a yellow dot on the clutch housing. All clutches not so marked must be replaced. Replacement clutches will be supplied by Lear upon request. (Lear Service Bulletin No. L2-16 dated October 26, 1951, covers this same subject.)

This applies only to Servo Models 121C, 121D, 121F, 121G, 121H, 121J, manufactured prior to March 1, 1952. Reference Lear Service Bulletin No. L-2-44, dated May 24, 1954.

51-26-3 CONTINENTAL ENGINES Applies to all Continental Model E185 engines serially numbered 2600 and below which have not been major overhauled since November 1, 1947, by Continental Motor Corp., or July 1, 1948, by field overhaul agencies.

To be accomplished as soon as possible, but not later than January 1, 1952.

To preclude valve failures as caused by partially deflated hydraulic valve lifters, the engine must be inspected and modified, if necessary, to assure proper oil flow to the lifters and zero valve lash under all operating conditions. This will require either a partial engine disassembly or a special test as outlined below:

(1) Partial disassembly method: Remove the cylinders and the hydraulic units of the valve lifters. Check each valve lifter guide bore for proper position of the oil feed hole.

(2) Special test (alternate method): By application of air pressure to the crankcase oil galley lines after removal of each rocker arm, determine the number of degrees of crankshaft rotation that the oil groove on each valve lifter is in registration with the oil feed hole. A minimum of 145 degrees registration is required.

If any oil feed hole is shown by the method chosen to be drilled incorrectly, the end of the hole must be enlarged.

As lack of oil flow to the rocker boxes also can result in valve mechanism malfunctioning, the diameter of the push rod holes should be checked. If 1/32-inch diameter, replace with push rods incorporating 1/16-inch diameter holes. (Continental Motors Corp. Service Bulletins Nos. M48-12 and M51-2, Supplement No. 1, cover this same subject and describe both of the above compliance methods.)

This supersedes Note 51-8-1.

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.

(a) 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 Note 51-23-2.

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 Nov. 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 cut out, or when a crack is in excess of 1" in length.

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

More than one crack of this type in any one spoke cut out 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 non-critical area and is cause for wheel rejection only when either of the following conditions occur:

1. The crack extends to the spoke cut out.

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.

51-27-3 PIPER Applies to all Model PA-22 aircraft, Serial Nos. 22-1 through 22-354.

Compliance should be made before next flight in freezing temperature, but not later than December 15, 1951.

Driving rain or washing may cause an accumulation of water in nose wheel oleo housing which can freeze in lower bearing and render rudder system inoperative. To provide drainage, locate a 3/16-inch hole on aft side of nose wheel oleo housing, P/N 13035, centered 9/16 inch above lower edge of housing. Unless oleo strut is removed from housing, use extreme care not to damage oleo strut while drilling drain hole. Insure strut is drained. Fill upper end of housing and upper bearing area with generous amount of cup grease to seal against water. (Piper Service Bulletin No. 119, dated November 7, 1951, covers this same subject.)

51-28-1 CONSOLIDATED VULTEE Applies to all Model CV-240 aircraft.

Compliance required as indicated.

1. Not later than the first number one inspection after January 15, 1952, lag and shield propeller feathering line in the engine accessory section with asbestos tape, wire, vinylite tubing and steel-sleeve for end fittings as described in Convair Service Bulletin No. 240-419-A or in a manner to provide equivalent resistance to fire and absorption of fuel and oil.

2. Not later than March 1, 1952, revise the engine oil breather line to eliminate aluminum components as described in Convair Service Bulletin 240-419-A to use steel tubing or to use a fire resistant hose assembly.

3. Not later than first scheduled engine change after January 15, 1952, relocate fire detectors and revise detector circuits to employ split systems as described in Convair Service Bulletin Number 240-419-A.

4. Not later than the first scheduled engine change after January 15, 1952, replace fire detector wiring in all circuits forward of firewall with Rockbestos type RSS 74 Firezone wire or wire of equivalent fire resistance. (Wire conforming to Air Forces Specification 32659 is considered equivalent.)

5. Not later than March 1, 1952, install CO_2 operated engine accessory section ventilation outlet closure door. This modification is described in Convair Service Bulletin 240-374.

6. Not later than the first scheduled engine change after March 1, 1952, either remove all aluminum fire detector terminal junction boxes located forward of the firewall and mount units on fireproof brackets, or change aluminum fire detector terminal boxes and brackets to fireproof material.

7. Not later than the first scheduled engine change after March 1, 1952, check firewalls and firewall access door fasteners to assure that no aluminum rivets or Dzus fasteners or other nonfireproof components have been installed. If any are found, they are to be replaced with fireproof components. Original firewall accessory door fasteners, which are satisfactory, have these Dzus part numbers: Studs AJ5-20 and -35; Grommet GA5-312; and Spring S5-200.

8. Not later than the first scheduled engine change after March 1, 1952, improve ADI valve sealing in accordance with Whittaker Service Bulletin Number 49-9 or install an enclosure which will provide overboard drainage if leakage occurs from this valve.

51-28-2 FRANKLIN ENGINES Applies to Model 6V4-178 series engines prior to Serial No. 17690 and 6V4-200 series engines prior to Serial No. 26235.

Compliance required as indicated.

To preclude the possibility of oil pump failure, oil pump gears (P/N 10673 and 17736) must be inspected at each 300 hours of operation. Excessively galled gears must be replaced. If same part numbers are used for replacements, the 300-hour inspections will still apply. If carbo-nitrided oil pump drive gear, P/N 19377, and oil pump driven gear, P/N 19373, are installed, no further inspection is required. When these new carbo-nitrided gears are installed, suffix "P" must be stamped after the serial number of the engine on the name plate—example: #17000P. (Franklin Service Bulletin No. 86, revised November 1, 1951, covers this same subject.)

This supersedes Notes 51-22-2 and 51-11-3.

51-28-3 RYAN Applies to all Model ST3KR (Military PT-22) aircraft.

To be accomplished by February 1, 1952, or next 100-hour inspection, whichever is first.

The fuel selector valve handles for these aircraft are usually placarded "Always take off with fuel feeding from Reserve." However, there have been fatal accidents which resulted from failure to observe this procedure, or from failure to return to the Reserve position when landing with a low fuel supply. Therefore, the following placard must be installed, or the existing placard revised to read: "Always take off and land with fuel feeding from RESERVE."

51-29-1 BELL Applies to all Model 47 series helicopters.

Compliance required as indicated.

1. Replace the tail rotor gear box 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.)

51-29-2 CURTISS-WRIGHT Applies to all Model C-46 series aircraft.

Compliance required by February 1, 1952, and each 500 hours thereafter.

Inspect the main landing gear side brace attachment fittings, Parts No. 20-310-1033 L&R, for cracks particularly from the edge of the forging to the lower inboard attaching bolt hole. If defects are found, the parts should be replaced by undamaged parts.

In view of unavailability of parts and controlled inspection procedures under which satisfactory operation has existed, it will be considered satisfactory to operate the aircraft with a cracked fitting under the following procedure until further notice. Inspect at periodic intervals not to exceed 150 hours with approximately an 8-power magnifying glass or dye penetrant or any equivalent method. If cracks extend beyond bolt hole, either through or around the hole, the fitting must be replaced.

51-29-3 DE HAVILLAND Applies to all Model 104 "Dove" aircraft.

Compliance required as indicated.

As a result of a recent accident found to be due to a crack developing in the wing center section spar, lower boom, the de Havilland Aircraft Company, in agreement with the British Air Registration Board, issued the following mandatory instruction in which the CAA concurs:

1. On all "Dove" aircraft which have completed 2,000 or more flying hours, the following inspection should be carried out immediately:

"Remove the large inspection cover located on the front face of the center section spar in the cabin. This will reveal five lightening holes in the front web between the inter-web stiffeners. With the aid of a powerful flashlight and inspection mirror, thoroughly inspect the center section spar lower boom Part No. 4FS7067 for general condition throughout its length paying particular attention to both flanges of the channel sec-

tion adjacent to the outer stiffeners at each side. Drag members Part No. 4FS1797 Left Hand and Part No. 4FS1798 Right Hand and the Vertical Stiffener Castings Part No. 4FS7023 Left Hand and Part No. 4FS7024 Right Hand should be inspected for any signs of damage and also security to the fuselage skin and Center Section Spar Lower Boom."

2. All aircraft which have 2,500 hours service life are not to be flown pending replacement or modification of the center section lower spar boom (P/N 4FS7067).

(a) Center section lower spar booms incorporating Mods. 538 and 686 have a 10,000 hour service life. Spar booms incorporating Mod. 538 only must incorporate Mod. 686 not later than 3,600 flying hours from date of incorporation of Mod. 538.

3. The safe life wing lower spar boom in region of root joint is 5,000 hours irrespective of accomplishment of Mod. 539. Mod. 780 must be incorporated at or prior to 5,000 hours operation. Mod. 780 supersedes Mod. 539. (Reference de Havilland TNS Series CT (104) No. 119 dated March 4, 1955, which also cancels TNS Series CT (104) Nos. 61, 62, 67, and 100 Issue 2.)

51-29-4 MARTIN Applies to all Model 202A aircraft.

Compliance required as indicated.

1. Compliance required at each engine change. Magnaflux inspect the upper engine mount stud, P/N 2021D10146-1. If a crack is found, the stud is to be replaced with a new stud, P/N 404-5000006-1. The inspection applies to the original stud only, and can be discontinued on that particular engine mount upon installation of the new stud.

2. Compliance required at 4,000 hours of operation. Replace the upper engine mount stud, P/N 2021D10146-1 with a new stud, P/N 404-5000006-1, at which time the inspection required in paragraph 1 can be discontinued. (Martin Service Bulletin No. 201 covers this same subject.)

52-1-1 BELL (Applies to all Model 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 Model 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 Model 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 provisions designed 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.)

52-1-4 BELL (Applies to all Model 47B and 47B3 Helicopters and to Model 47D Helicopters Serial Numbers 1 to 100, inclusive)

Superseded by 52-21-1.

52-1-5 BELL (Applies to all Model 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 (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 re-assemble 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.)

52-1-8 HILLER (Formerly United) [Applies to all Model UH-12, 12A and 12B Helicopters, Serial Numbers 104 and up. (Incorporating chrome plated Main Rotor Blade Incidence Arms P/N 31114-1)]

Compliance required not later than the next 25-hour inspection, or not later than February 1, 1952, whichever occurs first and also as noted below:

As a precautionary measure to preclude possible serious danger which could result from failure of the Main Rotor Blade Collective Pitch Incidence Arms (P/N 31114-1), the following should be accomplished:

a. Inspect all main blade incidence arms (P/N 31114-1) to determine if chrome plated arms are installed.

b. If chrome plated arms are installed, remove and magnaflux or magnaglow inspect each arm for possible minute cracks in the circumferential area of the flange radii.

c. If the arm has had 100 hours service and cracks are not found, the part may be reinstalled and further compliance with this note is not required. If the arm has less than 100 hours service, it must again be inspected at 100 hours or not to exceed 125 hours of service. If cracks are found in any arm, it must be replaced immediately.

d. This note also applies to spare and replacement chrome plated arms which should be inspected at 25 and 100 hours service as indicated above. (Hiller Helicopter's Mandatory Service Bulletin No. 20 covers this same subject.)

52-2-1 CONSOLIDATED-VULTEE (Applies to all Model BT-13, -13A, -13B and BT-15 aircraft with bronze rear spar to center section attachment fittings)

Compliance required as indicated.

When it has been determined that the rear spar to center section attachment fittings are bronze castings, compliance with this Airworthiness Directive should be effected every 24 hours flying time or every six months non-flying time, which ever occurs first.

(1) Inspect visually the rear spar to center section attachment fittings on both sides of the rear spar for evidence of cracks. All cracked fittings (see below) should be replaced with new fittings of equivalent or greater strength.

(2) A magnet may be used to determine if the fitting is a steel casting.

(3) Fittings that have been made from aluminum alloy forgings can be readily differentiated from those made from bronze castings by visual inspection.

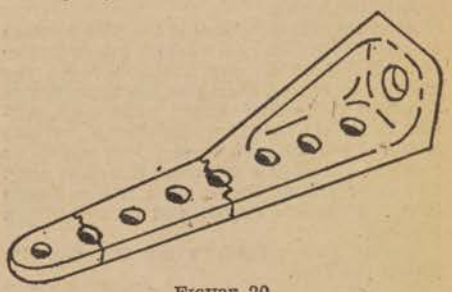


FIGURE 20.

52-2-2 ERCO (Applies to all Model 415 Series and Models E and G)

Compliance required as indicated.

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

1. Before the next flight and at each 25-hour inspection:

(a) Inspect the aileron balance assembly (ERCO P/N 415-16009) and ailerons for cracks in support structure and skin, respectively. Repair or replace defective parts.

(b) Inspect the four No. 6-32 screws which attach the balance weight support to the aileron for looseness and damage. Replace defective screws with AN526-632 screws, taking care not to overstress during tightening.

2. Before next flight and at each 100-hour inspection thereafter, inspect the aileron hinges and aileron control system for excessive looseness or wear in hinge pins or bearings. If, with one aileron blocked in the neutral position, the total play of the other aileron, measured at the trailing edge, exceeds 7/16 inch, all the joints and bearings should be checked and those which are loose should be tightened or replaced.

3. If the aileron balance weights have been removed in accordance with ERCO Service Bulletin Number 57, Item 1 above does not apply and the maximum free play referred to in Item 2 above must be reduced to 5/16 inch.

4. Before the next flight, determine that the air speed instrument is distinctly marked in accordance with the operating limitations. Engineering and Research Corporation Service Memorandum Number 56 covers this same subject.

This superseded Note 49-2-2.

52-2-3 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than May 1, 1952.

Relocate such oxygen bottles as necessary from lower center section to location in upper right forward baggage compartment in order to eliminate the high pressure line now in the bottom of the fuselage.

52-3-1 RANGER ENGINES (Applies to all 6-440-C Series engine models)

To be accomplished as indicated.

To preclude the failure of cast pistons, the following inspections and modifications should be accomplished at engine overhaul

or when installing new or replacement pistons.

1. Inspection.

a. Inspect pistons by the fluorescent penetrant inspection method, or an equivalent, for cracks especially in areas around the piston pin boss and on the reinforcing web inside the piston. If cracks are found in these locations, the piston should be discarded.

b. Inspect pistons to ascertain if a 3/32-inch radius has been added at the inner ends of the ID of the piston pin bosses. Pistons which do not incorporate this radius should be modified as shown below in order to relieve stress concentrations. Pistons with cracks in this location which cannot be removed by the following modification should be discarded also.

2. Modification.

After thoroughly cleaning the piston, place it head down on the bench; insert cutter No. AT-390, or an equivalent, between the piston pin bosses, facing in the direction of the boss to be cut. Insert handle No. AT-391, or an equivalent, through the opposite boss and engage with cutter. Cut radius by rotating cutter in a clockwise direction until the outer end of the 3/32-inch radius blends into the surface at the end of the piston pin boss.

Repeat this procedure for the opposite piston pin boss.

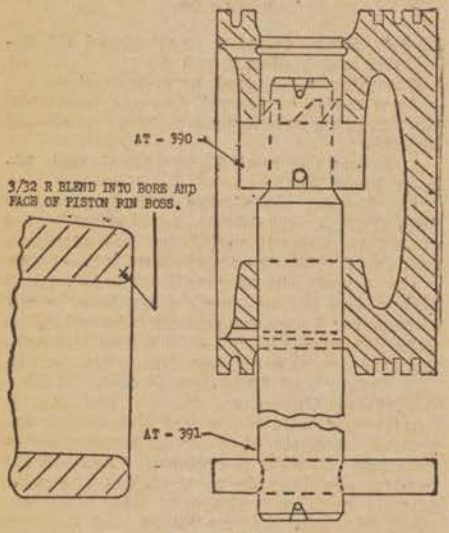


FIGURE 21.

Blending tools No. AT-390 and AT-391 are no longer available from the engine manufacturer. Drawings for those tools may be obtained from Fairchild Engine and Airplane Corporation, Farmingdale, Long Island, New York.

52-4-1 MARTIN (Applies to all Model 202 aircraft)

Compliance required not later than May 1, 1952.

Provide adequate drain for throttling valve vent in the cabin heater fuel supply line.

52-4-2 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than August 1, 1952.

Provide separate protection for each inverter control and warning light circuit. Also provide separate protection for T & B warning lights in forward area. (Trans World Airlines Engineering Order No. 5717 covers this same subject.)

52-4-3 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than May 1, 1952.

Eliminate pressure gage or place in heater fuel control box. (Trans World Airlines Engineering Order No. 5794 covers the elimination of the pressure gage.)

52-4-4 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than July 1, 1952.

Provide two separate and individually protected circuits for instrument panel lighting—each circuit to provide adequate panel illumination for necessary flight instruments. (G. L. Martin Company Service Bulletin 118 and Trans-World Airlines Engineering Order 5643 cover this same subject for the 202A.)

52-4-5 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than November 1, 1952.

Install an engine oil quantity indicating system. (Trans-World Airlines Engineering Order No. 5789 covers this same subject.)

52-4-6 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than May 1, 1952.

Relocate the cabin heater (1) fuel failure light, (2) low heat warning light and (3) MANUAL-OFF-AUTO switch to the cockpit. (G. L. Martin Service Bulletin 110 issued for the 202A together with Trans-World Airlines Engineering Orders Nos. 5422 and 5820 cover this same subject and can be used for both 202 and 202A.)

52-4-7 MARTIN (Applies to all Model 202 and 202A aircraft except as noted)

Compliance required not later than July 1, 1952.

The following controls and their wiring are common to two wing anti-icing heaters. The controls listed are identical in each nacelle. Modify the system so each of the controls serves only one heater:

1. Emergency high heat 400° cut-out switch.
2. Firewall shut-off switch.
3. Fuel pump circuit breaker (supplies power to ignition controls and master fuel controls).
4. Fuel shut-off relay.
5. Wiring to the master and auxiliary solenoid valves.
6. Fuel booster pump relay (has dual power input but single ground on the control circuit).
7. Ignition relay (202 only).
8. Ignition transformer (202 only).
9. Ignition circuit breaker (202 only).
10. AC safety relay (202 only). (Trans-World Airlines Engineering Order 5838 covers this same subject for the 202A.)

52-4-8 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required not later than May 1, 1952.

Relocate the anti-icing heater controls to the main bus. (Trans-World Airlines Engineering Order 5759 covers this same subject.)

52-5-1 MARTIN (Applies to all Model 202 and 202A aircraft)

Cancelled December 22, 1952.

52-5-2 MARTIN (Applies to all Model 202 and 202A aircraft)

Compliance required as indicated.

Due to a reported occurrence of cracks in the center wing rear spar lower chord fitting at the Station 187 rib, the following shall be accomplished:

A. Inspect within the next 100 hours. Inspect the fittings (P/N 2021U44473 and 2021U44474) with a 10-power magnifying glass after removal of the paint with a solvent. Pay particular attention to the intersection of the spar leg with the other legs of the fitting.

B. If cracks are discovered in the base or extending into the base of a fitting, the part must be replaced.

C. If cracks are found in the vertical legs only, the part can either be replaced or remain installed in the airplane. If remaining installed, the fitting must be inspected every 85 hours in accordance with Items (A) and (B). Other inspection intervals may be approved based on the evaluation of the actual crack location by the manufacturer.

D. For fittings that do not show any cracks, loosen the two bolts through the fitting, the spar stiffener and the spar chord tang. Also loosen the two spar web splice bolts through the fitting, the spar web stiffeners and Rib 187 web. If any gap appears between the fitting and its mating surfaces, install shims so as to reduce this gap to less than 0.010 inch.

E. New parts installed shall be shimmed in accordance with Item (D). (Glenn L. Martin Service Instruction Letter No. 17 covers this same subject.)

52-5-3 BELL (Applies to all Bell 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 Corporation, and must be installed in accordance with Bell Service Bulletin No. 87.

A. D. 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.)

52-6-1 DOUGLAS (Applies to all Models DC-3 and C-47 type aircraft)

Superseded by 52-22-3.

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 47-686-025. (Bell Service Bulletin No. 86 covers this same subject.)

52-7-2 RYAN (Applies to all Navion Aircraft equipped with Hartzell HC-12X20-1 through -7 propellers having serial numbers below 4300)

Superseded by 53-6-2.

52-7-3 PIPER (Applies to all Model J3 series and PA-11 aircraft)

Compliance required prior to November 1, 1952.

1. Revise the present front and rear wing lift strut as follows:

(a) Cut 1/8 inch from lower end of barrel assembly and strut end.

(b) Remove the flanges and weld metal which extends through upper and lower strut surface, taking care not to damage struts.

(c) Remove barrel assembly from strut by applying a slight pull through an old forked fitting.

(d) Inspect strut for (internal) rust, bending, excessive wear, or other damage, and replace strut if necessary.

(e) Clean surplus old weld or rough edges from slots in the strut ends.

(f) Increase depth of these slots (approximately 1/8 inch so the new barrel's lower flange will extend 3/32 inch beyond the strut end.

(g) Insert new plate and barrel assembly, P/N 12521, with its center line parallel with the center line of the strut.

(h) Weld fitting into strut around the slots and lower strut end.

(i) Refinish strut.

(j) Install new forked fitting, P/N 13710, and AN315–7R lock nut.

(k) Due to the importance of this rework, care must be exercised and it is recommended that only competent welders with extensive recent welding experience should undertake this work.

2. After installing reworked lift struts rerig the aircraft in accordance with appropriate Piper Service Manual instructions.

3. Placard all lift struts, "No step."

4. Compliance with A. D. 51–15–1, covering the periodic inspection of lower lift strut fork fittings, P/N 11281, may be discontinued after compliance with this airworthiness directive. (Piper Service Bulletin No. 120, dated March 28, 1952, covers this same subject.)

52–8–1 LOCKHEED (Applies to certificated Army and Navy versions of the Model 18 aircraft designated C57, C57B, R50–1, R50–2, R50–3, R50–5, R50–6, C60, C60A, and C59)

Compliance required at next annual inspection, but in no event later than June 1, 1953.

Inspect all Lockheed Model 18 series aircraft which have been converted from a military version to civil status, for compliance with Lockheed Drawing No. 50829, Change A, to provide seal at the inboard end of the integral fuel tanks (inside fuselage) to prevent gasoline fumes from accumulating in the passenger compartment in case of fuel tank leakage. Inspection of the area can be accomplished by removal of the overhead panels adjacent to the fuselage skin in the No. 3 and No. 4 baggage compartments or by removing floor panels in the cabin.

Diaphragms and vents must be installed in accordance with Lockheed Drawing No. 50829 (or equivalent). Drawing No. 50829, Change A, covering the required installation may be obtained from Lockheed Aircraft Corporation, Burbank, California.

52–8–2 RYAN (Applies to all Navion Model B aircraft and cancels A. D. Note 51–19–3 upon compliance)

Compliance required not later than June 15, 1952.

Due to reports of engine malfunction caused by collapse of flexible ducts in the air induction system, it is necessary to replace the section P/N 146–42207 ducting between the carburetor air filter assembly and the carburetor air mix box with wire reinforced ducting, or its equivalent. (Ryan Field Service Bulletin No. 16, dated February 12, 1952, covers this same subject.)

This supersedes A. D. Note 51–19–3.

52–10–1 CURTISS-WRIGHT (Applies to all Model C–46 aircraft)

Compliance required as soon as possible, but not later than August 1, 1952.

To provide circuit protection for the leads to both ammeters in the electric power system, the following shall be accomplished:

In those aircraft having the ammeter shunts in the positive generator leads, install a circuit breaker or fuse in each ammeter lead as close as practicable to the shunt.

52–11–1 EMIGH (Applies to all Trojan A–2 Model aircraft)

Compliance required by August 1, 1952.

As a result of a reported failure of the welded joint in the elevator control tube socket, the following, or equivalent, should be accomplished, to preclude the possibility of recurrence of this type failure:

(a) Install a ¼-inch AN steel bolt through the elevator control tube socket as shown below and secure with an elastic stop nut. Two installations will be necessary, one on the Pilot's side and one on the Passenger's.

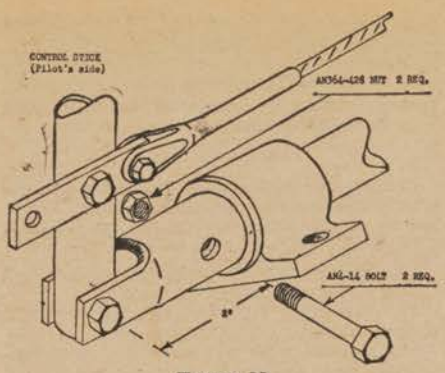


FIGURE 22.

(b) Due to the limited amount of clearance, it is recommended that the bolts be installed in the direction and location as shown. Ascertain that adequate clearance is provided when the control stick is operated throughout its full range.

52–11–2 CONSOLIDATED-VULTEE (Applies to all Model 240 Aircraft)

Compliance required not later than the first major engine overhaul after February 1, 1953.

To improve further the engine nacelle fire resistance of CV–240 aircraft, steel facings must be installed over certain aluminum alloy components of the engine cowl panels, the oil cooler duct, and the nacelle structure forward of the firewall.

Convair Service Bulletin No. 240–425, Revision 2, describes these changes in detail. Preliminary information on this modification is contained in Convairogram No. 30, dated April 8, 1952.

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 at 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.

52–12–2 CURTISS-WRIGHT (Applies to all Model C–46 series aircraft operated under CAR Part 42)

Compliance required as indicated.

In accordance with CAR 42.11 and to comply with Air Carrier standards, the main passenger cabin door locking means on all C–46 aircraft used for Air Carrier passenger operation must be equipped with both internal and external handles so that the door can be opened from either inside or outside in case of emergency. Aircraft not so equipped must be modified to comply by September 1, 1952.

52–12–3 LOCKHEED (Applies to Models 49–46, 149–46, 649–79, 649A–79, 749–79, 749A–79, C–121A, and VC–121B aircraft)

Compliance required as indicated.

Inspect the following by August 1, 1952:

1. Bulkhead ring at Station 527.6 for cracks in channel bend radius Part Numbers 283984–2 and –3 for Models 49 and 149, and Parts Numbers 285772–2 and –3 for all other models, as well as bracket Part Number 252886 for all models.

2. Inspect for and replace any missing or broken screws through the outer flange of the bulkhead 527 visible under fillet.

If no cracks are found on first inspection, reinspect at 2,000-hour intervals until total airplane time reaches 8,000 hours. After 8,000 hours, reinspect at approximately 600-hour intervals. If cracks are found, operation may continue prior to repair provided cracks are marked and reinspected at approximately 200-hour intervals and, further, provided: (1) Total length of all cracks on one side of airplane does not exceed sum of 2½ inches not counting cracks, if any, in bracket 252886; (2) Cracks in bracket 252886 left or right do not exceed sum of 2 inches. If cracks exceed either 2½ inches in the channel or 2 inches in bracket, repair by either the interim fix method or final fix. The interim fix may be accomplished by bolting steel blocks tightly to each side of bulk-head ring webs in the vicinity of the cracks, with additional bolts through the steel flange of the ring and tapped into the steel blocks. (Lockheed Service Bulletin No. 49/SB–714 covers this repair.)

The final fix consists primarily of replacing the aluminum alloy bracket, P/N 252886, with a heat-treated alloy steel bracket of approximately the same dimensions except for gage, and adding 0.078-inch heat-treated alloy steel doublers to the cracked channels, all parts securely bolted together. (Lockheed Service Bulletin No. 49/SB–715 describes this reinforcement.)

If the interim fix as described by Lockheed Service Bulletin No. 49/SB–714, or equivalent, has been complied with, the inspection period may be increased to approxmately 400-hour intervals until the final fix is applied. If the final fix, as described in Service Bulletin No. 49/SB–715, or equivalent, is complied with, no further inspections are necessary.

The term "approximately" is used in connection with the inspection periods to provide flexibility so that these periods may be integrated with operators' regular inspection periods, nearest to the periods specified herein.

52–13–1 COLLINS RADIO (Applies to all Models 51R–1 and 51R–2 Radio Receivers)

Compliance required by November 1, 1952.

To eliminate failures of 90/150 cycle tone localizer filters due to electro-deposition of copper from the coil windings to the laminated iron core, modify the receiver in accordance with Collins 51R–1 and –2 Service Bulletin No. 21, dated May 7, 1952, by removing the B+ voltage from the 90 and 150 cycle filter input circuits.

52–13–2 LOCKHEED (Applies to all Lockheed Constellation (49 series) airplanes with Hamilton Standard Reversing Propellers)

Items I, II and III are to be accomplished by means of a progressive modification program to be submitted to and approved by

the CAA. This program shall begin no later than August 1, 1952, and shall be completed no later than November 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 and the following instructions which pertain to specific features to be considered in isolation of the circuits. Airplanes which have other features not specifically referred to in this list shall be treated in an equivalent manner:

A. The multiple pin connector assembly at the reverse coordinating relay panel must comply with Item 2 of Attachment A.

B. Protect the following exposed terminals as specified in Item 3 of Attachment A:

(1) Exposed terminal on "A" relays in reverse coordinating relay panel;

(2) Exposed terminals at throttle reversing switches (not required if Item IIA (1) is installed).

C. Modify Hamilton Standard Relay box, where used, to shield the reversing solenoid circuit relay contacts, etc., from all other circuits which are energized at any time except when reversing is desired.

Reversing relay boxes which have separate pin connectors for the reversing solenoid wire and the remaining circuits shall be so installed that it will not be possible inadvertently to interchange any connectors on any two relay boxes.

D. Reversing Solenoid Circuit Wiring: Modify in accordance with Item 4 of Attachment A.

II. Other circuit modifications:

A. All airplanes shall be modified in one of the following ways:

(1) Install an additional switch in the reversing solenoid circuit which will prevent the application of power to the circuit until the switch has been closed by operation of the landing gear actuated throttle reversing lock system, or

(2) Comply with Hamilton Standard Service Bulletin No. 221.

III. Pedestal design (same compliance date as Item I).

A. Reversing throttle switch and lock bar assembly: Modify the assembly by adding a stop pin and plate for the lock bar and cutting clearance notches on No. 1 and No. 4 switch triggers.

IV. Maintenance Practices.

A. At each nearest scheduled service to 350 hours:

(1) Inspect the points specified in Item IB and any other critical points in the systems where two or more solenoid wires run together. These inspections may be discontinued if the modifications made to the system are of the type described in Items 1 (a) or 1 (b) of Attachment A.

(2) Perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when the throttles are moved forward out of the reverse position.

(3) If Item IIA (1) is installed, perform an electrical check of the switch to assure that it opens when the throttle lock bar is in the locked position.

B. At any time that an electrical fault occurs in a circuit which is carried in the same bundles or the same conduit 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 and inspected. Damaged wiring is to be replaced as necessary.

V. Operating Instructions:

Comply with Item 5 of Attachment A.

VI. (NOTE: Propeller governor design changes which are under development and whose purpose is to provide a high pressure hydraulic circuit by-pass to safeguard against inadvertent reversing and to provide ability to feather even when the reversing solenoid is energized, are still under consideration and may be the subject of a future Directive.)

ATTACHMENT A

Criteria for isolation of reversing circuits at terminal points and connections:

1. Terminal Strips. The following methods of isolation can be used:

(a) Elimination of connections at terminal strips by using continuous wiring,

(b) Providing separate, covered terminal strip for reversing lead connections,

(c) Isolating the solenoid lead stud, terminals and associated hardware from all other nearby studs or terminals by enclosing these components in an insulating cover which is so designed or secured to the wiring that the wire will stay in place in case of breakage at the terminal or so that the broken wire and terminal will remain insulated by the cover from contact with other circuits if the wire comes off its terminal. The nature of the cover design or provisions for its attachment must be such that its installation will not be overlooked during maintenance,

(d) Removing or grounding studs adjacent to solenoid valve lead stud and securing all adjacent wiring and the reversing solenoid lead to prevent contact of broken leads with reversing solenoid terminal or contact of broken reversing solenoid lead with other terminals. If the adjacent studs are grounded, rather than removed, the studs must be identified distinctively so that they will not inadvertently be used for the attachment of wires serving other circuits.

2. Multiple Pin Connector Assemblies. The following methods of isolation can be used:

(a) Elimination of pin connectors by using continuous wiring,

(b) Providing separate pin connectors for each reversing solenoid circuit,

(c) Deactivating all pins adjacent to the one carrying the reversing solenoid circuit. These pins are to be retained in the connector but identified distinctively so that they will not be used inadvertently. When distinctively identified, these pins may also be used for circuits which cannot supply sufficient energy to actuate the reversing solenoid or circuits which are energized only when reversing is desired. At the points where wires are attached to the connector pins, all exposed metal parts are to be protected with insulating covers so secured that contact between circuits cannot occur in case of failure at the connection or in case foreign material is left in the connector assembly.

3. Exposed Terminals on Relays and Switches. Protect these terminals in either one of the following ways:

(a) As specified in Item 1 (c) for terminal strips, or

(b) If the terminal is a type which cannot be protected as specified above, cover all exposed metal components with insulating material and secure all wires so that no wire can touch another terminal if the wire breaks or falls off its own terminal. Install insulating barriers as necessary to prevent inadvertent contact between broken or loose wires and other terminals.

4. Reversing Solenoid Circuit Wiring. Modify in one of the following ways:

(a) Physically isolate the wiring from all other circuits.

(b) If the wiring is run in bundles with other wires, a shielded wire is to be used. The shielding shall be grounded at both ends and a protective cover shall also be provided over the shielding. The shielding shall be carried as close as possible to the terminal points.

5. Operating Instructions. Not later than August 1, 1952, all operating instructions regarding unfeathering procedures shall specify that the following practices are to be observed and shall indicate that the reason is to guard against inadvertent reversing during the unfeathering operation:

(a) If unfeathering is being accomplished at night the wing illumination lights or landing lights are to be used to permit observation of propeller operation.

(b) The propeller is to be watched during unfeathering and the button is to be released when rotation starts. (This should normally be in one or two seconds.)

(c) The tachometer is not to be used as a guide for determining when unfeathering is to be terminated.

52-14-1 DOUGLAS (Applies to all DC-6, DC-6A and DC-6B airplanes with Hamilton Standard propellers except as otherwise indicated)

Items I and II are to be accomplished by means of a progressive modification program to be submitted to and approved by the CAA. This program shall begin no later than August 1, 1952, and shall be completed no later than August 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 and the following instructions which pertain to some of the 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. Modify the following multiple pin connector assemblies as specified in Item 2 of Attachment A: (See A. D. 52-13-2 for Attachment A.)

1. Firewall connector (if the reversing solenoid lead has not already been removed).

2. Connector at the front of the control pedestal.

3. Connector at Hamilton Standard Relay Box (if used).

B. Modify the following terminal strips as specified in Item 1 of Attachment A:

1. Firewall junction box terminal strip (if used).

2. Terminal strip at synchronizer compartment (if used).

3. Terminal strip within propeller control box located behind pilot's seat.

C. Protect the following exposed terminals as specified in Item 1 (c) of Attachment A:

1. Exposed terminals at secondary throttle lock relays located behind pilot's seat.

2. External A_2 and A_3 terminals on "C" relays in propeller control box behind pilot's seat.

D. Hamilton Standard reversing relay box (if used): Reversing solenoid circuit relay contacts, etc., to be shielded from all other circuits which are energized at any time except when reversing is desired. Reversing relay boxes which have separate pin connectors for the reversing solenoid wire and the remaining circuits shall be so installed that it will not be possible inadvertently to interchange any connectors on any two relay boxes.

E. Pressure Seal Disconnect: Modify in one of the following ways:

1. By-pass the pressure seal by using continuous wiring.

2. Provide a separate connector for the reversing solenoid lead.

3. Pins adjacent to the reversing solenoid pins shall be deactivated or used only in circuits which cannot provide sufficient energy to activate the reversing solenoid or circuits which are energized only when reversing is desired. Also, provide an insulating shield for the reversing solenoid pins on both sides of the pressure seal.

The reversing solenoid wire shall be secured to this shield or in some equivalent manner to prevent the wire from falling free in case the terminal pin comes out of the socket.

4. Isolate the solenoid valve lead insert on both sides of the seal by covering both the socket and the wire terminal with insulation which will cover all exposed metal parts when the wire is in place, when the wire terminal has come out of the socket, or when the wire is broken at any point up to the point at which it is secured in the bundle. The nature of the insulation or the provisions for securing it in place must be such that its installation will not be overlooked during maintenance.

F. Reversing Solenoid Circuit Wiring: Modify in accordance with Item 4 of Attachment A.

G. Other circuit modifications:

1. All airplanes with fuselage numbers below 233 shall be modified to comply with Hamilton Standard Service Bulletin No. 221.

II. Reverse Solenoid Lock Assembly.

A. Comply with Douglas Service Bulletin DC-6, No. 356, dated March 9, 1949, to prevent excessive deflection of lock assembly components.

B. The "Reverse operable" warning device shall be clearly visible when the lock is open just a sufficient amount to permit pulling the throttles into the reverse regime.

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, IC and IE. These inspections may be discontinued if the modifications made to the system are of the type described in Items E1 or E2 above; Items 1A or 1B of Attachment A and Items 2A or 2B 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 and inspected. Damaged wiring is to be 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 switches open when the throttles are moved forward out of the reverse position.

D. Conduct the mechanical functional test specified in AD 50-16-1 at each nearest schedule service to 350 hours.

IV. Operating Instructions: Comply with Item 5 of Attachment A.

V. (NOTE: Propeller governor design changes, which are under development and whose purpose is to provide a high pressure hydraulic circuit by-pass 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.)

52-14-2 CONSOLIDATED-VULTEE (Applies to all Convair 240 airplanes with Hamilton Standard propellers except as otherwise indicated. Item IV also applies to all Convair 340 airplanes with Hamilton Standard propellers)

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

I. The following changes to the electrical circuits are to be accomplished: (Note: These changes apply to airplanes which have not been modified since they were manufactured. See Item II for modified airplanes):

A. Insulate exposed terminals at unfeathering relay, install insulating separator between throttle microswitches, and secure wires as specified in Convairogram No. 4, dated March 7, 1951.

II. To prevent inadvertent actuation of the reversing solenoid valves, the following changes to the electrical circuits are to be accomplished to protect the reversing solenoid circuits from all other circuits and to protect the reversing solenoid circuits from each other: (Note: These changes are known to apply to some aircraft which were modified by operators so that they differ from the originally manufactured configuration. Other airplanes which have design features in the reversing solenoid circuits which are similar to those outlined below, but which are not specifically referred to in this list, should have these points protected in a manner equivalent to that described herein.)

A. Modify the following multiple pin connector assemblies as specified in Item 2 of Attachment A: (See A. D. Card 52-13 for Attachment A.)

1. Connector at wing-fuselage disconnect.
2. Connector at Hamilton Standard reversing box No. 80340 (covered by change specified in Item C.)

B. Modify the following terminal strips as specified in Item 1 of Attachment A:

1. Terminal strip at firewall junction box
2. Terminal strip in junction box at fuselage station No. 109

C. Hamilton Standard reversing relay box: Reversing solenoid circuit relay contacts, etc., to be shielded from all other circuits which are energized at any time except when reversing is desired. If reversing relay boxes are used which have separate pin connectors for the reversing solenoid wire and the remaining circuits, it shall not be possible inadvertently to interchange any connectors in the two relay boxes.

D. Reversing Solenoid Circuit Wiring: Modify in accordance with Item 4 of Attachment A.

E. Protect the exposed terminals of the secondary throttle lock relays, (if used), as specified in Item 3 of Attachment A.

F. Install insulating separator between throttle microswitches, and secure wires as specified in Convairogram No. 4, dated March 7, 1951.

III. Other circuit modification: All airplanes are to be modified to comply with Hamilton Standard Service Bulletin No. 221.

IV. Reverse Solenoid Lock Assembly on all airplanes which do not have "lift up" throttles, either (a) install a warning light system as described in Convair Service Bulletin No. 240-381 except that the system shall be so arranged that it will indicate to the crew when the solenoid lock has just started to move to the open position, or (b) adjust the lock actuating handles so that not less than one inch of movement is required before the lock opens.

V. 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 I and IIB. The inspections of Item IIB may be discontinued if the modifications made to the system are of the type described in Items 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 and inspected. Damaged wiring is to be replaced as necessary.

C. At each nearest service to 350 hours, perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when the throttles are moved forward out of the reverse position.

D. At any time that operations are performed which may affect the relative position of the solenoid lock and throttle switches, but in any event at intervals not to exceed 1500 hours: Check the relationship between the position of the pedestal strikers when they are: (a) In contact with the solenoid latch; (b) at the point where the detent roller contacts the first detent cam, and (c) when the reversing microswitches are actuated. It shall not be possible for the switches to be actuated before the latch and the detent engage the striker and the cam. This determination shall be made by positive measurements rather than observation of engine RPM at which these actions take place.

VI. Operating Instructions: Comply with Item 5 of Attachment A.

VII. (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.)

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 CAA. 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 A. D. 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 Number 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 one-eighth 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 degrees.

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 quad-

rant stop and the sliding member of the throttle and provide a zero taper or a negative taper of not more than 3 degrees.

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 Items 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 scheduled service nearest to 350 hours, perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when the throttles are moved forward out of the reverse position.

IV. Operating Instructions.

A. Comply with Item 5 of Attachment A.

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 opened 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.)

52-15-2 MARTIN (Applies to all Model 202 airplanes with Hamilton Standard Reversing propeller installations)

I. Prior to reactivation of the reversing feature of the propellers:

A. Modify the following terminal strips and pin connector assemblies as specified in Items 1 and 2 of Attachment A: (See A. D. 52-13-2.)

(1) Terminal strip at nacelle firewall junction box.

(2) Terminal strip at center wing panel.

(3) Terminal strip at fuselage station 225.

(4) Terminal strip at nose junction box.

(5) 19 pin connector assembly at the propeller control relay box.

B. Modify Hamilton Standard propeller reversing relay box at the front of the control pedestal to shield the reversing solenoid circuit relay contacts, etc., from all other circuits which are energized at any time except when reversing is desired. Reversing relay boxes which have separate pin connectors for the reversing solenoid wire and the remaining circuits, shall be so installed that it is not possible inadvertently to interchange any connectors on the two relay boxes.

C. Rewire the feathering button circuit so that the wire from the feathering button to the fixed terminal for the auxiliary pump on the "A" relay is not energized when feathering is being accomplished and so that the hold in coil on the feathering button is inoperative during unfeathering. Isolate reversing circuit relay contacts in the propeller control relay box in a manner equivalent to the change specified in Item IB. Protect the exposed relay terminals as specified in Item 3 of Attachment A.

D. Modify the reversing solenoid circuit wiring in acordance with Item 4 of Attachment A.

E. Revise the reversing circuits to comply with Hamilton Standard Service Bulletin Number 236.

F. In order to prevent reversing of a normally operating propeller when unfeathering the other propeller: If the reversing solenoid circuits for the two propellers are adjacent to each other in any connectors, at terminal strips, in wire bundles, or any other points where contact may occur between the two circuits due to a fault, isolate the two circuits from each other as specified in Attachment A and observe the maintenance practices in Item IIA.

G. The "reverse operable" warning device shall be clearly visible when the lock is open just a sufficient amount to permit moving the throttles into the reverse regime. It shall not be possible for the flag to catch on its track or on the control pedestal and remain held in the up position.

H. Incorporate throttle pedestal cover plate No. 2021A19719 which has a steel track to prevent lifting the throttles before they reach the idle position.

I. If an alternate manually controllable ground circuit is installed to permit unfeathering in case of an open blade switch circuit, the alternate circuit shall be removed.

J. Increase the height of the throttle quadrant stop at the positive idle position so that a lift of at least ¼ inch is required to lift the pin over the stop.

II. Maintenance Practices (to be instituted when reversing is reactivated):

A. At each nearest scheduled service to 350 hours:

(1) Inspect all points specified in IA (1) through IA (4) unless the modifications made to the system conform to Items 1 (a) or 1 (b) of Attachment A.

(2) Perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when the throttles are moved forward out of the reverse position.

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 and inspected. Damaged wiring is to be replaced as necessary.

III. Operating Instructions: (Comply with Item 5 of Attachment A.)

IV. (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 to provide ability to feather even when the reversing solenoid is energized are still under consideration and may be the subject of a future Directive.)

52-16-1 MARTIN (Applies to all model 202A airplanes)

Item I is to be accomplished by means of a progressive modification program to be submitted to and approved by the CAA. The program shall begin no later than August 10, 1952, and shall be completed no later than May 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 A. D. 52-13) and the following instructions which pertain to specific features to be considered in isolation of the circuits. Other features which are not specifically referred to in this list shall be treated in an equivalent manner.

A. Comply with TWA Engineering Orders 5686, 5776, and 5887.

B. Modify the 19 pin connector at the propeller control relay box as specified in Item 2 of Attachment A.

C. Modify the Hamilton Standard relay box on the front of the control pedestal to shield the reversing solenoid relay contacts, etc., from all other circuits which are energized at any time except when reversing is desired. Reversing relay boxes which have separate pin connectors for the reversing solenoid wire and the remaining circuits, shall be so installed that it will not be possible inadvertently to interchange any connectors between the relay boxes.

D. Modify the configuration of the propeller control relay box in a manner equivalent specified in Item I (C).

E. Modify reversing solenoid circuit wiring in accordance with Item 4 of Attachment A.

II. The following maintenance practices are to be instituted not later than August 10, 1952.

A. At each nearest scheduled service to 350 hours:

1. Inspect all points covered by TWA Engineering Orders 5686 and 5776.

2. Perform an electrical check of the reverse safety switches at the pedestal to assure that the switches are open when the reversing throttles are moved forward out of the reverse position.

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 and inspected. Damaged wiring is to be replaced as necessary.

III. Operating Instructions: Comply with Item 5 of Attachment A.

IV. (NOTE: Propeller governor design changes which are under development and whose purpose is to provide a high pressure hydraulic circuit by-pass to safeguard against inadvertent reversing and to provide ability to feather even when the reversing solenoid is energized, are still under consideration and may be the subject of a future Directive.)

52-16-2 MARTIN (Applies to all Model 404 airplanes)

Item I is to be accomplished by means of a progressive modification program to be submitted to and approved by the CAA. This program shall begin no later than August 10, 1952, and shall be completed no later than December 15, 1952.

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

A. Modify the terminal strip in the engine nose junction box (if used) to comply with Item 1 of Attachment A.

B. Modify the pin connector and internal configuration of Hamilton Standard control box to shield the reversing solenoid circuit relay contacts, etc., from all other circuits which are energized at any time except when reversing is desired. Reversing relay boxes which have separate pin connectors for the reversing solenoid wire and the remaining circuits shall be so installed that it will not be possible inadvertently to interchange any connectors on the two relay boxes.

C. Modify the fuselage terminal strip to conform to Item I of Attachment A.

D. Reversing Solenoid Circuit Wiring: Comply with Item 4 of Attachment A.

II. Maintenance practices to be initiated not later than August 10, 1952.

A. At each nearest scheduled service to 350 hours:

1. Inspect all points covered by Items I and III unless the modifications made to the system conform to Items 1 (a) or 1 (b) of Attachment A.

2. Perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when the throttles are moved forward out of the reverse position.

B. At any time that an electrical fault occurs in a circuit which is carried in the same bundles or conduit as the reversing solenoid circuits, 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 and inspected. Damaged wiring is to be replaced as necessary.

III. Operating Instructions: Comply with Item 5 of Attachment A.

IV. (NOTE: Propeller governor design changes which are under development and whose purpose is to provide a high pressure hydraulic circuit by-pass to safeguard against inadvertent reversing and to provide ability to feather even when the reversing solenoid is energized, are still under consideration and may be the subject of a future Directive.)

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 Part No. SK491 or equivalent (see following drawings), 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 Setpember 11, 1950, cover the same subject.

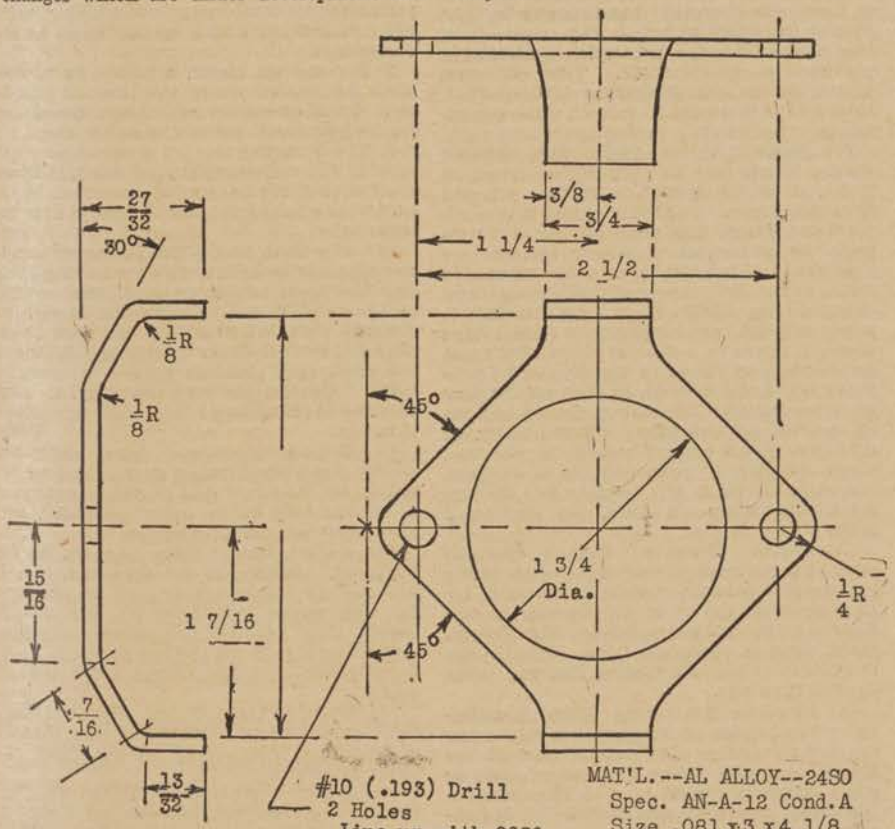


FIGURE 23.

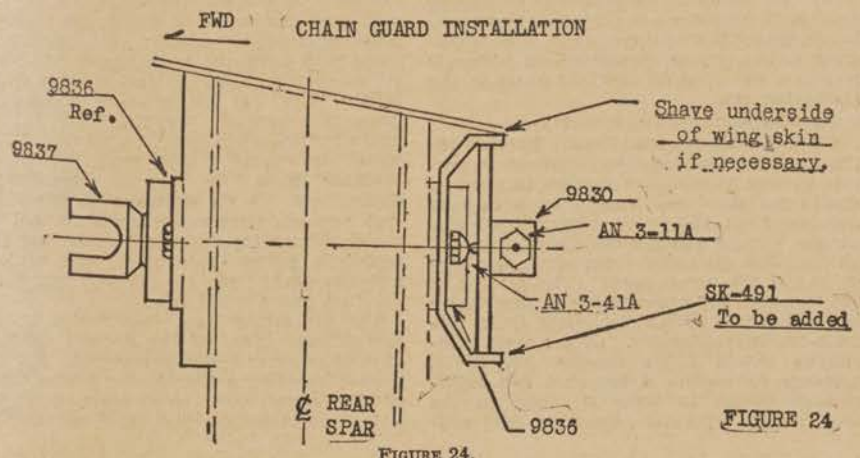


FIGURE 24.

52-17-2 CURTISS-WRIGHT Applies to all Model C-46 series aircraft.

Compliance required as noted.

As a result of a number of failures the following precautionary measures must be taken:

1. Compliance required not later than December 1, 1952, and at each No. 3 inspection thereafter.

Inspect the tail wheel shimmy damper support, Part No. 20-360-3103-4, for cracks or damage which might lead to subsequent failure. Particular attention should be paid to the radius formed by the intersection of the vertical and lower horizontal surface on the forward side of the part. A general inspection of the shimmy damper assembly should be made and it should be determined that it is properly adjusted. All cracked or damaged parts must be replaced.

The following method of adjustment of the shimmy damper as outlined in Air Force Technical Order AN01-25LA-2, Section IV, Paragraph 8 (f) is quoted below for your convenience:

(a) Position the shimmy damper on the mounting bracket and attach the two ⅜-inch bolts, nuts, and washers, using a 9/16-inch open-end wrench in conjunction with a 9/16-inch socket and a ratchet.

(b) Before installing the link assembly to the shimmy damper arm, the arm must be positioned to allow for maximum travel of the unit in actual operations. This is accomplished by slowly actuating the arm toward the rear of the airplane until the movement stops. From this point reverse the action until the arm has made an arc of 67 degrees. It is now in a neutral position and will assure correct operation when completely installed.

(c) With the arm in neutral and making sure not to move it from this position, attach the link assembly to it with the 5/16-inch bolt, nut, washer and cotter pin using a ½-inch open-end wrench, a ½-inch socket, and a ratchet.

(d) Make sure that the tail wheel is locked in position. The pin on the centering disc will then be properly set for attaching the eyebolt of the link assembly. If the eyebolt hole does not match with the pin on the centering disc when the tail wheel is locked and the actuating arm is in neutral, adjustment must be made by loosening the lock nut on the eyebolt and turning the eyebolt until the proper length is obtained. Be sure to tighten the lock nut again.

(e) Secure the link assembly to the centering disc by installing the 1⅛-inch castellated nut and washer drawing up the nut with a crescent wrench. Insert a cotter pin on this nut.

2. Compliance required as noted.

Tail wheel locks for the subject model airplane have been manufactured which do not comply with the material specifications and in some cases physical dimensions of the approved drawings. The approved tail wheel lock P/N 20-360-1033, is a forged steel part of 8740 or N-S-16 material heat treated to 150,000 lbs. per square inch, with a Rockwell hardness of C-33 to C-38; however, a cast steel lock complying with the physical dimensions, heat treat and hardness of the approved drawing will also be considered acceptable.

The original compliance date for the following inspection was March 1, 1953; however, in view of a recent accident involving the installation of an unapproved tail wheel lock, it must be ascertained prior to February 15, 1956, that all tail wheel locks meet the stated specifications of an acceptable part. Any tail wheel locks which do not comply with the approved drawing, No. 20-360-1033, in regard to material, heat treat or physical dimensions as mentioned above, must be replaced with an approved part.

It should be noted that some unsatisfactory parts in circulation bear the correct part number, therefore this fact cannot be

considered a satisfactory means of determining that an approved part is installed in the airplane.

52-18-1 CURTISS-WRIGHT Applies to all Model C-46 aircraft equipped with Curtiss Dwg. Part No. S20-480-1101-2 carburetor adapter gasket.

Compliance required not later than December 1, 1952.

Several instances of splitting and tearing of the neoprene carburetor adapter gasket, Part No. S20-480-1101-2, permitting portions of gasket material to block the carburetor air passage has resulted in abrupt engine cut-out. To eliminate the occurrence of this hazardous condition, either of the following changes or an approved equivalent shall be accomplished:

(a) Install new gasket and clamping assembly per USAF T. O. 01-25LA-79.

(b) Install carburetor adapter flange, Slick Airways Part No. 00391-2.

As a precautionary measure, the subject gaskets shall be inspected for signs of looseness and splitting during each periodic inspection until accomplishment of the above.

52-18-2 DOUGLAS Applies to all Model DC-6, DC-6A and DC-6B series aircraft.

To be accomplished as indicated.

I. Inspection.

A. At intervals not to exceed 250 hours for airplanes having in excess of 4,000 flight hours periodically inspect the forward flange of the lower front spar cap at Station 120½ at left and right hand using dy-check inspection method or equivalent. This is the location of the bolt that attaches the inboard nacelle inboard attach angle to the spar cap flange. This bolt must be removed for this inspection. Any crack found must be properly repaired prior to further flight. This inspection shall be continued until the area is reinforced as outlined in item II below.

B. At intervals not to exceed 35 flight hours for airplanes having in excess of 4,000 flight hours, perform a visual inspection of the forward flange of the lower front spar cap left hand and right hand at the bolt attachment of the lower inboard nacelle inboard attach angle paying particular attention to the upper and forward exposed area of the flange adjacent to the bolt. The spar area shall be thoroughly cleaned before inspection. Any suspicion of cracking shall be checked using dy-check method or equivalent with the bolt removed. Airplanes that have been repaired wherein the cracks have been ground out of the flange and the flange area reinforced in accordance with Douglas Dwg. 5482662-A shall also be visually inspected.

C. No special inspection is required on airplanes having a total service time under 4,000 hours.

II. Reinforcement.

Aircraft not incorporating the reinforcement during production shall have the spar cap and other reinforcements added in the inboard nacelle area according to Douglas Dwgs. 5482863 and 5482950. Reinforcement should be accomplished by September 1, 1953, on airplanes having over 4,000 hours flying time by that date. Airplanes with less than 4,000 hours time as of September 1, 1953, should be reinforced prior to accumulation of 4,000 hours flying time. Any airplane incorporating the temporary repair per Douglas Dwg. 5482662-A shall have the permanent reinforcement incorporated at the next engine change not to exceed 1,500 hours. High time airplanes and those with repaired flanges should be given priority in accomplishing these reinforcements. (Douglas Service Bulletin No. 532 covers this same subject.)

52-19-1 CURTISS WRIGHT Applies to all Models of C-46 series airplanes used in passenger operation under the provisions of Parts 41, 42, and 61 of the Civil Air Regulations as specified in 41.20 (f), 61.31 (b), and Amendment 42-2 dated November 1, 1946.

Item (5) of this directive must be accomplished by November 1, 1952. Item (4) should be accomplished as soon as possible but not later than September 30, 1953; however, this extension will only be given in those cases wherein the CAA regional office has determined that justification exists, the other items should be accomplished as soon as possible but not later than April 1, 1953.

(This note pertains only to the powerplant fire protection aspects of the above Regulations. Notes 49-18-1 and 49-25-1 cover the fire prevention for the cabin heater installation, and for the baggage and cargo compartments of the airplane respectively.)

Recent experience with the C-46 aircraft in passenger operation has brought to light several instances in which the adequacy of the powerplant fire protection installation provided is questionable. This directive, which cancels and supersedes A. D. 49-19-1, therefore is intended to correct those installations wherein such inadequacies may exist.

(1) Shut-Off Valves: Install fluid shut-off valves, which may be opened and closed in flight, aft of the firewall in all fuel, oil, and hydraulic lines. USAF Technical Order 01-25LA-190 covers this same subject. If propeller or carburetor anti-icing systems are employed and use alcohol or other flammable fluids as the anti-icing medium, the systems described in USAF T. O. AN 01-25LA-2, pages 458-464, are satisfactory except that shut-off valves or a selector valve which can be opened and closed in flight must be provided aft of the firewall, to shut off the flow to either engine. The system should be such as to shut off the pump automatically, or otherwise guard against hazardous pressures, when the flow to both nacelles is stopped. (no shut-off valve will be required for the feathering pump oil lines, see Section 3 below.)

(2) Engine Firewalls: Engine firewalls must be rendered fireproof by adequately sealing all openings such as the filtered air duct opening, the oil cooler control rod and filtered air control rod openings, other powerplant control openings, holes through the firewall for electric conduits, and any other firewall openings.

(3) Propeller Feathering Pump Installation: The portion of the propeller feathering oil line forward of the firewall between the firewall and the pump shall be of steel or other fireproof material. The line between the pump and governor shall be of fire resistant material with coupled hose assemblies used in any flexible connections. Electrical conduit for the pump motor and other electrical components forward of the firewall which are essential for propeller feathering shall be fire resistant or protected in a manner to render them fire resistant. The feathering pump can be considered an adequate means of shutting off the flow of oil in the feathering line.

(4) Fire Extinguisher System:

(a) CO_2 Quantity and Rate. The fire extinguisher system must be improved to provide at least 35# CO_2 per shot which must be discharged into the nacelle at a rate of not less than 17½#/sec (the rate of discharge will be affected by the number of bottles, the discharge valve sizes, the line sizes, and the nozzle area). The portion of the two-shot fire extinguisher system which is described in USAF Technical Order 01-25LA-205 is satisfactory. (Note: Civil Aeronautics Board Draft Release No. 52-15, proposes to require a two-shot fire extinguisher system in these airplanes in the near future. Operators, therefore, may consider it more practical to accomplish both changes at the same time.

(b) Distribution System. The piping and nozzle arrangements shall be such as to spray the bulk of the discharge in the power section with a smaller amount (approximately 7 percent) being sprayed over the oil cooler. In this regard, it will be acceptable, if desired, to split the power section portion of the discharge so as to spray approximately one-third of it from 5 nozzles located around the upper half of the engine mounting ring.

(c) Nozzle Location and Spray Pattern. The location of the nozzles and pattern of their spray are important for effective fire extinguishing and shall be substantially as follows:

1. For the power section, a nozzle shall be located at the rear and the base of each cylinder, discharging the CO_2 in a fan spray radially away from the crankcase. The provisions of USAF Technical Order 01-25LA-162 pertaining to replacement of engine cylinder fire extinguisher nozzle bracket must be accomplished.

2. For the oil cooler, a nozzle or nozzles shall be located above the forward end of the cooler directing fan sprays down and forward on each side of the cooler and duct.

3. The 5 nozzles located around the upper half of the mounting ring, if used, shall be such as to direct a fan spray radially outward as well as a fan spray radially inward over the accessories.

(5) Fire Detectors. The Fenwal continuous type fire detectors, which were originally provided must be removed and replaced with unit or continuous type fire detectors conforming with CAA Technical Standard Order, TSO-C11 or TSO-C11a. If unit type detectors are used, they shall be spaced as specified below. Continuous type detectors, if used, shall be so installed as to provide equivalent coverage.

(a) Engine Nacelles. Fire detectors, spaced not over 7 inches apart, shall be installed on the lower half of the forward side of the firewall at its outer periphery, and along the horizontal diameter.

(b) Engine Mount Ring and Oil Cooler Supports. Additional fire detectors, spaced not over 18 inches apart, shall be provided for the upper two-thirds of the engine mount ring. Also, a fire detector shall be installed on each oil cooler support approximately two to three inches above the oil cooler.

(c) Warning Light Covers. Fire-warning-light covers or shutters which are capable of dimming or shutting off the light entirely, must be removed.

(6) Engine Compartment Lines: The following lines carrying inflammable fluids or vapors in the engine compartment shall be fire resistant and items (a) through (g) inclusive shall also have fireproof firewall fittings. Flexible connections in lines attached to the engine or subject to relative motion or pressure shall employ fire resistant coupled hose assemblies: (a) carburetor bleed back lines, (b) cabin heater fuel lines, (c) oil dilution lines, (d) fuel pressure transmitter lines, (e) oil pressure transmitter lines, (f) manifold pressure lines, (g) all other hydraulic oil lines, (h) all engine fuel lines, (i) engine primer lines, (j) engine breather lines, (k) engine supercharger drain lines, (l) oil separator return lines, (m) vacuum system pressure lines, (n) all main oil lines, (o) engine oil cooler lines, (p) hydraulic pump drain lines, (q) exhaust collector drain lines, (r) oil tank vent lines, (s) fuel pump drain lines.

The fire extinguisher distribution tubing and fittings ahead of the firewall must be of steel or other fireproof material. Flexible connections in the distribution tubing ahead of the firewall must be at least of fire resistant construction, and shall use coupled

hose assemblies rather than hose clamp connections.

(7) Airplane Flight Manual: Appropriate changes to the airplane flight manual shall be prepared to cover emergency procedures associated with the above changes.

(8) More detailed information on methods of complying with this Directive is being furnished to CAA Agents.

52-20-1 DOUGLAS (Applies to Models DC-6, DC-6A, DC-6B aircraft below Serial No. 43274)

To be accomplished as soon as practicable, but not later than February 1, 1954.

To reduce the likelihood of electrical fire and the loss of electrical and electronic equipment essential to continue flight, it is necessary to provide adequate overvoltage protection. There are two systems involved, known as the "Eclipse Generator System" and the "General Electric Generator System." The changes required in each of these systems are as follows:

Eclipse: Replace the four B-14 type generator contactors with a high-voltage (120-volt rating) contactors of sufficient capacity to interrupt an overvoltage generator. Overvoltage relays are already installed in the Eclipse system, and these should be retained.

General Electric: Install overvoltage sensing relays and either (1) replace the four generator control relays, G. E. P/N 3GTR-77A102, with a high voltage (120-volt rating) relay of sufficient capacity to interrupt an overvoltage generator, or (2) rework the G. E. P/N XRP-12 reverse current circuit breakers so as to trip out simultaneously with the generator control relay to provide for necessary additional interruption capacity. Except for the General Electric alternate (2) fix, this same subject is described in Douglas Service Bulletin DC-6 No. 470. The General Electric Company has service information available for the G. E. system alternate (2) rework.

52-20-2 WRIGHT ENGINES (Applies to all Model C18BA and C18BD Engines)

Compliance required as soon as possible but not later than October 31, 1952.

To prevent crankpin sludge from washing into the master rod bearing oil supply passages causing failure of the bearing, the use of oil dilution must be discontinued and the dilution lines disconnected or removed. This restriction on oil dilution is to continue until an adequate sludge controlling device is developed and incorporated in these engines.

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 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 7/32-inch ears. If no guards are installed or the ears are less than 3/16 inch they must be replaced with the new type guards. When properly installed, a 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, Rev. A, dated July 7, 1952, covers this same subject.)

This supersedes A. D. 52-1-4.

52-22-1 BEECH (Applies to all Model 35 aircraft, Serial Nos. D-1 through D-1500)

Compliance required as soon as possible but not later than October 15, 1952.

Visually inspect the front and rear spars steel trusses through the fuselage for cracks. Particular attention should be given to the lower horizontal member of the forward truss. If cracks are found the affected truss must either be replaced or repaired, in accordance with manufacturer's recommendations, prior to further flight. (Beech Service Bulletin No. 35-24, dated August 14, 1952, covers this same subject.)

52-22-2 BOEING (Applies to all Model 377 aircraft equipped with Hamilton Standard 2J17 series propeller blades)

Superseded by 53-2-1.

52-22-3 DOUGLAS (Applies to all Models DC-3 and C-47 type aircraft)

Compliance required as indicated.

The following inspections and rework pertain to the center wing lower skin attach angles and doublers which are covered by Parts A3 and B3 revisions of A. D. 39-24-1 published in Airworthiness Directive issue No. 52-6:

1. All Unreworked Airplanes Over 8,000 Hours.

(a) Install witness holes at the front and center spars per Douglas Dwg. 5406787, view B and C, within a period not to exceed 1,500 flying hours from effective date of this A. D. (Sept. 15, 1952), and make visual inspection for cracks in the wing skin through the witness holes, using at least an 8-power glass. Periodic inspection shall be made at intervals not to exceed 1,500 hours thereafter, with wings removed. Any cracks found must be repaired as mentioned in Items (b) or (c) below:

(b) If a crack is found at the first witness hole only, either forward or aft of the spars, make interim repair immediately per Douglas Dwgs. 3481664 and/or 3481679 for the front and center spar, respectively. Of course, permanent repair per Dwg. 5406787 "D" may be made in lieu of the interim repair. See part 2 (b) for permanent repair instructions applicable aircraft with interim repairs.

(c) If a crack is found at the second or furthest witness hole, either forward or aft of the center spar, or if the crack extends beyond the existing doubler on the front spar, make complete repair immediately per Douglas Dwg. 5406787 "D".

(d) On airplanes free from cracks, with 16,000 to 36,000 hours total aircraft time, make complete repair per Dwg. 5406787 "D", or approved equivalent, at the next major overhaul not to exceed 5,000 hours or a maximum total aircraft time of 38,000 hours, whichever occurs first. On airplanes over 36,000 hours, make complete repair per Dwg. 5406787 "D", or approved equivalent within the next 2,000 hours.

2. Reworked Airplanes (per Douglas Dwgs. 3481664 and/or 3481679).

(a) Inspect the repaired area with wing removed at periods not to exceed 1,500 hours, as mentioned in Item 1 (a) above, until complete rework per Dwg. 5406787 "D" is accomplished. If any new cracks or crack progression is found at a previously installed interim repair, make complete repair per Dwg. 5406787 "D", or equivalent prior to next flight.

(b) On airplanes with a total aircraft time under 37,500 hours, make complete repair per Dwg. 5406787 "D", or approved equivalent, at the next major overhaul period, but not to exceed 5,000 hours from time interim repair is made, or a maximum total airplane time of 38,000 hours, whichever occurs first. On airplanes over 37,500 hours, make complete repair per Dwg. 5406787 "D", or equivalent, within the next 500 hours.

3. Reworked Airplanes (per Douglas Dwg. 5406787).

When the rework shown on Douglas Dwg. 5406787, or approved equivalent, has been accomplished, the center wing shall be subject to the same inspection and rework time schedule as established for the outer wing with heavy doublers in A. D. Note 39-24-1.

4. All Aircraft.

All aircraft, regardless of time or configuration, shall have a careful external inspection of the center wing angle and skin at intervals presently established by Part A1 of A. D. Note 39-24-1 for attach angles. (Douglas General Service Letter, DC-3, No. 1, Supplement #1, dated June 17, 1952, covers this same subject.)

This supersedes A. D. 52-6-1.

52-23-1 EDISON FIRE DETECTORS (Applies to all aircraft equipped with Edison P/N 35534 Fire Detectors installed in junction boxes)

To be accomplished not later than next engine change after January 1, 1953.

In order to prevent grounding of either or both terminals of Edison P/N 35534 fire detectors due to inadequate clearance between the detector terminals and the structure to which the junction box and detector assembly are mounted, or the junction box cover in some instances, the following corrective action must be accomplished.

The dimensions of the P/N 35534 Edison fire detector should be compared with the dimensions of the junction box employed by each operator to assure that there is sufficient clearance between the detector terminals and the structure to which it is mounted, or the cover. Sufficient clearance will depend on the construction of the junction box, but 3/16 of an inch may be used as a general guide. If such clearance does not exist an appropriate modification should be made, or appropriate insulation provided between the terminals and the structure or the junction box cover, as the case may be. (Douglas General Service Letter DC-6 #115, dated January 29, 1952, covers this same subject.)

52-23-2 RYAN (Applies to all Navion Serial Nos. NAV-42-1 and above)

Compliance required as indicated.

Inspect as soon as practical but not later than December 1, 1952, at 100 hour intervals thereafter, and after any unusually hard landing, the main landing gear retract link assembly (P/N 143-33165-10) on all affected serial numbers for cracks in or near end fitting welds. Also inspect for cracks, the area around small drive-screw plugs in each end fitting. Replace all defective parts with later type assembly having fish mouth welds at end fittings. Upon installation of revised assembly this inspection is no longer required. (Ryan Navion Field Service Bulletin #13, dated April 15, 1951, covers this same subject.)

52-24-1 RYAN (Applies to all Model Navion aircraft, Serial Nos. NAV-4-2 and above)

Compliance required as soon as possible but not later than November 1, 1952.

In order to eliminate the possibility of the aileron control chain jamming, each end of the fiber channel chain guard should be reworked as shown in the sketch below. The chain and guard are on the control column. (Ryan Navion Field Service Bulletin #18 dated September 3, 1952, covers this same subject.)

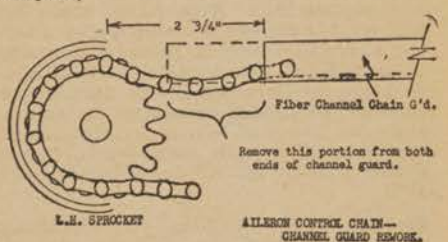


FIGURE 25.

52-25-1 DOUGLAS (Applies to all Model DC-3 aircraft equipped with vacuum systems)

To be accomplished not later than May 1, 1953.

To guard against the possibility of excessive air temperatures and associated fire hazards in the vacuum system discharge line, one of the following modifications must be accomplished:

1. Install a fusible plug in the side of the vacuum pump discharge port at right angles to the axis of the discharge port boss. Some pumps incorporate a plugged hole in the discharge port which may be enlarged to a ⅜-inch pipe tapped hole to accommodate the fusible plug. This plug should employ an AN-840-8D fitting with a binary eutectic mixture of 67.8 percent tin and 32.2 percent cadmium, which has a melting point of 351° F. A drawing describing the design of such a plug is shown below. The ⅜-inch plug fitting is intended for pumps such as the Model 3P-211 and 3P-485. For smaller pumps such as the 3P-207, and AN-840-6D fitting, incorporating the same modification as shown below, should be used. Brass fittings of the same design as the above dural fittings are acceptable. Incorporation of an overboard drain line clamped to the fusible plug is recommended but is not mandatory. On installations which do not use an overboard discharge line the possibility exists that the plug may damage other nacelle components if it can hit them upon being blown out of the adapter at high velocity. Therefore, if no overboard discharge line is provided, the installation must be made in such a manner that the plug will not be directed toward any vulnerable components when it issues from the adapter, or

2. Employ an oil separator equivalent in principle to the Genisco No. 40081 incorporating a pressure relief valve which can be disassembled for cleaning. Douglas Service Letter A-129-T-1271/WB-11Q-4 dated April 1, 1949, covers this type of modification.

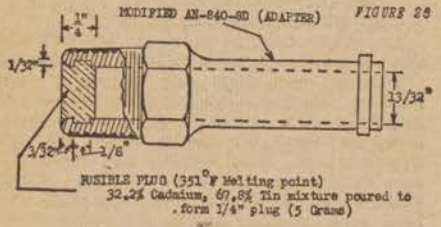


FIGURE 26.

52-25-2 ERCOUPE (Applies to Model 415-C and -CD aircraft having a 5.00 x 4 nose wheel and using Federal skis.)

To be accomplished not later than December 1, 1952.

To eliminate instances of the nose ski coming off when operating on Federal Aircraft Works Model A-1500 skis, a supplementary safety device should be installed. A simple and suitable device is a rectangular plate (approximately ⅛ inch thick and ½ inch longer than axle diameter) installed to end of axle stub so that ends of plate will prevent retaining nut from backing off if lock washer fails. This plate, which will also provide for visual inspection of retaining nut, to be held in place by a safetied through bolt. This modification can easily be made and installed in the field. Drawing (No. ES-B-203) describing such an installation is available from Federal Aircraft Works, Minneapolis, Minnesota. Federal Service Bulletin No. 100 also covers this subject.

52-26-1 RYAN (Applies to all Model Navion aircraft, Serial Nos. NAV-4-2 and subsequent)

Compliance required as indicated.

Inspect as soon as practical, but not later than February 1, 1953, and at 100 hour intervals thereafter the area in the vicinity of the stabilizer fuselage attachment for cracks. Particular attention should be given to the stabilizer spar web (gusset) immediately outboard of the root rib and the fuselage attaching fitting. If cracks are found in the fuselage fitting, P/N 143-31004-13, the entire part should be replaced. Cracks in the root rib may be repaired in accordance with CAM # 18. Cracks in the spar web (gusset) require the replacement of the gusset with a new part made in accordance with the following sketch.

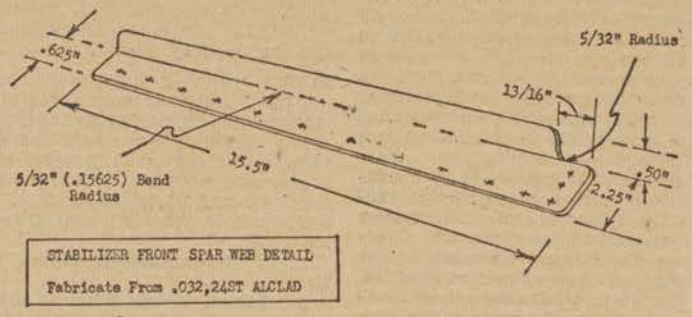


FIGURE 27.

Periodic inspections of stabilizer spar web only may be discontinued after installation of new gussets. (Ryan Navion Field Service Bulletin # 17 dated September 26, 1952, covers this same subject.)

52-27-1 DOUGLAS (Applies to all Model DC-6 Series Aircraft (Fuselage Nos. 1 to 213 inclusive))

Compliance required as indicated.

Superseded by 53-8-2.

52-27-2 DOUGLAS (Applies to Model DC-6 Aircraft (Fuselage Nos. 1 to 166, inclusive))

Compliance required as indicated.

The following inspections and rework pertain to the outboard front spar splice plate, Douglas Part No. 4325272 at Station 166 in the area of the inboard nacelle. This special inspection does not apply to splice plates that have been reworked by removing the aft attach tab or to new redesigned splice plates or when Douglas Service Bulletin 532 has been accomplished.

1. Inspection.

A. Conduct following inspection as soon as practical but not later than the next 50 hours operation unless already accomplished and continuing thereafter at intervals of regular inspection periods nearest to 500 flying hours from the time of initial inspection until the splice plate is replaced. Using at least an 8-power magnifying glass and/or Dy-Check method or equivalent, make inspections for cracks in the chordwise direction in the area of the milled radius of the aft attach tab of the lower front spar splice plate. Alternate inspection procedures which will provide equivalent safety may be approved. If cracks are found, incorporate the rework of the Item 2 before the next scheduled flight.

B. The above inspection must be continued periodically at intervals not to exceed 400 flying hours on all splice plates that have been reworked as per Item 2 (a) until the splice plate is replaced. If a crack is found beyond the stop drill hole prior to the replacement period as indicated in Item 2 (c) the splice plate must be replaced before the next scheduled flight.

2. Rework.

A. If cracks are found in 1⅜ inches long, stop drill using a ¼-inch drill and ream with a 17/64-inch reamer. The drill hole center must be located at a distance of 1⅜ inches from the aft edge of the splice plate in line with the crack.

B. If cracks are found greater than 1⅜ inches long, the splice plate must be replaced before the next flight.

C. Splice plates reworked in accordance with Item 2 (a) above, must be replaced within 1,500 flying hours from time rework is accomplished.

(Douglas Service Letter #123, dated May 29, 1952, also covers this same subject.)

52-28-1 AERONCA (Applies to all Model 11AC aircraft equipped with the auxiliary fuel tank installation)

Compliance required not later than January 31, 1953.

Accidents have occurred in the above model aircraft due to misuse of the fuel transfer system. These accidents have been caused by pilots attempting to transfer fuel while taking-off or in a climb attitude. To preclude the possibility of pilot error with regard to the foregoing, the following placard, or its equivalent, shall be displayed near the fuel transfer system shut-off valve and in view of the pilot: "Transfer fuel in level flight or glide only and when main tank is half full or less. Valve is to be closed except while transferring fuel."

52-28-2 BELLANCA (Applies to Models 14-13, 14-13-2, 14-13-3 aircraft, Serial Nos. up to No. 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.)

52-28-3 BELL (Applies to all 47 Series helicopters with the 47-645-002 gear box installed)

Compliance required as directed.

Replace the tail rotor gear box 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, 47-D and 47D-1 helicopters (prior to Serial No. 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 in 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, Rev. B, dated April 29, 1953, covers the same subject.)

52-28-5 DOUGLAS (Applies to all Model DC-6 Series aircraft (Fuselage Nos. 1 to 213 inclusive))

Compliance required as indicated.

The following inspections and rework pertain to the center wing lower surface access hole structure at Station 149.

1. Inspection.

(a) Conduct following inspection as soon as practical but not later than the next 50 hours operation unless already accomplished and continuing thereafter at regular periodic inspection intervals nearest to 500 hours from the time of initial inspection until permanent repair is made as outlined in 2 (b). Using at least an 8-power magnifying glass and/or Dy-Chek method or equivalent, make inspections for cracks in the lower wing skin and doubler at the aft access hole paying particular attention to the corner areas. Alternate inspection procedures which will provide equivalent safety may be approved. If cracks are found, make repairs as indicated in Item 2 before the next scheduled flight.

(b) Periodic visual inspection must be continued at the most frequently established inspection period between 15 and 35 flying hours for airplanes reworked as per Item 2 (a) until the rework of Item 2 (b) is accomplished. If a crack is found beyond the stop drill hole prior to the replacement period as indicated in Item 2 (c) make repair as per Item 2 (b) before the next scheduled flight.

2. Repair.

(a) If cracks are found in either the lower wing skin or doubler less than one inch long, stop drill using a ¼-inch drill or ⅜-inch drill hole if space permits. The combined length of the crack and drill hole should not exceed 1¼ inches in total length.

(b) If cracks are found in either the lower wing skin or doubler greater than one inch long, or if the cracks extend under the adjacent angle which cannot be visually inspected, incorporate the rework on Douglas Dwg. No. 5400661 before the next scheduled flight. In cases where only one corner of the access hole is cracked, Douglas approved interim repair may be used subject to replacement with permanent rework, per Dwg. No. 5400661, within a period not to exceed 1,500 hours from time interim repair is made.

(c) The rework of Item 2 (a) must be replaced with the rework reinforcement of Item 2 (b) within 3,000 flying hours from time rework of Item 2 (a) is accomplished. (Douglas Service Letter #130, dated July 10, 1952, also covers this same subject.)

52-29-1 HILLER (Applies to all Hiller Models UH-12, -12A, -12B helicopters)

Compliance required by February 1, 1953, and thereafter following any unusually hard landing, or following any maintenance work requiring loosening of the cardan joint assembly attachment to fuselage, or removal of the forward tail rotor drive tube or tail boom assembly.

Separation of the components of the forward tail rotor drive slip joint assembly, and eventual power loss to the tail rotor, may result from a severely hard landing, or from misalignment of the yoke, and cam followers of the Tee fitting following tail rotor drive system maintenance work of the nature described above. The condition may not be detected immediately, as it is possible to transmit torque to the tail rotor with the Tee fitting cam followers bearing on the outside of the yoke fingers. Failure of the Tee fitting under such conditions, however, will eventually result.

The following procedure, or equivalent, is necessary to permit inspection for proper alignment at the times specified by the compliance requirements above.

On the outboard surface of the fingers of the yoke, and adjacent to the slot, lightly scribe two marks; one at 0.72 inch and one at 0.78 inch aft of the closed end of the yoke slot. Then lightly scribe a mark through exact center of bearing cap on cam follower, at right angles to the yoke slot. With the helicopter at rest in a level attitude the line on the bearing cap of the cam follower must lie within the marks scribed on the yoke fingers. If correction is found necessary, refer to the maintenance manual, Section V, Sub-Sections 5-206—5-223.

The following part numbers are given for reference:

UH-12B (Military HTE-2, H-23B):
Yoke P/N 24539-1.
Tee Assembly P/N 24564-3.
Fwd. Slip Joint Assy. P/N 24565.
UH-12, -12A (Military HTE-1, H-23A):
Yoke P/N 24523-1.
Tee Fitting P/N 24526-1.
Cam Followers P/N 24543-2.
Fwd. Slip Joint Assy. P/N 24500-9.

The following Military Publications cover this subject:

Navy BuAer Dispatch 131746Z, September 13, 1952.

Air Force TO 01-255HB-31, September 19, 1952.

(Hiller Field Service Letter CD-2992 covers this procedure.)

53-1-1 BELL Applies to Model 47D1 helicopters, serial numbers 477 to 625, inclusive.

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

In order to improve the method of mounting the tail rotor gear box 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.)

53-1-2 BEECH Applies to Model 35, A35, B35 and C35 airplanes, Serial Nos. 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 AN934-6 "O" ring on indexing ball plug in place of lead washer, Beech Part No. 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.)

53-2-1 BOEING Applies to all Model 377 aircraft equipped with Hamilton Standard 2J17 series propeller blades, except 2J17Z3-BW.

Superseded by 54-17-1.

53-2-2 HILLER Applies to all Model UH-12, -12A and -12B helicopters.

Superseded by 56-9-1.

53-3-1 RYAN Applies to all Model Navion B aircraft equipped with Hartzell HC-12 x20-8C/9333C-O propellers.

Compliance required not later than March 15, 1953.

Vibration tests conducted subsequent to the initial tests of the Hartzell HC-12 x 20-8C/9333C-0 propeller installed on the Lycoming GO-435 engine revealed vibration characteristics of a hazardous nature. Therefore, to prevent possible blade cracks and/or failures, the existing RPM restriction placard should be revised as follows:

"Avoid continuous ground operation between 1675 and 2150 engine rpm."

53-4-1 PIPER Applies to all Model PA-18 aircraft which have not had the control stick retention device modified to incorporate a through bolt.

Compliance required by April 1, 1953.

In order to prevent the control stock inadvertently pulling out of the socket, continue the existing hole for the retention pin on the quick detachable control stick spring device through the control stick and socket and install an AN3-14 or AN3-14A through bolt. (Piper Service Letter No. 162 dated March 6, 1951 covers this same subject.)

53-5-1 BOEING, CONSOLIDATED VULTEE, DOUGLAS, LOCKHEED Applies to all Boeing 377, Convair 240 series, Douglas DC-6 series, and Lockheed 749 series airplanes with Curtiss reversing propellers.

Items I through IV are to be accomplished by means of progressive modification program to be submitted to and approved by the CAA. This program shall begin no later than September 1, 1953, and shall be completed no later than March 1, 1954. (For Boeing 377 completion must be no later than July 1, 1954.) The replacement program in item III and the maintenance and inspection program in item V shall be instituted no later than April 1, 1953.

I. Revise propeller slip rings, brush cap connector plug and harness to provide isolation of the reverse slip ring and brushes by relocating them between the "Common" and "Bonding" slip rings and brushes, which are both maintained at ground potential. Curtiss Information Reports have been issued to cover this subject, as follows: Convair 240 series, Report #245S dated Nov. 5, 1951; Douglas DC-6 series, Report #249S dated Dec. 4, 1951; Boeing 377, Report #258S dated Mar. 21, 1953; Lockheed 749 (C634S Propeller), Report #250S dated Apr. 15, 1952; Lockheed 749 (C632S Propeller), Report #267S dated May 14, 1952.

II. A. Install Curtiss Brush Cap part number 148764, which, has provisions for a separate brush cap connector for the reversing lead. This change may be accomplished after or simultaneously with I above, and in accordance with Curtiss Information Report No. 273-S, dated January 15, 1953.

B. Isolate the reversing circuit from the propeller brush cap to (and including) the "I" terminal on the reverse pitch relay, in the manner described below. Where applicable, the same isolation shall be provided for the extension of the reversing circuit to the secondary reverse lock relay.

(1) Terminal Strips. Any one of the following methods of isolation may be used:

(a) Elimination of connections at terminal strips by using continuous wiring.

(b) Providing separate covered terminal strip for reversing lead connections.

(c) Isolating the reversing lead stud, terminals, and associated hardware from all nearby studs and terminals, by enclosing these components in an insulating cover which is so designed or secured to the wiring that the wire will stay in place in case of breakage at the terminal; or so that the broken wire and terminal will remain insulated by the cover from contact with other circuits if the wire comes off its terminal. The nature of the cover design or provisions

for its attachment must be such that its installation will not be overlooked during maintenance.

(d) Removing or grounding studs adjacent to the reversing lead stud and securing all adjacent wiring and the reversing lead to prevent contact of broken leads with reversing terminal or contact of broken reversing lead with other terminals. If the adjacent studs are grounded, rather than removed, the studs must be identified distinctively so that they will not inadvertently be used for the attachment of wires serving other circuits.

(2) Multiple Pin Connector Assemblies. Any one of the following methods of isolation may be used:

(a) Elimination of connectors by using continuous wiring.

(b) Providing separate connectors for each reversing circuit.

(c) Deactivating all pins adjacent to the one carrying the reversing circuit. These pins are to be retained in the connector but identified distinctively so that they will not be used inadvertently. When distinctively identified, these pins may also be used for circuits which cannot supply sufficient energy to drive the pitch-change motor or to release the pitch change motor brake, or for circuits which are energized only when reversing is desired. At the points where wires are attached to the connector pins, all exposed metal parts are to be protected with insulating covers so secured that contact between circuits cannot occur in case of failure of the connection or in case foreign material is left in the connector assembly.

(3) Exposed Terminals on Relays or Switches.

(a) As specified in Item (1) (c) above for terminal strips, or

(b) If the terminal is a type which cannot be protected as specified above, cover all exposed metal components with insulating material and secure all wires so that no wire can touch another terminal if the wire breaks or falls off its own terminal. Install insulating barriers as necessary to prevent inadvertent contact between broken or loose wires and other terminals.

(4) Reverse Circuit Wiring. Modify in one of the following ways:

(a) Physically isolate the reverse wire from all other circuits.

(b) If the wiring is run in bundles with other wires, a shielded wire is to be used. The shielding shall be grounded at both ends, and a protective cover shall be provided over the shielding. The shielding shall be carried as close as possible to all terminal points.

(5) Nacelle Filter. If the reverse wire and, where applicable, the lead to the secondary reverse lock relay, is enclosed in conduit or shielding for its entire length from the brush cap to the "I" terminal of the reverse pitch relay, the lead may be routed so as to by-pass the nacelle filter thus eliminating the need for isolating the condenser terminals. If the reverse wire is isolated in such manner that filtering is still necessary, provide an additional filter which is physically separated from the existing nacelle filter.

III. Comply with A. D. Note 56-8-1.

IV. On unmodified C632S Series propellers which have both the reverse pitch circuit and the feathering circuit opened by the same limit switch when the propeller blades are at the reverse pitch position modify the propeller limit switch arrangement so that it will be possible to energize the increase pitch circuit by operating the feathering control even when the propeller is in reverse pitch. Curtiss Information Reports have been issued to cover this subject, as follows: CV-240 Series, Report No. 245S, dated Nov. 5, 1951; DC-6 Series, Report No. 249S, dated Dec. 4, 1951; L-749 Series, Report No. 267S, dated May 14, 1952.

V. Maintenance Practices.

A. At each nearest scheduled service to 350 hours:

(1) Inspect all points specified in Items II B (1) and II B (3). The inspections of Item II B (1) may be discontinued if the modifications made to the system are of the type described in Items II B (1) (a) or II B (1) (b).

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 reverse wire, 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 will be replaced as necessary.

C. At each scheduled service nearest to 350 hours, perform an electrical check of the reverse safety switches in the pedestal assembly to assure that the switches open when throttles are moved forward out of the reverse position.

D. At any time that operations are performed which may affect the relative position of the solenoid lock and throttle switches, but in any event at intervals not to exceed 1,500 hours: Check the relationship between the position of the pedestal strikers when they are: (a) in contact with the solenoid latch; (b) at the point where the detent roller contacts the first detent cam; and (c) when the reversing microswitches are actuated. It shall not be possible for the switches to be actuated before the latch and the detent engage the striker and the cam. This determination shall be made by positive measurements rather than observation of engine RPM at which these actions take place.

53-6-1 CESSNA Applied to all Model T-50 aircraft.

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

To guard against the possibility of fire or smoke due to inadequate electrical protection of the landing light motor circuits, install a 10 ampere fuse or circuit breaker, in the manner shown, for each motor circuit.

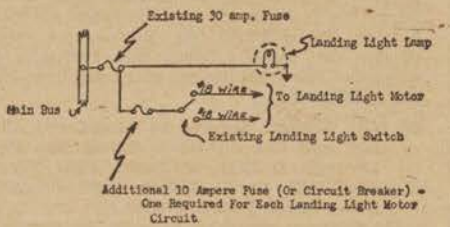


FIGURE 28.

53-6-2 HARTZELL PROPELLERS Applies to all aircraft equipped with Hartzell Model HC12x20 propellers.

Compliance required as indicated.

I. A number of fatigue cracks have been discovered in the original Hartzell hub spider (type C-49). Because these fatigue cracks may result in loss of propeller blades, all hub spiders with serial numbers listed below must be removed from service. The new hub spider (type C-157), or later improved versions of the original hub spider (type C-49), with serial numbers other than those listed in "A" below, may be used as replacements.

A. All HC12x20 hub assemblies, regardless of model dash number, with the following serial numbers have the original hub spider (type C-49): Serial Nos. 1 through 4303, 4307 through 4316, 4318, 4319, 4321, 4323, 4324, 4325, 4328, 4329, 4332 through 4336, 4341. These must be removed from service.

B. After compliance, a suffix "C" must be added to the hub assembly model dash number. Thus HC12x20-1 becomes HC12x20-1C, and HC12x20-1A becomes HX12x20-1AC.

C. Hub assembly models with the "C" suffix, such as HC12x20-7C and HC12x20-8C, have the new hub spider (type C-157).

D. Hub spiders must be removed from service as follows:

1. All spiders which will have accumulated 500 or more hours of service prior to September 1, 1953, must be removed from service no later than September 1, 1953. To achieve this, it is imperative that all orders be received by the propeller manufacturer prior to June 1, 1953.

2. After September 1, 1953, all remaining spiders must be removed from service upon accumulating 500 hours.

E. Hubs with serial numbers listed in "A" above but having less than 500 hours service must undergo a special inspection as outlined below every six calendar months, or at 200 and 400 hours of service, whichever occurs first.

1. Remove and tear down propeller, making careful visual examination of the hub retaining shoulders for presence of cracks, corrosion, and tool marks in the fillet section.

2. Inspect the hub spider by magnetic particle inspection.

3. If examination reveals either cracks or severe corrosion as evidenced by pitting, the hub must be replaced prior to further flight.

4. If no cracks, corrosion, or tool marks are noted in the fillet area, the hub may be returned to service, subject to subsequent inspection or replacement per this Airworthiness Directive.

5. If tool marks are noted in the fillet section, this area should have tool marks removed by a polishing operation until a mirror-like finish is obtained. The hub may then be returned to service, subject to subsequent inspection or replacement per this Airworthiness Directive.

6. Questionable cases should be referred to the propeller manufacturer for recommendations.

F. Hartzell Bulletins No. 8 (Seabee and Widgeon), Mandatory, dated May 28, 1949; No. 10, dated October 26, 1948; No. 16, Mandatory, dated November 16, 1949; No. 19, Mandatory, dated March 7, 1952; and Supplement to Bulletin No. 19, dated April 3, 1952, cover this same subject.

II. Service experience indicates Hartzell propellers with metal blades in combination with the Continental E-185 series engines not having crankshaft dampers (suffix "D" to engine serial number indicates dampered crankshaft) are subject to critical vibrational stresses in the hub spider. The following provisions apply to such installations:

A. Comply with Section I of this A. D.

B. After June 1, 1953, no Hartzell propellers with metal blades will be eligible on Continental E-185 series engines not having crankshaft dampers.

C. Hartzell metal blades are eligible for use on Continental E-185 series engines having dampered crankshafts.

D. Hartzell plastic blades are eligible for use on any Continental E-185 series engine.

E. Hartzell Service Bulletin No. 16, Mandatory, dated November 16, 1949, also covers this subject.

This supersedes notes 49-29-1, 49-48-2, and 52-7-2.

53-6-3 BEECH Applies to D185 airplanes Serial Nos. A-1 through A-482, except for A-472 and A-473 and those airplanes equipped with oleo drag legs.

Compliance required at next periodic inspection and each 1,000 hours thereafter until the oleo drag legs are installed.

Inspect the wing center section steel truss joints in the nacelle at the landing gears lower slide tube clusters using portable magnetic particle inspection equipment.

If cracks are found they are repairable within the limits of Part B of Beech Service Bulletin No. D18-58, dated September 11, 1951, and revised February 1, 1952, provided the oleo drag legs of Part C of the service bulletin are installed.

53-7-1 DE HAVILLAND Applies to Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 483 inclusive.

Compliance required as indicated.

There have been instances of the elevator outboard hinge becoming loose in its attachments to the horizontal stabilizer rib. Rivet holes have become enlarged permitting the fitting to "work." The de Havilland Aircraft of Canada, Limited, in agreement with the Canadian Department of Transport, issued the following mandatory instructions in which the CAA concurs:

Inspection intervals: 50 hours, pending incorporation of the repair scheme described below.

Repair scheme: The repair scheme described herein is not mandatory until a defect appears. See Figure 29.

The following parts are required.

C2-TP-179ND	Hinge plate	2 required	(1 each end of T/P).
C2-TP-181ND	Angle	2 required	
CR 162-6-8	Cherry rivet	10 required	
CR 162-6-10	Cherry rivet	12 required	
CR 163-6-8	Cherry rivet	6 required	

Procedure:

1. Remove tailcone.
2. Remove elevator.
3. Locate extreme outboard elevator hinges on tailplane.
4. Drill out 4 rivets retaining hinge plates.

Important: Do not drill out rivet at Point "*A*" until angle C2-TP-181ND has been riveted. (See drawing.)

5. Remove small tab at outboard ends of rear spar on tailplane.
6. Drill out 3 rivets at Point "*B*" securing angle C2-TP-139. (Angle must still remain in position secured by 1 rivet at Point "*A*.")
7. Locate new angle C2-TP-181ND on spar rear face and flush with outer skin of end rib.
8. Rivet angles C2-TP-139 and -181ND to spar as shown at Point "*B*."
9. Drill out rivet at Point "*A*."
10. Make or secure new hinge plate C2-TP-179ND and assemble as shown.
11. Assemble studs to new hinge plates.
12. Replace elevator and tailcone.

(De Havilland Technical News Sheet Series B, No. 60, dated February 10, 1953, Subject "Tailplane—Elevator Outboard Hinge—Mod. 2/901" covers this same subject.)

53-8-1 RYAN Applies to all Navion aircraft except those incorporating Palo Alto Airport Co. or Symon Engineering Co. Horizontal stabilizer modifications.

Compliance required by June 15, or next 100-hour inspection, whichever is first.

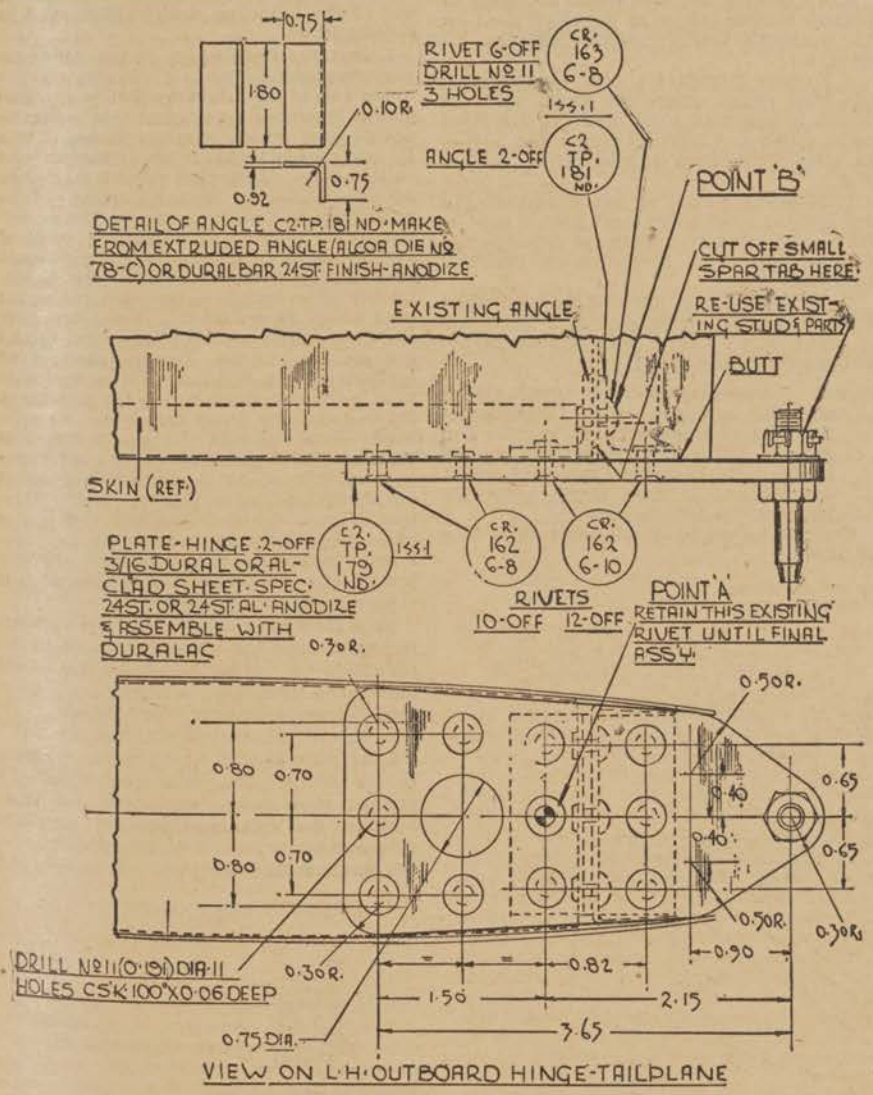


FIGURE 29.

Inspect both 145-21404-1 and -2 front fittings on the horizontal stabilizer for proper rivet edge distance. If the entire outboard edge of the steel fitting extends past the outboard edge of the butt rib, no further action is required. On the other hand, if the edge of the fitting disappears behind the rib, it will be necessary to ascertain that at least 1/16 inch of material (steel fitting) extends beyond the edge of all rivet holes. Whenever the edge distance is found to be less than 1/16 inch, a new fitting should be installed with proper edge distance. A method of conducting the above inspection is described in Ryan Field Service Bulletin No. 19, dated February 16, 1953, which covers this same subject.

53-8-2 DOUGLAS Applies to all Model DC-6 series aircraft (Fuselage Nos. 1 to 213 inclusive)

Compliance required as indicated.

The following inspections and rework pertain to the center wing lower skin panel and stringers inboard of Station 60 at both sides of the two access doors (fore and aft). The accomplishment of this change is for repair of details which have failed due to fatigue and to make general reinforcement of the affected area.

1. Inspection.

(a) Conduct following inspection as soon as practical but not later than the next fifty hours of operation unless already accomplished and continuing thereafter at periodic intervals nearest to 500 flying hours from the time of initial inspection until permanent rework is accomplished as outlined in Items (2) and (3) below. Using at least an 8-power magnifying glass and/or Dy-Chek method or equivalent, make inspection for cracks in the door doubler, bottom wing skin and stringers in the area of Station 52 between the front and center spars. If cracks are found in any of these details, make repairs as indicated in Item 2 before next scheduled flight.

(b) If no cracks are found in any of the details mentioned in (a) above, install preventive reinforcements as outlined in item (3).

2. Repair.

(a) If a crack is found in the lower skin panel at Station 52 greater than 2½ inches long or if cracked stringers are found in the area of Station 52, make repair and modify the door doubler splice as per Douglas Dwg. 5460214. (Refer to Kit "A" of Douglas Service Bulletin No. 521.)

NOTE: This repair must be supplemented by reinforcing remaining areas of rework as outlined in Part (3) (c).

(b) If a crack is found in the skin less than 2½ inches long (without stringers being cracked), in the area of Station 52, make repair as per Douglas Dwg. 5460328-501. (Refer to Kit "F" of Douglas Service Bulletin No. 521.)

NOTE: This repair must be supplemented by reinforcing remaining areas of rework as outlined in Part (3) (c).

(c) If a crack is found in the door doubler only in the area of Station 52, repair per Douglas Dwg. 5460328-1. (Refer to Kit "E" of Douglas Service Bulletin No. 521.)

NOTE: This repair must be supplemented by reinforcing remaining areas of rework as outlined in Part (3) (c).

3. Preventive Reinforcement.

(a) If no cracks are found in the area of Station 52 on airplane fuselage Nos. 1-69, install reinforcements to the stringers and door doubler no later than May 1, 1953, as per Dwg 5460275-1 or Douglas Service Bulletin No. 440. (Refer to Kit "B" of Douglas Service Bulletin No. 521.)

(b) If no cracks are found in the area of Station 52 on airplane fuselage Nos. 70-213, install reinforcement to the door doubler as per Dwg. 5460275-501 no later than September 1, 1953. (Refer to Kits "C" and "D" of Douglas Service Bulletin No. 521.)

(c) If cracks are found by inspection and repaired by reinforcements as outlined in Part 2 (a), (b) or (c), these repairs must be

supplemented by reinforcing the stringers and/or door doublers at all other areas outlined in 3 (a) and (b). This should be accomplished no later than May 1, 1953, on airplanes having fuselage numbers 1 through 69 and no later than September 1, 1953, or a period not to exceed 1,500 flying hours (whichever occurs first), on airplanes having fuselage numbers 70 to 213 inclusive. Airplanes incorporating local reinforcements shall be given an external inspection at periods not to exceed 35 flying hours in addition to the 500-hour inspection outlined in Part 1 (a) until the complete rework has been accomplished.

(See Douglas Service Bulletin No. 521 dated May 29, 1952, and Douglas Service Letter No. 128 dated June 27, 1952, for applicable models subject to the above-mentioned reworks.)

This supersedes note 52-27-1.

53-8-3 BOEING, CONSOLIDATED-VULTEE, DOUGLAS, LOCKHEED, MARTIN Applies to all Boeing 377, Convair 240 and 340 series, Douglas DC-6 series, Lockheed Constellation (49 series), and Martin 202 and 404 series airplanes with Hamilton Standard reversing propellers incorporating low pitch stop assemblies which have wedge return spring.

Superseded by 53-15-1.

53-9-1 PRATT & WHITNEY Applies to Pratt & Whitney R-2000 series engines overhauled by San Antonio Air Depot between July 1, 1952, and April 9, 1953.

Compliance required prior to further carriage of passengers or cargo in aircraft with such engines installed. Aircraft may be ferried to base where inspection is to be conducted.

Several operators of C-54 aircraft utilizing military overhauled engines, have experienced failures of Link (Knuckle) Pins in the subject engines due to improper overhaul, inspection, or assembly procedures. The failures have occurred in comparatively low time engines, and cracked pins have been found in engines with zero TSO.

To preclude the possibility of further failures of this nature, engines falling within the category as noted must be disassembled and the link pins magnetically inspected, eliminating any found with cracks, then reassembled in accordance with manufacturer's instructions, prior to further flight. Date of overhaul and identification of overhaul base stamped on exterior surface of engine nose housings.

53-9-2 DE HAVILLAND Applies to all Model DHC-2 Beaver aircraft.

Compliance required as indicated.

Inspect as soon as practical but not later than the next 100-hour flying time and at 100-hour intervals thereafter for skin cracks on the fuselage side panel at front door step. (Reference sketch below for typical cracks and method of repairing.) Any cracks found should be stop drilled at each end and repaired in accordance with directions in sketch. 100-hour inspection may be discontinued upon incorporation of recommended repair. (De Havilland Technical News Sheet, Series B, No. 59—Issue 2, dated January 15, 1953, covers this same subject.)

53-9-3 HILLER Applies to all UH-12, UH-12A, UH-12B, HTE-1, HTE-2, H-23A and H-23B Model helicopters.

Compliance required as soon as possible but no later than the next 25-hour inspection and as indicated in part "C" below.

The following has been found necessary to prevent fatigue failure of the clevis head on the outboard tension torsion bar pins, P/N51414-1:

a. Inspect P/N51414-1 pins to determine the fillet radius under the clevis head. If radius is less than 0.030 inch the pin must be scrapped and replaced with a pin having at least 0.030 inch radius before further flight.

b. If radius is 0.030 or greater and the pin has less than 500 hours total time it may be reinstalled. If a featheredge is found at the base of the clevis it should be carefully removed.

c. All 51414-1 pins must be replaced when they have accumulated a total of 500 hours of flight time. (Hiller Service Bulletin No. 36 covers this procedure.)

53-9-4 CONTINENTAL ENGINES Applies to all aircraft equipped with Continental W670-9A (Ordnance-Tank) engines and ground adjustable propellers having blades 11C1 (Hamilton Standard model designation) or 4350, 4350F, or 4350F1 (Navy model designation)

Compliance required not later than May 15, 1953.

VIEW ON FUSELAGE SIDE PANEL AT FRONT DOOR STEP SHOWING TYPICAL METHOD OF REPAIRING SKIN CRACKS.

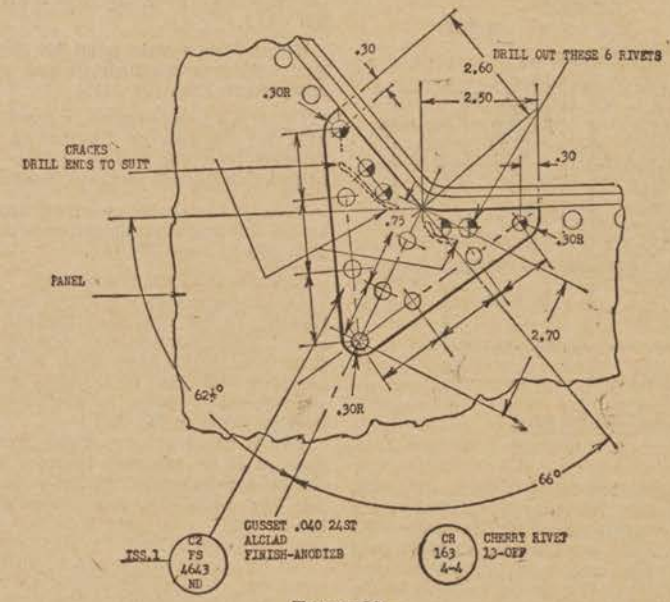


FIGURE 30.

In the absence of suitable propeller vibration stress data, the following precautionary measures should be taken to minimize the possibility of propeller blade fatigue failures:

(1) Disassemble propeller and inspect for cracks by etching the shank areas of the blades under the hub clamp rings.

(2) Cut propellers to between 102 inches maximum and 100 inches minimum diameter.

(3) Set blade angle so that static r. p. m. is between 1,500 and 1,975.

(4) Install propeller on engine in the zero degree position (blades in line with crankthrow).

(5) Placard airplane, "Do not exceed 1,900 r. p. m. for all operations except takeoff."

(6) Remove all nicks and gouges from tip region and maintain propeller blades as outlined in Civil Aeronautics Manual 18.

53-10-1 CURTISS-WRIGHT Applies to all C-46 series aircraft.

To be accomplished not later than November 1, 1953.

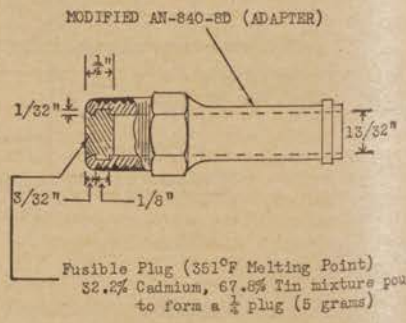
To guard against the possibility of excessive air temperatures and associated fire hazards in the vacuum system discharge line, one of the following modifications must be accomplished:

1. Install a fusible plug in the side of the vacuum pump discharge port at right angles to the axis of the discharge port boss. Some pumps incorporate a plugged hole in the discharge port which may be enlarged to a ⅜-inch pipe tapped hole to accommodate the fusible plug. This plug should employ an AN-840-8D fitting with a binary eutectic mixture of 67.8 percent tin and 32.2 percent cadmium, which has a melting point of 351° F. A drawing describing the design of such a plug is shown below. The ⅜-inch fusible plug fitting is intended for pumps such as the Model 3P-211. Brass fittings of the same design as the above dural fittings are also acceptable. Incorporation of an overboard drain line clamped to the fusible plug is recommended, but is not mandatory. On installations which do not use an overboard discharge line the possibility exists that the plug may damage other nacelle components if it can hit them upon being blown out of the adapter at high velocity. Therefore, if no overboard discharge line is provided, the installation must be made in such a manner that the plug will not be directed toward any vulnerable components when it is blown from the adapter.

Also, incorporation of steel lines with fire resistant hoses and utilizing hose liners and clamps in the vacuum discharge line is recommended if cracking and drying out of the flexible hose assemblies is experienced.

In lieu of this fusible plug installation:

2. An oil separator equivalent in principle to the Genisco No. 40081 incorporating a presure relief valve which can be disassembled for cleaning must be provided. (Genisco Co. is located at 2233 Federal Ave., Los Angeles 64, Cal.)



VACUUM SYSTEM FUSIBLE PLUG

FIGURE 31.

53-10-2 DE HAVILLAND Applies to Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 401 inclusive.

Compliance required as indicated.

After the aircraft has acquired 500 hours of flying time and pending the incorporation of the recommended repair, the wings should be inspected for cracks in lower wing skin at ends of the short stringers at the root end station of the wing leading edges at 50-hour intervals. If no cracks are evident reinforcements should be installed on the bottom surface of the wing as a preventive measure. The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheet Series B, No. 59—Issue 2 dated January 15, 1953, available from De Havilland Aircraft of Canada, Ltd., Toronto, Ontario, Canada covers this same subject and describes method of reinforcement.)

53-11-1 BEECH Applies to all Model 35 aircraft, Serial Nos. D-1 through D-1500.

Compliance required as soon as possible but not later than July 15, 1953, and each periodic inspection thereafter as indicated.

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.

Check the static balance of the ruddevators (movable tail surfaces) to ascertain that the static balance is within acceptable limits. This check of static balance must also be made each time the ruddevators are repaired or repainted.

All damaged structure must be repaired or replaced and the ruddevators balanced in accordance with manufacturer's service bulletin prior to further flight.

Periodic Inspection. Visually inspect bulkheads 256.9 and 272 as indicated above at each periodic inspection. (Beech Service Bulletin No. 35-26, dated May 20, 1953, covers this same subject.)

53-11-2 DE HAVILLAND Applies to Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 445 inclusive.

Compliance required as indicated.

Cases have been reported of chafing of the engine oil sump by section assemblies. (P/N C2-E-105ND) and (P/N C2-E-107ND) of accessory firewall. An enlarged flange clearance is required to be incorporated as soon as possible but not later than the next 100 hours.

The CAA concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheet, Series B, No. 64 dated March 23, 1953, available from De Havilland Aircraft of Canada, Ltd., Toronto, Ontario, Canada, covers this same subject and describes method of repair.)

53-12-1 HILLER Applies to all UH-12, UH-12A, UH-12B, HTE-1, HTE-2, H-23A and H-23B helicopters incorporating horizontal stabilizers with short spar inserts or without spar inserts.

Compliance required as indicated below.

Replacement of the horizontal stabilizer assembly, P/N 37001 on the above helicopters has been found necessary to prevent fatigue failure of the stabilizer spar. (Hiller Service Bulletin No. 26 covers this procedure.)

a. Stabilizer assemblies P/N 37001-9 incorporating short spar inserts (5.75 inches) must be removed from service when they have accumulated 600 hours total time. The replacement stabilizer is identified as 37001-14 and incorporates a long spar insert.

b. Stabilizer assemblies P/N 37001-7 (without spar insert and identified as 37001) must be removed from service when they have accumulated 1,600 hours total time. The replacement stabilizer is identified as 37001-12 and incorporates a long spar insert.

c. Stabilizer assemblies P/N 37001-12 and -14 incorporate long spar inserts (10.29 inches). Attachment to the aft bulkhead socket is made by two AN 174-17 bolts. The total service life of these assemblies is not limited.

53-12-2 DE HAVILLAND Applies to Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 451 inclusive.

Compliance required as indicated.

Cases have been reported of loss of seals in the flap hydraulic hand pump No. 430RDH. To prevent the above condition a modification (No. 2/926) was incorporated on production aircraft and should be incorporated on aircraft in service as soon as possible but not later than the next 100 hours.

The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheet, Series B. No. 63 dated March 19, 1953, available from De Havilland Aircraft of Canada, Ltd., Toronto, Ontario, Canada, covers this same subject and describes method of repair.

53-13-1 DE HAVILLAND GYPSY QUEEN ENGINES Applies to all Model 70-4 engines, and to those 70, 70-2, and 70-3 engines incorporating Modification G. 1493.

Compliance required not later than September 1, 1953.

In order to prevent the loss of propeller control because of failure of the oil transfer mechanism, Modification G. 1920, as described in De Havilland Engine Service Modification News Sheet GQ. 70 dated May 8, 1953, must be accomplished. Should Modification G. 1728 not be incorporated, it is strongly recommended that it be embodied concurrently with Modification G. 1920.

The Civil Aeronautics Administration concurs in this mandatory action. (De Havilland Modification News Sheet GQ. 70 dated May 8, 1953, available from De Havilland Aircraft Co. representative at Linden Airport, Linden, N. J., covers this same subject and describes method of repair.)

53-15-1 BOEING, CONSOLIDATED-VULTEE, DOUGLAS, LOCKHEED, MARTIN Applies to all Boeing 377, Convair 240 and 340 series, Douglas DC-6 series, Lockheed Constellation (49 series), and Martin 202 and 404 series airplanes with Hamilton Standard reversing propellers incorporating low pitch stop assemblies which have wedge return spring.

Superseded by 54-1-2.

53-15-2 LOCKHEED Applies to all Model 049, 149, 649 and 749 series aircraft.

Compliance required as indicated.

At the first arrival at the main base, unless already accomplished, inspect for cracks in the forward flange of the lower front spar cap at wing station 326, left and right, with particular reference to spar cap joggle areas using dye penetrant inspection method or equivalent.

1. If crack is found in the forward flange and does not extend into the vertical leg, stop drill the crack unless it terminates in a rivet hole and make permanent repair or install the serviceable repair in accordance with LAC Dwg. 325800. When serviceable repair is used, a visual inspection must be conducted at periodic intervals not to exceed 50 hours with dye penetrant inspection or equivalent method to be used at periods not to exceed every 200 hours until incorporation of the reinforcement per LAC Dwg. 325667 change "A" or equivalent.

2. If crack in the front spar flange extends into the vertical leg, remove tank sealant as necessary for skin and web inspection using dye penetrant inspection method or equivalent. Reinforcement per LAC Dwg. 325667 change "A" or equivalent is necessary before resuming commercial operation and normal inspection procedures.

3. If no cracks are found, reinspect using dye penetrant inspection method or equivalent on all aircraft with 10,000 hours or more total flight time, at intervals not to exceed 200 hours, and on all other aircraft at each major airframe inspection period until such time as reinforcement per LAC Dwg. 325667 change "A" or equivalent is accomplished.

53-15-3 HARTZELL PROPELLERS Applies to all Hartzell Model HC82XF-1 controllable pitch propellers installed on Cessna 180 aircraft.

Compliance required as indicated below.

A number of recent in-service failures of the pitch change link screws (P/N A-98) on Hartzell HC82XF-1 propellers have resulted in exposing the occupants to hazardous situations. All such propeller failures have resulted in forced landings, some of which caused major damage to the aircraft. Due to the serious nature of these failures, the following inspections and replacements are necessary:

I. Inspection.

A. Prior to Aug. 1, 1953, visually inspect all link screws to determine:

(1) If any are broken.

(2) If any are cracked or bent.

(3) If any are not fully seated on the conical seat.

B. If any are found broken, cracked, bent or not fully seated on the conical seat, prior to further flight replace with screws as noted in Item II.

C. If visual inspection proves satisfactory, the propeller may be flown subject to compliance with Item II.

II. Replacement. Compliance required prior to Sept. 1, 1953.

A. Replace all original A-98 link screws with improved A-98-B link screws in accordance with Hartzell Service Bulletin No. 24, dated May 28, 1953.

B. Propellers with serial numbers not listed in Service Bulletin No. 24 may not have the improved screws. Owners of these propellers shall check with the propeller manufacturer for verification.

53-16-1 BELLANCA Applies to all Model 14-19 series airplanes.

Compliance required prior to Sept. 15, 1953, and to be repeated at intervals not to exceed 100 hours flight time.

Inspect elevator trim tab system for looseness by checking free play of the trim tab. Total free play of the tab trailing edge at the maximum chord should not exceed 0.20 inches. Excessive free play may be due to excessively worn parts and/or looseness in the adjustment of the trim tab system. Excessive free play can usually be removed by acomplishing the following:

Remove retaining pin from trim tab control handle and remove handle. Pull tab control rod as far forward as possible. Add required thickness of shim or washer to take up increased length. Replace handle and pin.

Center fabric hinge should also be inspected for deterioration and replaced if necessary. (Bellanca Service Bulletin No. 4 covers the same subject.)

53-17-1 MOONEY Applies to all Model M-18 series aircraft.

Compliance required by October 15, 1953.

To prevent possible fouling of controls and the control stick by foreign objects, install canvas boot P/N 22-7 around control stick and secure to floor boards. These boots are available from Mooney Aircraft, Inc., Box 72, Kerrville, Tex. (Mooney Service Bulletin No. 11 covers this same subject.)

53-17-2 FRANKLIN ENGINES Applies to all aircraft equipped with Franklin 6A4-150-B3 and 6A4-165-B3 engines.

Canceled September 27, 1954.

53-18-1 CESSNA Applies to all Model T-50 aircraft.

Compliance required by November 1, 1953.

As a result of reported failures of the outer bearing in the Goodrich Model 751A/M, G-3-49A, 7.50-10 main gear assembly, each resulting in loss of a wheel, the following should be accomplished if the outer bearing has not been replaced since the airplane was converted from military to civil operation. If the outer bearing has been replaced subsequent to that time, compliance only with Item (1) is required.

1. Not later than the date specified above, replace the 1 1/16-inch washer located between the axle nut and the inner bearing cone with a washer 1 3/8-inch outside diameter, 0.953+0.005-inch inside diameter and 0.093+0.005-inch thick manufactured from SAE 1010 or equivalent. This precautionary measure will not prevent bearing failure but may prevent the wheel from coming off the axle during landing in the event of a bearing failure.

2. At the time of Item (1) above and at every 100 hours of operation thereafter until the bearing is replaced, check wheel side movement, inspect bearing and replace bearing as necessary. Replacement should be accomplished with Timken Cone No. 07100 and Cup No. 07196 or an equivalent bearing. (B. F. Goodrich Co. Service Bulletin No. 36, revised April 20, 1953, covers this same subject and supplies information for the fabrication of the new washer and for ordering proper replacement bearings.)

53-19-1 DOUGLAS Applies to all DC-4 and C-54-DC series aircraft utilizing Eclipse-Pioneer Type 901 generators.

To be accomplished by the next engine overhaul, but not later than April 1, 1954.

In view of the fire hazard existing in the use of the magnesium cooling fan in the Eclipse-Type 901 generator in the DC-4 and C-54 series aircraft installation, the magnesium fan blades or the fan as a unit must be removed. (Eclipse-Pioneer Service Bulletin No. 505 covers the above subject.)

53-20-1 MARTIN Applies to all Model 202 airplanes with Hamilton Standard reversing propeller installations in which the reverse feature is not used, and in which the normal reverse pitch stop ring has been relocated to act essentially as a low pitch stop.

Compliance required as indicated.

With the reverse pitch stop ring relocated to act as a low pitch stop, and with inadvertent energization of the reverse solenoid valve, the stop ring will fail under the extreme loads resulting from high oil pressure surge plus the high blade twisting moments attendant to rapid pitch change toward low pitch. This failure will result in the jamming of the pitch changing mechanism, or an inadvertent propeller reversal. To preclude any hazardous incidents, modification of the internal mechanism of the propeller dome, or modification of the propeller control system is necessary. Accomplish items I, or II, or III below.

1. Comply with A. D. Note 52-15-2.

A. Item I of A. D. Note 52-15-2 is to be accomplished by means of a progressive modification program to be submitted to and approved by the Civil Aeronautics Administration. The program shall begin no later than November 1, 1953, and shall be completed no later than August 1, 1954.

B. Item III shall be instituted when reversing is reactivated.

II. Modify the internal mechanism of the propeller dome. The modifications include removal of the normal low pitch stops, and incorporation of a dum valve which opens just above the normal low pitch position to maintain oil pressure of 50 to 100 p. s. i. on the decrease pitch side of the piston.

A. Replace the present Oil Transfer Housing 70451 or 77828 with Engine Shaft Extension Assembly 70300.

B. Remove the present Low Pitch Stop Lever Assembly 71042, 71676 or 76149 from the propeller entirely.

C. Replace the present Piston Sleeve 68425 with a new Piston Sleeve 72259 and Snap Ring 67698. Since the piston sleeve is pressed into the piston, the internal diameter of the sleeve must be machined after assembly.

D. Purchase Orders for the above parts must be submitted to Hamilton Standard by November 1, 1953.

E. Hamilton Standard Service Bulletin No. 264 covers this same subject.

F. Compliance required prior to November 1, 1954.

III. Modify the propeller control system.

A. At the "A" or unfeathering relays in the propeller relay control box, disconnect the wires that run through the nose junction box and into the reversing control boxes (Hamilton Standard P/N 72400) to connect the "A" relays with the throttle microswitches.

(1) Either physically remove the full run of these wires from the "A" relay terminal to the nose junction box terminal strip, or

(2) Physically remove the portion from the "A" relays to the pin connector in the propeller control relay box, and disconnect these wires from the mating pin in the external portion of the pin connector. Insulate the exposed ends of these wires, and secure them from movement in such manner as to preclude their becoming grounded or contacting any terminals.

B. Modify the reverse solenoid circuit wiring from the reverse soleniods to the terminal on the "A" relays by providing continuous wires physically isolated from all other circuits.

C. Comply with Item IC of A. D. Note 52-15-2.

D. Revise the reversing solenoid circuits to comply with Hamilton Standard Service Bulletin No. 236, Ref. 955.

E. Provide positive mechanical stops for both throttle levers so they cannot be moved into the reverse range.

(1) Item 2, of NWA Mechanical Order No. 479, dated 11-21-50 is considered acceptable to accomplish this.

(2) Comply with items 3 and 4 of NWA Mechanical Order No. 479, dated November 21, 1950.

F. Items IIIA, IIIB, IIIC, IIID, and IIIE of this Note are to be accomplished by April 1, 1954.

G. No later than November 1, 1953, all operating instructions regarding unfeathering procedures shall specify that the following practices are to be observed, and shall indicate that the reason is to guard against jamming the pitch changing mechanism or possible inadvertent reversal during the unfeathering operation:

(1) If unfeathering is being accomplished at night the wing illumination lights or landing lights are to be used to permit observation of propeller operation.

(2) The propeller is to be watched during unfeathering and the button is to be released when rotation starts. (This should normally be in one or two seconds.)

(3) The tachometer is not to be used as a guide for determining when unfeathering is to be terminated.

53-20-2 BEECH Applies to Model 35, A-35, B-35 and C-35 Airplanes, Serial Nos. 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 if above the fuel gauge 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.)

53-21-1 DE HAVILLAND Applies to all Model DHC-2 (Beaver) aircraft.

Compliance required as indicated.

Several cases have been reported where mechanics in the field upon assembling DHC-2 wings to fuselage have installed extra washers, packing, etc., to the rear spar wing bolt in order to take out any end play. It should be pointed out that a clearance is purposely provided in this fitting as the rear wing attachment is not designed to take drag loads.

All Beaver aircraft should be inspected as soon as possible but not later than December 1, 1953, to see that no washers, bushings, etc., have been installed in this fitting and if found they should be removed immediately.

In assembling the wing to fuselage, the front spar must be attached and then the rear wing bolt should be installed. It is quite normal that the rear spar wing fitting should not touch either inboard side of the fuselage fitting, but in most cases the wing fitting is almost against the forward side. The gaps in the fittings front and rear should not be packed with washers or spacers.

The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheet, Series B, No. 67, dated August 31, 1953, available from De Havilland Aircraft of Canada, Ltd., Toronto, Ontario, Canada, covers this same subject.)

53-21-2 GRUMMAN Applies to all Model G-21A (converted OA-9, JRF-1 through JRF-5 and JRF-6B) aircraft.

Compliance required as indicated.

1. Inspect the threaded portion of the horizontal stabilizer strut lower adjustable end fitting P/N 12561-3, by a magnetic particle inspection method, as soon as practicable, but not later than November 15, 1953, and at 1,000 hour intervals thereafter. Replace fitting if crack is found.

2. Replace these fittings every 3,200 hours. If 3,200 hours is reached before the first inspection, fittings may be used for 50 hours after this inspection provided no cracks are found. (Grumman Aircraft Engineering Corporation Customer Bulletin G-21A No. 3, dated March 20, 1953, covers this same subject.

53-23-1 CONSOLIDATED-VULTEE Applies to all Model 240 airplanes.

Compliance required at each number one inspection (regular inspection period nearest 100 hours).

There have been several failures of the nose landing gear clutch plate P/N 240-5250117 which have resulted in damage to the fuselage and exposed some of the flight control components to possible damage. To prevent the possibility of serious damage, the following special periodic inspection is required.

Effective immediately inspect nose landing gear clutch plate P/N 240-5250117 at each number one inspection using magnetic particle, dye penetrant, or any other equivalent inspection method. If any cracks or other damage are found, replace damaged parts with new parts of same number or comply with changes described in Convair Service Bulletin No. 240-332 which incorporates a

stronger clutch plate, P/N 240-5257113. If P/N 240-5257113 is installed, these special periodic inspections may be discontinued.

53-23-2 De Havilland Applies to Model DHC-2 (Beaver) aircraft, Serial Nos. 164 to 407 inclusive.

Compliance required not later than December 15, 1953.

When filling the fuel tanks, it is possible for spilled fuel to seep down between the fuel tank filler neck recess box and the aircraft's outer skin. This permits gasoline fumes to accumulate in the tank bays beneath the floor and can create a fire hazard. The aircraft should be inspected to ascertain if a satisfactory seal exists between the filler neck recess box (C2-FS-1005ND) and the outer skin (C2-FS-3829ND). If seal is unsatisfactory, fill gap with either "Goodyear Plyabond" or "Minneapolis Mining EC776" metal sealing compounds or equivalent. In the interim, until resealing is accomplished, a "No Smoking" placard should be installed in the cabin. The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Dept. of Transport. (De-Havilland Tech. News Sheet No. 68, Series B, dated September 15, 1953, covers this same subject and provides re-sealing instructions.)

53-23-3 Republic Applies to all Model RC-3 aircraft.

Compliance required within the next 25 hours of operation but not later than December 1, 1953, and thereafter at each 25-hour period of operation or every 6 months, whichever occurs first.

Cases of severe corrosion of the right and left upper and lower lift strut fittings, fuselage wing lift strut fittings and wing lift strut fittings have been reported. Since the strength of these fittings are of primary importance to the safe operation of the airplane, the following inspections should be made and corrective action taken.

Fitting 17W22002 is located on the upper end of the lift strut and fitting 17W22003 is located on the lower end of the lift strut. Fitting 17F11013 is located in the fuselage and is attached to fitting 17W22003. Fitting 17W22004 is located in the wing and is attached to fitting 17W22002.

Inspect thoroughly and test the fitting with a pointed instrument to determine whether corrosion is present. One 1¼-inch diameter inspection hole should be cut in the upper and one in the lower surface of the wing in accordance with Republic Aviation Service Bulletin No. 25, Supplement No. 2, in order to accomplish the inspection of the portion of the fitting 17W22004 which lies inside the wing skin. This inspection will require the aid of a light as well as a sharp pointed instrument. The holes should be covered with United Carr Fastener Corporation Plug Button No. 51021, Seabee spare parts Item No. 1379, or equivalent.

A fitting may appear satisfactory but actually may be corroded under the surface. Such corrosion which may be intergranular in nature may actually result in a much greater loss of strength than would be indicated by the loss of metal from the surface. If the fitting has only slight surface corrosion, the corrosion should be carefully removed and the fitting should be suitably treated against further corrosion. Fittings which have deteriorated beyond slight surface corrosion should be replaced. Republic Aviation Service Bulletin No. 25, including Supplements Nos. 1 and 2, covers this same subject in detail.

This supersedes Note 50-30-1.

53-24-1 Grumman Applies to all G-21A (converted OA-9, JRF-1 through JRF-5 under TC 654) aircraft.

To be accomplished by January 15, 1954, and to be repeated at intervals not to exceed 100 hours flight time.

Inspect upper terminal (P/N 12561-1) of stabilizer strut (P/N 12560) and the stabilizer forward attachment fittings (P/N 12548 and P/N 12093) for cracks extending radially from the outside edge of the ears to the inside of the hole into which the shoulder bushings are pressed. All parts showing defects should be replaced. (Grumman Aircraft Engineering Corp. Service Bulletin No. 21 dated March 17, 1948, and Customer Bulletin No. 5 dated October 30, 1953, cover this same subject.)

This supersedes Note 48-18-1.

53-24-2 Hiller Applies to all Model UH-12, UH-12A and UH-12B helicopters.

Compliance required as indicated below.

There have been several recent failures of the tail rotor pitch change rod on UH-12B helicopters, resulting in loss of directional control. This pitch change rod, P/N 25036 or 25009, must be reinforced and/or inspected as follows on all UH-12 series helicopters.

(1) Prior to the next flight and thereafter at periods not to exceed 10 hours operating time, remove the tail rotor pitch change arm and inspect the pitch change rod, P/N 25036 or 25009, in the shoulder area by dye penetrant method. If cracks are found the rod must be removed from service.

If no cracks are found, the pitch change rod is considered satisfactory for an additional 10 hours operating time. On reassembling the parts determine that chamfer of hole in arm does not interfere with radius on rod. If interference is noted, enlarge chamfer on arm to clear. Reinstall arm on pitch change rod, making sure woodruff key or bolt properly locates arm and that arm bottoms on shoulder. Install washer and nut on rod and torque to 50-75 inch pounds (UH-12 and -12A models) or 100-150 inch pounds (UH-12B models).

This periodic inspection must be continued until such time as the rod is reinforced as set forth in part (2) below.

(2) When the pitch change rod is reinforced by the addition of bracket, Hiller P/N 25104, the 10-hour inspections may be discontinued. Installation of this bracket is described in Hiller Service Bulletin No. 41. The service life of this installation is limited to 300 hours from time of modification.

This bracket, P/N 25104, should be installed as soon as possible but not later than January 31, 1954.

(3) In lieu of the modification described in Part (2) above, a new type pitch change rod P/N 25042 may be installed in accordance with Hiller Service Bulletin No. 43. This rod has a service life of 2500 hours and only normal inspection procedures are required after its installation.

53-24-3 Mooney Applies to all model M-18L aircraft which have not had the landing gear bell crank cover installed.

Compliance required by February 28, 1954.

In order to prevent baggage from jamming or fouling the landing gear retraction bell crank P/N 35-1, install bell crank covers, P/N 1028-1 with installing angles P/N 1028-2. (Mooney Service Bulletin No. 12 covers this same subject.)

53-24-4 Piper Applies to all Model PA-18, -20 and -22 aircraft.

Compliance required not later than February 1, 1954.

In order to preclude the possibility of loss of fuel and hydraulic oil and fire in flight caused by chafing of these lines between the firewall and muffler, the following should be accomplished:

(a) To prevent contact with the muffler, reroute the fuel primer line, and wheel brake hydraulic line if necessary, so that they do not pass behind the muffler.

(b) Use clamps to fasten the lines to the firewall to prevent movement and vibration of these lines. (Piper Aircraft Corp. Service Letter No. 213 covers this alteration.)

53-25-1 Douglas Applies to Model DC-6 Series Aircraft as indicated below:

Compliance required as indicated.

There have been several instances wherein cracks have been found in the aileron-cross upper pivot end. In order to preclude the occurrences of additional failures of this part, an inspection should be made as described below. The accomplishment of this Directive is for inspection and/or replacement of the upper pivot end of the aileron-cross bell crank tube located in the center wing fuselage section at Station 479.

1. Inspection (Fuselage Nos. 1 through 434).

Following inspection must be conducted:

(A) On all DC-6A and DC-6B aircraft and on all DC-6 aircraft incorporating the DC-6B type dual flying tab installation, as soon as practicable but not later than the next 50 hours of operation, unless the inspection has already been accomplished:

(B) On all DC-6, -6A and -6B aircraft at each airplane overhaul period or after each 2,000 hours of operation, whichever occurs first and after each time the airplane is exposed to high ground gust conditions. This inspection is to be repeated at each 2,000-hour period until parts are replaced as described below. Using at least an 8-power magnifying glass and/or dye penetrant method or equivalent, make inspection for cracks at the shoulder corner radius of the aileron-cross upper pivot end P/N 4359401, that supports the bell crank bearing. If cracks are found install new parts as indicated in Item 2 before next scheduled flight.

2. Rework (Fuselage Nos. 1 through 434).

If cracks are found in the aileron-cross upper pivot end P/N 4339401, the part should be replaced with a new pivot end assembly P/N 4492248 and a new bell crank arm assembly P/N 4492247 in accordance with the rework procedures outlined in Douglas Service Letter No. 153 Supplement No. 2 dated December 4, 1953. New parts will be installed in production effective on fuselage Nos. 435 and subsequent.

3. Preventive installation (DC-6 Series as indicated).

To eliminate the tendency for the aileron control tabs to flap during high ground gust conditions, a preloaded centering spring mechanism P/N 3405566 may be installed on DC-6 series aircraft as listed in Douglas Service Letter No. 159 dated May 28, 1953. A new trim tab mechanism will be installed in production effective on fuselage Nos. 420 and subsequent.

4. Operations information.

During ground operation in high gust conditions with gust locks on, any tendency for the control wheel to move may be resisted by holding the wheel in neutral. Restraint should not be applied by holding wheel against the stops. The CAA Approved Airplane Operating Manual should be revised to include this information.

(Douglas Service Letter No. 153 dated April 28, 1953, also covers this same subject.)

53-25-2 Sikorsky Applies to all Model S-55 helicopters.

Superseded by 54-16-1.

53-26-1 Briggs and Stratton Applies to all airplanes equipped with AAF Type B-5 ignition switch manufactured by Briggs and Stratton. Affected airplanes include Beech Models D18S (Serial Nos. A-1 through A-537), D18C, D18C-T, C18S and AT-11 having the AAF Type B-5 Briggs and Stratton switch installed.

Compliance required not later than April 1, 1954.

Design of the Briggs and Stratton AAF Type B-5 switch will permit foreign objects to enter the master ignition switch portion of the switch assembly. As a result, the magnetos of both engines connected to the switch may accidentally become grounded. Gaps in the enclosure of the Briggs and Stratton

master switch can allow entry of foreign objects; whereas, AAF Type B–5 switches produced by other manufacturers are tightly sealed. These latter switches are not considered hazardous.

Briggs and Stratton AAF Type B–5 Switches are identified by:

(1) The letters "AAF Type B–5" on the face of the switch and

(2) The words "Briggs & Stratton Corp., Milwaukee, Wisconsin—U. S. A." stamped on the master switch enclosure. Determination of whether the switch carries the designation of (2) above will probably necessitate examination with a flashlight and mirror or removal of the switch from its mount in the airplane.

If AAF Type B–5 switches manufactured by Briggs and Stratton are installed, accomplish either of the following:

(a) Replace the Briggs and Stratton AAF Type B–5 switch with a Type B–5 switch having the master ignition switch portion adequately sealed against entry of foreign objects.

(b) Remove the master ignition and battery switch portion of the Briggs and Stratton AAF Type B–5 in the following manner:

1. Remove the switch assembly from its mount or the airplane.

2. Drill out the three rivets attaching the master switch portion to the face plate of the ignition switch assembly.

3. The six electrical wires connecting the master switch portion to the threaded terminals are to be disconnected at the threaded terminals and discarded with the master switch portion.

4. Clean the ignition switch brass ground strip to make a good electrical contact and rivet it to the case with AN rivet.

5. Reinstall the modified Type B–5 ignition switch assembly in the airplane. Minor rework of the airplane electrical system may be required if the electrical master switch was connected through the Type B–5 master ignition and battery switch.

NOTE: Proper precautions should be observed when the ignition switch is removed or disconnected since the engine magnetos are not grounded.

(Beech Service Bulletin; Model D18S, D18C, D18C–T, C18S, AT–11; No. 64, issued November 10, 1953, covers this same subject.)

53–26–2 SANDERS (Formerly ERCO) Applies to all Model 415 series (Ercoupe) aircraft.

Compliance required at every 100 hours.

There have been several failures of the rudder horn attachments. These failures will reduce aileron effectiveness at low speeds. The following inspection should be made and corrective action taken where necessary:

A load of 10 pounds should be applied to the trailing edge of the rudder while the controls are locked in neutral position. The trailing edge should not deflect more than ½ inch. If the deflection exceeds ½ inch, the control system should be checked to establish that the deflection is in the rudder. Once established, the rudder should be removed and the main spar inspected for cracks. The outboard skin should also be removed sufficiently to inspect the rudder horn attaching structure. Any parts found cracked or deformed should be replaced. (Ercoupe Service Bulletin No. 25, dated July 31, 1953, covers this same subject.)

54–1–1 HAMILTON STANDARD Applies to all Hamilton Standard reversing propellers.

Compliance required as indicated.

Subsequent to December 31, 1954, Hamilton Standard Model 67000 reverse solenoid valves shall not be used on civil aircraft.

Analysis has shown that unwanted reversal of Hamilton Standard propellers could possibly occur with use of the Hamilton Standard Model 67000 reverse solenoid valve if any of the following malfunctions of the valve were experienced:

1. A broken plunger spring. This could cause the valve to open fully.

2. A film of oil between the armature and the valve body. This could cause the valve to remain fully open.

3. A foreign particle lodged between the valve and its seat. This could cause a pressure build-up in the reverse oil passage.

Although there is no record of such malfunctions of this valve on civil aircraft, the potential hazards that exist indicate the desirability of precluding future use of this obsolete component.

54–1–2 HAMILTON STANDARD Applies to Hamilton Standard reversing propellers Models 43D, 43E, 34D, 34E, 232 and 242 incorporating low pitch stop assemblies with wedge return springs; and Models 43E, 34D, 232, and 242 incorporating low pitch stop assemblies with wedge inserts.

Compliance required as indicated.

Investigations of three recent incidents in commercial service in which the propeller inadvertently reversed during approach, have indicated the possibility that the low pitch stop wedge, under vibratory conditions, can move forward from its position under the stop levers, allowing the propeller to travel into the reverse range upon governor demand for lower pitch. Therefore, to minimize the forward forces applied against the stop wedge by piston-to-stop-lever contact at the low pitch position, it is necessary to remove the two degree pitch angle from the stop lever and wedge contact surfaces.

Prior to June 1, 1954, rework all low pitch stop levers and wedges as specified in Hamilton Standard Service Bulletin No. 273 and its Supplement No. 273A.

This supersedes note 53–15–1.

54–1–3 SIKORSKY Applies to all Model S–55 helicopters.

Compliance required prior to next flight.

Finger fuel strainer installed on all tanks should be removed and inspected to determine whether it incorporates a small disc screen located inside the body of the strainer. This disc screen should be removed if found to be incorporated, since it would tend to restrict fuel flow if it became clogged with foreign material. (Sikorsky Service Information Circular 1430–410, dated Nov. 9, 1953, covers the same inspection and modification.

54–2–1 LYCOMING ENGINES Applies to all Model 0–290–D2 engines.

Compliance required by February 1, 1954, and at each subsequent 100 hour inspection.

In order to preclude the possibility of serious engine damage from incipient detonation under certain atmospheric and altitude conditions, the magneto timing of all Lycoming 0–290–D2 engines must be set at 18° BTC. To insure that the magneto timing does not change substantially from this setting, it should be checked and reset, if necessary, at each subsequent 100 hour inspection. (Lycoming Service Bulletin No. 169 covers this same subject, but recommends that the timing be checked every 50 hours.)

54–2–2 FEDERAL SKIS Applies to all Piper (Stinson) 108 and Cessna 170, 170A and 170B airplanes equipped with Federal Models AWB–2500 and AWB–2500A wheel skis and Piper PA–20 airplanes equipped with Federal Model AWB–2100 wheel skis.

Compliance required as soon as possible but not later than February 15, 1954.

To preclude the possibility of the ski dropping down against the mechanical rigger and possible subsequent damage to the aircraft structure, the rigging arrangement must be revised in accordance with Federal Aircraft Works Drawing No. 11D1077.

54–3–1 AIRCRAFT BELT AND TRIM (SAFETY BELT) Applies to Model LBM–1900 Safety belts.

Superseded by 54–20–1.

54–4–1 AC SPARK PLUG Applies to all engines equipped with AC LA–87 spark plugs, except Pratt and Whitney R–1830 engines of 1,200 hp or less and Wright R–1820 engines of 1,200 hp or less.

Compliance required prior to March 1, 1954.

A. In order to preclude possibilities of engine failure, when using AC LS–87 spark plugs in engines for which they are not approved, these spark plugs must be removed from all engines with the exceptions of the R–1820 having a T. O. rating of 1,200 hp or less and the R–1830 having a T. O. rating of 1,200 hp or less.

B. On R–1820 and R–1830 engines of 1,200 hp or less, the LS–87 plug is limited to a maximum of 120 hours of service with no reconditioning permitted. Plugs having over 120 hours must be removed from service.

This supersedes A. D. Note 49–26–2.

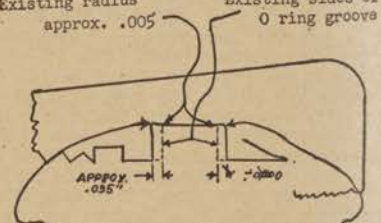
54–5–1 CURTISS-WRIGHT Applies to all C–46 series aircraft equipped with landing gear retraction cylinder heads, Curtiss-Wright Part No. S20–313–3044.

Compliance required as soon as practicable but not later than July 15, 1954.

As a result of several failures of the landing gear retraction cylinder head emanating from fatigue cracks occurring in the radius of the O ring groove, it has been found necessary to inspect and rework the landing gear retraction cylinder head to provide a more serviceable part.

Remove the landing gear retraction cylinder head and inspect the upper and lower radii of the O ring groove for cracks by means of a dye penetrant. If cracks are found the part should be replaced. In the event no cracks are present the upper and lower radii of the O ring groove should be increased to 0.040 inch as shown in the sketch below and again inspected by means of a dye penetrant. If no cracks are found after this inspection, the part may be returned to service; however, if cracks are evident, the part should be replaced.

NOTE: Smooth machine finish (RMS–32 or better) with no tool marks or discontinuities. No change in size of O ring necessary.



Increase radius to .040 inches as shown. New radius tangent to original depth of groove but requires increasing width of groove approximately .035 inches per side.

FIGURE 32.

54–5–2 SENSENICH PROPELLERS Applies to all Model M76AM–2 propellers installed on Lycoming Model 0–290–D and 0–290–D2 engines.

Compliance required by March 15, 1954, and at intervals not to exceed each 25 hours operation thereafter.

To eliminate the possibility of blade tip failures on Model M76AM–2 propellers installed on the above Lycoming engines, all nicks, gouges and scratches within eight inches of the blade tip should be removed. Care should be taken to be sure all trace of the damage is removed. Minor damaged areas may be removed by using coarse emery cloth. The repaired area should then be polished with fine emery cloth. Rebalancing is not necessary when repairing minor damage areas as defined in Civil Aeronautics Manual 18 (18.30–15).

(Sensenich Service Bulletin No. R-2 covers this same subject.)

54-6-1 DOUGLAS Applies to Model DC-6, DC-6A and DC-6B series aircraft.

Compliance required as soon as practicable but not later than July 1, 1954, for DC-6A and DC-6B aircraft, and November 1, 1954, for DC-6 aircraft.

To eliminate possible inadvertent discharge of CO_2 into cabinet heater or hydraulic accessories compartment accompanied by operation of cabin master depressurization control (or closing of the control valve on early DC-6 aircraft), when discharging CO_2 into a nacelle, rework the two Kidde ¾-inch stop valves P/N 870003 by replacing spring P/N 201496 with heavier spring P/N 30568. The reworked valve should be reidentified as P/N 871107. (Douglas General Service Letter No. DC-6 #176 revised December 31, 1953, also covers this subject.)

54-6-2 MARTIN Applies to all Model 202 aircraft.

Compliance required at next overhaul but not to exceed the next 1,000 operating hours.

Several instances have been found of unsatisfactory wing scarf splice bushing installations which result in applying undesirable bending loads on the bolts because of incomplete lining of the holes. To eliminate this condition, inspect the wing lower chord scarf splices at wing stations 187 L. H. and R. H. If a bushing is found that does not meet the length requirements specified in Martin 202 Service Instruction Letter No. 29, that bushing must be removed and a correct one installed in accordance with Service Instruction Letter No. 29, before the airplane is returned to service. (Martin S. I. L. No. 29 covers this same subject.)

54-8-1 MARTIN Applies to all Martin 202, 202A, and 404 aircraft.

Compliance required as indicated.

Several cases of finding cracks in the nose landing gear piston and fork assembly (P/N 202SD84483) have been reported. These cracks were located in the change of cross section fillets which blend the barrel section of the terminal into the legs of the lower fork. To preclude further difficulties of this nature, all aircraft must be inspected and reworked as follows:

I. Compliance required not later than July 1, 1954.

Inspect the piston and fork assembly in the fillets which blend the barrel section of the terminal into the legs of the fork. The inspection must be accomplished with the aid of a 20-power enlarging lens, dye penetrant or magnaflux. Any assembly found to incorporate fillets of less than 1 1/32-inch radius must be further inspected or reworked as follows:

If a crack is found, rework the part in accordance with Item II.

If no cracks exist, the part must be reinspected, as above, every number one inspection but not to exceed 115 hours of service until reworked in accordance with Item III. Should cracks be found in reinspection, the part must be reworked in accordance with Item II.

II. Compliance required prior to return to service.

If a crack is found, the piston and fork assembly may be repaired by grinding out the crack within the following limits:

(The crack lengths, specified below, are based upon the total length of a crack or cracks in a single fork leg fillet. The depths of material removable pertain to the fork leg cross section and should be measured from the plane of the fork leg surface.)

(A) A crack measuring up to 2 inches may be ground out to a maximum depth of 0.065 inch.

(B) A crack measuring from 2 to 4 inches in length may be ground out to a maximum depth of 0.055 inch.

(C) A crack measuring over 4 inches in length may be ground out to a maximum depth of 0.040 inch.

The reworked area is to be blended smoothly into the fork leg surface. The surface finish after grinding must be equivalent to RMS-32 with no tool marks present.

NOTE: Piston and fork assemblies not repairable within the above stated limitations must be replaced.

III. Compliance required not later than March 1, 1955.

If no cracks exist, rework the fillets which blend the barrel section of the terminal into the legs of the fork to a radius of 3/8 +1/32 inch. This new fillet should be ground tangent to the lowest point of material removed (Ref. Item II) or the fork leg surface, as the case may be. Further, it is important that the fillet be blended into the surface of the terminal so that a smooth transition of cross sectional area is obtained, especially in the crotch of the fork. The surface finish after this rework must be equivalent to RMS-32 with no tool marks present.

(Martin Service Instruction Letters Nos. 30A and 404-64A, for the Models 202 and 404 aircraft respectively, cover this same subject.)

54-9-1 RANGER ENGINES Applies to all 6-440-C series engine models.

To be accomplished as indicated.

To preclude the failure of carburetor hotspot heater assembly Part Nos. 7683, 7697, 7699 or 7708, due to corrosion from accumulations of exhaust products which in some instances have been found to completely close the inner passages, the following inspection should be accomplished by July 31, 1954, and additionally, as indicated below:

1. Remove the manifold pipes and inspect the hotspot casting for cracks on both the outside surfaces and the inside carburetor air passages, particularly at the bottom.

2. If no cracks are evident, the hotspot may be replaced with the hot air supply blocked off, per Ranger Engine Service Bulletin No. 91. Since no appreciable benefit in icing protection is provided by the use of the hotspot, it will be permissible to operate the engine with the hotspot blocked off. If the hotspot is blocked off, it is suggested that hot lubricating oil be applied to coat thoroughly the internal passage walls formerly used for exhaust gas circulation through the hotspot; this will tend to retard further corrosion.

3. If it is desired to continue to use a heated hotspot, it should be checked initially, and at 400-hour intervals to ascertain that the hot air passages are unobstructed with carbon or other exhaust gas products. This can most easily be accomplished by blocking off one hot air boss with a plate and pouring into the other hot air passage, 120 cc. of oil or gasoline. If this will not all be contained in the hotspot casting, a new hotspot casting should be utilized since no satisfactory method is known whereby all of the deposits can be removed.

4. If the hotspot has been used unheated since the last overhaul, only the initial inspection in (1) above need be performed before normal overhaul.

54-10-1 HAMILTON STANDARD Applies to all Hamilton Standard Model 23260, 24260, and 34D series propellers using wedge insert type low pitch assemblies.

Compliance required as indicated below.

In order to preclude any possibility of reverse system malfunction caused by breakage of the servo piston shaft as a result of fatigue in highly stressed areas:

1. At the earliest opportunity, but not later than the first overhaul subsequent to June 1, 1954, dimensionally inspect the internal diameter of all 75361 and previous wedge insert type servo piston shafts for a maximum of 0.688 inch.

2. Magnetically inspect the stop return spring seat thread area of the shafts at the period specified in item 1 above, and at every overhaul subsequent to that period.

(Hamilton Standard Service Bulletin No. 287, revised March 5, 1954, covers these same inspections.)

54-11-1 DE HAVILLAND Applies to all Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 618 inclusive, with the exception of the agricultural model.

Compliance required as indicated.

Special Inspection—Attachment Brackets—Tailplane—Fuselage Joint Part No. C2-FS-543A and CS-FS-544A.

Inspect subject brackets for cracks and distorted rivets at the location indicated in figure 33 and replace the tailplane front attachment ¼-inch diameter bolts Part No. NAS 54AN12 at intervals not exceeding 1,000 flying hours. If brackets are defective, replace with new parts. If existing ⅛-inch diameter rivets are distorted, replace with 5/32-inch diameter rivets as outline in figure 33.

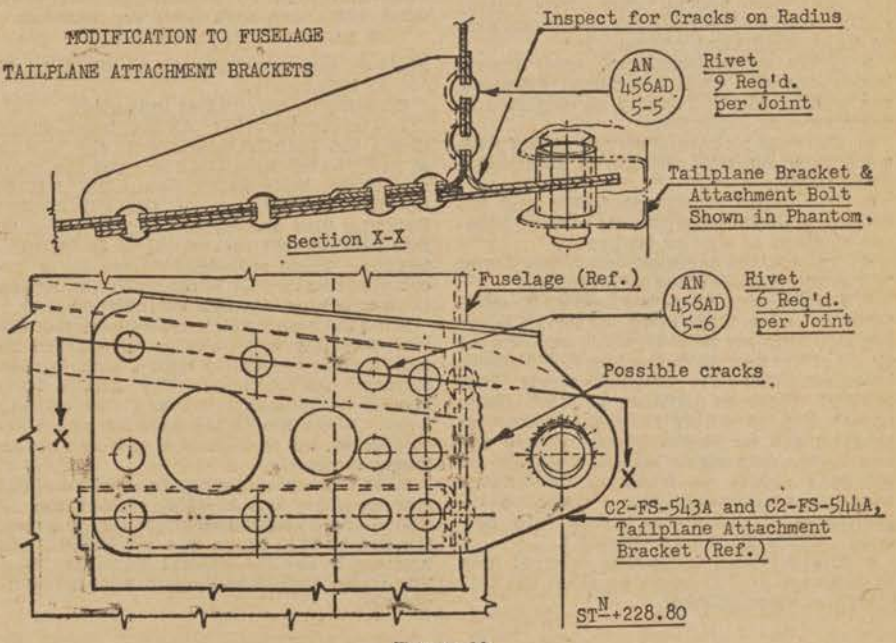


FIGURE 33.

If the aircraft has exceeded 1,000 flying hours, this inspection should be performed at some convenient opportunity not exceeding 200 hours subsequent to the date of this directive.

The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheets, Series B, No. 73 dated March 26, 1954, and Series B, No. 75 dated April 21, 1954, available from De Havilland Aircraft of Canada, Ltd., Toronto, Ontario, Canada, covers this same subject.)

54-12-1 MARTIN Applies to all Model 404 aircraft.

Compliance required as indicated.

An analysis of the design and the service experience of Model 404 main landing gear oleo drag struts, P/N E100008, has resulted in the establishment of a 6,500-hour service life figure for these assemblies.

It will be permissible to continue these assemblies in service not to exceed 8,500 hours total service time, provided the drag strut piston rods and forked end fittings are subjected to the following inspections when they attain 6,500 hours of service and every 250 service hours thereafter until replacement is made with new drag strut assemblies, P/N E100050, in accordance with item 5. (See item 6 for increasing inspection interval to 500 hours.)

NOTE: A 10X to 30X enlarging lens must be used when accomplishing the visual examination portion of these inspections.

1. Perform dye penetrant inspection for cracks on the entire threaded portion of the piston rod, P/N SE997512. (The location at which a crack would be most likely to occur is through the root of a thread which lies in or adjacent to the faying plane between the piston terminal, P/N SE997514, and the lock nut, P/N SE997515, when these parts are in their installed position on the drag strut piston rod.)

2. Perform a dye penetrant or a Zy-Glo inspection for cracks on the end bosses of the forked end fitting, P/N SE997590. In order to inspect these areas satisfactorily, it is necessary to remove the bronze bushings, P/N SE997517, from the end bosses. (Laboratory analysis of drag strut forked end fittings which failed during landing gear repeat load tests determined the origin of the crack, in each instance, to be located at the inner surface of the 5/16-inch bolt hole adjacent to the bronze bushing. It is essential, therefore, that these and all other surfaces lying in the plane of the least cross-sectional area be scrutinized most critically.)

3. If the above inspections reveal minute indications of a crack not clearly definable, the area in question should be subjected to a macro etch inspection.

a. The steel piston rod may be etched with a saturated aqueous solution of ammonium persulphate.

b. The forged aluminum forked end fittings may be etched with a 30 percent aqueous solution of sodium hydroxide.

4. A piston rod or forked end fitting found to contain a crack must be scrapped.

5. Reinspection of parts found to be satisfactory shall be made every 250 service hours (or 500 hours per item 6), until replacement struts of the new configuration, P/N E100050, becomes available. Original struts, P/N E100008, must be replaced at 8,500 hours service life, at which time the inspection program can be discontinued. (When the new design drag struts become available, no attempts should be made to interchange assembly components, but a complete replacement of old design struts with new design struts should be effected.)

6. The 250-hour inspection interval may be increased to 500 hours provided the following is accomplished:

a. Chamfer all edges of the cross bolt hole in the P/N SE 99759C oleo drag strut fork fitting.

b. Maintain a minimum torque of 900 inch-pounds on the piston rod jam nut.

c. Instruct the pilots to use the brakes in such a maner as to minimize the strut bottomings.

(Martin Service Instruction Letter No. 404-65 covers this same subject.)

54-12-2 MCCAULEY PROPELLERS Applies to all McCauley propellers having 41D5926 hub with SS-135-6 blades and D-1093 hub with SS-135-6M or SS-138-6 blades.

Compliance required as indicated.

On the basis of satisfactory vibration stress surveys conducted on the 102-inch diameter configuration, these propellers were approved vibrationwise for installation on the Continental W670-6A and W-670-6N and Lycoming R680 engines. When installed on the Continental engine, the propeller must be indexed in the zero degree position (blades in line with the crankthrow) and operation is to be restricted between 1,500 and 1,650 r. p. m.

Additional approvals were given for the installation of propellers in reduced diameters at a time when the effects on the vibratory stresses resulting from such a reduction were not generally appreciated. Accordingly, some installations were made where the propeller diameter was reduced, as in the Fairchild M62C. Service experience with this installation and a more thorough knowledge of the vibration problems indicate that diameters below the normal two percent reduction that is usually permissible on the basis of a stress survey have resulted in serious failures. Accordingly, to preclude additional propeller failures, the following should be performed.

Compliance required prior to July 1, 1954.

(a) To preclude failures due to vibratory conditions, remove from service all of these propellers in diameters outside the 102 to 100 inch limits.

(b) To preclude fatigue failures due to corrosion or galling in the blade shank region and/or hub, disassemble propellers maintained in service (diameters 102 to 100 inch) and magnetically inspect hub and blades at intervals not exceeding 100 hours. The propeller blade and hub surface must be kept free from corrosion at all times.

If 100 hours operating time has not been accumulated since an inspection was conducted on the propeller as provided in A. D. 47-43-9, it will be satisfactory to operate until 100 hours have been accumulated.

This supersedes A. D. 47-43-9.

54-13-1 SIKORSKY Applies to all Model S-55 helicopters.

Compliance required as indicated.

1. The twelve (12) AN73A bolts which clamp the S510170 Retainer to the bottom of S10-10-4302 Rotating Star, and the eight (8) AN73A bolts which clamp the S510156 Retainer to the top of the S10-10-4302 Rotating Star should be replaced. The 20 new bolts should be torqued to 25-35 inch-pounds. These replacements are to be accomplished every 60 hours until the AN74A bolts called for in item 2 are incorporated.

2. At the next major overhaul period of the star assembly S10-10-4300, replace the 20 AN73A bolts covered in item 1 with 1/4-inch diameter AN74A bolts. The AN74A bolts should be relocated between the existing holes. When the AN74A bolts have been incorporated, the replacements of item 1 are no longer required.

3. At the next major overhaul period of the star assembly S10-10-4300, replace the 12 AN509-10R-35 screws which secure the clamp, the S12-10-4015 Liner, and the Y96PW1-DB bearings to the S12-10-4013 Stationary Star. The screws should be torqued to 35-40 inch-pounds.

(Sikorsky Service Information Circular No. 1410-222 dated March 4, 1952, through Revision D dated April 15, 1954, covers this same subject.)

54-14-1 CURTISS-WRIGHT Applies to all Model C-46 series aircraft.

Compliance required as indicated.

A. Inspection.

1. Carefully inspect the outboard horizontal stabilizer rib, which supports the outboard elevator hinge, left and right, Part No. 20-110-5014-2 and angles, Part No. 20-110-5014-4 for cracks in the area from the rib end to a point at least 6 inches forward of the trailing edge of the stabilizer.

(a) On aircraft which do not have the modification described in paragraph B (1) and B (2) below, this inspection is required every 100 hours.

(b) On aircraft which do have the modification described in paragraphs B (1) and B (2) below, this inspection is required every 800 hours.

(c) Deleted March 28, 1955.

B. Replacement.

1. If cracks are found in the angles, P/N 20-110-5014-4, remove and replace with a similar angle fabricated from 0.040 24ST or 0.040 24SO aluminum alloy sheet. Specification No. AN-A-13, Condition A, heat treat in accordance with Specification AN O1-1A-1.

2. If cracks are found in the rib, P/N 20-110-5014-2, reinforce each rib as follows:

(a) Fabricate (per airplane) four angles, P/N 20-110-5014-1201 from 0.051 24STAL sheet, 15 inches long with 0.62 x 0.71 inch leg, and install at top and bottom on outboard side of rib and extending forward from the forward edge of hinge block assembly, P/N 20-110-5112-3 or 20-110-5070-502. 24ST aluminum alloy extrusion, Alcoa Die No. 12883, may be used as an alternate material if desired. Pick up existing rivets in the rib and skin.

(b) Fabricate (per airplane) four angles, P/N 20-110-5014-1202 from 0.051 24 STAL sheet, 8.80 inches long with 0.62 x 0.71 inch legs and install angles on inboard side of rib at top and bottom, picking up the six bolts in the hinge block assembly P/N 20-110-5112-3 or 20-110-5020-502, and extending forward 8.80 inches from the end of the rib. 24ST aluminum alloy extrusion Alcoa Die No. 12883 may be used as an alternate material if desired. In addition to picking up the existing rivets, add three additional rivets at top and bottom between the existing rivets through the web of the rib assembly, and add four rivets, both top and bottom through the flange of the rib and leg of the angle.

(c) To assemble reinforcement angles called for in parts (a) and (b), the following modifications to the existing structure are necessary:

(1) Cut clip, Part No. 20-110-5033-1 to clear angles—1201 and install.

(2) Cut angle Part No. 20-110-5014-5 to clear angles—1202 and install.

(3) Cut skin, Part No. 20-110-5001-66 to clear angles—1202 and replace rivets.

(Army Technical Order 01-25L-103 or Curtiss-Wright Service Information Letter: SBS:ASF:asf-7195, dated October 26, 1946, and its enclosures cover this same subject.)

This supersedes A. D. 47-51-1.

54-15-1 DE HAVILLAND Applies to all Model DHC-2 (Beaver) aircraft, Serial Nos. 1 to 680 inclusive.

Compliance required by August 30, 1954.

Inspect all rudder, elevator, and aileron control cable terminals for damaged threads at the turnbuckle. Most reported defects have concerned the right-hand threads on turnbuckle terminals but all threaded terminals at turnbuckles should be inspected at the following locations:

Control cable circuit	Location	Number of turnbuckles
Ailerons	1. Base of control column	2
	2. Outboard wing inspection Panels.	4
Elevators	3. Hatch on underside of rear fuselage.	2
Rudder	4. Rear fuselage interior	2

Damaged or defective cables must be replaced.

If any evidence of defects is found, de Havilland will supply replacement cables.

The Civil Aeronautics Administration concurs in this mandatory action by the Canadian Department of Transport. (De Havilland Technical News Sheet Series B, No. 76 dated June 23, 1954, available from de Havilland Aircraft of Canada, Limited, Postal Station "L", Toronto, Canada, covers this same subject.)

54-16-1 SIKORSKY Applies to all Model S-55 helicopters.

Compliance required as indicated.

1. (a) The rear accessory covers of main transmission S14-35-4000 and S14-35-4300 should be inspected for cracks in the areas surrounding the points of attachment of the generator to the cover. Prior to the inspection, the paint in these areas should be removed. The inspections should be accomplished by the dye penetrant method. Covers found with cracks should be replaced immediately. These inspections are to be accomplished at every intermediate inspection.

(b) Vibration isolators S-14-35-4442 and S14-35-4443 have been designed by the manufacturer to prevent further failures. When these parts are installed in accordance with Sikorsky Information Circular No. 1435-443, the inspection outlined in item 1 (a) above will be required at every major inspection for the first two inspections and then at every second major inspection if the cover has been operated without the isolator. If the cover has never been operated without the isolator, the inspection should be accomplished at the regular transmission overhaul period.

(c) The retirement time for vibration isolators is specified in Sikorsky Information Circular S14-00-354, Rev. Z.

2. (a) The upper and lower ends of the main transmission support assembly, S14-20-2503, both fore and aft, must be inspected visually for cracks at every intermediate inspection. Particular attention should be directed at the underside of the attachment points, the welded joints and the small drive screws. Assemblies found with cracks are to be replaced immediately.

(b) Prior to or at the next intermediate inspection and at every transmission overhaul thereafter, the S14-20-2503 support assemblies must be subjected to a Magnaflux inspection. Any cracks detected are cause for replacement.

3. The forward and aft lugs, to which the S14-20-2503 supports are attached, on the upper housing of the main transmission must be inspected at every major inspection. This inspection should be directed at each face of each lug in the area surrounding the bushing. Any crack detected is cause for replacement.

4. (a) The main rotor control servo brackets, S14-40-2113, S14-40-2143 and S14-40-2411 should be inspected for cracks in the area of the bracket ears. Prior to the inspection, all paint should be removed. The inspections should be accomplished by the dye penetrant method. Parts found with cracks should be replaced immediately. The exposed surfaces of brackets found satisfactory for return to service should be protected with several coats of zinc chromate primer. Extreme care should be taken in the installation procedure of either new or old brackets. These inspections are to be accomplished every 30 hours.

(b) The inspections of 4 (a) will no longer be necessary when steel servo brackets S14-40-2415 are installed in accordance with Sikorsky Service Information Circular No. 1440-457 dated March 24, 1954.

5. The main rotor scissors bracket assembly S10-14-1447, should be inspected for sufficient edge distance at the bolt hole through which the scissors assembly S10-10-4350, is secured. A minimum edge diameter of $\frac{5}{32}$ inch is allowable. Any S10-10-1447 brackets with less than $\frac{5}{32}$ inch edge distance should be replaced. These inspections are to be performed on those helicopters with the S10-10-1400 Timken rotor head and are to be accomplished every 30 hours.

(Sikorsky Service Information Circular No. 1435-383 dated September 3, 1953, as amended by Revision A dated April 28, 1954, and Revision B dated June 18, 1954, covers the same subject, except that Section II of the Circular is amended by paragraph 1 (c) above.)

This supersedes A. D. Note 53-25-2.

54-17-1 HAMILTON STANDARD Applies to all Hamilton Standard 2J17 steel propeller blades installed on Boeing 377 aircraft.

Superseded by 55-21-1.

54-18-1 RYAN Applies to all Navion aircraft.

Compliance required as indicated.

Inspection of a number of Navions has revealed an undersirable condition in which there is relative motion between the wing and fuselage at the wing to fuselage attachment necessitating installation of additional shear carrying attachment angles between the fuselage and wing. This condition is most prevalent in, but not limited to, older Navions and can be readily detected when the wing root fillets have been removed and a sharp fore and aft shaking force is applied to the wing tip. If loose, the applied force can be made to develop a motion of the wing mass which is opposite to the motion of the fuselage mass, and the looseness will be definitely seen and felt.

It is therefore necessary that all Navions be inspected for this condition as soon as practicable but not later than October 15, 1954. In case the wings and fuselage seem to move as a unit mass and feel "solid" to the person applying the force, the corrective action outlined below may be delayed until the next annual inspection of the airplane. If a loose condition is evident, immediate corrective action as indicated in items 1 and 2 below is necessary.

1. Determine whether there is any looseness due to elongated holes at the six bolt locations (two outboard and two inboard forward wing attachment bolts and two aft wing attachment bolts). If no elongated holes are found, the corrective action in item 2 should be accomplished. If elongated holes are evident proceed as follows (including item 2):

(a) Ream each of the four forward wing attachment bolt holes (AN5 inboard and AN6 outboard) to receive the next larger size bolts. Remove and replace only one bolt at a time and torque to 140 inch-pounds. (If the next large size bolts had already been installed previously for other reasons, the rework in accordance with this directive should be brought to the attention of the local CAA Agent for detail consideration.)

(b) Remove the two AN5-65A aft attachment bolts, tube spacers, washers and units and install two 4½-inch long 0.064 24ST alclad doubler strips to each end of the bottom inside flange of frame 142.57. Rivet each strip to the frame with four $\frac{5}{32}$ diameter rivets and drill and ream to 0.3125 diameter to match the existing $\frac{5}{16}$ diameter bolt hole in each frame. The two tube spacers must be shortened to fit within the channel and the two AN5-65A bolts should be installed and torqued to 140 inch-pounds.

2. Install the following wing to fuselage chordwise shear attachment:

(a) An 0.064 24S-T4 alclad angle should be fabricated to conform to the wing contour and attached to the lower longeron, inboard flange (both sides of airplanes). This angle should extend from the wing front spar reference plane to approximately one inch aft of the wing center spar reference plane (approximately 22½ inches long). Attachment to the upper longeron should be made with eight AN-3 bolts. Attachment to the wing skin should be with fifteen 5/32 rivets (may be blind). Caution should be used in drilling through the wing skin to avoid injuring the fuel tank.

(b) Flange of angle attaching to wing skin may be cut to conform to existing holes in wing skin for tubing which may pass through this area.

(Ryan Navion Field Service Bulletin No. 21 covers this same subject.)

54-19-1 PIPER Applies to Model PA-18A and PA-18A Restricted Category aircraft with dusting venturi, up to and including Serial No. 18-3752.

Compliance required not later than October 15, 1954.

There have been several instances of excessive CO concentration in the cockpit when the dusting venturi is used. Such contamination has serious adverse effects upon pilot reaction. To prevent CO from entering the cockpit, a new trim plate should be installed and a new brake line cover plate should be placed over the brake line where the line enters the bottom of the fuselage. (Piper Service Letter No. 225 dated August 23, 1954, covers the same subject.)

54-19-2 SIKORSKY Applies to all model S-55 helicopters.

Compliance required before October 1, 1954.

To insure against the loosening of the servo pilot valve lock nut and subsequent improper servo operation, safety clips, Sikorsky P/N S14-40-5194, should be installed and safetied to P/N S14-40-3227-24 lockwasher. (Sikorsky Service Information Circular 1440-458 covers this same subject.)

54-20-1 AIRCRAFT BELT AND TRIM (SAFETY BELT) Applies to Model LBM-1900 (Dwg. No. 19001) safety belts manufactured prior to April 1, 1954.

Compliance required as soon as possible but not later than March 1, 1955.

Based on a complaint alleging non-compliance with strength standards of CAA Technical Standard Order C22, verification tests were conducted by the National Bureau of Standards at CAA request, which reveal that the belt assemblies of this make and model manufactured prior to April 1, 1954, with LBM-1900-3 and -3A buckles, were under strength for a majority of specimens tested. These tests are considered as evidence of non-conformance with the terms of the TSO.

Therefore, TSO labeled belts of this model as noted above which were manufactured prior to April 1, 1954, can no longer be considered as complying with the prescribed airworthiness standards and, accordingly, must not be used in civil aircraft.

Belts of this model manufactured subsequent to April 1, 1954, incorporate a buckle of improved design and tests reveal this belt assembly to be in accordance with TSO-C22 tension test requirements.

This supersedes A. D. Note 54-3-1 and revision 54-7 dated March 29, 1954.

54-20-2 SIKORSKY Applies to all Model S-55 helicopters.

Compliance required as indicated.

In order that cracks in the fore and aft transmission support assemblies (S14-20-2503) may be detected, these assemblies

should be inspected daily, without removing the support assemblies from the helicopter, in accordance with the following procedure:

1. Remove the paint, grease and foreign matter from all welds and from the areas of the tubes within three inches of a weld on both upper and lower ends.

2. Inspect for cracks all areas of the tubes within two inches of a weld and all welds visually, and, where possible, with the assistance of a five to seven power glass.

3. Assemblies found with a crack should be replaced immediately.

4. Protect the exposed areas of metal with any suitable corrosion preventive.

The manufacturer is presently investigating the reasons for the occurrence of such cracks and a permanent repair is expected in the near future which, when incorporated, will make these daily inspections unnecessary. These inspections are in addition to those required by A. D. Note 54–16–1.

(Revision C to Sikorsky Information Circular No. 1435–383 covers this same subject.)

When transmission support, S14–20–4603, is installed in place of support S14–20–2503, the above inspection may be performed at every intermediate inspection rather than on a daily basis.

(Sikorsky Service Information Circular No. 1420–548, dated December 3, 1954, covers the installation instructions.)

54–21–1 AC DIAPHRAGM TYPE FUEL PUMPS Applies to all aircraft powered by Continental, Aircooled or Lycoming engines which are equipped with AC diaphragm type fuel pumps.

Compliance required as soon as possible but not later than November 30, 1954.

The occurrence of severe fuel leakage in flight, caused by loosening of AC fuel pump surge chambers, has revealed the existence of AC fuel pumps not adequately safetied to prevent loosening of the sediment bowl and the surge chamber.

The following should be accomplished:

1. Inspect sediment bowl cap screw and surge chamber (if there is one) for adequate safetying.

2. If not safetied, lockwiring or equivalent must be accomplished in accordance with good aircraft practice. One acceptable method of safetying is described by Lycoming Service Bulletin No. 174.

54–22–1 LOCKHEED Applies to Model 49, 649, 749, and 1049 airplanes as noted in referenced Service Bulletins.

Compliance required by April 1, 1955.

A recent engine fire resulted in a premature failure of a flexible hose in the feathering line and in penetration of fire from Zone 1 into Zone 2.

1. To increase the fire resistance integrity of the propeller feathering line between the pump and the governor, replace the existing flexible hose assemblies meeting current fire resistance requirements. The following Lockheed Service Bulletins cover this subject: No. 49/SB–786 for Model 049 through 749 airplanes and No. 1049/SB–2195 for Model 1049 airplanes. The following hose assemblies may also be considered acceptable for this application:

(a) Aeroquip 680–10S hose assemblies with Aeroquip 304 protective sleeves over end fittings.

(b) Resistoflex SSFR–3800–10 hose assemblies.

2. To increase the fireproof integrity of the Zone 1 fire seal diaphragm against burnthrough into Zone 2 in the event of a power section fire install steel plates over the lower engine cowling longerons adjacent to the diaphragm. The following Lockheed Service Bulletins cover this subject: No. 49/SB–760 for Model 649/749 airplanes and No. 1049/SB–2115 for Model 1049 airplanes.

54–22–2 PRATT & WHITNEY ENGINES Applies to all Pratt & Whitney Wasp Jr. and Military R–985 series engine, except those used in helicopters.

Compliance required as soon as possible but not later than April 1, 1955.

In order to avoid crankshaft cracking at the thrust nut threads and possible loss of the propeller while in flight, the following rework must be accomplished:

Incorporate a larger root radius, approximately 0.010-inch radius, in the crankshaft thrust bearing nut mating threads. As specified in P&W's Service Bulletin No. 1488, this rework may be accomplished by hand methods without removing the engine from the aircraft. Exercise extreme care to insure smoothly blended thread roots, a closely controlled undercut depth, and a careful inspection for cracks. After completion of the thread rework, the minimum permissible minor diameter (now specified as 2.630 inches in P&WA Service Bulletin No. 1488) shall not be less than 2.623 inches.

The preliminary r. p. m. operating restriction recommended in CAA's General Maintenance Alert Bulletin No. 73, need not be observed either before or after the thread rework, since it has been determined that maximum shaft stresses usually occur at the maximum take-off r. p. m. Crankshafts produced by P&W in the future will incorporate rolled threads which have the larger root radius.

54–23–1 DOUGLAS Applies to all Model DC–6, DC–6A and DC–6B series aircraft.

Compliance required as indicated.

As a result of a recent fuselage failure leading to rapid loss of cabin pressure and on the basis of information on other previous structural failures in the same locality, all fuselages in the propeller plane areas must be inspected and/or reworked as follows between Stringer 23 to 26 and between Stations 217 and 280 on the left side and Stations 238 and 280 on the right side:

1. (a) For aircraft with total service time greater than 10,000 hours the two specified areas shall be subjected to a thorough external inspection at each scheduled daily inspection but not to exceed 40 hours of operation. This inspection shall consist of close visual check for any evidence of skin cracks of any size or cracks in the toilet service panel pan, together with application of hand pressure at numerous points to detect any evidence of structural softness caused from stringer failures or failures of attachments of stringers to frames. For aircraft in which forward toilet has been removed, the service panel pan inspection door shall be readily openable or removable to permit the inspection of that pan.

(b) If any skin cracks or evidence of structural softness is found, the airplane shall be flown unpressurized until thorough internal inspection of the area is accomplished and any failures properly repaired.

(c) In any event, a thorough internal inspection of the specified areas and repair of all failures shall be accomplished within the next 2,000 hours of operation.

(d) Following the first complete internal inspection and/or repairs as necessary, external inspection per item 1 (a) above shall be continued at intervals not to exceed 500 hours of operation, and complete internal inspection and/or rework shall be accomplished when any evidence of cracks or structural softness are found but in any event at periods not to exceed each 2,000 hours of operation.

2. For aircraft with total time of less than 10,000 hours, the inspections of item 1 (a) above shall be conducted at periods not to exceed every 200 hours operation time. Action in item 1 (b) above shall be taken when any evidence of skin cracks or structural softness is found.

3. When rework is made in accordance with Douglas Service Bulletin No. 602 revised September 29, 1955, for the Model DC–6, Service Bulletin No. 602 revised September 22, 1955, for the Model DC–6B and Service Bulletin No. 610 dated October 14, 1955, for the Model DC–6A; or equivalent, the inspections of items 1 and 2 above may be discontinued.

54–23–2 DOUGLAS Applies to all Model DC–6 Series aircraft.

Compliance required as indicated.

The following inspections and/or rework must be accomplished:

1. Inspect the nose gear upper torque link P/N 8488A–46 for cracks at the shoulder recess corner radius, using dye penetrant method, 8-power glass, or equivalent, as soon as practicable but not later than the next 100 hours of operation unless already accomplished. If cracks are found, the part should either be replaced with an undamaged part incorporating at least a 0.312-inch corner radius and a 0.030-inch edge radius at the shoulder recess, or reworked in accordance with Douglas Service Bulletin No. 641 mentioned below. Failure of P/N 8488–46 was initiated by fatigue cracks at the shoulder recess corner radius, probably due to tool or grinding marks. In addition inspect the area of the shoulder recess corner radius at the lower end of P/N 8488–46 for tool or grinding marks. The affected area should be free of cracks and polished to a 32 microinch finish as recommended in Douglas Service Bulletin No. 641. (The part may also be replaced with improved part P/N 8488A–46–1 Change "H" or P/N 8488A–46A–1 as specified in Service Bulletin No. 641.)

If no cracks are found, and it is determined that the part already incorporates the radii specified above, no further inspection or replacement is required.

2. If no cracks are found but it is determined that sharp edges exist at the shoulder recess, the part should be periodically inspected at intervals nearest to 300 flying hours until the part is reworked by adding a 0.312-inch corner radius with an 0.030-inch edge radius at the shoulder recess or until the part is replaced with one incorporating the proper radii. When rework is accomplished, a dye penetrant inspection of the reworked area should be made before the part is returned to service, with no further inspections required thereafter. Rework or replacement should be made not later than August 8, 1955.

(Douglas Service Bulletin No. 641 dated October 18, 1955, covers the above.)

54–23–3 HAMILTON STANDARD Applies to propeller blades installed on Douglas DC–6, Convair 240 series, and Martin 202 and 202A aircraft.

Compliance required at 5,000 hours of operation.

It has been determined that, after about 5,000 hours of operation, some 2H17 blade models have a substantial reduction in fatigue resistance. The blade models involved are of the stiffener type such as 2H17AA3. All blades of the models tabulated below must be removed from service when they have accumulated 5,000 hours service time.

Blades affected: 2H17K3, 2H17U3, 2H17AA3. (Hamilton Standard Service Bulletin No. 305 dated June 17, 1954, covers this same subject.)

54–24–1 BELL Applies to all Models 47 except 47G Serial Nos. 1286, 1287, 1294, 1295, and 1299 and subsequent.

Compliance required no later than next 25-hour inspection.

In order to preclude improper installation of anti-torque pedal assembly for dual controls, install two stop assemblies, Part No. 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.

54-24-2 LOCKHEED Applies to Lockheed Model 1049C, Serial Nos. 4520 through 4548; Model 1049E, Serial Nos. 4549 through 4556, 4558 through 4560, and 4563 through 4565; Model 1049D, Serial Nos. 4163 through 4166.

Compliance required as indicated.

1. Perform a visual inspection of the outer wing main beam web between stations 551 and 637, left and right, for cracks as soon as practical, and re-inspect at intervals of approximately 125 hours until this area is reinforced as outlined in paragraph 2 below. If cracks are found repair and reinforce as per paragraph 2 immediately. Inspection for fuel stains alone as an indication of a crack is not sufficient due to the presence of sealant on the inside of the tank surface.

2. Reinforce the main beam web between wing stations 551 and 637, left and right as soon as possible, convenient with aircraft check periods, but not later than 1,000 hours after receipt of parts from the manufacturer or March 1, 1955, which ever occurs first. This may be accomplished by the addition of extruded aluminum alloy (75ST6) stiffeners (LS347-3), one between each of the original stiffeners in this area. Lockheed Service Bulletin No. 1049/SB-2559 describes this reinforcement.

54-24-3 LOCKHEED Applies to all Model 49, 149, 649, 749, and 1049 aircraft.

Compliance required no later than the next regularly scheduled landing gear overhaul for all subject type aircraft.

Failures of Bendix No. 405308 main landing gear actuating cylinder assembly are continuing to occur and may result in flight hazards due to inability to actuate the landing gear. Bendix Pacific Division issued their Service Bulletin No. 71 dated December 26, 1952, for rework and inspection of these assemblies. Lockheed has written to all operators, August 20, 1954, specifying additional rework.

It is necessary, in order to increase service life of these cylinders, to either replace them with cylinders of the new Bendix design (which incorporate a 3/16-inch radius in the barrel) or to accompilsh the following:

1. Rework cylinder assemblies 405308-0-1, -0-2, -0-3, -0-4, -0-5 and -1, to provide a 3/32-inch relief radius at the juncture of the barrel bore relief area and bottom of the barrel, and to spot-peen this 3/32-inch radius area.

2. Magnetically inspect the barrel internally and externally prior to and following the rework per item 1 above. If the barrel is cracked, it must be scrapped.

(Bendix Service Bulletin No. 71 and Lockheed letter FS/93931 to operators dated August 20, 1954, cover this same subject.)

54-24-4 MARTIN Applies to all Model 202 and 202A aircraft.

Compliance required as indicated.

Several cases of cracks in the main landing gear trunnion fittings (P/N 2021A23307, 2021A23308, 2021A23309, 2021A23310) have been reported. These cracks have been in the area of the boss and the web. To preclude failure of these parts all aircraft must be inspected and reworked as follows:

I. Compliance required as soon as practical but not later than December 10, 1954, unless already accomplished.

Thoroughly clean fittings and inspect using a dye-penetrant inspection method. If a crack is found, rework the part in accordance with Item II. If no cracks exist the part must be reinspected using an 8-power magnifying glass, dye-penetrant method or equivalent every 250 hours plus or minus 75 hours.

II. Compliance required prior to return to service if a crack is found.

The fitting may be repaired by grinding provided the crack does not exceed either two inches in length or exceed 0.060 inch in depth. Parts having cracks exceeding either of the above limitations must be replaced. Repaired parts must be etch inspected. Repaired parts must be reinspected using an 8-power magnifying glass, dye-penetrant method or equivalent every 250 hours plus or minus 75 hours.

III. New parts of the same design (P/N 2021A23307) through 23310 must be inspected at the first regular inspection period of approximately 1,000 hours after installation, and thereafter at every 250 hours plus or minus 75 hours using an 8-power magnifying glass, dye-penetrant method or equivalent.

IV. Replacement parts of the improved design (P/N 2021A23307-1 through 23310-1) must be inspected visually at the first regular inspection period of 1,000 hours after installation, and thereafter at intervals not exceeding 500 hours. At 7,500 hours after installation, and thereafter at every 250 hours plus or minus 75 hours, inspect the fittings using a dye-penetrant method or equivalent.

(NOTE: All specified inspection intervals are based on an average landing frequency of one per hour. Where average landing frequency exceed this, there should be a corresponding decrease in the inspection intervals.)

(Martin telegram of November 3, 1954, to all 202 and 202A operators covers this subject.)

54-25-1 DOUGLAS Applies to all DC-6, DC-6A, and DC-6B low pressure (8,000'-20,000') aircraft and DC-6B high pressure (8,000'-25,000') aircraft as indicated below.

Compliance required as indicated.

One DC-6 operator has experienced the loss of the aft left-hand emergency exit door, during pressurized flight, due to the failure of the bottom hinge, P/N 4329913, with subsequent breakage at the top hinge, P/N 4329911. In addition to being undersize, inspection showed evidence of a previous small crack at the door skin recess radius. As a safeguard against the possibility of future occurrences of this nature, the action outlined below shall be taken.

I. Fuselage 1 to 69 Inclusive.

A. Operate unpressurized until following dimensional inspection of both upper and lower hinges on all exits has been completed.

B. Inspect the hinges in the area of the door skin recess to confirm the following dimensions: (This may be accomplished with door installed.)

1. The thickness, or vertical dimension, should be at least 0.615 inch.

2. One horizontal side of the hinge should be 0.629 inch and the other horizontal side should be 0.711 inch.

3. An average horizontal dimension of at least 0.665 inch will be satisfactory.

C. Action.

1. If dimensions are found to be below the above minimums, operate unpressurized until inspection for cracks can be made.

2. If the hinges are found to meet the above minimums, normal pressurized operation may be continued for a maximum of 150 hours before crack inspection.

D. Crack Inspection. Inspect the hinges at the door skin recess radius and in line with the door skin attach rivet hole, for cracks. Removal of sealant and paint from hinge surface will be required. A dye penetrant or equivalent method of inspection will be satisfactory.

E. Replacement.

1. If dimensional inspection reveals a part to be undersized but crack inspection reveals no cracks, aircraft may be operated at a maximum of 2 p. s. i. pressure differential until part is replaced.

2. If dimensional inspection reveals parts of proper size and crack inspection reveals no cracks, normal pressurized operation may continue for a maximum of 2,000 hours, by which time all hinges must be replaced.

3. If dimensional inspection reveals parts of proper size but crack inspection reveals cracks in any part, operate aircraft unpressurized until cracked part is replaced. Uncracked parts will be replaced per E-2 above.

II. Fuselage 70 to 155 Inclusive. (Also applies to any subsequent aircraft having door skin attach rivet holes in the hinge fitting.)

A. This group of airplanes contained hinges at delivery which had a shallower door skin recess and are, therefore, stronger than those used in aircraft, Fuselage 1-69 inclusive. These aircraft will normally have hinges incorporating the door skin attach rivet hole, which was removed at Fuselage 156 and subsequent. However, some hinges, on airplanes prior to 156 may also have this rivet hole removed.

B. On aircraft having 15,000 hours or more of service time, do not operate at a pressure differential of more than 2 p. s. i. until the hinges can be inspected for the dimensions noted in I-B above. On those aircraft under 15,000 hours of service time, normal pressure operation is satisfactory and dimensional inspection per I-B above must be accomplished with 150 hours of operation.

C. Action.

1. If dimensions are found to be below the above minimums, operate unpressurized until inspection for cracks can be made.

2. If hinges are found to meet the above minimums normal pressurized operation may be continued for a maximum of 400 hours before crack inspection.

D. Crack Inspection. Same as I-D above.

E. Replacement.

1. If dimensional inspection reveals a part to be undersized, but crack inspection reveals no cracks, aircraft may be operated at a maximum of 2 p. s. i. until part is replaced. Such part shall be replaced within 2,000 hours of operation.

2. If dimensional inspection reveals parts of proper size and crack inspection reveals no cracks, normal pressurized operation may continue for a maximum of 4,000 hours, by which time all hinges that have rivet holes in the skin recess or that do not have dimensions in excess of those given in III-A must be replaced. Fittings that do not have rivet holes and are large enough to meet the dimensions given in III-A may be reworked in accordance with III-D-2.

3. If dimensional inspection reveals parts of proper size, but crack inspection reveals crack in any part, operate aircraft unpressurized until cracked part is replaced. Uncracked parts will be replaced per E-2 above.

III. Fuselage 156 to 213 Inclusive. (Also applies to any prior aircraft having no door skin attach rivet hole in the hinge fitting.)

A. On aircraft having 15,000 hours or more of service time, do not operate at a pressure differential of more than 2 p. s. i. until the hinges can be inspected for the dimensions indicated below. On those aircraft under 15,000 hours of service time, normal pressure operation is satisfactory and inspection for dimensions indicated below must be accomplished with 150 hours of operation.

1. The thickness, or vertical dimension should be at least 0.615 inch.

2. One horizontal side of the hinge should be 0.675 inch and the other side should be 0.757 inch.

B. Action.

1. If dimensions are found to be at least as great as the minimum dimensions of I-B above, normal pressurized operation may be continued for a maximum of 400 hours before crack inspection.

2. If dimensions are found to be below the minimum specified in I-B above, operate unpressurized until inspection for cracks can be made.

C. Crack Inspection. Same as I-D above.

D. Replacement.

1. If any part is below the minimum dimensions of III-A, but meets the minimum dimensions of I-B, replace per II-E-2 above.

2. If part meets the minimum dimensions of III-A and has no cracks, the part may be continued in service with normal pressure operation, however, the door skin recess radius must be increased to 3/32 inch minimum prior to 20,000 hours of operation or the hinge replaced with new parts having the increased radius.

3. If any part is cracked, operate unpressurized until that part is replaced.

IV. Fuselage 214 through 522. (High Pressure Only—Model DC-6B.)

A. This group of airplanes has the high pressure exit doors installed. Normal pressure operation is satisfactory and inspection per IV-B below must be accomplished within the next 150 hours of operation.

B. Inspect the hinges for skin attach rivet holes in the skin recess area and for the presence of the 3/32-inch radius of the skin recess.

C. Action.

1. If hinges inspected under IV-B above are found to have skin attach rivet holes, normal pressurized operation may be continued for a maximum of 400 hours before crack inspection.

D. Crack Inspection. Same as I-D above.

E. Replacement.

1. Any hinges found with skin attach rivet holes and crack inspection reveals no cracks, the part must be replaced with hinge fittings having no skin attach rivet holes within 4,000 hours of operation and should be inspected each 400 hours for cracks until replaced.

2. Any hinges found without skin attach rivet holes and crack inspection reveals no cracks, the part may be continued in service with normal pressure operation; however, the hinge must be reworked or replaced in accordance with III-D.2 above.

3. If any part is cracked, operate unpressurized until that part is replaced.

V. All old hinges removed must be scrapped and replaced by hinges having the dimensions given under III-A above, and having a skin recess radius of 3/32-inch minimum.

(Douglas Service Letter No. 220 revised November 24, 1954, including Supplement No. 2 dated March 31, 1955, also applies to this same subject.)

54-25-2 WRIGHT ENGINE: Applies to all Model 975C18CB1, 972TC18DA1, and 972TC18DA2 engines.

Compliance required as indicated.

I. Compliance required by November 1, 1955.

To alleviate front intermediate cam drive gear failures and associated possible engine overspeeding, the following intermediate cam drive gears must be removed from the front cam drive gear train:

Part Nos. 138608, 138608 N, 171385, 171238, or 171387.

These gears may still be used in the rear cam drive configuration. Intermediate cam drive gears incorporating increased tooth width and thick hubs must be used in the front cam drive configuration. The following gears comply with this requirement:

Part No. 171347, 171348, or 171994.

II. Compliance required at next and each subsequent overhaul.

To insure proper assembly of cam drive gear configurations, the following Assembly Instructions must be followed and applicable measurements recorded on engine build up sheets:

TC18DA Overhaul Manual:

Section V. Instruction 17.

Section VIII. Instruction No. 2 plus referenced Table of Limits fits including Reference No. 238.

(Wright Aeronautical Division Service Bulletins Nos. C18C-83 and TC18-92 cover these same subjects.)

54-26-1 GRUMMAN Applies to all Model G-44 and G-44A aircraft.

Compliance required by June 15, 1955.

There have been reported numerous instances of the landing gear locking mechanism failing because of either hydraulic system leaks or failure of the mechanical locks. These malfunctions have been reported in both the up and down position of the landing gear. To prevent future similar malfunctions, provide a more positive means of holding the gear in its locked position, both in the fully extended and fully retracted positions. Grumman Service Bulletin No. 24, October 18, 1954, accomplishes this by providing a closed center hydraulic system. This arrangement provides hydraulic pressure to hold the gear in the selected position and unwanted extension or retraction is prevented even though the mechanical locks may fail or leaks develop in the hydraulic system.

This supersedes A. D. Note 48-5-5.

54-26-2 VEST (FORMERLY ERCO) Applies to all Ercoupe Model 415 series aircraft and Models E and G.

Compliance required as indicated.

As a result of continual fraying and failure of control cables P/N 415-52148 or P/N 415-52172 in the control column assembly where they wrap around the control quadrant P/N 415-52130 or P/N 415-52122 the following inspection must be conducted until such time as a control quadrant is installed which is considered satisfactory by the Administrator:

After every 100 hours of operation remove control cables P/N 415-52148 or P/N 415-52172 and inspect them for any signs or indications of fraying or failure. Replace any cables which are not found to be in perfect condition. It is important that the cables be removed for the inspection since it has been found that inspection of the cables while in place will not always reveal defects. Also determine whether the aileron stop screw may be bearing on the cable, and, if so, it should be replaced by new stop bolt ERCO P/N 415-52164-2.

Modifications approved by the Civil Aeronautics Administration which are believed to eliminate the fraying difficulties are described in the following data:

1. Drawing No. 514, change "A," Met-Co-Aire Co., Fullerton Municipal Airport, Fullerton, Calif.;

2. Drawing No. New 101, change "A," J. V. Newman, Bates Aviation Inc., Hawthorne Municipal Airport, Hawthorne, Calif.

3. Drawing No. 12, dated November 1, 1954, Ed's Airmotive, 430 Windsor Way, Renton 2, Wash.;

4. Drawing No. 415-52137, change "1," dated February 21, 1955, Vest Aircraft Parts Division, Denver, Colo.

When one of these or an equivalent CAA approved modification has been installed, the special 100-hour inspection outlined above may be dispensed with and normal inspection periods resumed.

Rigging of controls should follow the process outlined in Ercoupe Service Department Bulletin No. 13 and Ercoupe Service Department Memorandum No. 35.

This supersedes A. D. Note 47-42-21.

55-1-1 RYAN Applies to all Navion aircraft.

Compliance required as indicated.

Some Navion aircraft have been found to have cracks in fuselage frame 143-31004-16 at Station 294.1 inboard from the top stringer cutout at W. L. 21.00.

It is therefore necessary that all Navions be inspected for this condition as soon as practicable but not later than March 15, 1955. Inspection may be made by removing the inspection plate on the left side of the fuselage beneath the horizontal stabilizer and looking forward to view the aft side of the points in question. If no crack is visible, no further immediate action is necessary, however, a thorough inspection of the frame at each 100-hour inspection will be required thereafter until the reinforcement indicated in items 2 or 3 as indicated below is completed.

If a crack is visible at either side of the frame, determine if it has extended beyond the nearest rivet inboard of the cutout (hereafter called the critical rivet). If it has not, the repair as indicated in item 1 may be used as an interim fix in lieu of the permanent repair indicated in item 2 or 3 which is mandatory in the case of a crack extending beyond the critical rivet.

1. Interim repair for cracks not extending beyond the critical rivet:

a. When crack extends to the critical rivet, remove the rivet and relocate nearby or if crack has not reached the critical rivet, stop-drill end of crack.

b. Install a modified diamond-shaped 0.125 24ST alclad gusset to right and left outer fuselage surfaces catching two existing rivets on each side of frame through W. L. 21 stringer, five existing rivets through the frame above the stringer cutout and three existing rivets through frame below the cutout. Add two AD4 rivets through the frame between the three existing rivets below the cutout. Additional AD4 rivets through the gusset and skin should be added as necessary.

c. Check the cracked area at each 100-hour inspection to determine if crack has extended beyond the critical rivet. If so, it will be necessary to apply item 2 or 3.

2. Permanent Repair:

a. Remove the cracked frame and strip off the angles and doublers and attach to new frame. Do not notch new frame to receive top stringers.

b. Cut top stringers forward and aft of frame location.

c. Install new frame in fuselage and attach skin. Where rivets do not properly fill holes use next size larger rivet.

d. Secure top stringers forward of frame by adding a 0.040 24ST alclad angle 3 inches long to the forward portion of the stringer and attaching it to the frame flange with an existing AD4 rivet through the frame flange, skin and external gusset patch.

e. Install gusset patch as indicated in item 1. b. above.

3. In lieu of item 2 above, an equivalent frame repair in accordance with Civil Aeronautics Manual 18 will be accepted as an alternate for a new frame. This, however, may be difficult due to the presence of existing doublers and stiffeners on the forward face of the frame which is further complicated by the attachment of the W. L. 21 shear web to the aft side of the frame. Such alternate repairs must be submitted to a CAA Aircraft Engineering office for approval prior to installation.

(Ryan Field Service Bulletin No. 22 covers this same subject.)

55-2-1 DE HAVILLAND Applies to Model 104 "Dove."

Compliance required as soon as practical but not later than April 1, 1955.

A case has occurred in which the mild steel rivet locking the stud, Part No. 4CF.607 to the spindle, Part No. 4CF.605ND in the aileron differential pulley assembly has sheared, allowing the spindle to unscrew from the stud to such an extent that it, together with the pulley, was on the point of becoming disengaged from the pulley bracket. The de Havilland Aircraft Company, in agreement with the British Air Registration Board, issued the following mandatory instructions in which the CAA concurs:

"In order to prevent a recurrence of this defect, Dove Modification No. 765 (Class 2B) 'To introduce H. T. S. Pin for locking Stud on Aileron Differential Pulley Spindle' has been introduced and operators are advised that it has been decided by the Air Registration Board that this modification shall be classified essential.

"This modification can be embodied with materials obtained from local sources by

following the instructions in the relevant modification leaflet. Copies of the modification leaflet can be had on application to the de Havilland Aircraft Co. Ltd., in the normal manner, together with the H. T. S. pin called for by the leaflet for those operators who are unable to obtain this item locally. The pin is 3/32-inch diameter, 0.8 inch long, Part No. DHS.94/3/80. The alternative material which may be used is silver steel or any other steel of over 50 tons ultimate tensile stress."

(De Havilland Technical News Sheet Series CT. (104) No. 114 dated November 1, 1954, covers this same subject.)

55-2-2 LYCOMING ENGINES Applies to Model O-320 engines below Serial Number 612 installed in aircraft equipped with fixed pitch propellers.

Compliance required as soon as possible but not later than February 28, 1955.

Several immediate forced landings have occurred with aircraft equipped with the above engine and propeller combinations due to rapid loss of engine oil from the engine accessory drive adapter gasket location. To preclude this possibility, all such engines should be inspected to insure that the proper gasket is installed under the lower accessory drive adapter cover. For engines with fixed pitch propellers, Lycoming Part No. 69551, gasket must be installed at this location.

(Lycoming Service Bulletin No. 176 covers this same subject.)

55-3-1 CONSOLIDATED-VULTEE Applies to all Model 340 aircraft.

Compliance required as indicated.

A CV-340 was involved in a flight accident due to the AN 310-4 nut coming off of the AN 174-33 bolt that attaches the left hand elevator servo tab idler to the structure resulting in flutter of the elevator servo tab, with subsequent failures to the elevator control system and loss of elevator control. As a precautionary measure, the following is required: As soon as practical but not later than the next 15 hours service, inspect the control systems for the servo tab on the left elevator and on the right elevator trim tab of all CV-340 aircraft. Inspection is to cover all nuts, bolts, idlers, bell cranks, push rods and general security check of all nuts and bolts.

55-3-2 HARTZELL PROPELLERS Applies to all Hartzell propellers with metal blades installed on Continental E-185, E-225, and O-470 and Lycoming O-320 and O-340 series engines.

Compliance required by March 1, 1955, and at intervals not to exceed each 25 hours operation thereafter.

To eliminate the possibility of blade tip failures on Hartzell propellers with metal blades installed on the above engines, all nicks, gouges and scratches within 15 inches of the blade tip should be removed. Care should be taken to be sure all trace of the damage is removed. Minor damaged areas may be removed by using coarse emery cloth. The repaired area shall then be polished with fine emery cloth. Rebalancing is not necessary when repairing minor damage areas as defined in Civil Aeronautics Manual 18, section 18.30-15 (b) (3) (ii).

Propellers having severe nicks, gouges or scratches should be forwarded to the propeller manufacturer, or approved propeller repair station for inspection and repair.

(Hartzell Service Bulletin No. 31 dated December 31, 1954, covers this same subject.)

55-4-1 FEDERAL SKIS Applies to all Cessna Model 180 aircraft equipped with Federal Model AWB-2500A wheel skis.

Compliance required as soon as possible but no later than next 100-hour inspection.

Instances have been reported of the main skis pitching downward against the forward limiting cables during normal flight causing the airplane to assume a dive attitude with a resulting loss of altitude before recovery. To preclude the possibility of the serious consequences that might result should this condition occur at low altitudes, the following corrective action must be accomplished:

1. Replace the existing mechanical rigger with Federal Number 11G1064-3 mechanical rigger.

2. Install Federal Number 11D1059-5 preloaded bungee assembly in each of the forward limiting cables and adjust the cables so that the skis when in the "up" position on the wheel, will be allowed to pitch nose down minus 12° to 14° in flight without extending the bungee units. This angle is measured between the top of the ski channel and the horizontal reference line of the airplane.

(Federal Service Bulletin No. 102 covers the same subject.)

55-5-1 BELL Applies to all Model 47 Series Helicopters.

Compliance required at the expiration of 50 flying hours total time. 25 additional flying hours may be acceptable provided the inspection called for in Bell's Mandatory Service Bulletin No. 97, Rev. "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-aligning ball type bearing.

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

55-5-2 HAMILTON STANDARD Applies to all Hamilton Standard 43E60 propellers with 6903 blades installed on Lockheed 1049 series aircraft powered by Wright 972TC18DA Series engines.

Compliance required as indicated.

Analysis of loadings and stresses in the Hamilton Standard 43E60/6903 propeller when installed as noted has shown that it is desirable to improve the strength characteristics of the propeller barrel assembly by shotpeening the barrel and spider in specified areas, and by substituting stronger barrel bolts. Therefore, in order to preclude any failures from this cause:

At the earliest opportunity, but not later than the first overhaul subsequent to May 1, 1955, accomplish the rework of the hub barrels and spiders, and replace the barrel bolts as specified in Hamilton Standard Service Bulletin No. 316 dated September 10, 1954.

55-6-1 TWIN NAVION Applies to all Dauby, Riley and TEMCO Twin Navion conversions.

Compliance required not later than May 1, 1955.

In order to avoid the hazard of fuel and fumes entering the passenger compartment, it is necessary to install vented and drained fuel and fumeproof enclosures for all fuel tanks located in the fuselage. (Ref. CAR 3.442 (c))

TEMCO Aircraft Corporation Twin Navion conversion service bulletin No. 2 covers this same subject and kits approved by the CAA for accomplishing the necessary alteration are available from TEMCO.

55-7-1 DOUGLAS Applies to all DC-7 aircraft.

Superseded by 55-11-1.

55-7-2 PIPER Applies to all Model PA-22 aircraft except Serial Nos. 22-2377, 22-2379, 22-2385, 22-2388, 22-2389, 22-2391, 22-2394 and up.

Compliance required by June 1, 1955.

Numerous instances have been reported of cracking in the leading edge of the streamlined tube of the landing gear at the point where the tube joins the inboard end of the axle. To prevent future failures, this joint should be reinforced by welding a steel strap reinforcement. (Piper Service Letter No. 124 dated August 30, 1954, covers the same subject.)

55-8-1 BEECH SAFETY BELT BUCKLES Applies to all Beech Safety Belt Buckles, Part No. 113652.

Compliance required as soon as possible but not later than September 1, 1955.

Inspect Beech safety buckles by checking the buckle level attachment pin for snap ring retainers installed at each end.

All Beech buckles with buckle level dowel type attaching pin retainers in lieu of buckle lever attaching pins with snap ring retainers should be retired from service by replacement with the newer improved safety buckle with through pin and snap ring retainers.

(Beech Service Bulletin No. OS-55-1 issued January 25, 1955, covers this same subject.)

55-8-2 HAMILTON STANDARD Applies to Hamilton Standard 2J17 steel propeller blades installed on Boeing 377 aircraft.

Superseded by 55-21-1.

55-8-3 HILLER Applies to all UH-12A and UH-12B helicopters through series No. 701.

Compliance required as soon as possible but not later than June 1, 1955.

There have been numerous failures of the forward tail rotor drive slip joint (UH-12A Drawing Number 24500-9 and UH-12B Drawing Number 24565). Some of these failures have been traced to improper maintenance, particularly in the failure to comply with rigging instructions (Handbook of Maintenance Instructions Sec. 5 Part 5-212). Bottoming of the cam follower rollers in the yoke slot, or the disengagement of the followers by traveling beyond the open end of the slot can result in failure of the cam follower studs and loss of power to the tail rotor, and directional control. A severely hard landing also can cause bottoming of the cam followers, as described above. To correct this condition a new type cam follower stud has been designed with a larger diameter. Threads in the shank have been eliminated. To prevent further failures of cam follower studs replace the existing cam follower assemblies (Torrington CR 10) with new assemblies CR 10T. The procedure described in Hiller Mandatory Service Bulletin No. 44 covers this same subject. (NOTE: It is always advisable to inspect the forward slip joint assembly for proper rigging and condition of rollers after any hard landing.)

55-8-4 PIPER Applies to Model PA-22 Serial Nos. 22-1621, 22-1622, 22-1623, 22-1624, 22-1625, 22-1627, 22-1630, 22-1633, 22-1634, 22-1637.

Compliance required as soon as possible but not later than July 1, 1955.

The Hypass #48P6 ignition filters should be removed from the magnetos and replaced with magneto filter, Piper No. 63149 (Lear) obtainable from the Piper Service Department. It has been found that the Hypass #48P6 filters short and ground out the magnetos when subjected to a temperature which has been reported to be equal to the engine accessory temperature after a series of take-offs have been performed.

55-9-1 BOEING Applies to all Model 377 aircraft incorporating Hamilton Standard propellers.

To be accomplished as soon as practicable but not later than June 30, 1955.

Loss of Manual RPM 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 amp magnetic circuit breaker with a 5 amp thermal type breaker, and replacing the four 5 amp fuses in the syn-

chronizer unit with 2 amp slo-blo fuses. (Hamilton Standard Service Bulletin No. 283 dated December 21, 1953, covers this same subject.)

55-9-2 CURTISS-WRIGHT Applies to all C-46 series aircraft.

Compliance required as indicated.

(1) For Models C-46A and C-46D.

At each 3,000 hours of operation inspect visually and at each major overhaul inspect by means of Zyglo or equivalent method control column base assemblies P/N 20-530-3076-5, arm assemblies P/N 20-530-1049-1 and -3, terminal assemblies P/N 20-530-1286-1 and -3, and upper terminal assemblies P/N 20-530-1059. Also inspect for cracks around the rivets which retain the assemblies to the torque tube P/N 20-530-1163-2.

(2) For Models C-46E and C-46F.

Due to recent similar failures reported on these models, the assemblies corresponding to the above Model C-46A and C-46D assemblies must be similarly inspected.

All defective parts must be replaced.

This supersedes A. D. Note 51-14-2.

55-9-3 DOUGLAS Applies to all DC-6 series aircraft incorporating Hamilton Standard propellers prior to Serial No. 473.

To be accomplished as soon as practicable but not later than August 1, 1955.

Loss of Manual RPM 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 amp magnetic circuit breaker with a 5-amp thermal type breaker, and replacing the four 5-amp fuses in the synchronizer unit with 2-amp slo-blo fuses. (Douglas Service Letter DC-6 No. 171 dated November 17, 1953, and Hamilton Standard Service Bulletin No. 283 dated December 21, 1953, cover this same subject.)

55-9-4 HAMILTON STANDARD Applies to all Hamilton Standard 24260 propeller hub barrels used on Boeing 377 aircraft.

Compliance required as indicated.

As a result of cracks occurring in several 24260 hubs when installed as noted, it is considered desirable to improve the strength characteristics of the hub by reworking and shotpeening the areas subject to such failures. Therefore, in order to minimize the possibility of failures of the nature indicated, accomplish the following:

Inspection: Inspect at every overhaul.

Rework: Rework hubs at the earliest opportunity, but not later than at the next overhaul following June 15, 1955, for hubs with 6,000 or more hours of total operating time. (Hamilton Standard Service Bulletin No. 327 dated November 18, 1954, outlines the required rework.)

55-10-1 DOUGLAS Applies to all DC-6 Series aircraft.

Superseded by 55-11-1 and 54-23-2 as revised December 5, 1955.

55-11-1 DOUGLAS Applies to all DC-6 aircraft; DC-6A through fuselage No. 543; DC-6B through fuselage No. 590; DC-7 through fuselage No. 566 (except fuselage No. 486); and C-118A airplane Serial No. 42881 (fuselage No. 29).

Compliance required as indicated below.

As a result of recent landing accidents in which the nose landing gear collapsed due to failure at the end fitting of yoke P/N 5488450 on a DC-7 and yoke P/N 524570 on a DC-6, and as a result of fatigue cracks being found on subsequent inspections of DC-6 series as well as DC-7 aircraft, the following inspections must be accomplished at intervals not to exceed 500 hours of operation and should be included as part of any major inspection necessitated by over weight or hard landing.

1. Remove the bolts from the two upper spotfaced holes in the L. H. and R. H. flanges of the nose gear yoke. P/N 5245790 is used on DC-6 series aircraft and P/N 5488450 is used on DC-6 series and DC-7 aircraft.

2. Inspect the bolt holes and radius of the spot face for signs of cracks by means of dye penetrant or equivalent. To obtain good results with dye penetrant inspection, it may be necessary to heat the parts being inspected to 90-100° F. to facilitate the dye to penetrate the cracks. Also inspect the surface at the end of the ½-inch radius where the end flange blends into the cylindrical portion of the yoke.

3. a. If cracks are found the part must be replaced with P/N 5488450-503 or with new parts P/N 5538558 for DC-6 series and P/N 5538557-1 for DC-7 and DC-7B aircraft.

b. If no cracks are found, and as an interim measure, the old nose gear yoke assemblies P/N 5245790 and 5488450 may be reworked by remachining the spot faces to incorporate a 0.125-inch radius and reworking the ½-inch radius of the yoke, when necessary, in accordance with paragraphs 3 and 4 of DC-6 Service Bulletin No. 607 or DC-7 Service Bulletin No. 56 mentioned below. After remachining, shot peen the spot face radii, the flange and radius where flange blends into the cylindrical portion of the yoke, then clean and apply protective finish. When parts are reworked, as described above, they should be reinstalled using special large washers in accordance with the pertinent Service Bulletin. The inspections outlined in paragraph 2 above must be continued on these reworked parts until they are replaced with parts listed in paragraph 3.a above.

4. When cracked or reworked parts have been replaced with new parts mentioned in paragraph 3.a above, the special inspections required in paragraph 2 above may be discontinued.

(Douglas Service Bulletin No. 607 dated July 22, 1955, for DC-6 series and Service Bulletin No. 56 dated July 22, 1955, for DC-7 cover the above.)

This supersedes A. D. Note 55-7-1 and those portions of 55-10-1 which cover this same subject.

55-11-2 PIPER Applies to Model PA-23 Serial Nos. 23-1 to 23-142 inclusive, 23-144 to 23-162 inclusive, 23-164 to 23-173 inclusive, 23-175 to 23-177 inclusive, 23-179 to 23-183 inclusive, and 23-186.

Compliance required by August 1, 1955.

In order to eliminate excessive pressures in the hydraulic system due to thermal expansion which can result in failure of the hydraulic actuating cylinders, it will be necessary to install thermal relief valves in the landing gear retraction line, landing gear extension line and the flap retraction line. These relief valves are to be installed in accordance with the sketch and instructions contained in Piper Thermal Relief Valve Kit 754 095. (Piper Service Bulletin No. 136 dated April 26, 1955, covers this same subject.)

55-12-1 PIPER Applies to Model PA-23 Serial Nos. 23-1 to 23-208 inclusive.

Superseded by 55-14-2.

55-13-1 PIPER Applies to Model PA-23, Serials 23-160 to 23-162 inclusive, 23-166 to 23-168 inclusive, 23-170, 23-172, 23-177, 23-193 to 23-219 inclusive, 23-221 to 23-224 inclusive, 23-226 to 23-229 inclusive, 23-231 to 23-234 inclusive, and 23-237.

Compliance required by August 1, 1955.

It has been found that all the PA-23 models listed above have installed two flexible fuel valve controls that have been found to flex excessively at the splice. The addition of an idler bellcrank should be accomplished by the use of Piper Kit #754 103 and the instructions included. Owners of PA-23's with auxiliary fuel tanks must not operate the auxiliary fuel system until this modification has been accomplished. (Piper Immediate Action Service Bulletin No. 139 applies to this malfunction.)

55-14-1 BELL Applies to Model 47G helicopters below Serial No. 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 47-644-148-15, 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 pre-flight inspection for cracks in the No. 1 bearing hangar area called for in Bell's Maintenance and Overhaul Manual.

55-14-2 PIPER Applies to Model PA-23 Serial Nos. 23-1 to 23-208 inclusive.

Compliance required by August 1, 1955.

Because of possible damage to the hydraulic actuating cylinders for the landing gear system and flap system at the two end plug retaining pins, as a result of excessive pressures caused by thermal expansion, it is necessary that these cylinders be inspected and replaced or modified as follows:

1. If the cylinder housing is upset or fractured, it must be replaced by a new reinforced cylinder P/N 455927. (Piper Service Bulletin No. 138 dated May 9, 1955, covers this same subject.)

2. If the cylinder housing is not upset or fractured, it must either be replaced by P/N 455927, or reinforced by adding two retaining plugs in accordance with Piper Service Letter No. 250 dated June 8, 1955.

This supersedes A. D. Note 55-12-1.

55-15-1 BOEING Applies to all Boeing 377 series aircraft equipped 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.

55-15-2 CONSOLIDATED VULTEE Applies to all Convair 240 and 340 series aircraft equipped 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. Convair Service Air-Gram No. 123 dated October 8, 1954, covers this subject. The following hose assemblies may also be 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 hose assemblies.

55-15-3 DOUGLAS AND LOCKHEED Applies to all Douglas DC-3 and C-47 series aircraft, DC-4 and C-54 series aircraft; and all Lockheed 18 series aircraft equipped with Hamilton Standard propellers used in air carrier passenger operations.

Compliance required by first scheduled engine change after November 1, 1955, but not later than November 1, 1956.

To increase 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 must be replaced with lines and fittings which will meet the current fire resistance requirements. However, if the feathering line in Zone 1 includes a section of steel tubing, flexible hose assemblies located forward of the cylinders and connecting to the governor are not affected by this directive.

The following flexible hose assemblies are acceptable for use in this application:

(a) Resistoflex SSFR-3800-10 hose assemblies.

(b) Aeroquip 680-10S hose assemblies with Aeroquip 304 protective sleeves over end fittings (Aeroquip assembly P/N 304000).

(c) Aeroquip 309009 hose assemblies.

(d) Aeroquip 309009-8S hose assemblies (where feathering system requires this size).

55-15-4 DOUGLAS Applies to all DC-6 series airplanes below Fuselage No. 487 equipped 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 integrity of the propeller feathering system in the event of a powerplant fire, all existing propeller feathering lines located forward of the firewall must be replaced with lines and flexible hose assemblies which will meet current fireproof and fire resistant requirements.

(a) Replace the existing flexible hose portion of the feathering line between the union on the forward pipe assembly and the elbow on the inner ring with a new hose assembly Aeroquip P/N 304004-10-17½. Douglas General Service Letter DC-6 No. 206 dated August 26, 1954, covers this subject. Resistoflex SSFR-3800-10 hose assembly and Aeroquip 309009-10S hose assembly are also considered acceptable for this application.

(b) The existing flexible hose assembly connecting to the governor is not affected by this directive.

(c) Remove the existing short 304 sleeves or flexible metal sleeve from the feathering pump supply line, Aeroquip P/N 304002-16D-12 3/8, and install a fireproof cover, Douglas P/N 3500614-1. Douglas General Service Letter DC-6 No. 206 dated August 26, 1954, covers this subject. Aeroquip 601000 hose assembly equipped with Aeroquip 304 full length protective sleeve or Aeroquip 680-16S hose assembly equipped with Aeroquip 304 short sleeves covering the end fittings are also considered acceptable for this application.

55-15-5 DOUGLAS Applies to all DC-7 aircraft below Fuselage No. 486 equipped 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 integrity of the propeller feathering system in the event of a powerplant fire, all existing propeller feathering lines located forward of the firewall in Zone 2 must be replaced with lines and flexible hose assemblies which will meet current fireproof and fire resistant requirements.

(a) Install Aeroquip 304 protective sleeves on the propeller feathering line forward of the feathering pump, in accordance with Aeroquip Drawing 304005-10S-46. Resistoflex SSFR-3800-10 hose assembly and Aeroquip 309009-10S hose assembly are also considered acceptable for this application.

(b) Remove the existing short 304 sleeves from the feathering pump supply line between the oil tank and feathering pump and install a fireproof cover, Douglas P/N 3500614-2. Aeroquip 601000 hose assembly equipped with Aeroquip 304 full-length protective sleeve, or Aeroquip 680-16S hose assembly equipped with Aeroquip 304 short sleeves covering the end fittings are also considered acceptable for this application.

Douglas Service Bulletin DC-7 No. 74 dated July 19, 1955, covers this same subject.

55-15-6 LOCKHEED Applies to Lockheed 049-149 aircraft, Serial Nos. 1963 through 1980, 2021 through 2088; 649-749 aircraft, Serial Nos. 2503 through 2590, 2610, 2611, 2614 through 2618; 1049C aircraft, Serial Nos. 4501 through 4548; 1049E aircraft, Serial Nos. 4549 through 4555, 4558 through 4559, and 4563 through 4565; 1049D aircraft, Serial Nos. 4163 through 4166.

Compliance required by April 1, 1956, for Model 1049 aircraft and Oct. 1, 1956, for Models 049/149 and 649/749 aircraft.

To improve the fire-resistance integrity of the above aircraft, revisions to the system supplying cooling air to the accessory section of the powerplant installation are considered necessary.

For 049-149 aircraft and 649-749 aircraft, the revision consists of installing a shut-off valve in a fireproof duct.

For the 1049C and E aircraft, the revision consists of replacing a section of aluminum duct between the oil cooler scoop, and the existing shut-off valve, with a fireproof duct. This section is in Zone 1, and provides a possible Zone 1 to Zone 2 firepath.

Lockheed Service Bulletins 49/718, for 049/149 aircraft; 1049/2384, for 1049 aircraft; and 49/391A, for 649-749 aircraft, cover these subjects.

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.)

55-16-2 MARTIN Applies to Martin 202, 202A, and 404 aircraft equipped 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 must be replaced with lines and fittings which will meet current fire-resistant requirements. The following hose assemblies are considered acceptable for this application:

(a) Aeroquip 680-12S hose assemblies with Aeroquip 304 protective sleeves over end fittings (Aeroquip assembly P/N 304000-12S).

(b) Resistoflex SSFR-3800-10 hose assemblies utilizing -12 connections.

(c) Aeroquip 309009-12S hose assemblies.

55-17-1 LOCKHEED Applies to all Lockheed Constellation and Super Constellation airplanes.

Compliance required by December 1, 1955, unless already accomplished.

A recent failure of wing flap torque tube assembly, P/N 326605-3, on a Model 1049C is attributed to a defective bolt, P/N AN23-19. Initial over-torque of the bolt is suspected as the cause of failure of the bolt. It is therefore necessary that all Constellation and Super Constellation airplanes be inspected to ascertain proper installation of bolts, including bolt torque, on all wing flap torque tubes.

Proper torque value for the AN23-19 bolts is 10 to 20 inch-pounds. Nut torque must be checked with a torque wrench and all over-torqued bolts replaced. If necessary, the next size longer bolt (P/N AN23-20) may be used to facilitate installation within proper torque tolerances. Washers may be used as required, but not to exceed two under the head or two under the nut, to prevent the nut from bottoming on the shank.

55-18-1 CONSOLIDATED VULTEE Applies to all Convair Model CV-240 and CV-340 aircraft.

Compliance required as soon as practicable but not later than January 1, 1957.

1. Because of instances of inadvertent propeller reversing due to malfunctioning of the solenoid operated throttle locks and improper operation of throttles at time of touchdown on landing, a more positive means of preventing inadvertent movement of the throttles into the reverse segment of the throttle quadrant must be installed.

2. This modification consists of the installation of a protective device which will require a separate and distinct motion by the flight crew member accomplishing the reversing, in order to place the throttles in the reverse pitch range. It must also provide safeguards against disarming or unlocking of this protective device when the throttle levers are further forward than idle setting or, if it is possible to unlock at a forward power setting, movement of the throttles toward idle from slow cruise or landing gear warning positions shall re-engage the lock prior to reaching the idle position.

3. Convair Bulletins Nos. 240-460A and 340-141A covering this modification are an acceptable method of compliance. Alternate designs may be acceptable if the objectives of this directive, as expressed in paragraph 2 above, have been met. However, because of the many technical considerations involved, all alternate methods of accomplishing this modification should be referred to CAA for engineering evaluation and approval.

55-18-2 DOUGLAS Applies to all Model DC-6 Series aircraft that are not equipped with the new Douglas type propeller reverse thrust mechanical throttle lock gate.

Compliance required as soon as practicable but not later than January 1, 1957.

1. Because of instances of inadvertent propeller reversing due to malfunctioning of the solenoid operated throttle locks and improper operation of throttles at time of touchdown on landing, a more positive means of preventing inadvertent movement of the throttles into the reverse segment of the throttle quadrant must be installed.

2. This modification consists of the installation of a protective device which will require a separate and distinct motion by the flight crew member accomplishing the reversing, in order to place the throttles in the reverse pitch range. It must also provide

safeguards against disarming or unlocking of this protective device when the throttle levers are further forward than idle setting or, if it is possible to unlock at a forward power setting, movement of the throttles toward idle from slow cruise or landing gear warning positions shall re-engage the lock prior to reaching the idle position.

3. Douglas Service Bulletin DC–6 No. 557 revised October 15, 1954, covering this modification is an acceptable method of compliance. This bulletin also provides for the continuous operation of the feathering motors during reverse thrust, installs timers to control feathering pump operation during feathering, and deletes the propeller governor pressure cutout switch from the holding circuit. These latter changes, although desirable, are not mandatory.

4. It is possible that some aircraft have already been modified by installation of a protective device which differs in arrangement and detail from the provisions of the Douglas bulletin. Such alternate designs may be acceptable if the objectives of this directive, as expressed in paragraph 2 above, have been met. However, because of the many technical considerations involved, all alternate methods of accomplishing this modification should be referred to CAA for engineering evaluation and approval.

55–19–1 HILLER Applies to all UH–12, UH–12A, and UH–12B Model helicopters.

Compliance required as indicated.

There have been several instances of cracking and failure of the tail boom rear bulkhead casting adjacent to the gear box attachment holes. Cause of the cracking is not definitely known, but may be caused by flight loads or by damage incurred when the bulkhead is riveted to the tail boom. The following inspections are required:

(1) Prior to the next flight and every 25 hours operating time thereafter, remove the tail rotor gear box in accordance with the pertinent Hiller Service Manual. Inspect the tail boom rear bulkhead P/N 62201 for evidence of cracking, using dye or fluorescent penetrant methods.

(2) Daily, inspect the visible portions of the tail boom rear bulkhead P/N 62201 for visible evidence of cracking or failure.

(3) If cracks or other damage are found during the above inspections, the P/N 62201 (magnesium) bulkhead must be scrapped and replaced with the P/N 62202 (aluminum) bulkhead in accordance with Hiller Service Bulletin No. 49, revised August 23, 1955, prior to further flight. If a P/N 62202 bulkhead is not available, a new P/N 62201 bulkhead may be installed provided the inspections called for in paragraphs (1) and (2) above are continued.

(4) As soon as the P/N 62202 bulkhead has been installed in accordance with Hiller Service Bulletin No. 49, revised August 23, 1955, the special inspections called for in paragraphs (1) and (2) above may be discontinued.

55–19–2 THOMPSON ENGINE DRIVEN FUEL PUMPS Applies to all Thompson TF–1100–2 and TF–1100–M2 pumps.

Superseded by 55–26–2.

55–20–1 DE HAVILLAND Applies to all Model 104 "Dove" aircraft.

Compliance required prior to original certification or by next airworthiness certificate renewal unless already accomplished.

Attention of operators of the Dove Aircraft is drawn to the manufacturer's recommendation for periodic inspection of the alclad engine mount pickup fittings, P/N 4W1137 and 4W1141. Several cases of fitting failures have been reported. Unless this failure is detected at an early stage, the bottom flange of the front false spar may be subjected to excessive loads and may crack as a result. Accordingly, the De Havilland Aircraft Company, in agreement with the British Air Registration Board, issued the following mandatory modification and information in which the CAA concurs.

1. To prevent fractures and to give increased strength, Modification No. 524 has been devised to change the fittings from aluminum alloy to steel and at the same time to reduce the limits from 0.0009 inch to 0.0003 inch and from 0.0018 inch to 0.0009 inch.

2. Upon incorporation of Modification 524 (and the repair R4W169), the 30-hour periodic inspections specified in TNS CT (104) Nos. 49 and 50 may be discontinued. (De Havilland Technical News Sheet CT (104) No. 65 dated August 4, 1955, covers this same subject.)

55–20–2 DOUGLAS Applies to all Douglas DC–7 aircraft Serial Nos. 44122 to 44146 inclusive, 44171 to 44174 inclusive, 44261 to 44289 inclusive and 44679 to 44684 inclusive.

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

Revising the injection pump timing on the engines creates higher exhaust gas temperatures across the top surface of the wing along the left-hand side of the outboard nacelle. In order to reduce the wing skin temperature, an additional heat shield must be installed between the center and rear spars and replace the aft section of the existing heat shields between the front and center spars adjacent to the upper left side of the outboard nacelle in the exhaust path area. (Douglas Service Bulletin DC–7 No. 77 dated July 1, 1955, covers this same subject.)

55–20–3 MARTIN Applies to all Model 202, 202A, and 404 aircraft.

Compliance required as indicated.

Several cases of nose gear steering shaft failures have occurred at the machined splines, due to torsional fatigue. Accordingly, the following inspections using dye penetrant, magnetic particle or vapor blast, are required to check for the presence of cracks.

1. New type shafts, Menasco P/N 526681, installed on all 202 and 202A aircraft, and on all 404 aircraft incorporating shimmy dampeners, must be inspected every 2,500 hours. On 404 aircraft not incorporating shimmy dampeners, the inspection must be conducted every 1,000 hours. Cracked shafts should be removed from service pending instructions from Martin.

2. Original type shafts, Menasco P/N 511681, which have never cracked, may be continued in service subject to the same conditions and inspections as the new type in item 1 above, providing the 1.628 ±0.005-inch relief cut is added. This is accomplished by grinding the serration run out circumferentially to a relief diameter of 1.628 inches starting $\frac{5}{8}$ inch from upper shoulder, with $\frac{1}{16}$-inch corner radii. Cracked shafts may be ground down to a minimum diameter of 1.530 inches to remove cracks. If cracks are removed, the shaft may be returned to service, but must be reinspected as required in the following paragraph 3.

3. All original type shafts which have been ground to remove cracks must be inspected at 325-hour intervals. Shafts may be ground down to a 1.580-inch minimum diameter to remove cracks. If cracks are removed, the shafts may be returned to service, continuing this inspection. If cracks are not removed at the 1.530 diameter, the shaft must be replaced.

55–21–1 HAMILTON STANDARD Applies to all Hamilton Standard 2J17 steel propeller blades installed on Boeing 377 aircraft.

Compliance required as specified herein.

This note consolidated all items of A. D. Notes and telegraphic instructions issued on the subject propeller blades prior to September 2, 1955. Only those items that are still in effect are included. Where applicable, original compliance dates are shown.

In addition, items V (E) and VI (E) specify shorter intervals for inspections of de-icer electrical resistance. Also, item IX requires ammeters in the propeller de-icer circuits. These requirements are considered necessary as a result of investigation into a recent military accident, wherein the de-icer shorting to the blade shell caused the nucleus for a fatigue crack.

This note will be revised to include requirements concerning propeller blades which have been renovated by Hamilton Standard in accordance with programs submitted to CAA.

I. The inspection and maintenance procedures given in Hamilton Standard Service Bulletin No. 302, except as modied by this A. D. Note, must be accomplished on a continuing basis.

II. No external de-icers shall be used on the exposed metal portions of the blade.

III. Blades of the "stiffener type" shall not be used.

IV. The following rpm restrictions shall be included in the aircraft placard:

(A) For aircraft having zinc plated blades:

(1) "Avoid ground running under static conditions above 2,600 r. p. m." Compliance required by October 1, 1954.

(2) "Avoid continuous ground operation between 1,400 and 2,000 r. p. m." Compliance required by October 1, 1954.

(3) "Avoid continuous operation in flight below 1,750 r. p. m. except 1,400 r. p. m. may be used for level cruise but not for descent." Compliance required by October 1, 1954.

(B) For aircraft having nickel-plated blades:

(1) "Avoid ground running under static conditions above 2,500 r. p. m. This shall be accomplished by increasing the settings of the low pitch stops in the propeller hub." Compliance required by April 15, 1955.

(2) "Avoid continuous ground operation between 1,400 and 1,900 r. p. m." Compliance required by May 26, 1955.

(3) "Avoid continuous operation in flight below 1,750 r. p. m. except 1,400 r. p. m. may be used for level cruise but not for descent." Compliance required by October 1, 1954.

V. Propeller blades in service that have not been renovated or rebuilt by Hamilton Standard. Blade se. al numbers below 649,400.

(A) Conduct hand magnetic inspection of entire blade at 400–500 hour intervals of operation.

(B) Blades on which corrosion was found and repaired within acceptable tolerances must not have these reworked areas covered with any material which would preclude discovery of a crack or other defect. Direct inspection, the use of hand magnetic inspection procedures or equivalent, must remain effective.

(C) Conduct hand magnetic inspection of garter area daily on blades on which corrosion was found and repaired. On blades on which no corrosion was found, conduct similar inspection at 65-hour intervals of operation.

(D) Conduct electrical leakage check in accordance with Section G–3 of Hamilton Standard Service Bulletin No. 302 at 120-hour intervals of operation for blades with serial numbers below 619,000 and at 500–600 hour intervals for blades with serial numbers from 619,000 to 649,400.

(E) Conduct electrical resistance check in accordance with Section G–4 of Hamilton Standard Service Bulletin No. 302 as follows:

(1) Within 65 hours after each de-icer circuit energization. (NOTE: When propeller deicing is used regularly over an extended period of time, resistance checks may be conducted at 65-hour intervals of operation rather than after each use.) A means should be provided at the de-icer circuit switches that will clearly indicate when a switch has been operated to energize the circuits. Maintenance procedures and instructions should be established to provide for the resistance check within the specified time

whenever the indicator shows that the de-icer circuits have been energized.

(2) At each composite service, not to exceed 200 hours.

VI. New propeller blades incorporating special treatment of unplated area and an 8-inch rubber sleeve in place of narrow garter previously used. These new blades can be identified by (1) presence of 8-inch sleeve in place of narrow garter, (2) serial numbers above 649,400, (3) model designation 2J17H3–8W change AE or later (zinc plate), or 2J17Z3–8W change R or later (nickel plate).

(A) At 260 hours of operation, each operator or separate division thereof shall on at least 12 blades, remove the sleeve, and inspect the exposed area for corrosion, and the entire blade visually and hand magnetically for other defects. If the blade satisfactorily passes inspection, a new sleeve shall be installed prior to further service. These inspections shall be repeated at 600 hours of operation, and at 600-hour intervals thereafter.

(B) Blades which were inspected at 130 hours of operation shall be reinspected as in (A) above at 400 hours of operation, and at 600-hour intervals thereafter.

(C) Blades other than these pilot blades shall be inspected as in (A) above at 600 hours total time, and at 600-hour intervals thereafter.

(D) Conduct electrical leakage check in accordance with Section G–3 of Hamilton Standard Service Bulletin No. 302 at the time of hand magnetic inspection specified in item (A), (B), and (C) above.

(E) Conduct electrical resistance check in accordance with Section G–4 of Hamilton Standard Service Bulletin No. 302 as follows:

(1) Within 65 hours after each de-icer circuit energization. (NOTE: When propeller deicing is used regularly over an extended period of time, resistance checks may be conducted at 65-hour intervals of operation rather than after each use.) A means should be provided at the de-icer circuit switches that will clearly indicate when a switch has been operated to energize the circuits. Maintenance procedures and instructions should be established to provide for the resistance check within the specified time whenever the indicator shows that the de-icer circuits have been energized.

(2) At each composite service, not to exceed 200 hours.

VII. Check strength of hand magnets for conformance with Hamilton Standard Service Bulletin No. 302 or equivalent before each use, or daily when in continued use.

VIII. To supplement the above precautions, prior to July 30, 1955, install a monitoring device to indicate and signal to the flight crew any roughness or excessive vibration in a nacelle so that the crew can determine which nacelle is involved and act accordingly to avert possible subsequent blade failure. If engine analyzer is used in the system, signal lights may be installed later. Supplement information in operations manual instructing flight crews to check vibration indicators at least hourly for any indication of progressive unbalance.

IX. Prior to April 1, 1956, install a current load meter (ammeter) in the propeller de-icer circuit of each aircraft to indicate to the flight crew a de-icer heater resistance change.

X. Factory renovated propeller blades incorporating special treatment of unplated area and an eight inch rubber sleeve in place of narrow garter previously used. These blades can be identified by (1) presence of eight inch sleeve in place of narrow garter, (2) serial numbers below 649,400, (3) model designation 2J17H3–8W prior to change AE (zinc plate), or 2J17Z3–8W prior to change R (nickel plate).

(A) At 130 hours of operation, each operator or separate division thereof shall on at least 12 blades, remove the sleeve, and inspect the exposed area for corrosion, and the entire blade visually and hand magnetically for other defects. If the blade satisfactorily passes inspection, a new sleeve shall be installed prior to further service. These inspections shall be repeated at 400 hours of operation, and at 600-hour intervals thereafter.

(B) At 260 hours of operation, each operator or separate division thereof shall on at least 12 blades, other than the blades specified in (A) above, remove the sleeve, and inspect the exposed area for corrosion, and the entire blade visually and hand magnetically for other defects. If the blade satisfactorily passes inspection, a new sleeve shall be installed prior to further service. These inspections shall be repeated at 600 hours of operation, and at 600-hour intervals thereafter.

(C) Blades other than these pilot blades shall be inspected as in (A) and (B) above at 600 hours total time and at 600-hour intervals therafter.

(D) Conduct electrical leakage check in accordance with Section G–3 of Hamilton Standard Service Bulletin No. 302 at the time of hand magnetic inspection specified in item (A), (B), and (C) above.

(E) Conduct electrical resistance check in accordance with Section G–4 of Hamilton Standard Service Bulletin No. 302 as follows:

(1) Within 65 hours after each de-icer circuit energization. (NOTE: When propeller de-icing is used regularly over an extended period of time, resistance checks may be conducted at 65-hour intervals of operation rather than after each use.) A means should be provided at the de-icer circuit switches that will clearly indicate when a switch has been operated to energize the circuits. Maintenance procedures and instructions should be established to provide for the resistance check within the specified time whenever the indicator shows that the de-icer circuits have been energized.

(2) At each composite service, not to exceed 200 hours.

This supersedes A. D. Notes 54–17–1 and 55–8–2 and telegraphic instructions of the following dates: April 1, 6, 7, 8, 22; May 3, 26; June 8; July 29; August 16, and September 1, 1955.

55–21–2 PIPER Applies to all Model PA–23 aircraft through Serial No. 23–321, except Serial Nos. 23–310, –311, –315, and –319.

Compliance required as indicated.

The wing front spar attachment fitting P/N 17079 at the centerline of the fuselage must be inspected and reinforced as indicated below. This is a welded steel fitting bolted to the front face of the front spar web and is accessible through the wing bottom access panel.

I. Compliance required prior to next flight and at every 15 hours thereafter. Visually inspect the wing front spar attachment fitting and if any damage is found such as bent flanges or any other visible distortion contact the Piper Corporation for further instruction prior to returning airplane to flight status.

II. Compliance required prior to November 1, 1955. If inspection of item I discloses no defects install reinforcement fitting assembly in accordance with Piper reinforcement kit 754112 or equivalent. The inspections required in item I are not required after incorporating the fitting reinforcement. (Piper Service Bulletin No. 142 dated October 4, 1955, covers this same subject.)

55–22–1 BEECH Applies to all Beech Model 35 airplanes, Serial Nos. 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 Part No. 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.)

55–22–2 ERCO Applies to serial numbers 113 through 2468 for fuselage tank replacement; serial Nos. 113 through 2622 for wing tank replacements.

Inspection required each 25 hours; replacement at time leakage discovered.

Unless the terneplate fuselage fuel tank has been replaced with a stainless steel tank and the terneplate wing fuel tanks replaced with aluminum alloy or stainless steel tanks, the tanks should be inspected frequently for signs of leakage at intervals not greater than 25 hours. If tank leakage is observed, the tank should be replaced with one of stainless steel or aluminum alloy, as required, before the next flight.

Erco Service Department Bulletins No. 10 and No. 10A and Memorandums No. 31 and 43 pertain to the inspection and replacement of these tanks.

This supersedes A. D. Note 47–50–10.

55–22–3 PIPER Applies to all Model PA–22 aircraft.

Compliance required as soon as possible but not later than November 30, 1955.

To prevent rain water from entering the fuel tanks, all Piper PA–22 aircraft must be equipped with new type fuel tank cap Piper P/N 454039 installed. This cap incorporates a redesigned venting system and a gasket seal of black composition rubber ring in place of the fiber gasket on the old type caps.

55–22–4 VICKERS-ARMSTRONGS Applies to all Model Viscount aircraft.

Compliance required as indicated.

Cracks have been found in the tailplane center section main spar extending along the lines of rivets attaching the web plate.

Accordingly, Vickers-Armstrongs (Aircraft) Ltd. issued Preliminary Technical Leaflet No. 52 dated 19th August 1955, covering this subject. The British Air Registration Board considers Modification D.1384, the initial and repetitive inspections recommended therein mandatory in which the CAA concurs.

Aircraft complying with the limitations specified in P. T. L. No. 52 will be considered serviceable.

55–22–5 VICKERS-ARMSTRONGS Applies to all Model Viscount aircraft.

Compliance required as indicated.

A crack has been found in one of the side brackets supporting the top outboard attachment fitting of the left inboard nacelle. The part number of the bracket being 7003/1140, (1. e., pre. Md. D.460).

Accordingly, Vickers-Armstrongs (Aircraft) Ltd. issued Preliminary Technical Leaflet No. 40, Issue 2, dated 10th August 1955, covering this subject. The British Air Registration Board considers the following inspections recommended therein mandatory in which the CAA concurs.

1. Inspect the brackets on the front of the leading edge member for cracks at or before the next Check III, 1. e., approximately 600 hours.

2. Inspect the brackets behind the leading edge member for cracks at or before the next Check IV.

If cracked brackets are found, replace with brackets conforming to Modification No. 1031.

55-23-1 BOEING Applies to all Model 377 aircraft.

Superseded by 56-1-2.

55-23-2 LOCKHEED Applies to Super Constellation Models 1049C, D, E, and G, Serial Nos. 4163 through 4166, 4520 through 4581, 4583 through 4605, 4608 through 4615, and 4620.

Compliance required as indicated.

1. Inspect the outer wing main beam web between wing stations 510 and 668 left and right for cracks as soon as practical and repeat at 125-hour intervals until reinforcement in accordance with paragraph 2 below is accomplished. If cracks are found repair immediately in accordance with Lockheed Repair Manual, Report 8882, and continue 125-hour inspections until reinforcement per paragraph 2 below is accomplished. Inspection for fuel stains alone as an indication of a crack is not sufficient because of the presence of fuel sealant on the forward side of the web.

2. To be accomplished as soon as possible, but not later than next scheduled progressive overhaul time, and in no case later than December 1, 1956, whichever occurs first: Reinforce the main beam web, left and right, between wing stations 510 and 668. This shall be accomplished by the addition of three extruded 75S-T6 stiffeners, (LS2186 or LS6097) or equivalent between each of the original stiffeners. The LS347-3 stiffeners added previously in accordance with A. D. Note 54-24-2 on some of these aircraft may be retained. In these cases, one new (LS2186 or LS6097 or equivalent) stiffener must be added between each of these and the original stiffeners in this area.

(Lockheed Service Bulletin No. 1049/SB-2753 also covers this subject.)

55-23-3 LOCKHEED Applies to Constellation and Super Constellation aircraft, Serial Nos. 1963 through 1980, 2021 through 2088, 2503 through 2590, 2610, 2611, and 2614 through 2677, 4001 through 4024, 4163 through 4166, 4501 through 4581, 4583 through 4594, 4602 through 4604, and 4613 through 4615.

Compliance required as indicated.

1. As soon as possible, but not later than next 250 hours conduct magnetic particle or magnaglow inspections on main landing gear downlock spring cylinder assembly rod end P/N 295168 for cracks in the threaded portion. If cracks are found replace the part immediately. Repeat inspection, magnetic particle or 20-power magnifying glass at 300-hour intervals until replacement in accordance with paragraph 2 is accomplished.

2. Replace downlock spring cylinder assembly P/N 270104 with new assembly P/N 475211 as soon as practical but not later than the next progressive or base overhaul period approximately 2,500 hours. Concurrently with this replacement, line ream the lugs on the downlock strut assembly to (0.3770 inch-0.3780 inch) diameter and replace the spacer P/N 268225-2 with bushing P/N LS3859-4-1094 and replace bolt AN23-21 with AN23-22 attaching the lower end of the spring cylinder assembly to the downlock strut.

(Lockheed Service Bulletins 49/860 and 1049/2709 also cover this subject.)

55-24-1 LUSCOMBE (TEMCO) Applies to all Luscombe Series 8 aircraft.

To be accomplished by March 1, 1956, and at every annual periodic inspection thereafter.

Extreme surface corrosion has been found to exist inside the fuselage spar carry through structures P/N 28018 and 28019 of Luscombe Series 8 aircraft, particularly in those airplanes which are located near coastal areas. If allowed to progress, such corrosion could deteriorate the spar carry through members until a structural failure occurred.

This corrosion is internal and cannot be detected by an external inspection. Therefore, the inside surfaces of the spar carry through members must be inspected. This may be accomplished by either of the two following acceptable methods:

(1) Remove wings from the airplane and also the wing attachment fittings. The ends of both the front and rear spar superstructures will then be open so that an internal inspection of these hat-section members can be made.

(2) Use of this method of inspection will not require the removal of the wings from the airplane. One-half inch holes may be drilled through the top wing skin directly over each spar carry through member so that a visual inspection can be made directly into the bottom of the hat sections. The airframe structure has adequate margins of safety in this area so that the existence of the ½-inch inspection holes will not impair the structural integrity of the airplane. Five of these ½-inch holes should be drilled over each of the spar carry through hat sections, one hole at the middle of each spar carry through, one hole 5 inches from each outboard end of the wing attachment fittings and one hole approximately centrally located between this latter hole and the middle hole. This will provide a distance of approximately 7½ inches between holes and should render it possible to inspect all of the internal surface of the hat-section spar carry through members. After the inspection has been made, the ½-inch holes must be covered with a small patch of aircraft fabric doped to the surface of the wing skin or by the insertion of a rubber or neoprene seal plug, or equivalent. This method will also provide a ready means of rechecking the spar carry through members for corrosion during the time of subsequent inspections.

If any evidence of corrosion is found to exist, the affected spar carry through member should be removed and replaced with an identical new part.

The above inspections may be discontinued if both spar carry through structures are replaced with new parts that are identical to the original and properly anodized and painted to prevent corrosion.

55-25-1 BELL Applies to Model 47G helicopters below Serial No. 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 AN174-34 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 AN174-34 bolt with a new longer bolt P/N AN174-35, unless doubler plates are added, in which case install AN174-36 bolts.

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

55-25-2 DE HAVILLAND Applies to all Model 104 "Dove" aircraft.

Compliance required as indicated.

Cases have occurred recently where cracks have been found in the left-hand front fin attachment brackets, Part Number 4FS.1749 (Pre. Dove Model 7, "Individual fin attachment and rudder control pulley bracket"), and Part Number 4FS.6781 (Dove Mod. 7, "To introduce single casting for front fin attachments and control pulley brackets"). The cracks generally emanate from the top rivet hole in the left row and pass through the flange.

The De Havilland Service strongly recommends inspection of the fin attachment brackets at an early date with which the CAA concurs and considers mandatory.

Inspect both front fin attachment brackets for cracks, using a magnifying glass after removing the paint, as soon as practical, but not later than the next 25 hours operation unless already accomplished, and thereafter at each check II (approximately 100-hour periods). Access can be made by entering through bulkhead No. 5.

Should any cracks be found, install new front fin attachment and pulley brackets, Part No. 4FS.9165 L. H. and 4FS.9166 R. H. (Ref. Dove Modification 903) and secure to bulkhead No. 6 using 2BA bolts and nuts or equivalent in the top six holes. Rivets are used in the other positions.

Repetitive inspection may be discontinued when the new front fin attachment and pulley brackets per Modification 903 are installed. (De Havilland Technical News Sheet CT (104) No. 112, Issue 2, dated September 1, 1954, covers this same subject.)

55-25-3 DE HAVILLAND Applies to all Model 104 "Dove" aircraft.

Compliance required as soon as practical but not later than February 15, 1956, unless already accomplished.

A case has recently occurred where the presence of corrosion at the main earth connection, situated on the fuselage nose decking in the vicinity of nose frame 4, has reduced the efficiency of this earthing point sufficiently to cause overheating of the cockpit lighting cables.

The De Havilland Service strongly recommends that the following inspection be carried out at the earliest opportunity in order to ascertain the condition of this connection with which the CAA concurs and considers mandatory.

Method.

1. Examine earth post situated in nose floor, and ascertain if it has a protective coating of blue oil base paint D. T. D. 827. (If it is protected, do not disturb unless it appears to be in a bad condition.)

2. If no protection is evident, dismantle terminal, clean floor surface locally at the terminal with a stiff bristle brush, to ensure removal of any corrosion and to provide good electrical contact between mating faces of terminal assembly. Reassemble terminal, using corrosion washer D. H. S. 439 G in place of lead plated brass washer 4F.781. All other mating surfaces must be clean and free from corrosion. If steel washer shows signs of deterioration, it must be replaced by another one, cadmium plated. Completed assembly must be painted liberally with blue oil base paint D. T. D. 827 to prevent ingress of moisture.

(De Havilland Technical News Sheet CT (104), No. 121, Issue 2, dated July 14, 1955, also covers this same subject.)

55-25-4 SIKORSKY Applies to all S-55 helicopters.

Compliance required as indicated.

A recent failure of the tail cone skin in the area where the tail cone is spliced to the fuselage has been reported in a Model S-55 helicopter. Since this is the means of attaching the tail cone to the fuselage and to preclude further failures, the following inspections and reinforcements for the splice area are considered necessary.

1. Tail cones with less than 1,500 hours, add reinforcements at the next major inspection or within the next 150 hours.

2. Tail cones with 1,500 hours to 2,000 hours, inspect the skin for cracks at the next major inspection or within the next 150 hours. If no cracks are found, add reinforcements. If cracks are found, replace the skin and add reinforcements.

3. Tail cones with 2,000 hours or more, inspect the skin for cracks at the next intermediate inspection or within the next 50 hours. If no cracks are found, add rein-

forcements. If cracks are found, replace the skin and add reinforcements.

4. The inspection procedures to be followed, the reinforcements to be added and the method of attaching the reinforcements are explained in detail in Sikorsky Information Circular No. 1420–632.

55–26–1 DOUGLAS Applies to Douglas A–26 aircraft having rear fuselage fuel tank installation.

To be accomplished prior to actuation of fuselage fuel tank.

Because of an explosion in the air and loss of aircraft, instructions were issued October 12, 1955, to deactivate the rear fuselage fuel tank on the above aircraft until further notice.

If the following modification, or its equivalent, is accomplished this fuel tank may be reactivated:

1. Provide fume tight closure and sealing of bulkheads at Stations 332 and 369. This should include tight fitting grommets or fairleads around control cables, or other members passing through bulkhead.

2. Remove all electrical equipment and oxygen tanks, if installed, from the tank compartment. Relocate elsewhere in the airplane as required.

3. Provide insulation around any electrical terminals in tank bay.

4. Provide adequate ventilation airscoop on top or side of tank compartment and exit vent on bottom. Provide drain holes in bottom of compartment to assure complete fuel drainage.

5. Ascertain that fuel tank, filler, cap, scupper, drain, and attaching lines and fittings are airworthy.

55–26–2 THOMPSON ENGINE DRIVE FUEL PUMPS Applies to all Thompson TF–1100–2 and TF–1100–M2 pumps.

Compliance required as indicated.

To prevent TF–1100 fuel pump failure resulting from excessive drive pin wear, accomplish the following:

1. Remove pump from certificated airplanes and replace with Thompson TF–1900 pump having larger diameter drive pin not later than August 1, 1956. TF–1100 pumps may be converted to TF–1900 pumps when modified in accordance with Thompson Service Bulletin ESD–182A and Amendment ESD–182B.

2. Until installation of the TF–1900 pump, the drive pin (Thompson Part No. TF–1191) in the TF–1100 pumps should be replaced with an unused pin at the next 100-hour aircraft inspection and each 100 hours thereafter. At the time of pin replacement, inspect the drilled hole in the TF–1100 rotor for excessive elongation and, if necessary, replace rotor. (Thompson Products Service Bulletin ESD–176A covers this same subject.)

This supersedes A. D. Note 55–19–2.

56–1–1 BELL Applies to Bell Model 47G, Serial Nos. 666 through 14.11 and Model 47G–2, Serial Nos. 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. 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 1/16-inch steel plate, 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 9–30–55 covers this same subject and outlines the details of the inspection and repairs.)

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 2,000 hours flight time, the number 1 bolt hole in each rear spar station 246 joint and numbers 1 and 6 bolt holes in each front and rear spar station 510 joints shall be carefully inspected by use of boroscope 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 boroscope or equivalent method. If cracks are found, they shall be repaired in accordance with Boeing instructions.

This supersedes A. D. Note 55–23–1.

56–2–1 AERO DESIGN Applies to Model 560A Commanders, Serial Nos. 231 through 269.

Compliance required by April 1, 1956.

Due to loss of an augmenter tube in flight, new type support clamps are required at the aft end of the augmenter tubes and at nacelle frames 143.75 and 158.75. Also, new support clips bolted through the augmenter tube at the aft end are required. Parts will be furnished by Aero Design and the rework is described in Aero Commander Service Bulletin No. 31.

This supersedes CAA telegram of December 5, 1955, which required immediate inspection and installation of a 10–32 machine screw through the bell mouth and augmenter tube.

56–2–2 HAMILTON STANDARD Applies to all Hamilton Standard Model 5U18 governors installed on Douglas DC–7 Series aircraft.

Compliance required as indicated.

Prior to August 1, 1956, replace all governor drive gear shafts P/N 67035 with Shafts P/N 321822 in Hamilton Standard 5U18 governors installed on Douglas DC–7 Series aircraft. Shafts with less than 1,000 hours must be replaced first.

Until removal from service, all P/N 67035 shafts which have accumulated less than 1,000 hours total time shall be magnetically inspected at 200-hour intervals of operation until they reach 1,000 hours. Use the direct method with calibration level No. 1 described on page 30 of Hamilton Standard Overhaul Manual No. 163B. This inspection should include the inside surface as well as the outside surface. Any magnetic indications longer than 1/16 inch from the corners of the high or low pitch ports are cause for immediate rejection of the shaft. Demagnetize shafts before returning to service.

56–2–3 ROLLS-ROYCE Applies to all Dart 506 and 510 engines.

Compliance required as indicated.

Due to the possibility of low stage compresser impeller failure, all impellers, Part Nos. RK13782, RK17877, RK19795, RK20156 and RK20181, must be removed from service and not reused after a maximum of 725 hours service time.

The British Air Registration Board considers this parts replacement program mandatory and the CAA concurs.

Operation beyond 725 hours total time is not authorized.

56–3–1 LOCKHEED Applies to all Model 49–46, 149, 649, 649A, 749, 749A and 1049–54 aircraft.

Compliance required as indicated.

As a result of cracks discovered in Lockheed 749A wing skin and stiffeners, the following inspection shall be accomplished on the various model aircraft as indicated. Inspect, using X-ray or visual means, for cracks in the lower wing skin and stiffeners, left and right from wing station 191 through station 206 between the front beam and stringer No. 6. Lack of fuel leakage is not considered evidence of absence of cracks in this area. The X-ray inspection method is recommended if equipment is available. If the X-ray process is used, the method described in Lockheed's letter F/S 125611 or a Lockheed approved equivalent is necessary to the success of this inspection. If the inspection is accomplished visually, the tank sealant must first be removed from the affected area. However, cracks under the stringers cannot be detected by the visual method.

If cracks are found, repair prior to further operation. Any CAA/LAC approved repair may be used.

1. For Models 649, 649A, 749, 749A and 1049–54.

(a) Inspect aircraft with 20,000 hours or more as soon as practical but not later than the next 500 flight hours. Inspect aircraft with over 15,000 hours at the next block overhaul, providing the total hours at such overhaul time do not exceed 20,500 hours. In the case of aircraft for which no block overhaul time has been established and whose flight time falls between 15,000 and 18,000 hours, inspect the affected area within the next 2,500 hours.

(b) Reinspect at 2,500-hour (maximum) intervals if the X-ray inspection method is used or at 800-hour (maximum) intervals if the visual inspection method is used.

(c) These repetitive inspections may be discontinued when permanent reinforcements of the affected area are accomplished. Lockheed Sketch No. 11755 describes a satisfactory permanent reinforcement.

2. For Models 49–46 and 149.

(a) Inspect aircraft with 25,000 hours accumulated flight time or more as soon as practicable but not later than the next 500 flight hours. Inspect aircraft with over 20,000 hours at the next block overhaul or major overhaul period, provided the total hours at such overhaul time do not exceed 25,500 hours.

(b) Reinspect at 2,500-hour (maximum) intervals if X-ray inspection used or at 800-hour (maximum) intervals if visual inspections conducted.

(c) These repetitive inspections may be discontinued when permanent reinforcements of the affected area are accomplished. Lockheed Sketch No. 11755 describes a satisfactory permanent reinforcement.

56–3–2 PRATT & WHITNEY Applies to all P&W Double Wasp CA and CB, and Military R–2800–34, –52W, –57, –73, –77, –83 and –101 Series engines using water injection.

Compliance required as indicated.

As a result of engine fires reported due to fuel leakage of the derichment valve cover of PR58 carburetors, the following must be accomplished to reduce the possibility of the derichment valve cover loosening with subsequent fuel leakage:

A. At each scheduled inspection which requires the engine cowl to be opened (approximately 100-hour intervals), inspect for fuel leakage while subjected to boost pump pressure. If leakage is noted, either retorque derichment valve cover screws to stop leakage as outlined in B below, or replace derichment valve diaphragm as outlined in C below.

This leakage inspection may be made at alternate scheduled inspections which require the engine cowl to be opened (approximately 200-hour intervals) provided four locating screws with a shank to act as dowels

are installed to eliminate lateral movement of the derichment valve cover.

B. The first time leakage is noted it is permissible to retighten the derichment valve cover screws to 20 to 30 pound-inches torque. If this retorquing corrects the leakage, it will be satisfactory to continue to use the subject diaphragm. NOTE: This retightening can be accomplished only once on a leaking diaphragm.

C. At overhaul and whenever a derichment valve diaphragm is replaced:

1. The derichment valve diaphragm holding surfaces of the derichment valve body and diaphragm cover should be lapped to assure that they are flat and to roughen their surfaces. This lapped surface roughness will aid in holding the diaphragm by minimizing cold flow of the diaphragm rubber.

2. The derichment valve diaphragm and the surfaces which clamp it should be dry when the parts are assembled and in particular should be free of oil.

3. During assembly of the parts, the derichment valve cover screws should be tightened to a torque of 20 to 30 pound-inches. After a period of at least twenty minutes the screws should be retightened to the same torque value.

Caution: Do not loosen the screws before retightening.

(P&WA Alert Bulletin No. 43 also covers this subject.)

56-3-3 RYAN Applies to all Navion aircraft.

Compliance required as indicated.

Cracks starting at the wing center line attaching bolt hole in the wing rear spar junction fittings (P/N 145-14070) at wing station O have been found on a number of Navion aircraft.

To correct this, it will be necessary to inspect all Navions for this condition as soon as practicable but not later than May 1, 1956. Access to these fittings may be gained through the main wheel wells.

If no cracks are found, 3/16 inch thick 1010 steel (or equivalent) end plates, properly radiused for a snug fit, should be installed in each fitting prior to the next 50 hours of flight time.

If cracks are found, they should be stop drilled with a No. 60 (0.040) drill and the end plates as described above should be installed prior to the next flight.

No further inspections will be necessary upon installation of these end plates.

(Ryan Navion Service Bulletin No. 23 dated December 5, 1955, covers this same subject.)

56-4-1 CHAMPION Applies to Model 7EC aircraft, Serial Nos. 300 to 370 inclusive.

To be accomplished as soon as practicable but not later than April 1, 1956.

Inspect front and rear control stick socket castings, Part No. 2-705, for cracks at the ears to which the push-pull tube attaches. If found cracked, the castings should be replaced. If a standard AN bolt, nut and washer are installed, replace with a clevis bolt, AN 24-16 (11/16 grip), and an AN320-4 shear nut so that excessive loads cannot be placed on the socket ears.

56-4-2 CONVAIR Applies to all CV-240 and CV-340 aircraft.

Compliance required as soon as possible but not later than February 1, 1957, for Model 240 and August 1, 1957, for Model 340.

As a result of a recent accident involving a nacelle fire, additional fire protection for the nacelle is required.

The following changes or equivalent must be made to accomplish the above:

1. Replace aluminum alloy engine fuel supply lines, and sleeves, nuts and tube unions, with steel lines in the wheel well area (zone 3), except for lines and fittings outboard of the main landing gear beam. This does not apply to lines and fittings between cross-feed valves.

2. Replace present flexible hose assemblies in the engine fuel supply system in the wheel well area (zone 3), including AN fittings, with steel tubing and/or fireproof flexible lines, except for lines and fittings outboard of the main landing gear beam. Flexible lines qualifying as fireproof may incorporate either steel or aluminum fittings.

3. a. CV-340 airplanes only. Replace aluminum alloy propeller pump suction line in left-hand nacelle wheel well (zone 3) with a steel line.

b. CV-240 airplanes only. Replace aluminum alloy propeller pump suction line in wheel well area (zone 3) with a steel line. (Both nacelles.) (Original flexible hose connections will be satisfactory if provided with a steel liner.)

4. Protect existing oil hose assemblies in wheel well area (zone 3) with asbestos sleeves or equivalent.

5. Replace all micarta pulleys in wheel well area (zone 3) with aluminum alloy pulleys.

Convair Service Bulletins Nos. 240-467 and 340-167 cover items 1 through 4. Convair Service Bulletins Nos. 240-468 and 340-166 cover item 5. These bulletins also contain some items which are not mandatory but are recommended.

56-4-3 DOUGLAS Applies to all DC-6 aircraft, fuselage 1 through 172.

Superseded by 56-13-1.

56-4-4 SIKORSKY Applies to all Model S-55 helicopters.

Superseded by 56-10-2.

56-5-1 BELL Applies to Model 47 helicopters: Model 47D1 Serial No. 477 and subsequent, Model 47G Serial Nos. 667 through 692, 694 through 1511, Model 47G2 Serial Nos. 1342 through 1418, Model 47H1 Serial Nos. 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 A. D. of February 3, 1956.

56-6-1 CONTINENTAL ENGINES Applies to O-470 Series and E Series engine serial numbers listed below excepting (a) any remanufactured engine shipped from Continental Motors Corp. after May 1, 1955, and (b) engine serial numbers listed under Exceptions.

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

To prevent serious engine damage in flight, the following must be accomplished:

1. Replace present piston pin assembly with piston pin assembly P/N 539467 in the following serially numbered engines:

Engine model	Engine serial Nos.	Exceptions
O-470-A	41258 to 41679, 40015-2-A, 40021-2-A, 40028-2-A, 40045-2-A, 40054-2-A, 40074-3-A, 40110-3-A, 40125-3-A, 40154-3-A, 40168-3-A, 40176-3-A, 40177-3-A, 40203-3-A, 40204-3-A, 40242-3-A, 40264-3-A, 40267-3-A, 40293-3-A, 40334-3-A, 40371-3-A, 40418-3-A, 40424-3-A, 40438-3-A, 40444-3-A, 40485-3-A, 40494-3-A, 40567-3-A, 40579-3-A, 40581-3-A, 40601-3-A, 40619-3-A, 40647-3-A, 40651-3-A, 41008-3-A, 41025-3-A, 41032-3-A, 41033-3-A, 41038-3-A, 41039-3-A, 41068-3-A, 41094-3-A, 41109-4-A, 41175-4-A, 41181-4-A, 41187-4-A, 41189-4-A, 41196-4-A, 41251-4-A, 41254-4-A.	
O-470-B	50001 to 50256	50189, 50241, 50245, 50246, 50247, 50250, 50251, 50252.
O-470-J	45001 to 45533	45520, 45521, 45525, 45529.
E-225-4, E-225-8	30163 to 30715.	
E-185-8, E-185-11	22200 to 22269.	
E-185-9	6128 to 6135.	

In addition, replace piston pin assembly, P/N 535145, with piston pin assembly, P/N 539467, in any O-470 or E Series engine that was overhauled in the field and in which it is known that P/N 535145 was installed at time of overhaul. (Continental Motors Corporation Service Bulletin No. M56-2, Supplement #1, dated March 12, 1956, further discusses this subject.)

2. Replace present oil pump gear assembly with oil pump gear assembly P/N 539525 in the following serially numbered engines:

Engine model	Engine serial Nos.	Exceptions
O-470-B	50076 to 50256	50189, 50241, 50245, 50246, 50247, 50250, 50251, 50252.
O-470-J	45001 to 45533	45447, 45448, 45456, 45457, 45462, 45463, 45466, 45468, 45473, 45474, 45481, 45484, 45489, 45491, 45494, 45495, 45500, 45503, through 45514, 45516, 45519, 45520, 45522, 45523, 45525, 45526, 45528, 45529, 45532.

3. Replace present exhaust valves with exhaust valve P/N 539449 in the following serially numbered engines:

Engine model	Engine serial Nos.	Exceptions
O-470-A	40001 to 40673	
O-470-A	41001 to 41679	
O-470-J	45001 to 45489	45487

Continental Motors Corp. Service Bulletin M56-2, dated February 14, 1956, further discusses this subject and offers special discounts for replacement parts ordered prior to July 1, 1956, from bona fide Continental aircraft engine spare parts distributors.

56-6-2 PRATT & WHITNEY Applies to all P&WA engines.

Compliance required as indicated.

As a result of engine fire reported due to cylinder failure as a result of stud failures, the following must be accomplished to reduce cylinder and stud failures:

A. If a cylinder flange attaching stud fails during engine operation, the adjacent studs may be subjected to severe overstress. The same is true if an attaching nut becomes loosened to the extent that there is clearance between the nut and the cylinder flange. If more than two adjacent studs have broken, or the nuts have become loose, there is a probability that the cylinder flange has been overstressed.

B. If, during line inspection or at engine teardown prior to overhaul, a nut is found to be loose or there has been failure of a stud, replace that stud and the two adjacent studs.

C. If more than two adjacent studs have failed or if more than two adjacent nuts are known to have been loose during engine

operation, the cylinder should be scrapped or rebarreled and all the studs on the cylinder mounting pad replaced.

D. If only two adjacent studs have failed or two adjacent nuts have been found loose, the cylinder should be replaced, but it need not be scrapped provided that the nuts adjacent to the failed studs or loose nuts are found to be at least to minimum torque and that the cylinder flange has not become distorted more than 0.003 inch; also, that the flange and area above the flange are magnafluxed and show no crack indicators. If the bottom of the cylinder flange is not perfectly flat, but is not distorted more than 0.003 inch,it should be lapped flat before reinstallation. Before a replacement cylinder is installed, the crankcase studs immediately adjacent to the two broken or loose ones should be replaced.

E. During cylinder installation, securely tighten the cylinder flange attaching nuts. (P&WA Service Bulletin No. 1000 describes approved methods and torques.)

(This subject is also covered in P&WA Alert Bulletin No. 42 entitled "Cylinder Attachment Inspection and Maintenance.")

56-8-1 CURTISS PROPELLERS Applies to all Model C632S, C634D and C634S propellers.

Compliance required as indicated.

I. Replace low pitch limit switches P/N 110425 at not more than the following intervals:

	Hours
Douglas DC-6 Series Aircraft	3,500
Lockheed 749 Series Aircraft	3,500
Lockheed 1049 Series Aircraft	3,500
Convair 240 Series Aircraft	1,000

Curtiss Service Bulletin No. 52 dated December 29, 1949, and appropriate service manuals also cover these recommendations.

II. Disassemble and visually inspect low pitch limit switches P/N 154592 at not more than the same intervals. Inspect for proper switch operation and for mechanical and electrical condition. Failure or malfunction other than normal service wear shall be cause for replacement of switch parts or of the assembly. Switches not revealing adverse conditions may be returned to service.

This supersedes section III of A. D. Note 53-5-1.

56-9-1 HILLER Applies to all UH-12 Series helicopters.

Compliance required as indicated.

Failures of tail rotor tension-torsion (T-T) bars, P/N 55003, have occurred in the threaded portion of the bars adjacent to the Rosan inserts in the yoke. These failures caused loss of the tail rotor and directional control of the helicopter. The failures were caused by excessive stresses in the T-T bars which resulted from adverse accumulation of machining and assembly tolerances and from unfavorable orientation of the T-T bar within the blade assembly. Excessive wear of the oilite bushings in the tail rotor blade root fitting may also cause high stresses in the bars.

1. To prevent recurrences of these T-T bar failures the following actions are required before the 100 hour replacement time of the T-T bars specified in telegraphic A. D. dated 11-1-55 has been accumulated.

(a) Disassemble the tail rotor blade sufficiently to determine the diametral clearance between the outside diameter of the tail rotor yoke and the inside diameter of the oilite bushings within the blade root fitting. If the differences in diameters exceed 0.005 inch, replace the bushings as necessary to obtain diametral clearances of 0.001 inch to 0.003 inch.

(b) Determine the run-out of the T-T bar at the Rosan insert in the yoke and at the end block in the blade root fitting. Methods of measuring the run-out are covered in Hiller Service Bulletin No. 53.

(c) Determine the orientation of the axes of the T-T bar as originally assembled. The major axis of the T-T bar elliptical section must be 90 degrees plus or minus 15 degrees to the blade chord.

(d) If the major axis of the T-T bar elliptical section is found to be within 15 degrees of the perpendicular to the blade chord upon initial inspection and if the run-out is not greater than tolerances specified in Hiller Service Bulletin No. 53, the T-T bar may be continued in further use as provided in Item 3 below. If one or both of the above conditions are not satisfied at the initial inspection, the T-T bar shall be replaced with a new bar at the time of this inspection.

2. Repeat the inspection for diametral clearance specified in Item 1 (a) at not to exceed every 150 hours of operation.

3. Replace the T-T bars at not to exceed every 600 hours of operation regardless of the conditions found in the 150 hour inspection periods.

4. Replaced T-T bars shall be mutilated to preclude further use in this application.

This supersedes A. D. Note 53-2-2 and telegraphic A. D. dated November 1, 1955.

56-9-2 MARTIN Applies to all Model 202, 202A, and 404 aircraft.

Compliance required by September 1, 1956.

In order to eliminate shearing of rivets securing the rudder torque tube flange, P/N 2021U42196, to the rudder torque tube, P/N 2021D19331, caused by gust buffeting with gust locks not engaged and resulting in loss of adequate and/or positive rudder control, it is necessary to replace the 5/16-inch rivets with 1/4-inch 24ST heat treated rivets. (Martin Service Instruction Letters No. 202/202A-36 and No. 404-69 cover this same subject.)

56-10-1 DE HAVILLAND Applies to all Model DHC-3 Otter aircraft.

Compliance required as indicated.

As a precautionary measure pending final information on a fatal accident possibly caused by failure in the flap system, the Canadian government has issued the following directive for all Otter aircraft, in which the CAA concurs and considers compliance mandatory.

"Prior to next flight and every fifty hours thereafter all Otter aircraft flap controls including hydraulic lines valves, etc. to be inspected for proper functioning and any deterioration due to fatigue. Effective immediately all flight operations to be restricted to use of not more than climb [fifteen degrees] flap setting. Special attention should be given to inspection of flaps hydraulic system to insure that no leaks exist between pump and actuating cylinder. Also inspect all flap hinge arms and brackets for cracks, signs of warpage or restricted motions."

56-10-2 SIKORSKY Applies to all Model S-55 helicopters.

Compliance required as indicated.

As a result of fatigue failures in the horizontal hinge pin assembly, P/N S10-10-3331 and S10-10-3331-1 with 900 hours service must be replaced by June 15, 1956, or prior to the accumulation of 1,200 hours, whichever occurs first. Parts with 1,200 hours or more must be replaced prior to further service. Thereafter, P/N S10-10-3331 and P/N S10-10-3331-1 are to be retired at not more than 900 hours. This note will be cancelled upon the issuance of the mandatory retirement time in Sikorsky's Service Information Circular No. 1400-354, Revision Z.

This supersedes A. D. Note 56-4-4.

56-11-1 DE HAVILLAND Applies to all Model 104 "Dove" aircraft.

Compliance required by May 31, 1956.

As a result of the two accidents caused by pilots feathering the wrong propeller after engine failure, the British Air Registration Board has classified the following as an essential modification. The CAA concurs.

The left-hand needle (oil pressure) of the combined oil pressure and temperature gauge for the starboard engine could be mistakenly interpreted as applying to the port engine. To minimize the possibility of such confusion either Part A or Part B of Dove Modification 879 must be incorporated as soon as possible but not later than May 31, 1956:

Part A. To turn the instruments clockwise through 90° and put temporary markings on the instrument bezel.

Part B. To turn the instruments clockwise through 90° and re-mark the dials to give correct presentation or to fit modified instruments with vertical lettering and figures. (Dove Modification 879 is covered in de Havilland Service Technical News Sheet Series CT (104) No. 132 dated April 13, 1956.)

56-12-1 DOUGLAS Applies to all DC-4 and C-54 Series aircraft.

Compliance required as indicated.

Accidents involving collapse of the nose gear shock strut, P/N 8066 and 8066A, indicate that the steel piston tube, P/N 8066-4, fractured as a result of corrosion and repeated loading over an extended period of time. Initial fractures may originate at the bottom of a corroded groove adjacent to the top edge of the aluminum fork, P/N 8066A-60 or on the inside in the vicinity of the top of the internal reinforcing sleeve. Accordingly, the following must be accomplished:

1. Inspect as soon as practical but not later than October 1, 1956, unless equivalent inspection conducted within the last landing gear overhaul, all nose gear piston tubes, P/N 8066-4, both on the inside and on the outside diameters, for evidence of fatigue and/or excessive corrosion in the vicinity of the edges of the internal reinforcing ring and spacer tube or liner and in the vicinity of the top edge of the external sleeve, for evidence of cracks.

2. If cracks are found, the part must be replaced.

3. If corrosion exists, it should be removed and the part provided with protection against the potential development of corrosion in the future.

4. Reinspect at each gear overhaul to insure that fatigue cracks and/or corrosion do not exist.

(Douglas Service Bulletin DC-4 (C-54) No. 111 dated April 19, 1956, covers this same subject and outlines the methods of inspection with the limitations of each.)

56-13-1 DOUGLAS Applies to all DC-6, DC-6A and DC-6B aircraft.

Compliance required as indicated.

Numerous instances have been reported on wing skin and stringer 22 cracking aft of the main landing gear fittings at the center spar, Stations 122 and 175, on DC-6 aircraft having high flight time. The following must be accomplished as indicated on all DC-6 series aircraft having in excess of 10,000 hours total flight time.

1. Accomplish inspection of the wing skin in area aft of the center spar at approximately Stations 122 and 175, especially for cracks emanating from the radii in the skin cut-outs, as soon as practicable but not later than next periodic inspection nearest 300 hours. In case complete radii cannot be inspected directly by visual means from underneath the lower wing surface, then a reliable alternate method of inspection must be employed. X-ray may fall into this category. If a skin crack is detected, stringer 22 must also be inspected for cracks. Any skin crack or stringer 22 crack found during the inspection must be repaired prior to further passenger flight.

2. Skin cracks less than 3/4 inch in length are to be repaired as outlined on Service Rework Dwg. 5593157.

3. Skin cracks in excess of 3/4 inch but less than 1 1/2 inches in length are to be repaired as outlined on Service Rework Dwg. 5613739.

4. Skin cracks in excess of 1 1/2 inches in length at Station 175 are to be repaired as outlined in Service Rework Dwg. 5610926 together with the preventive rework shown on 5593157 and 5610629.

5. Skin cracks in excess of 1½ inches in length at Station 122 will require entire skin replacement between center and rear bottom spar caps, Wing Station 60 to Station 149, together with the preventive rework shown on 5593157 and 5610629.

6. Stringer cracks (in horizontal leg only) are to be repaired as outlined on Service Rework Dwg. 5610629. Cracks found in stringer 22 which are more extensive than through one horizontal leg of the stringer will require a complete stringer replacement.

7. All aircraft which do not require repairs are to be reinspected at each periodic inspection period nearest 2500 hours until preventive repairs per 5593157 and 5610629 are installed.

8. After rework per paragraphs 1 through 6 has been accomplished or preventive rework per Dwgs. 5593157 and 5610629 is installed, no further special inspection periods are required. Also, further special inspections are not required on DC-6 aircraft upon which kits A and B of Douglas Service Bulletin DC-6 No. 569 have been incorporated.

(Douglas Alert Service Bulletin No. A-673 revised May 8, 1956, covers the above subject.)

This supersedes A. D. Note 56-4-3 and revision published in issue No. 56-7.

56-13-2 SIKORSKY Applies to all S-51 helicopters.

Compliance required as indicated.

As a result of recent service experience, the main rotor hubs are to be retired from service at the times indicated.

1. Main rotor hubs, S10-10-1015 and S510117, are to be replaced every 480 hrs. Magnaflux inspections are to be conducted at the 200-240 hour interval.

2. Main rotor hubs, S10-10-1033, with 1/16-inch or larger chamfer at the base on the outer edge of each arm, with 240 hours of service, must be replaced by September 15, 1956, or prior to the accumulation of 480 hours, whichever occurs first. The S510122 outer arm locknuts are to be checked for looseness every 30 hours. With any indication of looseness, the hub is to be removed and a Magnaflux inspection for cracks at the root radius of the threads on the outer arm is to be conducted. Any hub with a crack is to be replaced. Hubs with 480 hours or more must be replaced prior to further service. After September 15, 1956, all hubs are to be replaced every 240 hours.

3. Main rotor hubs, S10-10-1033, with chamfer less than 1/16 inch at the base on the outer edge of each arm are to be replaced every 960 hours. Magnaflux inspections are to be conducted every 200-240 hours of service.

(Service Information Circular No. 76 Revisions D & F cover the same subject.)

This supersedes A. D. Note 49-44-1.

56-14-1 DE HAVILLAND Applies to all Model DHC-3 Otter aircraft.

Compliance required as indicated.

When placing the flap selector lever in the up position, ratchet valve fouling or failure has occurred. This causes rapid flap retraction and a subsequent buildup in control column forces to a level greater than the capability of one man to maintain control. The following restrictions are considered mandatory by the Canadian authorities, with which the CAA concurs: (1) Flap selector must not be placed in the up position under 200 feet altitude, (2) Flap selector must not be placed in the up position at speeds in excess of 66 knots (76 miles per hour), (3) The use of flaps is restricted to not more than 15 degrees. The aircraft should be temporarily placarded accordingly. These restrictions are to remain in effect until modification to prevent the possibility of rapid flap retraction now under development is incorporated.

56-14-2 DOUGLAS Applies to all DC-3 Series aircraft operated at weights in excess of 25,200 pounds.

Compliance required as indicated.

It has come to our attention that there are numerous instances wherein DC-3 Series aircraft have been approved for operation at landing and takeoff weights in excess of 25,200 pounds, in accordance with pertinent notes of Aircraft Specifications A-618 or A-669, that have main landing gear axle assemblies installed which are structurally unsatisfactory for the higher weights. The two axle assemblies involved are DACO P/N 5007396, and P/N 5007162 with P/N 5007390 torque collar.

Therefore, all DC-3 Series aircraft in which either of these assemblies is installed must be operated at weights not to exceed 25,200 pounds for landing or takeoff until satisfactory axle assemblies are installed. Note 9 of DC-3 Aircraft Specification A-618 and Note 10 of DC-3A Aircraft Specification A-669 contain a list of axle assemblies and the maximum weights for which each is structurally satisfactory.

56-14-3 DOUGLAS Applies to all DC-6, DC-6A and DC-6B aircraft having total flight time in excess of 11,000 hours.

Compliance required as indicated.

Approximately 25 cracks have been found in the aft tang of the upper front spar cap, both LH and RH, in the area of the fuselage-to-wing attachment at Wing Station 60. Five of these cracks have been reported on DC-6B aircraft with total operating times varying from slightly over 11,000 hours to approximately 15,000 hours. The remainder of the cracks were found in DC-6 aircraft. Three of the cracks have progressed into the main section of the cap beyond structural limitations and require replacement of the cap.

The following procedure must be followed:

1. If not already accomplished, inspection must be accomplished within the next 400 to 450 hours of operation.

2. If no cracks are found, or if found and temporary repairs are made in accordance with the manufacturer's recommendations, the inspection must be repeated at periods not to exceed 2,500 hours of operating time.

3. When permanent repairs are accomplished in accordance with the manufacturer's recommendations, subsequent inspections may then be made at the operator's normal inspection periods.

(Douglas Alert Service Bulletin DC-6 No. A-678 as revised April 30, 1956, contains the latest information published by the manufacturer relative to the subject aircraft and Service Bulletin DC-6 No. 678 dated May 28 contains satisfactory permanent rework instructions for Model DC-6 aircraft only.)

(b) *Index of airworthiness directives (revised June 30, 1956).*[1]

AIRCRAFT

(Also see applicable engine, propeller and equipment notes)

AERO DESIGN AND ENGINEERING COMPANY, BETHANY, OKLA.

Civil model	Approval No.	Applicable notes
560A	TC 6A1	56-2-1 (Augmenter tube support clamps).

AERONCA MANUFACTURING CORPORATION, MIDDLETOWN, OHIO (ALSO SEE CHAMPION FOR 7 SERIES)

KCA, 65-C, S-65-C	TC 675	46-36-1 (Continental piston pins).
65-CA	TC 675	46-36-1 (Continental piston pins).
		47-30-8 (Seat modification).
S-65-CA		
65-LA	TC 702	47-30-8 (Seat modification).
65-TC, 65-TAC, YO-58.	TC-728	46-36-1 (Continental piston pins).
O-58-A, O-58-B, SO-58-B.	TC 751	46-36-1 (Continental piston pins).
11AC	TC-761	46-36-1 (Continental piston pins). 47-20-1 (Gascolator bowl cleaning). 47-20-2 (Oleo piston). 47-30-1 (Lift strut wing attachment fittings). 47-30-5 (Exhaust stack inspection). 48-4-2 (Wing rib rework). 48-13-7 (Turnbuckle fork replacement). 49-11-2 (Wing attach fitting). 49-15-1 (Seat anchorage rework). 52-28-1 (Fuel transfer placard).

[1] Notes pertaining to engines, propellers and some equipment items are also listed separately. Because of the interchanging of parts, it is often impossible to list all aircraft to which a note on an engine or equipment item could apply. Therefore, to determine that all applicable notes are complied with, reference should be made to notes pertaining to engines, propellers, equipment, etc., as well as the aircraft.

AIRCRAFT—Continued

AERONCA MANUFACTURING CORPORATION, MIDDLETOWN, OHIO (ALSO SEE CHAMPION FOR 7 SERIES)—Continued

Civil model	Approval No.	Applicable notes
S11AC	TC 761	47-20-1 (Gascolator bowl cleaning). 47-50-5 (Float wirepull fitting). 48-4-2 (Wing rib rework). 48-13-7 (Turnbuckle fork replacement). 49-11-2 (Wing attach fitting). 49-15-1 (Seat anchorage rework). 52-28-1 (Fuel transfer placard).
11BC	TC 761	47-20-1 (Gascolator bowl cleaning). 48-4-2 (Wing rib rework). 49-11-2 (Wing attach fitting). 49-15-1 (Seat anchorage rework).
11CC	TC 796	47-20-1 (Gascolator bowl cleaning). 48-4-2 (Wing rib rework). 49-11-2 (Wing attach fitting).
15AC	TC 802	48-38-1 (Oil cooler installation). 48-43-2 (Continental C-145-2 engines).

BEECH AIRCRAFT CORPORATION, WICHITA, KANS.

Army AT-11, Navy SNB-1.	2-582	47-6-8 (Starter solenoid and buss lead wires). 47-6-9 (Landing gear retracting mechanism). 47-30-6 (Generator relay control switch). 47-30-7 (Tripfree circuit breaker). 47-33-3 (Tail cone drain holes). 47-33-5 (Horizontal stabilizer spar). 48-14-3 (Wing center section spar). 48-34-1 (Stabilizer attachment fittings). 48-51-1 (Control wheel shaft inspection). 49-15-3 (Fuel tank vent system). 50-28-1 (Landing gear slide tube).
C18S	TC 757	47-6-8 (Starter solenoid and buss lead wires). 47-6-9 (Landing gear retracting mechanism). 47-33-3 (Tail cone drain holes). 47-33-4 (Fuel tank gaskets). 47-33-5 (Horizontal stabilizer spar). 48-14-3 (Wing center section spar). 48-34-1 (Stabilizer attachment fittings). 48-51-1 (Control wheel shaft inspection). 49-15-3 (Fuel tank vent system). 50-28-1 (Landing gear slide tube).

AIRCRAFT—Continued

BEECH AIRCRAFT CORPORATION, WICHITA, KANS.—Continued

Civil model	Approval No.	Applicable notes
D17S	TC 649	48-51-1 (Control wheel shaft inspection).
D18S, D18C	TC 765	47-33-5 (Horizontal stabilizer spar). 47-38-6 (Stabilizer spar replacement). 47-33-7 (Alternate static source). 47-34-1 (Expansion type filler cap). 47-34-2 (Tail cone drain holes). 47-34-3 (Fuel cell seal). 48-13-1 (Generator control box insulation). 48-16-1 (Wing spar fittings). 48-34-1 (Stabilizer attachment fittings). 49-29-2 (Rudder spring bushings). 53-6-3 (Wing center section truss joints).
D18C-T	TC 770	47-33-6 (Stabilizer spar replacement). 47-33-7 (Alternate static source). 47-34-2 (Tail cone drain holes). 47-51-10 (Birdproof windshield). 48-16-1 (Wing spar fittings). 48-34-1 (Stabilizer attachment fittings). 49-29-2 (Rudder spring bushings).
35	TC 777	47-47-7 (Engine identification plate). 47-47-8 (Fuel line chafing). 48-8-1 (Starter rework). 49-4-1 (Aileron control chain). 49-26-1 (Trailing antenna rework). 49-31-1 (Emergency fuel pump "O" rings). 49-48-1 (Thompson fuel pump). 50-5-2 (Shakespeare controls). 50-32-1 (Oil pump rework). 50-42-1 (Elevator tab replacement). 51-14-1 (Fuel booster pump removal). 52-22-1 (Spar truss rework). 53-1-2 (Fuel selector valve rework). 53-11-1 (Fuselage bulkhead cracks). 53-20-2 (Fuel selector valve placard). 55-22-1 (Oil outlet check valve).

BELL AIRCRAFT CORPORATION, FORT WORTH, TEX.

Civil model	Approval No.	Applicable notes
47B, 47B-S, 47B2, 47B2-S.	HTC 1	47-32-1 (Stabilizer damper frame clamp rework). 47-32-2 (Ballast installation). 47-32-3 (Tail rotor control pedal pawl stop). 47-32-4 (Anti-torque rotor blades placard). 47-32-5 (Main rotor mast spinner). 47-32-6 (Main rotor hub pillow blocks). 47-32-7 (Intake manifold balance pipe chafing). 47-32-8 (Stabilizer bar dampers). 47-32-9 (Horizontal stabilizer brace). 47-32-10 (Rotor mast assembly replacement). 47-32-11 (Antenna mast support). 47-32-12 (Lateral cyclic control disc links). 47-32-13 (Tail rotor rivet replacement). 47-32-14 (Engine mount clamps). 47-41-2 (Oil line supports). 47-41-3 (Fuel line replacement). 47-41-4 (Main rotor mast plug retaining washer). 47-41-6 (Main rotor blade butt plate screws). 47-41-7 (Cyclic control bungee spring jumper). 47-41-8 (Stabilizer bar mixing levers rework). 47-51-11 (Transmission pinion gear bearings). 48-2-1 (Tail rotor drive shaft bearing hangar reinforcement). 48-3-6 (Bushings installation). 48-10-2 (Rotor blade rework). 48-11-5 (Rotor drag brace replacement). 48-12-5 (Shear screw replacement). 48-13-2 (Fuel pump rocker pin). 49-5-2 (Fuel pump diaphragm). 49-47-2 (Tail rotor drive shaft). 49-52-2 (Main rotor hub inspection). 50-38-2 (Cooling fan rework). 51-26-1 (Tail rotor reinforcement). 51-27-1 (Engine mount replacement). 51-29-1 (Tail rotor gear box shaft). 52-1-1 (Blade grip adapter locks). 52-1-2 (Equalizer horn and drag brace fitting). 52-1-3 (Damper lever and link). 52-1-5 (Rotor blade grip retaining bolt). 52-1-6 (Tail boom spoiler). 52-5-3 (Engine mount safety strap). 52-21-1 (Lord mount guards). 52-28-3 (Tail rotor gear box shaft). 52-28-4 (Tail rotor pinion shaft). 54-24-1 (Anti-torque pedal stops). 55-5-1 (Pitch control link). 55-16-1 (Tail rotor hub fillet).
47B3	HTC 1	47-32-8 (Stabilizer bar dampers). 47-32-9 (Horizontal stabilizer brace). 47-32-10 (Rotor mast assembly replacement). 47-32-11 (Antenna mast support). 47-32-12 (Lateral cyclic control disc links). 47-32-13 (Tail rotor rivet replacement). 47-41-2 (Oil line support). 47-41-3 (Fuel line replacement). 47-41-4 (Main rotor mast plug retaining washer). 47-41-5 (Gimbel ring bearing seals). 47-41-6 (Main rotor blade butt plate screws). 47-41-7 (Cyclic control bungee spring jumper). 47-41-8 (Stabilizer bar mixing levers rework). 47-51-11 (Transmission pinion gear bearings). 48-2-1 (Tail rotor drive shaft bearing hangar reinforcement).

AIRCRAFT—Continued

BELL AIRCRAFT CORPORATION, FORT WORTH, TEX.—Continued

Civil model	Approval No.	Applicable notes
47B3	HTC 1	48-3-6 (Bushings installation). 48-10-2 (Rotor blade rework). 48-11-5 (Rotor drag brace replacement). 48-12-5 (Shear screw replacement). 48-13-2 (Fuel pump rocker pin). 49-5-2 (Fuel pump diaphragm). 49-47-2 (Tail rotor drive shaft). 49-52-2 (Main rotor hub inspection). 50-38-2 (Cooling fan rework). 51-26-1 (Tail rotor reinforcement). 51-27-1 (Engine mount replacement). 51-29-1 (Tail rotor gear box shaft). 52-1-1 (Blade grip adapter locks). 52-1-2 (Equalizer horn and drag brace fitting). 52-1-3 (Damper lever and link). 52-1-5 (Rotor blade grip retaining bolt). 52-1-6 (Tail boom spoiler). 52-5-3 (Engine mount safety strap). 52-21-1 (Lord mount guards). 52-28-3 (Tail rotor gear box shaft). 52-28-4 (Tail rotor pinion shaft). 54-24-1 (Anti-torque pedal stops). 55-5-1 (Pitch control link). 55-16-1 (Tail rotor hub fillet).
47D	HTC 1	48-10-2 (Rotor blade rework). 48-12-5 (Shear screw replacement). 48-13-2 (Fuel pump rocker pin). 49-5-2 (Fuel pump diaphragm). 49-47-2 (Tail rotor drive shaft). 49-52-2 (Main rotor hub inspection). 50-38-2 (Cooling fan rework). 51-26-1 (Tail rotor reinforcement). 51-27-1 (Engine mount replacement). 51-29-1 (Tail rotor gear box shaft). 52-1-1 (Blade grip adapter locks). 52-1-2 (Equalizer horn and drag brace fitting). 52-1-3 (Damper lever and link). 52-1-5 (Rotor blade grip retaining bolt). 52-1-6 (Tail boom spoiler). 52-5-3 (Engine mount safety strap). 52-21-1 (Lord mount guards). 52-28-3 (Tail rotor gear box shaft). 52-28-4 (Tail rotor pinion shaft). 54-24-1 (Anti-torque pedal stops). 55-5-1 (Pitch control link). 55-16-1 (Tail rotor hub fillet).
47D1	HTC 1	49-34-2 (Ventral fin inspection). 49-47-2 (Tail rotor drive shaft). 49-52-2 (Main rotor hub inspection). 50-6-1 (Ventral fin replacement). 50-38-2 (Cooling fan rework). 51-26-1 (Tail rotor reinforcement). 51-27-1 (Engine mount replacement). 51-29-1 (Tail rotor gear box shaft). 52-1-1 (Blade grip adapter locks). 52-1-6 (Tail boom spoiler). 52-1-7 (Engine cooling fan). 52-5-3 (Engine mount safety strap). 52-7-1 (Loading decal). 52-21-1 (Lord mount guards). 52-28-3 (Tail rotor gear box shaft). 52-28-4 (Tail rotor pinion shaft). 53-1-1 (Gear box mounting sleeve). 54-24-1 (Anti-torque pedal stops). 56-5-1 (Tail rotor extension drive shafts).
47G	HTC 1	54-24-1 (Anti-torque pedal stops). 55-5-1 (Pitch control link). 55-14-1 (Bearing hanger support bracket). 55-16-1 (Tail rotor hub fillet). 55-25-1 (Bellcrank attachment bolt replacement). 56-1-1 (Ventral fin support angle braces). 56-5-1 (Tail rotor extension drive shaft).
47G2	HTC 1	56-5-1 (Tail rotor extension drive shaft).
47H1	HTC 1	56-5-1 (Tail rotor extension drive shaft).

BELLANCA AIRCRAFT CORPORATION, NEW CASTLE, DEL.

Civil model	Approval No.	Applicable notes
14-13, 14-13-2, 14-13-3.	TC 773	46-41-1 (Rudder bellcrank replacement). 46-41-2 (Aileron control bushing). 46-41-3 (Control wheel universal joints). 47-7-1 (Fuel selector valve indexing). 47-14-1 (Flap hinge bracket replacement). 47-25-9 (Fin and stabilizer fittings). 47-32-17 (Landing gear inspection covers). 47-32-18 (Aileron idler sprocket cotter pin). 47-50-13 (Koppers propeller hub). 47-51-13 (Cabin heat control valve). 48-5-3 (Trim tab bracket bolts). 48-13-6 (Engine cowl brackets). 48-21-1 (Accelerator pump linkage). 48-50-1 (Franklin cylinder base flanges). 49-5-2 (Fuel pump diaphragm). 49-13-2 (Landing gear drag strut rework). 50-47-1 (Sensenich propeller blades). 51-16-1 (Trim tab modification). 52-17-1 (Landing gear chain guard). 52-28-2 (Fuel pump relief valve). 51-16-2 (Trim tab modification). 53-16-1 (Elevator trim tab looseness).
14-19	TC 1A3	

AIRCRAFT—Continued

BOEING AIRCRAFT COMPANY, SEATTLE, WASH.

Civil model	Approval No.	Applicable notes
247-D	ATC 558	44-52-1 (17SRT spar chords). 46-5-1 (Fuel pump elbow).
S-307	TC 719	44-20-2 (24SRT tubing). 47-14-2 (Landing gear motor attachment keys).
SA-307B, SA-307B-1.	TC 726	44-20-2 (24SRT tubing). 47-14-2 (Landing gear motor attachment keys).
314, A-314	TC 704	45-4-1 (24SRT tubing).
377	TC 812	49-6-4 (Carburetor compensating bellows). 50-10-1 (Nose gear rework). 51-9-1 (Engine power measurment). 51-27-2 (Goodrich wheels). 52-12-1 (Freon compressor motor). 52-15-1 (Propeller reversing rework). 53-5-1 (Curtiss propeller reversing circuits). 55-9-1 (Propeller circuit breaker replacement). 55-15-1 (Fire resistant propeller feathering lines). 56-1-2 (Rear spar splice bolt holes).

BOEING AIRPLANE COMPANY, WICHITA DIVISION, WICHITA, KANS.

Civil model	Approval No.	Applicable notes
A75L3, 75, A-75, B-75, E-75, A75-J1, D75N1.	TC 743	46-24-1 (Wing drain holes). 49-23-1 (Fuselage truss). 50-6-2 (Wing spar inspection).

CALL AIRCRAFT COMPANY, AFTON, WYO.

Civil model	Approval No.	Applicable notes
A, A-2, A-3	TC 758	47-40-2 (Continental C75 & C85 piston pins).

CESSNA AIRCRAFT COMPANY, WICHITA, KANS.

Civil model	Approval No.	Applicable notes
T-50	TC 722	46-1-1 (Flap chain). 46-1-2 (Wing covering). 46-12-1 (Fabric inspection). 46-46-3 (Aileron and flap hinge brackets). 47-5-1 (Fuel shut-off valve handle). 47-30-2 (Brake pedal link reinforcement). 47-30-3 (Inspection of wings for identification). 47-30-4 (Landing gear chains). 49-20-1 (Wing spar inspection). 51-18-1 (Rudder torque tube). 51-25-1 (Horizontal stabilizer grommets). 53-6-1 (Landing light motor circuit). 53-18-1 (Goodrich wheel bearing).
120, 140	TC 768	46-44-1 (Rudder stop bolts). 46-44-2 (Safety belt bracket reinforcement). 46-44-3 (Windshield retaining channel). 46-44-4 (Carburetor hot air ducts). 46-44-5 (Engine mounting bolts). 47-6-10 (Aileron carry-through bar). 47-6-11 (Forward door post cracks). 47-26-2 (Wing leading edge rework). 47-40-2 (Continental C75 & C85 piston pins). 47-43-1 (Primer line relocation). 47-43-2 (Fuel selector valve handle). 47-43-3 (Seaplane spreader struts). 47-43-4 (Rudder control cable horns). 47-43-5 (Elevator spar web reinforcement). 47-43-6 (Aileron support ribs). 47-43-8 (Beech R003-201 propeller blades). 47-50-2 (Fuselage bulkhead). 48-5-4 (Operation limitations placard). 48-7-1 (Stabilizer attaching bolts). 48-25-2 (Welded exhaust muffler). 48-25-3 (Wing drag wire system). 48-48-1 (Freedman propeller hubs). 50-31-1 (Fin spar reinforcement). 51-21-1 (Rudder rib flanges).
170	TC 799	48-43-2 (Continental C-145-2 engines). 54-2-2 (Federal ski rigging).
190	TC 790	50-39-1 (Rudder cable inspection). 51-10-4 (Cowl mounting channels). 51-11-2 (Elevator spar).
195	TC 790	50-39-1 (Rudder cable inspection). 51-11-2 (Elevator spar).

CHAMPION AIRCRAFT CORP., ST. PAUL, MINN.

Civil model	Approval No.	Applicable notes
7AC	TC 759	46-36-1 (Continental piston pins). 47-20-1 (Gascolator bowl cleaning). 47-20-2 (Oleo piston). 47-30-1 (Lift strut wing attachment fittings). 47-30-5 (Exhaust stack inspection). 48-4-2 (Wing rib rework). 48-39-1 (Control stick rework). 49-11-2 (Wing attach fitting).
8TAC	TC 759	46-36-1 (Continental piston pins). 47-20-1 (Gascolator bowl cleaning). 47-30-1 (Lift strut wing attachment fittings). 47-30-5 (Exhaust stack inspection). 47-50-5 (Float wirepull fitting). 48-4-2 (Wing rib rework). 48-39-1 (Control stick rework). 49-11-2 (Wing attach fitting).
7BCM	TC 759	47-20-1 (Gascolator bowl cleaning). 48-39-1 (Control stick rework). 49-11-2 (Wing attach fitting).
7EC	TC 759	56-4-1 (Control stick socket).

AIRCRAFT—Continued

COMMONWEALTH AIRCRAFT, INC., VALLEY STREAM, LONG ISLAND, N. Y.

Civil model	Approval No.	Applicable notes
Rearwin 175, 180, 185	TC 729	46-36-1 (Continental piston pins). 47-40-2 (Continental C-75 and C-85 piston pins). 48-6-2 (Jury struts).
Rearwin 180F, 190F	TC 729	48-6-2 (Jury struts).

CONVAIR, A DIVISION OF GENERAL DYNAMICS CORPORATION, SAN DIEGO, CALIF.

Civil model	Approval No.	Applicable notes
Army BT-13, BT-13A (Navy SNF-1); Army BT-13B (Navy SNV-2); Army BT-15.	2-571	46-6-4 (Propeller spinner attaching lugs). 47-25-10 (Elevator tab failure). 49-7-3 (Fuel system placard). 49-27-1 (Fuel line rework). 52-2-1 (Bronze rear spar fittings).
240	TC 793	48-22-1 (Double Wasp engine—water alcohol injection). 48-41-1 (Wing bulkhead—fuel tank area). 48-50-4 (Nose gear rework). 48-51-2 (Horizontal tail surface inspection). 49-30-1 (Curtiss C632S-A propeller hub). 49-30-2 (Augmenter vane rework). 49-34-1 (Cockpit check list). 49-38-1 (Nose gear strut inspection). 49-43-1 (Augmenter tube inspection). 49-44-2 (Horizontal tail rework). 49-45-2 (Throttle reverse stop rework). 50-13-1 (Aileron hinge bracket). 50-19-2 (Rudder tab bracket). 50-36-1 (Nose strut cylinder). 50-52-1 (Hamilton Standard 2H17 blades). 51-5-1 (Engine power measurement). 51-28-1 (Fire protection modifications). 52-11-2 (Steel nacelle facings). 52-14-2 (Propeller reversing rework). 53-5-1 (Curtiss propeller reverse circuit). 53-23-1 (Nose landing gear clutch plate). 54-1-2 (Hamilton Standard propeller reversing system). 54-23-3 (Hamilton Standard 2H17 blade removal). 55-15-2 (Fire resistant propeller feathering lines). 55-18-1 (Propeller reverse protective device). 56-4-2 (Nacelle fire protection).
340	TC 6A6	54-1-2 (Hamilton Standard propeller reversing system). 55-3-1 (Elevator servo tab inspection). 55-15-2 (Fire resistant propeller feathering lines). 55-18-1 (Propeller reverse protective device). 56-4-2 (Nacelle fire protection).

CULVER (SEE SUPERIOR AIRCRAFT COMPANY)

CURTISS-WRIGHT CORPORATION, AIRPLANE DIVISION, COLUMBUS, OHIO (SLICK AIRWAYS, INC., L. B. SMITH AIRCRAFT CORP., SKYWAYS INTERNATIONAL, AND RIDDLE AIRLINES)

Civil model	Approval No.	Applicable notes
C-46A, C-46D	TC 789 TC 772	47-51-2 (Elevator hinge bolts). 47-51-4 (Propeller antiheat shield). 47-51-7 (Landing gear drag strut). 48-3-5 (Hydraulic lines). 48-44-2 (Wing attach bolts). 49-12-1 (Aileron trim tab motor support bracket). 49-18-1 (Combustion heater fire protection). 49-25-1 (Cargo compartment fire protection). 50-22-1 (Supercharger impeller thrust bearings). 50-26-1 (Landing gear side braces). 50-29-1 (Wing center section rivets). 51-10-3 (Goodrich wheel inspection). 51-10-6 (Control surface fittings). 51-20-1 (Cockpit light rework). 51-29-2 (Inspection main landing gear side brace). 52-10-1 (Ammeter circuit protection). 52-12-2 (Cabin door lock). 52-17-2 (Tail wheel rework). 52-18-1 (Carburetor gasket modification). 52-19-1 (Powerplant fire protection). 53-10-1 (Vacuum system discharge line). 54-5-1 (Landing gear retraction cylinder head). 54-14-1 (Horizontal stabilizer ribs). 55-9-2 (Control column inspection).
C-46E, C-46F	TC 772 TC 786 TC 808 TC 789 TC 3A-2	47-51-2 (Elevator hinge bolts). 47-51-3 (Aileron rib rework). 47-51-4 (Propeller antiheat shield). 47-51-5 (Aileron horn). 47-51-7 (Landing gear drag strut). 48-3-5 (Hydraulic lines). 48-44-2 (Wing attach bolts). 49-12-1 (Aileron trim tab motor support bracket). 49-18-1 (Combustion heater fire protection). 49-25-1 (Cargo compartment fire protection). 50-22-1 (Supercharger impeller thrust bearings). 50-26-1 (Landing gear side braces). 50-29-1 (Wing center section rivets). 51-10-3 (Goodrich wheel inspection). 51-10-6 (Control surface fittings). 51-20-1 (Cockpit light rework). 51-29-2 (Inspection main landing gear side brace). 52-10-1 (Ammeter circuit protection). 52-12-2 (Cabin door lock). 52-17-2 (Tail wheel rework). 52-18-1 (Carburetor gasket modification). 52-19-1 (Powerplant fire protection). 53-10-1 (Vacuum system discharge line). 54-5-1 (Landing gear retraction cylinder head). 54-14-1 (Horizontal stabilizer ribs). 55-9-2 (Control column inspection).

AIRCRAFT—Continued

DE HAVILLAND AIRCRAFT CO. LTD., HATFIELD, HERTS, ENGLAND

Civil model	Approval No.	Applicable notes
104 Dove	TC 807	51-29-3 (Wing center section spar). 56-11-1 (Oil pressure and temperature gauge modifications).
DHC-2	TC 806	53-7-1 (Elevator hinge attachment). 53-9-2 (Fuselage skin cracks). 53-10-2 (Wing skin cracks). 53-11-2 (Engine oil sump chafing). 53-12-2 (Hydraulic hand pump seals). 53-21-1 (Wing rear spar attachment bolt). 53-23-2 (Fuel tank filler neck). 54-11-1 (Tailplane attachment brackets). 54-15-1 (Control cable turnbuckle threads). 55-2-1 (Aileron pulley locking pin). 55-20-1 (Engine mount pickup fittings). 55-25-2 (Front fin attachment brackets). 55-25-3 (Earth post corrosion).
DHC-3	TC 815	56-10-1 (Flap control inspection). 56-14-1 (Flap restriction placard).

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA

Civil model	Approval No.	Applicable notes
A-26B, A-26C	LTC 3	47-36-1 (Wing fitting rework). 47-36-2 (Oil screen replacement). 55-26-1 (Fuselage fuel tank modification).
DC-3 and DST models with Pratt & Whitney engines.	TC 669	39-24-1 (Attach angles and doublers). 41-47-1 (Control surface rebalance). 43-12-1 (Elevator hinge brackets). 46-12-2 (Engine mount fittings). 46-13-4 (Landing gear brace strut fittings). 46-13-5 (Canvas control boot). 46-43-1 (Attach angle corrosion). 46-43-2 (Rudder pedal slide tube support bolt). 47-2-10 (Elevator rib inspection and reinforcement). 47-6-7 (Fire extinguisher trigger). 47-33-2 (Cowl flap hydraulic lines). 47-51-12 (Carburetor air scoop). 48-5-1 (Oil shut-off valve "O" rings). 48-17-1 (Fire prevention modifications). 50-46-1 (Oil tank standpipe). 51-2-1 (Ramp type door rework). 52-22-3 (Attach angles and doublers). 52-25-1 (Vacuum system rework). 55-15-3 (Fire resistant propeller feathering lines).
DC-3 and DST models with Wright engines; (Notes marked "*" also apply to Army B-18, -18A, and -18B).	TC 618	39-24-1* (Attach angles and doublers). 41-47-1* (Control surface rebalance). 46-12-2 (Engine mount fittings). 46-13-4* (Landing gear brace strut fittings). 46-13-5 (Canvas control boot). 46-43-1* (Attach angle corrosion). 46-43-2 (Rudder pedal slide tube support bolt). 47-6-7 (Fire extinguisher trigger). 47-33-2 (Cowl flap hydraulic lines). 48-5-1 (Oil shut-off valve "O" rings). 48-17-1 (Fire prevention modifications). 50-46-1 (Oil tank standpipe). 51-2-1 (Ramp type door rework). 52-22-3 (Attach angles and doublers). 52-25-1 (Vacuum system rework). 55-15-3 (Fire resistant propeller feathering lines).
C-54-DC, C-54A-DC, C-54B-DC and C-54D-DC.	TC 762	56-14-2 (Landing gear axle). 46-11-2 (Oxygen regulator relocation). 46-11-3 (Landing gear door stud). 46-24-2 (Revision of magneto wires). 46-27-1 (Spar web reinforcements). 46-27-2 (Nose wheel brace strut collar). 46-39-3 (Magneto wires inspection). 46-39-5 (Fuel line supporting brackets). 47-2-1 (Exhaust collector ring bolts). 47-2-2 (Stabilizer attach fittings and bolts). 47-2-3 (Accumulator replacement). 47-2-4 (Engine primer solenoid). 47-2-5 (Electrical system inspection). 47-2-6 (Hydraulic hand pump shut-off valve). 47-12-1 (Seal fuselage openings to prevent CO in cabin). 47-12-2 (Center main bearings R-2000-11 engine). 47-16-1 (Circuit breakers). 47-16-2 (18-gauge wire in oil dilution solenoid). 47-27-2 (Spar web inspection—tank area). 47-27-4 (Exhaust collector ring "Y" outlet reinforcement). 47-33-1 (Stabilizer hinge brackets). 47-42-1 (Gust lock rework). 47-42-2 (Cowling fire seal). 47-42-3 (Fire prevention changes). 48-1-1 (Goodyear wheel rework). 48-2-2 (Fire detector clamp). 48-3-1 (Propeller operating limits). 48-3-2 (Emergency air brake). 48-6-5 (Control surface attachment rework). 48-9-1 (Fuel transfer placard). 48-9-2 (Electrical distribution bus). 48-12-1 (Fire prevention requirements). 48-12-2 (Nose and cabin heater rework). 48-14-4 (Tail pipe shroud deflector). 48-15-3 (Hydraulic pressure regulator rework). 48-17-4 (Pesco vacuum pumps). 48-25-1 (Fire warning system). 48-28-2 (Cabin heater combustion ducts). 48-44-1 (Nose gear orifice fitting). 49-27-3 (Nose gear yoke end fittings). 49-38-2 (Bolt replacement). 49-46-1 (Vacuum system fusible plug).

AIRCRAFT—Continued

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA—Con.

Civil model	Approval No.	Applicable notes
C-54DC, C-54A-DC, C-54B-DC and C-54D-DC.	TC 762	51-9-2 (Elevator and rudder hinge brackets and bolts). 53-19-1 (Generator cooling fan). 55-15-3 (Fire resistant propeller feathering lines). 56-12-1 (Nose gear piston tube).
C54E-DC	TC 762	46-11-2 (Oxygen regulator relocation). 46-24-2 (Revision of magneto wires). 46-27-1 (Spar web reinforcements). 46-27-2 (Nose wheel brace strut collar). 46-39-3 (Magneto wires inspection). 46-39-4 (Fuel tank valve rework). 46-39-5 (Fuel line supporting brackets). 47-2-1 (Exhaust collector ring bolts). 47-2-2 (Stabilizer attach fittings and bolts) 47-2-3 (Accumulator replacement). 47-2-4 (Engine primer solenoid). 47-2-5 (Electrical system inspection). 47-2-6 (Hydraulic hand pump shut-off valve). 47-12-1 (Seal fuselage openings to prevent CO in cabin). 47-12-2 (Center main bearings R-2000-11 engine). 47-16-1 (Circuit breaker). 47-27-2 (Spar web inspection—tank areas). 47-27-4 (Exhaust collector ring "Y" outlet reinforcement). 47-33-1 (Stabilizer hinge brackets). 47-42-1 (Gust lock rework). 47-42-2 (Cowling fire seal). 47-42-3 (Fire prevention changes). 48-1-1 (Goodyear wheel rework). 48-2-2 (Fire detector clamp). 48-3-1 (Propeller operating limits). 48-3-2 (Emergency air brake). 48-6-5 (Control surface attachment rework). 48-9-1 (Fuel transfer placard). 48-9-2 (Electrical distribution bus). 48-12-1 (Fire prevention requirements). 48-12-2 (Nose and cabin heater rework). 48-14-4 (Tail pipe shroud deflector). 48-15-3 (Hydraulic pressure regulator rework). 48-17-4 (Pesco vacuum pumps). 48-25-1 (Fire warning system). 48-28-2 (Cabin heater combustion ducts). 48-44-1 (Nose gear orifice fitting). 49-27-3 (Nose gear yoke end fittings). 49-38-2 (Bolt replacement). 49-46-1 (Vacuum system fusible plug).
C-54G-DC	TC762	51-9-2 (Elevator and rudder hinge brackets and bolts). 53-19-1 (Generator cooling fan). 55-15-3 (Fire resistant propeller feathering lines). 56-12-1 (Nose gear piston tube). 46-24-2 (Revision of magneto wires). 46-27-2 (Nose wheel brace strut collar). 46-39-3 (Magneto wires inspection). 46-39-5 (Fuel line supporting brackets). 47-2-1 (Exhaust collector ring bolts). 47-2-2 (Stabilizer attach fittings and bolts). 47-2-3 (Accumulator replacement). 47-2-4 (Engine primer solenoid). 47-2-5 (Electrical system inspection). 47-2-6 (Hydraulic hand pump shut-off valve). 47-12-2 (Center main bearings R-2000-11 engine 47-16-1 (Circuit breakers). 47-16-2 (18-gauge wire in oil dilution solenoid).). 47-27-2 (Spar web inspection—tank areas). 47-27-4 (Exhaust collector ring "Y" outlet reinforcement). 47-33-1 (Stabilizer hinge brackets). 47-42-1 (Gust lock rework). 47-42-2 (Cowling fire seal). 47-42-3 (Fire prevention changes). 48-1-1 (Goodyear wheel rework). 48-2-2 (Fire detector clamp). 48-3-1 (Propeller operating limits). 48-3-2 (Emergency air brake). 48-6-5 (Control surface attachment rework). 48-9-1 (Fuel transfer placard). 48-9-2 (Electrical distribution bus). 48-12-1 (Fire prevention requirements). 48-12-2 (Nose and cabin heater rework). 48-15-3 (Hydraulic pressure regulator rework). 48-17-4 (Pesco vacuum pumps). 48-25-1 (Fire warning system). 48-28-2 (Cabin heater combustion ducts). 48-44-1 (Nose gear orifice fitting). 49-27-3 (Nose gear yoke end fittings). 49-38-2 (Bolt replacement). 49-46-1 (Vacuum system fusible plug).
DC-4	TC762	51-9-2 (Elevator and rudder hinge brackets and bolts). 53-19-1 (Generator cooling fan). 55-15-3 (Fire resistant propeller feathering lines). 56-12-1 (Nose gear piston tube). 46-27-2 (Nose wheel brace strut collar). 46-39-4 (Fuel tank valve rework). 47-2-1 (Exhaust collector ring bolts). 47-2-2 (Stabilizer attach fittings and bolts). 47-2-3 (Accumulator replacement). 47-2-4 (Engine primer solenoid). 47-2-5 (Electrical system inspection). 47-2-6 (Hydraulic hand pump shut-off valve). 47-12-1 (Seal fuselage openings prevent CO in cabin). 47-12-2 (Center main bearings R-2000-11 engine). 47-16-1 (Circuit breakers).

AIRCRAFT—Continued

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA—Con.

Civil model	Approval No.	Applicable notes
DC-4	TC 762	47-27-2 (Spar web inspection—tank areas). 47-27-4 (Exhaust collector ring "Y" outlet reinforcement). 47-33-1 (Stabilizer hinge brackets). 47-42-1 (Gust lock rework). 47-42-2 (Cowling fire seal). 47-42-3 (Fire prevention changes). 48-1-1 (Goodyear wheel rework). 48-2-2 (Fire detector clamp). 48-3-1 (Propeller operating limits). 48-3-2 (Emergency air brake). 48-6-5 (Control surface attachment rework). 48-9-1 (Fuel transfer placard). 48-9-2 (Electrical distribution bus). 48-12-1 (Fire prevention requirements). 48-12-2 (Nose and cabin heater rework). 48-15-3 (Hydraulic pressure regulator rework). 48-17-4 (Pesco vacuum pumps). 48-25-1 (Fire warning system). 48-28-2 (Cabin heater combustion ducts). 48-44-1 (Nose gear orifice fitting). 49-27-3 (Nose gear yoke end fittings). 49-38-2 (Bolt replacement). 49-46-1 (Vacuum system fusible plug). 51-9-2 (Elevator and rudder hinge brackets and bolts). 53-19-1 (Generator cooling fan) 55-15-3 (Fire resistant propeller feathering lines). 56-12-1 (Nose gear piston tube).
DC-6	TC 781	47-42-5 (Curtain hook replacements). 47-42-6 (Fire extinguisher placard). 47-42-7 (Windshield handle spring). 47-42-8 (Horizontal stabilizer rivets). 47-42-9 (Oversize aileron hinge plates). 47-42-10 (Landing gear anti-retract mechanism). 47-42-11 (Horizontal stabilizer front spar cap cracks). 47-42-12 (Astrodome reinforcement). 47-42-13 (Gust lock rework). 47-42-14 (Voltage regulator bearings). 47-42-16 (Combustion chamber inspection). 47-42-17 (Wing center spar web cracks). 47-42-19 (Horizontal stabilizer front spar cap inspection). 47-51-15 (Brake relining). 47-51-16 (Flap support rework). 48-2-4 (Brake adjusting pin replacement). 48-2-5 (Outboard accessory cowling rework). 48-2-6 (Inboard nacelle cover plates). 48-7-2 (Engine supercharger control actuator). 48-7-3 (Door rework). 48-10-1 (Ungrounding modifications—Class A). 48-11-1 (Ungrounding modifications—Class B). 48-11-2 (Ungrounding modifications—Class C). 48-22-1 (Water-alcohol injection system). 48-48-2 (Vacuum pump line replacement). 48-49-3 (Electrical circuit inspection). 48-52-1 (Additional modifications items). 49-6-2 (Attachment bolt replacement). 49-30-1 (Curtiss C632S-A propeller hubs). 49-33-1 (Hamilton Standard propeller blades). 49-46-1 (Vacuum system fusible plug). 50-16-1 (Propeller reverse mechanism). 50-18-2 (Engine operation placard). 50-23-2 (Nose gear yoke end fitting). 50-43-1 (Goodyear L10HBMF wheel inspection). 50-52-1 (Hamilton Standard 2H17 blades). 51-1-1 (Front spar fittings and studs). 51-5-1 (Engine power measurements). 51-10-1 (Wing flap operating link). 52-14-1 (Propeller reversing rework). 52-18-2 (Spar cap rework). 52-20-1 (Overvoltage protection). 52-27-2 (Outboard front spare splice plate). 52-28-5 (Center wing lower access hole). 53-5-1 (Curtiss propeller reversing circuit). 53-8-2 (Center wing lower skin panel). 53-25-1 (Aileron control system). 54-23-1 (Fuselage cracks). 54-23-2 (Nose gear torque link). 54-25-1 (Emergency exit hinges). 55-9-3 (Propeller circuit breaker replacement). 55-11-1 (Nose gear yoke end fitting). 55-15-4 (Fire resistant propeller feathering lines). 55-18-2 (Propeller reverse protective device. 56-13-1 (Wing skin and stringer inspection). 56-14-3 (Front spar capstang cracks).
DC-6A, DC-6B	TC 6A3 TC 6A4	52-14-1 (Propeller reversing rework). 52-18-2 (Spar cap rework). 52-20-1 (Overvoltage protection). 52-27-2 (Outboard front spar splice plate). 52-28-5 (Center wing lower access hole). 53-5-1 (Curtiss propeller reversing circuit). 53-8-2 (Center wing lower skin panel). 53-25-1 (Aileron control system). 54-6-1 (Kidde CO_2 discharge valve). 54-23-1 (Fuselage cracks). 54-23-2 (Nose gear torque link). 54-25-1 (Emergency exit hinges). 55-9-3 (Propeller circuit breaker replacement). 55-11-1 (Nose gear yoke end fitting). 55-15-4 (Fire resistant propeller feathering lines). 55-18-2 (Propeller reverse protective device). 56-13-1 (Wing skin and stringer inspection). 56-14-3 (Front spar cap tang cracks).

AIRCRAFT—Continued

DOUGLAS AIRCRAFT COMPANY, INC., SANTA MONICA, CALIFORNIA—Con.

Civil model	Approval No.	Applicable notes
DC-7	TC 4A10	54-23-2 (Nose gear torque link). 55-11-1 (Nose gear yoke end fitting). 55-15-5 (Fire resistant propeller feathering lines). 55-20-2 (Wing skin heat shields).

EMIGH AIRCRAFT CORPORATION, DOUGLAS, ARIZ.

Trojan A-2	TC 801	52-11-1 (Elevator control tube socket).

ENGINEERING & RESEARCH CORPORATION, RIVERDALE, MD. (SEE FORNEY MFG. CO.)

FAIRCHILD AIRCRAFT DIVISION OF FAIRCHILD ENGINE & AIRPLANE CORP., HAGERSTOWN, MD.

22C7F	ATC 517	46-21-1 (Landing gear universal joints). 46-40-2 (Oleo tube reinforcement).
22C7G	ATC 564	46-21-1 (Landing gear universal joints). 46-40-2 (Oleo tube reinforcement).
24C8C	ATC 535	46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24C8CS	ATC 535	46-40-1 (Fuel tank selector valve placard).
24C8E	ATC 600	46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24C8ES	ATC 600	46-40-1 (Fuel tank selector valve placard).
24G	ATC 633	46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24GS	ATC 633	46-40-1 (Fuel tank selector valve placard).
24J	TC 663	46-6-3 (Kinner master rod knuckle pin). 46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24JS	TC 663	46-6-3 (Kinner master rod knuckle pin). 46-40-1 (Fuel tank selector valve placard).
24K	TC 667	46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24KS	TC 667	46-40-1 (Fuel tank selector valve placard). 46-40-2 (Oleo tube reinforcement).
24R-9, 24R-40	TC 706	46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 47-50-9 (Landing gear fittings).
24R-9S, 24R-40S	TC 706	46-40-1 (Fuel tank selector valve placard). 47-50-9 (Landing gear fittings).
24R-46, 24R-46S	TC 706	46-40-1 (Fuel tank selector valve placard). 47-21-1 (Starter relay terminal wire). 47-21-2 (20 ampere landing light fuse). 47-21-3 (Rudder cable turnbuckles). 47-50-9 (Landing gear fittings).
24R-46A	TC 706	46-40-1 (Fuel tank selector valve placard). 47-21-3 (Rudder cable turnbuckles). 47-50-9 (Landing gear fittings).
24W-9, 24W-40, 24W-41.	TC 707	46-6-3 (Kinner master rod knuckle pin). 46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 47-50-9 (Landing gear fittings).
24W-9S, 24W-40S, 24W-41S.	TC 707	46-6-3 (Kinner master rod knuckle pin). 46-40-1 (Fuel tank selector valve placard). 47-50-9 (Landing gear fittings).
24W-41A	TC 707	46-6-3 (Kinner master rod knuckle pin). 46-21-1 (Landing gear universal joints). 46-40-1 (Fuel tank selector valve placard). 47-21-3 (Rudder cable turnbuckles). 47-50-9 (Landing gear fittings).
24W-46, 24W-46S	TC 707	46-6-3 (Kinner master rod knuckle pin). 46-40-1 (Fuel tank selector valve placard). 47-21-1 (Starter relay terminal wire). 47-21-2 (20 ampere landing light fuse). 47-21-3 (Rudder cable turnbuckles). 47-50-9 (Landing gear fittings).
M62A, M-62B	TC 724	43-7-1 (Wing center section spars). 47-7-2 (Elevator hinge attachments). 47-7-3 (Wing inspection). 47-7-4 (Control stick safetying). 47-7-5 (Torque tube cover). 47-7-6 (Vertical fin attachment). 48-45-1 (Wing spar inspection).
M-62A3, -4	TC 724	43-7-1 (Wing center section spars). 46-14-2 (Cockpit heat control valve). 47-7-2 (Elevator hinge attachments). 47-7-3 (Wing inspection). 47-7-4 (Control stick safetying). 47-7-5 (Torque tube cover). 47-7-6 (Vertical fin attachment). 48-45-1 (Wing spar inspection).
M-62C	TC 724	43-7-1 (Wing center section spars). 46-14-1 (Propeller indexing). 47-7-2 (Elevator hinge attachments). 47-7-3 (Wing inspection). 47-7-4 (Control stick safetying). 47-7-5 (Torque tube cover). 47-7-6 (Vertical fin attachment). 48-45-1 (Wing spar inspection).

AIRCRAFT—Continued

FLEETWINGS, DIVISION OF KAISER CARGO, INC., BRISTOL, PA.

Civil model	Approval No.	Applicable notes
F-5, F-401	ATC 680, 2-540	49-32-1 (Engine support struts).

FORNEY MFG. CO. AVIATION DIV., FT. COLLINS, COLO.

Civil model	Approval No.	Applicable notes
415-C, 415-CD, 415-D, 415-E, 415-G (formerly Erco).	TC 718, TC 787	46-23-1 (Muffler replacement). 46-23-2 (Engine breather line hose). 46-23-3 (Aileron control column fitting). 46-36-1 (Continental piston pins). 46-38-2 (Aileron control stop). 46-38-3 (Fuel system elbow fitting). 46-46-1 (Fuselage gas tank overflow line). 46-49-1 (Nose wheel replacement). 47-20-3 (Fuel pump line alteration). 47-20-4 (Baggage compartment zipper). 47-20-5 (Belly skin reinforcement). 47-20-6 (Aileron reinforcement). 47-20-7 (Rudder reinforcement). 47-20-8 (Battery box drain). 47-20-9 (Voltage regulator check). 47-40-2 (Continental C75 and C85 piston pins). 47-42-20 (Control column shaft). 50-7-1 (Elevator trim tab stop). 52-2-2 (Aileron inspection). 52-25-2 (Federal nose ski). 53-26-2 (Rudder horn attachment). 54-26-2 (Control cable fraying). 55-22-2 (Terneplate fuel tank).

FUNK AIRCRAFT COMPANY, COFFEYVILLE, KANS.

Civil model	Approval No.	Applicable notes
B85C	TC 715	47-40-2 (Continental C75 and C85 piston pins).

GLOBE AIRCRAFT CORPORATION, FORT WORTH, TEX. (SEE VEST AIRCRAFT CO.)

GOODYEAR AIRCRAFT CORPORATION, AKRON, OHIO

Civil model	Approval No.	Applicable notes
GA-2B	TC 784	50-47-1 (Sensenich propeller blades).

GRUMMAN AIRCRAFT ENGINEERING CORPORATION, BETHPAGE, LONG ISLAND, N. Y

Civil model	Approval No.	Applicable notes
G-21, G-21A	TC 654	46-38-1 (Vacuum system tubing). 49-16-1 (Fuel tank baffles). 50-15-1 (Mixture control rework). 53-21-2 (Horizontal stabilizer strut).
G-44, G-44A	TC 734	53-24-1 (Stabilizer strut terminals). 48-31-1 (Stabilizer strut terminals). 53-6-2 (Hartzell propeller hubs). 54-26-1 (Landing gear valve placard).
G-73	TC 783	48-3-4 (Landing gear hose guides).

HILLER HELICOPTERS, PALO ALTO, CALIF.

Civil model	Approval No.	Applicable notes
UH-12, UH-12A, UH-12B	HTC 6H1	51-20-3 (Collective pitch ballast system bracket). 52-1-8 (Collective pitch incidence arms). 52-29-1 (Tail rotor drive slip joint assembly inspection). 53-9-3 (Outboard tension bar pins). 53-12-1 (Horizontal stabilizer spar). 53-24-2 (Tail rotor pitch change rod). 55-8-3 (Cam follower assembly replacement). 55-19-1 (Tail boom rear bulkhead). 56-9-1 (Tail rotor torsion bar).

HOWARD INDUSTRIES INCORPORATED, CHICAGO, ILL.

Civil model	Approval No.	Applicable notes
DGA-18K	TC 739	46-6-2 (Kinner master rod replacement). 46-6-3 (Kinner master rod knuckle pin).

LOCKHEED AIRCRAFT CORPORATION, BURBANK, CALIF.

Civil model	Approval No.	Applicable notes
18-07, 18-08, 18-14, 18-40, 18-50, 18-56.	TC 723	46-13-1 (Landing gear hose furrules). 46-13-2 (Dual fuel system). 46-13-3 (Hopper oil tanks). 47-43-10 (Fire extinguisher bottle rework). 47-43-11 (Elevator push-pull rod bolts). 48-42-2 (Fire prevention modification). 52-8-1 (Fuel tank seal).
49-46	TC 763	47-10-2 (Elevator tab control circuit breaker). 47-10-3 (Rudder and elevator circuit breakers). 47-10-4 (Engine autosyn transmitter jumpers). 47-10-5 (Landing gear selector valve). 47-10-6 (Fuel tank shut-off valves). 47-10-7 (Landing gear down line restriction valve). 47-10-8 (Elevator booster shifter horn). 47-10-9 (Oil line cover plates). 47-10-10 (Soundproofing around voltage regulators). 47-10-11 (Fire detector replacement).

AIRCRAFT—Continued

LOCKHEED AIRCRAFT CORPORATION, BURBANK, CALIF.—Continued

Civil model	Approval No.	Applicable notes
49-46	TC 763	47-10-13 (Fire resistant firewall fittings). 47-10-14 (Fuel pump flexible hose). 47-10-15 (Requirements for recertification Lockheed 49). 47-10-16 (Conversion of 49-51 to 49-46). 47-10-17 (Cabin supercharger rework). 47-10-18 (Fire resistant fuel line). 47-10-19 (Cabin heater fuel solenoid valve). 47-10-20 (Alcohol tank replacement). 47-10-21 (Landing gear torque links). 47-10-22 (Fire extinguisher selector valve washer). 47-10-23 (Bathtub fitting steel nuts). 47-10-24 (Cross-feed relief valve). 47-10-25 (Generator mounting bolts). 47-10-26 (Flap drain line rerouting). 47-10-27 (Fuel tank vent outlets). 47-10-28 (Elevator cable seal holes). 47-10-29 (Aileron drain holes). 47-10-30 (Fuel tank surge box flapper valves). 47-10-31 (Landing gear torque arm). 47-10-32 (Upper wing surface inspection). 47-10-33 (Cylinder barrel replacement). 47-10-34 (Exhaust system ball joint rework). 47-10-36 (Wing leading edge rework). 47-10-37 (Landing gear fulcrum bolts). 47-10-38 (Landing gear drag link crosshead). 47-10-39 (Aileron trailing edge). 47-49-1 (Rudder trim tab control relocation). 47-49-2 (Nose gear extension line clearance). 47-49-3 (Rudder torque tube attachments). 47-49-4 (Rudder pedal pins). 47-49-5 (Control cable housing fasteners). 47-49-6 (Oil pressure gauge placard). 47-49-7 (Drag link bolt replacement). 47-49-8 (Aileron rib and skin inspection). 47-49-9 (Wing attaching pins). 47-49-10 (Astrodome rework). 47-49-11 (Fuel system inspection). 47-49-12 (Landing gear doors). 48-12-4 (Fire prevention requirements). 48-18-3 (Cabin supercharger driveshaft). 48-18-4 (Supercharger bearing thermocouple). 48-19-2 (Elevator lever). 48-27-1 (Fuel dump standpipes). 48-33-1 (Fuel system placards). 49-49-1 (PB-10 automatic pilot). 49-52-1 (Elevator booster system rework). 52-12-3 (Bulkhead ring and bracket). 53-13-2 (Propeller reversing rework). 53-15-2 (Wing lower front spar cap). 54-22-1 (Flexible hose replacement). 54-24-3 (Landing gear actuating cylinder). 55-15-6 (Cooling air system rework). 55-17-1 (Flap torque tube bolts). 55-23-3 (Landing gear downlock spring cylinder assembly). 56-3-1 (Wing skin and stiffeners inspection).
149-46	TC 763	48-19-2 (Elevator lever). 48-27-1 (Fuel dump standpipes). 48-33-1 (Fuel system placards). 49-49-1 (PB-10 automatic pilot). 49-52-1 (Elevator booster system rework). 52-12-3 (Bulkhead ring and bracket). 52-13-2 (Propeller reversing rework). 53-15-2 (Wing lower front spar cap). 54-22-1 (Flexible hose replacement). 54-24-3 (Landing gear actuating cylinder). 55-15-6 (Cooling air system rework). 55-17-1 (Flap torque tube bolts). 55-23-3 (Landing gear downlock spring cylinder assembly). 56-3-1 (Wing skin and stiffeners inspection).
649-79, 649A-79, 749-79, 749A-79.	TC 763	47-49-9 (Wing attaching pins). 47-49-11 (Fuel system inspection). 47-49-12 (Landing gear doors). 48-12-3 (Fire prevention requirements). 48-19-2 (Elevator lever). 48-26-1 (Engine speed restrictions—Curtiss propellers). 48-27-1 (Fuel dump standpipes). 48-27-3 (Propeller hub peening). 48-33-1 (Fuel system placards). 49-5-1 (Curtiss 850-4C2-0 propeller blades). 49-41-1 (Curtiss C632S-A propeller hub). 49-49-1 (PB-10 automatic pilot). 49-52-1 (Elevator booster system rework). 52-12-3 (Bulkhead ring and bracket). 52-13-2 (Propeller reversing rework). 53-5-1 (Curtiss propeller reversing circuit). 53-15-2 (Wing lower front spar cap). 54-22-1 (Flexible hose replacement). 54-24-3 (Landing gear actuating cylinder). 55-15-6 (Cooling air system rework). 55-17-1 (Flap torque tube bolts). 55-23-2 (Landing gear downlock spring cylinder assembly). 56-3-1 (Wing skin and stiffeners inspection).
1049 Series	TC 6A5	54-22-1 (Flexible hose replacement). 54-24-2 (Wing main beam web inspection). 54-24-3 (Landing gear actuating cylinder). 55-15-6 (Cooling air system rework). 55-17-1 (Flap torque tube bolts). 55-23-2 (Outer wing main beam web) 55-23-3 (Landing gear downlock spring cylinder assembly). 56-3-1 (Wing skin and stiffeners inspection).

AIRCRAFT—Continued

LUSCOMBE AIRPLANE CORPORATION, DALLAS, TEX. (SEE TEMCO AIRCRAFT CORP. AND OTIS T. MASSEY)

MASSEY, OTIS T., FORT COLLINS, COLO.

Civil model	Approval No.	Applicable notes
8, 8A, 8B, 8C, 8D, 8E (Luscombe).	TC 694	46-30-1 (Control stick horn adjustment screw). 46-36-1 (Continental piston pins). 47-10-40 (Rudder control arm reinforcement). 47-22-1 (Bulkhead reinforcement for seaplanes). 47-40-2 (Continental C75 and C85 piston pins). 47-50-5 (Float wirepull fitting). 48-9-3 (Kollsman airspeed baffle). 48-48-1 (Freedman propeller hubs). 48-49-1 (Vertical stabilizer spar fitting). 49-43-2 (Stabilizer spar inspection). 50-37-1 (Fuel system modifications—Model 8C only). 51-10-2 (Control cable inspection). 55-24-1 (Corrosion inspection).

MARTIN COMPANY (GLENN L.), BALTIMORE, MD.

Civil model	Approval No.	Applicable notes
202	TC 795	47-47-5 (Stewart-Warner 921B heaters). 47-47-6 (Engine accessory section inspection). 48-15-1 (Automatic pilot cable). 48-15-2 (Oil tank vent hose). 48-17-2 (Cargo compartment insulation). 48-22-1 (Water-alcohol injection system). 48-24-1 (Rudder hinge brackets). 48-43-1 (Hydraulic system rework). 48-50-3 (Control system guards). 49-15-2 (Wing modifications). 50-41-2 (Brake system hydraulic fuse). 50-48-1 (Nose gear cam). 50-52-1 (Hamilton Standard 2H17 blades). 51-3-2 (Landing gear crankshafts). 51-4-1 (Fuel vent line check valve). 51-11-1 (Modification Board items). 51-13-1 (Wing top cover splice angles). 51-19-4 (Modification Board items). 51-20-2 (Modification Board items). 51-24-2 (Fin inspection). 51-25-2 (Circuit breaker cover). 52-2-3 (Oxygen bottle relocation). 52-4-1 (Fuel line vent). 52-4-2 (Inverter control protection). 52-4-3 (Pressure gage). 52-4-4 (Lighting circuit protection). 52-4-5 (Oil quantity indicator). 52-4-6 (Relocation cabin heater lights and switch) 52-4-7 (Heater control modification). 52-4-8 (Anti-icing heater controls). 52-5-2 (Center wing spar rework). 52-15-2 (Propeller reversing rework). 53-20-1 (Hamilton Standard propeller pitch stop). 54-1-2 (Hamilton Standard propeller reversing system). 54-6-2 (Wing scarf splice bushing). 54-8-1 (Nose gear piston and fork assembly). 54-24-4 (Landing gear trunnion fittings). 55-16-2 (Fire resistant propeller feathering lines). 56-9-2 (Rudder torque tube rivets). 55-20-3 (Nose gear steering shaft).
202A	TC 795	51-3-2 (Landing gear crankshafts). 51-11-1 (Modification Board items). 51-13-1 (Wing top cover splice angles). 51-19-4 (Modification Board items). 51-20-2 (Modification Board items). 51-25-2 (Circuit breaker cover). 51-29-4 (Engine mount stud). 52-2-3 (Oxygen bottle relocation). 52-4-2 (Inverter control protection). 52-4-3 (Pressure gage). 52-4-4 (Lighting circuit protection). 52-4-5 (Oil quantity indicator). 52-4-6 (Relocation cabin heater lights and switch). 52-4-7 (Heater control modification). 52-4-8 (Anti-icing heater controls). 52-5-2 (Center wing spar rework). 52-16-1 (Propeller reversing rework). 53-20-1 (Hamilton Standard propeller pitch stop). 54-1-2 (Hamilton Standard propeller reversing system). 54-8-1 (Nose gear piston and fork assembly). 54-24-4 (Landing gear trunnion fittings). 55-16-2 (Fire resistant propeller feathering lines). 56-9-2 (Rudder torque tube rivets). 55-20-3 (Nose gear steering shaft).
404	TC 1A7	52-16-2 (Propeller reversing rework). 54-1-2 (Hamilton Standard propeller reversing system). 54-8-1 (Nose gear piston and fork assembly). 54-12-1 (Landing gear oleo drag struts). 55-16-2 (Fire resistant propeller feathering lines). 55-20-3 (Nose gear steering shaft). 56-9-2 (Rudder torque tube rivets).

MEYERS AIRCRAFT COMPANY, TECUMSEH, MICH.

Civil model	Approval No.	Applicable notes
OTW-160	TC 736	46-6-3 (Kinner master rod knuckle pin).

AIRCRAFT—Continued

MONOCOUPE AIRPLANE & ENGINE CORP., MELBOURNE, FLA.

Civil model	Approval No.	Applicable notes
90AL-115	TC 306	50-47-1 (Sensenich propeller blades).

MOONEY AIRCRAFT, INCORPORATED, WICHITA, KANS.

Civil model	Approval No.	Applicable notes
M-18 Series	TC 803	50-1-1 (Engine mount reinforcement). 51-3-1 (Fuel line rework). 53-17-1 (Control stick boot). 53-24-3 (Landing gear bell crank).

NOORDUYN AVIATION, LTD., MONTREAL, CANADA

Civil model	Approval No.	Applicable notes
Army UC-64, -64A, -64B.	2-578	46-23-5 (Horizontal stabilizer drain holes). 46-23-6 (Surface combustion fuel burning heater). 48-49-2 (Float wire brace).

NORTH AMERICAN AVIATION, INCORPORATED, INGLEWOOD, CALIF.

Civil model	Approval No.	Applicable notes
Army BC-1A, AT-6, AT-6A, -6B, -6C; Navy SNJ-2, -3, -4.	2-575	46-11-1 (Landing gear retracting strut attachment support channel). 46-17-1 (Flap control universal joint pins). 46-46-2 (Elevator stop). 49-7-2 (Fuel system placard). 50-9-1 (Stabilizer spar fittings and shims). 50-38-1 (Fuselage structure corrosion).

NORTHWESTERN AERONAUTICAL CORPORATION, MINNEAPOLIS MUNICIPAL AIRPORT MINNEAPOLIS, MINN.

Civil model	Approval No.	Applicable notes
Porterfield CP-65 CS-65.	TC 720	46-36-1 (Continental piston pins).
Porterfield 75-C	TC 611	46-36-1 (Continental piston pins).

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA.

Civil model	Approval No.	Applicable notes
AE-1, HE-1	TC 725	46-36-1 (Continental piston pins).
J-3	ATC 660	47-50-3 (Canvas seat inspection). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J3C-40, -50, -50S	TC 691	47-50-3 (Canvas seat inspection). 47-50-5 (Float wirepull fitting). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J3C-65, J3C-65S	TC 691	46-36-1 (Continental piston pins). 46-37-1 (Fuel strainer gasket). 46-37-2 (Fuel strainer position). 47-40-2 (Continental C75 and C85 piston pins). 47-50-3 (Canvas seat inspection). 47-50-5 (Float wirepull fitting). 47-50-6 (Shock strut cracks). 49-14-1 (Elevator connector tube fitting). 50-5-1 (Nicopress sleeve rework). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J3F-50, -50S, -60, -60S, -65, -65S.	TC 692	47-50-3 (Canvas seat inspection). 49-14-1 (Elevator connector tube fitting). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J3L, J3L-S, J3L-65, J3L-65S.	TC 698	47-50-3 (Canvas seat inspection). 49-14-1 (Elevator connector tube fitting). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J3P	TC 695	47-50-3 (Canvas seat inspection). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
J4, J4A, J4A-S	TC 703	46-36-1 (Continental piston pins).
J4E	TC 740	46-36-1 (Continental piston pins). 47-40-2 (Continental C75 and C85 piston pins).
J5A, J5A-80	TC 725	46-36-1 (Continental piston pins). 47-40-2 (Continental C75 and C85 piston pins).
J5C	TC 725 2-563.	46-36-1 (Continental piston pins).
PA-11	TC 691	47-40-2 (Continental C75 and C85 piston pins). 47-50-5 (Float wirepull fitting). 47-50-6 (Shock strut cracks). 48-3-3 (Header tank installation). 49-14-1 (Elevator connector tube fitting). 50-5-1 (Nicopress sleeve rework). 51-15-1 (Clevis bolt inspection). 52-7-3 (Lift strut rework).
PA-12	TC 780	46-36-2 (Airscoop rework). 46-36-3 (Muffler brace). 46-37-1 (Fuel strainer gasket). 47-22-3 (Landing gear tie strap). 47-47-1 (Landing gear reinforcement). 47-47-2 (Battery box insulating spacer). 47-47-3 (Seaplane fuselage inspection). 47-47-4 (Starter solenoid replacement). 48-1-2 (Cowl support braces). 48-13-3 (Battery hold-down brackets). 48-13-4 (Fuse-clip attachment). 48-14-1 (Fuel line elbow). 49-14-1 (Elevator connector tube fittings). 49-27-2 (Aileron bellcrank castings). 50-5-1 (Nicopress sleeve rework). 50-47-1 (Sensenich propeller blades). 51-21-2 (Aileron hinge brackets).

AIRCRAFT—Continued

PIPER AIRCRAFT CORPORATION, LOCK HAVEN, PA.—Continued

Civil model	Approval No.	Applicable notes
PA-14	TC 797	49-27-2 (Aileron bellcrank castings). 50-47-1 (Sensenich propeller blades).
PA-15	TC 800	50-23-1 (Shock strut fittings).
PA-16	TC 1A1	50-47-1 (Sensenich propeller blades). 51-23-3 (Battery box insulation).
PA-17	TC 805	50-23-1 (Shock strut fittings).
PA-18	TC 1A2	51-19-2 (Oil radiator hose). 53-4-1 (Control stick attachment). 53-24-4 (Fuel-hydraulic lines). 54-19-1 (Brake line cover plate).
PA-18 (Restricted)	RTC 7	54-19-1 (Brake line cover plate).
PA-20	TC-1A4	50-47-1 (Sensenich propeller blades). 51-19-2 (Oil radiator hose). 51-23-3 (Battery box insulation). 53-24-4 (Fuel-hydraulic lines). 54-2-2 (Federal ski rigging).
PA-22	TC 1A6	51-19-2 (Oil radiator hose). 51-23-3 (Battery box insulation). 51-27-3 (Nose wheel drain). 53-24-4 (Fuel-hydraulic lines). 55-7-2 (Landing gear tube reinforcement). 55-8-4 (Ignition filter replacement). 55-22-3 (Fuel tank cap).
PA-23	TC 1A10	55-11-2 (Thermal relief valves). 55-13-1 (Idler bellcrank installation). 55-14-2 (Hydraulic cylinder replacement). 55-21-2 (Wing front spar attachment fitting).

PORTERFIELD (SEE NORTHWESTERN AERONAUTICAL CORPORATION)

REPUBLIC AVIATION CORPORATION, FARMINGDALE, N. Y.

RC-3	TC-769	47-21-11 (Firewall stud bushings). 47-21-12 ("No Smoking" placard). 47-21-13 (Elevator push-pull tube rivets). 47-21-14 (Elevator control cable guide). 47-21-15 (Radio filters). 47-21-16 (Fuel strainer drain). 47-21-17 (Backfire screen). 47-21-18 (Mixture control support bracket). 47-21-19 (Control clamps or brass ferrules). 47-21-20 (Oil pressure gauge line restrictor). 47-21-21 (Tip float struts). 47-21-22 (Engine mounting bolt lock washers). 47-21-23 (Engine cooling fan). 47-47-10 (Float strut rework). 47-47-11 (Propeller reverse control spring). 47-47-12 (Carburetor anti-swirl vanes). 47-47-13 (Hartzell propeller hub counterweight). 47-47-14 (Oil screen inspection). 47-51-8 (Tailwheel horns). 48-1-3 (Elevator trim tab bushing). 48-11-4 (Hydraulic pump handle). 49-3-1 (Fuel pump diaphragms). 49-31-2 (Fuel tank placard). 53-6-2 (Hartzell propeller hubs). 53-23-3 (Strut fitting inspection).

RYAN AERONAUTICAL COMPANY, SAN DIEGO, CALIF.

ST-3KR	TC 749	46-6-1 (Front fin spar). 46-6-2 (Kinner master rod replacement). 46-6-3 (Kinner master rod knuckle pin). 51-28-3 (Fuel valve placard).
Navion	TC 782	47-11-1 (Rudder-nose gear steering bellcrank). 47-11-2 (Hartzell propeller blade rework). 47-21-4 (Fuel scupper drain line). 47-21-5 (Propeller control friction lock). 47-21-6 (Valve spring retainer spacers). 47-21-7 (Carburetor air intake scoop filler strip). 47-21-8 (Generator terminal stud indulator). 47-21-9 (Hydraulic system modifications). 47-21-10 (Propeller guide pin dowel). 47-31-1 (Hydraulic cylinder lines). 47-31-2 (Fire-resistant carburetor vapor return line). 47-31-3 (Fuel drain cock). 48-6-3 (Hartzell propeller blade inspection). 48-8-3 (Fuel valve control support clip). 48-29-1 (Fuel pump drain). 49-5-3 (Continental engines bearing inserts). 49-9-2 (Booster pump rework). 49-11-1 (Carter fuel pump rework). 49-12-2 (Romec fuel pump vent plugs). 49-28-1 (Product Techniques propeller spinner). 50-5-2 (Shakespeare controls). 50-10-2 (Air intake hose). 50-24-1 (Landing gear control lever). 50-32-1 (Oil pump rework). 51-7-1 (Throttle housing). 51-24-1 (Exhaust valve seats). 52-8-2 (Carburetor ducting). 52-23-2 (Landing gear retract link). 52-24-1 (Aileron control chain guard). 52-26-1 (Stabilizer spar web). 53-6-2 (Hartzell propeller). 53-8-1 (Horizontal stabilizer fitting). [1] 54-18-1 (Wing to fuselage attachment). [1] 55-1-1 (Fuselage frame cracks). 56-3-3 (Wing rear spar fitting inspection).

[1] Also applies to Riley and Temco Twin Navions.

AIRCRAFT—Continued

RYAN AERONAUTICAL COMPANY, SAN DIEGO, CALIF.—Continued

Civil model	Approval No.	Applicable notes
Navion A and B	TC 782	52-8-2 (Carburetor ducting). 52-24-1 (Aileron control chain guard). 53-3-1 (Hartzell propeller vibration). 53-8-1 (Horizontal stabilizer fitting). [1] 54-18-1 (Wing to fuselage attachment). [1] 55-1-1 (Fuselage frame cracks). 56-3-3 (Wing rear spar fitting inspection).
Riley and Temco Twin Navion Conversions.	TC 2A1	55-6-1 (Fuselage fuel tank enclosures).

SIKORSKY AIRCRAFT DIVISION OF UNITED AIRCRAFT CORP., STRATFORD, CONN.

R-4B	LTC 7	47-35-1 (Main rotor links rework). 47-35-2 (Tail rotor gear box brace).
YR-6A, R-6A, HOS-1.	LTC 29	47-51-14 (Pinion and ring gear inspection).
S-51	HTC 2	47-32-15 (Control system chain and sprockets). 47-50-8 (Vertical hinge pins). 48-17-3 (Planet pinion shafts wear). 48-18-2 (Bevel drive gear splines). 50-8-1 (Tail cone mounting longerons). 51-22-1 (Gear shaft replacement). 51-23-4 (Rotor link assemblies). 56-13-2 (Main rotor hub replacement).
S-55	TC 1H4	54-1-3 (Fuel strainer screen). 54-13-1 (Star assembly bolt replacement). 54-16-1 (Main transmission). 54-19-2 (Servo safety clip). 54-20-2 (Fore and aft transmission support assembly cracks). 55-25-4 (Tail cone skin reinforcements). 56-10-2 (Horizontal hinge pin assembly).

STINSON DIVISION, CONSOLIDATED VULTEE AIRCRAFT CORP., WAYNE, MICH. (SEE VEST FOR STINSON 108 SERIES.)

Army L-5, -5B, -5C, -5D, -5E, -5E-1.	TC 764	46-31-1 (Hinged seat back). 46-31-2 (Torque tube aft of rear seat). 47-50-4 (Elevator push-pull tube).
A	ATC 556	46-6-5 (Wing attach fittings).
HW-75, 10	TC 709	46-36-1 (Continental piston pins). 46-39-1 (Oleo truss wear).
10A, 10B	TC 783	46-39-1 (Oleo truss wear).

SUPERIOR AIRCRAFT COMPANY, WICHITA, KANS.

LCA	TC 730	46-4-1 (Landing gear throttle stop). 46-4-2 (Carburetor float needle). 46-36-1 (Continental piston pins).
LFA	TC 730	46-4-1 (Landing gear throttle stop).
V, V2	TC 778	47-2-7 (Landing gear retraction adjustment). 47-2-8 (Firewall cover plate). 47-2-9 (Cabin heater valve box). 47-25-1 (Fuel system rework). 47-25-2 (Wing fillets). 47-25-3 (Nose gear drag link). 47-25-4 (Compass illumination). 47-25-5 (Nose-main gear interconnection tube). 47-40-2 (Continental C75 and C85 piston pins). 48-48-1 (Freedman propeller hub). 50-4-2 (Landing gear retraction motor rework). 50-47-2 (Sensenich propeller blades).

TAYLORCRAFT, INCORPORATED, CONWAY, PA.

BC, BCS, BC-65, BCS-65, BC12-65, BCS12-65, BC12-D, BC12-D1, BCS12-D1.	TC 696	46-36-1 (Continental piston pins). 47-13-2 (Fuel hose). 47-16-3 (Wing strut fittings). 50-41-1 (Elevator horn bolt). 51-9-3 (Fuel shut-off valve clip).
BF, BFS, BF-60, BFS-60, BF-65, BFS-65, BF12-65, BFS12-65.	TC 699	47-16-3 (Wing strut fittings). 50-41-1 (Elevator horn bolt). 51-9-3 (Fuel shut-off valve clip).
BL, BLS, BL-65, BLS-65, BL-12-65, BLS12-65.	TC 700	47-16-3 (Wing strut fittings). 50-41-1 (Elevator horn bolt). 51-9-3 (Fuel shut-off valve clip).
DC-65, DCO-65	TC 746	46-36-1 (Continental piston pins). 51-9-3 (Fuel shut-off valve clip).

TEMCO AIRCRAFT CORP., GREENVILLE, TEX.

11A (formerly Luscombe).	TC 804	49-40-1 (Trim tab horn attachment). 49-45-1 (Landing gear bulkhead reinforcement). 50-32-1 (Oil pump rework). 51-21-3 (Rudder bellcrank).

TIMM AIRCRAFT CORPORATION, VAN NUYS, CALIF.

Navy N2T	2-573	48-32-1 (Throttle quadrant reinforcement).

AIRCRAFT—Continued

VEST AIRCRAFT CO., DENVER, COLO.

Civil model	Approval No.	Applicable notes
GC-1A, GC-1B (formerly Globe).	TC 766	46-23-4 (Addition of rivets in wing skin). 46-33-1 (Landing gear torque knees). 46-33-2 (Fuselage bulkhead flange stiffener). 46-42-1 (Cabin heater valve replacement). 47-6-1 (Landing gear retraction adjustment). 47-6-2 (Landing gear retraction placard). 47-6-3 (Elevator cable collars). 47-6-4 (Landing gear washers). 47-6-5 (Battery vent plugs). 47-6-6 (Engine breather line). 47-25-6 (Carburetor flexible air duct). 47-25-7 (Oil radiator outlet sleeve). 47-40-2 (Continental C75 and C85 piston pins). 48-28-1 (Fuselage bulkhead rework). 48-48-1 (Freedman propeller hub). 51-2-2 (Asbestos cloth removal). 51-8-3 (Stabilizer spar attachment). 51-10-5 (Fuselage reinforcement rework). 51-11-4 (Landing gear rework).
108, 108-1 (Stinson)	TC 767	47-50-11 (Ash tray modification). 47-50-12 (Stabilizer attachment fitting). 47-50-13 (Koppers propeller hub). 48-50-1 (Franklin cylinder base flange). 50-17-2 (Rudder cable inspection). 50-25-1 (Fuel drip strip). 54-2-2 (Federal ski rigging).
108-2 (Stinson)	TC 767	47-50-11 (Ash tray modification). 47-50-12 (Stabilizer attachment fitting). 47-50-13 (Koppers propeller hub). 49-16-2 (Wing fabric inspection). 50-17-2 (Rudder cable inspection). 50-25-1 (Fuel drip strip). 50-34-1 (Koppers F-200 propeller). 50-47-1 (Sensenich propeller blades). 54-2-2 (Federal ski rigging).
108-3 (Stinson)	TC 767	49-16-2 (Wing fabric inspection). 50-17-2 (Rudder cable inspection). 50-25-1 (Fuel drip strip). 50-34-1 (Koppers F-200 propeller). 50-47-1 (Sensenich propeller blades). 54-2-2 (Federal ski rigging).

VICKERS-ARMSTRONGS LTD., WEYBRIDGE, SURRY, ENGLAND

Viscount 744	TC 814	55-22-4 (Tailplane main spar). 55-22-5 (Nacelle side brackets).

WACO AIRCRAFT COMPANY, TROY, OHIO

INF	ATC 345	46-50-1 (Fuel line rework).
KNF	ATC 313	46-50-1 (Fuel line rework).
RNF	ATC 311	46-50-1 (Fuel line rework).
UKS-7, VKS-7, VKS-7F.	TC 648	47-27-1 (Wing inspection (tank area)).

AIRCRAFT ENGINES

AIRCOOLED MOTORS, INC., SYRACUSE, N. Y.

Civil model	Approval No.	Applicable notes
Franklin 6A4-150-B3 and B-31	TC 238	48-50-1. 49-5-2.
Franklin 6A4-165-B3	TC 238	51-15-2.
Franklin 6V4-178-B32	TC 244	49-5-2.
Franklin 6V4-178	TC 244	51-28-2.
Franklin 6V4-200 series	TC 244	51-28-2.

AVCO MANUFACTURING CORP., LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.

GO-435-C2	TC 228	51-24-1.
O-290-D2	TC 229	54-2-1.
O-320	TC 274	55-2-2.

CONTINENTAL MOTORS CORPORATION, MUSKEGON, MICH.

A-65 series	TC 205	46-36-1.
A-75 series	TC 213	46-36-1.
A-80 series	TC 217	46-36-1.
C-75 and C-85 series	TC 233	47-40-2. 49-50-1.
C-90 series	TC 252	49-50-1.
C-125 series	TC 236	47-40-2. 49-50-1.
C-145 series	TC 253	49-50-1. 50-20-1.
C-145-2	TC 253	48-43-2.
E-185 series	TC 246	56-6-1.
E-185-3	TC 246	49-5-3. 50-32-1.
E185-1, E165-2	TC 246	50-32-1.
E-185	TC 246	51-26-3.
E-225 series	TC 225	56-6-1.
O-470 series	TC 273	56-6-1.
W-670-9A		53-9-4.

AIRCRAFT ENGINES—Continued

DE HAVILLAND ENGINE COMPANY, LTD., MIDDLESEX, ENGLAND

Civil model	Approval No.	Applicable notes
Gipsy Queen 70-4		53-13-1.

GLADDEN PRODUCTS CORPORATION, GLENDALE, CALIF.

Kinner R-5 series 2	TC 153	46-6-2. 46-6-3.
Kinner R-55 and R-56	TC 153	46-6-3.

PRATT AND WHITNEY AIRCRAFT, DIVISION OF UNITED AIRCRAFT CORP., EAST HARTFORD, CONN.

All models		56-6-2.
R-2800	Group 5E-8	49-40-2. 50-22-1. 51-5-1. 56-3-2.
Double Wasp CA	TC 231	51-5-1.
Wasp Major TSB3-G or B5	TC 247	51-9-1.
R-2000	Group 5E-5	53-9-1.
Wasp Jr. and R-985	ATC 39, TC 123, 85, 113, Group 5E-1.	54-22-2.

RANGER AIRCRAFT ENGINES, DIVISION OF FAIRCHILD ENGINE & AIRPLANE CORPORATION, FARMINGDALE, LONG ISLAND, N. Y.

6-440-C	TC 216	52-3-1. 54-9-1.

ROLLS-ROYCE LIMITED, DERBY, ENGLAND

Dart 506 and 510	TC 283	56-2-3.

WARNER AIRCRAFT CO., NILES, MICH.

All models		51-4-2.

WRIGHT AERONAUTICAL CORP., WOOD RIDGE, N. J.

C9GB	TC 192	51-12-1.
C9GC	TC 219	51-12-1.
C9HD	TC 243	51-12-1.
Military R-1820 series	Group 5E-10	51-12-1.
C18BA, C18BD	TC 218	52-20-2.
975C18CB1	TC 270	54-25-2.
972TC18DA1, 972TC18DA2	TC 272	54-25-2.

AIRCRAFT EQUIPMENT

AC SPARK PLUG DIVISION OF GENERAL MOTORS CORP., FLINT, MICH.

AC LS-87 spark plugs		54-4-1.
AC Diaphragm type fuel pumps		54-21-1.

AIR ASSOCIATES, TETERBORO, N. J.

M-264 Safety Belt		50-18-3.

AIRCRAFT BELT & TRIM CO., LOS ANGELES, CALIF.

LBM-1900 Safety belts		54-20-1.

BEECH AIRCRAFT COMPANY, WICHITA, KANS.

Part No. 113652 Safety belts		55-8-1.

BRIGGS & STRATTON CORPORATION, MILWAUKEE, WIS.

A-8 Ignition Switch		50-4-1.
B-5		53-26-1.

FEDERAL AIRCRAFT WORKS, MINNEAPOLIS, MINN.

AWB-2500, AWB-2500A, AWB-2100 skis		54-2-2. 55-4-1.

SHAKESPEARE PRODUCTS CO., KALAMAZOO, MICH.

3A-42 and 3A-81 Push-Pull Controls		50-5-2.

AIRCRAFT EQUIPMENT—Continued

THOMAS A. EDISON, INC., WEST ORANGE, N. J.

Civil model	Approval No.	Applicable notes
P/N 35534 Fire Detector		52-23-1.

THOMPSON PRODUCTS, INC., CLEVELAND, OHIO

TF-1100-2 and TF-1100-M2 Fuel Pumps		55-26-2.

AIRCRAFT INSTRUMENTS

ECLIPSE—PIONEER DIVISION BENDIX AVIATION CORPORATION, TETERBORO, N. J.

PB-10 Automatic pilot		49-49-1.

LEAR, INC., LOS ANGELES, CALIF.

L-2 Automatic Pilot		51-26-2.

AIRCRAFT PROPELLERS

CURTISS-WRIGHT-CORP., CALDWELL, N. J.

C632S	TC 735	56-8-1.
C634D	TC 883	56-8-1.
C634S	TC 825	56-8-1.

FREEDMAN AIRCRAFT ENGINEERING CORPORATION, CHARLEVOIX, MICH.

PC-203, PX-203 FY-203	TC 704, 746, 747	48-48-1.

HAMILTON STANDARD, DIVISION, EAST HARTFORD, CONN.

11C1 Blades		50-12-1.
2H17 Blades	TC 853	50-52-1. 54-23-3.
2J17 Blades		55-21-1.
5U18 Governors		56-2-2.
Model 67000 reverse solenoid valve		54-1-1.
43D	TC 851	54-1-2.
43E	TC 871	54-1-2. 55-5-2.
34D	TC 856	54-1-2. 54-10-1.
34E	TC 881	54-1-2.
232	TC 853	54-1-2. 54-10-1.
242	TC 870	54-1-2. 54-10-1. 55-9-4.

AIRCRAFT PROPELLERS—Continued

HARTZELL PROPELLER CO., PIQUA, OHIO

Civil model	Approval No.	Applicable notes
HC12x20	TC 485	53-6-2.
HCS2xF-1	TC 878	53-15-3.
Metal blades		55-3-2.

KOPPERS CO., BALTIMORE, MD.

F200	TC 820	47-50-13. 50-34-1.

MCCAULEY INDUSTRIAL CORP., DAYTON, OHIO

41D5926	3-4	54-12-2.
D-1093	TC 815	54-12-2.

SENSENICH CORPORATION, LANCASTER, PA.

C3FR4, CS3FR5, C2FM, CS2FM	TC 836, 869, 841, 861	50-47-1.
C2FB3, C2FB1		50-47-2.
M76AM	TC 1P2	54-5-2.

AIRCRAFT RADIO

COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA

51R-1, 51R-2 Receivers		50-48-2. 52-13-1.

GENERAL

Sulphur Dusters		48-34-2.

This part contains all currently effective Airworthiness Directives issued through June 30, 1956.

[SEAL] JAMES T. PYLE,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 56-9836; Filed, Dec. 3, 1956; 8:45 a. m.]

TITLE 7—AGRICULTURE

Chapter I—Agricultural Marketing Service (Standards, Inspections, Marketing Practices), Department of Agriculture

PART 51—FRESH FRUITS, VEGETABLES AND OTHER PRODUCTS (INSPECTION, CERTIFICATION AND STANDARDS) [1]

SUBPART—REGULATIONS

On October 4, 1956, a notice of proposed rule making was published in the FEDERAL REGISTER (21 F. R. 7624) regarding a proposed revision of regulations governing the inspection and certification of fresh fruits and vegetables and other products.

After consideration of all relevant matters presented, including the proposal set forth in the aforesaid notice, the following regulations are hereby promulgated pursuant to the authority contained in the Agricultural Marketing Act of 1946 (60 Stat. 1087 et seq., as amended; 7 U. S. C. 1621 et seq.).

[1] Among such other products are the following: Raw nuts, Christmas trees and greens; flowers and flower bulbs; and onion sets.

ADMINISTRATIVE

DEFINITIONS

INSPECTION SERVICE

APPEAL INSPECTION

LICENSED INSPECTORS

FEES AND CHARGES (DESTINATION MARKETS)