employment opportunities, the Commission shall:

(a) Keep currently advised of employment and housing opportunities in the United States, its territories and possessions;

(b) Consider and process assurances to promote effective resettlement in areas and locations where housing and employment opportunities are available;

(c) Seek the advice and guidance of State Commissions or Committees on Displaced Persons and other public agencies and private agencies regarding the acceptability of assurances as to suitability of employment, housing, proper care and public charge representations;

(d) Establish and maintain working relationships with State Commissions or Committees on Displaced Persons, other appropriate public agencies and private agencies for the purpose of orderly and effective resettlement, throughout the United States, its territories and possessions, of persons who immigrate under those provisions of the act which the Commission administers;

(e) Disseminate among persons selected by the Commission, through orientation courses, lectures, films, and other appropriate means, facts and data concerning the history, customs, traditions, and geography of the United States, better to enable such persons to understand the obligations they assume under the act and to become adjusted to life in the United States, and seek the cooperation of public and private agencies to achieve this objective.

§ 710.5 *Reports by certain immigrants.* Every eligible displaced person, except an eligible displaced person who shall have derived his status because of being the spouse or an unmarried dependent child under twenty-one years of age of an eligible displaced person, and eligible displaced orphans and orphans as defined in section 2 (f) of the act, who shall be admitted to the United States shall report in such form as may be approved or required by the Commission, on the first day of January and on the first day of July of each year until he shall have made four reports to the Commission. The report shall set forth the employment, place of employment, and residence of the person reporting and of the members of his family, and shall furnish such other information as the Commission may require. If the term of the Commission expires before the four reports have been submitted, the remaining number of the required reports shall be submitted to the Attorney General. If a person who is required to submit such report enters the United States within 60 days prior to either the first day of January or the first day of July, the first report need not be made until the next date on which a report is required to be made.

This order shall become effective on the date of its publication in the FEDERAL REGISTER. Compliance with the provisions of section 4 (a) of the Administrative Procedure Act (60 Stat. 238; 5 U. S. C. 1003) as to notice of proposed rule making is found to be contrary to the public interest because Public Law 774, 80th Congress (62 Stat. 1009), as amended by the act of June 16, 1950, which is implemented by these regulations became effective on June 16, 1950, and the execution of functions of the Displaced Persons Commission under that statute would be unduly impeded by such notice. For the same reason it is found that the provisions of section 4 (c) of the Administrative Procedure Act providing for delayed effective date are inapplicable.

HARRY N. ROSENFIELD,
Acting Chairman,
Displaced Persons Commission.

[F. R. Doc. 50-5325; Filed, June 16, 1950; 1:18 p. m.]

TITLE 32—NATIONAL DEFENSE

Chapter VII—Department of the Air Force

Subchapter G—Personnel

PART 885—APPOINTMENT OF SECOND LIEUTENANTS FROM DISTINGUISHED MILITARY GRADUATES, AIR FORCE RESERVE OFFICERS' TRAINING CORPS

Regulations contained in §§ 885.1 to 885.8, inclusive (14 F. R. 6130), are hereby revised.

Pursuant to the authority conferred by sections 207 (f) and 203 (e) of the National Security Act (61 Stat. 503, 504; 5 U. S. C. Sup. 626 (f), 626c (e)), Transfer Order 2, October 1, 1947 (12 F. R. 6736), and cited laws, the following regulation is hereby prescribed:

Sec.
885.1 Purpose.
885.2 Command responsibility.
885.3 Distinguished military student.
885.4 Distinguished military graduate.
885.5 Eligibility.
885.6 Application.
885.7 Field processing.
885.8 Processing by Headquarters United States Air Force.
885.9 Notification of nonselection.
885.10 Tender of appointments.

AUTHORITY: §§ 885.1 to 885.10 issued under secs. 202, 506, 61 Stat. 883, 890; 10 U. S. C. Sup. 506, 506c.

DERIVATION: AFR 36-15.

§ 885.1 *Purpose.* The regulations in this part prescribe the procedure whereby distinguished military graduates of the Air Force Reserve Officers' Training Corps may be commissioned as second lieutenants in the Regular Air Force.

§ 885.2 *Command responsibility*—(a) *Air Force commanders.* Air Force commanders responsible for the implementation of the regulations in this part in their respective areas are:

(1) The commanders of the numbered air forces of the Continental Air Command in the Zone of Interior.

(2) The senior Air Force commander in each oversea command.

(b) *Professors.* Professors of air science and tactics are responsible to the appropriate Air Force commander for the administration of this program.

§ 885.3 *Distinguished military student*—(a) *Definition.* A person designated by the professor of air science and tactics who:

(1) Has completed or has been credited with Air Science I and Air Science II in accordance with existing regulations and has completed, or is scheduled to complete, within 15 days, one year of the advanced course, Air Force Reserve Officers' Training Corps.

(2) Has an academic standing among the upper third of the students within his Air Force Reserve Officers' Training Corps class pursuing the same specialized option and, unless a graduate student, has an academic standing among the upper half of all students in the institution pursuing the same academic major and scheduled to graduate the same school year.

(3) Possesses outstanding qualities of military leadership, high moral character, and definite aptitude for the military service.

(4) Has distinguished himself by demonstrated leadership through his accomplishments while participating in recognized campus activities.

(b) *Time of designation.* The professor of air science and tactics will designate the distinguished military students from among qualified students who are scheduled to complete the first year of advanced course, Air Force Reserve Officers' Training Corps, within 15 days.

(c) *Designation.* The professor of air science and tactics will obtain the written opinion of the president or other appropriate officials of the institution prior to the announcement of specific students designated as distinguished military students. He will notify the distinguished military students of their designation by letter and insure, by conducting an orientation on the provisions of this part, that they are aware of the opportunity to compete for a Regular Air Force commission. He may withdraw any such designation any time prior to graduation. When justification exists he also may designate additional distinguished military students during their last academic year provided that such designation is accomplished in sufficient time to permit those students to apply for appointment during one of the application periods outlined in § 885.6 (c) (1) and (2), prior to becoming eligible for designation as distinguished military graduates.

NOTE: Students designated as distinguished military students prior to May 1, 1950, will continue to be processed under the provisions of §§ 885.1 to 885.8 (14 F. R. 6130).

§ 885.4 *Distinguished military graduate*—(a) *Definition.* A person designated by the professor of air science and tactics or appropriate Air Force commander who:

(1) Was designated a distinguished military student and has maintained the standards required of a distinguished military student during the period between designation and date of graduation.

(2) Has completed the advanced course, Air Force Reserve Officers' Training Corps.

(3) Has been graduated by a recognized college or university with a baccalaureate degree.

(b) *Time of designation.* Designation of distinguished military graduates will be accomplished as follows:

(1) Distinguished military students who have fulfilled the requirements of paragraph (a) of this section will be designated by the professor of air science and tactics on date of graduation.

(2) Distinguished military students who have fulfilled all the requirements of paragraph (a) of this section, except completion of the Air Force Reserve Officers' Training Corps summer camp, will be designated by the professor of air science and tactics upon satisfactory completion of such camp.

(3) In instances where a distinguished military student has successfully completed the advanced course, Air Force Reserve Officers' Training Corps, prior to graduation, and graduation is from a recognized institution having no Air Force Reserve Officers' Training Corps unit, the designation will be made by the appropriate Air Force commander. The Air Force commander, upon the student's graduation, will assure that the student being designated has maintained the prescribed standards during the interim between completion of the advanced course, Air Force Reserve Officers' Training Corps, and graduation.

(c) *Designation.* Each distinguished military student will be notified of designation as a distinguished military graduate by letter, on date of successful completion of the requirements.

§ 885.5 *Eligibility.* Each candidate, at time of appointment, must:

(a) Be a distinguished military graduate.

(b) Be at least 21 years of age. During the present emergency, a selected candidate who has not reached the age of 21 years on or prior to the scheduled date of appointment will be appointed a second lieutenant in the United States Air Force Reserve and, upon application, will be ordered to extended active duty. A person appointed a Reserve officer under this provision, upon attainment of his 21st birthday, normally will be appointed in the Regular Air Force if at that time he is physically qualified.

(c) Not have passed his 27th birthday on date of appointment in the Regular component, except that an applicant who served in the Armed Forces of the United States prior to September 2, 1945, may apply: *Provided*, That he will not exceed the 30th anniversary of his birth on July 1st of the calendar year in which he submits his application.

(d) Be physically qualified for appointment in the Regular Air Force as determined by a final type physical examination.

(e) Have a record free of conviction by any type of military or civil court for other than a minor traffic violation. Request for waiver may be made in case of other minor violations which are nonrecurrent and which are not considered prejudicial to performance of duty as an officer. The granting of a waiver will not be considered in the case of any person who has been convicted of a crime involving moral turpitude. Appropriate Air Force commanders are authorized to take final action on such requests.

(f) Not be nor have been a conscientious objector.

(g) Not be nor have been a member of any foreign or domestic organization, association, movement, group, or combination of persons advocating subversive policy or seeking to alter the form of Government of the United States by unconstitutional means.

§ 885.6 *Application*—(a) *By whom submitted.* Under the provisions of this part, applications for Regular appointment may be submitted only by distinguished military students.

(b) *Completion of application.* Each distinguished military student desiring appointment in the Regular Air Force will submit to the professor of air science and tactics a formal application on Air Force Form 17, "Application for Commission in United States Air Force", in duplicate, with a photograph of himself, not less than three by five inches in size with his and the institution's name on back. He also will submit a loyalty statement in accordance with the provisions of Part 886 of this chapter (14 F. R. 6979) and attach to the application a copy of the letter designating him a distinguished military student and a transcript of college credits earned prior to submission of application. In instances where the policy of the institution is not to give a transcript of credits to the student he will take the necessary action to have the transcript forwarded direct to the Director of Training, Headquarters United States Air Force, Attention: Officer Initial Procurement Branch, Personnel Procurement Division, Washington 25, D. C., to arrive not later than 15 days after the close of the application period. Applicants may select as second choice, service in Department of the Army. Applicants desiring to make a second choice will indicate this fact and will show under "Remarks" (item (17) of Air Force Form 17), the arm or service in which they desire to serve.

(c) *Submission of application.* At the time of application the student must have one school year or less remaining until graduation. The student will submit his application to the professor of air science and tactics during one of the following periods:

(1) During the period of October 1st to 15th which is the normal application period for students scheduled to graduate during May and June of the following year. (Students submitting applications during this period normally will be notified of selection or nonselection on or about January 30th.)

(2) During the period of March 15th to 30th which is the normal application period for students scheduled to graduate during the following December and January. (Students submitting applications during this period normally will be notified of selection or nonselection on or about June 30th.)

(d) *Change of address.* If an applicant changes his address subsequent to the submission of his application and prior to receipt of notification of selection or nonselection he will be responsible for reporting the change, in writing, through the professor of air science and tactics and the appropriate Air Force commander to the Director of Training, Headquarters United States Air Force, Attention: Officer Initial Procurement Branch, Personnel Procurement Division, Washington 25, D. C.

§ 885.7 *Field processing*—(a) *Biographical test evaluation reports.* Prior to the processing of applicants by the interview board, the professor of air science and tactics will supervise the execution of the biographical test by each applicant and obtain three completed forms WD AGO PRT 708, "ROTC Evaluation Report, Answer Sheet," for each applicant. Two of the evaluation reports will be accomplished by members of the Air Force Reserve Officers' Training Corps detachment, and one by the Air Force Reserve Officers' Training Corps summer camp commander or his representative. If the student is designated subsequent to his attendance at summer camp, or does not attend summer camp until after completing the second year of the advanced course, Air Force Reserve Officers' Training Corps, the third copy of the evaluation report will be submitted by a member of the Air Force Reserve Officers' Training Corps detachment. If practicable, the professor of air science and tactics will submit one of the evaluation reports; however, all rating personnel must have had an adequate opportunity to observe the applicant.

(b) *Appointment and composition of the interview board.* The appropriate Air Force commander will appoint boards of officers to interview the applicants. Each board will be composed of a minimum of three Air Force officers, a majority of whom will be commissioned in the Regular component. The professor of air science and tactics and members of the military staff of a particular institution will not be utilized as members of the board appointed to interview candidates from that institution.

(c) *Physical examination.* Each approved applicant will be notified of his selection and of the time and place to report for physical examination. Determination of physical qualification or disqualification will be made by Headquarters United States Air Force.

§ 885.8 *Processing by Headquarters United States Air Force.* Upon receipt of applications and screening materials, composite scores for each applicant will be computed and transmitted with the documents to the Air Force Personnel Board for final selection.

§ 885.9 *Notification of nonselection.* Candidates who have not been selected for appointment will be notified through the appropriate Air Force commander and the professor of air science and tactics.

§ 885.10 *Tender of appointments.* The Director of Training, Headquarters United States Air Force will officially tender appointments to approved applicants after receipt of letters designating them distinguished military graduates and determination of their physical qualification by the Surgeon General, United States Air Force.

[SEAL] E. H. NELSON,
Colonel, U. S. Air Force,
Deputy Air Adjutant General.

[F. R. Doc. 50-5230; Filed, June 16, 1950; 8:45 a. m.]

TITLE 14—CIVIL AVIATION

Chapter I—Civil Aeronautics Board

Subchapter A—Civil Air Regulations

[Supplement 1]

PART 1—AIRWORTHINESS CERTIFICATES

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modifications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They shall become effective upon publication in the FEDERAL REGISTER unless otherwise indicated, in order to promote safety of the flying public. Compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest and, therefore is not required.

§ 1.2-1 *Airworthiness directives (CAA policies and rules which apply to § 1.2).* See Appendix A of this part.

APPENDIX A—AIRWORTHINESS DIRECTIVES

1. *Introduction to airworthiness directives (CAA policies)*—(a) *General.* (1) The Civil Aeronautics Act of 1938, as amended, empowers the Administrator of Civil Aeronautics to issue type certificates for aircraft after he determines that the aircraft is of proper design, material, specification, construction, and performance for safe operation, and that it meets the minimum standards prescribed by the Board. If the Administrator finds that the aircraft conforms to the type certificate therefor, and, after inspection, that the aircraft is in a condition for safe operation, upon application by the registered owner, he will issue an airworthiness certificate.

(2) The Civil Air Regulations provide that an aircraft shall not be flown unless it is in an airworthy condition. Normally, an aircraft will be considered airworthy if it is maintained at or above the airworthiness standards required for the original issuance of the airworthiness certificate. From time to time, however, service experience brings to light certain difficulties with respect to a particular make and model aircraft, which may affect its airworthiness. Information regarding such difficulties comes to the attention of the CAA from various sources. For example, reports may be received from mechanics, operators, manufacturers, Aviation Safety agents, and occasionally, from foreign governments. These reports are referred to the regional office which deals with the manufacturer of the aircraft. The regional office determines what corrective action, if any, is to be taken. Frequently the issuance of a service bulletin by the manufacturer is adequate, and the matter is closed.

(3) When the difficulty affects the airworthiness of the aircraft, it sometimes becomes necessary to modify the specifications on which the type certificate is based. If sufficient justification for such action exists, the public is advised of the change in specifications through the medium of airworthiness directives. These directives are prepared in the regional office, after discussion with the manufacturer. They are then forwarded to the Washington office for further consideration, clearance, and publication. The airworthiness directive, when finally issued, specifies the modifications and inspections necessary to preserve the airworthiness of the aircraft, and also the compliance dates by which the modifications and inspections must be accomplished. The airworthiness directive is therefore mandatory, and aircraft which are not modified and inspected in accordance therewith are considered by the CAA to be unairworthy.

(b) *Letters to manufacturers.* If the subject matter of an airworthiness directive proposed by a regional office does not appear to warrant compulsory action, an airworthiness directive will not be issued. In such cases a letter may be addressed to the manufacturer, indicating the desirability of corrective action, and recommending that steps be taken to remedy the difficulty. Such recommendations are not considered mandatory.

(c) *Compliance dates and inspection intervals.* When the defect is one which affects the airworthiness of the aircraft immediately, inspection and modification is required at once. On the other hand, if a condition does not render the aircraft unairworthy at the time it is discovered, but it will inevitably affect airworthiness if it continues to exist, a compliance date in the future will be prescribed. This compliance date is fixed after taking 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. Operating restrictions are usually temporary, and reduce or eliminate the hazard pending completion of the required modification.

(d) *Extension of compliance dates.* Since the availability of parts required for a given modification is not always completely and reliably predictable, it is occasionally necessary to extend a compliance date. This will be only done when the operator of the aircraft has demonstrated good faith in his efforts to comply, and when the delay is found to be beyond the control of the operator applying for the extension. Application for extension in such cases must always be made to the local Aviation Safety agent who will forward the application together with his recommendations to his regional office, whence the matter will be referred to the Washington office for decision on the extension. Extension of compliance dates can be authorized only by the Washington office of the CAA. In the interest of uniform administration of the airworthiness directive system, it is not considered desirable or reasonable to decentralize authority for the extension of compliance dates. Because of the process mentioned above, an extension of a compliance date should be requested at the earliest moment it becomes apparent that the compliance date cannot be met. Waiting until immediately prior to the compliance date will make it very difficult to give the request the consideration which might be necessary in order to warrant an extension and may make it impossible to grant the extension.

(e) *Adjustment of inspection intervals.* Inspection intervals specified in airworthiness directives are chosen after consideration of the nature of the inspection, especially the frequency considered necessary for minimum safety, the manufacturer's recommendations, and the recommendations of any other interested parties. Such intervals are usually in round numbers and in the case of aircraft that are maintained on a continuous inspection and maintenance system, the local Aviation Safety agent is empowered to make reasonable adjustments in the intervals specified to allow compliance by the operators at the nearest inspection period. The amount of tolerance allowed the agent is not specified in number of hours or in percentage of total time, but rather is left to the discretion of the agent to decide for himself the intent and urgency of the inspection as balanced against the normal inspection periods set up for the operators to which he is assigned.

(f) *Equivalent modifications.* The objective of an airworthiness directive specifying a modification to an airplane is solely to correct a particular difficulty. This point cannot be emphasized too much. The only reason for issuing an airworthiness directive is to correct a difficulty discovered in service. Hence, the airworthiness directive is so written as to describe the change involved, and while it refers to the manufacturer's service bulletin, it specifically does not require compliance with that service bulletin. In other words, the change itself is what is desired by the CAA, and the reference to the manufacturer's service bulletin is included so that operators can obtain more complete information than can be contained in the airworthiness directive. In view of the above, it logically follows that the CAA will accept equivalent modifications to those set forth in the manufacturer's service bulletin, so long as those equivalent modifications actually accomplish the required effect. The Aviation Safety agent is authorized to accept such equivalent modifications, and he may do so on his own authority or he can refer the matter to his regional office for additional advice if he desires.

(g) *Equivalent inspections.* It is sometimes found necessary to publish an airworthiness directive covering an inspection that may already be required by the terms of the Operation Specification—Maintenance of one or more air carrier operators. Where the inspection already set up in the Operation Specification—Maintenance is considered by the Aviation Safety agent to be the equivalent of that specified in the airworthiness directive, and where the previously established inspection period is no longer than that specified in the airworthiness directive, the airworthiness directive may be disregarded by that operator as having already been complied with. In other words, where an inspection set up by an airworthiness directive is already covered by the Operation Specification—Maintenance, whichever is the more stringent will govern (subject to

minor adjustment as outlined above under "Adjustment of Inspection Intervals"). No formal notice, recording of compliance, or other paper work should be involved in such cases.

(h) *Determination of compliance by the agent.* It is the responsibility of the Aviation Safety agent to determine that the operator has complied with the terms of the airworthiness directive. In the case of aircraft that are maintained on a continuous inspection and maintenance system, that does not necessarily mean that the agent must inspect personally each individual airplane, or that he must "sign-off" the inspection or modification. Normally the agent determines compliance by means of spot checks in the maintenance base and on the field and will not actually inspect each aircraft involved However, it should be pointed out that if the agent deems such personal inspection of each airplane necessary, then he may require that each airplane be presented to him individually. Ordinarily this procedure can be worked out between the operator and the local agent in such a manner as to reduce to a minimum the inconvenience and paper work required. Compliance with airworthiness directives should be recorded in the aircraft records by making an entry in the appropriate log book.

(i) *Manufacturer's service bulletins.* Manufacturer's service bulletins for aircraft are not required to be approved by the CAA, and, in fact, the CAA will approve only those bulletins that are the subject of an airworthiness directive or are prepared at the request of the CAA. An exception may be made when requested by the manufacturer and when such approval will assist CAA field representatives in the approval of changes made in the field. The aircraft manufacturer may issue any and all information in any form he desires to the operators of his aircraft or to the public. In any case where a manufacturer's service bulletin is mentioned in an airworthiness directive, such bulletin has been approved by the CAA. Alterations or repairs made in accordance with manufacturer's service bulletins should be approved in the field in the usual manner for any repair or alteration. It should be noted that supplements or addenda to service bulletins, issued subsequent to the publication of an airworthiness directive note referring to the basic service bulletin, may or may not be CAA approved. Changes covered in the supplemental bulletins are not required changes unless the airworthiness directive is modified to so state. In cases where a service bulletin change is to be the subject of an airworthiness directive note, the aircraft manufacturer should submit twelve copies of that bulletin to the regional office with which he has contact.

2. *Aircraft affected by airworthiness directives (CAA policies).* The following table is provided for use in determining which of the airworthiness directives published in section 3 apply to particular aircraft. This table includes only airworthiness directives issued on or before April 24, 1950.

AERONCA AIRCRAFT CORP., MIDDLETOWN, OHIO

Civil model	Type certificate	Applicable directives
KCA, 65-C, 8-65-C	TC 675	46-36-1 (Continental piston pins).
65-CA, 8-65-CA	TC 675	46-36-1 (Continental piston pins). 47-30-8 (Seat modification).
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).
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).
87AC	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).
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).
811AC	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).
7BCM	TC 759	47-20-1 (Gascolator bowl cleaning). 48-39-1 (Control stick rework). 49-11-2 (Wing attach fitting).
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).
815AC	TC 802	48-38-1 (Oil cooler installation). 48-43-2 (Continental C-145-2 engines).

BEECH AIRCRAFT CORP., 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 (Trip-free 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). 48-50-2 (Landing gear slide tube). 48-51-1 (Control wheel shaft inspection). 49-15-3 (Fuel tank vent systems).
C18S	TC 787	45-11-1 (Auto-pilot overpower valves). 45-25-1 (Three-pole-single-throw relays). 45-25-2 (Trip-free circuit breaker). 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). 48-50-2 (Landing gear slide tube). 48-51-1 (Control wheel shaft inspection). 49-15-3 (Fuel tank vent systems).
D17S	TC 649	48-51-1 (Control wheel shaft inspection).
D18S, D18C	TC 765	47-33-5 (Horizontal stabilizer spar). 47-33-6 (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).
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- 2-4 (Oil pump rework). 49- 4-1 (Aileron control chain). 49-26-1 (Trailing antenna rework). 49-28-2 (Fuel booster pump removal). 49-31-1 (Emergency fuel pump "O" rings). 49-48-1 (Thompson fuel pump).

BELL AIRCRAFT CORP., NIAGARA FALLS, N. Y.

Civil model	Type certificate	Applicable directives
47B, 47B-S, 47B2, 47B2-S	HTC1	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- 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). 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).
47B3	HTC1	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). 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). 49-52- 2 (Main rotor hub inspection).
47D	HTC1	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).
47D1	HTC1	49-34- 2 (Ventral fin inspection). 49-47- 2 (Tail rotor drive shaft). 49-52- 2 (Main rotor hub inspection).

BELLANCA AIRCRAFT CORP., NEW CASTLE, DEL.

Civil model	Type certificate	Applicable directives
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).

BELLANCA AIRCRAFT CORP., NEW CASTLE, DEL.—Continued

Civil model	Type certificate	Applicable directives
14-13, 14-13-2, 14-13-3	TC 773	48-13- 6 (Engine cowl brackets). 48-21- 1 (Accelerator pump linkage). 48-30- 1 (Franklin cylinder base flanges). 49- 5- 2 (Fuel pump diaphragm). 49-13- 2 (Landing gear drag strut rework).

BOEING AIRCRAFT CO., SEATTLE, WASH.

Civil model	Type certificate	Applicable directives
247-D	ATC 558	44-52- 1 (17SRT spar chords). 45-11- 1 (Auto-pilot overpower valves). 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, -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). 49- 8- 1 (Turbosupercharger inspection). 50-11- 1 (Heater header plate inspection).

BOEING AIRPLANE CO., WICHITA DIVISION, WICHITA, KANS.

Civil model	Type certificate	Applicable directives
A75L3, 75, A-75, B-75, E-75, A75J-1, A-75N-1, B75N1, D75N1	TC 743	45-22- 3 (Fuselage lower longerons). 45-22- 4 (Wing fabric and stitching). 45-23- 5 (Rudder pedal pads). 45-22- 6 (Safety belt guides). 45-51- 1 (Center section spars). 46-24- 1 (Wing drain holes). 47-42- 9 (Army-McCauley propeller inspection). 49-23- 1 (Fuselage truss).

CALL AIRCRAFT CO., AFTON, WYO.

Civil model	Type certificate	Applicable directives
A, A-2, A-3	TC 758	47-40- 2 (Continental C75 & C85 piston pins).

CESSNA AIRCRAFT CO., WICHITA, KANS.

Civil model	Type certificate	Applicable directives
T-50	TC 722	45-20- 1 (Fuel tank compartment drain holes). 45-20- 2 (Fuel analyzer gasket). 45-20- 3 (Fuel selector valve box). 45-20- 4 (Landing gear warning horn). 45-20- 5 (Cable clamps). 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- 5- 2 (Rudder spar cracks). 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).
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 and 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- 7 (Rudder rib flanges). 47-43- 8 (Beech R903-204 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).

CESSNA AIRCRAFT CO., WICHITA, KANS.—Continued

Civil model	Type certificate	Applicable directives
120, 140	TC 763	46-25- 3 (Wing drag wire system). 48-48- 1 (Freedman propeller hubs). 50-17- 1 (Fin spar reinforcement).
170	TC 799	48-43- 2 (Continental C-145-2 engines).
190	TC 790	49-14- 2 (Cowl mounting channels).

COMMONWEALTH AIRCRAFT, INC., VALLEY STREAM, LONG ISLAND, N. Y.

Rearwin 175, 180, 185	TC 729	46-35- 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).

CONSOLIDATED VULTEE AIRCRAFT CORP., SAN DIEGO, CALIF.

Army BT-13, -13A; Navy SNV-1; Army BT-13B; Navy SNV-2, Army BT-15	2-571	45-17- 1 (Aileron hinge brackets). 45-17- 2 (Flap centersection reinforcement). 45-17-33 (Flap spar reinforcement). 45-17- 4 (Spar stiffener reinforcement). 45-17- 5 (Rudder torque tube bearing plate). 45-17- 6 (Vertical stabilizer spar reinforcement). 45-17- 7 (Stabilizer attachment fittings). 45-17- 8 (Wing attachment fitting reinforcement). 45-30- 1 (Wing attach bolt replacement). 45-45- 1 (Wing rib and spar inspection (Aileron area)). 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).
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). 49-20- 2 (Landing gear actuating handle). 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).

CULVER (See Superior Aircraft Co.)

CURTISS-WRIGHT CORP., AIRPLANE DIVISION, COLUMBUS, OHIO

[Slick Airways, Inc., United Services for Air, Inc., Skyways International and Pan American Airways]

C-46A, C-46D	TC 789, TC 772	47-51- 1 (Horizontal stabilizer ribs). 47-51- 2 (Elevator hinge bolts). 47-51- 4 (Propeller anti-heat shield). 47-51- 7 (Landing gear drag strut). 48- 3- 5 (Hydraulic lines). 48-43- 3 (Engine operation placard). 48-44- 2 (Wing attach bolts). 48-48- 3 (Landing gear side braces). 49-12- 1 (Aileron trim tab motor support bracket). 49-18- 1 (Combustion heater fire protection). 49-19- 1 (Powerplant fire protection). 49-25- 1 (Cargo compartment fire protection) 49-48- 3 (Supercharger impeller thrust bearings).
C-46E, C-46F	TC 772, TC 786, TC 808, TC 789, TC 3A-2.	47-51- 1 (Horizontal stabilizer ribs). 47-51- 2 (Elevator hinge bolts). 47-51- 3 (Aileron rib rework). 47-51- 4 (Propeller anti-heat shield). 47-51- 5 (Aileron horn). 47-51- 7 (Landing gear drag strut). 48- 3- 5 (Hydraulic lines). 48-43- 3 (Engine operation placard). 48-44- 2 (Wing attach bolts). 48-48- 3 (Landing gear side braces). 49-12- 1 (Aileron trim tab motor support bracket). 49-18- 1 (Combustion heater fire protection). 49-19- 1 (Powerplant fire protection). 49-25- 1 (Cargo compartment fire protection). 49-48- 3 (Supercharger impeller thrust bearings).

DOUGLAS AIRCRAFT CO., INC., SANTA MONICA, CALIF.

Civil model	Type certificate	Applicable directives
A-26B, A-26C	LTC 3	47-36- 1 (Wing fitting rework). 47-36- 2 (Oil screen replacement).
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).
DC-3 and DST, models with Wright engines; (Notes marked (*) also apply to Army B-18, -18A, -18B).	TC 618	39-24- 1 (Attach angles and doublers).* 41-47- 1 (Control surface rebalance).* 45-22- 1 (Removal of valve washers—Wright engines). 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).
C-54-DC, C-54A-DC, C-54B-DC, and C-54D-DC.	TC 762	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). 46-37- 2 (Nose wheel brace strut collar). 46-39- 2 (Cabin heater fuel regulator control diaphragm). 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- 3 (Elevator and rudder hinge brackets and bolts). 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 box). 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-54E-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- 2 (Cabin heater fuel regulator control diaphragm). 46-39- 3 (Magneto wires inspection). 46-39- 4 (Fuel tank valve rework). 46-39- 5 (Fuel line supporting brackets). 46-39- 6 (Propeller thrust and retaining nuts). 47- 2- 1 (Exhaust collector ring bolts). 47- 2- 2 (Stabilizer attach fittings and bolts).

DOUGLAS AIRCRAFT CO., INC., SANTA MONICA, CALIF.—Continued

Civil model	Type certificate	Applicable directives
C34E-DC	TC 762	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). 47-27- 2 (Spar web inspection (tank areas)). 47-27- 3 (Elevator and rudder hinge brackets and bolts). 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	TC 762	46-24- 2 (Revision of magneto wires). 46-27- 2 (Nose wheel brace strut collar). 46-39- 2 (Cabin heater fuel regulator control diaphragm). 46-39- 3 (Magneto wires inspection). 46-39- 5 (Fuel line supporting brackets). 46-39- 6 (Propeller thrust and retaining nuts). 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 (16-gauge wire in oil dilution solenoid). 47-27- 2 (Spar web inspection (Tank areas)). 47-27- 3 (Elevator and rudder hinge brackets and bolts). 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	TC 762	46-27- 2 (Nose wheel brace strut collar). 46-39- 2 (Cabin heater fuel regulator diaphragm). 46-39- 4 (Fuel tank valve rework). 46-39- 6 (Propeller thrust and retaining nuts). 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).

DOUGLAS AIRCRAFT CO., INC., SANTA MONICA, CALIF.—Continued

Civil model	Type certificate	Applicable directives
DC-4	TC 762	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). 47-27- 2 (Spar web inspection (tank areas)). 47-27- 3 (Elevator and rudder hinge brackets and bolts). 47-27- 4 (Exhaust collector ring "Y" outlet reinforcement). 47-33- 1 (Stabilizer hinge brackets). 47-42- 1 (Gust lock rework). 48-42- 2 (Cowling fire seal). 48-42- 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-6	TC 781	47-42- 4 (Emergency exit placards). 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)). 48-23- 1 (Water-alcohol injection system). 48-48- 2 (Vacuum pump line replacement). 48-49- 3 (Electrical circuit inspection). 48-52- 1 (Additional modification 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).

ENGINEERING & RESEARCH CORP., RIVERDALE, MD.

Civil model	Type certificate	Applicable directives
415-C, 415-CD, 415-D, 415-E	TC-718	46-22- 1 (Muffler replacement). 46-23- 2 (Engine breather line hose). 46-23- 3 (Aileron control column fitting). 46-26- 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). 46-47- 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).

ENGINEERING & RESEARCH CORP., RIVERDALE, MD.—Continued

Civil model	Type certificate	Applicable directives
415-C, 415-CD, 415-D, 415-E	TC-718	47-49- 2 (Continental C-75 and C-85 piston pins). 47-42-20 (Control column shaft). 47-42-21 (Control cable fraying). 47-50-10 (Terneplate fuel tank). 49- 2- 2 (Precautionary inspection).

FAIRCHILD PERSONAL PLANE 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).
M-62A, M-62B	TC 724	43- 7- 1 (Wing centersection 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 centersection spars). 45-18- 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).

FAIRCHILD PERSONAL PLANE DIVISION OF FAIRCHILD ENGINE & AIRPLANE CORP., HAGERSTOWN, MD.—Continued

Civil model	Type certificate	Applicable directives
M-62A3, -4	TC 724	47- 7- 6 (Vertical fin attachment). 48-45- 1 (Wing spar inspection).
M-62C	TC 724	43- 7- 1 (Wing centersection 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).
71	ATC 89	45-52- 1 (Fuel selector valve placard).

FLEETWINGS, DIVISION OF KAISER CARGO, INC., BRISTOL, PA.

F-5, F-46A	ATC 680, 2-540	49-32- 1 (Engine support struts).

FUNK AIRCRAFT CO., COFFEYVILLE, KANS.

B85C	TC 715	47-49- 2 (Continental C75 and C85 piston pins).

GLOBE AIRCRAFT CORP., FORT WORTH, TEX.

(See Texas Engineering & Manufacturing Co.)

GRUMMAN AIRCRAFT ENGINEERING CORP., BETHPAGE, LONG ISLAND, N. Y.

G-21, G-21A	TC 654	45-11- 1 (Auto-pilot overpower valves). 46-38- 1 (Vacuum system tubing). 48-18- 1 (Stabilizer strut terminals). 49-16- 1 (Fuel tank baffles). 50-15- 1 (Mixture control rework).
G-44, G-44A	TC 734	45-11- 1 (Auto-pilot overpower valves). 48- 5- 5 (Landing gear valve placard). 48-31- 1 (Stabilizer strut terminals). 49-29- 1 (Hartzell propeller hubs).
G-73	TC 783	48- 3- 4 (Landing gear hose guides).

HOWARD INDUSTRIES, INC., 231 SOUTH LASALLE ST., CHICAGO 4, ILL.

DGA-15K	TC 739	46- 6- 2 (Kinner master rod replacement). 46- 6- 3 (Kinner master rod knuckle pin).

LOCKHEED AIRCRAFT CORP., BURBANK, CALIF.

14-N, 14-N2, 14-N3	ATC 685	45-11- 1 (Auto-pilot overpower valves).
18-07, 18-08, 18-14, 18-40, 18-50, 18-56	TC 723	45- 9- 1 (Landing gear down lock). 45-11- 1 (Auto-pilot overpower valves). 45-22- 1 (Removal of valve washers—Wright engines). 46-13- 1 (Landing gear hose ferrules). 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 modifications).
49-46	TC 753	47-10- 2 (Elevator tab control circuit breaker). 47-10- 3 (Rudder and elevator circuit breakers). 47-10- 4 (Engine autosyn transmitter grounding 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). 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 49-31 to 49-46). 47-10-17 (Cabin supercharger rework). 47-10-18 (Fire resistant fuel line). 47-10-19 (Cabin heater fuel solenoid valve).

LOCKHEED AIRCRAFT CORP., BURBANK, CALIF.—Continued

Civil model	Type certificate	Applicable directives
49-46	TC 763	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). 48-27- 1 (Fuel dump standpipes). 48-33- 1 (Fuel system placards). 49-22- 1 (Elevator booster system rework). 49-49- 1 (PB-10 Automatic pilot).
149-46	TC 763	48-27- 1 (Fuel dump standpipes). 48-33- 1 (Fuel system placards). 49-22- 1 (Elevator booster system rework). 49-49- 1 (PB-10 Automatic pilot).
649-79, 749-79	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). 48-26- 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 850-4C2-6 propeller blades). 49-22- 1 (Elevator booster system rework). 49-41- 1 (Curtiss C632S-A propeller hub). 49-49- 1 (PB-10 automatic pilot).

LUSCOMBE AIRPLANE CORP., DALLAS, TEX.

Civil model	Type certificate	Applicable directives
8, 8A, 8B, 8C, 8D, 8E	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).
11A	TC 804	49- 2- 4 (Oil pump rework). 49-40- 1 (Trim tab horn attachment). 49-45- 1 (Landing gear bulkhead reinforcement).

MARTIN COMPANY, GLENN L., BALTIMORE, MD.

Civil model	Type certificate	Applicable directives
202	TC 795	47-47- 5 (Stewart-Warner 921-B 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).

MARTIN COMPANY, GLENN L., BALTIMORE, MD.—Continued

Civil model	Type certificate	Applicable directives
202	TC 795	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).

MEYERS AIRCRAFT COMPANY, TECUMSEH, MICH.

Civil model	Type certificate	Applicable directives
OTW-160	TC 736	46- 6- 3 (Klaner master rod knuckle pin).

MOONEY AIRCRAFT, INC., WICHITA, KANS.

Civil model	Type certificate	Applicable directives
M-18L	TC 803	50- 1- 1 (Engine mount reinforcement).

NOORDUYN AVIATION LTD., MONTREAL, CANADA

Civil model	Type certificate	Applicable directives
Army UC-64, -64A, -64B	2-578	46-22- 5 (Horizontal stabilizer drain holes). 46-23- 6 (Surface combustion fuel burning heater). 48-49- 2 (Float wire brace).

NORTH AMERICAN AVIATION, INC., INGLEWOOD, CALIF.

Civil model	Type certificate	Applicable directives
Army BC-1A, AT-6, AT-6A, -6B, -6C; Navy SNJ-2, -3, -4	2-575	45-44- 1 (Wing rib reinforcement). 45-44- 2 (Control stick socket). 45-44- 3 (Stabilizer spar fittings and shims). 46-11- 1 (Landing gear retracting strut attachment support channel). 46-17- 1 (Flap control universal joint pins). 46-46- 2 (Elevator stop). 47-41- 1 (Fuselage structure corrosion). 49- 7- 2 (Fuel system placard). 50- 9- 1 (Stabilizer spar fittings and shims).

NORTHWESTERN AERONAUTICAL CORP., MINNEAPOLIS MUNICIPAL AIRPORT, MINNEAPOLIS, MINN.

Civil model	Type certificate	Applicable directives
Porterfield CP-65, CS-65	TC 720	46-35- 1 (Continental piston pins).
Porterfield 75-C	TC 611	46-35- 1 (Continental piston pins).

PIPER AIRCRAFT CORP., LOCK HAVEN, PA.

Civil model	Type certificate	Applicable directives
AE-1	TC 725	46-36- 1 (Continental piston pins).
HE-1	TC 725	46-36- 1 (Continental piston pins).
J-3	ATC 660	47-50- 3 (Canvas seat inspection). 48-46- 1 (Clevis bolt inspection).
J3C-40, -50, -50S	TC 691	47-50- 3 (Canvas seat inspection). 47-50- 5 (Float wirepull fitting). 48-46- 1 (Clevis bolt inspection).
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). 48-46 -1 (Clevis bolt inspection). 49-14- 1 (Elevator connector tube fitting).
J3F-50, -50S, -60, -60S, -65, -65S	TC 692	47-50- 3 (Canvas seat inspection). 48-46- 1 (Clevis bolt inspection). 49-14- 1 (Elevator connector tube fitting).
J3L, J3L-S, J3L-65, J3L-65S	TC 698	47-50- 3 (Canvas seat inspection). 48-46- 1 (Clevis bolt inspection). 49-14- 1 (Elevator connector tube fitting).
J3P	TC 696	47-50- 3 (Canvas seat inspection). 48-46- 1 (Clevis bolt inspection).
J4, J4A, J4A-S	TC 703	46-36- 1 (Continental piston pins).
J4E	TC 740	46-35- 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, 2-561	46-36- 1 (Continental piston pins).

PIPER AIRCRAFT CORP., LOCK HAVEN, PA.—Continued

Civil model	Type certificate	Applicable directives
PA-11	TC 601	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). 48- 3- 3 (Header tank installation). 48-40- 1 (Clevis bolt inspection). 49-14- 1 (Elevator connector tube fitting).
PA-12	TC 780	45-35- 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).
PA-14	TC 757	49-27- 2 (Aileron bellcrank castings). 49-27- 2 (Aileron bellcrank castings).

PORTERFIELD (See Northwestern Aeronautical Corp.)

REPUBLIC AVIATION CORP., FARMINGDALE, N. Y.

Civil model	Type certificate	Applicable directives
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). 49-29- 1 (Hartzell propeller hubs). 49-31- 2 (Fuel tank placard).

RYAN AERONAUTICAL CO., SAN DIEGO, CALIF.

Civil model	Type certificate	Applicable directives
ST-3KR	TC 749	45-22- 2 (Stabilizer spar). 46- 6- 1 (Front fin spar). 46- 6- 2 (Kinner master rod replacement). 46- 6- 3 (Kinner master rod knuckle pin).
NAvion	TC 752	47-11- 1 (Rudder-nose gear steering bellcrank). 47-11- 2 (Hartzell propeller blade rework). 47-22- 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 insulator). 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- 2- 4 (Oil pump rework). 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).

SIKORSKY AIRCRAFT DIVISION OF UNITED AIRCRAFT CORP., STRATFORD, CONN.

Civil model	Type certificate	Applicable directives
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	47-12-15 (Control system chain and sprockets).
(Helicopter)		47-50- 8 (Vertical hinge pins). 48-17- 3 (Planet pinion shafts wear). 48-18- 2 (Bevel drive gear splines). 49-44- 1 (Main rotor hub replacement). 50- 8- 1 (Tail cone mounting longerons).

STINSON DIVISION, CONSOLIDATED VULTEE AIRCRAFT CORP., WAYNE, MICH.

Civil model	Type certificate	Applicable directives
Army L-5, -5B, -5C, -5D,-5E, -5E-1.	TC 704	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 738	46-39- 1 (Oleo truss wear).
108, 108-1	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 (Core strands in rudder cables).
108-2	TC 767	47-50-11 (Ash tray modification). 47-50-12 (Stabilizer attachment fitting). 47-50-13 (Koppers propeller hub). 49-18- 2 (Koppers F-200 propeller). 49-16- 2 (Wing fabric inspection). 50-17- 2 (Core strands in rudder cables).
108-3	TC 767	49-18- 2 (Koppers F-200 propeller). 49-16- 2 (Wing fabric inspection). 50-17- 2 (Core strands in rudder cables).

SUPERIOR AIRCRAFT CO., WICHITA, KANS.

Civil model	Type certificate	Applicable directives
LCA	TC 730	46- 4- 1 (Landing gear throttle stop). 46- 4- 2 (Carburetor flat needle). 46-36- 1 (Continental piston pins).
LFA	TC 731	46- 4- 1 (Landing gear throttle stop).
V, V2	TC 774	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). 47-45- 2 (Continental C75 and C85 piston pins). 47-47- 9 (Sensenich C76A2 propeller blades). 48-48- 1 (Freedman propeller hub).

TAYLORCRAFT, INC., ALLIANCE, OHIO

Civil model	Type certificate	Applicable directives
BC, BCS, BC-65, BCS-65	TC 696	46-36- 1 (Continental piston pins). 47-13- 2 (Fuel hose). 47-16- 3 (Wing strut fittings).
BC12-65, BCS12-65, BC12-D, BC12-D1, BCS12-D1.	TC 696	46-36- 1 (Continental piston pins). 47-13- 1 (Fuel shut-off valve clip). 47-13- 2 (Fuel hose). 47-16- 3 (Wing strut fittings).
BF, BFS, BF-60, BFS-60, BF-65, BFS-65, BF12-65, BFS12-65.	TC 699	47-16- 3 (Wing strut fittings).
BL, BLS, BL-65, BLS-65, BL12-65, BLS-65.	TC 700	47-16- 3 (Wing strut fittings).
DC-65, DCO-65	TC 746	46-36- 1 (Continental piston pins).

TEXAS ENGINEERING & MANUFACTURING CO., DALLAS, TEX.

Civil model	Type certificate	Applicable directives
GC-1A, GC-1B	TC 706	46-21- 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).

TEXAS ENGINEERING & MANUFACTURING CO., DALLAS, TEX.—Continued

Civil model	Type certificate	Applicable directives
GC-1A, GC-1B	TC 702	46- 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). 47-25- 8 (Asbestos cloth in engine induction system). 47-43- 2 (Continental C75 and C85 piston pins). 48-28- 1 (Fuselage Bulkhead rework). 48-48- 1 (Freedman propeller hub).

TIMM AIRCRAFT CORP., VAN NUYS, CALIF.

Navy N2T-1	2-573	45-47- 1 (Landing gear tension rods). 45-47- 2 (Fuselage protector plate). 45-47- 3 (Carburetor air duct). 45-47- 4 (Flap hydraulic system). 45-47- 5 (Spark control bellcrank). 45-47- 6 (Control lock sling). 45-47- 7 (Elevator tab control guide rollers). 45-47- 8 (Selector valve). 45-47- 9 (Push-pull tube clevis end). 45-47-10 (Tachometer placard). 45-47-11 (Fin and rudder reinforcement). 45-47-12 (Rudder pedal springs). 45-47-13 (Diaphragm cowl doublers). 45-47-14 (Fuel selector valve indicator). 45-47-15 (Rudder pedal stop). 45-47-16 (Rudder pedal adjustment holes). 45-47-17 (Aileron hinge bracket). 45-47-18 (Fuel selector indicator shaft). 46-22- 1 (Throttle quadrant reinforcement).

WACO AIRCRAFT CO., TROY, OHIO

INF	ATC 345	46-50- 1 (Fuel line rework).
KNF	ATC 313	46-50- 1 (Fuel line rework).
RNF	ATC 331	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	Type certificate	Directives
Franklin 6A4-150-B3 and B-31	TC 238	46-50- 1. 49- 5- 2.
Franklin GV4-178-B32	TC 244	49- 5- 2.

CONTINENTAL MOTORS CORP., 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 223	47-49- 2. 49-50- 1.
C-90 series	TC 252	49-50- 1.
C-125 series	TC 230	47-49- 2. 49-50- 1.
C-145-2	TC 253	48-43- 2. 49-50- 1.
E185-3	TC 246	49- 2- 4. 49- 5- 3.

AIRCRAFT ENGINES—Continued

GLADDEN PRODUCTS CORP., GLENDALE, CALIF.

Civil model	Type certificate	Directives
Kinner R-5 series 2	TC 153	46- 6- 2.
Kinner R-55 and R-56	TC 153	46- 6- 3. 46- 6- 3.

PRATT & WHITNEY AIRCRAFT, DIV. OF UNITED AIRCRAFT CORP., EAST HARTFORD, CONN.

R-2800	Group 5E-8	49-20- 2. 49-30- 2. 49-45- 3. 49-48- 3.

AIRCRAFT INSTRUMENTS

ECLIPSE-PIONEER DIVISION BENDIX AVIATION CORP., TETERBORO, N. J.

Civil model	Applicable directives
PB-10 Auto pilot	49-49- 1.

AIRCRAFT PROPELLERS

FREEDMAN AIRCRAFT ENGINEERING CORP., CHARLEVOIX, MICH.

PC-203, PX-203, PY-203 hubs	48-48- 1.

HARTZELL PROPELLER CO., PIQUA, OHIO

8433 blades	49-48- 2.

KOPPERS CO., BALTIMORE, MD.

F200	47-50-13. 49-47- 1.

GENERAL

Sulphur Dusters	48-34- 2.

3. *Airworthiness directives which remain in effect (CAA rules).* Modifications and inspections of civil aircraft, as described below, are mandatory. Aircraft which are not modified and inspected as required herein are considered unairworthy, and continued flight of such aircraft will be regarded as violations of the Civil Air Regulations.

AIRWORTHINESS DIRECTIVE ISSUED IN 1939, WHICH REMAINS IN EFFECT

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 570-602-20 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 hours 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.

3. *Center section skin in outer wing joint at lower center spar.* Inspect the center section lower surface skin (5003151–130, –132, and –133) in the region of the center spar for cracks in the skin which is formed around the attach angle at the outer wing joint. The cracks usually occur in the vertical flange of the skin just above the attach angle bolt holes at the center spar. Inspection should be made at the same intervals of time as for the Wing Doublers which is outlined in part A–2 above.

B. *Replacements required*—1. *Defective angles.* In case defective angles are found, they must be replaced by angles extruded 99 degrees 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 degrees 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. *Center section lower skin.* In case cracks have been found, repairs should be made by replacing the damaged sections of the skin with new skin, or if the cracks are confined to the region of the lower center spar, repairs may be made in accordance with Douglas Service Bulletin No. 227.

C. *Outer wing heavy doubler installation.* When the #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 #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. Reports of all inspections commencing with the 16,000 hour inspection are forwarded to the CAA and the Douglas Aircraft Company.

AIRWORTHINESS DIRECTIVE ISSUED IN 1941, WHICH REMAINS IN EFFECT

41–47–1 DOUGLAS (Was Service Note 3 of AD–618–3 and Service Note 3 of AD–669–3.)

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

AIRWORTHINESS DIRECTIVES ISSUED IN 1943 WHICH REMAIN IN EFFECT

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 airplane in the range of engine speeds between 1,300 and 1,600 rpm. should be avoided. A minimum engine speed of 1,700 rpm. during cruising flight is recommended. (Douglas Service Letter dated January 15, 1943, covers this same subject.)

AIRWORTHINESS DIRECTIVES ISSUED IN 1944 WHICH REMAIN IN EFFECT

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

Inspect all square aluminum alloy 24SRT tubing in the following locations for cracks: Wing spars, front spar fuselage bulkhead, rear spar fuselage bulkhead and fin and stabilizer attachment bulkheads. If defects exceeding the established limits are located they shall be repaired in a manner satisfactory to the Civil Aeronautics Administration. These inspections shall be conducted at the following intervals:

a. SA–307B—at intervals not to exceed 150 hours flight time.

b. SA–307B–1—at intervals not to exceed 850 hours flight time.

c. S–307—at intervals not to exceed 700 hours flight time.

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.

AIRWORTHINESS DIRECTIVES ISSUED IN 1945 WHICH REMAIN IN EFFECT

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.* Inspect the visible portion of all readily accessible aluminum alloy 24SRT members for cracks at intervals not to exceed 250 hours flight time.

(b) *Inspection required every 750 hours of operation (effective after second X-ray examination).* Inspect the visible faces of all aluminum alloy 24SRT tubing structure for cracks at intervals not to exceed 750 hours flight time. In addition, at intervals not to exceed 750 hours flight time, 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 every 3,000 hours of operation.* Inspect by X-ray all inaccessible portions of 24SRT spar chord members for their entire length at intervals not to exceed 3,000 hours flight time. 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.

45-9-1 LOCKHEED (Was Mandatory Note 16 of AD-723-2.)

Compliance required prior to July 1, 1947. Install a landing gear mechanical down lock mechanism in each nacelle, operated by a manual control unit in the cockpit. An automatic reset arrangement actuated by the landing gear up light switch in the left nacelle should also be installed. When the gear is in the down position the lock should prevent inadvertent retraction. The lock should also automatically return to the locking position by retraction of the landing gear. (Lockheed Service Bulletins Nos. 18/SB-109 and 18/SB-109A, dated January 3, 1946, cover this same subject.)

On airplanes with low pressure breaks equipped with deboosters, it may also be necessary to install a longer hose on the inboard end of each deboocster to eliminate interference with the drag strut knee bolt. (Lockheed Service Information Letter dated August 1, 1945, revised December 10, 1945, covers this same subject.)

45-11-1 JACK & HEINTZ (Was Special Note 4 of AD-354; Special Note 1 of AD-352; Mandatory Note 3 of AD-654-1; 1 of AD-757-2; 11 of AD-669-3; 9 of AD-618-3; 3 of AD-558-1; 3 of AD-524-1 and 17 of AD-723-2.) (Applies to airplanes equipped with Jack & Heintz Automatic Pilot servo unit, Type A-3A, installations.)

To be accomplished as soon as practical but in any case not later than August 1, 1945. Inspect Jack & Heintz Automatic Pilot servo unit overpower valves equipped with valve bodies Part No. JH-3003 or 3000-1 (rear valve body) and Part No. JH-3028 or 3028-1 (front valve body), to determine if the threaded travel of the "spring adjusting screw (Part No. JH-3002), exceeds 1.845 inch. In cases where this condition is found to exist, a threaded cylinder insert $\frac{3}{8}$ inch long should be installed to restrict the travel of the "spring adjusting screw" to 1.745 inch. This insert will prevent inadvertent adjustment of the overpower relief valve spring to a "solid" spring condition. (Jack & Heintz Service Bulletin No. P-4, dated December 20, 1944, covers this same subject.)

45-17-1 CONSOLIDATED VULTEE (Was Mandatory Note 1 of AD-2-571-2.) (Applies only to airplanes equipped with fabric covered ailerons.)

Reinforce the aileron hinge brackets at their attachment to the aileron spar by replacing the aluminum alloy channels at the upper and lower bracket attachments with 0.050 inch X-4130 C. M. steel channels. (CVAC Service Bulletins Nos. 202-164, 202-164-1, and 202-164-2 cover this same subject.)

45-17-2 CONSOLIDATED VULTEE (Was Mandatory Note 2 of AD-2-571-2.) (Applies only to airplanes equipped with fabric covered metal flaps.)

Reinforce the center section wing flap at stations 66.5 and 95 by replacing the flap upper and lower spar cap aluminum alloy angles with 0.062 inch X-4130 C. M. Steel angles. (CVAC Service Bulletins 202-165 and 202-167 cover this same subject.)

45-17-3 CONSOLIDATED VULTEE (Was Mandatory Note 3 of AD-2-571-2.) (Applies only to airplanes equipped with fabric covered metal flaps.)

Reinforce the outer wing flap spar at stations 117.25 and 135 by replacing the upper and lower aluminum alloy spar cap angles with 0.062 inch X-4130 C. M. Steel angles approximately 10 inches in length. (CVAC Service Bulletin 202-166 covers this same subject.)

45-17-4 CONSOLIDATED VULTEE (Was Mandatory Note 4 of AD-2-571-2.)

Add two 1 x $\frac{3}{4}$ x $\frac{1}{8}$ inch 24ST alclad reinforcing plates to the formed vertical T section center section spar stiffener at Station O. The plates are located at the upper end of the stiffener under the heads of bolts which attach the stiffener to the spar cap. On airplanes where extruded T type attaching member is used, the reinforcing blocks are not required. (CVAC Service Bulletin 202-168 covers this same subject.)

45-17-5 CONSOLIDATED VULTEE (Was Mandatory Note 5 of AD-2-571-2.) (Applies only to airplanes equipped with fabric covered metal rudder.)

Install a $\frac{1}{4}$ inch 24ST alclad bearing plate in place of the original $\frac{1}{8}$ inch plate on the rudder upper torque tube, station 5.8 rib. (CVAC Service Bulletin 202-179 covers this same subject.)

45-17-6 CONSOLIDATED VULTEE (Was Mandatory Note 7 of AD-2-571-2.) (Applies only to airplanes equipped with metal vertical stabilizers.)

Install two 0.051 inch 24ST alclad aluminum alloy reinforcing plates on the aft face of the vertical stabilizer rear spar at its attachment to the monocoque aft bulkhead. (CVAC Service Bulletins 202-206 and 202-206-1 cover this same subject.)

45-17-7 CONSOLIDATED VULTEE (Was Mandatory Note 8 of AD-2-571-2.)

Replace the horizontal stabilizer front spar attachment fittings (aluminum alloy) with X-4130 C. M. steel fittings as follows:

a. For airplanes having metal stabilizers, the steel fittings should be 0.062 inch thick. (CVAC Service Bulletin 202-209 covers this same subject.)

b. For airplanes having wooden stabilizers, the steel fittings should be 0.070 inch thick. (CVAC Service Bulletin 202-214 covers this same subject.)

45-17-8 CONSOLIDATED VULTEE (Was Mandatory Note 6 of AD-2-571-2.) (Applies only to airplanes with wooden wings.)

Add X-4130 C. M. steel reinforcing plates to the lower forward outer wing attachment fittings. (CVAC Service Bulletin 202-196 covers this same subject.)

45-20-1 CESSNA (Was Mandatory Note 4 of AD-722-5.) (Applies to all Army AT-17 Series and UC-78 Series prior to certification.)

Add drain holes in the rear inside corner of the fuel tank compartment on all airplanes not provided with these holes. (Cessna Service Bulletin No. 96 dated May 9, 1944, covers this same subject.)

45-20-2 CESSNA (Was Mandatory Note 3 of AD-722-5.) (Applies to all Army AT-17 Series and UC-78 Series prior to certification.)

Install a gasket of asbestos or neoprene coated asbestos around the fuel analyzer line and rivet the gasket to the heater muff on all airplanes having fuel analyzers installed without the gasket. (Cessna Service Bulletin No. 88 dated December 23, 1943, covers this same subject.)

45-20-3 CESSNA (Was Mandatory Note 5 of AD-722-5.) (Applies to all Army AT-17 Series and UC-78 Series prior to certification.)

Provided a positive means of attachment for the fuel selector valve box lid to prevent malfunctioning of the fuel valve controls in the event of failure of Dzus fasteners by the addition of two sets of brackets to the box and lid on all airplanes not so provided. (Cessna Service Bulletin No. 92 dated May 17, 1944, covers this same subject.)

45-20-4 CESSNA (Was Mandatory Note 6 of AD-722-5.) (Applies to all Army AT-17 Series and UC-78 Series prior to certification.)

Install a landing gear warning horn on all airplanes not so equipped. (Cessna Service Bulletin No. 94 dated September 23, 1944, covers this same subject.)

45-20-5 CESSNA (Was Mandatory Note 7 of AD-722-5.) (Applies to all Army AT-17 Series and UC-78 Series prior to certification.)

Attach the fuel mixture, throttle, and propeller control cables with cable clamps to the nacelles' V-shaped members on each side of the wheel well directly to the rear of the oil tank. These cables should be attached in a manner to preclude the possibility of the landing gear fouling the cables when the gear is raised to the retracted position. (Cessna Service Bulletin No. 95 dated September 2, 1943, covers this same subject.)

45-22-1 DOUGLAS & LOCKHEED (Was Mandatory Note 11 of AD-618-3 and Mandatory Note 20 of AD-723-2.)

Compliance required before next ten hours of flight. On all Wright C9GC (G-200 Series) engines, remove the upper valve washers, Parts Nos. 69271 and 113171. Engines equipped with the two spring combination are satisfactory without change. For engines equipped with the three spring combination, it will be satisfactory to use Part No. 118815 or No. 113171 or No. 113171J. If either of the latter two is used, it should be of the high dimension type (0.60 inch total height). (Wright Service Bulletin No. C912A covers this same subject.)

45-22-2 RYAN (Was Service Note 4 of AD-749-1.) (Applies only to serials 1001 to 2249, inclusive.)

After each 10 hours of operation inspect the stabilizer front spar near inboard end for cracks in the region of the bend. If cracks are found, the spar should be repaired by making a fishmouth cut in the spar tube (Part No. T-1043) and inserting a steel tube reinforcement unit (Part No. SK-1631). This reinforcement unit should be riveted to the original spar with twelve AN442AD4-5 rivets or equivalent strength blind rivets. If the above repair has been made, the ten-hour inspections may be discontinued. (Ryan Service Bulletin No. 1061, dated March 9, 1945, covers this same subject.)

45-22-3 BOEING (Was Mandatory Note 1 of AD-743-3.) (Applies to all Army and Navy airplanes.)

Inspect immediately for cracks in the fuselage lower longerons at the landing gear front fittings and in the fitting lugs, both front and rear. If any cracks are found, repair by welding.

45-22-4 BOEING (Was Mandatory Note 2 of AD-743-3.) (Applies to all Army and Navy airplanes.)

If the historical record of any surplus military airplane does not indicate that the airplane complies with AAF T. O.'s 01-70A-36 and 01-70A-37, it will be necessary to inspect all wing panels of that airplane prior

to original certification to determine the condition and size of cord used in rib stitching. Any panel with broken stitches or cord having less than nine strands must be restitched with cord having a strength of at least 80 pounds when tested double, except that panels with cord having less than nine strands need not be restitched provided that a sample from most weathered portion of panel is demonstrated by actual test to have 80 pound strength.

Locate any broken cords by applying a rubber suction cup, approximately two inches in diameter, to the surface of the panel at several points along each rib, and noting whether or not the fabric can be lifted from the rib.

To determine whether the cord is of satisfactory size, locate the dope code and date of manufacture stenciled near the trailing edge of each panel. If the date of finishing is within two weeks of the date of manufacture, the rib stitching was done by the manufacturer and the cord is of satisfactory size. If the dope code is illegible or if it indicated that the panel was finished more than two weeks after the date of manufacture, open an inspection door or window and cut a sample of cord from the nearest rib. Unravel the end of the sample and count the number of strands. If there are nine or more strands and there are no broken cords, repair of the rib stitch from which the sample was taken is all that is necessary. (Boeing-Wichita Service Bulletin No. 75-1, A75-1, A75N1-1, A75J1-1, D75N1-1, B75-1, B75N1-1 and E75-1 (one bulletin) dated April 20, 1945, covers this same subject.)

45-22-5 BOEING (Was Service Note 1 of AD-743-3.)

It is recommended that the rudder pedal pad assemblies be inspected for cracks after each 100 hours of operation. Defective pads should be replaced or repaired by welding.

45-22-6 BOEING (Was Service Note 2 of AD-743-3.) (Applies to airplanes with wood seats.)

It is recommended that wood type safety belt guides on both sides of all wood seats be replaced with metal guides. The change consists simply of installing ½" x 0.035" round edge strip steel, or equivalent, bent approximately to the dimensions of the opening in the wood guide and fastened at each end with a No. 10 machine screw and safetied nut. (Boeing-Wichita Service Bulletin No. 75-1, A75-1, A75N1-1, A75J1-1, D75N1-1, B75-1, B75N1-1, and E75-1 (one bulletin) dated April 20, 1945, covers this same subject.)

45-25-1 BEECH (Was Mandatory Note 3 of AD-757-2.) (Applicable to airplanes which do not have three-pole-single-throw relays installed in the generator control boxes.)

To be accomplished on next periodic inspection but not later than November 1, 1947. Replace the two-pole-single-throw relays in the left and right generator control boxes with three-pole-single-throw relays, General Electric No. CR-2791-B100J3 or equivalent. In each box, the cables which were connected to the two-pole relay should be connected to two poles of the three-pole relay. The end of the cable which is connected to the "A" terminal of the voltage regulator should be disconnected from the "A" terminal and connected to one terminal of the third relay pole. The other terminal of the relay should be connected to the "A" terminal of the voltage regulator with No. 16 gauge wire. (Beech Service Bulletin No. C18-2 dated April 12, 1945, covers this same subject.)

45-25-2 BEECH (Was Mandatory Note 2 of AD-757-2.) Applicable to airplanes which do not have a circuit breaker installed between the ammeter shunt and the battery terminal of the reverse current relay.)

To be accomplished on next periodic inspection but not later than November 1, 1947. Install a 50 amp. trip-free circuit breaker, Spencer Thermostat Co. PLM-50 or equivalent, in the right and left generator control boxes. Each breaker should be connected between its associated ammeter shunt and battery terminal of the reverse current relay. A placard "Generator Circuit" should be installed on the outside of each box directly under the circuit breakers. (Beech Service Bulletin No. C18-1 dated April 9, 1945, covers this same subject.)

45-30-1 CONSOLIDATED VULTEE (Was Service Note 1 of AD-2-571-2.)

Replace the outer wing to center section forward lower attachment bolts after each 1,000 hours of operation. This replacement is not necessary if high strength bolts (NAS 147-25) and nuts (128-070) are installed. (CVAC Service Bulletin 202-205 covers this same subject.)

45-44-1 NORTH AMERICAN (Was Service Note 3 of AD-2-575-3.)

To be accomplished prior to original certification and inspection required at each periodic inspection thereafter unless reinforced in accordance with paragraph A. Remove the right hand fuel tank cover and inspect the intermediate wing rib at wing Station O to ascertain that a doubler extending from the rear spar to a point 10¾ inches or 19¼ inches forward, and a vertical stiffener six inches forward of the rear spar web have been added to the rib. If not, the following procedure should be followed:

A. Remove both fuel tanks and inspect the rib for cracks and buckles. If the rib has a crack more than 6 inches in length, the rib web should be replaced with 0.051 inch 24ST alclad and the new web should be reinforced in accordance with paragraph B. A rib that is cracked, but not in excess of 6 inches, should be reworked in accordance with paragraphs B and C. A rib that is not cracked nor buckled should be either reinforced in accordance with paragraph B or inspected after every 100 hours of operation. A rib that is buckled between the second and third stiffeners forward of the rear spar should be reinforced in accordance with paragraph D.

B. Rib cracked or not cracked:

(1) Remove the first and second stiffeners forward of the rear spar, parts -3 and -11 in figure 1.

(2) Remove all rivets through the rib in the area from the rear spar to the forward of the two stiffeners removed, except the rivets through the bottom flange of the rib.

(3) Replace the original reinforcement plate with a new reinforcement plate made of 0.051-inch 24ST alclad. The new reinforcement plate should be 10¾ inches long and otherwise should be in accordance with figure 1.

(4) Reinstall the stiffeners and other parts removed, using rivets in accordance with figure 5.

(5) Install a new stiffener made of 0.081-inch 24ST alclad to the dimensions and at the location shown in figure 1.

(6) Replace the removed rivets securing the rib to the top skin with AN426AD5 rivets.

C. A rib that is cracked but not in excess of 6 inches, should have the crack stop drilled and a doubler made of 0.051-inch 24ST alclad should be installed on the left side of the web below the chordwise angle and covering the area of the crack in accordance with CAM 18.

D. A rib buckled between the second and third original stringers forward of the rear spar should be reworked in accordance with paragraph B above, except as follows:

(1) Make the reinforcing plate 19¼ inches long instead of 10¾ inches as specified in paragraph B (3) above.

(2) Install an additional vertical stiffener, similar to the stiffener specified in paragraph B (5) but of suitable length, midway between the second and third stiffeners originally installed forward of the rear spar.

(North American Service Bulletin dated March 6, 1946, covers this subject also.)

45-44-2 NORTH AMERICAN (Was Mandatory Note 4 of AD-2-575-3).

To be accomplished prior to original certification. Inspect the front control stick socket, Part No. 52-52103, for cracks and replace any defective part. (North American Service Bulletin dated March 6, 1946, covers this subject also.)

45-44-3 NORTH AMERICAN (Superseded by 50-9-1.)

45-45-1 CONSOLIDATED VULTEE (Was Service Note 2 of AD-2-571-2.) (Applies only to airplanes with metal outer wings.)

At each periodic inspection examine the following areas of the outer wing panels for cracks:

a. The rear spar in the region of the aileron hinge brackets.

b. The upper and lower corners of the intermediate ribs, which support the aileron

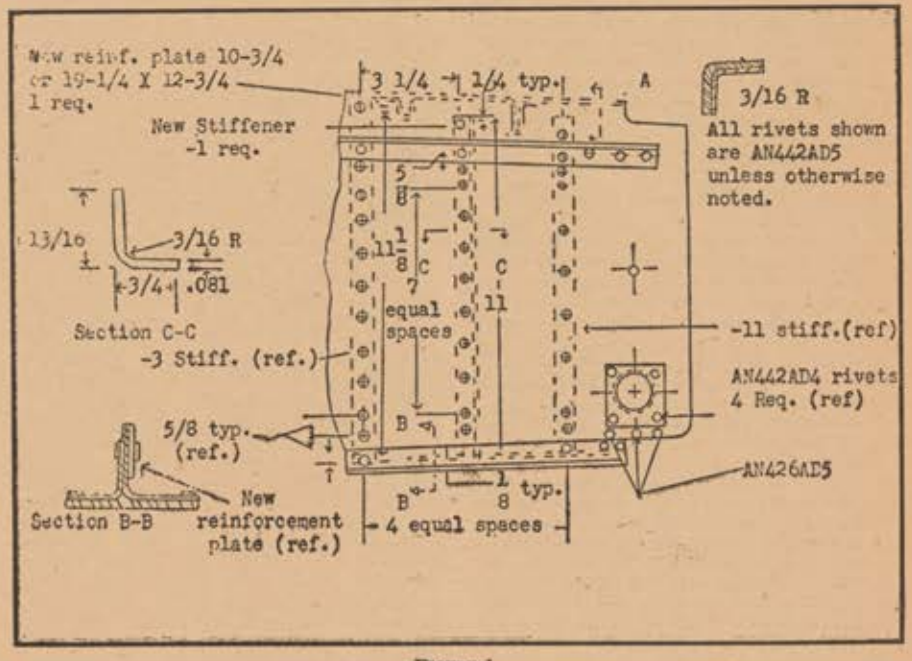

FIGURE 1.

hinge bracket, at their attachment to the rear spar.

In the event any cracks are found, the entire wing must be reinforced in the region of the aileron hinge brackets by the addition of approximately 10-inch lengths of 0.062 C. M. steel reinforcing angles to the rear spar upper cap strip at points of attachment of aileron hinge brackets, and the addition of corner brackets (0.040 24 STAL) to the upper and lower parts of the ribs supporting the aileron hinge brackets just forward of the rear spar. The web portion of the corner brackets is riveted to the rib web while the flanges are riveted to the spar web and the upper or lower surface as the case may be. (CVAC Service Bulletins 202-208 and 202-208-1 cover this same subject.)

45-47-1 TIMM (Was Service Note 1 of AD-2-573-1.)

Inspect landing gear attachment tension rods for proper tension every 100 hours of operation in order to prevent skin failure under landing conditions. This may be accomplished by removing the landing gear fairing and tightening parts as follows:

(a) Lower (7/16-inch diameter) rod to 30 ft. lb.—torque loaded from front end.

(b) Upper (3/8-inch diameter) rod to 25 ft. lb.—torque loaded from aft end.

(Refer to Timm Service Bulletin No. 23A.)

45-47-2 TIMM (Was Mandatory Note 16 of AD-2-573-1) (Serial numbers 05875, 05876, 32387 through 32588.)

Compliance required prior to original certification. Ascertain that No. 3-31002-73 plate has been added to the fuselage at Station 9.5 to protect the fuselage from exhaust. (Timm Service Bulletin No. 42 dated November 15, 1943, covers this same subject.)

45-47-3 TIMM (Was Mandatory Note 15 of AD-2-573-1.)

Compliance required prior to original certification. Ascertain that obsolete Air Duct Elbow Assembly No. 3-58018A Carburetor Air Duct No. 3-58020C, and Air Duct Assembly No. 3-58025B have been replaced with Parts Nos. 3-58018B, 3-58020D, and 3-58025C to prevent failure of the Air Duct Assembly. (Timm Service Bulletin No. 41 dated September 6, 1943, covers this same subject.)

45-47-4 TIMM (Was Mandatory Note 14 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32511, inclusive.)

Compliance required prior to original certification. Ascertain that the flap hydraulic system has been changed in accordance with Timm Service Bulletin No. 39A. This change may be identified by the installation of a reservoir on the bulkhead in the upper portion of the fuselage at Station 63 5/8. The overturn strut is located at Station 60.

45-47-5 TIMM (Was Mandatory Note 13 of AD-2-573-1.) (Serial numbers 32389 through 32406.)

Compliance required prior to original certification. Examine the #3-59071 Starter and Spark Control Bellcrank on the engine mount to ascertain that it has been reversed so that the obtuse angle is inboard and the long arm is up. (Timm Service Bulletin No. 36 dated July 21, 1943, covers this same subject.)

45-47-6 TIMM (Was Mandatory Note 12 of AD-2-573-1.) (Applies to Navy serial numbers 05875, 05876.)

Compliance required prior to original certification. Remove the old type Control Lock Sling (Part No. 2-79012) from the airplane. (Ref. Timm Service Bulletin No. 35.) Two straps are anchored at one side of the cockpit at points fore and aft of each other, and their remaining ends are attached to a common ring which in the "locked" position fits over the control stick. A length of shock cord is also attached to the ring and its free end is snapped on a fitting at the other side of the cockpit, thus giving the control stick a "three-point" support.

45-47-7 TIMM (Was Mandatory Note 11 of AD-2-573-L) (Applies to Navy serial numbers 05875, 05876, 32387 to 32390, inclusive.)

Compliance required prior to original certification. Examine the elevator tab control guide rollers located in the front face of the elevator spar at the airplane centerline to determine that changes have been made in the rollers in accordance with the manufacturer's Service Bulletin No. 34. This change is necessary in order that the cables be retained in the roller guides and prevent fouling of the cable. The new rollers may be identified by their arrangement and width whereby in each pair the rollers overlap with the narrower being retained within the flanges of the wider rollers. Originally the rollers were 5/16 inch thick whereas in the new set-up this thickness has been reduced to 1/4 inch in the case of the wider rollers.

45-47-8 TIMM (Was Service Note 2 of AD-2-573-1.) (Applies to serial numbers 05875, 05876, 32387 through 32573.)

Immediately and after every 60 hours of operation, remove and disassemble the No. 3-59069 selector valve to prevent binding. Clean and lubricate the valve core. (Timm Service Bulletin No. 24A dated August 17, 1943, covers this same subject.)

45-47-9 TIMM (Was Mandatory Note 10 of AD-2-573-1.) (Applies to Navy serial numbers 32387, 32390 to 32407, inclusive.)

Compliance required prior to original certification. Examine the push-pull tube connecting the elevator horn to the bellcrank to determine that redesigned (longer) clevis ends are installed in accordance with the manufacturer's Service Bulletin No. 31A and Project Slips Nos. 2759, 2760, and 2761. The redesigned clevis end may be identified by measuring the length of the slot. The distance from the clevis pin to the end of the clevis end should be approximately 1 3/16 inches.

45-47-10 TIMM (Was Mandatory Note 7 of AD-2-573-1.) (Applies to Navy serial numbers 05875, 05876, 32387 through 32407.)

Compliance required prior to original certification. Ascertain that a placard reading "Cruising Operations Restricted to Below 1850 RPM" is installed on instrument panel above tachometer in both cockpits. (Timm Service Bulletin No. 26 dated June 16, 1943, covers this same subject.)

45-47-11 TIMM (Was Mandatory Note 9 of AD-2-573-1.)

Compliance required prior to original certification. Ascertain that reinforced fin and rudder and additional rudder stops have been installed in accordance with Timm Service Bulletin No. 29A. A brief description of the change is as follows:

(a) Parts I and II (Applies to serial numbers 05875, 05876, and 32387 to 32448, inclusive). In external appearance the revised rudder is identical to the original and cannot be identified by visual examination. The reinforced area is at the rudder horn. The original 3/8-inch thick spar has been reinforced by the addition of a 19-inch length of spruce doubler, of the same cross section dimensions as the spar, to the back of the spar and extending 9 1/2 inches above and below the control horn. In addition, a 3/32-inch thick plywood gusset has been added to both sides of the surface as a skin reinforcement. Identification of the reinforced rudder can best be made by removing the 1 1/2-inch diameter cover at the control horn and determining the thickness of the spar by measurement. The total spar thickness should be approximately 7/8 inch, the added thickness being due to the bearing plates.

(b) Part III (Applies to serial numbers 05875, 05876, and 32387 to 32496, inclusive). Examine the aft face of the fin spar to determine that the fin is the reworked type having a continuous plywood facing. This plywood is 1/16-inch thick, is full length and width and has the face grain in the lengthwise direction of the spar.

(c) Part IV (Applies to serial numbers 05875, 05876, and 32387 to 32491, inclusive). Ascertain that additional rudder stops have been added to the rudder pedal interconnect assembly and are located at the bulkhead at Station 44 3/4-55 1/2.

45-47-12 TIMM (Was Mandatory Note 8 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32453, inclusive.)

Compliance required prior to original certification. Ascertain that springs have been added to the rudder pedal brake mechanism in accordance with the manufacturer's Service Bulletin No. 28 to provide for full release of brakes. The springs should be attached to blocks which must be glued to the fuselage stringers and to the lower brake lever arm on each rear cockpit rudder pedal installation.

45-47-13 TIMM (Was Mandatory Note 4 of AD-2-573-1.) (Applies to Navy serial numbers 32387 through 32398.)

Compliance required prior to original certification. Examine diaphragm cowl, Part No. 3-34017, to ascertain that doublers have been added to prevent cracking. (Timm Service Bulletin No. 16 dated April 8, 1943, covers this same subject.)

45-47-14 TIMM (Was Mandatory Note 5 of AD-2-573-1.) (Serial numbers 05875, 05876, 32387, 32390 through 32407, 32417, 32419, 32420.)

Compliance required prior to original certification. Ascertain that the fuel selector valve indicator assembly has been reworked so that when the indicator points to "full open" the valve is actually in the "full open" position. (Timm Service Bulletin No. 21 dated April 29, 1943, covers this same subject.)

45-47-15 TIMM (Was Mandatory Note 1 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32396, inclusive.)

Compliance required prior to original certification. Determine that a plate has been added as a stop for the rudder pedal adjustment level in accordance with the manufacturer's Service Bulletin No. 8 to prevent displacement of the adjustment pin. The centerline of this plate should be 1/16 inches forward of the hinge line of the adjustment lever.

45-47-16 TIMM (Was Mandatory Note 2 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32407, incl.)

Compliance required prior to original certification. Determine that the rear adjustment holes in the rudder pedal adjustment straps are plugged in a manner similar to that discussed in Timm Service Bulletin No. 11 and Project Slip No. 2289. Use of this hole for positioning the rudder pedal results in binding of the rudder system. In plugging the hole, the instructions call for a washer on either side of the strap all held in place by an AN 525-416-10 screw and an AN 365-428 nut.

45-47-17 TIMM (Was Mandatory Note 6 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32498, inclusive.)

Compliance required prior to original certification. Examine the inboard end of the aileron to determine that the note "BU. AER. Change No. 12" is stenciled thereon, indicating that a bracket has been added to reinforce the inboard hinge in accordance with Timm Aircraft Corp. Service Bulletin No. 25, and Timm Drawing No. 3-12014 and Project Slips Nos. 2593D and 2895. If the change has not been made, the reinforcement must be added in accordance with the above bulletin.

45-47-18 TIMM (Was Mandatory Note 3 of AD-2-573-1.) (Applies to Navy serial numbers 32387 to 32411, inclusive.)

Compliance required prior to original certification. Determine that the fuel selector indicator shaft has been safetied to the fuel selector valve by means of a cotter key. (Timm Service Bulletin No. 15 dated April 5, 1945, covers this same subject.)

45-51-1. BOEING (Superseded by 50-6-2.

45-52-1 FAIRCHILD (Was Mandatory Note 1 of AD-89-1.).

Compliance required immediately. Install the following placard at the fuel tank selector valve:

"Center Tank Shall Not Be Used for Take-off or Climb."

AIRWORTHINESS DIRECTIVES ISSUED IN 1946 WHICH REMAIN IN EFFECT

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 ¼ nor more than ¾ 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 5/16-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 incl., 12963 to 12973 incl., 12805 to 12846 incl., 12975 to 12976 incl., 12938 to 12948 incl., 13034 to 13037 incl., 12950 to 12952 incl., 13040 to 13056 incl., 12954 to 12961 incl.)

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"-29/32" x 1" x 6¾" long SAE No. 4130 steel, cadmium-plated (or 0.091"-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" x 1⅜" x 6¾" long SAE No. 4130 steel, cadmium-plated, doubler angles in the upper corners of the inboard ends 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 ⅝ 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.)

46-12-1 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 pounds. The lacing cord should also be checked and should have a breaking strength

of at least 56 pounds 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 4-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 1042763 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 (14 F. R. 3915), 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 7, 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 note 14 (b) of 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 $3^{31}/_{32}$-inch long standpipes (part No. 164101), the standpipe in each tank should be removed and a new $4^{15}/_{16}$-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 (War 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 or 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 $\frac{5}{16}$-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 fittings 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 (Nos. 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 DC-3-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-degree 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 0.018 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-707-2; 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.)

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

Required at next period[ic] 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-degree 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.

46-23-4 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 AN453-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.

46-24-2 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-54-265 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, 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-695-3; 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-745-1; 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 3456358 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 (0.628-inch inside diameter) with thick wall piston pin No. A-25127 (0.5645-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. 10660 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-65S, 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 1/8-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 cross-feed valves. To prevent valve freezing, the Parker and HydroAire 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 intergranular 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, incl.)

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 8619, incl.)

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, incl.)

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 and 0.040 inch 24ST alclad strip, 1⅜" x 42", 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 an .032 inch 24ST alclad strip, 1$^{13}/_{16}$" x 44", 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" x 44" x 1/16" 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 cover 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, incl.)

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 hold 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, incl.)

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 or 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.)

AIRWORTHINESS DIRECTIVES ISSUED IN 1947 WHICH REMAIN IN EFFECT

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 ⅜-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 accumulators, it is necessary to replace these accumulators, with dual 7½-inch accumulators, Bendix P/N 406920 or Vickers P/N AA14308B. A single Vickers 10-inch accumulator Model AA-14310 may also be installed in place of the single Douglas accumulator. (Douglas Service Bulletin DC-4 No. 9, covers 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 screwa 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 re-balanced 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 shut-off 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.)

When airplane has been parked in high winds without control surfaces locked, inspect rudder spar for cracks in area between No. 1 rib and rudder horn. If cracks are in evidence, repair in accordance with CAM 18.

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 (5/16 inch to 5/16 inch in 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 nonspill ball seat type vent plugs. Clean and treat that part of the firewall and fuselage which has been subjected to the spilled 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 #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 16820) 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 15/64 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 15/64 inches long with a 1¾ inches diameter reinforcing tube welded to the original ends should be replaced with

Beech P/N 804-188416 (23 15/16 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, Mo., 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 thru 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 butt 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 AN-393-51 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) non-trip-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 serials 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 cut-outs 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.)

Compliance required prior to March 15, 1947. Replace the "Mighty Midget" fire detector unit (LAC part No. 293587) in the No. 5 intake stack of each engine with a Fenwal No. 12411-27-450 fire detector unit. (LAC Service Bulletin 49/SB-65A covers this same subject.)

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, 1945, the following Service Documents must be complied with.

Lockheed Service Bulletins:

[1] *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.

[1] *49/SB-91, revised September 10, 1946—Replacements of Electrical Power Feed-Through Studs.

[1] *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.

[1](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.

[1] *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 Receptacle.

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).

[1] *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.

[1] *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.

[1] *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.

[1](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.

[1] *49/SB-138, revised September 25, 1946—Provisions for Increase of CO_2 Capacity.

[1] *49/SB-155, revised August 28, 1946—Installation of Copper Wires in Lieu of Aluminum Wires.

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

Lockheed Service Instructions:

[1] *49/SI-22, revised October 10, 1946—Installation of Engine Plumbing and Electrical Wiring Heat Protective System.

[1] *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:

[1] *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:

[3] 49/SB-1, revised June 7, 1946—Installation of Two-Speed Supercharger Controls.

[4] 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.

[3] 49/SB-230, dated November 3, 1946—Engine Oil Cooler Temperature Control Regulators—Recalibration of.

[3] 49/SB-231, dated November 2, 1946—Engine Oil Pump Pressures 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 op-

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[1] 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.

[2] 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.

[3] 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.

[4] 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.

erative in accordance with that Supplement should be checked for compliance with these later revision 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 855403.

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 2062.)

(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 63092 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, covers 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" x 36") 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 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 ⅛ inch.

(3) Cylinders on which heads have turned more than ⅛ 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 ⅛ 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 inspections. 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 countersunk 0.064 x 45° to accommodate the bolt head fillets, the bolts replaced and tightened to a torque wrench reading of 2,300-2,500 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 288983 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 HC12x 20-1 propeller with these airplanes indicate the 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." This blade rework must be performed either by the Hartzell Factory of 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 1,950 and 2,150 r. p. m. and over 2,250 r. p. m. 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. 24066 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 superinspected 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 TAYLOR CRAFT (Was Mandatory Note 12 of AD-696-3.)

To be accomplished not later than 25 hours of operation after Mdy 1, 1947, on Taylorcraft Model BC12-65, BCS12-65, BC12-D, BCS12-D, BC12-D1 and BCS12-D1 airplanes manufactured between July 1945 and September 24, 1946.

To prevent accidental operation of the fuel shut-off valve during flight, safety clip, Taylorcraft part No. B12-947, or equivalent, must be installed in the 3 o'clock position over the fuel shut-off control knob of all the affected Taylorcraft airplanes. This clip is to be installed so as to restrain the operation of the shut-off control unless lifted out of the way by a separate operation. This information is also contained in Taylorcraft Service Bulletin No. 63 dated December 26, 1946.

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 "CAAA, 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 rearmost 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-inch 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 to 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 1/2 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 10 1/2-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 2 amperes or less within 2 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 P24W41A, serial 373 and up, and all models P24W46, P24W46S, P24R46, P24R46A, and P24R46S.)

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, 83 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 x 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 Filed 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 airtight:

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 W7600-⅛ 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. 18, 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 ft. lbs., operate engine up to 1500 RPM 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 1/4 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. Provede 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.)

Compliance required prior to August 1, 1947. To prevent possible engine malfunctioning due to the entry of foreign matter into the engine's induction system, the asbestos paper located between the carburetor heater muff and the exhaust stacks should be replaced with asbestos cloth, equivalent to Globe Part No. 11-440-3641A, and then completely coated with water glass. (Globe Customer Service Maintenance Bulletin No. 16 covers this same subject.)

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 fitting if cracks are found not later than the next 100-hour check or September 1, 1947, whichever comes first and add rein-

forcing 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 $\frac{3}{32}$-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 $\frac{5}{16}$-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 38.)

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 $\frac{3}{16}$ 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.)

Prior to July 15, 1947, unless already accomplished and at periods not to exceed 1,000 hours flight time, or, in the case of Scheduled Air Carrier Operations, in multiples of Major Inspection closest to 1,000 hours, the following must be accomplished:

a. Remove and inspect all hinge bolts through bearings at elevator and rudder hinge and inspect bearings for proper installation and operation.

b. Remove and inspect all bolts through elevator and rudder tab hinge bearings and inspect bearings for proper installation and operation.

c. Check bearing eye bolt nuts for proper torque at all rudder and elevator hinge stations.

d. Check rudder and elevator hinge bracket attach bolts at stabilizer rear spar for proper torque, and on first inspection check bolt length and thread engagement.

e. Check elevator and rudder tab brackets for proper installation including hinge alignment.

f. Proper torque values for all points to be checked are given in DC-4 maintenance manual. It is important in checking torque that part be loosened and then retightened to proper torque. Do not tighten above recommended torque value.

g. Remove the paint from the following hinge brackets and inspect for corrosion and any evidence of cracks: rudder hinges, rudder tab hinges, elevator hinges, elevator tab hinges.

When any defects are found, the defective parts must be replaced immediately with identical new parts installed in accordance with the methods and bolt torque values applicable as shown in the Douglas DC-4 Maintenance Manual Volume VI, pages 323 to 331, inclusive.

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" x ½" x approximately 2" length 24ST aluminum alloy reinforcing doubler plates to each end of each link using two ⅛" 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 1/16 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 5/8 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 2 (Page 30) 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 2, 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.

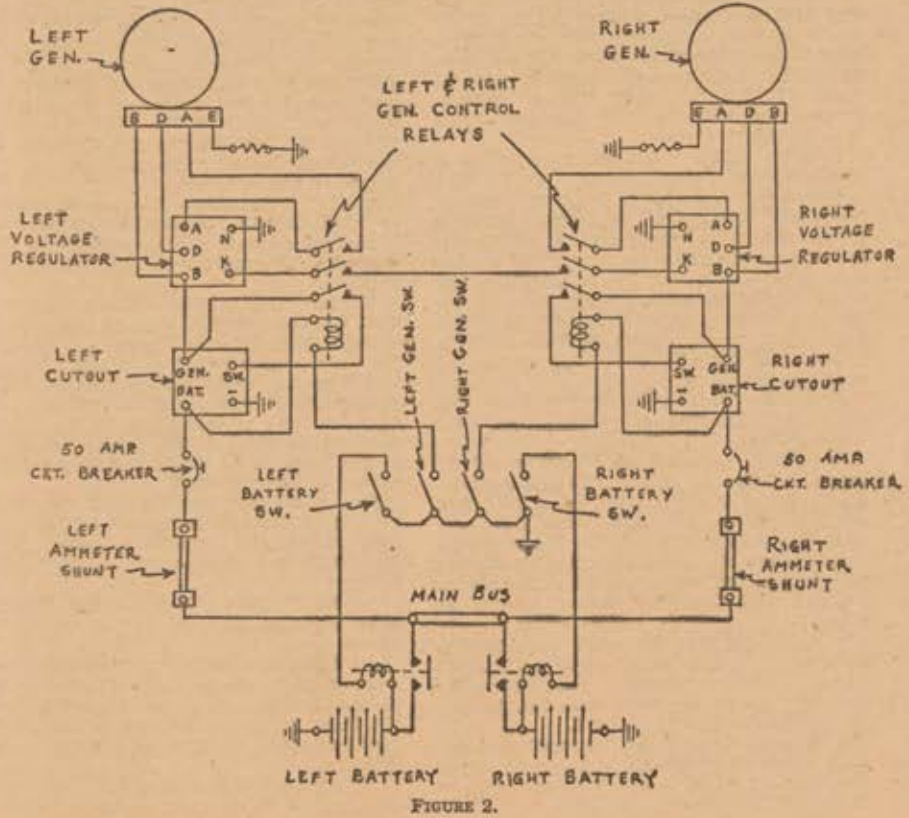

FIGURE 2.

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 2 install a 50-ampere 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 labeled respectively: "LEFT GEN. CIRCUIT" and "RIGHT GEN. CIRCUIT."

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 5/16-inch AN bolts. Location of bolt approximately 1⅛ inch below and ⅝ 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-1550½ drain cock on the Koehler Model 2250 fuel strainer, remove this drain cock and install Whittaker Model 7600⅛ 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 $4^{27}/_{64}$ 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 1⅜ inches from the hose which connects the two manifold pipes. (Franklin Service Bulletin No. 55 dated May 28, 1947, pertains to this same subject.)

47-32-8 BELL (Was Mandatory Note 8 of AD-1H-1.) (Applies to 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 tear-down 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 tear-down 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 5109699, 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 $\frac{5}{16}$ 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 ¼-inch drain holes in the fuselage bulkhead No. 15 as shown in figure 3. (Beech Service Bulletin No. C18-7 covers this same subject.)

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 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 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 of 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

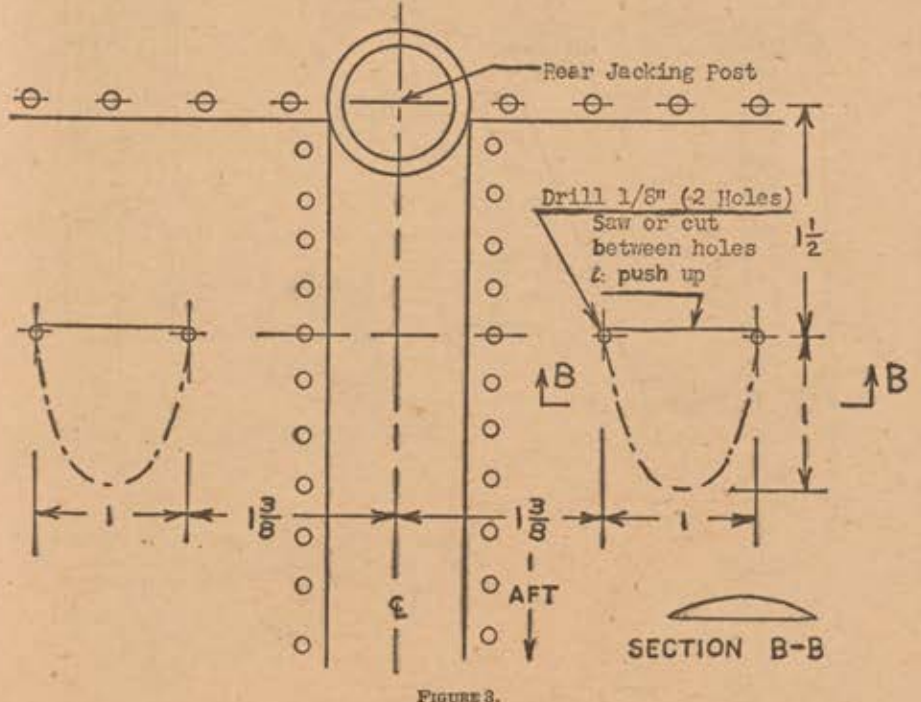

FIGURE 3.

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 fig. 4.) 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 fig. 4.)

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.)

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 figs. 5 and 6.)

(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 fig. 5.)

(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 fig. 6.)

c. Fashion a wedge, using a piece of wood 1 x 3 x 14 inches, and V notch both ends. (See fig. 7.)

d. Insert wedge approximately parallel to telescopic brace.

(1) Tap alternately the ends of wedge forcing the subject assembly to extend 1/16 inch beyond the pencil line requested in paragraph 2, b. (Extra extension of 1/16 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 fig. 6.)

(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.)

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 fig. 8. 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 24SO 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.

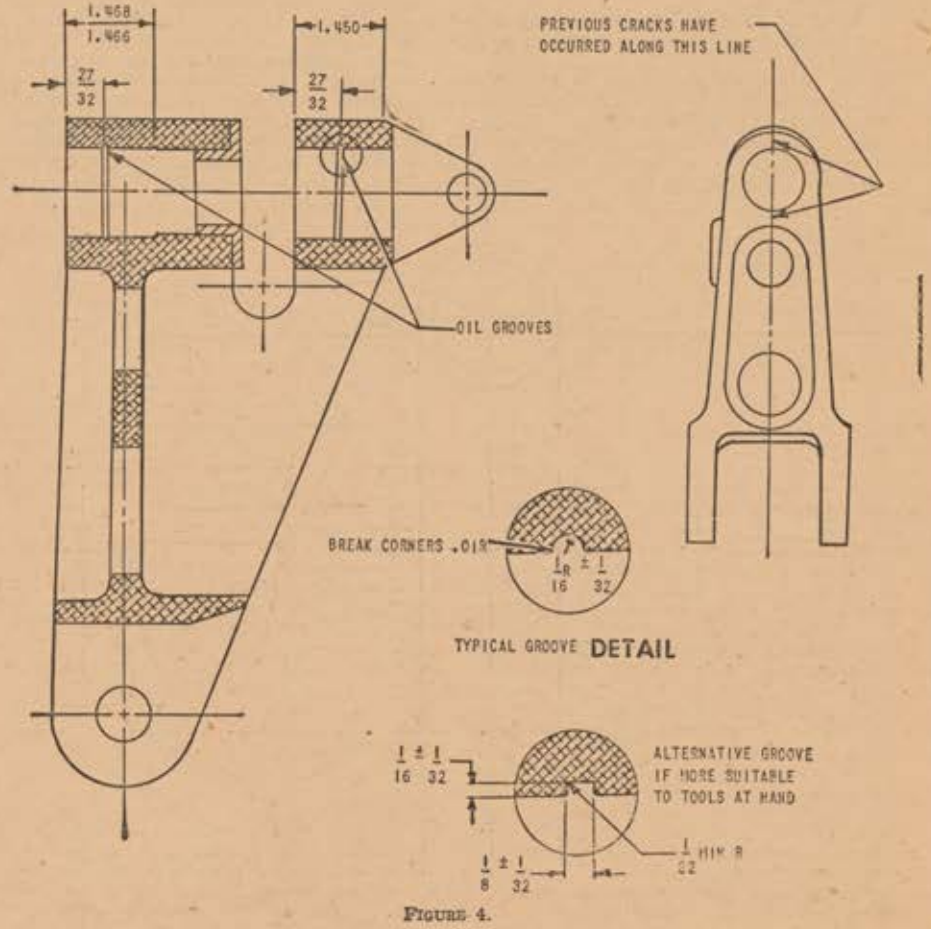

FIGURE 4.

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. AN-426AD-( ) (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.

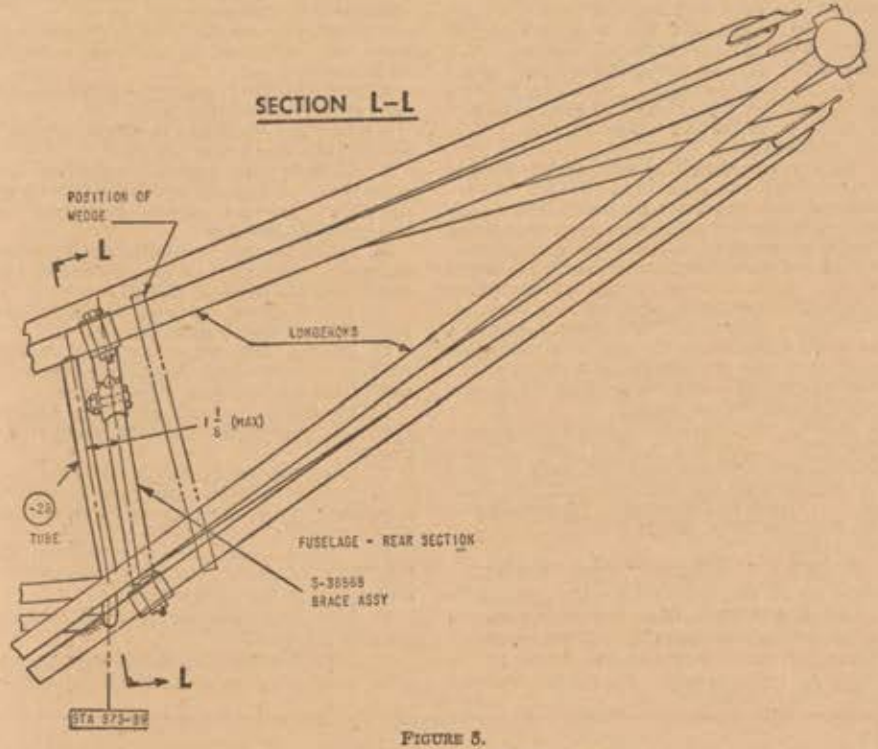

FIGURE 5.

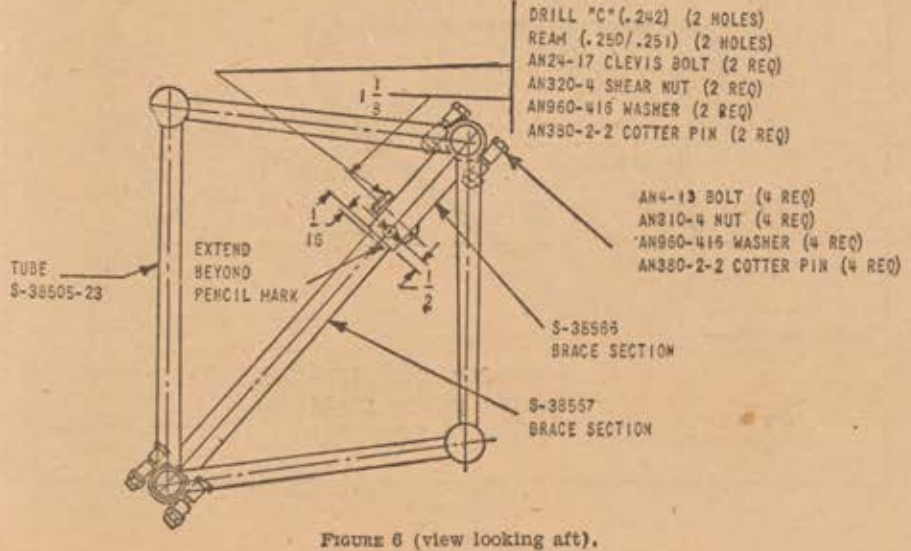

FIGURE 6 (view looking aft).

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.)

Compliance required by next periodic inspection, or by January 1, 1948, whichever is the earlier. Inspect the following aluminum alloy parts of the rear fuselage monocoque structure for evidence of intergranular corrosion:

a. Top web and bulkhead immediately behind rear pilot.

b. Top and bottom horizontal webs, and forward and rear bulkheads adjacent to the tail wheel area.

c. Lower ribs of rudder.

Inspect the bottom skin of the rear fuselage monocoque structure and the center section flap area for evidence of surface corrosion. Special attention should be given to the areas aft of the battery vent and relief tube outlets.

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 intergranular 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.

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

Compliance required prior to next flight 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

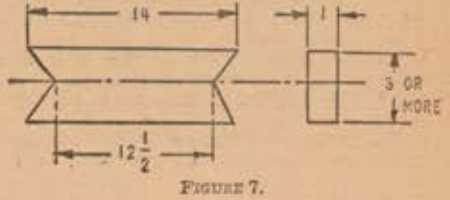

FIGURE 7.

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 fifty-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 fifty-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 3/16 inch apart, in such a position that it will straddle the lower rod end of the vertical control rod emanating from bell crank 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 should be reworked by cutting away the lower inboard edge of a 2-inch radius from a center position 1½ inches from the vertical centerline of the center hole. The cut should not be more than ⅛ inch at its deepest point and the sharp corners, resulting from the removal of this segment, should be rounded by a ½-inch radius. This reworking will eliminate the interference between these 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 1356685.

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 1165689, 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 fire wall. 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 fire wall.

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 behind 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

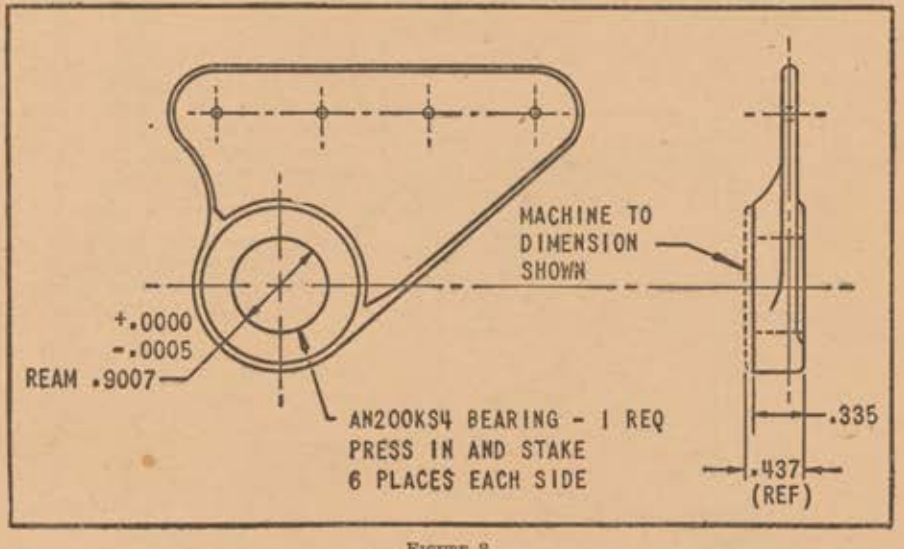

FIGURE 8.

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 cut-out 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 cut-outs 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 (O) 1 through (O) 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.)

42-42-7 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 nonair 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 $\frac{1}{8}$ or $\frac{5}{32}$ rivets should be continued inboard with AD5 rivets using the present pattern of $\frac{3}{4}$ inch O. C. to within $3\frac{1}{16}$ inches from the end of the spar cap. Existing $\frac{1}{8}$-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 noncarrier operations). Certain cases have been found where the aileron hinge plates at wing stations 421, 485, 585, and 675 were fabricated from overgage 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 oversize 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	[1] .238 .243	4345756	.334 .350
585	3	3323461	.311 .297	4345755	.311 .316
675	4	3323462	.249 .237	4345754	.249 .254

[1] Thickness of 0.005 angle not included.

Total thickness should not exceed 0.334. (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 antiretract mechanism, thereby preventing retraction of the landing gear. Pending redesign of the antiretract mechanism of the landing gear control valve assembly, P/N 3319922, the antiretract 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 down-lock control cable assembly, P/N 4334802. Install 21" 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" 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 21⅜ 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 down-lock 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 and 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 No. 2 inspection period according to instructions contained in Douglas Telegram A-214-529, 012/RLT, dated July 25, 1947.

A. Cut a ⅞-inch-diameter hole through skin and doubler only, 1 1/16 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 ⅞-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 1/16 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 43051; AAL 42854 to 42865, inclusive; 42879 to 42880, inclusive; 42882 to 42886, 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, inclusive; KLM 43111 to 43112, inclusive; and AAF 42881.)

Inspection required at each 700 hours (or at each 150 hours for nonair 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 detached 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 42896, 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 Note 47-42-11, inspect for signs of cracks or progress of cracks that have been found to exist at each engine change. 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.)

Compliance required not later than next 25 hours inspection and each 100 hours thereafter. Control column cable assemblies have been reported fraying. Inspect these cables for fraying and replace damaged cables. If only the (lower) left cable is damaged, the aileron stop screw may be

bearing on the cable and should be replaced by a new type stop bolt, ERCO Part No. 415-52169-2.

These inspections may be discontinued if the quadrant is replaced with a quadrant of revised design, ERCO Part No. 415-52122 and revised cable assemblies, ERCO Part No. 415-52172.

Rigging of controls should follow the process outlined in Ercoupe Service Department Bulletin No. 13 and Ercoupe Service Department Memorandum No. 35. (Ercoupe Service Department Memorandum No. 43 dated July 14, 1947, covers this same subject.)

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 24ST 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 $\frac{1}{8}$-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 banding 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 0.090-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 13789, 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 AN422AD4 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.)

Inspection required whenever airplane is tied down in high winds without controls locked and upon each 100 hours of operation until Cessna part No. 0433106 incorporating 0433131 is installed. 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 plate (part No. 0433131), AN 456 rivets should be used wherever rivets or spot welds were used on the original installation and four AN456AD4 or Cherry CR 163-4-4 rivets should be added to attach the skin to each flange of the steel reinforcing channel. It is recommended also 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 one-eighth inch, since excessive tautness of the chains contributes to the rib failures. (Cessna Service Letter No. 48 dated July 31, 1947, covers this same subject.)

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 41D-5926 hub and SS135-6 blades.)

Compliance required prior to January 1, 1948, and upon completion of each 400 hours operation thereafter. Magnetically inspect Army-McCauley 41D5926/SS135-6 propeller blades, hub, and hub parts at intervals not exceeding 400 hours. (Assembly instructions are contained in AAF T. O. 03-20-9.) The propeller blade and hub surfaces must be kept free from corrosion at all times. The propeller is to be installed at zero degrees with respect to the crankshaft, and the retaining nut tightened to 500-700 foot-pounds torque.

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 an 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" x 1½" x 10" (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 Nos. 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, 12-3983.)

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 inspection 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-hour 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 YB2H17F3-46R 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. 35-3 covers this same subject.)

47-47-8 BEECH (Was Mandatory Note 2 of AD-777-1.) (Applies to serial numbers D210 to 558 inclusive, D560 to D574 inclusive, D580 to D668 inclusive, and D670 to D678 inclusive.)

Compliance required as soon as possible but not later than January 15, 1948. To prevent the top carburetor baffle from cutting through the aluminum alloy fuel line located between the engine driven fuel pump and the carburetor, remove the rubber grommet in this baffle and enlarge the cut out in the baffle for the grommet to permit a minimum of ½-inch clearance between the fuel line and the baffle. No grommet is required for the above modification. Inspect the fuel line for chafing or wear at the point where the line passes through the baffle. If necessary, replace the line with a new part, Beech 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.)

Compliance required prior to January 15, 1948, and each 100 hours thereafter. The model C276A2 blades should be removed from the hub and the split retaining ring groove in the blade ferrule carefully inspected for cracks. The lag screws should be checked tightened to 160 in.-lbs. torque. Blades with broken lag screws or cracked ferrules must be removed from service. When possible, the ferrules should be magnetically inspected but a careful visual inspection is allowable.

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 1800-2000 r. p. m. is to be avoided when the nose landing gear is extended. (This is covered by Sensenich Service Bulletin No. 115 dated September 9, 1947.)

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 ½-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 HC-12X20-2 propeller:

Warning—Reversing propeller in flight prohibited. Operate reverse lever in low pitch only. Maximum 1750 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 2300 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, 2053 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 1⅜6-inch headless drive pin has been installed. Inspect attachments of rudder pedal lever arms to the clip assembly in the 284567 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 1⅜6 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 nonaircarrier 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 ⅝-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 Models 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 3⅛6-inch 24ST 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 part (a) above, and Lockheed Service Instruction 49/SI-10A covers part (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 numbers 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 cutout 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 substandard 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 Part Nos. 92-S-237 and -239 on 57AC, Edo Part No. 92-S-237 on S11AC, and Edo Part Nos. 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 numbers 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 the 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 1/16 inches diameter by 3/16 inches 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 period. 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 #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 #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 1/8 inch in length may be repaired by electric arc welding. Cracks in excess of 1/8 inch in length should be stop drilled and oxacetylene welded, and the landing gear strut should be re-heat treated to 180,000 pounds per square inch. (Fairchild Service Bulletin #41-8 dated June 23, 1941, covers this same subject.)

47-50-10 ERCO (Applies to serial numbers 113 through 2468 for fuselage tank replacements; serial numbers 113 through 2622 for wing tank replacements.)

Inspection required each 25 hours; replacement not later than December 1, 1948. 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 a stainless steel or aluminum alloy tank, as required, before the next flight.

Irrespective of whether leakage occurs, all terneplate tanks must be replaced with a stainless steel or aluminum alloy tank not later than December 1, 1948. (Erco Service Department Bulletins No. 10 and No. 10A and Memorandums No. 31 and 43 pertain to the inspection and replacement of these tanks.)

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 numbers 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 and Models A & D modified by United Services for Air, Inc.)

Inspection required every 100 hours of operation until rework accomplished. The outboard horizontal stabilizer rib, which supports the outboard elevator hinge, left and right, has a tendency to crack at the trailing edge of the stabilizer.

1. Carefully inspect these ribs, 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 6 inches forward of the trailing edge of the stabilizer.

2. If cracks are found in the angles, part No. 20-110-5014-4, remove and replace with a similar angle fabricated from 24SO aluminum alloy sheet 0.040 inch thick, Specification No. AN-A-13, Condition A, and heat treat in accordance with Specification AN 01-1A-1.

3. If cracks are found in the rib, part No. 20-110-5014-2, reinforce each rib as follows:

(a) Fabricate (per airplane) four angles, part No. 20-110-5014-1201 from 0.051 sheet aluminum alloy 24ST, 15 inches long with 0.62 x 0.71 inch legs, and install at top and bottom on outboard side of rib starting at forward edge of the hinge block assembly, part No. 20-110-5112-3 or 20-110-5070-502, and running forward. Alternate material aluminum alloy extruded shape Alcoa Die No. 12383 may be used if desired. Pick up existing rivets in rib and skin.

(b) Fabricate (per airplane) four angles, part No. 20-110-5014-1202 from 0.051 sheet aluminum alloy 24ST 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, part No. 20-110-5112-3 or 20-110-5020-502, and running forward 8.80 inches from the end of rib. Aluminum alloy extruded shape Alcoa Die No. 12383 may also be used for these angles if desired. Pick up existing rivets and add three additional rivets at top and bottom between existing rivets in web of rib assembly, add eight rivets, four top and four bottom, to flange of rib and leg of angle.

(c) To assembly reinforcement angles called for in parts (a) and (b) above, the following modifications to the existing structures 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 satisfactory repairs. The Service Information Letter may be obtained from the Curtiss-Wright Corporation, Airplane Division, Columbus, Ohio, upon request.)

47-51-2 CURTISS (Applies to Model E serial numbers AAF 43-47403 through 43-47419 and Models A and D modified by United Services for Air, Inc.)

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 bolts.

2. Replace the eight AN4-26 bolts on the 20-130-5700 elevator installation with NAS54-26 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 and two NAS53A-10 bolts. Replace six existing bolts on each of the inboard hinges with NAS53A-7 bolts.

4. Fabricate 0.625 diameter x 1.562" +0.005, —0.000 spacers (Curtiss part Nos. 20-530-5775-1201 and 20-530-5722-1201) from 24ST alclad and drill 0.250. Install spacer 20-530-5775-1201 between the two hub bearings in the 20-530-5775 V tab idler bellcrank, and spacer 20-530-5722-1201 between the two hub bearings in the 20-530-5722 trim-tab idler bellcrank.

5. Fabricate 0.75 diameter x 1.012" +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 only to Model E serial numbers AAF43-47403 through 43-47419.)

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 through 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 AN442AD4-4 rivets which secure the angles 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" long x 0.90" leg x 0.70" leg, bend radius 0.09, from 0.064—24SO—ALC (AN-A-13 Condition A) and heat treat to 56,000 psi (Spec. AN-QQ-H-186).

(j) Fabricate one left-hand and one right-hand angle "B" 9.25" long x 0.90" leg x 0.70" leg, bend radius 0.09, from 0.064—24SO—ALC (AN-A-13 Condition A) and heat treat to 56,000 psi (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-1483 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 9.

(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 9. 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.)

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

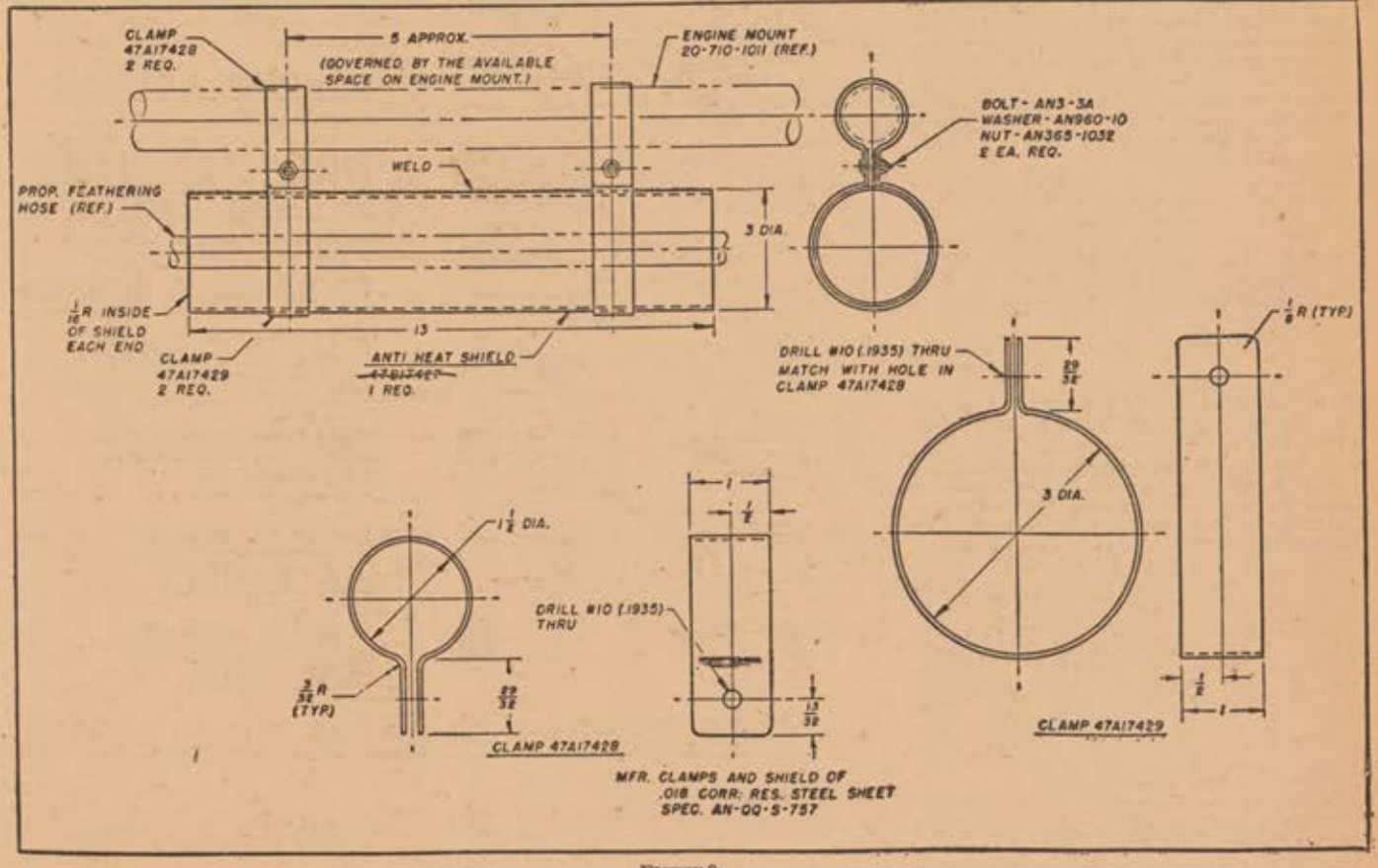

FIGURE 9.

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 3⅝ 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.)

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 (This note supersedes note 47-41-9.)

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 47-4 revised December 4, 1947, covers this same subject.) (This note supersedes note 47-41-9.)

47-51-12 DOUGLAS (Applies to all converted C-47 series aircraft with ram nonram (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, and 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 0.003 to 0.005 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 ballet, for starting, remove the power take-off.

CAUTION: Do not use a screw driver 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 10. The necessary adjustment for proper tooth pattern and backlash should be accomplished by shimming with power take-off

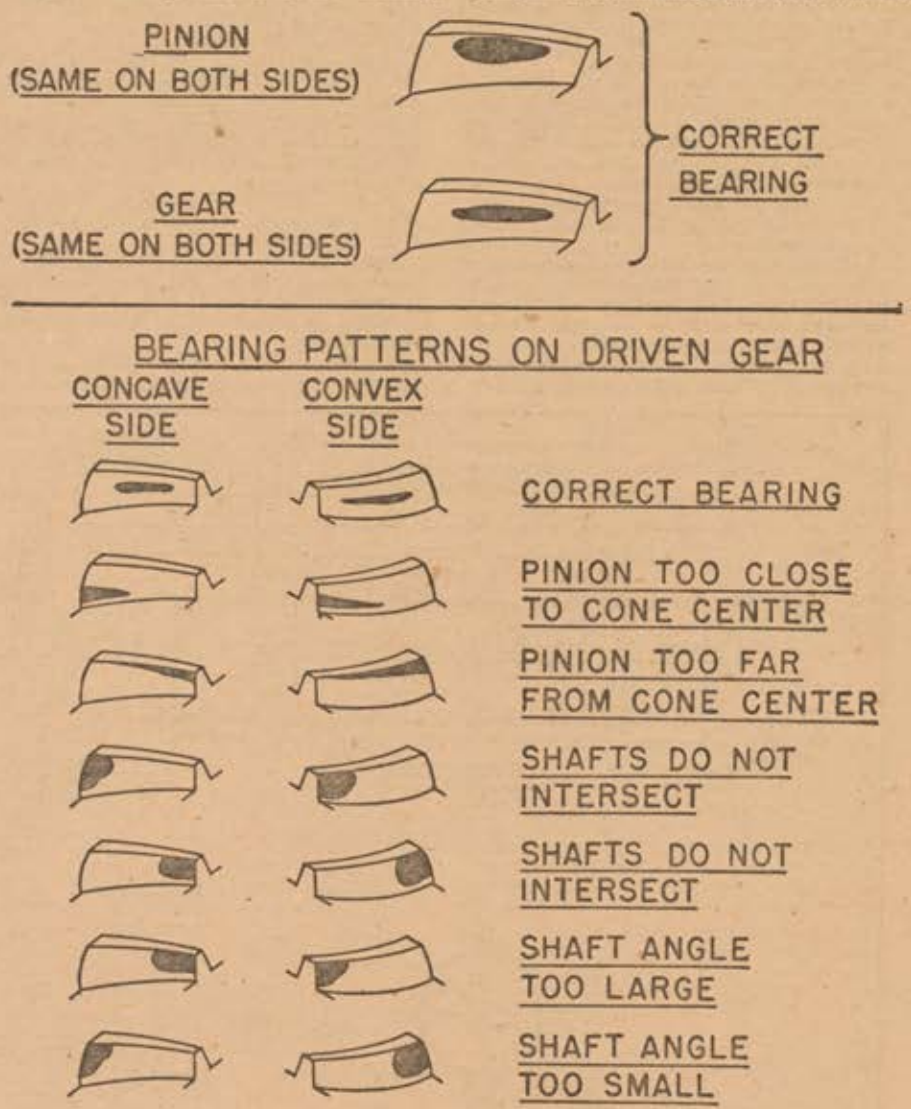

FIGURE 10.

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.

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 42860; 42882 through 42888; 42890; and 42891; 43000 through 43003; 43005 through 43009; 43055; and 43056.)

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 4325003 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.)

AIRWORTHINESS DIRECTIVES ISSUED IN 1948 WHICH REMAIN IN EFFECT

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/N 511284-6. (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 3/32 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 ring 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 2310 and 2510 r. p. m. Not later than March 1, 1948, mark 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 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 inspector the interval may be varied to coincide with a regular overhaul period but should in no case exceed 1,500 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, 11-286, 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. 109357-1 and 109357-2 in accord-

ance with Grumman Service Bulletin No. 8 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 11, 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 11.

1. To help prevent further failures of the nose ribs five additional No. 4 x ¼ 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 15. 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 11. 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.)

48-4-3 DOUGLAS.

To be accomplished at every 8,000 hours of total airplane flight time. In those cases where the present bolts have or will have accumulated more that 8,000 hours time prior to the next regular overhaul period, the first replacement time may be extended, at the discretion of the CAA 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 8,000- or 16,000-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 8,000-hour period may be extended to 16,000 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.

48-5-1 DOUGLAS (Applies to all aircraft equipped with Pacific Aviation oil shut-off 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 shut-off 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 50-4-7.

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 $^{5}/_{16}$-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 $^{1}/_{16}$ 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 Operations Manual."

This refers to the various Airplane Flight Manuals which are required equipment for the 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.

Compliance required by April 1, 1948. To eliminate landing gear difficulties due to improper functioning of the landing gear valve, the cockpit landing gear valve on upper control panel should be placarded to read:

"Caution: Set Flap Valve in Neutral Before Operating Landing Gear. Always Reactuate Landing Gear After Operating Flap."

(Grumman Aircraft Engineering Corporation Customer's Bulletin No. 6 dated September 6, 1946, covers this same subject.)

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.) Canceled 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 ⅛-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 ⅛ inch at its deepest point, ⅜ inch in width overall, and 1

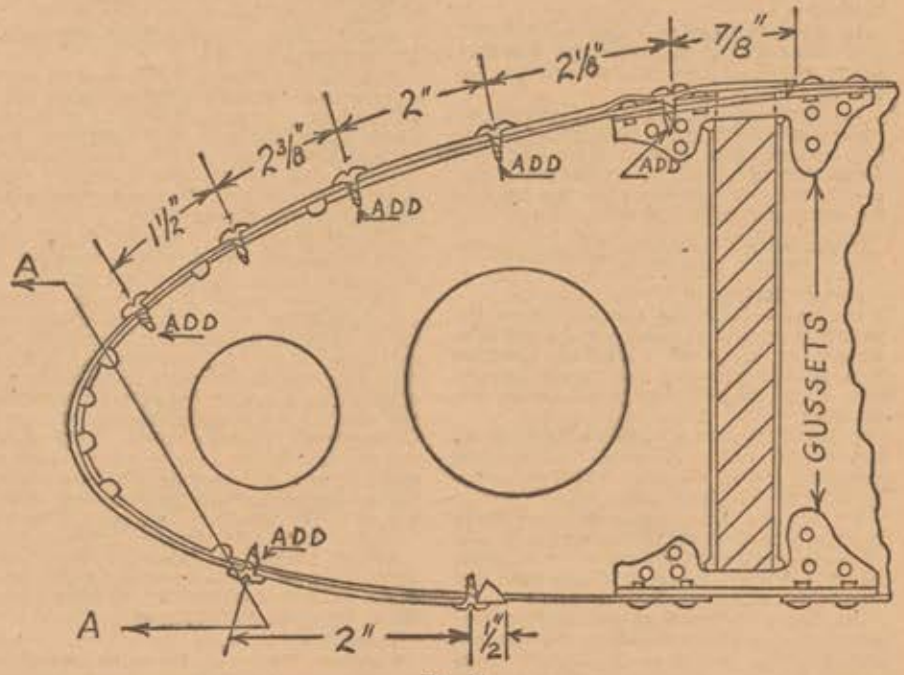

FIG. 11

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.

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 1357234. Airplanes having aileron assemblies P/N 5078609, -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.

After the rework called for above has been accomplished the 1,000-hour inspection per note 47-27-3 may be increased to 2,000 hours or to every other major engine change period, whichever is most adaptable to the operators schedule, provided the standard "AN" bolts in the rudder and elevator hinges are also replaced with new close tolerance high strength bolts using new AN310 type nuts, AN960 washers, and AN380 cotter pins.

(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 ⅛ 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 43053; 43055 through 43064; 43103 through 43119; 43129 and 43132.)

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 50 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 DES-SM2001, 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 non-grounding 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 re-

move 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 m. p. h. at stall to approximately +15 m. p. h. 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 Dec. 18, 1947, or Service Bulletin DC-6 #204B, "Fuel Tank Vent System Revision," as revised Feb. 19, 1948.

Service Bulletin DC-6 #200, "Revised Heater Fuel Pressure Regulator Diaphragms," as revised Feb. 26, 1948.

Service Bulletin DC-6 #201, "Removal-Heater Fuel Pressure Regulator Static Balance Lines," dated Dec. 6, 1947.

Service Bulletin DC-6 #202, "Heater Fuel Pump Check Valve—Rework," dated Dec. 9, 1947.

Service Bulletin DC-6 #208, "Cabin Heater and Deicer Fuel System Revision," as revised Feb. 20, 1948.

Service Bulletin DC-6 #226, Section I of V, "Fire Extinguisher System for Boiler Room," as revised Feb. 19, 1948.

Service Bulletin DC-6 #226, Section II of V, "CO_2 Piping," as revised Feb. 21, 1948.

Service Bulletin DC-6 #226, Section III of V, "Installation Fire Detector Boxes and Conduit," dated Feb. 12, 1948.

Service Bulletin DC-6 #226, Section IV of V, "Electrical Rework," as revised Feb. 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 Feb. 24, 1948.

Service Bulletin DC-6 #233, "Fuel Overboard Drains for Wing Nose Area," dated Jan. 14, 1948.

Service Bulletin DC-6 #247, "Drainage Holes and Dams for Fuselage and Wings," as revised Feb. 18, 1948.

Service Bulletin DC-6 #252, "Heater Exhaust Louver Removal," as revised Feb. 17, 1948.

Service Bulletin DC-6 #262, "Installation of Combustion Heater Backfire Switches," dated Feb. 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 Deicing System," as revised Feb. 24, 1948.

Service Bulletin DC-6 #246, "Relocation of Manual and Automatic Pressure Relief Valve," as revised Feb. 17, 1948.

Service Bulletin DC-6 #224, "Transparent Openings for Belly Compartments," as revised Feb. 24, 1948.

Service Bulletin DC-6 #217, "Installation of Fire Axe," as revised Dec. 23, 1947.

Service Bulletin DC-6 #214, "Modification of Main Junction Box and Annex," as revised Feb. 16, 1948.

Service Bulletin DC-6 #230, "Rerouting of Heater Accessory Compartment Power Cables," as revised Feb. 16, 1948.

Service Bulletin DC-6 #149, "Fuse Protection for Flight Instrument Transformers," dated Dec. 5, 1947.

Service Bulletin DC-6 #237, "Addition of Fuse on Master Switch for Buffet," as revised Feb. 21, 1948.

Service Bulletin DC-6 #248, "Conduit Clipping to Combustible Fluid Lines," as revised Feb. 13, 1948, and Addendum dated Feb. 13, 1949.

Service Bulletin DC-6 #212, "Protective Shield at Forward and Aft Cargo Compartment Lights," as revised Jan. 7, 1948.

Service Bulletin DC-6 #206, "Rework of Battery Leads to Prevent Shorting," dated Dec. 9, 1947.

Service Bulletin DC-6 #218, "Addition of Phenolic Sheet Insulation to AC Circuit Breaker Guard Assembly," dated Dec. 17, 1947.

Service Bulletin DC-6 #221, "Revision of Heater Fire Extinguisher Buttons," dated Dec. 20, 1947.

Service Bulletin DC-6 #210, "Protection for Outer Wing Booster Pump Lead-In," as revised Dec. 22, 1947.

Service Bulletin DC-6 #213, "Starter and Generator Power Cable in Wing," as revised Dec. 19, 1947.

Service Bulletin DC-6 #242, "Relocation of Tail Heater Control Can," as revised Feb. 17, 1948.

Service Bulletin DC-6 #203, "Hand Fire Extinguisher Support Bracket Revision," as revised Feb. 17, 1948.

Service Bulletin DC-6 #260, "Installation of AAL Type Master Switch Arrangement and Emergency Inverter," as revised Feb. 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 Feb. 27, 1948.

Service Bulletin DC-6 #205, "Rework of DC-6 Fuel Tank and Cell Vent Chambers," as revised Feb. 23, 1948.

Service Bulletin DC-6 #207, "Guard for Fuel Booster Pump Switches," as revised Dec. 19, 1947.

Service Bulletin DC-6 #253, "Fireproofing of Wing De-icer Ducts in Nacelles," as revised Feb. 24, 1948.

Service Bulletin DC-6 #219, "Rework of Whittaker Firewall Shut-Off Valves," dated Dec. 19, 1947.

Service Bulletin DC-6 #114, "Fuel Flow Transmitter Line Replacement," dated Oct. 29, 1947.

Service Bulletin DC-6 #261, "Installation of Oil Separator for Vacuum Pump Drain Lines," dated Feb. 25, 1948.

Service Bulletin DC-6 #249, "Boiler Room Duct Revision," dated Feb. 24, 1948.

Service Bulletin DC-6 #232, "Wing Heater Exhaust Insulation Cover," as revised Feb. 16, 1948.

Service Bulletin DC-6 #234, "Tail Heater Ground Blower Check Valve Revision," as revised Jan. 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* must also be revised in accordance with the following:

Service Bulletin DC-6 #62, "Rework-Cabin Pressure Control Valve Linkage," dated Sept. 2, 1947.

Service Bulletin DC-6 #111, "Cabin Heater Fire Extinguisher Bottle," dated Oct. 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 Dec. 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 Jan. 30, 1948. (Need not be accomplished on Serial Nos. 42854 through 42891, 43000 through 43009, 43055, and 43061 unless Service Bulletin DC-6 #59, "Improved Aft Lounge Heating," dated Sept. 16, 1947, has been accomplished.)

Service Bulletin DC-6 #95, "Revision-Ground Blower Duct and Check Valve and Air Duct Connection Improvement," dated Oct. 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.)

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 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 deicing, 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 Feb. 24, 1948.

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*(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 Feb. 11, 1948.)

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 Dec. 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 Feb. 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 Feb. 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.

Service Bulletin DC-6 #38, "Heater Fire Warning Switch—Installation of" dated Oct. 6, 1947.

Service Bulletin DC-6 #250, "Cabin Heater Shut-Off Control," dated Feb. 19, 1948.

Service Bulletin DC-6 #211, "Main Cabin Heater Exhaust—Revision of," as revised Feb. 23, 1948.

Service Bulletin DC-6 #227, "Cabin Heater Scoop Segregation," as revised Feb. 24, 1948.

Service Bulletin DC-6 #243, "Revise Cabin Heater Ignition Conduit in Boiler Room and Hell-Hole Area," as revised Jan. 26, 1948.

Service Bulletin DC-6 #245, "Heater and Buffet Power Cable Conduit," as revised Feb. 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 * must also be revised in accordance with the following:

Service Bulletin DC-6 #40, "Heater Exhaust Fire Detector—Replacement of," dated Sept. 3, 1947. (Accomplish partially.) *

Service Bulletin DC-6 #71, "Installation—Oil Trap and Drain, Cabin Heater Combustion Air Duct," dated Sept. 3, 1947. (Accomplish Electrical Phase of Service Bulletin only.)

Service Bulletin DC-6 #96, "Windshield De-icing Air Discharge Revision," dated Dec. 22, 1947.

Service Bulletin DC-6 #141, "Improvements in DC-6 Cabin Pressure and Cabin Air Conditioning Systems," dated Feb. 19, 1948.

Service Bulletin DC-6 #150, "Revision—Cockpit and Windshield Heat Control System and Windshield Air Exhaust," dated Dec. 11, 1947.

Service Bulletin DC-6 #160, "Cabin Air Mixing Valve Actuator," dated Feb. 2, 1948.

Service Bulletin DC-6 #179, "Ground Blower Electrical Wiring Revision," dated Dec. 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 Aug. 20, 1947. (Must be accomplished completely except that P/N 3320167-516 nameplate, 1 req., shall be deleted.)

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 Feb. 13, 1948. (Also, all superchargers must incorporate low speed drive shaft per Douglas Installation Drawing No. 5350681-C.)

*(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 Feb. 11, 1948.)

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.

Service Bulletin DC-6 #257, "Relocation of Cabin Supercharger Oil Cooler," as revised Feb. 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* 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 Aug. 28, 1947.

48-11-3 SIKORSKY (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.)

49-11-5 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.)

49-12-1 DOUGLAS (Applies to all aircraft as specified by Civil Air Regulations Amendments 41-3, 42-2 and 61-2, 11 F. R. 11353-4.)

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 (12 F. R. 408, 3285, 7325, 8074) 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 (11 F. R. 11353-4) 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 (renumbered 4b.447, 4b.448, 4b.665, and 4b.676). Safety Regulation Release 259 outlines acceptable procedures for complying with these particular requirements.

49-12-2 DOUGLAS (Applies to all C-54DC 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 (13 F. R. 6537), 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:

*(Serial Nos. of airplanes affected by this rework are listed on the pertinent Service Bulletin(s).) (Also, additional information may be obtained from "Supplement" to "Cross Reference List—Service Changes and Modification Items" which has been prepared and revised by the Douglas Company as of Feb. 11, 1948.)

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 air-tight 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 48-39-2.

48-12-3 LOCKHEED (Applies to all aircraft as specified by Civil Air Regulations Amendments 41-3, 42-2, and 61-2, 11 F. R. 11353-4.)

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 (12 F. R. 408, 3285, 7325, 8074) 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 (11 F. R. 11353-4). 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 of CAR 04.3824, .3825, .4913 and .493 (renumbered 4b.447, 4b.448, 4b.665 and 4b.676). 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, 11 F. R. 11353-4.)

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 (12 F. R. 408, 3285, 7325, 8074) 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 (11 F. R. 11353-4). Compliance with the requirements may be completed by accomplishing the modifications outlined in the following listed Lockheed Service Bulletin. 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 the 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, 1943, 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.) Cancelled 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 1⁹⁄₃₂ 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 (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 9150 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, 11 F. R. 11353-4, 13 F. R. 1898-9.)

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 (11 F. R. 11353-4, 13 F. R. 1898-9). 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 (renumbered 4b.447, 4b.448, 4b.665,

and 4b.676). 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 installation 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, 1948, 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 120° 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 (13 F. R. 6537), 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).)

To be accompanied by June 1, 1948. Inspect Upper Terminal (P/N 12561-1) of stabilizer strut (P/N 12560) for cracks extending radially from the outside edge of the ears to the inside of the hole into 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. 21 dated March 17, 1948, covers this same subject.)

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 ⅛-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 2038.)

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, 0.183-0.183 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 ⅛ 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 2331-925 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 & WHITNE 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 ¼-inch pipe plug in regulator entrance. Water vent line should be disconnected at regulator and ¼-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) Incornorate 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 E165-1 and -3 engines having Serial Nos. 1000 through 4566 and 10000 through 10025)

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.

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 end fittings, P/N 5087950 and either 5087951 or 5100402 to determine if the ½-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 16,000 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 24,000 hours airplane operation time.

3. Unused parts having a poor radius may be used, after being reworked according to Douglas Aircraft Company recommendations.

4. At the time of replacement of parts as per Item 1, or at the next 8,000 hour overhaul, rework bushing, P/N 1087E98, to incorporate a 1/8-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.)

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 the nose wheel well in order to install two additional 15-pound 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 3/4 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 rigged 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 standpipes 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 pressure 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 2568.)

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 M302106.)

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 Beach Service Bulletin D18C-3 referred to in AD 47-33-6.)

Inspection required at next periodic inspection. Inspect the NAS 144 bolts (identified by the stamped bolt head), installed in the revised stabilizer attachment fittings to determine that the depth of the outer dimension of the bolt head conforms to the acceptable limit of 0.226 inch ±0.010 inch. Bolts that do not meet this specification are under strength and must be replaced. Inspect the fuselage to stabilizer attachment fitting, 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 nonferrous 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. 69.

Upon compliance with these measures, authorization for use of the aircraft in sulphur dusting will be entered in the operating limitations. 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. A20878.

3. Replace present oil cooler bypass 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 (1⅛ 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 No. 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 Canceled February 6, 1950.

48-42-2 LOCKHEED (Applies to all Lockheed Model 18 aircraft operated in scheduled and nonscheduled air carrier passenger service.)

To be accomplished not later than the date established in accordance with the provisions of special civil regulation Serial No. SR-329 (13 F. R. 6537), 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 (11 F. R. 11353-4). 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	0.3824	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.
	.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.
		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, .3825, .4913 and .493 (renumbered 4b.447, 4b.448, 4b.665 and 4b.676). 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 bypass valves, P/N 2021A82069, (Hydro-Aire #4010) with new valves P/N 2021A82069-01 (Hydro-Aire #4030). (This same subject is covered by GLM Maintenance Note No. 69.)

2. Replace the nose gear steer-valve P/N 2021A8059', 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 dust-caps, 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 p. s. i. hydraulic pressure lines with new 61ST tubing. (This same subject is covered by GLM Service Bulletin No. 66.)

6. Install proper size AN6246 leather back-up 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 CURTIS-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" 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 not later than March 1, 1948, and each interval of 750 hours of operation thereafter. 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 reinstallation 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.)

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. In any case, clevis ends which have been bent should be 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 2,000 hours of flight operation, these four clevis ends should be removed and replaced.

This supersedes note 48-37-1.

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. 9278-1. (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.)

Compliance required at next periodic inspection and each 1,000 hours thereafter. Inspect the landing gear side braces Parts Nos. 20-310-1028 and 20-310-1029, for cracks. If defects are found the members should be replaced by undamaged parts.

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 9/16-inch edge distance at the ⅜-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 ⅜-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, 249. Reference Douglas Service Bulletin DC-6 #329). (Douglas Service Letter A214-T.3338/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 ⅜ inch to ⅞ 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.

To be accomplished by January 1, 1949, and at each 100-hour inspection thereafter. Inspect the landing gear lower slide tube cluster for cracks in the vicinity of all welds around the slide tube lower sprocket, around all gussets and tubes, around the support bracket for the landing gear chain sprocket, and around the welds of the seaplane fittings, if installed.

If cracks are found they may be repaired in accordance with Beech Service Bulletin #C18-8 dated November 10, 1948.

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 ⅜-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 narow scale or straight wire through the three-eighths 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 1/16 inches, the shaft must be replaced. All shafts having a counterbore less than 1 1/16 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 horizontal 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 flight 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 intake 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.

AIRWORTHINESS DIRECTIVES ISSUED IN 1949 WHICH REMAIN IN EFFECT

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. 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 Part No. 415-16009) and ailerons for cracks in support structure and skin, respectively. Repair or replace defective part.

(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 AN-5260632 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 1/16 inch, all the joints and bearings should be checked and those which are loose should be tightened or replaced.

3. Before the next flight, determine that the airspeed instrument is distinctly marked and in accordance with the operating limitations. Engineering and Research Corporation Service Memorandum No. 56 covers this same subject.

49-2-3 AERONCA (Superseded by 49-11-2.)

49-2-4 CONTINENTAL ENGINES (Applies to all airplanes equipped with Continental Model F185-3 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.)

Compliance required by February 1, 1949. 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, accomplish the following:

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. "If total backlash is less than 15° between first and third wear checks, then no further checking is required. If total backlash is less than 15° after third wear check has been made, and if accumulated wear is less than 5° between first and third wear checks, then no further checking is required."

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 0.006 inch.

At the time of major overhaul (first disassembly), oil pump drive parts as per Continental Service Bulletin No. M48-16, 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 48-22-2.

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 silver main 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 attachments 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 CONSOL.-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 *To be accomplished as specified below.* The following inspections of the turbosupercharger shall be made in accordance with Boeing Service Letter No. 1 (dated January 25, 1949), which supplements and modifies G. E. Handbook of Overhaul and Service Instruction GEI-24385A.

1. Conduct of the 30- to 60-hour inspections and the 120- to 150-hour inspections as indicated. Nozzle box inspections formerly required at 100-hour periods are now required at 120 to 150 hours.

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 through 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 cover 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 in. 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 $0.250\left\{\begin{matrix}+0.001\\-0.000\end{matrix}\right.$.

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 $0.250\left\{\begin{matrix}+0.001\\-0.000\end{matrix}\right\}$ hole drilled ⅝ inch from outer end of tube, and reamed prior to installation. Bolt insert tube in fitting, then drill two vertical $0.250\left\{\begin{matrix}+0.001\\-0.001\end{matrix}\right\}$ holes through the fuselage carry through 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 $0.250\left\{\begin{matrix}+0.001\\-0.000\end{matrix}\right\}$, ⅝ 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 $0.250\left\{\begin{matrix}+0.001\\-0.000\end{matrix}\right\}$) 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 per cent 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 30, 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-inch 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 (Applies to Model 190 aircraft, Serial Nos. 7000 through 7201, equipped with aluminum alloy cowl mounting channels.)

I. *Compliance required as soon as possible but in any event not later than April 30. Inspection to be repeated every 25 hours of operation thereafter. These inspections may be discontinued when Part II is accomplished.* Due to cracking and failures of the aluminum alloy cowl mounting channels which, if undetected, may result in the cowl moving forward into the propeller, the cowl must be removed and the cowl mounting channels inspected for cracks with particular attention being paid to the sections which bear against the engine cowl mounting lugs. These mounting channels must be re-inspected at 25-hour intervals until replaced with steel cowl mounting channels. If any indications of cracks are present, the aluminum alloy cowl mounting channels must be replaced immediately with steel channels, Cessna P/N 0352161B and 0352163C or the equivalent.

II. *Compliance required not later than August 1, 1949.* Remove the aluminum alloy cowl mounting channels and replace with steel cowl mounting channels, Cessna P/N 0352161B and 0352163C or the equivalent. (Cessna Service Letter No. 59 covers this same subject.)

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 167, must be inspected and reworked 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 1,500 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 1,500 and 1,700 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 Vne and Vno 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 7 inches below the wing skin. The ends of these vents are to be scarfed at 45° with the scarfed surface facing aft.

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

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

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

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

49-16-1 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. Extensively 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 CONSOL, VULTEE (Superseded by 49-44-2.)

49-18-1 CURTISS-WRIGHT (Applies to all Models of C-46 Series airplanes as 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 (renumbered 61.31) and Amendment 42-8, 13 F. R. 1898.)

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 power plant 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 arrangment as described, no flight tests of CO_2 contamination of the pilots 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 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 Sections 41.20 (f), 61.30 (renumbered 61.31) and Amendment 42-8 (13 F. R. 1898).

To be accomplished not later than the dates specified in the above amendments as revised by special Civil Air Regulation No. 329 (13 F. R. 6537) and any subsequent regulations affecting these compliance dates. (This note pertains only to the power plant fire protection for the cabin heater installation and for the baggage and cargo compartments of the airplane.)

(1) *Shut-off valves:* Install fluid shut-off valves, which may be opened and closed in flight, aft of the fire-wall in all fuel, oil, and hydraulic lines. U. S. A. F. Technical Order 01-25LA-190 covers this same subject. (No shut-off valve will be required for the feathering pump oil line, 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 all electrical 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 the 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.* The fire extinguisher system must be improved to provide 30 pounds of CO_2 which may be discharged into either nacelle. (If 8.5 pounds of CO_2 are available to the upper portion of the engine accessory area only 25 pounds need be provided.) The two shot system of the later C-46F models which is described in U. S. A. F. Technical Order 01-25LA-205 is satisfactory. The provisions of U. S. A. F. Technical Order 01-25LA-162, pertaining to the replacement of engine cylinder fire extinguisher nozzle brackets, must be accomplished.

(5) *Additional fire detectors:* (a) Engine Nacelles. The Fenwall continuous strip detector as shown on page 480 figure 351 of U. S. A. F. Technical Order 01-25LA-2, or equivalent, shall be installed on the forward side of the firewall.

(b) Engine Mount Rings. Additional fire detectors, spaced not over 18 inches apart, shall be provided over the upper two-thirds of the engine mount rings. For further information on this subject see CAA Technical Development Report No. 37 dated October 1943.

(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) fire extinguisher lines—manifold to oil cooler, (t) fuel pump drain lines.

(7) *Airplane flight manual:* Appropriate changes to the airplane flight manual shall be prepared to cover the emergency procedures associated with the above changes.

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 disconnected 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 "5,700 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 "5,100 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 non-absorbing material. This supersedes note 46-46-4.

49-20-2 CONSOL.-VULTEE (Canceled 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.

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 lubrication. At intervals not to exceed 2,000 hours, fill the space between the bushings in all elevator, aileron and rudder boost control valves, LAC P/N 289500, with a mixture of two parts of Dixon's Microfine Graphite and one part AN-O-366 hydraulic fluid. For boost control valves now in service, the time since last overhaul or lubrication should be determined and the 2,000-hour limitation applied, except that the initial relubrication of valves which have not been lubricated for 2,000 hours or more may be deferred until the next number 3 inspection.

B. Rework of elevator shifter latches. At or prior to the next No. 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 29484. (The overcenter spring on the shifter walking beam eliminates the necessity for the locking action of those 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 the 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 Field Service Wire No. 1874 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.

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 (steamline 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 two 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-47 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 (renumbered 61.31) and Amendment 42-8 (13 F. R. 1898).

To be accomplished not later than the dates specified in the above amendments, as revised by Special Civil Air Regulation No. 329 (13 F. R 6537), 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 power-plant 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) (renumbered 4b.448 (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 (renumbered 4b.448 (b)) 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 compartment, compliance with CAR 4b.38251 (c) (renumbered 4b.448 (b)) must be shown. If the compartment is modified to provide suitable access, compliance with the requirements of CAR 4b.38251 (b) (renumbered 4b.448 (b)) for a "B"-category compartment must be demonstrated.

(NOTE: That portion of 4b.38251 (renumbered 4b.448 (b)) 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, renumbered 4b.448 (c)). 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 these 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.)

To be accomplished prior to next flight.

In order to preclude possibility of engine failure, AC spark plug model LS-87 must be removed from R-2800 series engines and replaced with the correct type of plug recommended by engine manufacturers manuals and service bulletins. The LS-87 type plug has never been approved for installation in R-2800 series engines. (The above material was also covered in dispatch dated June 23, 1949, to all CAA Regional Offices.)

49-27-1 CONSOL.-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 failure 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 cranks 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 ½-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. O. 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-TS-1572/WBM dated October 20, 1947, cover the above.)

This supersedes note 48-24-2.

49-28-1 RYAN (NO. 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 0.064 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 BFECH (Applies to all Model 35 and A35 aircraft equipped with unmodified Adel 20653 electric fuel booster pump installation.)

Compliance 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 Adel 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 a ⅛-inch red band around the pump body) in series with a modified Thompson TF-1100 engine-driven fuel pump (identified by a "1" or an "M" 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 49-7-1.

49-29-1 REPUBLIC GRUMMAN (Applies to all RC-3 and G-44 Aircraft equipped with Hartzell HC-12 x 20 Controllable Propellers.)

Compliance required as indicated. In order to detect and/or prevent the occurrence of hub fatigue cracks which might result in loss of propeller blades, the following precautionary measures are necessary:

1. As soon as possible, but not later than September 1, 1949, original type propeller hubs, Part Number C-49, having 500 hours or more of service must be retired and replaced with improved type hub (C-49-2C) having larger radius fillet at blade bearing retaining shoulders. New type, A-16-2, split rings must be used. Improved hubs are serially numbered 4300 and above.

2. Original type propeller hubs having less than 500 hours' service must undergo a special inspection as outlined below at intervals of 6 calendar months or 200 hours' service whichever occurs first. Previous inspection per Hartzell Bulletin No. 10 dated October 26, 1948, may be considered as the initial special inspection, however, if such was not accomplished within the past 5 months, or has never been accomplished, the next special inspection must be performed as soon as possible, but not later than August 15, 1949. Upon reaching 500 hours, total time, hub and split rings must be replaced per item 1 above, and special inspections may be discontinued. Special inspection shall consist of the following:

(a) 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.

(b) If examination reveals either cracks or severe corrosion as evidenced by pitting, the hub must be replaced prior to further flight per item 1 above.

(c) 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.

(d) 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.

(e) Questionable cases should be referred to the Propeller manufacturer for recom-

mendations. Hartzell Bulletin No. 8, dated May 28, 1949, covers this same subject.

49-29-2 BEECH (Applies to all Model D18S, D18C and D18C-5 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 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 CONSOL.-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, pre-flight 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 CONSOL.-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 accomplished on each of the four augmenter tubes:

1. Increase the I. D. of the augmenter vane shaft bushing to $0.509 \begin{Bmatrix} +0.005 \\ -0.0000 \end{Bmatrix}$ inch.

2. Reduce the O. D. of the augmenter vane shaft to $\begin{Bmatrix} +0.000 \\ -0.005 \end{Bmatrix}$ 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 intallation 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 members 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 re-shotpeened by the manufacturer. In addition, any blades of this model which have sustained damages sufficient to change their face or edge alignment shall be withdrawn from service pending final results of manufacturers test program.

49-34-1 CONSOL.-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 affected part should be replaced prior to the next flight. (Bell Service Bulletin No. 70 covers the same subject).

49-35-1 KOPPERS PROPELLER (Superseded by 49-42-1.)

49-35-2 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 Part No. 47-120-136-1) must be replaced if it has been involved in an accident or suden 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.

2. The main rotor hub must be subjected to a visual inspection (with a 10- to 20-power glass) if it has accumulated a total time of 300 hours or more, unless a regular 300-hour interval inspection as required by the Bell Erection and Maintenance Manual has been accomplished within the last 100 hours of operation. All hubs over 300 hours which have complied with the above inspection must be reinspected every 100 hours thereafter. (The details of this inspection are contained in the "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 Corporation, 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. The part should be retained until information is received from the manufacturer regarding the disposition of it. (Bell Service Bulletin No. 65, dated August 2, 1949, covers the subject of paragraph 1.)

49-36-1 LOCKHEED (Superseded by 49-49-1.)

49-37-1 DOUGLAS (Canceled February 6, 1950.)

49-38-1 CONSOL.-VULTEE (Applies to all Model 240 aircraft.)

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 lugs, 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 eyebolts, or their equivalent, to alleviate the loading condition which caused the development of cracks. Revision: Revise Note 49-38-1 for Consolidated-Vultee Model 240 aircraft by adding the following as a fourth paragraph:

"Struts reworked in accordance with Bendix Service Bulletin L. G. 511 and incorporating a support clamp and eyebolts in accordance with Bendix Service Bulletin L. G. 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.

This supersedes note 48-4-3.

49-39-1 CESSNA (Superseded by 50-17-1.)

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 24ST 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 the 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 ⅝ 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 AN456AD4 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, -05) 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-2800B series (-21, -27, -43, -51, -59, -63, -71, -75, -79) engines installed in certificated aircraft.)

To be accomplished before cold weather, but not later than November 15, 1949. These engines are equipped with main oil screens, which are subject to collapse from (1) starting with very cold oil and (2) clogging. They are also of marginal screening capacity resulting often times in complete clogging after short periods of operation.

To preclude the possibility of operating with faulty oil screens, remove and clean the main oil screen at 25- to 50-hour intervals.

A new type larger capacity oil screen (of the wafer-type principle) is to be made available by Pratt & Whitney in the early part of 1950. Use of this new type oil screen will permit longer periods between cleaning.

The 25- to 50-hour mandatory inspection may be discontinued when this new type screen is incorporated.

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 2,100-2,375 rpm. restriction to 2,050-2,375. Placard airplane or mark tachometer with green radial line for single point operation at 2,025 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 10 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 C6832S-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 5-inch diameter holes located in the side of the spinner in accordance with instructions issued by Curtiss. 4. All C632S-A hubs (Part No. 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 Applies to all aircraft equipped with Model F200 "Aeromatic" Propellers (Does NOT apply to PROPELLER "Aeromatic Model 220 Propellers.")

Compliance required by next propeller overhaul or disassembly but in no case later than first 500 hours of propeller operation except as noted below. 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 106-1 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 can not 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 notes 49-18-2 and 49-35-1.

49-42-2 PRATT & WHITNEY (Superseded by 49-46-2.)

49-43-1 CONSOL.-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.

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 ⅝-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.)

Compliance required as indicated. Information obtained as a result of further laboratory investigations by the manufacturer indicates that the Main Rotor Hubs S510117 and S10-10-1015 may be assembled with less difficulty if the procedure outlined in Sikorsky Service Information Circular No. 76, Revision C, dated September 27, 1949, is followed. With the use of this installation procedure, the following categories of hubs are subject to a magnaflux inspection at 200- to 240-hour intervals and are to be retired from service upon accumulation of 2,000 hours of operational time:

1. Main rotor hubs, S10-10-1015, both new and those installed previously in accordance with the high preload procedure outlined in Sikorsky Service Information Circular No. 76, Revision B.

2. Main Rotor hubs, S510117, both new and those used for less than 50 hours of service with 100 ft. lbs preload torque on the Hub Nut, S510122.

Main Rotor hubs, S510117, used for more than 50 hours of service with 100 ft. lbs. preload torque on Hub-Nut, S510122, are to be magnafluxed between 200 to 240 hours of service and are to be retired from service upon accumulation of 300 hours of operational time.

This supersedes note 49-21-1.

49-44-2 CONSOL.-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 Stations 111.6, and strengthen the means of attaching the elevator and rudder balance weights. (CVAC Service Bulletin No. 240-176A 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 5/16-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 1/2 inch aft of the leading edge of the skin, i. e., 1/2 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 5/8 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 supplied 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 or 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 gear 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 a 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 1/8 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 1/8 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 3/4-inch by 3/4-inch by 0.064-inch 24ST 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 4130 steel and be at least 5/8 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 1/4-inch bolt should be used to attach the collar to the hinge pin using the existing 1/4-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 1/2 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 the 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 CONSOL.-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. Re-rig 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 $\binom{+3}{-0}$ 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 Buletin 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 3/8-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 3/8-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, an 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 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.

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.)

49-46-2 PRATT & WHITNEY (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 Helicopters and also 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 dissemble 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 3 inches of length from each end of the shaft.

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

2. To compensate for shaft 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.)

Compliance required not later than December 15, 1949. Service experience indicates Hartzell metal blades in combination with an undampered engine produces critical stresses. In order to avoid possible hub failures, aircraft having this combination shall comply as follows:

1. Disassemble and remove hub spider Part No. C-49 and render it unfit for further use. This is necessary because internal damage may exist which cannot be detected by normal inspection methods.

2. A new improved type hub spider, Part No. C-49, having 0.187-inch radius fillets at the blade retaining shoulders, must be used.

3. Hartzell plastic blades Model 8428 series may be installed if the undampered crankshaft is to be retained.

4. Hartzell metal blades Model 8433 series may be reinstalled only if the engine is equipped with a dampered crankshaft.

In summary, Model 8433 metal blades are eligible only on engines having dampered crankshafts. Plastic blades, Model 8428, may be used with either dampered or undampered crankshafts (Suffix "D" to engine serial number indicates dampered crankshaft). (Hartzell Propeller Company Service Bulletin No. 16, dated November 16, 1949, also covers this subject.)

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 disintegration 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's Service Bulletin No. 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 1/8-inch water drain holes in the valve cap;

2. Line ream the bushing, P/N 266146-3, to 0.6270"/0.6285" diameter;

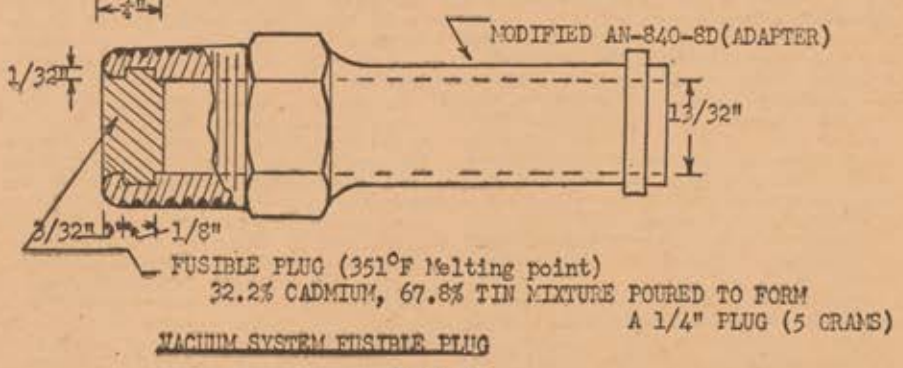
3. Replace AN 913-1 plug with AN 286-2 lubricator;

4. Pack cap assembly with AN-G-25 grease, or equivalent;

5. Reidentify 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



VACUUM SYSTEM FUSIBLE PLUG

FIGURE 12.

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 the 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 inches.

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 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:	*Replacement limit*
0-500 hours	At 600 hours.
501-800	Within the next 100 hours.
801-899	At 900 hours.
900 and up	Before the next flight.

Hubs with less than 300 hours must be inspected visually (with a 10- to 20-power glass) at 300 hours, in addition to the inspections required by the manufacturers "Erection and Maintenance Manual" for the particular model. During this inspection, specific attention must be directed toward locating fatigue cracks in the 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.

AIRWORTHINESS DIRECTIVES ISSUED IN 1950 WHICH REMAIN IN EFFECT

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.)

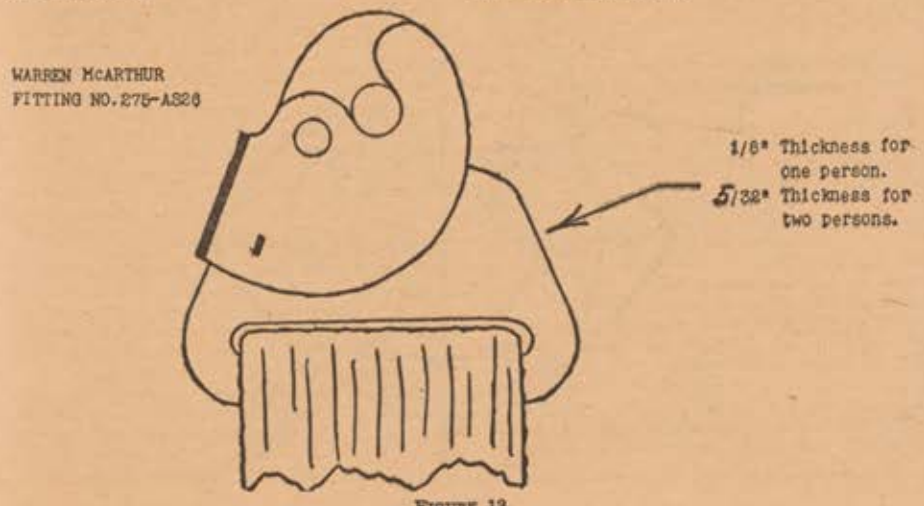


FIGURE 13.

To be accomplished as soon as possible but not later than May 1, 1950. 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 figure 13. Belts using these fittings must be modified 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.

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".

50-3-1 CONSOL.-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. Figure 14 shows the location of the switch lever in the "off" 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 #18.)

Compliance required at the next 100 hour inspection but not later than April 1, 1950. 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, Wichita, 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 0.353 in., 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 0.353-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 CONSOL.-VULTEE (Applies to all Model 240 Aircraft.)

Compliance required as indicated. As a result of recent reported failures of the rudder flight tab balance weight arms, inspections for cracks in these assemblies should be made as soon as practicable but not later than the next number one inspection and should be repeated at each number two inspection thereafter, pending the incorporation of a fix now being prepared. The reported failures have occurred in the neck down area of the attachment bracket approximately one inch from the flight tab. Also the brackets are subject to cracks adjacent to the edge of the counterweight.

As a result of recent reported failures of the rudder closing spar in the vicinity of the flight tab hinge brackets, inspection for cracks on the rudder closing spar in the area around both flight tab hinge brackets should be made as soon as practicable but not later than the next number one inspection and should be repeated at each number two inspection thereafter, pending a final fix.

This supersedes Note 50-3-1.

50-7-1 ERCO (Applies to Ercoupe Models 415C (which incorporate adjustable elevator trim tabs), 415CD, and 415D airplanes.)

To be accomplished by May 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).)

To be accomplished at next overhaul but not later than June 1, 1950. 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 (9/32-inch) 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 modifications which can be accomplished, are as follows:

Air Carrier Engine Service, Miami, Fla. (Bulletin No. B-12-48).

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, Texas.

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 49-48-3.

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 horizonal stabilizer.

(2) Remove the quarter 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 ma-

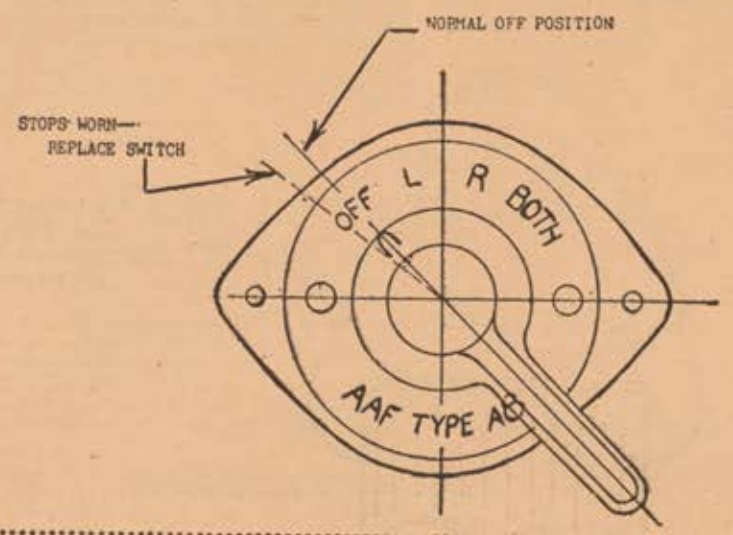


FIGURE 14.

chinist'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" x 15/16" 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 inch.

(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.)

This supersedes Note 45-44-3.

50-10-1 CONSOL.-VULTEE (Applies to all Model 240 aircraft.)

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. 1 operation thereafter until final fix is determined. Due to recently reported failures of the nose strut inner cylinder the following is required:

Visually inspect P/N 155285 with an eight power or higher glass for cracks in the area below the scissors lug boss approximately four 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.

50-10-2 RYAN (NO. 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.)

Compliance required as indicated. Remove the wing and empennage anti-icing heaters for complete inspection and pressure test every 500 hours. Inspect header plates at both ends of heater every 100 hours, beginning with the 600th hour. These inspections may be conducted on the basis of either airplane time or heater operating time, provided heater time is actually recorded if the latter alternative is employed.

This supersedes note 49-6-3 which required the above examination intervals for the cabin heaters also.

It has now been determined that cabin heaters no longer require as frequent inspection as previously specified in note 49-6-3 and that routine maintenance procedures are adequate to assure safety. The initial cabin heater pressure test interval may therefore be increased to 1,000 hours. Future extensions may be made on a routine basis by the assigned CAA agent if justified by service experience.

Since a distinction will now exist between the cabin and anti-icing heaters, it will be important for operators to distinguish carefully between the units used in each application if it is desired to take advantage of the relaxation in cabin-heating inspection requirements.

This supersedes note 49-6-5.

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 noncompliance with a mandatory engine operation restriction, the following precautionary measures should be taken:

(1) Check the marking on the engine tachometer and correctly mark it, if necessary, 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 CONSOL.-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 experienced 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 1 C-46E and F Aircraft.)

Compliance required at next periodic inspection, not to exceed 100 hours, and each 200 hours thereafter. Inspect aileron outboard hinge bracket S-20-030-5045 at wing station 412.00 for cracks. If defects are found, the part should be replaced by an undamaged part or repaired.

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.)

Compliance required as soon as possible and not later than August 1, 1950. 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 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 0.051 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.)

This supersedes Note 49-39-1.

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 further 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.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply sec. 603, 52 Stat. 1009; 49 U. S. C. 553)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3961; Filed, June 16, 1950; 8:49 a. m.]

[Supp. 4]

PART 3—AIRPLANE AIRWORTHINESS; NORMAL, UTILITY, ACROBATIC, AND RESTRICTED PURPOSE CATEGORIES

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modifications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They are made effective upon publication in the FEDERAL REGISTER in order to promote safety of the flying public. Compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest, and therefore is not required.

§ 3.23-2 *Airworthiness directives (CAA policies and rules which apply to § 3.23).* See Appendix A of Part 1 of this chapter.

§ 3.26-1 *Airworthiness directives (CAA policies and rules which apply to § 3.26).* See Appendix A of Part 1 of this chapter.

§ 3.27-1 *Airworthiness directives (CAA policies and rules which apply to § 3.27).* See Appendix A of Part 1 of this chapter.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007, as amended; 49 U. S. C. 551)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3956; Filed, June 16, 1950; 8:49 a. m.]

[Supp. 7]

PART 4a—AIRPLANE AIRWORTHINESS

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modifications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They are made effective upon publication in the FEDERAL REGISTER in order to promote safety of the flying public. Compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest, and therefore is not required.

§ 4a.1-1 *Airworthiness directives (CAA policies and rules which apply to § 4a.1).* See Appendix A of Part 1 of this chapter.

§ 4a.26-1 *Airworthiness directives (CAA policies and rules which apply to § 4a.26).* See Appendix A of Part 1 of this chapter.

§ 4a.27-1 *Airworthiness directives (CAA policies and rules which apply to § 4a.27)* See Appendix A of Part 1 of this chapter.

§ 4a.28-1 *Airworthiness directives (CAA policies and rules which apply to § 4a.28).* See Appendix A of Part 1 of this chapter.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply sec. 601, 52 Stat. 1007, as amended; 49 U. S. C. 551)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3957; Filed, June 16, 1950; 8:49 a. m.]

[Supp. 8]

PART 4b—AIRPLANE AIRWORTHINESS; TRANSPORT CATEGORIES

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modifications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They are made effective upon publication in the FEDERAL REGISTER in order to promote safety of the flying public. Compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest, and therefore is not required.

§ 4b.1-1 *Airworthiness directives (CAA policies and rules which apply to § 4b.1).* See Appendix A of Part 1 of this chapter.

§ 4b.26-1 *Airworthiness directives (CAA policies and rules which apply to § 4b.26).* See Appendix A of Part 1 of this chapter.

§ 4b.30-1 *Airworthiness directives (CAA policies and rules which apply to § 4b.30).* See Appendix A of Part 1 of this chapter.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply secs. 601, 603, 52 Stat. 1007, 1009, as amended; 49 U. S. C. 551, 553)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3958; Filed, June 16, 1950; 8:49 a. m.]

[Supp. 2]

PART 6—ROTOCRAFT AIRWORTHINESS

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They are made effective upon publication in the FEDERAL REGISTER in order to promote safety of the flying public. Compliance with the notice, procedure, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest, and therefore it is not required.

§ 6.1-1 *Airworthiness directives (CAA policies and rules which apply to § 6.1).* See Appendix A of Part 1 of this chapter.

§ 6.4-1 *Airworthiness directives (CAA policies and rules which apply to § 6.4).* See Appendix A of Part 1 of this chapter.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply secs. 601, 603, 52 Stat. 1007, 1009, as amended; 49 U. S. C. 551, 553)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3959; Filed, June 16, 1950; 8:49 a. m.]

[Supp. 4]

PART 43—GENERAL OPERATION RULES

AIRWORTHINESS DIRECTIVES

The following policies and rules, which require modifications of aircraft for the purpose of remedying defects affecting airworthiness, are hereby adopted. They are made effective upon publication in the FEDERAL REGISTER in order to promote safety of the flying public. Compliance with the notice, procedures, and effective date provisions of section 4 of the Administrative Procedure Act would be impracticable and contrary to the public interest, and therefore is not required.

§ 43.22-2 *Airworthiness directives (CAA policies and rules which apply to § 43.22).* See Appendix A of Part 1 of this chapter.

(Sec. 205, 52 Stat. 984, as amended; 49 U. S. C. 425. Interpret or apply secs. 601, 52 Stat. 1007, as amended; 49 U. S. C. 551)

[SEAL] DONALD W. NYROP,
Acting Administrator of Civil Aeronautics.

[F. R. Doc. 50-3960; Filed, June 16, 1950; 8:49 a. m.]

TITLE 43—PUBLIC LANDS: INTERIOR

Chapter I—Bureau of Land Management, Department of the Interior

Appendix—Public Land Orders

[Public Land Order 649]

CALIFORNIA

WITHDRAWING PUBLIC LANDS FOR USE OF THE UNITED STATES ATOMIC ENERGY COMMISSION

By virtue of the authority vested in the President and pursuant to Executive Order No. 9337 of April 24, 1943, it is ordered as follows:

Subject to valid existing rights, the public lands in the following-described areas in California are hereby withdrawn from all forms of appropriation

under the public-land laws, including the mining and mineral-leasing laws, and reserved for the use of the United States Atomic Energy Commission:

SAN BERNARDINO MERIDIAN

T. 10 S., R. 10 E.,
Secs. 13, 24, 25, and 36.
T. 11 S., R. 10 E.,
Secs. 1, 12, 13, and 24.
T. 10 S., R. 11 E.,
Secs. 13 to 36 inclusive.
T. 11 S., R. 11 E.,
Secs. 1 to 29 inclusive;
Sec. 30, S½ of lots 1 and 2 of SW¼, and S½SE¼;
Sec. 32, E½;
Sec. 33, N½;
Sec. 34, N½;
Sec. 35, N½;
Sec. 36, N½;
T. 10 S., R. 12 E.,
Secs. 17 to 20 inclusive;
Secs. 29 to 32 inclusive.
T. 11 S., R. 12 E.,
Secs. 5 to 8 inclusive;
Secs. 17 to 20 inclusive;
Secs. 29 and 30;
Sec. 31, N½;
Sec. 32, N½.

The areas described, including both public and non-public lands aggregate 52,989.25 acres.

There is reserved to the Bureau of Reclamation of the Department of the Interior of the United States, the Imperial Irrigation District and the Coachella Valley County Water District, of California, their successors and assigns, the right, privilege and easement to flood and seep any or all of the lands herein described, without any compensation therefor, together with all of the right, easements, privileges and appurtenances, in and to said lands which will be required or needed for the full enjoyment or use of the rights of flowage and seepage.

This order shall take precedence over, but not otherwise affect, (1) the Executive Orders of March 10, 1924 and February 23, 1928, establishing Public Water Reserves Nos. 90 and 114 respectively, (2) Executive Order No. 5498 of November 25, 1930, reserving lands for the Salton Sea Wildlife Refuge, (3) Executive Order No. 8921, of October 23, 1941, withdrawing lands for the use of the United States Coast Guard, Treasury Department, as an emergency landing field, (4) Public Land Orders No. 41 of September 18, 1942 and No. 138 of June 10, 1943, withdrawing lands for the use of the Navy Department for sea plane training and aviation purposes, and (5) the order of October 19, 1920 of the Secretary of the Interior withdrawing lands for reclamation purposes, so far as such orders affect any of the above-described lands.

It is intended that the lands above described shall be returned to the administration of the Department of the Interior when they are no longer needed for the purpose for which they are reserved.

OSCAR L. CHAPMAN,
Secretary of the Interior.

JUNE 12, 1950.

[F. R. Doc. 50-5231; Filed, June 16, 1950; 8:45 a. m.]

TITLE 46—SHIPPING

Chapter II—Federal Maritime Board; Maritime Administration [1]

Subchapter A—Organization, Procedure, and Delegations

[Federal Maritime Board—General Order 1]

PART 201—RULES OF PROCEDURE BEFORE THE COMMISSION

PART 203—PRACTICE BEFORE THE COMMISSION

MISCELLANEOUS AMENDMENTS

At a regular meeting of the Federal Maritime Board held at its office in the city of Washington, D. C., on May 24, 1950, the said Board adopted the following resolution:

Resolved, that the following order be adopted by the Federal Maritime Board:

Pursuant to the authority vested in the Federal Maritime Board by Reorganization Plan Numbered 21 of 1950, *It is hereby ordered*, That effective May 24, 1950, United States Maritime Commission Revised General Order 41 (Part 201, 12 F. R. 6076), prescribing rules of procedure before said Commission; and United States Maritime Commission Revised General Order 21 prescribing rules and regulations governing practice before said Commission (Part 203, 12 F. R. 6086), shall continue in effect, in so far as not in conflict with said plan, until modified, terminated, superseded, or repealed by this Board or by operation of law; *And it is further ordered*, That all proceedings, hearings, or investigations pending on May 23d, 1950, before the United States Maritime Commission in connection with the administration of the functions, powers and duties transferred to this Board by said Plan shall be continued before this Board.

(Sec. 204, 49 Stat. 1987, as amended, Part I, Reorg. Plan No. 21 of 1950, 15 F. R. 3178; 46 U. S. C. 1114)

By order of the Federal Maritime Board.

[SEAL] A. J. WILLIAMS,
Acting Secretary.

MAY 24, 1950.

[F. R. Doc. 50-5247; Filed, June 16, 1950; 8:48 a. m.]

[Gen. Order 24, Rev., Supp. 5, WSA Function Series]

PART 310—MERCHANT MARINE TRAINING

SUBPART C—APPOINTMENT AND TRAINING OF CADETS IN THE UNITED STATES MERCHANT MARINE CORPS

GRADUATION; DIPLOMA

An act of Congress approved August 18, 1949, (63 Stat. 614), amended the act of May 25, 1933, as amended, relating to the conferring of degrees upon graduates of the Naval Academy, Military Academy, Coast Guard Academy and Merchant Marine Academy.

Pursuant to the provisions of said act, the Merchant Marine Academy became an accredited academy as of November 26, 1949.

In accordance with the provisions of said act, (63 Stat. 614), § 310.70 *Graduation; diploma*, is amended by adding at the end thereof the following:

(e) The Superintendent may confer the Degree of Bachelor of Science upon all graduates of the Merchant Marine Academy on and after November 26, 1949.

(f) The Superintendent may confer the Degree of Bachelor of Science upon all graduates of the Merchant Marine Academy who meet the following requirements:

(i) The applicant shall be a graduate of the Merchant Marine Academy and produce proof that he holds, at the time of the application, a United States Coast Guard license as either (*a*) Master (Unlimited) or (*b*) Chief Engineer (Unlimited); or he shall present to the Superintendent evidence of not less than 200 quarter hours of college credit obtained either at the Merchant Marine Academy or at a college or colleges accredited by a nationally recognized accrediting authority similar to the Middle States Association of Colleges and Secondary Schools. Not more than 125 such quarter hours of collegiate credit shall be in professional subjects as taught at the Merchant Marine Academy, and not less than 75 such quarter hours shall be in non-professional subjects in the field of General Education at the college level. A quarter hour of credit shall be defined as credit received for a course meeting one hour per week for approximately eleven (11) weeks. If credit be presented in terms of semester hours, these shall be converted to quarter hours by multiplying by the factor four-thirds (⅓).

(ii) Applicants seeking to qualify for the degree under the above provisions, and who have graduated from the Merchant Marine Academy, shall be considered to have fulfilled the requirement for professional credit.

(iii) At least fifty (50) quarter hours of credit from that required in General Education shall be from the fields of English, History, Mathematics, Physics, Chemistry, Economics and Foreign Language. The remaining required quarter hours in General Education shall be from fields supplementary to professional training in a maritime field.

(g) The Superintendent of the Merchant Marine Academy may, upon the recommendation of the Academic Board, allow minor deviations from the above requirements.

(h) In interpreting the foregoing regulations, the following rules shall apply to post graduates who make application for the Degree of Bachelor of Science:

(1) Members of classes graduated by the Academy in December 1947, and members of all classes graduated after that date are considered to have fulfilled the requirements of the regulations and are immediately eligible to receive the degree upon application to the Superintendent of the Merchant Marine Academy.

(2) Members of the classes graduated by the Academy in December 1946 and

[1] The new chapter head note is an interim designation designed to reflect Reorganization Plan No. 21 of 1950 (15 F. R. 3178).