GENERAL DYNAMICS

46–6–4 Convair (Was Service Note 3 of AD–2–571–2.) Applies Only to BT–13 Series 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.

47–25–10 Convair (Was Service Note 4 of AD–2–571–2.) Applies to All BT–13 Series Airplanes 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.

48–22–1 *See* Pratt & Whitney Engines.

48–41–1 Convair 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.

48–50–4 Convair Applies to All Model 240 Aircraft.

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.)

48–51–2 Convair Applies to All Model 240 Aircraft.

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 r.p.m.'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 No. 3 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 CAA 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 AD 48–47–1.

49–7–3 Convair Applies to All BT–13 Series Aircraft.

Compliance required not later than April 1, 1949.

Several accidents have occurred in the above model aircraft from engine stoppage on takeoffs 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 Takeoff and Landing."

49–27–1 Convair Applies to All BT–13 Series Aircraft.

Compliance required not later than November 1, 1949.

Certain cases of engine failures at takeoff 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.

49–30–1 *See* Curtiss Propellers.

49–30–2 Convair 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 $0.509^{+0.005}_{-0.0000}$ inch.

2. Reduce the O.D. of the augmenter vane shaft to $0.499^{+0.000}_{-0.005}$ inch.

(This subject is also covered by Convair-Liner Service Information Letter No. 407.)

In the event that it is desired to secure the specified clearance between the shaft and bushing by increasing the bushing I.D. only, this is an acceptable alternative. However, the 0.514 inch upper limit for the bushing I.D. should not be exceeded.

49-34-1 Convair 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 checklist requiring that the reverse throttle stop override handles be checked to assure that they are in the retracted "in" position.

49-38-1 Convair Applies to All Model 240 Aircraft Incorporating Original Type Nose Strut Outer Cylinder, Bendix P/N 156842.

To be accomplished on No. 1 inspection on all nose landing gear struts whose total operating time exceeds 1,000 hours.

Cracking of the nose gear landing struts in the areas directly below the drag link attachment legs, has been experienced on some CV-240 service aircraft whose total time exceeds approximately 1,000 hours. These cracks appear to be the result of repeated loadings experienced by the gear during landings. In order to insure the continued airworthiness of the aircraft, the nose landing gear shall be examined closely, using visual means, for evidence of any cracks in the areas directly below the drag strut attachment lugs.

When cracks are found, it may be possible to repair the damage by grinding, blending and polishing, depending upon the extent and depth of the cracks. All struts not eligible for such repairs are to be retired from service.

(Bendix Service Bulletin L. G. 509 covers the subject.)

The above-described inspection may be discontinued on those struts which have been reinforced by the addition of a support clamp and eyebolts, or their equivalent, to alleviate the loading condition which caused the development of cracks.

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

49-43-1 Convair 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 No. 1 inspection. Inspect the augmenter tube from both the front and rear ends for cracks or burned areas as described above.

3. Cracked or burned augmenters are to be replaced immediately unless the defects fall within the following limits:

(*a*) Augmenter tubes which are found to have a crack, or cracks, in the outer shell may be flown in scheduled operation to a base station for replacement if the cracks are less than ¾-inch long, no more than three cracks exist in the outer shell, and no two cracks are within 6 inches of each other.

(*b*) Augmenter tubes found to have small cracks at the ends of seam welds on the wear band (doubler) at the forward end of the outer shell, are considered airworthy. Such cracks, when confined to the wear band, do not affect the safety of the tube and have shown no tendency to progress to a dangerous condition.

4. The inspections specified in 1 and 2 are not necessary on the following augmenter types:

CVAC P/N 240-6220195 with any of the following forward augmenter sections: 240-6221107, 240-622107-250, -252, -260, -262, -264, -268, -280, -290, -300, -314, -360.

This supersedes AD 48-40-3.

49-44-2 Convair 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 P/N 240-2210401-78.

(CVAC Service Bulletin No. 240-56A covers this same subject.)

2. Reinforce the left elevator leading edge ribs outboard of Station 111.6, and strengthen the means of attaching the rudder and both left and right elevator balance weights.

(CVAC Service Bulletin No. 340-176A covers this same subject.)

3. Replace the present tab hinge pins and bushings with close tolerance bolts and bushings.

(CVAC Service Bulletin No. 240-205 covers this same subject.)

4. Reinforce the left elevator ribs at the flight tab hinge points.

(CVAC Service Bulletin No. 240-225 covers this same subject.)

5. Reinforce the left elevator leading edge ribs and the carry-through structure from leading edge ribs to the corresponding ribs aft of the spar, at Station 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 Station 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 P/N 240-2110702 to the bracket assembly with 3/16 inch close tolerance steel bolts or steel rivets.

(CVAC Service Information Letter No. 415 covers this same subject and shows location of the specific rivets to be replaced.)

7. Between horizontal stabilizer station B. L. 50.50 and B. L. 59.50, add 4 rivets (AN 462-4-14 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 interspar 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 suplied to the FAA to warrant discontinuance of these inspections.

This supersedes AD 49-17-1.

49-45-2 Convair Applies to All Model 240 Aircraft Equipped With Curtiss Propellers.

Compliance required not later than the next engine change.

The following must be accomplished to insure proper operation of the throttle reverse stop override installation:

1. Rerig the reverse lock solenoid linkage, reworking and replacing parts of the linkage as shown on Figure 1, Sheets 1 and 2, of Convair Service Bulletin No. 240-273.

2. Determine that the load on the first throttle reverse detent is 15 $\pm^{3}_{0}$ pounds.

3. Remove the armature (P/N West Coast Electric Co. No. 35-31-C-3A) in the reverse throttle lock solenoid and install a new armature (P/N West Coast Electric Co. No. 35-31-C-3AS). The new armature has the letter "S" stamped on that end of the armature that has two threaded holes.

(The above items are also covered by Convair Service Bulletin No. 240-273.)

50-13-1 Convair 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 No. 2 operation, until part B, is accomplished.

Inspect the aileron in area of hinge brackets, aileron hinge brackets and bracket supports with a 10-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.)

50-19-2 Convair Applies to All Model 240 Aircraft.

Compliance required as indicated.

Failures of the rudder flight tab balance weight brackets and of the rudder closing spar ahead of the flight tab have been experienced on service aircraft. In order to preclude the possibility of these failures progressing to such an extent that the airworthiness of the airplane is impaired, it is considered necessary that the following be accomplished on all CVAC Model 240 Series aircraft:

A. To be accomplished as soon as practicable but not later than next No. 1 inspection and to be repeated at each No. 2 inspection thereafter.

Inspect the rudder flight tab balance weight brackets for cracks in the neck down areas approximately 1 inch from the flight tab and also adjacent to the edges of the counterweight. Inspect the rudder closing spar for cracks in the areas adjacent to the rudder flight tab hinge brackets. All cracks, when found, must be replaced or suitably repaired before next flight.

B. To be accomplished by January 1, 1951.

Reinforce the rudder flight tab balance weight brackets, and the attachment of the brackets to the tab and to the balance weight.

(CVAC Service Bulletin 240-355A covers this same subject.)

NOTE: Although evidence indicates that these failures will be materially reduced after incorporation of the above, sufficient evidence of trouble-free operation is not available. Therefore, it will be necessary that the inspections outlined under part A, be continued at each No. 3 inspection after the incorporation of part B, until sufficient evidence of trouble-free operation has been supplied to the FAA to warrant discontinuance of this inspection.

This supersedes AD 50-6-3.

50-36-1 Convair Applies to All Model 240 Aircraft Incorporating Original Type Nose Strut Inner Cylinders, Bendix P/N 155285.

Compliance required at next No. 1 operation unless already accomplished, on all nose landing gear struts whose total time exceeds 1,000 hours, and at each No. 3 operation thereafter.

Due to recently reported failures of the nose strut inner cylinder the following is required:

Visually inspect P/N 155285 with an 8-power or higher glass for cracks in the area below the scissors lug boss approximately 4 inches above axle housing paying particular attention to the machined radius just below the scissors lug boss. Clean and remove paint from this area. Any evidence of cracks will require replacement of part. Parts with

cracks may be repaired in accordance with the limits and procedures specified in Bendix Service Bulletin LG 518. CVAC Service Bulletin 240–366 is reprint of Bendix Bulletin LG 518.

This supersedes AD 50–10–1 for the purpose of revising the compliance statement.

50–52–1 *See* Hamilton Standard Propellers.

51–5–1 *See* Pratt & Whitney Engines.

51–28–1 Convair Applies to All Model 240 Aircraft.

Compliance required as indicated.

1. Not later than the first No. 1 inspection after January 15, 1952, lag and shield propeller feathering line in the engine accessory section with asbestos tape, wire, vinylite tubing and steel-sleeve for end fittings as described in Convair Service Bulletin No. 240–419–A or in a manner to provide equivalent resistance to fire and absorption of fuel and oil.

2. Not later than March 1, 1952, revise the engine oil breather line to eliminate aluminum components as described in Convair Service Bulletin 240–419–A to use steel tubing or to use a fire resistant hose assembly.

3. Not later than first scheduled engine change after January 15, 1952, relocate fire detectors and revise detector circuits to employ split systems as described in Convair Service Bulletin Number 240–419–A.

4. Not later than the first scheduled engine change after January 15, 1952, replace fire detector wiring in all circuits forward of firewall with Rockbestos type RSS 74 Firezone wire or wire of equivalent fire resistance. (Wire conforming to Air Forces Spec. 32659 is considered equivalent.)

5. Not later than March 1, 1952, install CO_2 operated engine accessory section ventilation outlet closure door. This modification is described in Convair Service Bulletin 240–374.

6. Not later than the first scheduled engine change after March 1, 1952, either remove all aluminum fire detector terminal junction boxes located forward of the firewall and mount units on fireproof brackets, or change aluminum fire detector terminal boxes and brackets to fireproof material.

7. Not later than the first scheduled engine change after March 1, 1952, check firewalls and firewall access door fasteners to assure that no aluminum rivets or Dzus fasteners or other nonfireproof components have been installed. If any are found, they are to be replaced with fireproof components. Original firewall accessory door fasteners, which are satisfactory, have these Dzus part numbers: Studs AJ5–20 and –35; Grommet GA5–312; and Spring S5–200.

8. Not later than the first scheduled engine change after March 1, 1952, improve ADI valve sealing in accordance with Whittaker Service Bulletin Number 49–9 or install an enclosure which will provide overboard drainage if leakage occurs from this valve.

52–2–1 Convair Applies to All Model BT–13, –13A, –13B and BT–15 Aircraft With Bronze Rear Spar to Center Section Attachment Fittings.

Compliance required as indicated.

When it has been determined that the rear spar to center section attachment fittings are bronze castings, compliance with this Airworthiness Directive should be effected every 24 hours flying time or every 6 months nonflying time, whichever occurs first.

(1) Inspect visually the rear spar to center section attachment fittings on both sides of the rear spar for evidence of cracks. All cracked fittings (see Figure 1) should be replaced with new fittings of equivalent or greater strength.

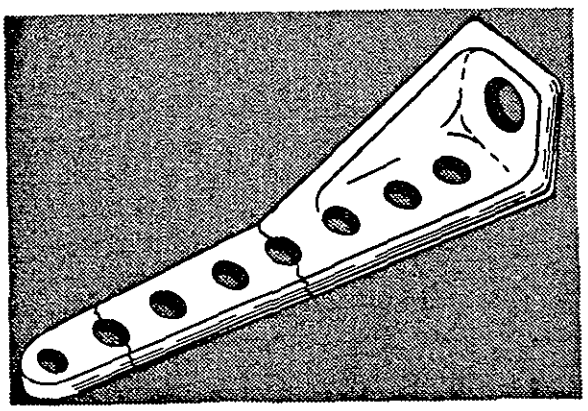

FIGURE 1

(2) A magnet may be used to determine if the fitting is a steel casting.

(3) Fittings that have been made from aluminum alloy forgings can be readily differentiated from those made from bronze castings by visual inspection.

52–11–2 Convair Applies to All Model 240 Aircraft.

Compliance required not later than the first major engine overhaul after February 1, 1953.

To improve further the engine nacelle fire resistance of 240 aircraft, steel facings must be installed over certain aluminum alloy components of the engine cowl panels, the oil cooler duct, and the nacelle structure forward of the firewall.

(Convair Service Bulletin No. 240–425, Revision 2, describes these changes in detail. Preliminary information on this modification is contained in Convairogram No. 30, dated April 8, 1952.)

52–14–2 Convair Applies to All 240 Airplanes With Hamilton Standard Propellers Except as Otherwise Indicated. Item IV Also Applies to All 340 Airplanes With Hamilton Standard Propellers.

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

I. The following changes to the electrical circuits are to be accomplished: (NOTE: These changes apply to airplanes which have not been modified since they were manufactured. (See item II for modified airplanes):

A. Insulate exposed terminals at unfeathering relay, install insulating separator between throttle microswitches, and secure wires as specified in Convairogram No. 4, dated March 7, 1951.

II. To prevent inadvertent actuation of the reversing solenoid valves, the following changes to the electrical circuits are to be accomplished to protect the reversing solenoid circuits from all other circuits and to protect the reversing solenoid circuits from each other: (NOTE: These changes are known to apply to some aircraft which were modified by operators so that they differ from the originally manufactured configuration. Other airplanes which have design features in the reversing solenoid circuits which are similar to those outlined below, but which are not specifically referred to in this list, should have these points protected in a manner equivalent to that described herein.)

A. Modify the following multiple pin connector assemblies as specified in item 2 of attachment A (see 52–13 for attachment A):

1. Connector at wing-fuselage disconnect.

2. Connector at Hamilton Standard reversing box No. 80340 (covered by change specified in item C.)

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

1. Terminal strip at firewall junction box.

2. Terminal strip in junction box at fuselage Station No. 109.

C. Hamilton Standard reversing relay box: Reversing solenoid circuit relay contacts, etc., to be shielded from all other circuits which are energized at any time except when reversing is desired. If reversing relay boxes are used which have separate pin connectors for the reversing solenoid wire and the remaining circuits, it shall not be possible inadvertently to interchange any connectors in the two relay boxes.

D. Reversing solenoid circuit wiring: Modify in accordance with item 4 of attachment A.

E. Protect the exposed terminals of the secondary throttle lock relays, (if used), as specified in item 3 of attachment A.

F. Install insulating separator between throttle microswitches, and secure wires as specified in Convairogram No. 4, dated March 7, 1951.

III. Other circuit modification: All airplanes are to be modified to comply with Hamilton Standard Service Bulletin No. 221.

IV. Reverse solenoid lock assembly on all airplanes which do not have "lift up" throttles, either (*a*) Install a warning light system as described in Convair Service Bulletin No. 240–381 except that the system shall be so arranged that it will indicate to the crew when the solenoid lock has just started to move to the open position, or (*b*) adjust the lock actuating handles so that not less than 1 inch of movement is required before the lock opens.

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

A. At each nearest scheduled service to 350 hours:

1. Inspect all points specified in items I and IIB. The inspections of item IIB may be dis-

continued if the modifications made to the system are of the type described in item 1(*a*) or 1(*b*) of attachment A.

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

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

D. At any time that operations are performed which may affect the relative position of the solenoid lock and throttle switches, but in any event at intervals not to exceed 1,500 hours: Check the relationship between the position of the pedestal strikers when they are: (*a*) In contact with the solenoid latch; (*b*) at the point where the detent roller contacts the first detent cam, and (*c*) when the reversing microswitches are actuated. It shall not be possible for the switches to be actuated before the latch and the detent engage the striker and the cam. This determination shall be made by positive measurements rather than observation of engine r.p.m. at which these actions take place.

VI. Operating instructions: Comply with item 5 of Attachment A, AD 52-13-2 Lockheed.

VII. (NOTE: Propeller governor design changes which are under development and whose purpose is to provide a high pressure hydraulic circuit bypass to safeguard against inadvertent reversing and ability to feather even when the reversing solenoid is energized, are still under consideration and may be the subject of a further directive.)

53-5-1 *See* Curtiss propellers.

53-23-1 **Convair** Applies to All Model 240 Airplanes.

Compliance required at each No. 1 inspection (regular inspection period nearest 100 hours).

There have been several failures of the nose landing gear clutch plate P/N 240-5250117 which have resulted in damage to the fuselage and exposed some of the flight control components to possible damage. To prevent the possibility of serious damage, the following special periodic inspection is required.

Effective immediately inspect nose landing gear clutch plate P/N 240-5250117 at each No. 1 inspection using magnetic particle, dye penetrant, or any other equivalent inspection method. If any cracks or other damage are found, replace damaged parts with new parts of same number or comply with changes described in Convair Service Bulletin No. 240-332 which incorporates a stronger clutch plate, P/N 240-5257113. If P/N 240-5257113 is installed, these special periodic inspections may be discontinued.

54-1-2 *See* Hamilton Standard Propellers.

55-3-1 **Convair** Applies to All Model 340 Aircraft.

Compliance required as indicated.

A 340 was involved in a flight accident due to the AN 310-4 nut coming off of the AN 174-33 bolt that attaches the left-hand elevator servo tab idler to the structure resulting in flutter of the elevator servo tab, with subsequent failures to the elevator control system and loss of elevator control. As a precautionary measure, the following is required: As soon as practical but not later than the next 15 hours service, inspect the control systems for the servo tab on the left elevator and on the right elevator trim tab on all 340 aircraft. Inspection is to cover all nuts, bolts, idlers, bellcranks, pushrods and general security check of all nuts and bolts.

55-15-2 **Convair** Applies to All 240 and 340 Series Aircraft Equipped With Hamilton Standard Propellers.

Compliance required by first scheduled engine change after November 1, 1955, but not later than November 1, 1956.

To increase the fire resistance integrity of the propeller feathering system against damage by a powerplant fire, all flexible hose components of propeller feathering lines forward of the firewall in zone 2 must be replaced with lines and fittings which will meet current fire resistance requirements. Convair Service Air-Gram No. 123 dated October 8, 1954, covers this subject. The following hose assemblies may also be considered acceptable for this application:

(*a*) Aeroquip 680–10S hose assemblies with Aeroquip 304 protective sleeves over end fittings (Aeroquip assembly P/N 304000).

(*b*) Resistoflex—SSFR–3800–10 hose assemblies.

(*c*) Aeroquip 309009 hose assemblies.

55–18–1 Convair Applies to All Models 240 and 340 Aircraft.

Compliance required as soon as practicable but not later than January 1, 1957.

1. Because of instances of inadvertent propeller reversing due to malfunctioning of the solenoid operated throttle locks and improper operation of throttles at time of touchdown on landing, a more positive means of preventing inadvertent movement of the throttles into the reverse segment of the throttle quadrant must be installed.

2. This modification consists of the installation of a protective device which will require a separate and distinct motion by the flight crew member accomplishing the reversing, in order to place the throttles in the reverse pitch range. It must also provide safeguards against disarming or unlocking of this protective device when the throttle levers are further forward than idle setting or, if it is possible to unlock at a forward power setting, movement of the throttles toward idle from slow cruise or landing gear warning positions shall reengage the lock prior to reaching the idle position.

3. Convair Bulletins Numbers 240–460A and 340–141A covering this modification are an acceptable method of compliance. Alternate designs may be acceptable if the objectives of this directive, as expressed in paragraph 2 have been met. However, because of the many technical considerations involved, all alternate methods of accomplishing this modification should be referred to FAA for engineering evaluation and approval.

56–4–2 Convair Applies to All 240 and 340 Aircraft.

Compliance required as soon as possible but not later than February 1, 1957, for Model 240 and August 1, 1957, for Model 340.

As a result of a recent accident involving a nacelle fire, additional fire protection for the nacelle is required.

The following changes or equivalent must be made to accomplish the above:

1. Replace aluminum alloy engine fuel supply lines, and sleeves, nuts and tube unions, with steel lines in the wheel well area (zone 3), except for lines and fittings outboard of the main landing gear beam. This does not apply to lines and fittings between cross-feed valves.

2. Replace present flexible hose assemblies in the engine fuel supply system in the wheel well area (zone 3), including AN fittings, with steel tubing and/or fireproof flexible lines, except for lines and fittings outboard of the main landing gear beam. Flexible lines qualifying as fireproof may incorporate either steel or aluminum fittings.

3. (*a*) CV–340 airplanes only. Replace aluminum alloy propeller pump suction line in left-hand nacelle wheel well (zone 3) with a steel line.

(*b*) CV–240 airplanes only. Replace aluminum alloy propeller pump suction line in wheel well area (zone 3) with a steel line. (Both nacelles.) (Original flexible hose connections will be satisfactory if provided with a steel liner.)

4. Protect existing oil hose assemblies in wheel well area (zone 3) with asbestos sleeves or equivalent.

5. Replace all micarta pulleys in wheel well area (zone 3) with aluminum alloy pulleys.

(Convair Service Bulletins Numbers 240–467 and 340–167 cover items 1 through 4. Convair Service Bulletins Numbers 240–468 and 340–166 cover item 5. These bulletins also contain some items which are not mandatory but are recommended.

56–8–1 *See* Curtiss Propellers.

56–18–1 Convair Applies to All 240 Series Aircraft.

Compliance required as indicated.

Instances of complete electric power system failure have occurred inadvertently upon failure of a single generator or engine. Due to high overloading that may be imposed on the remaining single generator, this generator is subject to failure unless prompt action is taken to reduce electrical loads within the generator's rated capacity. In order to improve electric power system reliability, the following shall be provided on aircraft in which a probable combination of electric utilization loads can exceed the continuous rating of one generator:

1. Generator Inoperative Warning Light (at least one, located for reliable warning), to be installed by April 1, 1957.

2. Monitoring System (add relays and circuitry to automatically disconnect buffet power and one inverter in case of loss or disconnection of one generator, with monitor override switch optional), to be installed by September 1, 1957. The automatic monitoring system is not required if it can be shown that the crew can manually reduce the total utilization load to the rating of one generator within 15 seconds after a generator or engine failure during any flight condition. A longer time interval than 15 seconds may be accepted if substantiated by demonstrations on representative generators which have reached approximately full overhaul time.

(Convair Service Newsletter No. 352 dated June 16, 1956, contains preliminary technical information, including schematic wiring diagrams, relative to this same subject.)

Final reworks must be in accordance with FAA-approved technical data.

56–18–2 Convair Applies to All 340 Aircraft.

Compliance required preferably at next engine overhaul but not later than June 1, 1957.

Due to the possibility in hot weather operation that the engines installed in Convair 340 airplanes can experience excessive oil temperatures and inability to scavange the crankcase, Pratt & Whitney Aircraft Service Bulletins Nos. 1513 and 1524 shall be accomplished as indicated above.

This serious condition, which has been experienced in hot weather on several occasions by two scheduled airline operators, is attributed mainly to high oil flow rates, which will be effectively reduced by compliance with these Pratt & Whitney Service Bulletins.

(Air Carrier Maintenance Alert Bulletin No. 241 also deals with this subject.)

As an alternate to compliance with these bulletins, the adoption of maintenance practices and engine overhaul procedures which effectively reduce oil flow rates will be acceptable.

56–20–4 Convair Applies to All 240, 340 and 440 Aircraft.

Compliance recommended at the next engine change or airplane overhaul but required not later than December 31, 1957.

Several recent accidents involving nacelle fires have indicated certain deficiencies in the construction of the fire seals between zone 1 and zone 2. To correct this condition the following rework of the present cowling and zone seals is required.

1. Incorporate an additional fireproof seal at the zone 1 to zone 2 shroud-to-cowl seal around the periphery of the diaphragm where the bottom and side cowl meet.

2. Improve the present nacelle seals by incorporating a fireproof seal along the longitudinal juncture of the cowl segments and also improve the present cowl hinge point seals.

3. Replace any existing aluminum material in the zone 2 chimney vent with steel material. (Applicable to CV–240 aircraft only.)

The following Convair Service Bulletins cover acceptable methods of compliance with these modifications: Nos. 240–472 and 340–177 cover item No. 1; Nos. 240–474, 240–481A, 340–209, 340–210A, 440–30 and 440–32A cover item No. 2; Nos. 240–470 and Revision 1 cover item No. 3. (Compliance with Revision 2 to 240–470 is not required.)

56–24–1 Convair Applies to All 240, 340 and 440 Series Aircraft.

Compliance recommended at the next engine overhaul but required on all aircraft by September 1, 1957.

Several cases of engine cylinder failures have occurred in which it was subsequently impossible to feather the propeller. The feathering

line is presently routed over the top of the No. 8 cylinder and when this cylinder is dislodged, due to stud failures or flange failure, the feathering line is severed thus preventing feathering and causing an additional fire hazard from oil being pumped onto the engine. The record of cylinder failures from studs loosening or breaking indicates that the front row cylinders are mainly involved.

To prevent loss of feathering control from such failures, either of the following actions is required:

1. The propeller feathering line is to be re-routed between cylinders.

(Convair Service Bulletins Nos. 240–479, 340–205 and 440–23 cover an acceptable method of complying with this modification on Models 240, 340 and 440, respectively.)

2. The propeller feathering line is to be routed between cylinders on the front row of cylinders. It shall be acceptable for the line to pass over the top of a rear row cylinder provided there is adequate flexibility in the line assembly to allow for some displacement without breaking line or fittings in the event of a cylinder failure.

56–24–2 Convair and Martin Applies to the Following Aircraft Equipped With PR–58E5–17 and –27 Carburetors in P&W Double Wasp CB Engines: Convair 240 and 340 (Except 340's With 440 Nacelles) and Martin 202A and 404. Also Applies to 340 Aircraft With 440 Nacelles and Equipped With PR–58E5–29 Carburetors; and to 440 Aircraft Equipped With PR–58E5–29 Carburetors.

Compliance required by first engine overhaul after January 1, 1957, but not later than September 1, 1957.

Normal fuel metering in carburetors incorporating the PR–58E5–17 and –27 "Transport Setting" may result in powers lower than those employed for aircraft certification. This occurs in the high power range with the control in the Auto-Rich position in cases where the carburetor meters on the rich side of the allowable limits. The amount of power loss will vary with different carburetors.

Performance information in the FAA-approved Airplane Flight Manual is based upon the maximum certificated power ratings of the engine. To obtain full rated power at manifold pressure limits for maximum continuous power, it is necessary to adjust the fuel mixture by the mixture control (takeoff power is not adversely affected by use of the full rich mixture position).

P&W Engine Operation Information Letter No. 28, and P&W Service Bulletins Nos. 1602 and 1604 cover this subject in further detail.)

In order to insure obtaining the power used in aircraft certification, accomplish the following:

1. For MC power during one-engine-out operation use Auto-Lean mixture setting. Revise the pertinent airplane flight manuals accordingly to insure that the operation check procedure includes this item for engine-out operation.

2. Incorporate the leaner carburetor derichment jet per Bendix Service Bulletins Numbers 804 and 806. This applies to PR–58E5–17 and –27 carburetor settings only. The primary purpose of this change is to provide correct fuel flow for takeoff power. It does not materially affect fuel flow for maximum continuous power.

3. The Auto-Lean mixture control position should be plainly marked and identified.

NOTE: Selective manual leaning of the mixture by reference to the fuel flowmeter is not satisfactory because of the time and attention required for such a procedure in an emergency. It is necessary that the mixture adjustment be completed in one direct movement by placing the control in the Auto-Lean marked position.

Compliance with items 1 and 3 is not directly related to item 2, and should be accomplished as soon as possible regardless of the time of compliance with item 2.

56–27–1 Convair Applies to All Models 340 and 440 Aircraft.

Compliance required as noted below.

A report has been received concerning the failure of the elevator servo tab rod on a version of the Model 340 aircraft. Since the tabs on the subject model aircraft are unbalanced, a serious flutter condition resulted and a critical accident was narrowly avoided. In view of the fact that the tab rods and tab rod ends on the subject models aircraft are identi-

cal in design, hence susceptible to a similar type of failure, the following inspections and tab rod replacements or equivalent measures are required.

Compliance required at every 110 hours of operation or regular scheduled inspection closest thereto.

1. (*a*) Inspect the tab rods and rod ends on the elevator, for looseness in the rivets which attach the rod ends to the rods, and for any relative movement between the rod and the rod ends. Parts which exhibit these defects shall be replaced with satisfactory parts. Upon completion of the tab rod replacement program or equivalent noted in items 2 (*a*), and 2 (*b*) below, this 110-hour inspection may be discontinued.

Compliance required not later than November 30, 1957.

2. (*a*) Model 340 replacement of all elevator tab rods with improved, heavier rods and rod ends, and replacement of the right-hand elevator tab idler link with symmetrical idler link.

(Convair Service Bulletin Nos. 340–207 and 340–150A cover this same subject.)

2. (*b*) Model 440 replacement of the right-hand elevator tab rods and tab rod ends with improved heavier tab rods and tab rod ends.

(Convair Service Bulletin Nos. 440–27A cover this same subject.)

57–3–1 Convair Applies to All 240 Series Aircraft.

Compliance required at 12,000 hours of operation and as indicated below.

As a result of several reports concerning cracks in the main outboard landing gear fitting, the following inspection should be conducted on all Model 240 Series aircraft:

1. Inspect P N 240–1650716 for cracks running fore and aft on the inboard and outboard face of the fitting, above the fitting boss at the point of tangency of the boss and plate. This inspection must be made at each 1,000 hours of operation following the initial inspection at 12,000 hours.

2. Parts which have cracks not exceeding 2 inches in length may remain in service when properly stop-drilled with a 0.25-inch drill, and inspected daily for further crack progression or other damage.

3. Parts with cracks exceeding 2 inches in length must be replaced with an acceptable part. When replaced with a new part the above inspections are not required until the replacement part has 12,000 hours of operation, at which time the above inspection procedure, item 1, is again in effect.

57–12–5 Convair Applies to All Model 340 Aircraft.

Compliance as indicated below.

Several reports have been received of cracks occurring in the spar of the left-hand elevator in the area of the cutouts for the tab controls. The cracks originated in the area of the bolts that attach the support bracket for the tab control idler to the spar and in some cases, the cracks extend to a corner of one of the spar cutouts. Reports also indicate that the two angles P/N 340–2210114–10 and –111 above and below the spar openings have been cracked.

1. Compliance required as soon as possible but not later than the next 100 hours of operation unless already accomplished and at each 250 hours of operation thereafter. Inspect the left-hand elevator spar for cracking as described above. If cracks are found, they shall be repaired before the next flight.

(Convair "Service Airgram" No. 212, dated March 15, 1957, sections 1 through 7 illustrate a satisfactory means of repairing cracks in the elevator main spar.)

2. The special inspection period specified in item 1 may be discontinued and the regular inspection periods resumed after the following is accomplished:

(*a*) Repair of all cracks found during the inspection of the left-hand elevator spar as indicated in item 1.

(*b*) Reinforce the elevator spar in the vicinity of the tab control idler attachment. A satisfactory means of reinforcing the elevator spar is described in sections 8 and 9 of Convair "Service Airgram" No. 212. Reinforcement to be accomplished regardless of whether or not cracks are found.

57–14–1 Convair Applies to All 240/340 Series Aircraft.

Compliance required as soon as possible but not later than September 1, 1957, unless already accomplished.

Investigation of a recent Convair Model 340 accident where the nose gear stuck in the retracted position showed failure of the nose landing gear drag strut pivot shaft sleeve, Convair P/N 240–5257112 to be the cause. Examination of the failed part showed that the 1.06-inch counterbore was drilled beyond acceptable limits, allowing a fatigue crack to develop at the relief radius undercut of the shoulder of the bearing surface at the threaded end. As a result of these findings the following inspection or equivalent method to determine that satisfactory parts are installed should be conducted on all Model 240/340 Series aircraft incorporating nose landing gear pivot shaft sleeve P/N 240–5257112.

Inspection can be accomplished by removal of the forward left tunnel door at Station 52 for access to the threaded end of the sleeve. The threaded portion of the sleeve may be either 1 inch or 1.6 inches long. Using a depth gage through the pilot hole in the threaded end of the sleeve, measure the distance from the threaded end of the sleeve to the intersection of the pilot hole and the bottom of the 1.06-inch diameter counterbore made by the cutting surface of the counterbore drill. For sleeves with a long threaded end (1.6 inches) a minimum distance of 4.1 inches is permissible. On sleeves with a short threaded end (1.00 inch) a minimum distance of 3.5 inches is permissible. Any sleeve with dimensions less than specified above should either be replaced or be further inspected as outlined in the next paragraph. If it is desired to inspect the sleeve from the end opposite to the threaded end, the distance from the end of the sleeve to the intersection of the pilot hole and the bottom of the 1.06-inch counterbore hole should not exceed 8.38 inches.

Parts found to be unsatisfactory as a result of the above inspections should be X-rayed or removed for further inspection and magnaflux. If the part shows no evidence of cracks and the material between the end of the counter drill 1.06-inch diameter hole and the relief radius undercut in the shoulder at the bearing surface is greater than 0.350 inch, the part has adequate strength and may be reinstalled. The 0.350-inch dimension is considered to be the perpendicular distance from the end of the counterbore.

(Angle surface caused by the counterbore cutting surface and the relief radius cutout. Convair Service Airgram subject "Nose Landing Gear Pivot Shaft Sleeve" dated May 13, 1957, contains similar information.)

58–1–3 Convair Applies to the Following Aircraft Equipped With PR–58E5–17 Carburetors in P&W Double Wasp CB16 and 17 Engines; Model 440 Serial 312 Through 420 and All Model 340 With Model 440 Nacelles.

Compliance required by first engine overhaul after March 1, 1958, but not later than October 1, 1958.

The PR–58E5–17 carburetor setting originally provided in the aircraft has an undesirable leaning tendency. To overcome this deficiency the PR–58E5–29 carburetor setting has been developed and must be incorporated in the above aircraft.

Normal fuel metering in carburetors incorporating the PR–58E5–29 "Transport Setting" may result in powers lower than those employed for aircraft certification. This occurs in the high power range with the control in the Auto-Rich position in cases where the carburetor meters on the rich side of the allowable limits. The amount of power loss will vary with different carburetors.

Performance information in the FAA approved Airplane Flight Manual is based upon the maximum certificated power ratings of the engine. To obtain full rated power at manifold pressure limits for maximum continuous power, it is necessary to adjust the fuel mixture by the mixture control (takeoff power is not adversely affected by use of the full rich mixture position).

(P&WA Engine Operation Information Letter No. 28 covers this subject in further detail.)

In order to insure obtaining the power used in aircraft certification, accomplish the following:

1. For MC power during one-engine out operation use Auto-Lean mixture setting. Insert revised pages in the pertinent Airplane Flight Manuals in accordance with Convair Service Bulletins Nos. 340–144A and 440–58.

2. Modify the PR–58E5–17 carburetor setting to the PR–58E5–29 carburetor setting in

accordance with Bendix Aircraft Carburetor Service Bulletin No. 820.

3. The Auto-Lean mixture control position should be plainly marked and identified.

58–6–1 Convair Applies to All Model 240 Series Aircraft.

Compliance required not later than May 15, 1958, and at each 300 hours of operation or next regular inspection nearest thereto, on all aircraft equipped with Bendix Main Landing Gear Assemblies Nos. 155150–1, 155370–1, 159695–6 and 159589–90, with 15,000 hours or more of service time.

A considerable number of reports have been received pertaining to cracking and of failures of the main landing gear axle at the 2.9998–2.9990-inch diameter adjacent to the brake flange. A number of cases resulted in complete failure of the axle and subsequent loss of main landing gear wheel.

As a result of these reported failures, the subject parts must be inspected for cracks in the area described above by means of a dye penetrant or equivalent inspection procedure.

Parts in which cracks are found must be considered unairworthy and be replaced or satisfactorily reworked.

(One acceptable rework is described in Bendix Projects Division, Aircraft Service Department Service Bulletin No. L.G. 595. The same information is also contained in Convair Newsletter No. 58–1, dated January 1958.)

58–25–1 Convair Applies to All Model 240 Series Aircraft.

Compliance required as indicated.

During a recent inspection of a Convair 240 aircraft, six rivets out of the total of eight attaching P/N 3540311 to the left-hand elevator torque tube were found sheared. In order to assure airworthiness of the aircraft, the following action is to be taken. (NOTE: A previous Convair service bulletin, issued as a result of a number of reports of rivet failures in this area, recommends replacement of the original rivets with steel rivets. This replacement had not been accomplished in the case mentioned above.)

1. Compliance required as soon as possible but not later than the next 25 hours of operation and every 300 hours thereafter until modified in accordance with item 2. Inspect the 240–3540311 flange fitting attachment to the elevator torque tube, left and right side, for looseness and sheared rivets. If looseness or any sheared rivets are found, compliance with item 2 required prior to further flight.

2. Compliance required not later than the next major overhaul. Replace the eight AN 470–D8 rivets attaching the flange fitting P/N 240–3540311 to the torque tube, left and right side, with eight Q4311–C9–12 steel, drilled shank, rivets or equivalent. Eight close tolerance corrosion resistant steel bolts or four close tolerance corrosion resistant steel bolts and four oversized rivets are acceptable equivalents.

(Convair Service Bulletin 240–384 dated October 25, 1950, covers this same subject.)

59–1–1 Convair Applies to All 240 and 340 Aircraft and to 440, Serial Nos. 312 Through 502.

Compliance required as follows: 440 aircraft not later than December 31, 1958; 340 and 240 aircraft not later than April 30, 1960.

Inflight fire experience and fire tests on the Convair engine nacelle have shown the need for further improvement in detecting fires originating in zones one and two. Additional continuous type detector coverage was provided in production 440 aircraft for the zone one bellmouth and zone two chimney areas. Because of false warnings the original system was rendered inoperative by Convair Service Air Gram No. 173, and an improvement program was initiated. This program has now been completed and a revised system developed with functional reliability proven by test under laboratory and service conditions.

To improve and reactivate the continuous type fire detector system installation on 440 aircraft and to provide equivalent coverage for 240 and 340 aircraft, the following must be accomplished:

(1) On 440 aircraft, the existing continuous type fire detector system must be modified to incorporate improved detector elements and assemblies, including connectors, control box cannon plugs and mounting provisions. Upon accomplishment, the continuous type system must be made operative. On aircraft of Serial Nos. 503 and subsequent which incor-

porate these changes, the system must be maintained operative.

(Convair Service Bulletin No. 440–41 covers an acceptable method of accomplishing these changes.)

(2) On 240 and 340 aircraft, either modification (a) or modifications (b) and (c) must be accomplished:

(a) Install additional fire detector coverage consisting of a continuous type system installed in each augmenter bellmouth and each vent chimney, similar to that now installed on 440 aircraft. The airplane flight manual must be revised to include a description of the system operation and the required emergenny procedures.

(Convair Service Bulletin No. 340–222 covers an acceptable method of accomplishment of this installation on 340 aircraft. Service bulletins applicable to 240 aircraft will be published at a later date, if there is a request for such information from operators desiring to accomplish this in preference to the modifications described in items (b) and (c) following.)

(b) Install at least three unit-type detectors at each augmenter tube bellmouth or on brackets mounted on the shroud or engine cowling and located in close proximity to the bellmouths, such as to be in the path of flames which would enter the bellmouth in the event of fire. Existing detectors at the upper cowl flaps and those mounted on the upper side shroud panels may be counted among the three units specified, provided they are installed in accordance with Convair Bulletins No. 240–419 and No. 240–419A or conform to original Model 340 production configuration. The third bellmouth detector location must conform with figure 6 of Technical Development Center Report No. 250. Revised detector installations must be ground and flight tested in accordance with Thomas A. Edison Installation Manual, Publication No. 1058, dated July 15, 1950, to assure correct circuit adjustment.

(c) To minimize flame stratification and improve effectiveness of present fire detection, a reduction in airflow rate in zone two must be effected by modifications in accordance with Convair Service Bulletin 340–176 or equivalent for the 340 aircraft, and in accordance with Convair Service Bulletin 240–473 or equivalent for the 240 aircraft.

This supersedes AD 58–10–1.

59–2–1 Convair Applies to All 240 and 340 Aircraft, Serial Numbers 2 Through 188.

Compliance required not later than December 31, 1960.

Inflight fire experience with the Convair 240 engine nacelle has shown the zone three wheel well area vulnerable to the entrance of fire originating in the forward fire zones. While various improvements have been incorporated to contain fires in the forward zones by AD 56–20–4, further improvements are necessary to either prevent the entry of fire into the zone three wheel well area or to supplement the requirements of AD 56–4–2 to cover remaining flammable fluid system lines, fittings and components in zone three.

To accomplish the above, modifications must be made to the airplane in accordance with either Parts I or II of this airworthiness directive:

Part I. Fireproof skin must be installed on the entire circumference of each nacelle from the firewall aft to Station 135 and on the forward portion of the wheel well doors aft to Station 150. Attachment of the skin to the structure must be made with fireproof fasteners.

(Convair Service Bulletins 240–466 and 340–170 cover acceptable methods of accomplishing the above.)

Part II.

(1) Replace all existing nonfireproof flammable fluid system lines and fittings in each zone three wheel well area with similar lines and fittings constructed of fireproof material or otherwise qualified as fireproof. This extends to the following:

a. The aircraft hydraulic system supply lines and fittings to the engine driven pump.

b. The engine driven pump supply, return and control lines and fittings of those aircraft equipped with an integral oil supply for the cabin supercharger hydraulic system.

c. The hydraulic supply lines and fittings from the reservoir to the shutoff valve of those aircraft equipped with a separate tank supply for the cabin supercharger compressor.

(2) Provide additional fire protection to those components of flammable fluid systems in each zone three wheel well area as specified below:

a. Shroud the fuel system firewall shutoff valve, the fuel strainer and boost pump body with fireproof material. As an alternate, shroud the fuel tank valve and motor with fireproof material, install fire-resistant electrical cable for this component in the wheel well area and revise the emergency procedures on page 42.0.1 of the FAA approved 240 Airplane Flight Manual to require fuel and crossfeed selector valves in the "off" position prior to release of extinguisher agent. Electrical cable complying with Military Specification MIL–C–25038 and appearing on Military Qualified Products List QPL–25038 meets fire-resistant requirements for this application.

b. Shroud the firewall shutoff valves for the engine, cabin supercharger and hydraulic oil systems with fireproof materials.

c. As an alternate to the fireproof shrouding required by items (2) *a.* and *b.*, the components specified above may be qualified as fireproof by test, in which case test proposals shall be submitted to the FAA Regional Office in Los Angeles for approval. In general, this test must subject the component to an enveloping fire of 2000° F. under simulated operating pressure and vibratory conditions of the installation. Shutoff valves must remain operable for a 5-minute period and continue to withstand fire without leakage for an additional 10 minutes. Other components must withstand fire under similar environmental conditions for 15 minutes without leakage.

59–4–2 Convair Applies to All Model 240/340/440 Series Aircraft Through Serial Number 485.

Compliance required as indicated.

Several instances have been reported wherein the pilot's direct-vision window has swung inward beyond the normal stop and has interfered with the movement of the control column. One such instance resulted in a crash landing and a fire which destroyed the aircraft.

(1) Within the next 50 hours of operation inspect the DV window and ascertain that the stop is secure. Also install a placard in the vicinity of the DV window cautioning the pilots against deliberately opening the window past the stop as an interim measure pending compliance with item (2).

(2) Not later than September 1, 1959, the following must be accomplished to provide a positive stop for restricting the amount of travel of the DV window to eliminate possible interference between the window and the control column. For model 240 aircraft install a secondary DV window stop such as the safety chain described in Convair Service Engineering Report No. 26/440–28 dated 16 January 1959 or equivalent. For models 340 and 440 aircraft, install either the redesigned positive stop P/N 340–3110303–65 and –66 described in Convair Service Newsletter No. 411 or the secondary DV window stop safety chain described in Convair Service Engineering Report No. 26/440–28 dated 16 January 1959 or equivalent.

59–17–3 *See* Hamilton Standard Propellers.

60–14–1 Convair Amdt. 177 Part 507 Federal Register July 1, 1960. Applies to All Models 340/440 Aircraft.

Compliance required as indicated.

Fatigue failures have occurred in the threaded area (piston end) of the main landing gear actuating cylinder rod assembly, P/N 340–5150107. In at least two instances, complete failure of the rod end occurred allowing the main gear to free fall to the down position causing excessive load to be placed on the airframe. As a result, the following must be accomplished on rod assemblies with more than 5,000 hours' time in service.

Within the next 425 hours' time in service, and every 425 hours thereafter, conduct a visual inspection using at least a 10-power magnifying glass or equivalent for cracks in the threaded portion of the main landing gear actuating cylinder rod assembly, P/N 340–5150107. If cracks are found, the cylinder rod assembly must be replaced or reworked in accordance with Convair Service Engineering Report 340–12, 440–11 or equivalent prior to further flight. Reworked salvaged parts or reworked sound parts are not subject to the special inspections.

61–7–1 Convair Amdt. 272 Part 507 Federal Register April 4, 1961. Applies to All Model 22 (880) Aircraft.

Compliance required as indicated.

Conduct a daily inspection of all foreflaps, P/N 22–18600–5 or –807, left and right, for cracks in the upper surface skin. Particular attention should be given to the mid span area of each foreflap. Except as otherwise provided for in paragraphs (a), (b) and (c), cracked foreflaps must be modified per Convair Service Bulletin 27–22 or equivalent, or replaced prior to further flight.

(a) Cracked foreflaps may be operated for an additional 10 hours' time in service provided:

(1) The crack emanating from any one rivet hole does not extend more than ½ inch forward or 1 inch aft of the rivet hole.

(2) No two cracks are closer together (spanwise) than 4 inches.

(3) Each crack is stop drilled approximately ¼-inch diameter.

(4) Each crack is visually inspected after each flight.

(b) Foreflaps operated under paragraph (a) shall be repaired in accordance with Convair Alert Service Bulletin A–27–22 or equivalent, modified per Convair Service Bulletin 27–22 or replaced either at the end of this period of 10 hours' time in service or when a crack is found to progress beyond the stop drill hole, whichever occurs first. Repaired foreflaps may be operated for an additional 100 hours' time in service before modification or replacement provided that no further cracks are found during the daily inspections which exceed the limits specified in paragraph (a) (1) and (2). If such cracks are found, the foreflaps must be replaced or modified prior to further flight, except ferry flight in accordance with paragraph (c).

(c) Aircraft having cracks in the foreflaps which exceed the limits specified in paragraph (a) (1) and (2) may be flown under the provisions of CAR's 1.76 and 1.77 to a base where the required replacements or modifications are to be made.

(d) After the foreflaps are modified per Convair Service Bulletin 27–22 or equivalent, inspections may then be made at the normal inspection periods.

(Convair Service Bulletin 27–22 and Alert Service Bulletin A–27–22 cover this subject.)

This directive effective April 10, 1961.

61–10–2 Convair Amdt. 283 Part 507 Federal Register May 11, 1961. Applies to All Model 22 (880) Aircraft.

Compliance required as indicated.

Two cases of failure of the forward engine mount support fitting P/N 22–02593–1, have been reported. Failure of this part permits the engine to rotate with the forward end coming to rest on the bottom of the engine pod structure.

(a) Unless P/N 22–02593–3 or an FAA approved equivalent has already been installed, within the next 250 hours' time in service and at intervals of 250 hours' time in service thereafter, remove and inspect by means of dye penetrant or magnetic particle inspection, or equivalent, P/N 22–02593–1 for cracks and/or material defects. If cracks and/or material defects are found, the part must be replaced prior to further flight.

(b) When P/N 22–02593–1 has been replaced with P/N 22–02593–3 or FAA approved equivalent, the inspection required above may be discontinued.

(Convair Service Bulletin No. A71–2 covers this same subject.)

This directive effective May 11, 1961.

61–13–1 Convair Amdt. 297 Part 507 Federal Register June 20, 1961. Applies to All Model 22 (880) Aircraft.

Instances of fire due to overheating of Bussman 60 and 70 amp type ACO and ACY limiters in the freon compressor and recirculation fan motor circuits have occurred. To preclude fires of this type, the following modifications must be accomplished:

Unless already accomplished, compliance with items (a) and (b) is required within the next 130 hours' time in service:

(a) Replace the Bussman 60 and 70 amp type ACO and ACY limiters and their holders which are located in the AC power distribution box with type AHB limiters and their holders.

(b) Replace the nameplates adjacent to the 60 and 70 amp limiters with similar nameplates made of a fire resistant material such as impregnated fiberglass.

(Convair Service Bulletin No. 24–42 covers this same subject.)

This directive effective June 20, 1961.

61–14–3 Convair Amdt. 301 Part 507 Federal Register July 7, 1961. Applies to All Model 22 (880) Aircraft Having Cartridge Assembly—Rudder Spring P N 22–46223 Installed.

Compliance required as indicated.

One instance has occurred on the Model 22 (880) aircraft in which the cartridge assembly—rudder spring P N 22–46223 seized due to corrosion and galling, resulting in limited rudder travel. The effects of this malfunction upon operational safety are such as to require accomplishment of the following:

(a) Within the next 100 hours' time in service unless already accomplished in the last 220 hours' time in service, and at each 320 hours' time in service thereafter, conduct the following operational check: Lock the rudder flight tab and rudder in neutral position and operate the rudder pedals right and left until the cockpit stops are contacted 5 or more times. If any roughness in operation is noted, remove cartridge assembly—rudder spring P N 22–46223, and replace with a P N 22–46223 which has been inspected and found free of corrosion or galling and operationally checked, or a part reworked in accordance with the provisions of Convair Service Bulletin No. 27–33 and reidentified as P N 22–46223–1, prior to further flight.

(b) When the cartridge assembly—rudder spring is replaced with an assembly reworked in accordance with provisions of Convair Service Bulletin 27–33 and reidentified as P N 22–46223–1, the inspection specified in (a) may be discontinued.

(Convair Service Bulletin No. 27–33 covers this same subject.)

This directive effective July 7, 1961.

61–14–4 Convair Amdt. 302 Part 507 Federal Register July 7, 1961. Applies to All Model 22 (880) Series Aircraft.

Compliance required as indicated.

One instance has been reported where the rivets attaching the forward rod end P/N 22–04442–1, to the rudder flight tab rod P/N 22–46257, were not installed. This resulted in the rod end P/N 22–0442–1, becoming separated from the tab rod P/N 22–46257, with ensuing loss of the rudder flight tab control. The effects of this malfunction on operational safety is such as to require accomplishment of the following:

(a) Prior to further flight unless already accomplished in accordance with Convair Alert Service Bulletin 27–40 dated June 14, 1961, inspect rod P/N 22–46257 and rod end P/N 22–04442–1 to insure that they are attached by two AN 435 MC rivets per Convair Drawing 22–46257.

(b) If the rivets in paragraph (a) are not installed, rod end P/N 22–04442–1 shall be attached to rod end P/N 22–46257 per Convair Alert Service Bulletin 27–40 dated June 14, 1961, or FAA approved equivalent, prior to further flight.

(c) Rod end assemblies attached with NAS 464–3 bolts must be replaced within 250 hours' time in service on bolt by parts complying with Convair Drawing 22–46257.

(Convair Alert Service Bulletin 27–40 covers this same subject.)

This directive becomes effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated June 16, 1961.

61–22–4 Convair Amdt. 352 Part 507 Federal Register October 21, 1961. Applies to All Model 22 (880) Aircraft.

Compliance required as indicated.

Reinspection of the pressurization system indicates that under certain conditions a single malfunction in the pressurization static system could cause the aircraft to be pressurized beyond the structural limits. To provide the required level of safety, the following, or FAA approved equivalent shall be accomplished within the next 250 hours' time in service after effective date of this AD:

(a) Rework existing static system to provide either

(1) A separate static sensing source for each cabin outflow valve, or

(2) A static sensing source common to the two outflow valves and a separate static sensing source for the cabin pressure controller.

(Convair Service Bulletin No. 21–23 dated March 25, 1961, covers the same subject.)

This directive effective November 21, 1961.

61–25–2 Convair Amdt. 373 Part 507 Federal Register November 29, 1961. Applies to All Model 22 (880) and Model 22M (880M) Aircraft.

Compliance with paragraphs (a) and (b) required within 4,000 hours' time in service after effective date of this directive.

Compliance with paragraph (c) is required on effective date of this directive.

An inflight engine pod explosion occurred on a Model 22 airplane causing the loss of a nose cowl and portions of the side cowl panel doors. This incident has been attributed to an open starter bleed air supply valve causing continued rotation and subsequent overheating and disintegration of the air turbine starter.

The following modifications and procedures are required to prevent the recurrence of this incident:

(a) Provide a FAA approved cockpit indicating means by which it can be determined that each engine starter is de-energized. Approval of this item shall be processed through the FAA, Flight Standards Service, Engineering and Manufacturing Branch, Western Region.

(b) Concurrently with the incorporation of the modification described in paragraph (a), the Normal Procedures Section of the Models 22 and 22M FAA Approved Airplane Flight Manual, under that portion entitled "Engine Starting Procedure—Ground", shall be revised to include a provision that the flight crew determine that the cockpit indicating means required by paragraph (a) indicates that the starter is de-energized after each engine start.

(c) Pending completion of the modifications required by paragraph (a) of this AD either install placard in the flight compartment on the pilot's start switch panel to read as follows: "Engine ground starts shall be made according to Convair Alert Service Bulletin No. 80–3", or revise the Normal Procedures Section of the Models 22 and 22M FAA Approved Airplane Flight Manual, under that portion entitled "Engine Starting Procedure—Ground", to provide for engine ground starts to be made according to Convair Alert Service Bulletin No. 80–3 or FAA approved equivalent.

This directive effective December 29, 1961.

62–7–1 General Dynamics/Convair Amdt. 412 Part 507 Federal Register March 24, 1962. Applies to All Models 22 and 22M Aircraft.

Compliance required within the next 75 hours' time in service after the effective date of this AD and at periods thereafter not to exceed 75 hours' time in service.

To prevent further failures of the forward support trunnions for all elevator and rudder balance boards P/N 22–14715–7, 9, 15, and 17, the following shall be accomplished:

Inspect the forward support trunnions for all elevator and rudder balance boards P/N 22–14715–7, 9, 15, and 17 for failure or cracking. The inspection shall be conducted in accordance with Part A(1) of General Dynamics/Convair Alert Service Bulletin 880–A27–55 or 880M–A27–24. Replace any failed or cracked part prior to further flight.

When elevator balance board forward support trunnions, P/N 22–14715–15 and P/N 22–14715–17, are replaced with Convair P/N's 22–11634–1 and 22–11634–3, respectively, or FAA approved equivalents, the 75 hour repetitive inspections of the support trunnions for the elevator balance boards may be discontinued. (Effective April 7, 1962.)

When rudder balance board forward support trunnions, P/N 22–14715–7 and P/N 22–14715–9, are replaced with Convair P/N's 22–11634–5 and 22–11634–801, respectively, or FAA approved equivalents, the 75 hour repetitive inspections of the support trunnions for the rudder balance boards may be discontinued. (Effective April 7, 1962.)

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

(Convair Alert Service Bulletins 880–A27–55A and 880M–27–24A cover this same subject.) (Effective April 7, 1962.)

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated March 9, 1962.

62–12–3 General Dynamics Convair Amdt. 443 Part 507 Federal Register May 24, 1962. Applies to All Models 22 and 22M Aircraft With 3,000 Hours or More Time in Service.

Compliance required within the next 25 hours' time in service unless already accomplished within the last 125 hours' time in service and thereafter within each 150 hours' time in service from the last inspection.

Two recent cases of cracked inboard wing flap carriage support fittings P N's 22–18703–11 and –12 attributed to fatigue have been reported. To preclude operation with a cracked fitting, conduct close visual inspection of fittings P N's 22–18703–11 and –12, and 22–18702–11 and –12 on the inboard flaps and fittings P N's 22–18705–9 and –10, and 22–18706–9 and –10, and 22–18707–9 and –10 on the outboard flaps. Replace any cracked fitting prior to further flight.

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

(General Dynamics Convair Telegraphic Alert Service Bulletin No. 27–58 covers this same subject.)

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated May 9, 1962.

62–18–1 General Dynamics Convair Amdt. 475 Part 507 Federal Register August 18, 1962. Applies to All Models 22, 22M, and 30 Series Aircraft.

Compliance required within 150 hours' time in service following the effective date of this AD, unless already accomplished.

To prevent loose rudder flight tab balance weights, the following shall be accomplished:

Inspect the rudder flight tab balance weight attachments for looseness of the balance weight, missing weights, missing attachment nuts and/or bolts, and for elongation of the attachment bolt holes in the balance weights and attachment arms in accordance with General Dynamics/Convair Alert Service Bulletins A27–60, A27–31, or A27–32, as appropriate. If any of the noted defects are found, they shall be corrected prior to the next flight, as specified in General Dynamics/Convair Alert Service Bulletins A27–60, A27–31, or A27–32, as appropriate, or by an FAA engineering approved equivalent method.

(General Dynamics/Convair Alert Service Bulletins A27–60, A27–31, and A27–32 for the Models 22, 22M, and 30 respectively cover this same subject.)

This directive effective August 18, 1962.

62–18–2 General Dynamics/Convair Amdt. 476 Part 507 Federal Register August 18, 1962. Applies to All Model 30 Series Aircraft.

Compliance required as indicated.

To preclude an unsafe condition resulting from cracking of the pylon forward engine thrust beacon channels, P/N's 30–24011–71 and –72, accomplish the following:

(a) Within the next 50 hours' time in service following the effective date of this AD unless already accomplished within the last 50 hours' time in service, and thereafter at periods not to exceed 100 hours' time in service from the last inspection, conduct a close visual inspection of channels P/N's 30–24011–71 and –72 for any evidence of cracking, particular attention shall be given to the area of the relief radius in the vicinity aft end of each channel.

(b) A channel exhibiting a crack in the vertical web not exceeding 1½ inch may be continued in service provided that the crack is stop drilled with a ¼-inch drill and the channel is inspected thereafter at periods not to exceed 12 hours' time in service.

(c) A channel which has been stop drilled in accordance with (b) and in which the crack is found at a subsequent inspection to have progressed beyond the stop drill hole, may be

continued to be used for an additional 12 hours' time in service provided that it is once again stop drilled with a ¼-inch drill and the total length of crack does not exceed 1½ inch.

(d) Channels exhibiting cracks in the vertical web greater than 1½ inch in length or cracks which have progressed in the horizontal web, shall be replaced prior to a further flight with a new part of the same part number or with an FAA engineering approved equivalent. When a cracked channel is replaced with a new channel P/N's 30–24011–71 or –72, the new channel shall be inspected in accordance with (a) at intervals not to exceed 100 hours' time in service, and when found cracked, shall be subject to the provisions of (b) and (c).

(e) The repetitive inspections required by this AD may be discontinued on replacement channels described in Part B of General Dynamics/Convair Alert Service Bulletin A54–4 or equivalent parts approved by the Chief, Engineering and Manufacturing Branch, FAA Western Region.

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

(General Dynamics/Convair Alert Service Bulletin A54–4 for the Model 30 covers this same subject.)

This directive effective August 23, 1962.

62–20–2 General Dynamics/Convair Amdt. 482 Part 507 Federal Register September 8, 1962. Applies to All Models 22, 22M and 30 Series Aircraft.

Compliance required within the next 350 hours' time in service from the effective date of this AD, unless already accomplished.

To prevent the aileron override spring from jamming in the compressed position if full opposition loads are applied to the lateral control system, the aileron override spring assembly shall be modified to incorporate a stop in accordance with General Dynamics/Convair Service Bulletins A27–56, A27–25, or A27–26 for the Models 22, 22M or 30, respectively, or in accordance with an FAA engineering approved equivalent.

(General Dynamics/Convair Alert Service Bulletin A27–56 for the Model 22, A27–25 for the Model 22M, and A27–26 for the Model 30 cover this same subject.)

This directive effective October 9, 1962.

62–21–2 General Dynamics/Convair Amdt. 487 Part 507 Federal Register September 25, 1962. Applies to All Models 22 and 22M Series Aircraft.

Compliance required within the next 350 hours' time in service after the effective date of this AD, unless already accomplished.

With the rudder pedals adjusted to the full forward position and the rudder fully deflected, mechanical interference can make it impossible to apply brakes on the side with the deflected rudder.

To correct this interference problem, P/N's 22–41202–1 LH and 22–41202–2 RH located at fuselage Station 192 shall be reworked in accordance with General Dynamics/Convair Service Bulletin A27–53 for the Model 22 and A27–22 for the Model 22M or in accordance with an FAA engineering approved equivalent modification.

(General Dynamics/Convair Alert Service Bulletin A27–53 for the Model 22 and A27–22 for the Model 22M cover this same subject.)

This directive effective October 25, 1962.

62–23–4 General Dynamics/Convair Amdt. 497 Part 507 Federal Register October 19, 1962. Applies to All Model 30 Aircraft.

Compliance required as indicated.

As a result of cracking of the main landing gear door upper forward attachment fitting, P/N 30–55153, the following shall be accomplished:

(a) Within the next 100 hours' time in service after the effective date of this AD, unless already accomplished within the preceding 250 hours' time in service, and at intervals thereafter not to exceed 350 hours' time in service following that initial inspection, conduct a close visual and dye penetrant inspection of P/N 30–55153 to detect any cracking of the fitting in the vicinity of the attachment of the door actuator. Particular attention shall be given to the radii between the leg and base of these tee-shaped fittings.

(b) Any fitting inspected per (a) and found to exhibit a crack not exceeding 4 inches in length shall be replaced with an uncracked part or repaired in accordance with General Dynamics/Convair Telegraphic Service Instructions dated August 10, 1962, or an equivalent method approved by the Chief, Engineering and Manufacturing Branch, FAA Western Region, prior to further flight.

(c) Fittings repaired per (b) shall be reinspected in accordance with the inspection provisions of (a) at intervals not to exceed 100 hours' time in service.

(d) Any fitting inspected in accordance with (a) or (c) and found to exhibit a crack greater than 4 inches in length shall be replaced with an uncracked part prior to further flight.

(e) When fitting, P/N 30–55153, is reworked in accordance with the provisions of General Dynamics/Convair Service Bulletin No. 32–38, or equivalent rework approved by the Chief, Engineering and Manufacturing Branch, FAA Western Region, the inspections prescribed by (a) or (c) may be discontinued.

(f) Upon request of the operator, an FAA maintenance inspector, subject to prior approval of the Chief, Engineering and Manufacturing Branch, FAA Western Region, may adjust the repetitive inspection intervals specified in this AD to permit compliance at an established inspection period of the operator, if the request is substantiated by technical data and/or other facts which justify the acceptability of such increased intervals.

(General Dynamics/Convair Alert Service Bulletin No. A32–11, Telegraphic Service Instructions dated August 10, 1962, and Service Bulletin No. 32–38 pertain to this subject.)

This directive effective October 19, 1962.

62–27–6 General Dynamics/Convair Amdt. 519 Part 507 Federal Register December 18, 1962. Applies to All Model 340 Aircraft Which Have Not Been Modified to Incorporate the Provisions of Convair Service Bulletin 340–174A or Equivalent Approved by FAA Western Region Engineering and Manufacturing Branch.

Compliance required as indicated.

As a result of a number of inflight openings of the rear service door on Model 340 aircraft, (one such occurrence resulted in a fatal accident to a crew member) accomplish the following:

(a) Within the next 25 hours' time in service following the effective date of this AD unless already accomplished:

(1) Add a placard to the rear service door indicating the "Open", "Unsafe", and "Locked" position for the door handle in accordance with Convair Service Bulletin 340–213 dated October 15, 1956, or an FAA approved equivalent installation.

(2) Add a placard in the cockpit which requires that a flight crew member inspect the rear service door to determine that it is properly latched prior to takeoff.

(b) Within the next 100 hours' time in service following the effective date of this AD unless already accomplished:

(1) Incorporate an FAA approved revision to the FAA approved Airplane Flight Manual as follows:

(i) In the "Limitation Section", add a note which requires that a flight crew member inspect the rear service door to determine that it is properly latched at the origin of the flight and prior to takeoff thereafter, following each time the rear service door has been operated.

(ii) In the "Emergency Procedure Section", add a note which requires that the airplane be depressurized in accordance with the procedure in this Manual if there is evidence that a door latch has become disengaged or leakage around the door occurs.

(iii) When the FAA approved Airplane Flight Manual is revised as prescribed in (b)(1)(i), the placard prescribed in (a)(2) may be removed.

(c) Within the next 600 hours' time in service followiing the effective date of this AD unless already accomplished:

(1) Install inspection holes and lights in the rear service door threshold for inspection of the lower door latches in accordance with Item 6 of Convair Newsletter No. 294 dated May 6, 1955, and Convair Service Bulletin 340–232 dated November 11, 1957, or an FAA Western Region Engineering and Manufacturing Branch approved equivalent installation.

(2) Install microswitches in the upper and lower forward latches of the rear service door in accordance with the portion of Convair Service Bulletin 340–126A dated June 1, 1954, and revised December 1, 1954, pertaining to the rear service door, or an FAA Western Region Engineering and Manufacturing Branch approved equivalent installation.

(3) Install proximity switches on the rear service door in accordance with the portion of Convair Service Bulletin 340–234 dated January 29, 1958, pertaining to the rear service door, or an FAA Western Region Engineering and Manufacturing Branch approved equivalent installation.

(d) Within the next 1,000 hours' time iin service following the effective date of this AD unless already accomplished, install an irreversible clutch mechanism on the rear service door in accordance with Convair Service Bulletin 340–233 dated September 10, 1957, or an FAA Western Region Engineering and Manufacturing Branch approved equivalent.

NOTE: Many Model 340 aircraft incorporate the provisions of the Model 440 performance kit, Service Bulletin 340–144, and have incorrectly been redesignated as Model 440 aircraft. Such aircraft are still Model 340 and should be treated as such (see nameplate and manufacturing serial numbers).

(General Dynamics/Convair Service Bulletins 340–126A, 340–213, 340–232, 340–233, 340–234, and Service Newsletter No. 294 pertain to this subject.

This directive effective December 18, 1962.

GLOBE

(*See Universal Aircraft*)

GOODYEAR AIRCRAFT

50–47–1 *See* Sensenich Propellers.

GRUMMAN

46–38–1 Grumman (Was Mandatory Note 4 of AD–654–1.) Applies to G–21 and G–21A Aircraft.

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.)

48–3–4 Grumman Applies to G–73 Aircraft Serial Numbers 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 P/N 109557–1 and 109557–2 in accordance with Grumman Service Bulletin No. 3 dated November 4, 1947.

48–31–1 Grumman Applies to G–44 and G–44A Aircraft.

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.)

49–16–1 Grumman Applies to Model G–21A Aircraft Serial Numbers 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 handholds in bottom of integral fuel tanks. If baffles are found riveted to angle stiffness, no further action is required. If baffle stiffeners are attached by spotwelds, 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 spotwelds are broken from ribs, the airplane may be operated if inspected each 50 hours. Extensively cracked baffles should be repaired by replacing spotwelded baffles with riveted baffles. For further details, contact Grumman Aircraft Engineering Corporation, Bethpage, N. Y.

50–15–1 Grumman Applies to All Model G–21A Aircraft (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 AD 48–14–2.

53–21–2 Grumman Applies to All Model G–21A (Converted OA–9, JRF–1 Through JRF–5 and JRF–6B) Aircraft.

Compliance required as indicated.

1. Inspect the threaded portion of the horizontal stabilizer strut lower adjustable end fitting P/N 12561–3, by a magnetic particle inspection method, as soon as practicable, but not later than November 15, 1953, and at 1,000-hour intervals thereafter. Replace fitting if crack is found.

2. Replace these fittings every 3,200 hours. If 3,200 hours is reached before the first inspection, fittings may be used for 50 hours after this inspection provided no cracks are found.

(Grumman Aircraft Engineering Corp. Customer Bulletin G–21A No. 3, dated March 20, 1953, covers this same subject.)

53–24–1 Grumman Applies to All G–21A (Converted OA–9, JRF–1 Through JRF–5 Under TC 654) Aircraft.

To be accomplished by January 15, 1954, and to be repeated at intervals not to exceed 100 hours flight time.

Inspect upper terminal (P/N 12561–1) of stabilizer strut (P/N 12560) and the stabilizer forward attachment fittings (P/N 12548 and P/N 12093) for cracks extending radially from the outside edge of the ears to the inside of the hole into which the shoulder bushings are pressed. All parts showing defects should be replaced.

(Grumman Aircraft Engineering Corp. Service Bulletin No. 21 dated March 17, 1948, and Customer Bulletin No. 5 dated October 30, 1953, cover this same subject.)

This supersedes AD 48–18–1.

54–26–1 Grumman Applies to All Models G–44 and G–44A Aircraft.

Compliance required by June 15, 1955.

There have been reported numerous instances of the landing gear locking mechanism failing because of either hydraulic system leaks or failure of the mechanical locks. These malfunctions have been reported in both the up and down position of the landing gear. To prevent future similar malfunctions, provide a more positive means of holding the gear in its locked position, both in the fully extended and fully retracted positions. Grumman Service Bulletin No. 24, October 18, 1954, accomplishes this by providing a closed center hydraulic system. This arrangement provides hydraulic pressure to hold the gear in the selected position and unwanted extension or retraction is prevented even though the mechanical locks may fail or leaks develop in the hydraulic system.

This supersedes AD 48–5–5.

58–4–2 *See* Hartzell Propellers.

58–19–1 Grumman Applies to All TBF–1, TBF–1C, TBM–1, TBM–1C, TBM–3, TBM–3E Aircraft Certificated in the Limited or Restricted Category.

Compliance required as soon as possible but not later than December 1, 1958.

As a result of a recent accident involving a powerplant fire caused by a broken aluminum flammable fluid carrying line, additional fire protection is required. In order to correct this condition, the following must be accomplished:

Replace the two (2) carburetor vapor return lines, the one fuel pressure line, and the one oil pressure line within the powerplant zone with fire resistant flexible hose assemblies.

62–8–7 Grumman Amdt. 420 Part 507 Federal Register April 14, 1962. Applies to Model G–164 Aircraft Serial Numbers 1 Through 100 Inclusive.

For aircraft with 200 or more hours' time in service, compliance is required within 10 hours' time in service after the effective date of this AD. For aircraft with less than 200 hours' time in service, compliance is required within 25 hours' time in service after the effective date of this AD, or before 210 hours' total time in service is exceeded whichever occurs first.

To preclude loss of aileron control, accomplish the following:

(a) Replace the aileron cable control sector support brackets, upper and lower, in lower wing panels with new support brackets, P/N

1854–13 (Kit of replacement parts, A1854, furnished by Grumman), or FAA approved equivalent. Install the parts and the aileron cables in accordance with Grumman Aircraft Engineering Corp. Mandatory Service Bulletin No. 20 dated January 24, 1962, or FAA approved equivalent.

(b) Visually inspect aileron control system pushrod assemblies, Grumman P/N's A1866–1 and A1866–3, in both lower wing panels, for loose rod end fittings due to elongation of rivet holes. Repair or replace loose fittings prior to further flight. After initial compliance, visually inspect the aileron control system pushrod assemblies at each periodic inspection thereafter until one of the following, or FAA approved equivalent is accomplished:

(1) Insert aluminum alloy bar, 2024–T3, 7/16 O.D. x 7/8-inch plugs in each end of A1866–11 and A1866–13 tubes and reinstall the rod ends with two AN 470–AD5 rivets per rod end.

(2) Install Grumman P/N A1866–25 in lieu of A1866–1 and P/N A1866–27 in lieu of A1866–3.

(Grumman Service Bulletin No. 20 dated January 24, 1962, and the Addendum thereto dated February 3, 1962, cover this subject.)

This directive effective April 25, 1962.

62–26–2 Grumman Amdt. 513 Part 507 Federal Register December 6, 1962. Applies to Model G–159 Aircraft Serial Numbers 1 through 93, Except Numbers 75 and 76, and to Aircraft Serial Number 114.

Compliance required as indicated.

Abnormal fuel system operation has caused structural damage to the wing area of Grumman Model G–159 airplanes. As this condition is likely to exist on other airplanes of the same type design, accomplish the following:

(a) Unless already accomplished, the following inspection is required prior to further flight, except that if the airplane is presently located at a base where the equipment and personnel necessary to conduct such an inspection are not available, the airplane may be ferried without passengers to a base where such equipment and personnel are available:

(1) Defuel the left and right wing tanks.

(2) Remove the inspection covers in the upper surface of the wings between the fuselage and the nacelle and between the nacelle and the fuel filler caps.

(3) Inspect for damage to the wing structure in the integral tanks. Pay particular attention to the three top and three bottom rivets in the vertical stiffeners on the ribs.

(b) Unless already accomplished, the following repair for damaged aircraft and the following modification for all aircraft are required prior to further flight except that if the damage is confined to the stiffener and rib attachments, the airplane may be operated under a special flight permit (CAR 1.76) to a base where the repair and modification may be made:

(1) Repair damage in accordance with Grumman FAA approved instructions or equivalent approved by Chief, Engineering and Manufacturing Branch, FAA Eastern Region, New York International Airport, New York.

(2) Modifying by removing the fuel vent flow valve Parker P/N 119–578735 from each tank and drilling a 5/32- inch diameter hole in the valve body in accordance with Grumman Gulfstream Service Change No. 154. After brush-coating the hole with EC776 or FAA approved equivalent, reinstall the valve.

NOTE: Aircraft Serial Nos. 1, 7, 12, 26 and 91 already incorporate this modification.

(Grumman telegram dated November 12, 1962, to all Gulfstream operators and Grumman Service Change No. 154 cover this same subject.)

This directive effective upon publication in the Federal Register for all persons except those to whom it was made effective immediately by telegram dated November 15, 1962.