P/N SP-114

COMMANDER 114 SERIES SERVICE PUBLICATIONS

Print Date: 10/13/98

Commander®
AIRCRAFT COMPANY

COMMANDER 114 SERIES
SERVICE PUBLICATIONS

P/N SP-114

Commander® AIRCRAFT COMPANY

Model 114
Service Bulletin Index

The following is a numerical list of all active Service Bulletins.

Those not included are obsolete and will not be reissued.

Number	Subject	Effectivity
SB-114-1	Aileron Control Chain Rerouting	S/N's 14000 thru 14042.
SB-114-2	Inspection and/or Modification of Throttle Control Cable Installation	S/N's 14000 thru 14149.
SB-114-3	Inspection of Main Landing Gear Retract Cylinder Bearing	S/N's 14000 thru 14125.
SB-114-4A	Replacement of Fuel Selector Valve	S/N's 14001 thru 14134.
SB-114-5B	Pilot and Front Passenger Seat Modification	S/N's 14000 thru 14149.
SB-114-6	Cabin Air Vent Modification	S/N's 14089 thru 14113, 14115 thru 14122, 14125 thru 14131, 14134 thru 14149, 14152 thru 14154 and 14156 thru 14158.
SB-114-7	Main Landing Gear Orifice Assembly Installation	S/N's 14000 thru 14155 with left and right main landing gear S/N LMC001 thru LMC076.
SB-114-8	Engine Breather Tube Modification	S/N's 14000 thru 14214.
SB-114-9	Headrest Placard Installation	S/N's 14150 thru 14199.
SB-114-10	Parking Brake Valve Assembly Clamp Replacement	S/N's 14000 thru 14282.
SB-114-11	Main Landing Gear Rod Assembly Pin Retaining Screw Replacement	S/N's 14001 thru 14319.
SB-114-12B	Lower Vertical Fin Rib Modification	S/N's 14000 thru 14540

Model 114 Service Bulletin Index (Cont)

Number	Subject	Effectivity
SB-114-13	Pilot and Front Passenger Seat Inspection and/or	S/N's 14001 thru 14149 that have complied with Modification SB-114-5A.
SB-114-14A	Inspection and Replacement of Aileron Hinge Supports	S/N's 14000 thru 14376.
SB-114-15	Front Passenger Seat Locking Mechanism Modification	S/N's 14000 thru 14367.
SB-114-16	Propeller Governor Replacement	S/N's 14501 thru 14513.
SB-114-17	Aileron Bellcranks Doubler Modification	S/N's 14501 thru 14511.
SB-114-18	Engine Controls Rod End Retention	S/N's 14001 thru 14546.
SB-114-19	Inspection and Replacemnt of Fuel Tank Access Door Sealant	S/N's, 14000 thru 14037, 14039 thru 14360, 14362 thru 14499 and S/N's 14501 thru 14512, 14515, 14516, 14518, 14520, 14521, 14523 thru 14527 and 14529.
SB-114-20	Rudder Rib Inspection	Models 114 and 114A, S/N's 14000 thru 14540.
SB-114-21A	Front Seat and Shoulder Harness Modification Revision No. 1 (02-23-87)	Models 114 and 114A, S/N's 14000 thru 14540.
SB-114-22C	Inspection and Modification of Forward Wing Spar	Models 114 and 114A, S/N's 14001 thru 14540.
SB-114-23A	Inspection and/or Modification of Vertical Stabilizer Forward Attachment	Models 114 and 114A, S/N's 14001 thru 14540
SB-114-24	Not Issued	
SB-114-25	Inspection and/or Modification of Nose Gear Extension Assist Springs Revision No. 1 (08-19-93)	Model 114B, S/N's 14541 thru 14584
SB-114-26	Inspection and/or Modification of the Horizontal Stabilizer Rear Spar	Model 114B, S/N's 14541 thru 14580, excluding 14560, 14573, and 14579

Model 114 Service Bulletin Index (Cont)

Number	Subject	Effectivity
SB-114-27	Flushing of Hydraulic System	Model 114B, S/N's 14541 thru 14580
SB-114-28	Inspection of Welds on Nose Landing Gear Steering Pulley Brackets	Model 114B, S/N's 14543 thru 14615
SB-114-29	Reserved	
SB-114-30	Inspection and/or Modification of Emergency Dump Valve Cover Plate and Inspection and/or Replacement of Fuel Line	Model 114B, S/N's 14541 thru 14639, Model 114TC, S/N's 20001 thru 20009
SB-114-31	Inspection and/or Replacement of Nose Landing Gear Fork Attachment Nuts	Model 112 S/N 106, Model 114B S/N 14571, 14586, 14591, 14592, 14594 thru 14632, 14634, 14636 thru 14647, Model 114TC, S/N 20001 thru 20011
SB-114-32	Inspection of Front Seat Shaft Assembly	Model 114 and 114A, S/N 14000 thru 14540 complying with SB-114-21A or SB-114-21A Rev A, Model 114B S/N 14541 thru 14663, Model 114TC S/N 20001 thru 20023
SB-114-33A	Inspection of Aeroquip V-Band Exhaust Clamp	Model 114TC S/N 20001 thru 20027
SB-114-34	Inspection of Rudder Horn Assembly Weld	Model 114B, S/N 14597 thru 14670, Model 114TC, S/N 20001 thru 20028
SB-114-35	Inspection of Wing Rib	Model 114B, S/N 14661, 14667, and 14670 thru 14679, Model 114TC, S/N 20001 thru 20038

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Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-1
29 June 1976

AILERON CONTROL CHAIN REROUTING

MODELS AFFECTED: MODEL 114, SERIAL NO'S. 14000 THRU 14042.

REASON FOR PUBLICATION: REROUTE AILERON CONTROL CHAIN TO PREVENT POSSIBLE INTERFERENCE WITH RUDDER TORQUE TUBE BELLCRANK.

COMPLIANCE: DURING NEXT 100-HOUR INSPECTION OR ANNUAL INSPECTION, WHICHEVER OCCURS FIRST.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: TWO (2) HOURS

PARTS DATA: 1 ea. Compliance Card

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Cut off existing chain guard, located on left forward side of control column, as shown in Figure 1.
2. Disconnect right aileron chain at turnbarrel and remove from forward sprocket.
3. Loosen left aileron chain at turnbarrel, remove from aft sprocket and relocate on forward sprocket (see Figure 2.).
4. Relocate right aileron chain on aft sprocket and reconnect to turnbarrel (see Figure 2.).
5. Retighten turnbarrels on both left and right aileron control cables and check all cable tensions as outlined in Airplane Maintenance Manual, Section VII.
6. Check full travel of control column and rudder pedals to assure that no interference exists.
7. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-1, dated 29 June 1976, entitled "Aileron Control Chain Rerouting", accomplished ____(date)____.

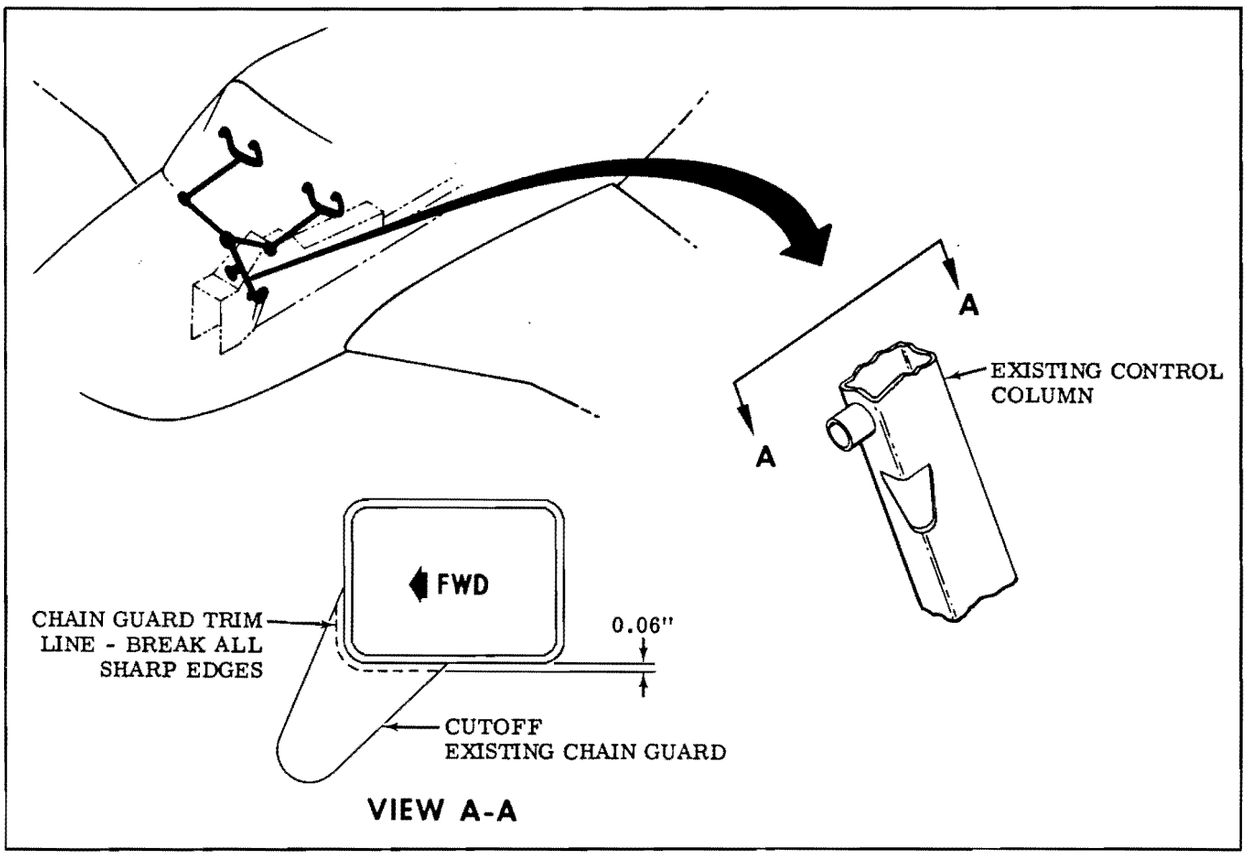


Figure 1.

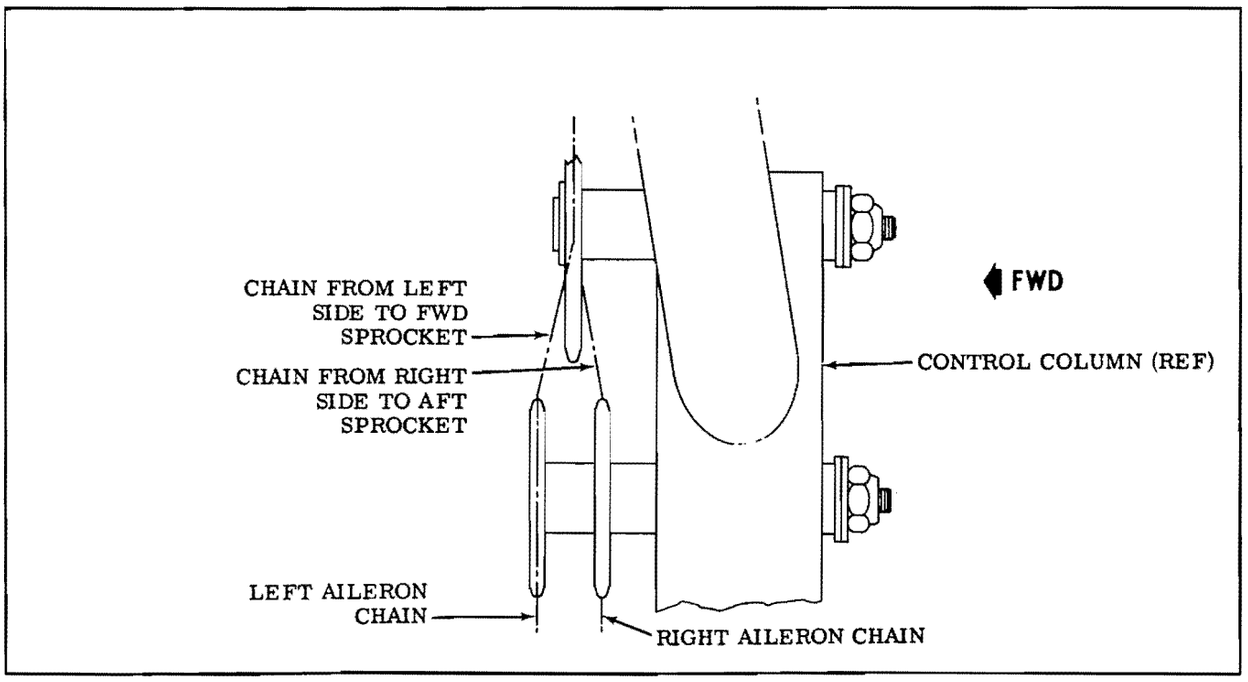


Figure 2.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-2
14 September 1976

INSPECTION AND/OR MODIFICATION OF THROTTLE CONTROL CABLE INSTALLATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14149.

REASON FOR PUBLICATION: TO PREVENT POSSIBLE THROTTLE CONTROL CABLE FAILURE.

COMPLIANCE: PART I - UPON RECEIPT OF THIS SERVICE BULLETIN.
PART II - UPON AVAILABILITY OF PARTS.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: PART I - TWO (2) HOURS.
PART II - TWO (2) HOURS.

PARTS DATA: Parts required to comply with Part II of this Service Bulletin may be purchased as a kit through your nearest Rockwell Commander Distributor for $12.54 (K). Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-2 kit consisting of the following:

QTY	PART NO.	DESCRIPTION
1 ea.	46388-5	Bracket
1 ea.	AN3-14A	Bolt
1 ea.	NAS43HT3-32	Spacer
1 ea.	S-0369-505	Washer
1 ea.	Service Bulletin No. SB-114-2	Instructions
2 ea.		Compliance Card

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

PART I

1. Remove upper and lower engine cowling as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

2. Inspect throttle control cable for misalignment. If misalignment is not less than eight (8) degrees (see Figure 1.), replace cable when complying with Part II of this Service Bulletin.

3. With the throttle in mid-point of the stroke, bend throttle control cable bracket as necessary so that cable housing is straight with cable end (see Figure 1.).

4. With the throttle in mid-point of the stroke, inspect throttle control cable at the fuel injector idle valve lever for proper alignment (see Figure 1.).

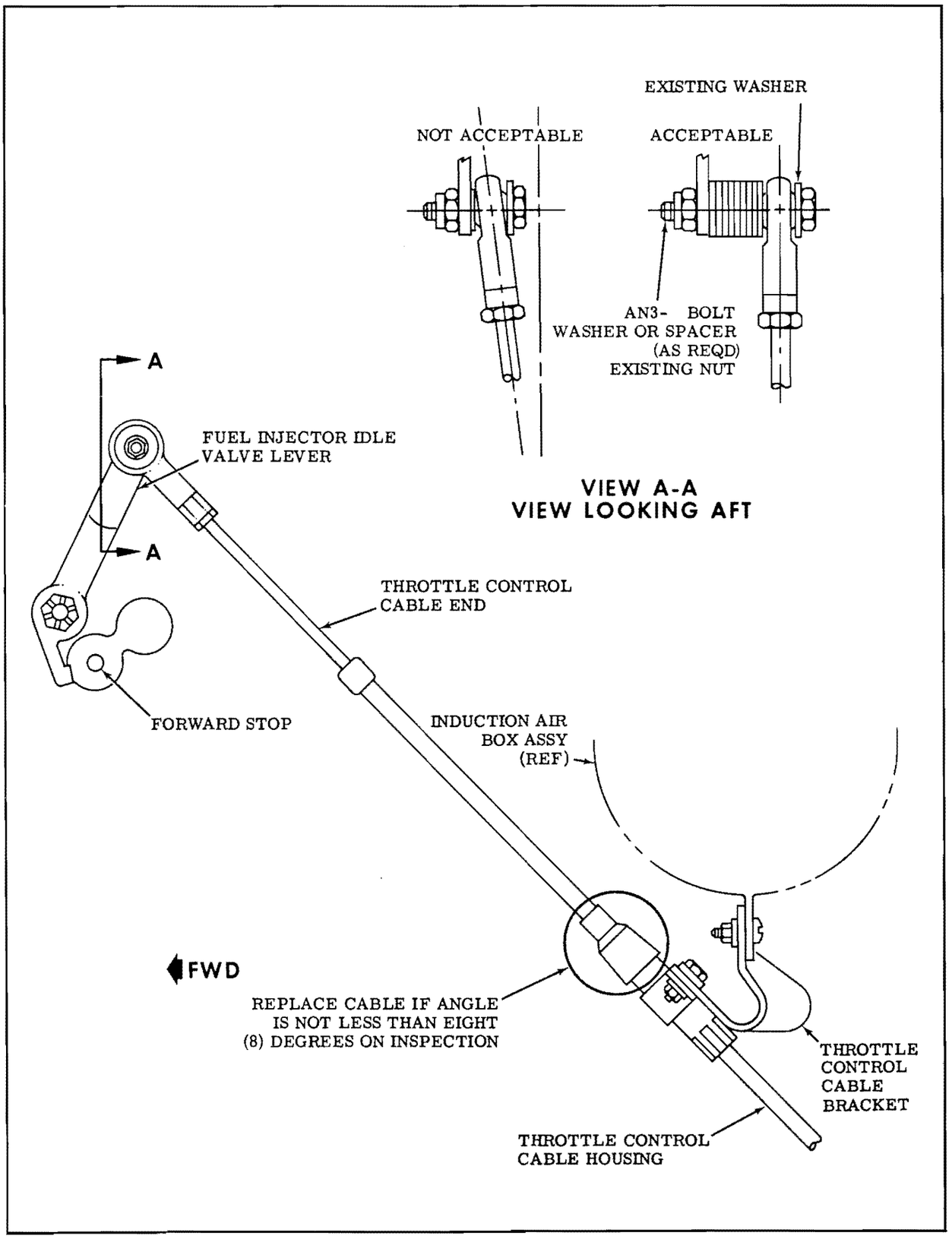


Figure 1.

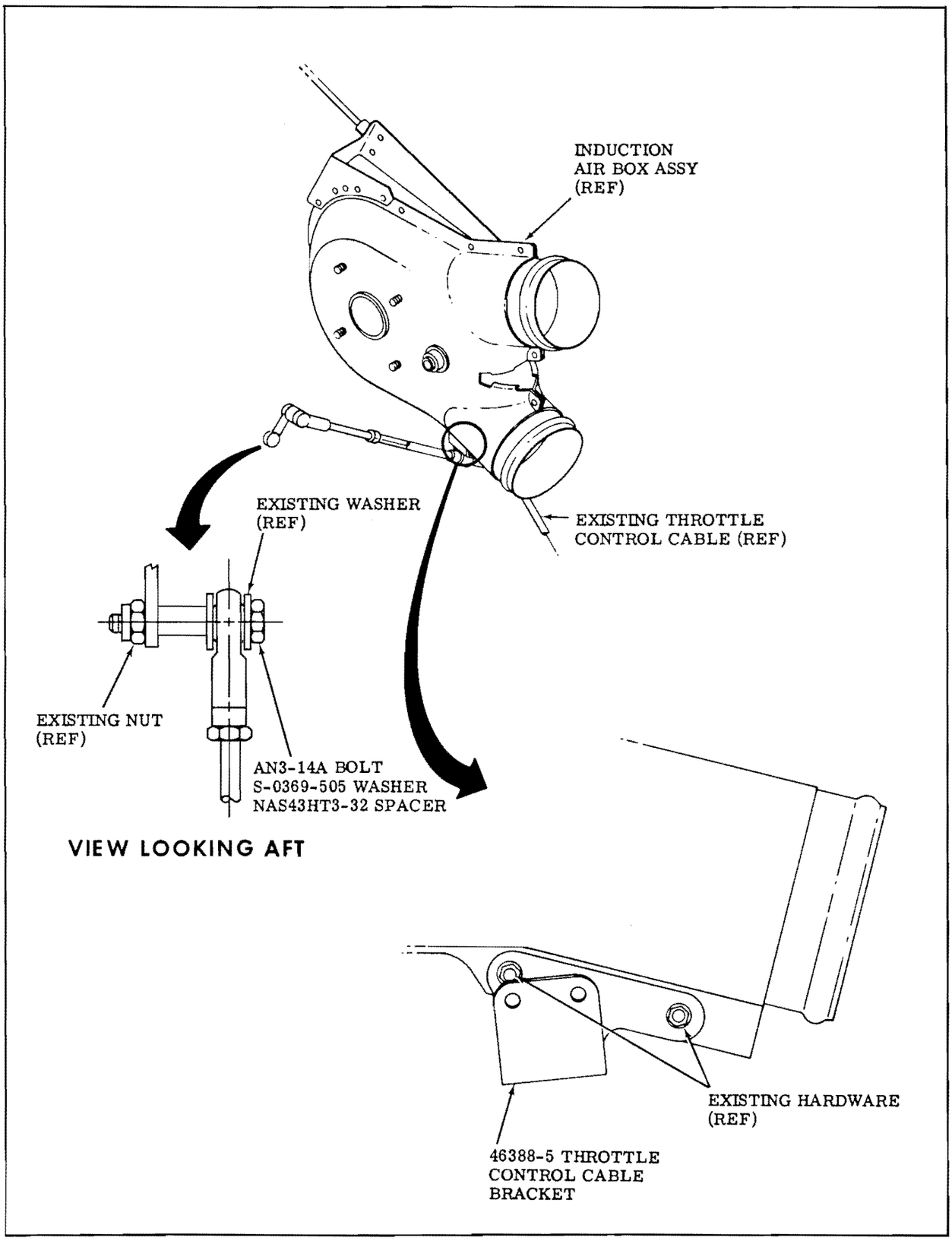


Figure 2.

NOTE

The throttle control cable rod end should be in parallel with the idle valve lever surface.

5. If the throttle control cable rod end is not in parallel with the idle valve lever surface, remove existing bolt and install new AN3- (length as desired) and shim with washers or spacer to position the throttle control cable rod end in parallel with the idle valve lever surface (see Figure 1.).

6. Rerig throttle control cable as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

7. Reinstall upper and lower engine cowling as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

8. Fill out and mail Compliance Card.

9. Proceed to RECORD COMPLIANCE.

PART II

1. Remove upper and lower engine cowling as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

NOTE

If throttle control cable has not been operating at less than eight (8) degrees angle as determined in Part I, replace throttle control cable (P/N 46135-3).

2. Disconnect throttle control cable from fuel injector idle valve lever and discard bolt only.

3. Reconnect throttle control cable to fuel injector idle valve lever with AN3-14A bolt, S-0369-505 washer, NAS43HT3-32 spacer and existing nut (see Figure 2.).

4. Remove and discard existing throttle control cable bracket, located on induction air box, and install new 46388-5 bracket using existing hardware (see Figure 2.).

5. Rerig throttle control cable as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

6. Reinstall upper and lower engine cowling as outlined in the Model 114 Airplane Maintenance Manual, Section IV.

7. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-2, dated 14 September 1976, entitled "Inspection and/or Modification of Throttle Control Cable Installation", Part I accomplished _____(date)_____, Part II accomplished _____(date)_____ .

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-3
12 October 1976

INSPECTION OF MAIN LANDING GEAR RETRACT CYLINDER BEARING

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14125

REASON FOR PUBLICATION: SOME RETRACT CYLINDER END PLUG BEARINGS HAVE SLIPPED OUT OF END PLUG DUE TO INADEQUATE STAKING. THIS SERVICE BULLETIN IS BEING ISSUED TO CORRECT THIS SITUATION.

COMPLIANCE: UPON RECEIPT OF THIS SERVICE BULLETIN. FERRY FLIGHT TO NEAREST REPAIR STATION PERMITTED.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: INSPECTION OF CYLINDER - FIVE (5) MINUTES.
STAKING BEARING - TWO (2) HOURS.

PARTS DATA: 1 ea. Compliance Card.

SPECIAL TOOLS: 1/8-Inch CHISEL.

ACCOMPLISHMENT INSTRUCTIONS:

1. Inspect left and right main landing gear retract cylinder end plug bearings to assure that bearings are properly staked (see Figure 1.).

NOTE

There should be four (4) stake marks equally spaced on each side of bearing. Staking should deform the metal next to the bearing.

2. If bearings are staked properly, proceed to step 5.

3. If improper staking is found, remove left and right main landing gear retract cylinders as outlined in the Airplane Maintenance Manual, Section III and hand stake bearings using a 1/8-inch chisel (see Figure 1.).

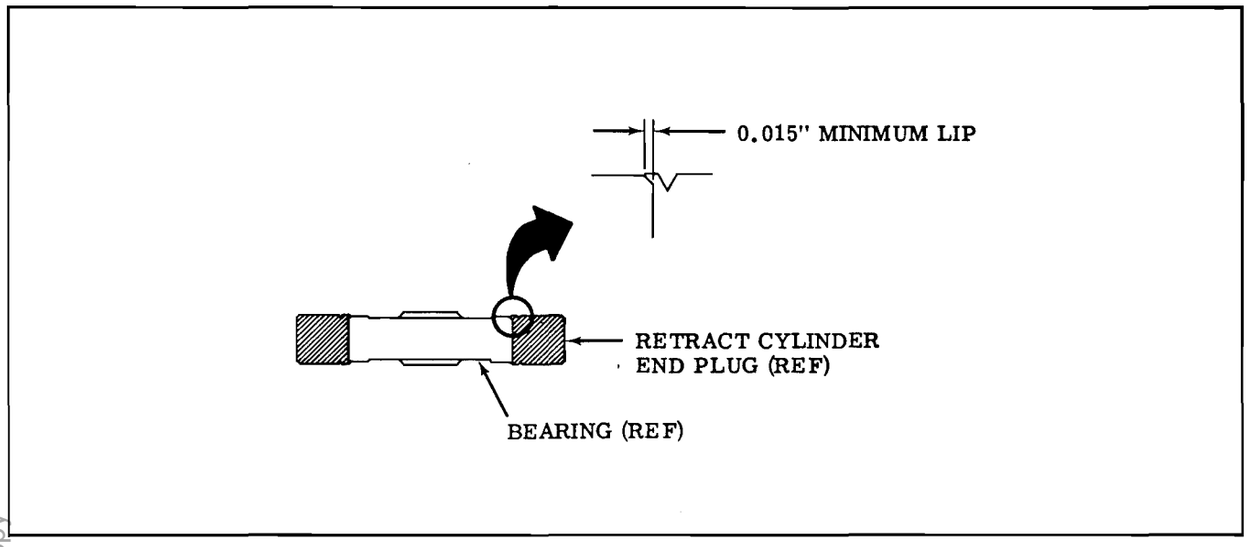


Figure 1.

4. Reinstall left and right main landing gear retract cylinders as outlined in the Airplane Maintenance Manual, Section III.

5. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-3, dated 12 October 1976, entitled 'Inspection of Main Landing Gear Retract Cylinder Bearing", accomplished ___(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-4A
(Supersedes Service Bulletin No. SB-114-4 dated 14 October 1976)
23 March 1978

REPLACEMENT OF FUEL SELECTOR VALVE

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14001 THRU 14134.

REASON FOR PUBLICATION: TO PREVENT POSSIBLE LEAKAGE OF FUEL SELECTOR VALVE.

COMPLIANCE: SERIAL NO'S 14001 THRU 14098 - WITHIN NEXT FIFTY (50) HOURS TIME IN SERVICE IF SERVICE BULLETIN NO. SB-114-4 HAS NOT BEEN COMPLIED WITH OR IMMEDIATELY UPON DETECTION OF FUEL LEAKAGE OR FUEL VAPORS.

SERIAL NO'S 14099 THRU 14134 - IMMEDIATELY UPON DETECTION OF FUEL LEAKAGE OR FUEL VAPORS.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR SERVICENTER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: TWELVE (12) HOURS.

PARTS DATA: Parts required to comply with this Service Bulletin may be ordered through your nearest Rockwell Commander Dealer/Distributor or ServiCenter at no charge. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-4A kit consisting of the following:

QTY	PART NO.	DESCRIPTION	CODE NO.
2 ea.	48513-1	Seal	
1 ea.	48555-1	Locator Guide Assy	
1 ea.	315005-1	Support Assy	
1 ea.	635013-1	Fuel Selector Valve	
1 ea.	635015-501	Left Sump Assy	
1 ea.	635015-502	Right Sump Assy	
1 ea.	635017-501	Fuel Selector Knob	
2 ea.	635019-5	Tube Assy	
1 ea.	S0420-H-01-300	Hose Assy	
2 ea.	AN3-10A	Bolt	0264000
4 ea.	AN3-5A	Bolt	0294000
4 ea.	AN3-25A	Bolt	0278000
4 ea.	AN960-10	Washer	1517000
10 ea.	AN960-10L	Washer	1519000
8 ea.	MS21069L06	Nutplate	2719504
4 ea.	MS21071L06	Nutplate	2719506
1 ea.	MS21919DG13	Clamp	2726250
2 ea.	MS21919DG18	Clamp	2730000

12 ea.	MS35206-229	Screw	2894159
2 ea.	NAS43DD3-32	Spacer	3090000
6 ea.	10S	Wellnut	4060251
1 ea.	SS51043	Plug Button	3630000
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-4A	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Defuel airplane as outlined in the Airplane Maintenance Manual, Section II.

2. Remove pilot and front passenger seats from airplane.

3. Remove and discard existing fuel selector knob assembly from fuel selector valve (see Figure 1.).

4. Remove interior console cover from console.

5. Remove and discard existing bushing from fuel selector valve shaft.

6. Remove metal console covers to gain access to fuel selector valve.

7. Remove carpet from left side of console.

8. Remove and discard existing forward, left and right fuel supply tube assemblies from fuel selector valve and bulkhead fitting (see Figure 1.).

NOTE

If may be necessary to cut forward tube assembly in half in order to remove it from the console.

9. Remove and discard existing check valves (if installed) from wheel wells (see Figure 1.).

10. Remove and discard existing fuel selector drain tube and grommet (see Figure 1.).

11. Remove and discard existing fuel selector valve and valve support assembly (see Figure 1.).

12. Plug existing fuel drain hole in lower fuselage skin with SS51043 plug button (see Figure 1.).

13. Enlarge existing fuel line routing holes in left and right side of the console (see Figure 2.).

14. Enlarge hole in forward frame of console to clear fitting on S0420-H-01-300 hose assembly (see Figure 3.).

15. Enlarge fuel line routing holes and brake line routing holes in left and right wing ribs (WS 26.50) (see Figure 2.).

CAUTION

When enlarging holes, cover brake lines with a piece of rubber tubing to prevent the possibility of cutting the lines.

16. Connect the forward end of S0420-H-01-300 hose assembly to the existing bulkhead fitting (see Figure 1.).

NOTE

It may be necessary to loosen fuel supply tube assembly (from gascolator to bulkhead fitting) at bulkhead fitting to facilitate connecting hose assembly to the bulkhead fitting.

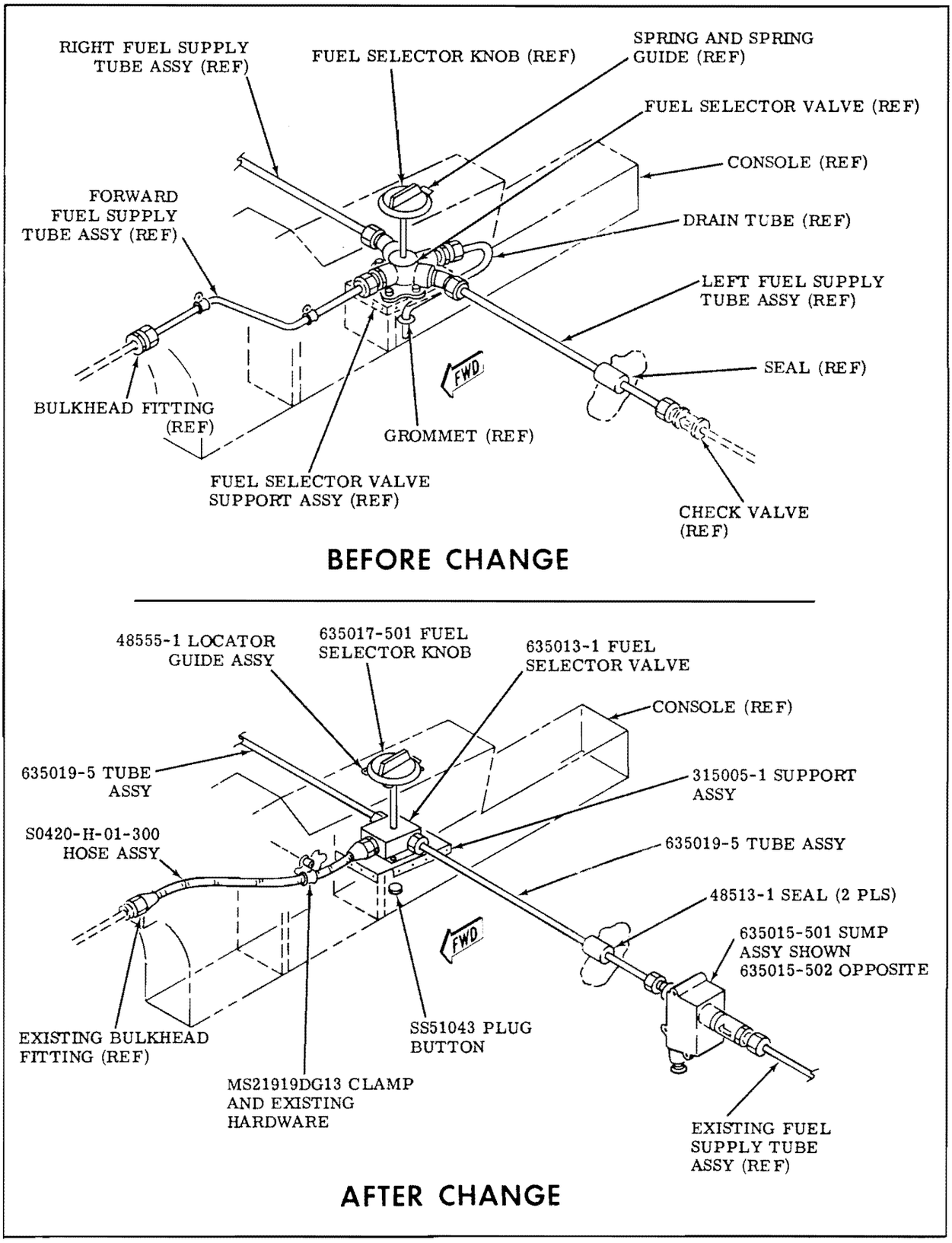
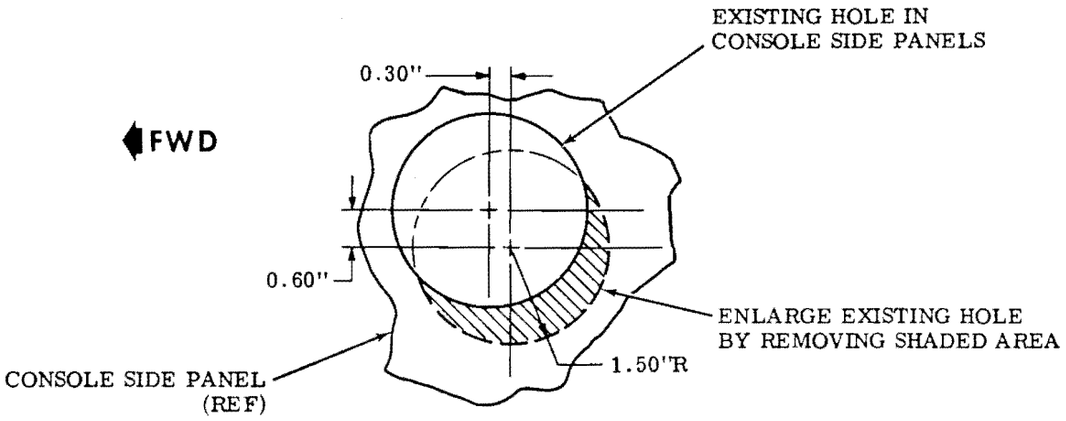
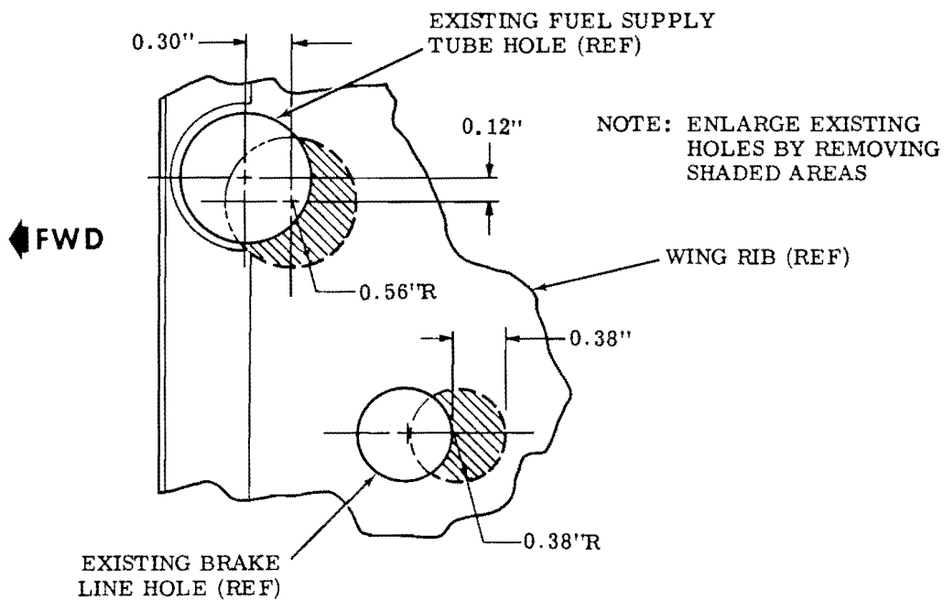


Figure 1.



VIEW OF CONSOLE LEFT SIDE PANEL, LOOKING INBD.,
SHOWING FUEL SUPPLY TUBE HOLE ENLARGEMENT (TYP L & R)



VIEW OF LEFT WING RIB (WS 26.50), LOOKING INBOARD,
SHOWING FUEL SUPPLY TUBE HOLE ENLARGEMENT AND BRAKE
LINE HOLE ENLARGEMENT (TYP FOR LEFT AND RIGHT SIDES)

Figure 2.

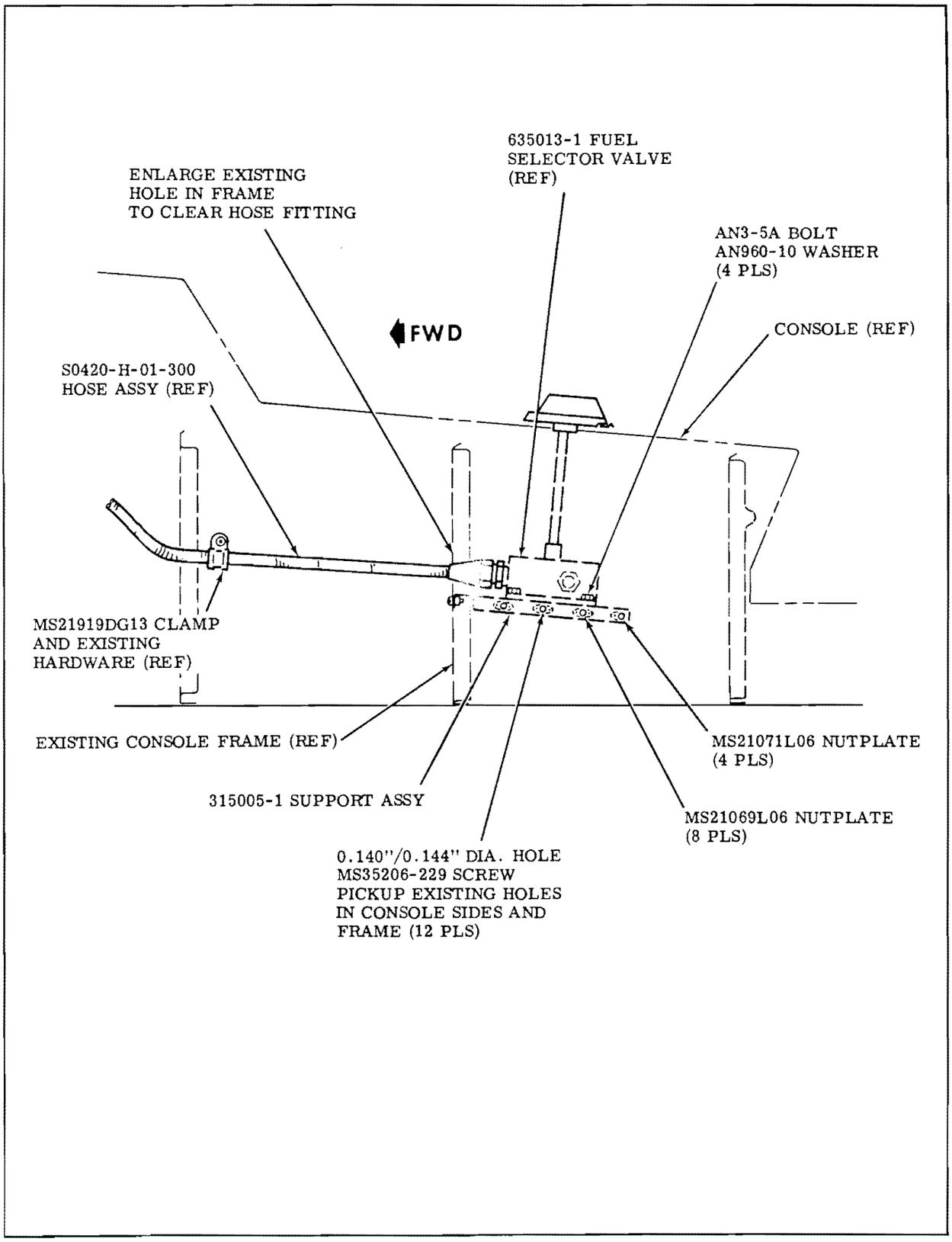


Figure 3.

17. Position 315005-1 support assembly in console and backdrill through existing holes in console and console frame (see Figure 3.).

18. Remove 315005-1 support assembly from console and locate, drill and install MS21069L06 nutplate (8 places) and MS21071L06 nutplate (4 places) on support assembly with MS20426AD3 rivets (see Figure 3.).

19. Install 315005-1 support assembly on console (see Figure 3.).

20. Install 635013-1 fuel selector valve on 315005-1 support assembly (see Figure 3.).

21. Connect S0420-H-01-300 hose assembly to forward port of fuel selector valve (see Figure 1.).

22. Install 635019-5 tube assemblies on left and right ports of the fuel selector valve (see Figure 1.).

23. Remove drain valves from 635015-501 and -502 sump assemblies.

24. Temporarily connect 635015-501 and -502 sump assemblies to left and right fuel supply lines (see Figure 4.).

NOTE

Hand form the existing brake lines in wheel wells, as necessary, to clear sump assemblies.

25. With fuel sumps positioned in location to assure fuel lines will drain into them, pilot drill (No.10 drill) two (2) lower holes only in wheel well closeout for attaching 635015-501 left fuel sump assembly and 635015-502 right fuel sump assembly (see Figure 4.).

NOTE

Do not drill sump assembly upper mounting hole in wheel well closeout.

26. Install MS21919DG18 clamp on sump assembly check valve and pilot drill (No. 10 drill) attaching hole in wheel well closeouts (see Figure 4.).

27. Locate and drill a 0.63-inch diameter hole in left and right lower wing skins for fuel sump drain (see Figure 4.).

28. Remove fuel sumps from airplane and reinstall drain valves and existing O-rings in fuel sumps and safety wire drain valves with 0.032-inch diameter stainless steel safety wire (see Figure 4.).

29. Enlarge holes, drilled in steps 25. and 26., to 0.375-inch diameter (see Figure 4.).

30. Install 10S wellnut (6 places)on wheel well closeouts (see Figure 4.).

31. Install 635015-501 and -502 fuel sump assemblies on wheel well closeouts and connect to left and right fuel supply lines (see Figures 1. and 4.).

32. Install 48513-1 seal (2 places) on left and right fuel supply lines (see Figure 1.).

33. Install existing grommets on brake lines in the enlarged holes in wing ribs.

34. Assure that all fuel supply line connections are tightened.

35. Refuel airplane as outlined in the Airplane Maintenance Manual, Section II.

36. Recheck fuel selector valve and fuel supply line connections and assure that no leaks are evident.

37. Drill out rivets and remove existing fuel selector knob spring and spring guide from metal console cover.

38. Enlarge existing 0.64-inch diameter hole in metal console cover (see Figure 4.).

39. Temporarily install existing metal console cover on console.

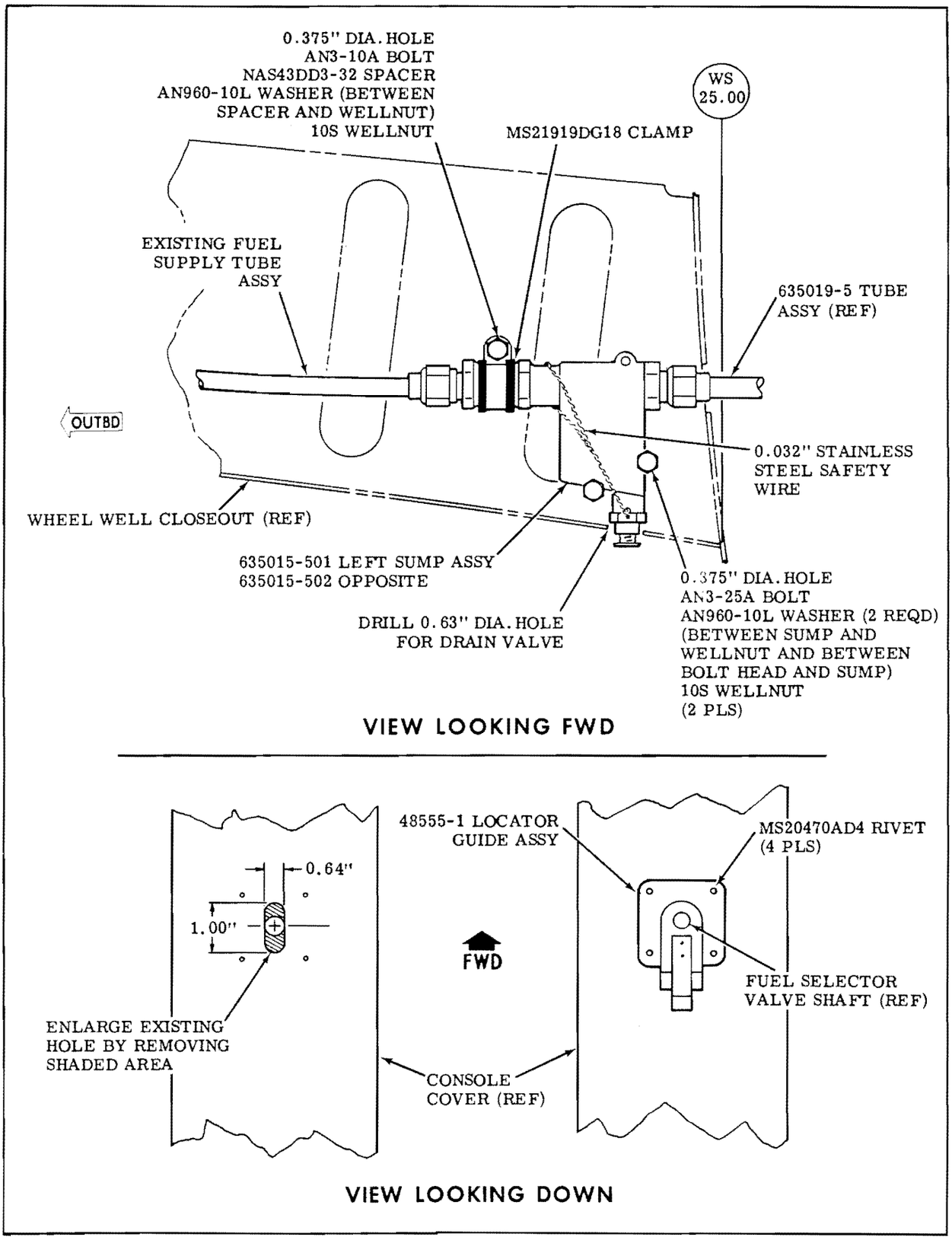


Figure 4.

40. Locate 48555-1 locator guide assembly on metal console cover and mark location of attaching holes for guide assembly (see Figure 4.).

NOTE

Position locator guide assembly on console cover to assure that the fuel selector valve shaft is not in a bind.

41. Remove locator guide assembly and metal console cover from console. Drill and install locator guide assembly on metal console cover (see Figure 4.).

42. Install metal console cover on console with existing hardware.

43. Reinstall existing carpet on left side of console with 3642A Tuf-Grip or 3M EC1300 cement or equivalent.

44. Reinstall interior console cover on console with existing hardware.

45. Install 635017-501 fuel selector valve knob on fuel selector valve shaft (see Figure 1.).

46. Reinstall pilot and front passenger seats in airplane.

47. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from installation of this Service Bulletin is as follows:

WEIGHT (LBS)	H-ARM (INCHES)	H-MOMENT (IN-LBS)
+1.0	100	+100.0

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: The Airplane Flight Manual, Airplane Maintenance Manual and Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/revision.

NOTE

This Service Bulletin replaces Service Bulletin No. SB-114-4 in its entirety.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-4A, dated 23 March 1978, entitled "Replacement of Fuel Selector Valve", accomplished _____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-5B
(Supersedes Service Bulletin No. SB-114-5A dated 7 April 1977)
13 December 1977

PILOT AND FRONT PASSENGER SEAT MODIFICATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14149.

NOTE

IF BASIC SERVICE BULLETIN NO. SB-114-5 OR SB-114-5A HAS BEEN COMPLIED WITH, DISREGARD THIS SERVICE BULLETIN AND REFER TO SERVICE BULLETIN NO. SB-114-13.

REASON FOR PUBLICATION: TO INCREASE STRENGTH OF PILOT SEAT, FRONT PASSENGER SEAT AND SEAT BELT ATTACHMENT.

COMPLIANCE: AS SPECIFIED BY AIRWORTHINESS DIRECTIVE NO. 77-16-09.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR SERVICENTER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: FIVE (5) HOURS PER SEAT.

PARTS DATA: Parts required to comply with this Service Bulletin may be obtained as a kit through your nearest Rockwell Commander Dealer/Distributor or ServiCenter at no charge. A labor credit of $150.00 will be allowed on aircraft still within the factory new warranty period upon receipt of a properly executed Warranty Material/Labor Adjustment Request Form and a Compliance Card. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-5B kit consisting of the following:

QTY	PART NO.	DESCRIPTION	CODE NO.
4 ea.	43482-501	Bracket	
4 ea.	49250-501	Bushing	
2 ea.	49307-249	Placard	
4 ea.	865030-1	Pin Assy	
1 ea.	865032-RE3 (or 865032-27)	Left Weld Assy	
1 ea.	865032-RE4 (or 865032-28)	Right Weld Assy	
2 ea.	865032-5	Tube Assy	
4 ea.	865032-13	Pin Guide	
4 ea.	865032-15	Doubler	
2 ea.	865032-21	Bushing	
2 ea.	865032-23	Bushing	
2 ea.	865032-25	Bushing	
2 ea.	AN4-13A	Bolt	0478000
2 ea.	AN4-15A	Bolt	0481000
4 ea.	AN4-30A	Bolt	0494000
4 ea.	AN960D4L	Washer	1566000
8 ea.	AN960-416	Washer	1533000
4 ea.	MS20392-1C13	Clevis Pin	2707648
8 ea.	MS21044N4	Nut	2719214

4 ea.	MS24665-132	Cotter Pin	2747800
16 ea.	MS20615-4M3	Rivet	2715960
24 ea.	NAS1398M5-2	Rivet	2931245
16 ea.	NAS1398M5-3	Rivet	2931246
6 ea.	RP-A-59-012-094-500	Roll Pin	0062294
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-5B	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove pilot seat and front passenger seat from the airplane.

2. Remove interior console cover.

3. Rework pilot seat and passenger seat as follows:

   a. Remove seat headrest and headrest bushings.

   b. Remove roll pin attaching forward and aft seat back adjustment handle and discard roll pin.

   c. Remove seat back shroud.

   d. Remove roll pins from seat back adjustment torque tube and remove adjustment mechanism from seat back.

NOTE

Discard existing seat back adjustment pin assemblies and roll pins.

   e. Remove bolts attaching seat back to seat bottom and remove seat back.

   f. Remove existing pin guide by grinding or similar method and smoothing inside surface of seat back.

   g. Install 865030-1 pin assembly and existing seat back adjustment torque tube, link and spring in left and right side of both seat backs. Drill a 0.060 inch diameter spring attach hole in seat bracket (see Figure 1., Sheet 2 of 2).

   h. Locate, drill and install 865032-13 pin guide on seat back with MS20615-4M3 rivet (4 places) (see Figure 1., Sheet 2 of 2).

   i. Locate, drill and install 865032-15 doubler (2 places) on each seat bottom with NAS1398M5-2 rivet (6 places) (see Figure 1., Sheet 2 of 2).

   j. Locate, drill and install 865032-5 tube assembly on seat bottom (see Figure 1., Sheet 2 of 2).

   k. Locate, drill and install 865032-RE3 or 865032-27 weld assembly on outboard side of pilot seat bottom and 865032-RE4 or 865032-28 weld assembly on outboard side of forward passenger seat bottom (see Figure 1., Sheet 2 of 2).

NOTE

Drill aft hole first in order to maintain a minimum of 0.38-inch hole edge distance.

   l. Reinstall seat back on seat bottom using existing hardware.

   m. Check for mismatch between left and right pin assemblies by placing a 0.020 inch feeler gauge between pin assembly and teeth of ratchet on both sides of seat back and then measuring gap between pin assembly and feeler gauge on high side (see Figure 1., Sheet 2 of 2).

NOTE

Mismatch shall not exceed 0.065 inch.

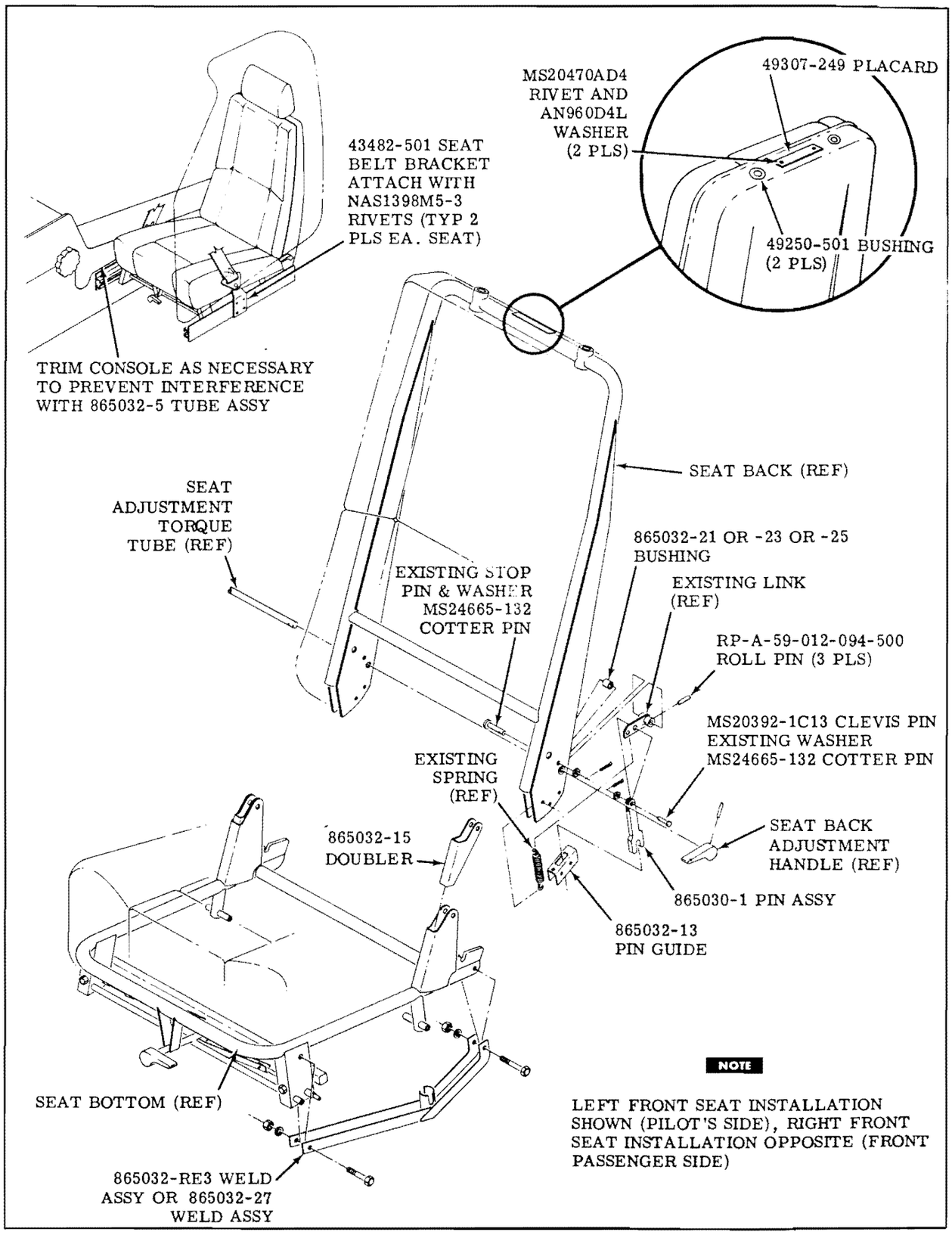


Figure 1. (Sheet 1 of 2)

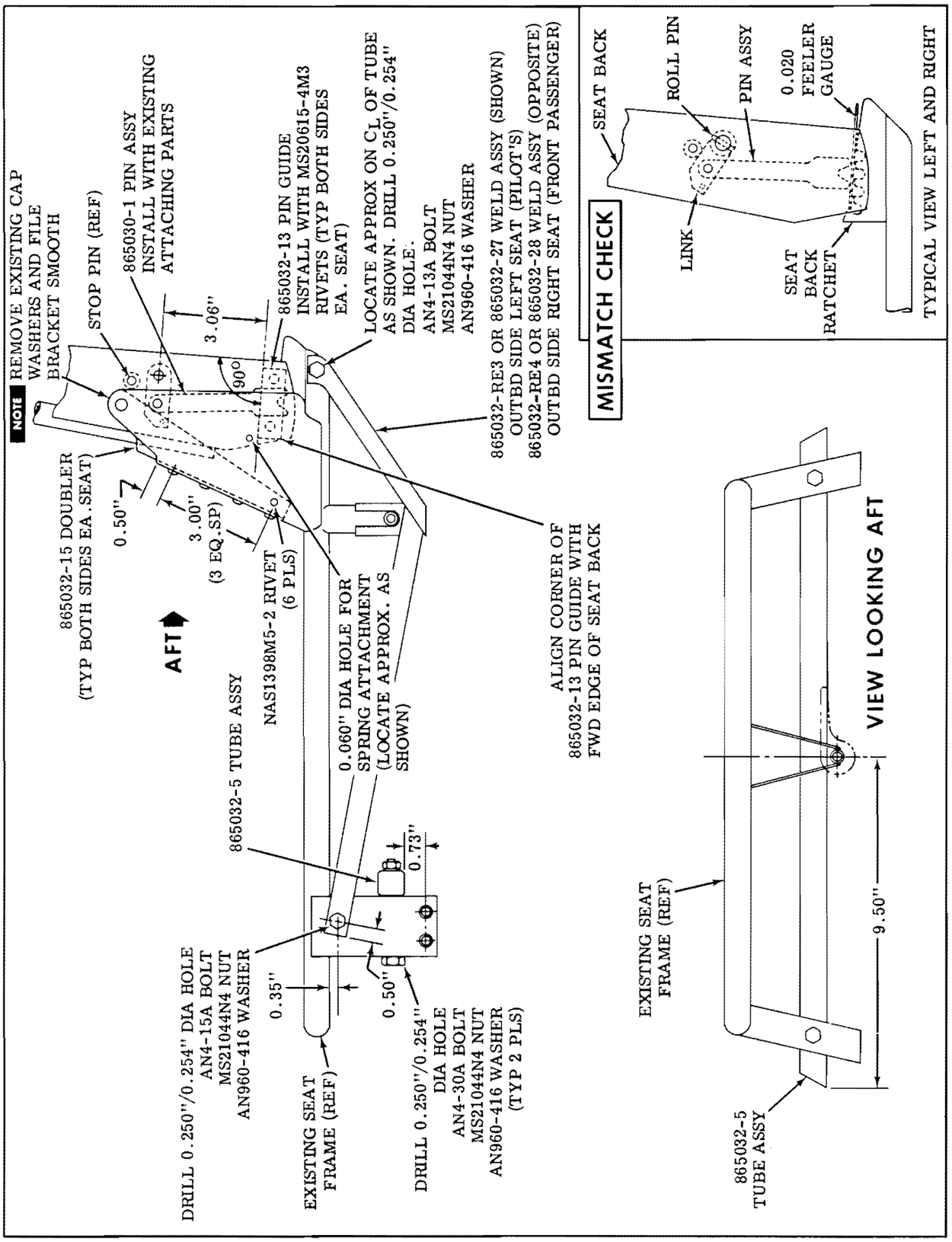


Figure 1. (Sheet 2 of 2)

n. If mismatch exceeds 0.065 inch, pull roll pin attaching link to seat adjustment torque tube, seat pin assembly to mate ratchet, redrill link and seat adjustment torque tube approximately 45 degrees to 90 degrees from original position and reinstall existing roll pin.

o. Install 865032-21 or -23 or -25 bushing as required on existing stop pin to prevent 865030-1 pin assembly from passing over forward ratchet stop (see Figure 1., Sheet 1 of 2).

p. Locate, drill and install 49307-249 placard on left and right seat back shrouds (see Figure 1., Sheet 1 of 2).

q. Reinstall existing seat back shroud on seat back using existing hardware.

r. Install new 49250-501 headrest bushing (2 places) on each seat back and reinstall seat headrest (see Figure 1., Sheet 1 of 2).

s. Reinstall existing seat back adjustment handle on torque tube (see Figure 1., Sheet 1 of 2).

4. Remove carpet from around left and right outboard seat track and trim as necessary to prevent interference with 865032-5 tube assembly and forward end of 865032-3 weld assembly.

NOTE

It will be necessary to remove leather trim from carpet and reinstall on carpet after trimming.

5. Remove pilot and front seat passenger seat belts from airplane.

6. Remove and discard existing seat belt attach bracket (4 places) (see Figure 1., Sheet 1 of 2).

7. Install new 43482-501 seat belt bracket (4 places) using NAS1398M5-3 rivet (4 places) (see Figure 1., Sheet 1 of 2).

8. Reinstall existing seat belts using existing hardware.

9. Reinstall existing carpet around seat tracks with 3642A Tuf-Grip or 3M EC 1300 cement or equivalent.

10. Install pilot seat and front passenger seat in airplane.

11. Trim interior console cover as necessary to prevent interference with 865032-5 tube assembly during forward and aft movement of seats.

12. Reinstall existing interior console cover.

13. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from the installation of this Service Bulletin is as follows:

WEIGHT (LBS)	H-ARM (INCHES)	H-MOMENT (IN-LBS)
+ 2.0	+ 99.0	+ 198.0

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled change/revision.

NOTE

This Service Bulletin replaces Service Bulletin No. SB-114-5A in its entirety.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-5B, dated 13 December 1977, entitled "Pilot and Front Passenger Seat Modification", accomplished (date).

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-6
1 November 1976

CABIN AIR VENT MODIFICATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14089 THRU 14113, 14115 THRU 14122, 14125 THRU 14131, 14134 THRU 14149, 14152 THRU 14154 AND 14156 THRU 14158.

REASON FOR PUBLICATION: TO ALLEVIATE EXCESSIVE CARBON MONOXIDE LEVEL IN CABIN AREA.

COMPLIANCE: WITHIN NEXT TEN (10) HOURS TIME IN SERVICE AFTER RECEIPT OF THIS SERVICE BULLETIN.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: 1.5 HOURS.

PARTS DATA: Parts required to comply with this Service Bulletin may be obtained as a kit through your nearest Rockwell Commander Distributor at no charge. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-6 kit consisting of the following:

QTY	PART NO.	DESCRIPTION	CODE NO.
2 ea.	49027-95	Escutcheon	
4 ea.	S-0333A6-10C	Screw	3711056
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-6	Instructions	

SPECIAL TOOLS: HOLE SAW.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove bottom screws attaching left and right forward interior panels to facilitate removal of forward cabin vent valves.
2. Loosen carpet as necessary to gain access to vent valve attaching screws.
3. Remove screws attaching left and right forward vent valves and remove valves from airplane.
4. Loosen cold air valve cable clamp, adjust valve as shown in Figure 1. and retighten cable clamp.
5. Locate and cut a 1.25-inch diameter hole in left and right air ducts (see Figure 1.).
6. Using 49027-95 escutcheon as a template, locate and drill 0.100-inch diameter hole in left and right air ducts (see Figure 1.).
7. Cut a 1.25-inch diameter hole in carpet to match hole cut in air duct in step 5.
8. Reinstall left and right forward vent valves using existing hardware.

9. Reinstall carpet using 3642A Tuf-Grip or 3M EC1300 cement or equivalent.

10. Install 49027-95 escutcheon (2 places) over carpet and hole drilled in air duct using S-0333A6-10C screw.

11. Reinstall left and right forward interior panel screws.

12. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: The Airplane Maintenance Manual and Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/ revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-6, dated 1 November 1976, entitled "Cabin Air Vent Modification", accomplished (date).

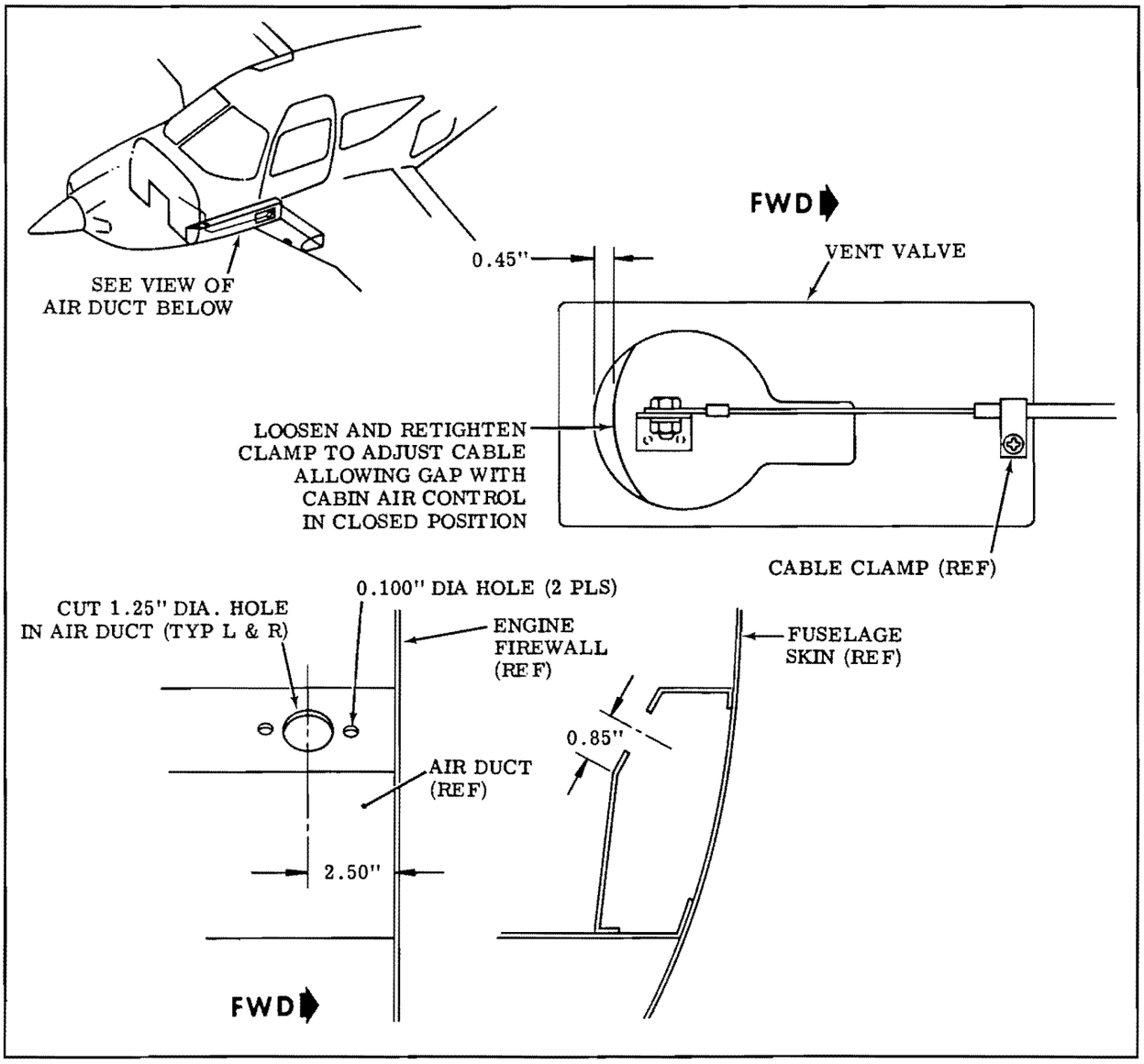


Figure 1.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-7
14 January 1977

MAIN LANDING GEAR ORIFICE ASSEMBLY INSTALLATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14155 WITH LEFT AND RIGHT MAIN LANDING GEAR SERIAL NO'S LMC 001 THRU LMC 076.

REASON FOR PUBLICATION: ON SOME AIRPLANES, THE ORIFICE ASSEMBLY (P/N 725001-1) MAY HAVE BEEN INSTALLED IMPROPERLY IN THE MAIN LANDING GEAR. THIS SERVICE BULLETIN IS BEING ISSUED TO CORRECT THIS SITUATION.

COMPLIANCE: WITHIN NEXT 25 HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: EIGHT (8) HOURS.

PARTS DATA: 1 ea. Compliance Card.

SPECIAL TOOLS: LONG SNAP RING PLIERS.

ACCOMPLISHMENT INSTRUCTIONS:

1. On left and right main landing gears, check serial number which is electric etched on the left side of the trunnion assembly (see Figure 1.).
2. If the serial number is LMC 077 and over, disregard this Service Bulletin.
3. If the serial number is LMC 001 thru LMC 076, proceed to step 4.

NOTE

Serial numbers of left and right landing gear may not be the same.

4. Jack airplane as outlined in the Airplane Maintenance Manual, Section II.
5. Remove clamps attaching brake lines to left and right main landing gear yokes.
6. Remove the ground contact switch from the right landing gear yoke.
7. Remove bolts attaching back plates to brake assembly and pull brake assembly away from landing gear.
8. Deflate the main landing gear oleo by slowly opening the air valve until strut pressure has diminished.
9. Remove the filler plug and with a small hose, siphon as much hydraulic fluid from the strut as possible.
10. Disconnect the piston rod from the yoke by cutting and removing safety wire, removing the piston rod retaining screw and removing the piston rod pin.

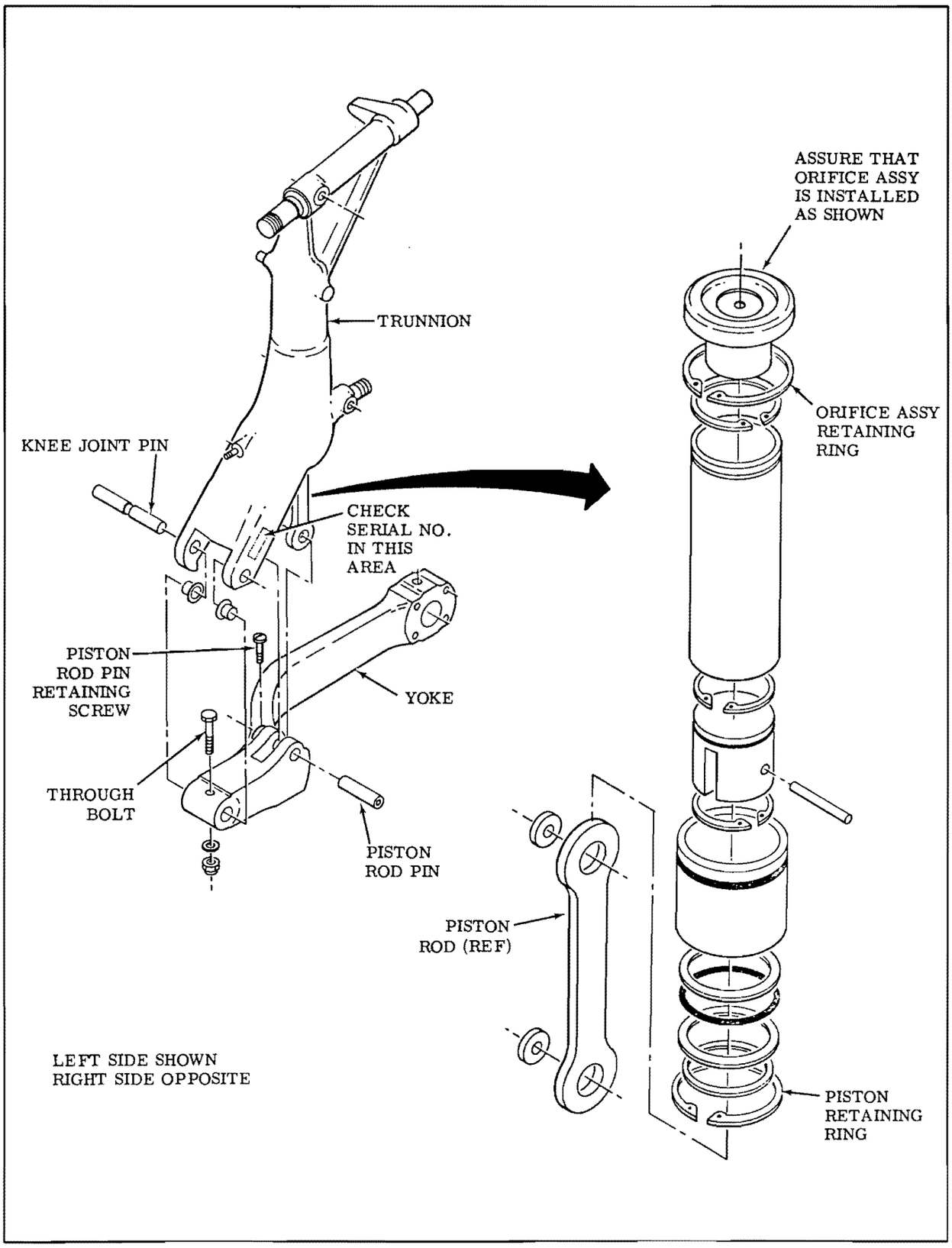


Figure 1.

11. Disconnect the yoke from the strut by removing the through-bolt and knee-joint pin.

12. To remove the piston tube, compress the piston and remove the retaining ring from the annular slot at the bottom of the strut. Carefully slide the piston tube and bearing out of the strut.

13. Remove the orifice assembly retaining ring, inside the upper area of the strut, and the orifice assembly.

14. Reinstall the existing orifice assembly correctly in the strut using existing retaining ring (see Figure 1.).

15. Reinstall the piston tube and bearing in the strut and compress sufficiently to install the retaining ring in the annular slot at the lower end of the strut.

16. Connect the yoke to the strut assembly by installing the knee-joint pin and the through-bolt, washer and nut.

17. Connect the piston rod to the yoke by inserting the piston rod pin through the yoke and piston rod bearing and installing rod pin retaining screw. Safety wire the screw.

18. Reinstall the existing brake assembly and back plates.

19. Reconnect brake lines to left and right main landing gear yokes with existing clamps.

20. Reinstall existing ground contact switch on right main landing gear.

21. Service strut with MIL-H-5606 hydraulic fluid and nitrogen as outlined in the Airplane Maintenance Manual, Section VI.

22. Remove jacks from airplane.

23. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-7, dated 14 January 1977, entitled "Main Landing Gear Orifice Assembly Installation", accomplished____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-7
14 January 1977

MAIN LANDING GEAR ORIFICE ASSEMBLY INSTALLATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14155 WITH LEFT AND RIGHT MAIN LANDING GEAR SERIAL NO'S LMC 001 THRU LMC 076.

REASON FOR PUBLICATION: ON SOME AIRPLANES, THE ORIFICE ASSEMBLY (P/N 725001-1) MAY HAVE BEEN INSTALLED IMPROPERLY IN THE MAIN LANDING GEAR. THIS SERVICE BULLETIN IS BEING ISSUED TO CORRECT THIS SITUATION.

COMPLIANCE: WITHIN NEXT 25 HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: EIGHT (8) HOURS.

PARTS DATA: 1 ea. Compliance Card.

SPECIAL TOOLS: LONG SNAP RING PLIERS.

ACCOMPLISHMENT INSTRUCTIONS:

1. On left and right main landing gears, check serial number which is electric etched on the left side of the trunnion assembly (see Figure 1.).
2. If the serial number is LMC 077 and over, disregard this Service Bulletin.
3. If the serial number is LMC 001 thru LMC 076, proceed to step 4.

NOTE

Serial numbers of left and right landing gear may not be the same.

4. Jack airplane as outlined in the Airplane Maintenance Manual, Section II.
5. Remove clamps attaching brake lines to left and right main landing gear yokes.
6. Remove the ground contact switch from the right landing gear yoke.
7. Remove bolts attaching back plates to brake assembly and pull brake assembly away from landing gear.
8. Deflate the main landing gear oleo by slowly opening the air valve until strut pressure has diminished.
9. Remove the filler plug and with a small hose, siphon as much hydraulic fluid from the strut as possible.
10. Disconnect the piston rod from the yoke by cutting and removing safety wire, removing the piston rod retaining screw and removing the piston rod pin.

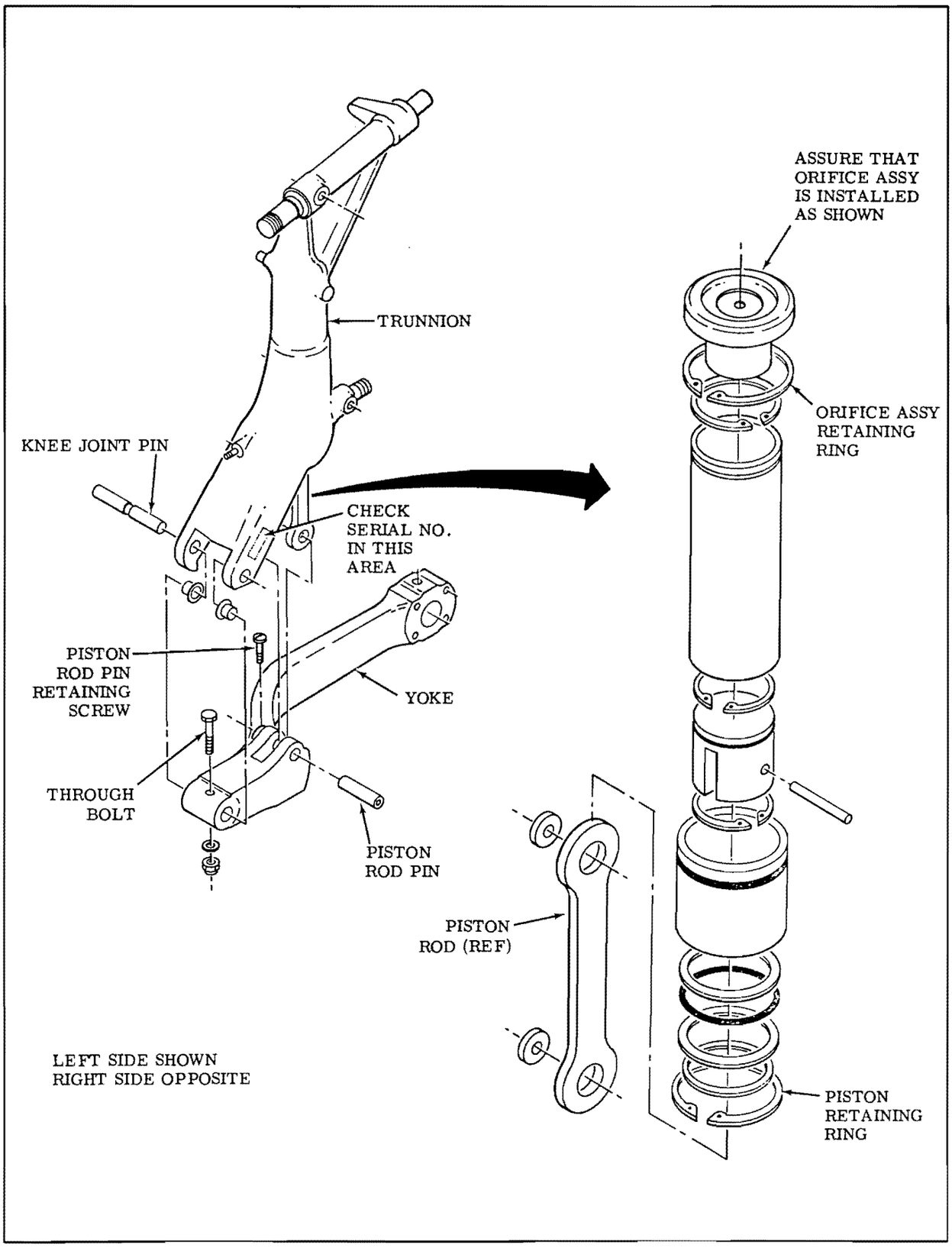


Figure 1.

11. Disconnect the yoke from the strut by removing the through-bolt and knee-joint pin.

12. To remove the piston tube, compress the piston and remove the retaining ring from the annular slot at the bottom of the strut. Carefully slide the piston tube and bearing out of the strut.

13. Remove the orifice assembly retaining ring, inside the upper area of the strut, and the orifice assembly.

14. Reinstall the existing orifice assembly correctly in the strut using existing retaining ring (see Figure 1.).

15. Reinstall the piston tube and bearing in the strut and compress sufficiently to install the retaining ring in the annular slot at the lower end of the strut.

16. Connect the yoke to the strut assembly by installing the knee-joint pin and the through-bolt, washer and nut.

17. Connect the piston rod to the yoke by inserting the piston rod pin through the yoke and piston rod bearing and installing rod pin retaining screw. Safety wire the screw.

18. Reinstall the existing brake assembly and back plates.

19. Reconnect brake lines to left and right main landing gear yokes with existing clamps.

20. Reinstall existing ground contact switch on right main landing gear.

21. Service strut with MIL-H-5606 hydraulic fluid and nitrogen as outlined in the Airplane Maintenance Manual, Section VI.

22. Remove jacks from airplane.

23. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-7, dated 14 January 1977, entitled "Main Landing Gear Orifice Assembly Installation", accomplished____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-8
8 February 1977

ENGINE BREATHER TUBE MODIFICATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14214.

REASON FOR PUBLICATION: REDUCE THE POSSIBILITY OF ICING OVER OF ENGINE BREATHER TUBE END.

COMPLIANCE: WITHIN 100-HOURS TIME IN SERVICE AFTER RECEIPT OF THIS SERVICE BULLETIN.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: TWO (2) HOURS.

PARTS DATA: 1 each Compliance Card.

SPECIAL TOOLS: A 5/16-INCH DIAMETER ROD.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove upper engine cowling.
2. Open lower left engine cowl flap to gain access to engine breather tube lower attaching bolts.
3. Remove bolts attaching engine breather tube to firewall and remove breather tube from airplane.
4. Fabricate a cardboard template as shown in Figure 1.
5. Place template over forward side of engine breather tube and scribe marks for stop drill holes.
6. Drill 0.093-inch diameter hole on both sides of engine breather tube (see Figure 1.).
7. Cut a slit in the engine breather tube to dimensions shown in Figure 1.
8. Place a 5/16-inch diameter rod on engine breather tube above slit and form vent hole in breather tube, to dimensions shown in Figure 1., by hitting rod with hammer.

NOTE

Dimensions of vent hole are very critical.

9. Install modified engine breather tube in airplane using existing hardware.
10. Install engine cowling and close lower left engine cowl flap.
11. Fill out and mail Compliance Card.

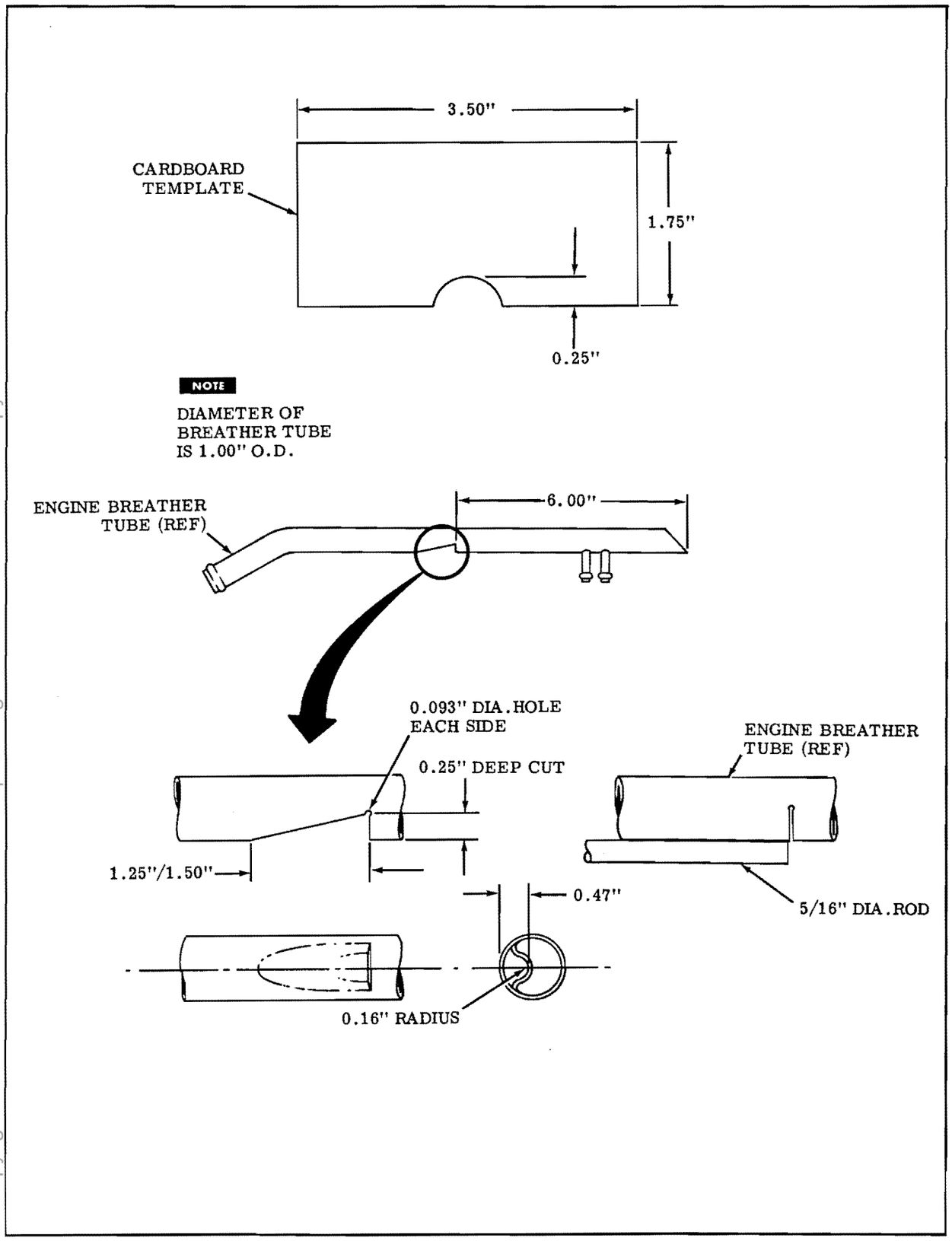


Figure 1.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-8, dated 8 February 1977, entitled "Engine Breather Tube Modification", accomplished ____(date)____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-9
15 March 1977

HEADREST PLACARD INSTALLATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14150 THRU 14199.

REASON FOR PUBLICATION: ADDITIONAL PASSENGER SAFETY PROCEDURE DURING TAKEOFF AND LANDING.

COMPLIANCE: WITHIN NEXT 100-HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER (REFERENCE SERVICE INFORMATION NO. SI-123).

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: THIRTY (30) MINUTES.

PARTS DATA: Parts required to comply with this Service Bulletin may be ordered through your nearest Rockwell Commander Distributor on a no charge basis. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-9 kit consisting of the following:

QTY	PART NO.	DESCRIPTION	CODE NO.
2 ea.	49307-249	Placard	
4 ea.	AN960D4L	Washer	1566000
4 ea.	AD42ABS	Blind Rivet	0042400
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-9	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove pilot and front passenger seat headrests.

2. Locate, drill and install 49307-249 placard on pilot and front passenger seatbacks with AD42ABS blind rivet (2 places) and AN960D4L washer (2 places) (see Figure 1.).

NOTE

It is acceptable to use MS20470AD4 rivets.

3. Reinstall pilot and front passenger seat headrests.

4. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

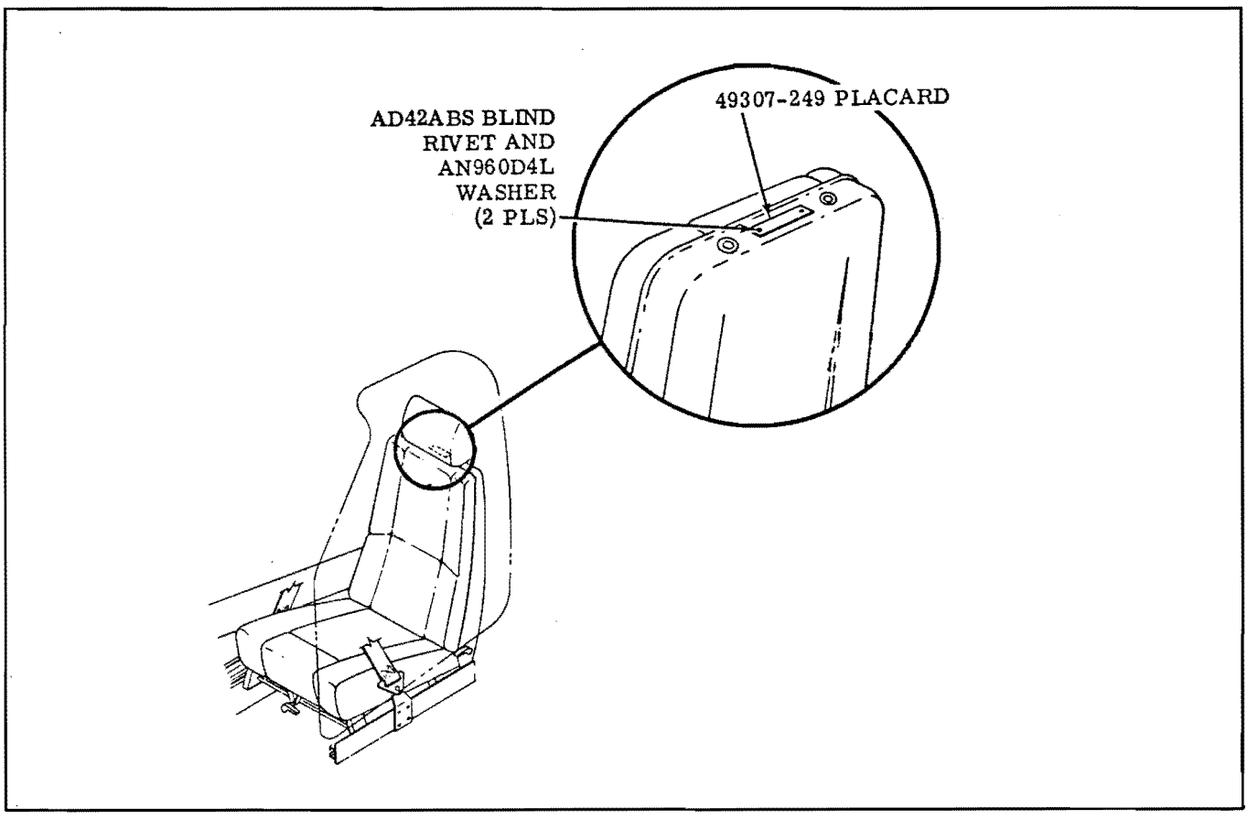


Figure 1.

PUBLICATIONS AFFECTED: The Pilot's Operating Handbook change required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-9, dated 15 March 1977, entitled "Headrest Placard Installation", accomplished (date) .

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-10
19 August 1977

PARKING BRAKE VALVE ASSEMBLY CLAMP REPLACEMENT

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14282.

REASON FOR PUBLICATION: TO ELIMINATE SLIPPAGE OF PARKING BRAKE VALVE ASSEMBLY CONTROL CABLE.

COMPLIANCE: WITHIN NEXT TWENTY FIVE (25) HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: ONE (1) HOUR.

PARTS DATA: Parts required to comply with this Service Bulletin may be ordered through your nearest Rockwell Commander Dealer/Distributor at no cost. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-10 kit consisting of the following:

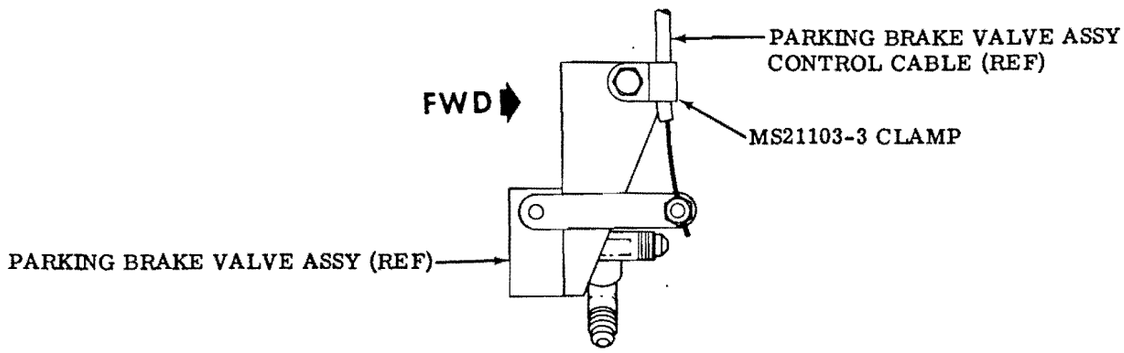
QTY	PART NO.	DESCRIPTION	CODE NO.
1 ea.	MS21103-3	Clamp	2718652
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-10	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove upper engine cowling to gain access to parking brake valve assembly located on engine firewall.

2. Remove existing cable clamp from parking brake valve assembly bracket and install MS21103-3 clamp using existing hardware as shown below.



3. Reinstall upper engine cowling.

4. Fill out and mail Compliance Card.

ELECTRICAL LOAD:	NO CHANGE.
WEIGHT AND BALANCE:	NO CHANGE.
SPARES AFFECTED:	NO.
PUBLICATIONS AFFECTED:	The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-10, dated 19 August 1977, entitled "Parking Brake Valve Assembly Clamp Replacement", accomplished_____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-11
1 November 1977

MAIN LANDING GEAR ROD ASSEMBLY PIN RETAINING SCREW REPLACEMENT

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14001 THRU 14319.

REASON FOR PUBLICATION: PROVIDE AN IMPROVED RETAINING PIN FOR THE MAIN LANDING GEAR ROD ASSEMBLY.

COMPLINACE: WITHIN NEXT 50-HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR YOUR ROCKWELL COMMANDER REGIONAL SERVICE MANAGER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: FOUR (4) HOURS.

PARTS DATA: Parts required to comply with this Service Bulletin may be purchased through your nearest Rockwell Commander Dealer/Distributor for $12.20. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-11 kit consisting of the following:

Price subject to change without notice

QTY	PART NO.	DESCRIPTION	CODE NO.
2 ea.	45017-RE1-1	Pin Assy	
2 ea.	AN503-8-4	Screw	0739400
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-11	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Jack airplane as outlined in the Airplane Maintenance Manual, Section II.
2. Remove and discard existing screw from left and right main landing gear rod assembly retaining pins.
3. Remove existing left and right main landing gear rod assembly retaining pins (see Figure 1.).
4. Line drill 0.192 (± 0.002) inch diameter hole through existing threaded hole in rod assembly retaining pins (see Figure 1.).
5. Line drill a 0.192 (± 0.002) inch diameter hole through existing hole in left and right main landing gear yokes (see Figure 1.).
6. Install existing rod assembly retaining pins and 45017-RE1-1 pin assembly (2 places) (see Figure 1.).
7. Using 45017-RE1-1 pin assembly as a template, drill and tap pin assembly attaching hole (see Figure 1.).

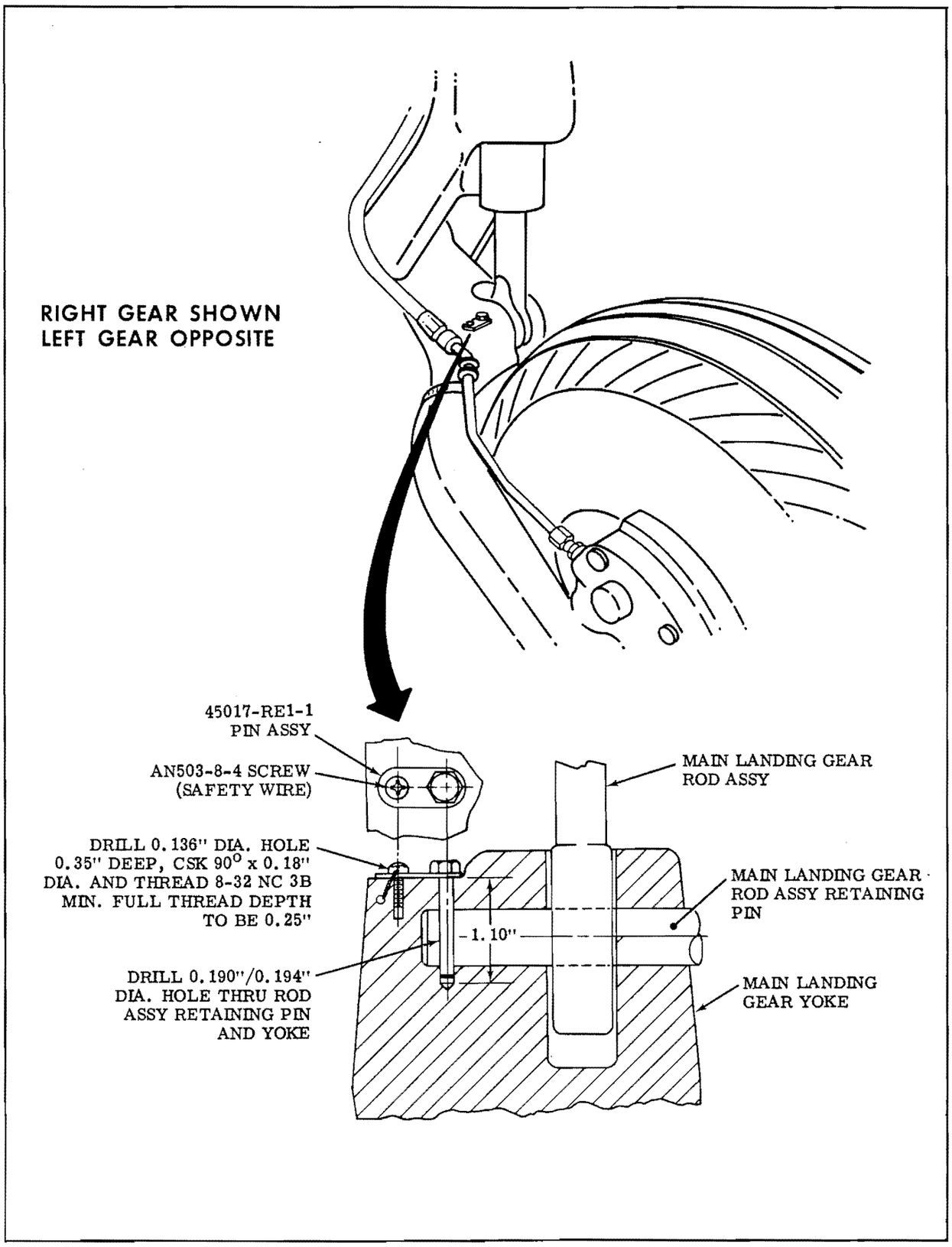


Figure 1.

8. Install AN503-8-4 screw and safety with 0.032-inch diameter stainless steel safety wire (see Figure 1.).

9. Remove jacks from airplane.

10. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: YES.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog and Airplane Maintenance Manual changes required by this document will be incorporated at the next scheduled change/revision.

NOTE

This Service Bulletin replaces Service Letter No. SL-114-5. in its entirety.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-11, dated 1 November 1977, entitled "Main Landing Gear Rod Assembly Pin Retaining Screw Replacement", accomplished (date).

SERVICE BULLETIN NO. SB-114-12B

(Supersedes Service Bulletin No. SB-114-12 & 114-12A in its entirety.)

27 May 1992

LOWER VERTICAL FIN RIB MODIFICATION

MODELS AFFECTED: Models 114 & 114A, SERIAL No. 14000 THRU 14540

NOTE

Aircraft modified per Gulfstream Aerospace Service Bulletins SB-114-12 or SB-114-12A are not in compliance with this SB.

REASON FOR PUBLICATION: To strengthen the upper rib of the lower vertical fin.

COMPLIANCE:

PART I: Within the next 100 hours time in service after receipt of this Service Bulletin or during next annual inspection, whichever occurs first, and at every annual inspection thereafter until Part II of this SB has been accomplished .

PART II: Compliance with Part II of this SB is required within 100 hours if rib or doubler is cracked as described in Part I.

NOTE

If problems are encountered while complying with this Service Bulletin, contact Commander Aircraft Company.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent

APPROVAL: Engineering Design Aspects are FAA approved.

ESTIMATED MAN HOURS: Part I-Inspect Lower Vertical Fin Rib - 1 hour
Part II-Install Rib Doubler - 8 hours

PARTS DATA: Parts required for Part II of this SB may be procured through Commander Aircraft at no charge. Reference this SB #, Model, and S/N, to order SB No. SB-114-12B kit consisting of the following:

QTY	P/N	DESC
1	44222-RE 3	Doubler
1	44222-RE 5	Doubler
1	44222-RE 7	Rib
1	Compliance Card	
1	SB-114-12B	Instructions

NOTE: **The MS-20470AD4 Rivets, as required, are to be procured locally. The 44222-RE 3 Doubler and 44222-RE 7 Rib are supplied preassembled.**

SPECIAL TOOLS: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I - Inspect Upper Rib of Lower Vertical Fin

1. Remove Stinger and Rudder Assembly per MM Section VII.
2. Inspect Rib for cracks. On those aircraft with the 44004-RE 7 Rib installed per SB-114-12A, inspect for cracking beyond coverage of 44004-RE 7 Rib and cracking beyond any stop drilled holes. (Ref. Figure I.)
3. If cracks are found proceed to Part II.
4. If no cracks are found, reinspect every annual or proceed with Part II.
5. Reinstall Rudder, and Stinger Assemblies.
6. Fill out Compliance Card - Part I.

PART II - Install Lower Vertical Fin Rib and Doublers

1. Remove upper vertical stabilizer and horizontal stabilizer per MM Section II.
2. Modify existing rib per Figure 1. Remove and discard aft portion of existing rib. Remove and discard existing rib doubler if installed per SB-114-12A.
3. Install 44222-RE 3 doubler, 44222-RE 5 doubler, and 44222-RE 7 rib per Figure 2.
4. Reinstall horizontal stabilizer.
5. Reinstall vertical stabilizer.
6. Reinstall rudder and stinger.
7. Re-rig Rudder, Elevator and Elevator Trim Controls per MM Section VII.
8. Fill out and mail Compliance Card - Part II.

ELECTRICAL LOAD: No Change

WEIGHT AND BALANCE:

Weight (lbs)	Arm (in)	Moment (in lbs)
0.7	260.00	182

SPARES AFFECTED: All spares must conform to latest configuration per this Service Bulletin and applicable drawings.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog changes required by this document will be incorporated at the next revision.

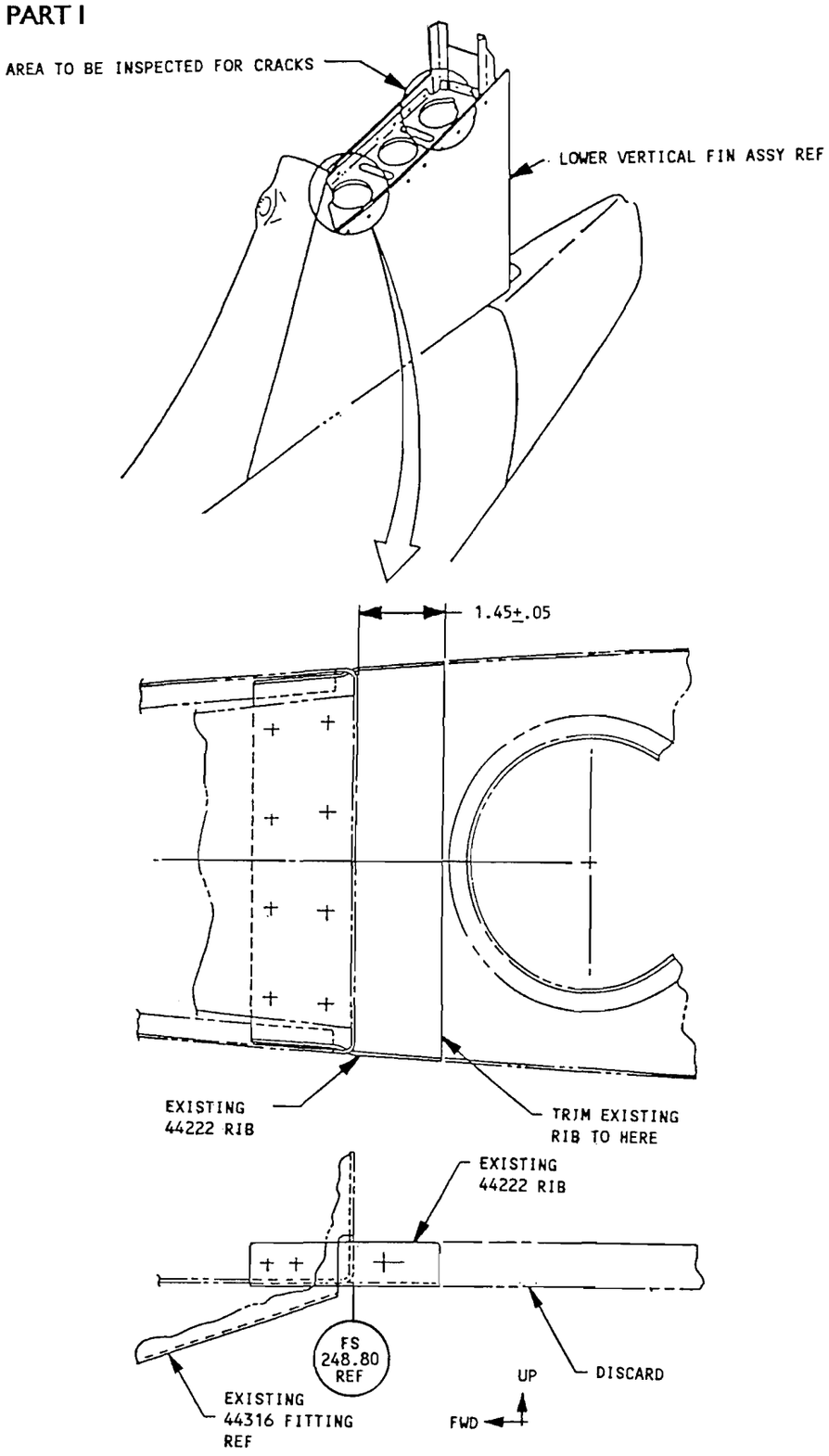
RECORD COMPLIANCE: Make entry in airplane maintenance records as follows:

Service Bulletin No. SB-114-12B, dated 27 May 1992, entitled "Lower Vertical Fin Rib Modification"

Part I Accomplished (Date):

Part II Accomplished (Date):

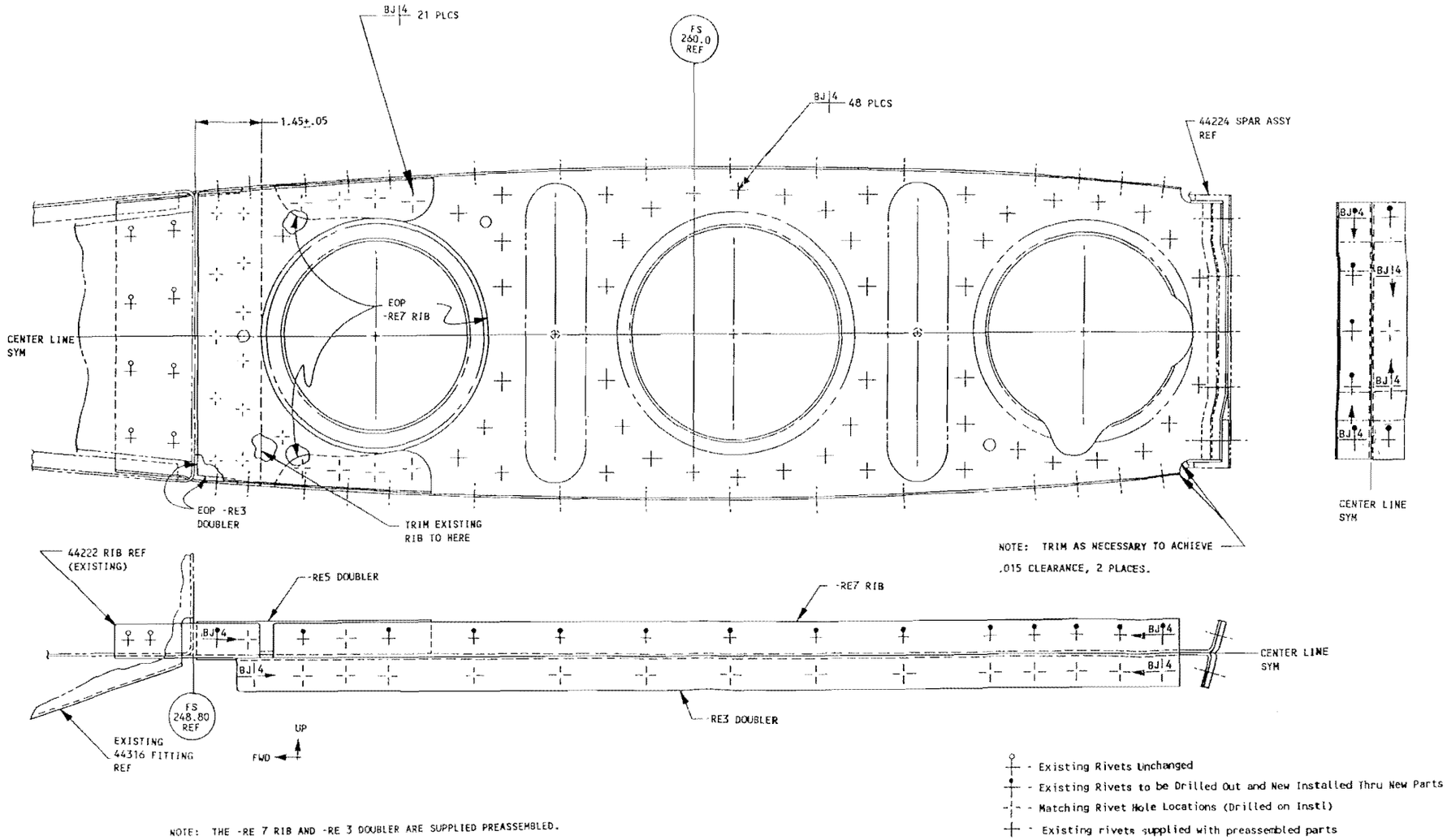
PART I



PART II - RIB FORWARD END TRIM DETAIL

Figure 1

PART II - DOUBLER AND RIB INSTALLATION



NOTE: THE -RE 7 RIB AND -RE 3 DOUBLER ARE SUPPLIED PREASSEMBLED.

Figure 2

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-13
13 December 1977

PILOT AND FRONT PASSENGER SEAT INSPECTION AND/OR MODIFICATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14001 THRU 14149 THAT HAVE COMPLIED WITH ROCKWELL INTERNATIONAL SERVICE BULLETIN NO. SB-114-5A.

REASON FOR PUBLICATION: TO ASSURE THAT PROPER EDGE DISTANCE OF BOLT HOLES AND MATERIAL WIDTH HAVE BEEN MAINTAINED WHEN PART NUMBERS 865032-3 AND 865032-4 WELD ASSEMBLIES WERE INSTALLED PER SERVICE BULLETIN NO. SB-114-5A.

COMPLIANCE: WITHIN NEXT 100-HOURS TIME IN SERVICE AFTER RECEIPT OF THIS SERVICE BULLETIN OR DURING NEXT ANNUAL INSPECTION, WHICHEVER OCCURS FIRST.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT A ROCKWELL COMMANDER SERVICENTER OR YOUR ROCKWELL COMMANDER SERVICE MANAGER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: PART I - INSPECT SEATS - THIRTY (30) MINUTES.
PART II - REWORK SEATS - TWO (2) HOURS PER SEAT.

PARTS DATA: Parts required to comply with Part II of this Service Bulletin may be ordered through your nearest Rockwell Commander Dealer/Distributor or ServiCenter at no charge. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-13 kit consisting of the following:

Kit No. 1 QTY	Kit No. 2 QTY	PART NO.	DESCRIPTION
1 ea.	-	865032-RE3 (or 865032-27)	Left Weld Assy
-	1 ea.	865032-RE4 (or 865032-28)	Right Weld Assy
1 ea.	1 ea.		Compliance Card
1 ea.	1 ea.	Service Bulletin No. SB-114-13	Instructions

NOTE

No parts are required for Part I of this Service Bulletin.

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

PART I - INSPECT SEATS.

1. Inspect weld assemblies, installed on outboard side of pilot seat and front passenger seat, for correct installation dimensions as shown in Figure 1.

2. If dimension between weld assembly tube and seat frame exceeds 1.20-inches, proceed to Part II (see Figure 1.).

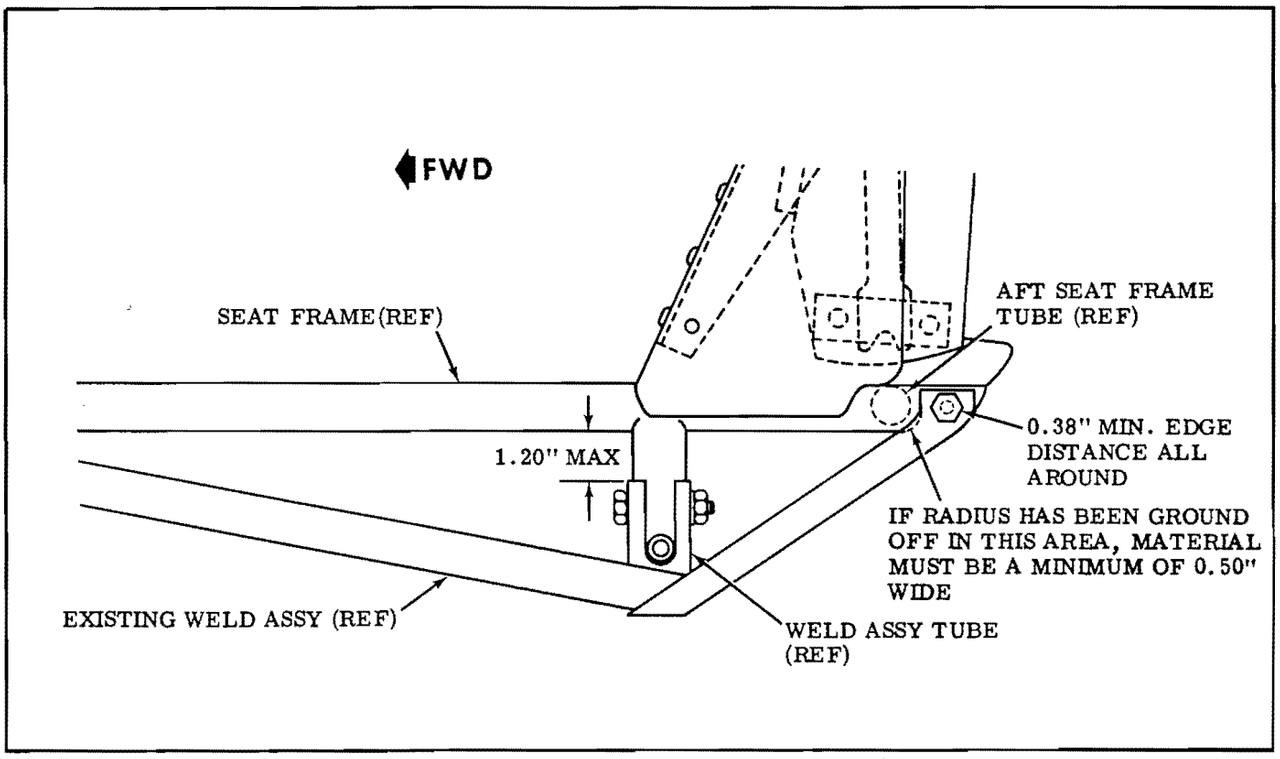


Figure 1.

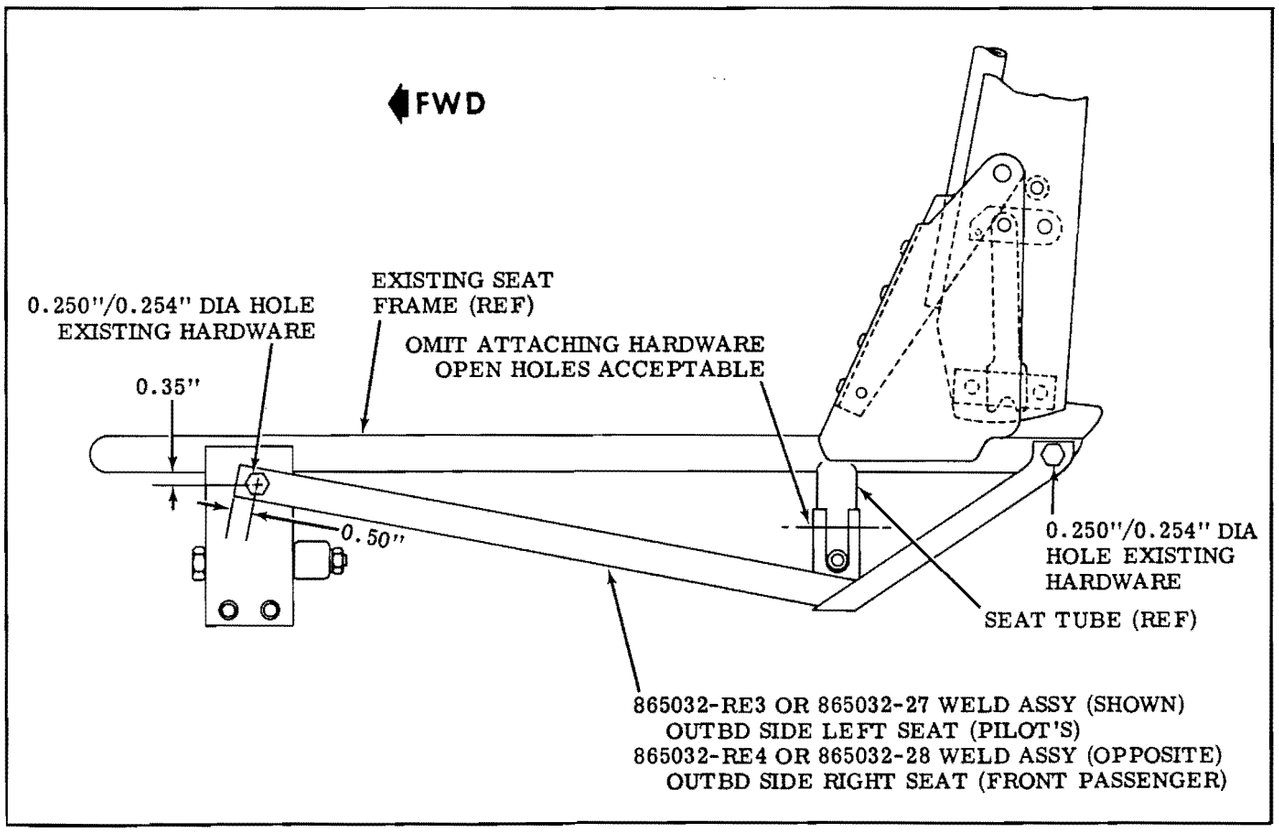


Figure 2.

3. If radius of aft inboard strap of weld assembly has been ground off to clear aft seat frame tube and strap is less than 0.50-inch wide in that area, proceed to Part II (see Figure 1.).

4. If edge distance (ED) on bolt mounting holes of either aft inboard or aft outboard strap is less than 0.38-inch, proceed to Part II (see Figure 1.).

5. If all dimensions of installed weld assemblies are as shown in Figure 1., fill out and mail Compliance Card and note on Compliance Card that all dimensions are acceptable.

6. Proceed to RECORD COMPLIANCE.

PART II - REWORK SEATS

1. Remove pilot seat and/or front passenger seat, to be reworked, from airplane.

2. Remove and discard existing weld assembly from seat.

3. Locate, back drill through existing holes and install 865032-RE3 or 865032-27 left weld assembly on pilot seat bottom and 865032-RE4 or 865032-28 right weld assembly on front passenger seat bottom (see Figure 2.).

NOTE

Drill aft holes first in order to maintain a 0.38-inch hole edge distance. Do not drill hole through weld assembly and seat tube and omit attaching hardware.

4. Reinstall seat(s) in airplane.

5. Fill out and mail Compliance Card and note on Compliance Card that Part II of this Service Bulletin has been complied with.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: YES.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-13, dated 13 December 1977, entitled "Pilot and Front Passenger Seat Inspection and/or Modification", Part I accomplished (date), Part II accomplished (date).

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-14A
(Supersedes Service Bulletin No. SB-114-14 dated 13 March 1978 in its entirety.)
10 May 1978

INSPECTION AND REPLACEMENT OF AILERON HINGE SUPPORTS

NOTE

IF BASIC SERVICE BULLETIN NO. SB-114-14 HAS BEEN COMPLIED WITH, DISREGARD THIS SERVICE BULLETIN.

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14376.

REASON FOR PUBLICATION: POSSIBLE CRACKING OF AILERON HINGE SUPPORTS.

COMPLIANCE: PART I - PRIOR TO NEXT FLIGHT.
PART II - WITHIN NEXT 100-HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR SERVICENTER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: PART I - INSPECT AILERON HINGE SUPPORTS - THREE (3) HOURS.
PART II - REPLACE AILERON HINGE SUPPORTS - TEN (10) HOURS.

PARTS DATA: Parts required to comply with Part II of this Service Bulletin may be ordered as a kit through your nearest Rockwell Commander Dealer/Distributor or ServiCenter at No Charge. Reference this Service Bulletin, Aircraft model and factory serial number when ordering Service Bulletin No. SB-114-14A kit consisting of the following:

QTY	PART NO.	DESCRIPTION
1 ea.	175021-507-S	Support Assy
1 ea.	175021-508-S	Support Assy
2 ea.	175021-509-S	Support Assy
4 ea.	175073-501-S	Support Assy
4 ea.	175074-1	Gusset
78 ea.	NAS1738B4-2	Blind Rivet
1 ea.		Compliance Card
1 ea.	Service Bulletin No. SB-114-14A	Instructions

NOTE

No parts are required for Part I.

SPECIAL TOOLS: HOLE FINDER.

ACCOMPLISHMENT INSTRUCTIONS:

PART I - INSPECT AILERON HINGE SUPPORTS.

1. Before next flight, inspect the airplane structure at all aileron hinge positions. If visual inspection does not reveal distortion of aileron skin or readily visible cracks in hinge supports, the airplane may undertake a ferry flight to a Base where the complete inspection can be accomplished.

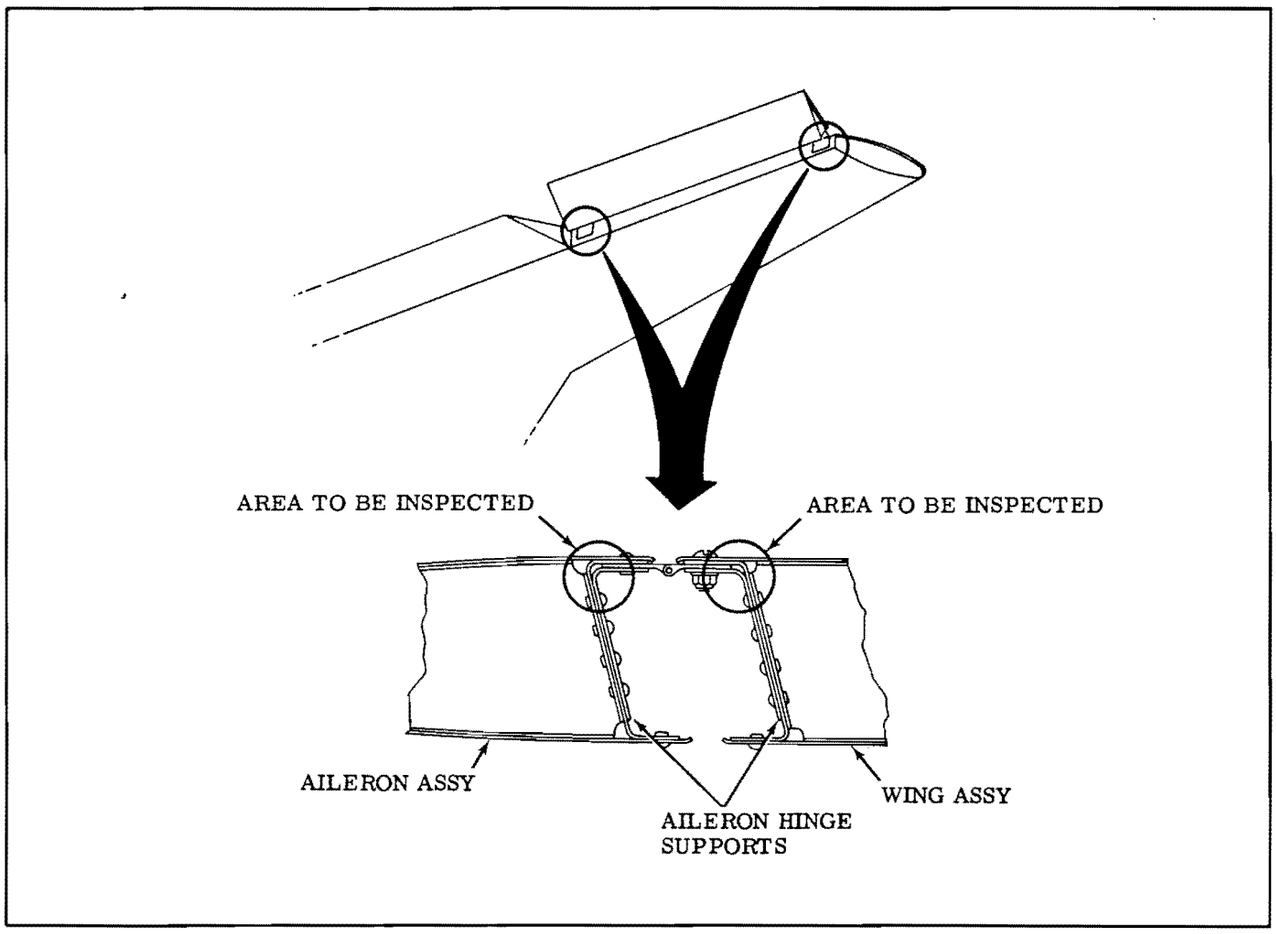


Figure 1.

2. Remove ailerons from airplane as outlined in the Airplane Maintenance Manual, Section VII.

3. Remove zinc chromate primer from bend radius of all aileron hinge supports on wing and aileron.

4. Dye penetrant inspect all aileron hinge supports for possible cracks in areas of bend radius (see Figure 1.).

5. If cracks are found in any aileron hinge support, proceed to Step 2. of Part II.

6. If no cracks are found, proceed to Step 7. of Part I.

7. Clean aileron hinge supports with Methyl Ethyl Ketone (MEK) and repaint supports with zinc chromate primer.

8. Clean aileron balance weight arms with Methyl Ethyl Ketone (MEK) and apply a coat of zinc chromate primer to both sides of balance weight arms (see Figure 3.).

9. Install ailerons on airplane as outlined in the Airplane Maintenance Manual, Section VII.

10. Inspect aileron hinge supports every fifty (50) hours time in service and after any rough landing until Part II of this Service Bulletin has been accomplished.

PART II - REPLACE AILERON HINGE SUPPORTS.

1. Remove ailerons from airplane as outlined in the Airplane Maintenance Manual, Section VII.

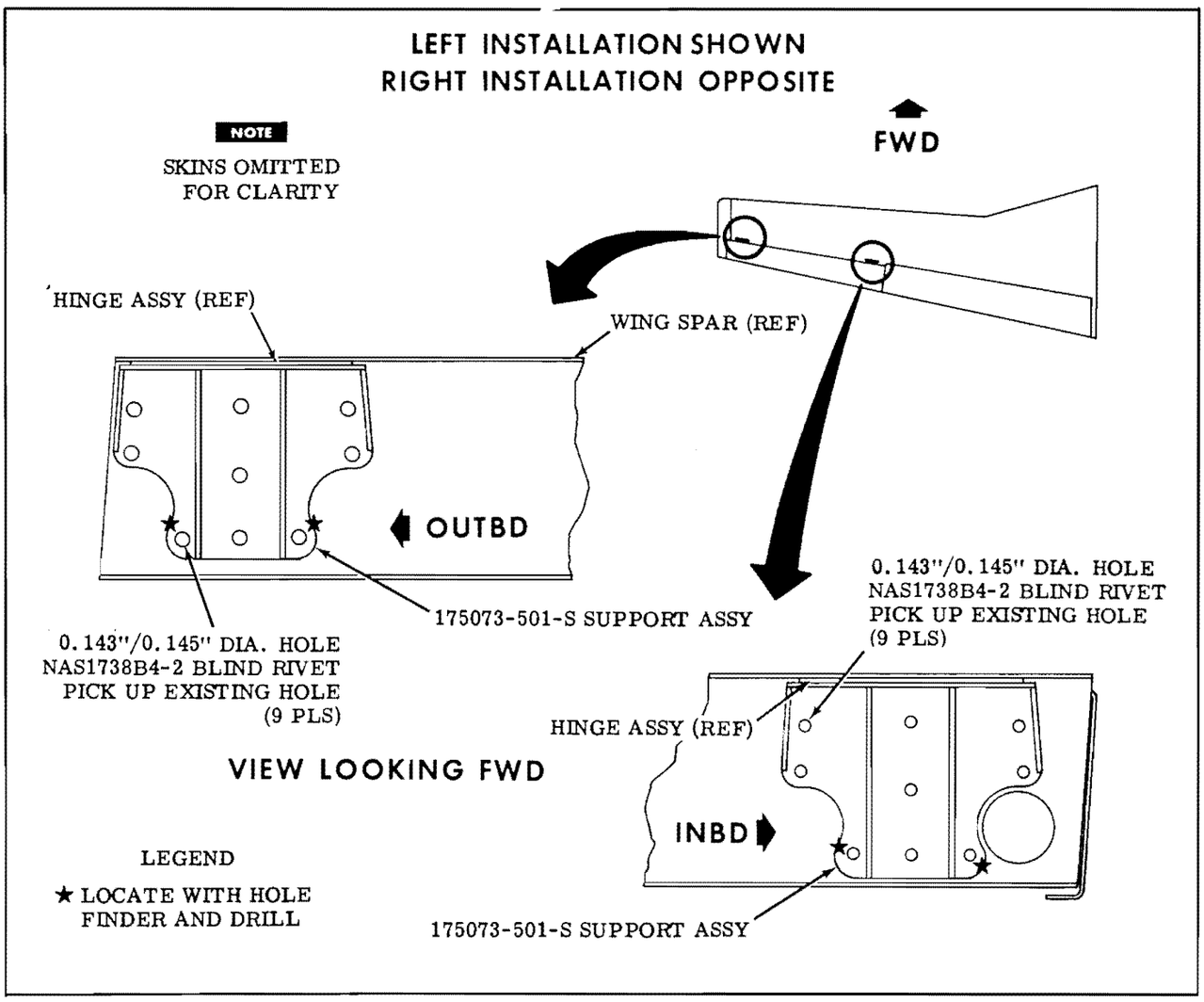


Figure 2.

2. Remove existing aileron horns from ailerons.

3. Remove all existing aileron hinge supports from aileron and wing spars and retain supports for use as drill templates.

NOTE

Identify the removed hinge supports by marking the location from where they were removed. For example: Outboard left aileron, inboard right wing, etc.

4. Remove existing aileron hinge assemblies from ailerons and retain for later installation.

5. Remove zinc chromate primer from aileron and wing spars in area of aileron hinge supports and dye penetrant inspect spars for possible cracks.

6. If no cracks are found in aileron or wing spars, clean spars with Methyl Ethyl Ketone, repaint with zinc chromate primer and proceed to Step 8, Part II.

7. If cracks are found in aileron or wing spars, contact Rockwell Commander ServiCenter, Bethany, Oklahoma before proceeding any further.

8. Locate, drill and install 175073-501-S support assemblies on left and right wing spars as follows:

   a. Position and clamp existing hinge assembly and 175073-501-S support assembly on wing spar and drill upper flange of support assembly picking up existing holes in upper wing skin and spar flange (see Figure 2.).

   b. Using a hole finder, locate the existing lower outboard hole and lower inboard hole in the wing spar and drill through support assembly (see Figure 2.).

   c. Remove support assembly from wing spar.

   d. Fabricate a drill template from aluminum sheet stock using existing hinge support, removed from wing spar in Step 3. of Part II, as follows:

      (1) Position existing hinge support on aluminum sheet stock, scribe outline of support on sheet stock and drill 0.144 (± 0.001) inch diameter hole (9 places) in sheet stock picking up holes in existing hinge support.

      (2) Cutout template from sheet stock.

   e. Position drill template against aft side of new hinge support assembly and align two (2) lower holes of template with two (2) lower holes,drilled in step 8.b., in new support assembly.

   f. Drill remaining holes (7 places) in new hinge support assembly (see Figure 2.).

   g. Install 175073-501-S support assemblies on left and right wing spars picking up existing holes in spars (see Figure 2.).

9. Remove rivets from upper and lower forward outboard corners of aileron for installation of 175074-1 gussets (see Figure 3.).

10. Install 175021-507-S inboard support assembly on left aileron, 175021-508-S inboard support assembly on right aileron, 175021-509-S outboard support assemblies, existing aileron hinge assemblies and 175074-1 gussets on left and right ailerons as follows:

   a. Locate and drill upper flange of support assembly picking up existing holes in aileron and aileron hinge assembly (see Figure 4.).

NOTE

If interference exists between upper flange of support assembly and radius of hinge assembly, trim upper flange to clear hinge assembly radius, as necessary, and apply zinc chromate primer to trimmed area.

   b. Locate and drill 175074-1 gussets (see Figure 3.).

   c. Temporarily install hinge assembly, gusset and upper flange of support assembly on aileron.

   d. Using a hole finder, locate the existing lower outboard hole and the lower inboard hole in the aileron spar and drill through new support assembly (see Figure 4.).

NOTE

Do not drill the three (3) lower inner holes.

   e. Fabricate a drill template by trimming the upper flange from the existing hinge supports that were removed from the ailerons in step 3. of Part II.

   f. Remove the new aileron hinge support, existing aileron hinge assembly and the 175074-1 gussets from the aileron.

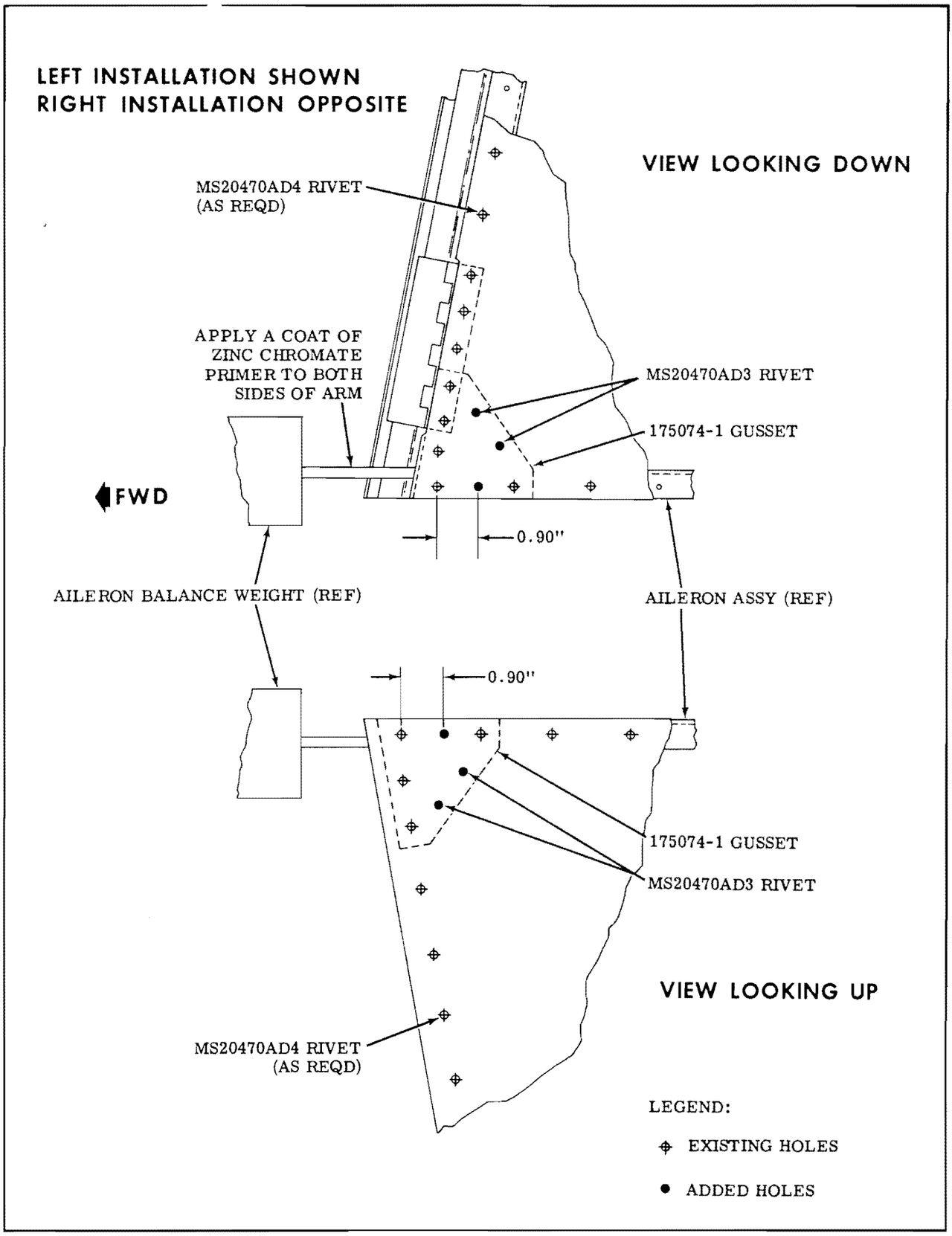


Figure 3.

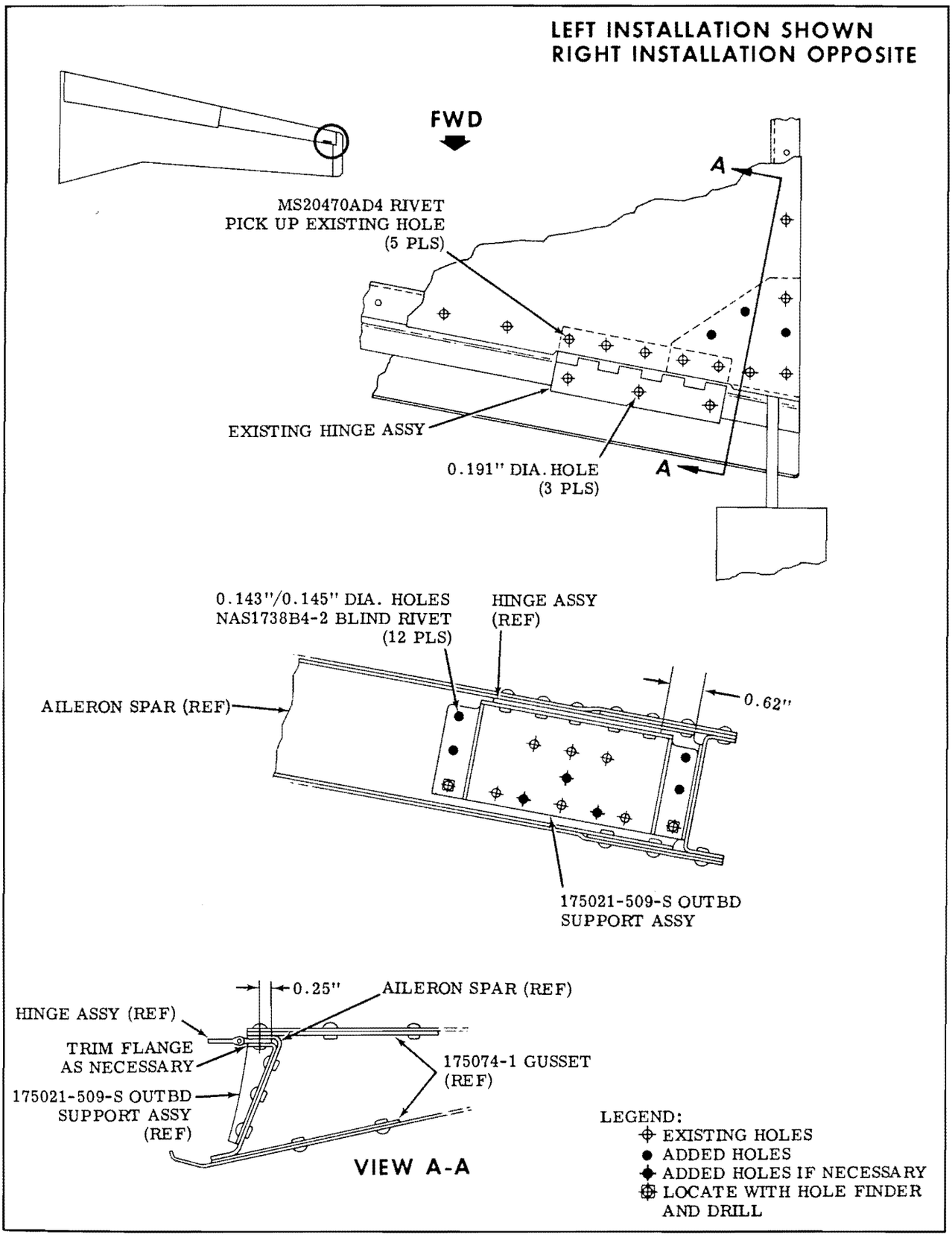


Figure 4. (Sheet 1 of 3)

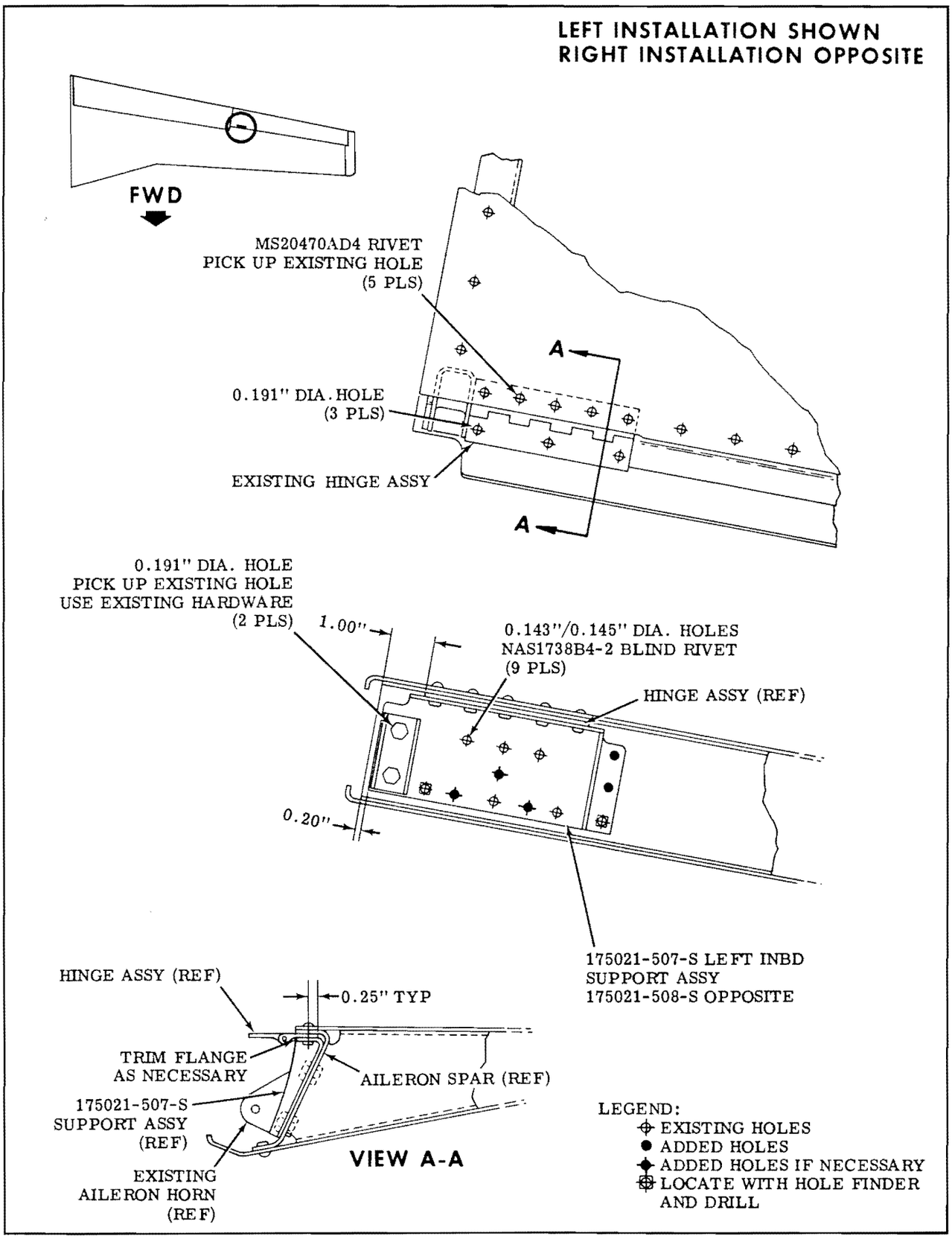
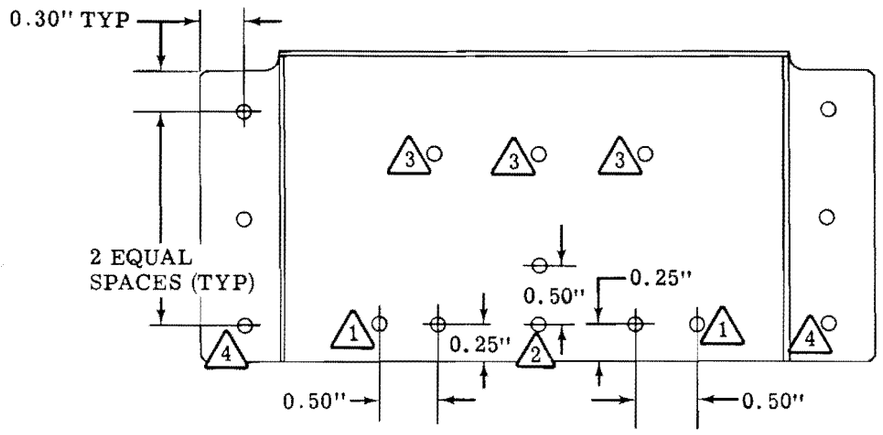
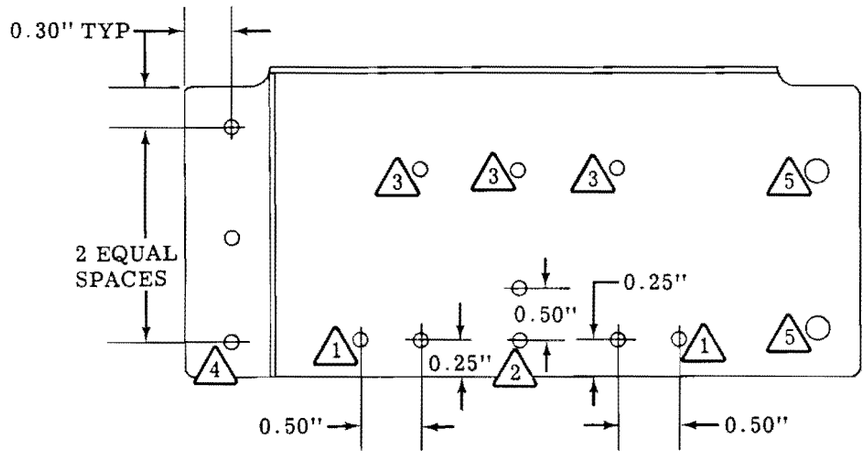


Figure 4. (Sheet 2 of 3)



INBOARD SUPPORT ASSY (TYP)



RIGHT OUTBOARD SUPPORT ASSY SHOWN
LEFT OUTBOARD SUPPORT ASSY OPPOSITE

1. No. 40 (0.098") diameter pilot hole drilled at factory. If holes do not line up with existing holes in spar, leave holes open in spar and support assembly and relocate holes 0.50 inch from pilot hole as shown.

2. Pick up existing hole and install NAS1738B4-2 blind rivet. If edge distance of hole falls below 0.192 inch, add an NAS1738B4-2 blind rivet 0.50 inch above hole as shown.

3. Pick up existing holes.

4. Pick up existing hole and install NAS1738B4-2 blind rivet. If edge distance falls below 0.192 inch, install NAS1738B5-2 blind rivet instead of NAS1738B4-2 blind rivet in two (2) holes above.

5. Pick up existing holes.

Figure 4. (Sheet 3 of 3)

g. Position drill template against aft side of new hinge support assembly and align two (2) lower holes of template with two (2) lower holes, drilled in step 10. d., in new support assembly.

NOTE

The drill template must be positioned against the new aileron support assembly in such a way that the side of the template that was against the aileron spar will be away from the new hinge support assembly.

h. Drill the three (3) upper middle holes and the lower middle hole only in the new hinge support assembly (see Figure 4., Sheet 3 of 3) (△2 and △3).

i. If the two (2) pilot holes in support assembly (drilled at factory) align with holes in template, drill holes to 0.144 (± 0.001) inch diameter (see Figure 4., Sheet 3 of 3).

j. If the two (2) pilot holes in support assembly (drilled at factory) do not align with holes in template, relocate and drill two (2) lower holes in support assembly 0.50-inch from pilot holes drilled by factory (see Figure 4., Sheet 3 of 3).

NOTE

It is permissable to leave the two (2) original pilot holes in support assembly open.

k. Locate and drill two (2) new upper outboard holes and two (2) new upper inboard holes in hinge support assembly (see Figure 4., Sheet 3 of 3).

NOTE

It is permissable to leave the original upper attaching holes in aileron spar open.

l. Install 175021-507-S and -508-S inboard support assemblies, 175021-509-S outboard support assemblies, existing hinge assemblies and 175074-1 gussets on aileron (see Figures 3. and 4.).

11. Install ailerons on airplane as outlined in the Airplane Maintenance Manual, Section VII.

12. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: YES.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-14A, dated 10 May 1978, entitled "Inspection and Replacement of Aileron Hinge Supports" accomplished ___(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-15
29 March 1978

FRONT PASSENGER SEAT LOCKING MECHANISM MODIFICATION

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14367.

REASON FOR PUBLICATION: TO ASSURE THAT SEAT LOCKING PINS ARE ADEQUATELY LOCKED INTO SEAT TRACKS.

COMPLIANCE: WITHIN NEXT 100-HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER DEALER/DISTRIBUTOR OR SERVICENTER.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: ONE (1) HOUR.

PARTS DATA: 1 ea. Compliance Card.

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove existing seat stop arms from front passenger seat (see Figure 1.).
2. Rotate existing seat stop arms and reinstall on front passenger seat using existing hardware (see Figure 1.
3. Remove existing roll pin from seat locking mechanism handle, rotate handle and reinstall existing roll pin (see Figure 1.).
4. Pull up on seat locking mechanism handle to disengage locking pins and release handle to assure that locking pins are locked into seat tracks.
5. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: YES.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-15, dated 29 March 1978, entitled "Front Passenger Seat Locking Mechanism Modification", accomplished ___(date)_____.

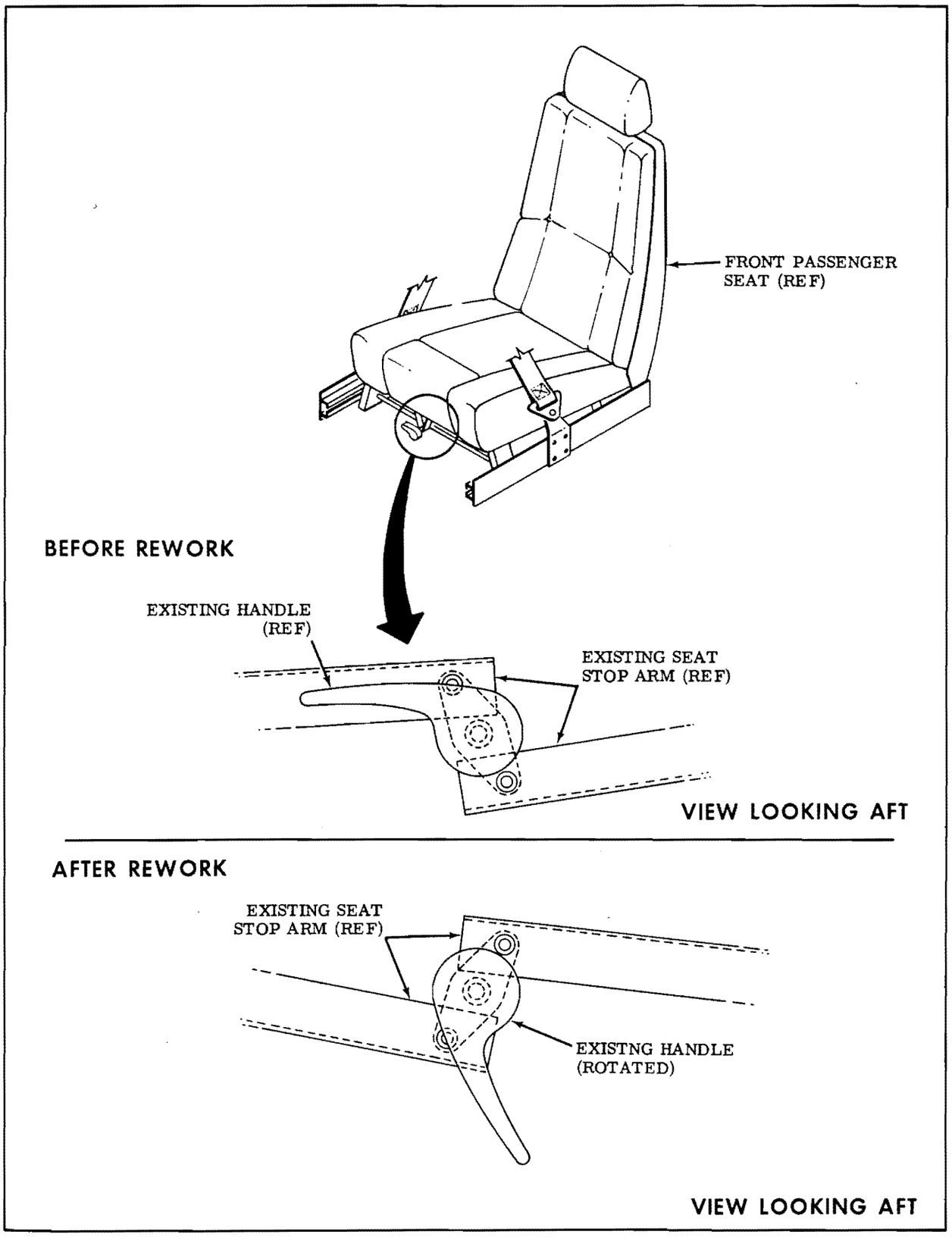


Figure 1.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-16
11 May 1979

PROPELLER GOVERNOR REPLACEMENT

MODELS AFFECTED: MODEL 114A, SERIAL NO'S 14501 THRU 14513.

REASON FOR PUBLICATION: TO PREVENT POSSIBLE RPM OSCILLATION DURING CLIMB-OUT AND CRUISE.

COMPLIANCE: WITHIN NEXT TWENTY-FIVE (25) HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER AUTHORIZED SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: THREE (3) HOURS.

PARTS DATA: Parts required to comply with this Service Bulletin may be procured through your nearest Rockwell Commander Authorized Service Facility for $390.00. If parts are ordered prior to 15 April 1980, a credit of $390.00 will be issued upon receipt of old propeller governor P/N 34-828-014-16, a properly executed Warranty Claim and a Compliance Card. If ordered after 15 April 1980, parts will be supplied on an outright sale basis with no credit due. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-16 kit consisting of the following:

Price subject to change without notice

QTY	PART NO.	DESCRIPTION
1 ea.	645003-501	Shroud Assy
1 ea.	645004-501	Bracket
1 ea.	210903	Propeller Governor
4 ea.	31C19	Stud
4 ea.	AN960-10L	Washer
4 ea.	MS21042L3	Nut
4 ea.	MS27039-1-06	Screw
1 ea.		Compliance Card
1 ea.	Service Bulletin No. SB-114-16	Instructions

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove upper cowling from engine.

2. Remove and discard existing propeller governor shroud assembly and reinstall existing screws on propeller governor to prevent governor separation.

3. Disconnect control cable from propeller governor. Retain attaching hardware for later installation.

4. Remove and discard existing propeller governor control cable bracket and reinstall existing screws on propeller governor to prevent governor separation.

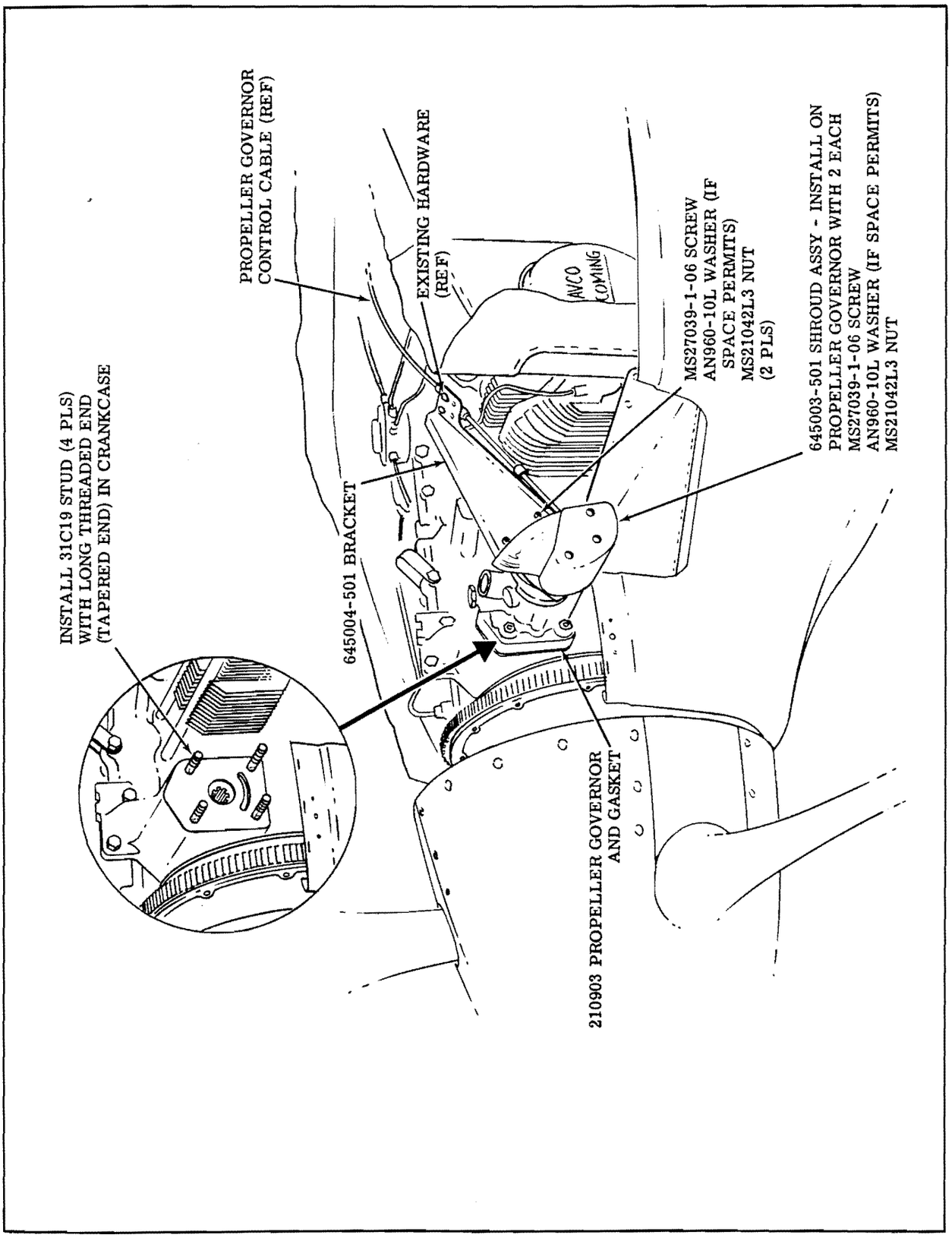


Figure 1.

5. Remove existing propeller governor from engine.

6. Remove existing propeller governor mounting studs from engine crankcase.

7. Install 31C19 stud (4 places) on engine crankcase. Studs should be threaded 0.70-inch into crankcase with approximately 1.68-inches of stud exposed. Install end with most threads (tapered end) into crankcase (see Figure 1.).

NOTE

If 31C19 studs thread into engine crankcase "freely", use oversize studs as required. Oversize stud part numbers 31C19-P03 (0.003), 31C19-P07 (0.007) or 31C19-P12 (0.012) are available through your nearest Avco Lycoming Service Outlet.

8. Install new gasket and 210903 propeller governor assembly as follows:

   a. Wipe governor and engine mounting pad clean.

   b. Install gasket on the mounting studs. Install gasket with raised surface of the gasket screen toward the governor.

   c. Position governor on mounting studs, aligning governor splines and splines in engine, and install existing mounting nuts and washers.

NOTE

Do not force spline engagement. Rotate engine crankshaft slightly and splines will engage smoothly when properly aligned.

9. Install 645004-501 bracket on propeller governor with MS27039-1-06 screw (2 places) and MS21042L3 nut (2 places) (see Figure 1.).

NOTE

Use AN960-10L washers only if space permits.

10. Connect propeller governor control cable to propeller governor and install cable on bracket using existing hardware (see Figure 1.).

11. Install 645003-501 shroud assembly on propeller governor with MS27039-1-06 screw (2 places) and MS21042L3 nut (2 places) (see Figure 1.).

NOTE

Use AN960-10L washers only if space permits.

12. Remove knobs from engine control levers.

13. Remove fuel selector knob assembly.

14. Remove quadrant friction control knobs.

15. Remove quadrant plate and console cover.

16. Remove metal console covers to gain access to Propeller Control cable.

17. Disconnect propeller governor control cable from control lever.

18. Pull carpet away from right side of console tunnel to expose rivets that attach propeller governor control cable bracket to console tunnel.

19. Drill out lower rivet that attaches propeller governor control cable bracket to console tunnel, rotate bracket and plug hole in console tunnel with MS20426AD4 rivet (see Figure 2.).

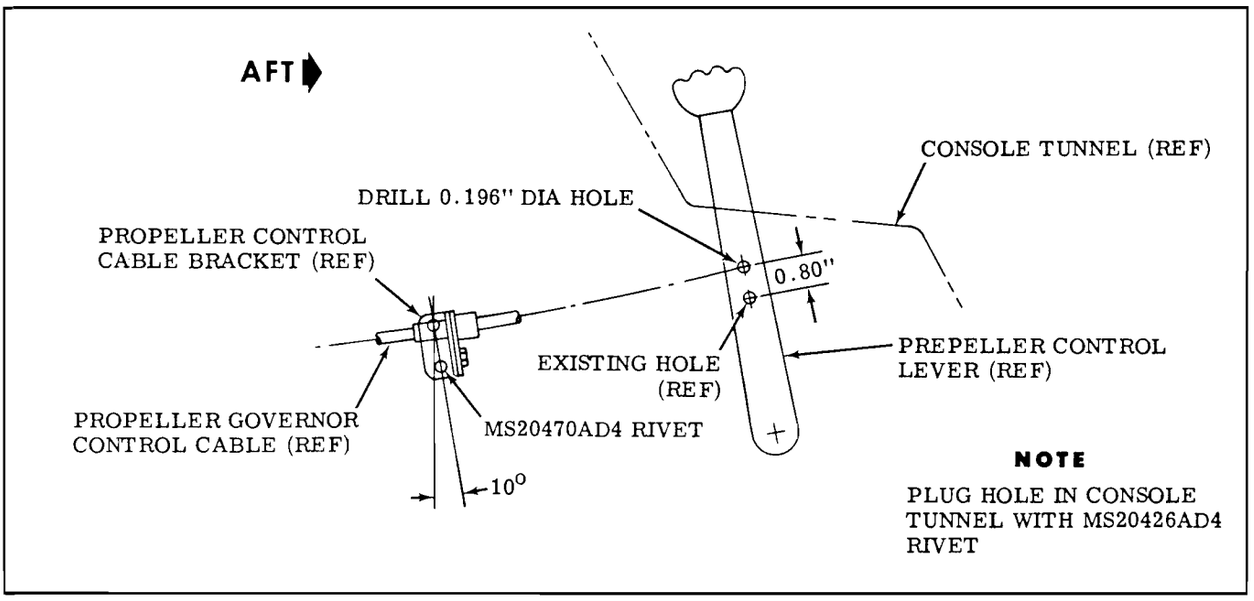


Figure 2.

20. Rotate lower end of propeller governor control cable bracket 10 degrees aft and drill and install a MS20470AD4 rivet (see Figure 2.).

21. Locate and drill a 0.196-inch diameter hole in existing propeller control lever (see Figure 2.).

22. Connect existing propeller governor control cable to new hole drilled in propeller control lever using existing hardware (see Figure 2.).

23. Assure all metal shavings are removed from console tunnel.

24. Rerig propeller governor controls as outlined in the Airplane Maintenance Manual, Section IV.

25. Cement carpet to right side of console tunnel with EC 1403 cement.

26. Reinstall items removed in steps 12. thru 16.

27. Reinstall upper cowling on engine.

28. Perform an engine runup to check propeller governor operation and check for signs of oil leakage.

29. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from installation of this Service Bulletin is as follows:

WEIGHT	H-ARM (INCHES)	H-MOMENT (IN-LBS)
+0.35	24.6	8.61

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-16, dated 11 May 1979, entitled "Propeller Governor Replacement", accomplished _____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-17
10 July 1979

AILERON BELLCRANK DOUBLER MODIFICATION

MODELS AFFECTED: MODEL 114A, SERIAL NO'S 14501 THRU 14511.

REASON FOR PUBLICATION: POSSIBLE CRACKS IN AILERON BELLCRANK DOUBLERS.

COMPLIANCE: WITHIN NEXT TWENTY-FIVE (25) HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER AUTHORIZED SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: FOUR (4) HOURS.

NOTE

IF ACCOMPLISHED BEFORE 10 AUGUST 1979, FOUR (4) MAN-HOURS WILL BE PAID UPON RECEIPT OF A PROPERLY EXECUTED WARRANTY CLAIM AND A COMPLIANCE CARD.

PARTS DATA: Parts required to comply with this Service Bulletin may be procured through your nearest Rockwell Commander Authorized Service Facility for $55.17. If parts are ordered prior to 10 August 1979, a credit of $55.17 will be issued upon receipt of a properly executed Warranty Claim and a Compliance Card. If ordered after 10 August 1979, parts will be supplied on an outright sale basis with no credit due. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-17 kit consisting of the following:

Price subject to change without notice

QTY	PART NO.	DESCRIPTION	CODE NO.
1 ea.	175032-RE55	Doubler	
1 ea.	175032-RE56	Doubler	
1 ea.	175032-RE57	Doubler	
1 ea.	175032-RE58	Doubler	
16 ea.	AN960-10L	Washer	1519000
16 ea.	MS21044N3	Nut	2719213
16 ea.	MS27039-1-09	Screw	2759381
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-17	Instructions	

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove screws attaching pitot head assembly access cover to lower left wing skin and pull pitot head assembly access cover down to gain access to left aileron bellcrank doublers.

2. Remove access cover from lower right wing skin to gain access to right aileron bellcrank doublers.

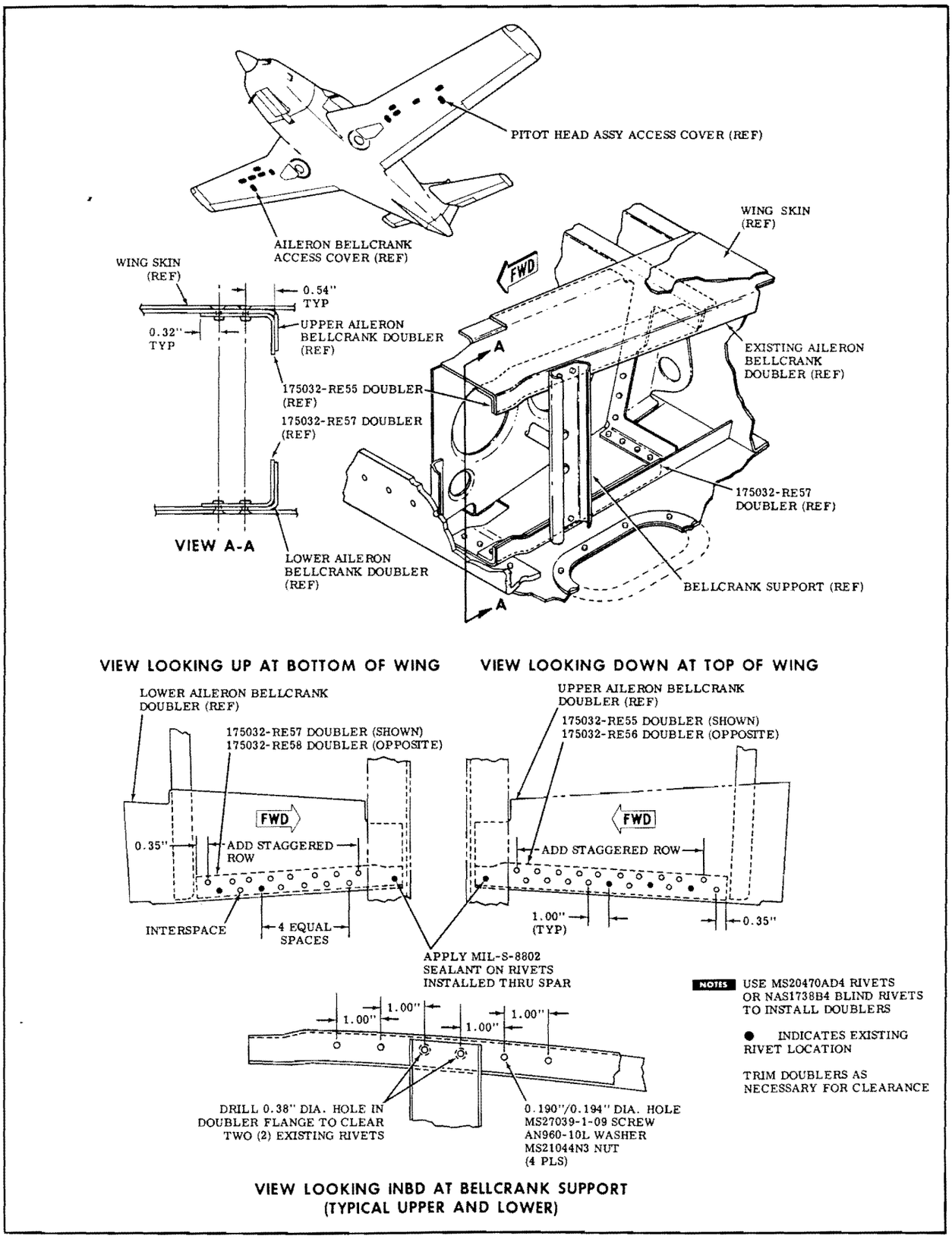


Figure 1.

3. Locate, drill and install 175032-RE55 doubler (left wing) and 175032-RE56 doubler (right wing) on upper aileron bellcrank doubler (see Figure 1.).

4. Locate, drill and install 175032-RE57 doubler (left wing) and 175032-RE58 doubler (right wing) on lower aileron bellcrank doubler (see Figure 1.).

5. Reinstall pitot head assembly access cover on lower left wing skin.

6. Reinstall access cover on lower right wing skin.

7. Repaint wing surfaces as necessary.

8. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from installation of this Service Bulletin is as follows:

WEIGHT (LBS)	H-ARM (INCHES)	H-MOMENT (IN-LBS)
+0.50	123	62.0

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-17, dated 10 July 1979, entitled "Aileron Bellcrank Doubler Modification", accomplished _____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-18
31 August 1979

ENGINE CONTROLS ROD END RETENTION

MODELS AFFECTED: MODELS 114 AND 114A, SERIAL NO'S 14001 THRU 14546.

REASON FOR PUBLICATION: TO IMPROVE ROD END RETENTION ON ENGINE CONTROLS.

COMPLIANCE: WITHIN NEXT TWENTY-FIVE (25) HOURS TIME IN SERVICE.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER AUTHORIZED SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: TWO (2) HOURS.

PARTS DATA: Parts required to comply with this Service Bulletin may be procured through your nearest Rockwell Commander Authorized Service Facility for $10.51. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-18 kit consisting of the following:

Price subject to change without notice

QTY	PART NO.	DESCRIPTION
6 ea.	S-0369-511	Washer
1 ea.		Compliance Card
1 ea.	Service Bulletin No. SB-114-18	Instructions

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

1. Remove upper cowling from engine.
2. Remove and discard existing large aluminum washer from throttle control lever, mixture control arm and prop governor lever and install S-0369-511 steel washers (see Figure 1.).

NOTE

Washers are to be installed under bolt head. Assure that rigging of controls is maintained.

3. Reinstall engine cowling.
4. Fill out and mail Compliance Card.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: NO.

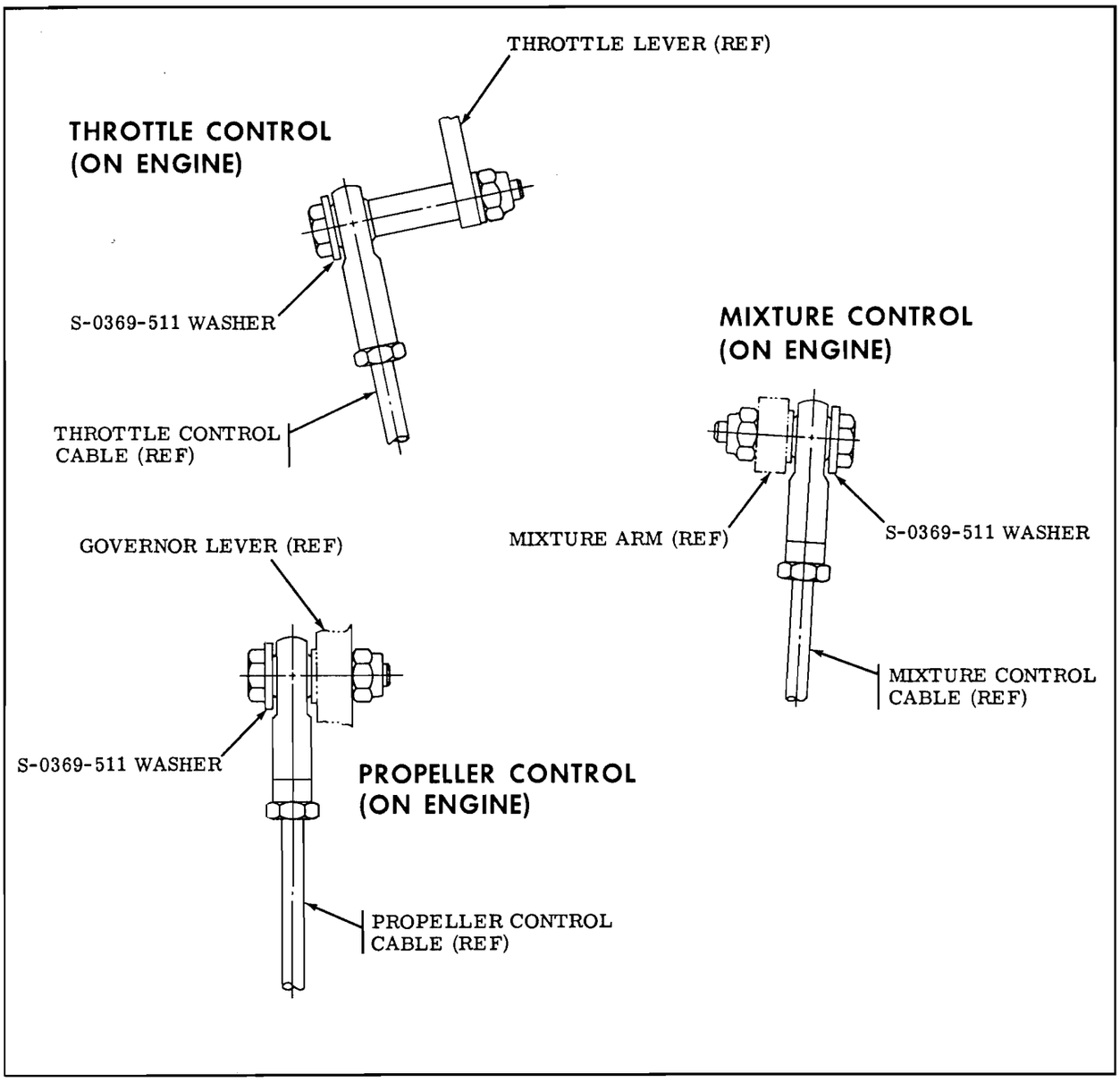


Figure 1.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog changes required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-18, dated 31 August 1979, entitled "Engine Controls Rod End Retention", accomplished ____(date)_____.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-19
26 September 1979

INSPECTION AND REPLACEMENT OF FUEL TANK ACCESS DOOR SEALANT

MODELS AFFECTED: MODEL 114, SERIAL NO'S 14000 THRU 14037, 14039 THRU 14360, 14362 THRU 14499 AND MODEL 114A, SERIAL NO'S 14501 THRU 14512, 14515, 14516, 14518, 14520, 14521, 14523 THRU 14527 AND 14529.

REASON FOR PUBLICATION: POSSIBLE BREAKDOWN OF FUEL TANK ACCESS DOOR SEALANT DUE TO LONG TERM EXPOSURE EFFECTS OF AVIATION FUEL, RESULTING IN POSSIBLE FUEL SCREEN CONTAMINATION.

COMPLIANCE: PART I - PRIOR TO NEXT FLIGHT.

PART II - DURING NEXT 100-HOUR INSPECTION.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST ROCKWELL COMMANDER AUTHORIZED SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 Approved.

ESTIMATED MAN HOURS: PART I - INSPECT FUEL - THIRTY (30) MINUTES.

PART II - REPLACE FUEL ACCESS DOOR SEALANT - FIVE (5) HOURS.

PARTS DATA: Material required to comply with Part II of this Service Bulletin may be procured through your nearest Rockwell Commander Authorized Service Facility for $11.30. Reference this Service Bulletin, aircraft model and factory serial number when ordering Service Bulletin No. SB-114-19 kit consisting of the following:

Price subject to change without notice

QTY	PART NO.	DESCRIPTION	CODE NO.
1 ea.	Model 654 (PR-1403-G-B2)	Sem Kit	3346068
1 ea.		Compliance Card	
1 ea.	Service Bulletin No. SB-114-19	Instructions	

NOTE

No parts or material is required for Part I of this Service Bulletin.

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

PART I - INSPECT FUEL.

1. Remove upper cowling from engine.
2. Remove gascolator screen from gascolator as outlined in the Airplane Maintenance Manual, Section V.
3. Remove fuel inlet screen from fuel injector.
4. Check gascolator screen and fuel injector inlet screen carefully for "pink" or "red" residue.

5. Sample fuel from each fuel drain by straining fuel through a "kleenex" or similar material to check for suspended "pink" or "red" residue.

6. If a "pink" or "red" residue is found in fuel, Part II of this Service Bulletin must be accomplished prior to next flight.

7. If no "pink" or "red" residue is found in fuel, proceed to step 8.

NOTE

Part II of this Service Bulletin must be accomplished during next 100-hour inspection.

8. Reinstall fuel inlet screen in fuel injector.

9. Reinstall gascolator screen in gascolator as outlined in the Airplane Maintenance Manual, Section V.

10. Assure there are no leaks in the fuel system.

11. Reinstall upper cowling on engine.

12. Fill out and mail Compliance Card specifying that Part I has been accomplished.

PART II - REPLACE FUEL ACCESS DOOR SEALANT.

NOTE

If no "pink" or "red" residue was found per Part I and airplane has been flown more than 25-hours since Part I was accomplished, it will be necessary to reinspect gascolator screen, fuel injector inlet screen and a fuel sample for a "pink" or "red" residue.

1. Defuel airplane as outlined in the Airplane Maintenance Manual, Section II, and dispose of fuel.

CAUTION

Removed fuel must not be used due to possible contamination.

2. Remove fuel tank access doors (8 places) from lower surface of left and right wing.

3. Remove finger inlet screens, located in left and right wing tanks, from fuel outlet tube as outlined in the Airplane Maintenance Manual, Section V.

4. Check all fuel screens for possible contamination.

5. If a "pink" or "red" residue is found, proceed to step 7.

6. If no "pink" or "red" residue is found, proceed to step 8.

7. Flush and clean all fuel tanks and fuel lines upstream of contaminated screens. Visually inspect all fuel tanks for cleanliness.

8. Clean or replace gascolator screen, finger inlet screens and fuel injector inlet screen and reinstall on airplane.

9. Remove all sealant (pink-red in color) from fuel tank access door openings and access doors. Assure that all sealant is removed.

10. Brush alodine bare aluminum, as required, after removal of sealant.

11. Apply a bead of PR-1403-G-B2 sealant around outer edge of access doors, door openings and around screw holes.

12. Install doors on left and right wings.

13. Allow sealant to cure at least 12 to 24 hours and then remove excess sealant.

14. Refuel airplane as outlined in the Airplane Maintenance Manual, Section II.

15. Assure there are no leaks.

16. Touch up paint on wing surfaces as necessary.

17. Reinstall upper cowling on engine.

18. Fill out and mail Compliance Card specifying that Part II has been accomplished.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: The Airplane Maintenance Manual changes required by this document will be incorporated at the next scheduled change/revision.

RECORD COMPLIANCE: Make an appropriate entry in the airplane maintenance records as follows: Service Bulletin No. SB-114-19, dated 26 September 1979, entitled "Inspection and Replacement of Fuel Tank Access Door Sealant", Part I accomplished (date) ; Part II accomplished (date) .

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-20
17 November 1981

RUDDER RIB INSPECTION

MODELS AFFECTED: MODEL 114 AND 114A, SERIAL NOS. 14000 THRU 14540.

REASON FOR PUBLICATION: POSSIBLE CRACKS IN RUDDER TIP RIB AT BALANCE WEIGHT ATTACH HOLE.

COMPLIANCE: PART I - PRIOR TO NEXT FLIGHT AND EVERY 100-HOURS THEREAFTER UNTIL PART II OF THIS SERVICE BULLETIN HAS BEEN ACCOMPLISHED.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST GULFSTREAM COMMANDER SINGLE ENGINE SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: PART I - OWNER/OPERATOR.
PART II - A & P MECHANIC OR EQUIVALENT.

APPROVAL: FAA DOA SW-2 APPROVED.

ESTIMATED MAN HOURS: PART I - INSPECT RIB - FIFTEEN (15) MINUTES.
PART II - INSTALL DOUBLER - SIX (6) HOURS.

PARTS DATA: PARTS AND MATERIAL REQUIRED TO COMPLY WITH PART II OF THIS SERVICE BULLETIN ARE TO BE PROCURED LOCALLY.

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

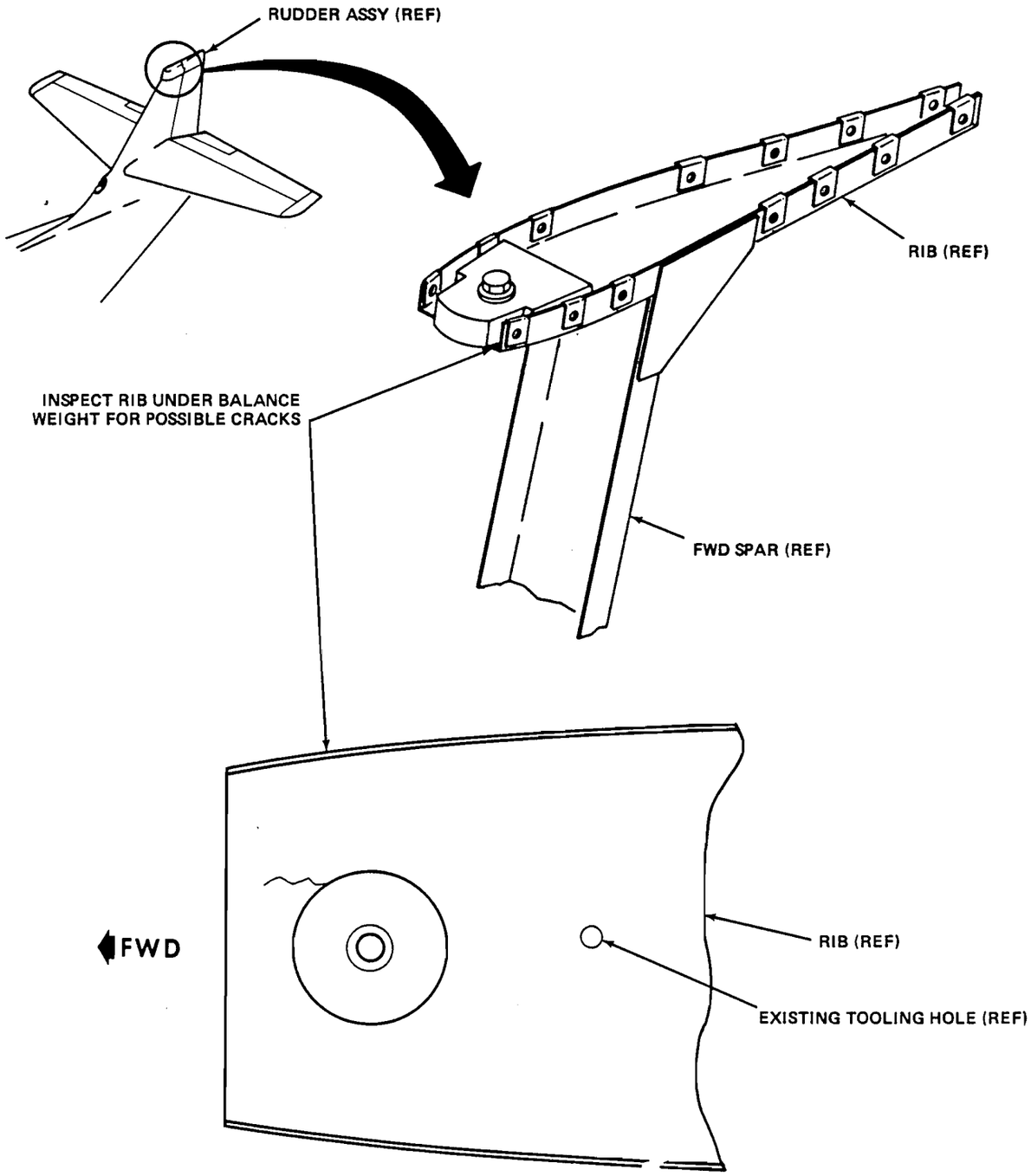
PART I - INSPECT FOR CRACKS.

1. Inspect rudder tip rib in area around balance weight attaching hole to check for cracks (refer to Figure 1).

NOTE

It is possible to inspect the bottom of the rib by rotating the rudder either to the left or to the right.

2. If no cracks are found, proceed to step 4.
3. If cracks are found in area of balance weight attaching hole, proceed to Part II of this Service Bulletin.
4. Fill out and mail Compliance Card specifying that Part I of this Service Bulletin has been accomplished. Note if any cracks were found.
5. Proceed to RECORD COMPLIANCE.



VIEW LOOKING DOWN

Figure 1.

PART II - INSTALL DOUBLER.

1. Remove rudder assembly from airplane as outlined in Section 7 of the Airplane Maintenance Manual.
2. Remove balance weight from rudder tip rib.
3. Fabricate a doubler from 0.125-inch, 2024-T3 clad aluminum sheet (refer to Figure 2).
4. Position fabricated doubler on bottom side of rudder rib, insert MS24694-S114 screw in rib bolt hole and in doubler hole (for hole alignment) and then locate and drill rivet attach holes in doubler and in rib (refer to Figure 2).
5. Remove doubler from rib and cut out bead (dimpled area) from rudder rib. Smooth cutout by using #400 grit emery cloth (refer to Figure 2).
6. Countersink holes in top side of fabricated doubler where balance weight installs over doubler. Countersink is for counter flushing MS20470AD4 rivets on top of doubler.
7. Deburr all holes in doubler and rudder rib.
8. Stop drill any cracks using a No. 40 drill.
9. Prime both sides of doubler and rib, as necessary, with zinc chromate primer.
10. Install fabricated doubler on top side of rudder tip rib using MS20470AD4 rivets. Rivet heads are to be on lower side of rib. Counter flush four (4) rivets in area under balance weight (refer to Figure 2).

NOTE

Length of rivets to be determined upon installation.

11. Reinstall existing balance weight on rudder tip rib, with counterbore up, using MS24694-S114 screw, existing AN970-4 washer and MS21042-4 nut. Torque nut 30 to 40 inch-pounds (refer to Figure 2).
12. Trim balance weight to assure clearance between rudder tip and weight (refer to Figure 2).
13. Reinstall tip on rudder using existing hardware.
14. Touchup paint, as necessary, on rudder assembly.
15. Check balance of rudder assembly as follows (refer to Figure 3):

NOTE

Balance to be 0 to 6 inch-pounds trailing edge light. This procedure applies to a fully painted rudder.

a. Secure two, ⅜-inch diameter by 6-inches long, rods approximately 59-inches apart on a flat surface. Allow rods to hang over edge approximately 3-inches.

NOTE

A bolt may be mounted in end of each rod to prevent rudder from slipping off rods.

b. Slide ¼-inch diameter bolts through upper and lower hinges and tighten with jam nuts.

c. Position rudder over rods so that bolts rest on rods.

d. Apply up to 1-pound of weight 6-inches aft of rudder hinge line at lower edge of rudder tip. Rudder should be balanced (level).

e. If more than 1-pound of weight is applied in order to balance rudder, trim rudder balance weight, as necessary, to balance rudder with 1-pound or less weight applied 6-inches aft of hinge line.

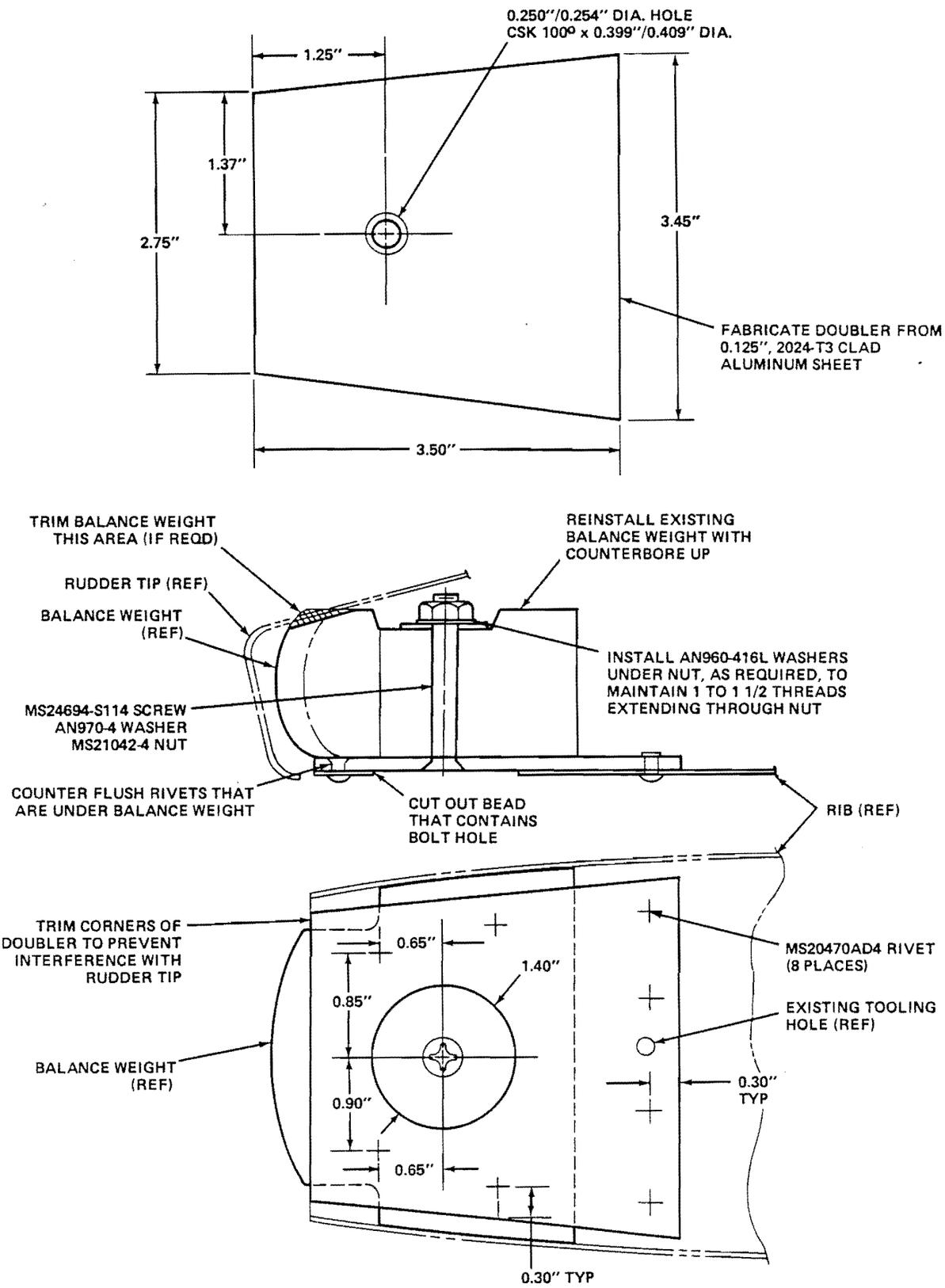


Figure 2.

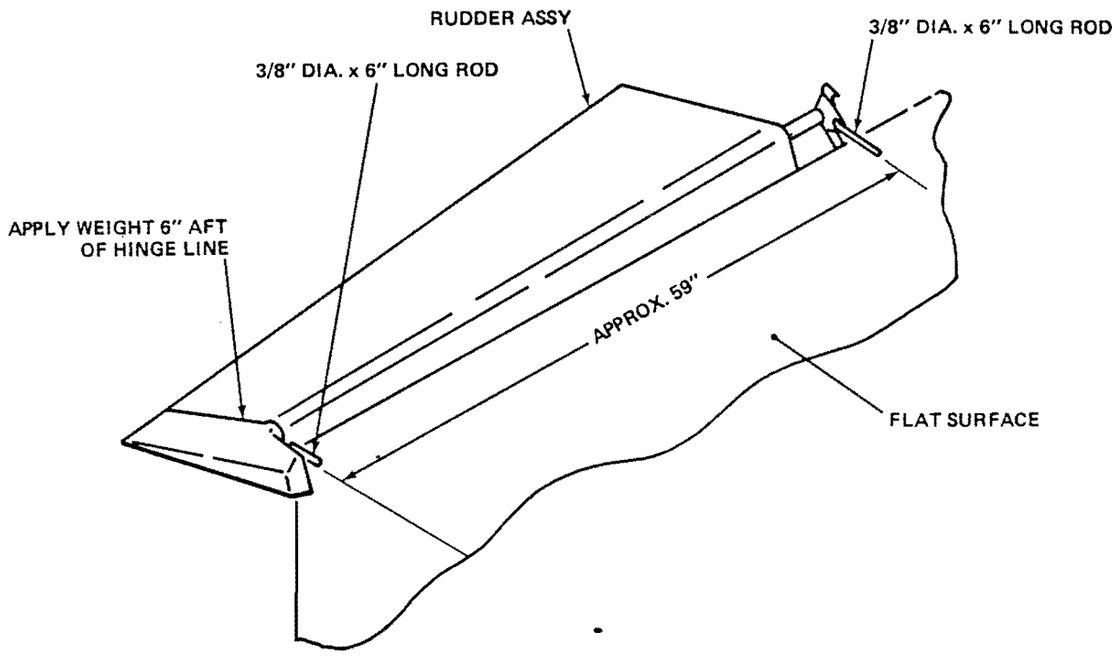


Figure 3.

NOTE

Rudder tip must be reinstalled, after trimming weight, to recheck balance of rudder assembly.

16. Reinstall rudder assembly on airplane as outlined in Section 7 of the Airplane Maintenance Manual.

17. Fill out and mail Compliance Card specifying that Part II of this Service Bulletin has been accomplished. Note if any cracks were found.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: NO CHANGE.

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-20, dated 17 November 1981, entitled "Rudder Rib Inspection", Part I accomplished _____(date)_____; Part II accomplished _____(date)_____.

Service Bulletin
Revision Notice

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-21A
REVISION NO. 1
23 February 1987

FRONT SEAT AND SHOULDER HARNESS MODIFICATION

APPROVAL: ENGINEERING DESIGN ASPECTS ARE FAA APPROVED.

COMPLIANCE:

Page 1 of 11

Change **NOTE** to read:

NOTE

Modification per this Service Bulletin or per Service Bulletin No. SB-114-5B meets the Requirements of Airworthiness Directive 85-03-04 R2 on the affected aircraft.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-21A
(Supersedes Service Bulletin No. SB-114-21 in its entirety)
6 June 1986

FRONT SEAT AND SHOULDER HARNESS MODIFICATION

MODELS AFFECTED: MODELS 114 AND 114A, SERIAL NOS. 14000 THRU 14540.

REASON FOR PUBLICATION: TO PROVIDE IMPROVED SEAT STRUCTURE WHICH WILL INCREASE OCCUPANT PROTECTION DURING EMERGENCY OR HARD LANDINGS.

COMPLIANCE: PART I – WITHIN NEXT TWENTY-FIVE (25) HOURS TIME IN SERVICE.
PART II – IF BASIC SERVICE BULLETIN NO. SB-114-21 HAS BEEN ACCOMPLISHED, COMPLY WITH PART II OF THIS SERVICE BULLETIN WITHIN NEXT 100-HOURS TIME IN SERVICE IF SHOULDER HARNESS DOES NOT OPERATE FREELY DURING EXTENSION AND RETRACTION.

NOTE

SERVICE BULLETIN NO. SB-114-5B IS SUPERSEDED BY THIS SERVICE BULLETIN.

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST GULFSTREAM COMMANDER SINGLE ENGINE SERVICE FACILITY.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: ENGINEERING DESIGN ASPECTS ARE FAA APPROVED.

ESTIMATED MAN HOURS: PART I – TWELVE (12) HOURS.
PART II – 1.5 HOURS.

PARTS DATA: PARTS REQUIRED TO COMPLY WITH PART I OF THIS SERVICE BULLETIN MAY BE PROCURED THROUGH YOUR NEAREST GULFSTREAM COMMANDER AUTHORIZED SINGLE ENGINE SERVICE FACILITY FOR $1075.00. FOR PARTS TO COMPLY WITH PART II OF THIS SERVICE BULLETIN, CONTACT GULFSTREAM AEROSPACE CORP., OKLAHOMA OPERATIONS, OKLAHOMA CITY, OK 73123. REFERENCE THIS SERVICE BULLETIN, AIRCRAFT MODEL AND FACTORY SERIAL NUMBER WHEN ORDERING SERVICE BULLETIN NO. SB-114-21A KIT CONSISTING OF THE FOLLOWING:

Price Subject To Change Without Notice

PART I – KIT NO. 1
PART II – KIT NO. 2

Kit No. 1 QTY.	Kit No. 2 QTY.	PART NO.	DESCRIPTION
1 ea.	–	315025-3	Doubler Assy
1 ea.	–	315025-4	Doubler Assy
2 ea.	–	315025-7	Strap
2 ea.	–	315025-9	Strap
2 ea.	–	315025-11	Strap
2 ea.	–	315025-13	Strap
2 ea.	–	315025-15	Cover
2 ea.	–	315027-3	Mechanism Assy
4 ea.	–	315027-17	Roller Assy
4 ea.	–	315027-37	Spacer
2 ea.	–	49081-1	Guide
4 ea.	2 ea.	49082-5	Guide Cover
2 ea.	–	502316-401-1028	Harness Assy
2 ea.	2 ea.	AN4-12A	Bolt
4 ea.	–	AN5-13A	Bolt
4 ea.	–	AN5-32A	Bolt
2 ea.	2 ea.	AN960-416	Washer
16 ea.	–	AN960-516	Washer
2 ea.	–	MS16562-25	Roll Pin
8 ea.	–	MS21042-5	Nut
20 ea.	–	NAS1669-08L-7	Blind Fastener
12 ea.	–	NAS1669-08L-8	Blind Fastener
2 ea.	–	NAS43HT4-28	Spacer
2 ea.	2 ea.	NAS43HT4-48	Spacer
2 ea.	2 ea.	NAS42DD12-34	Spacer
1 ea.	1 ea.		Compliance Card
1 ea.	1 ea.	Service Bulletin No. SB-114-21A	Instructions

SPECIAL TOOLS: NONE.

ACCOMPLISHMENT INSTRUCTIONS:

PART I

1. Remove pilot seat and front passenger seat from airplane.

2. Remove left and right interior side panels.

3. Remove left and right interior headliner panels.

4. Drill out rivets in left and right aft door frame and upper window frame, as necessary, for installation of 315025-3 and 315025-4 doubler assemblies (refer to Figure 1).

5. Locate, drill and install 315025-3 and 315025-4 doubler assemblies, 315025-7 strap, 315025-9 strap, 315025-11 strap and 315025-13 strap (refer to Figure 1).

6. Make cutout in left and right interior headliner panels to clear protrusion on 315025-3 and 315025-4 doubler assemblies.

7. Reinstall left and right interior headliner panels using existing hardware.

8. Reinstall left and right interior side panels using existing hardware.

9. Install 315025-15 cover on 315025-3 and 315025-4 doubler assemblies using EC 1403 cement or equivalent. Trim 315025-15 cover, as necessary, to fit (refer to Figure 1).

10. Cut a 0.62-inch notch on upper and aft end of left and right seat tracks to facilitate installation of seats (refer to Figure 3).

11. Rework pilot and front passenger seats as follows:

    a. Remove seat headrest and remove seat back shroud by carefully prying up on plastic headrest bushing flanges (refer to Figure 4).

    b. Remove roll pins attaching forward seat back adjustment handle and discard roll pin.

    c. Remove and discard existing shoulder harness inertia reel assembly and attaching hardware (refer to Figure 4).

    d. Remove seat back cushion by pulling forward on cushion and lifting up (refer to Figure 4).

    e. Rework seat frame assembly by cutting away existing seat belt support (refer to Figure 2).

    f. Remove and discard aft roller assemblies, and remove forward roller assemblies and retain for reinstallation.

    g. Remove and discard existing forward seat locking mechanism. Retain handle for reinstallation on new seat locking mechanism (refer to Figure 4).

    h. Modify seat frames as shown in Figure 5.

    i. Trim existing 49205-11 tube to dimensions shown in Figure 6.

    j. Paint bare metal on seat structure with zinc chromate primer and repaint seat structure as necessary.

    k. Install NAS43HT4-29 spacer on 315027-3 mechanism assembly shaft (refer to Figure 6).

    l. Install 315027-3 mechanism assembly on seat structure by inserting mechanism shaft into shaft tube and pushing mechanism assembly forward (refer to Figure 6).

NOTE

To assure that locking pins will mate with locking pin holes in seat tracks, centerline of front roller assembly and centerline of locking pin must be in line with centerline of aft roller assembly or both sides of seat frame prior to drilling holes and installing bolts.

    m. Drill holes in 315027-3 mechanism assembly and existing seat structure and install attaching hardware (refer to Figure 6).

    n. Drill and install existing handle on 315027-3 mechanism assembly using MS16562-25 roll pin (refer to Figure 6).

    o. Locate and cut a 0.40-inch by 2.45-inch slot in seat back shroud for routing of shoulder harness (refer to Figure 7).

    p. Reinstall seat back shroud and plastic headrest bushings.

12. Insert shoulder harness through inertia reel boot, one (1) 49082-5 guide cover, cutout in seat back shroud, 315027-37 spacer(s), 49081-1 guide, seat cushion and through the other 49082-5 guide cover and then lock into place with 49082-5 guide covers (refer to Figure 7).

NOTE

Install guide covers so that slotted side does not interfere with belt movement.

13. Install existing forward roller assemblies on 315027-3 mechanism assembly (refer to Figure 6).

14. Install 315027-17 roller assemblies on 315027-3 mechanism assembly (refer to Figure 6).

15. Install seat assembly as follows:

    a. With seat assembly tilted forward, insert front roller assemblies in seat track and allow locking pins to slide along top of track.

    b. Turn mechanism handle so that locking pins are in the retracted position and push seat assembly forward until locking pins are in line with slots shown in Figure 3.

    c. Lower seat assembly and align aft roller assemblies with seat track.

    d. Push seat assembly forward and install existing clevis pins and cotter pins in aft holes in seat track.

16. Install inertia reel on doubler assemblies using AN4-12A bolt, AN960-416 washer (under bolt head, NAS42DD12-34 spacer and NAS43HT4-48 spacer (refer to Figure 1).

17. Install inertia reel boot over inertia reel.

18. Fill out and mail Compliance Card specifying that Part I has been accomplished.

PART II

1. If shoulder harness reel assembly is restricted from rotating and allowing shoulder harness to be extended or retracted smoothly, install spacer, part number NAS43HT4-48, as follows:

    a. Remove boot from shoulder harness reel assembly (refer to Figure 7).

    b. Remove and discard existing AN4-6A bolt and NAS43HT4-16 spacer that attach shoulder harness reel assembly.

    c. Reinstall shoulder harness reel assembly using AN4-12A bolt, existing AN960-416 washer, NAS43HT4-48 spacer and NAS42DD12-34 spacer (refer to Figure 1).

    d. Reinstall existing boot on shoulder harness reel assembly.

2. If shoulder harness does not operate smoothly thru seat back and cushion guide covers, it may be in a bind due to original shoulder harness support that is welded to seat frame. This may be corrected by removing support from seat frame as follows:

    a. Remove head rest from seat assembly.

    b. Remove existing 49082-5 guide cover from forward side of seat cushion (refer to Figure 7).

    c. Remove seat back cushion by pulling forward on cushion and lifting up (refer to Figure 4).

    d. Remove seat back shroud, if necessary, to facilitate removal of existing shoulder harness support.

    e. Remove and discard existing shoulder harness support from seat frame (refer to Figure 2).

    f. Reinstall seat back shroud using existing hardware.

g. Reinstall seat back cushion and assure that shoulder harness is routed thru seat back as shown in Figure 7.

h. Install 49082-5 guide cover on forward side of seat cushion (refer to Figure 7).

i. Reinstall head rest on seat assembly.

3. Fill out and mail Compliance Card specifying that Part II has been accomplished.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The Weight and Balance change resulting from installation of this Service Bulletin is as follows:

	WEIGHT (LBS)	H–ARM (INCHES)	H–MOMENT (IN–LBS)
Part I –	+16.36	99.0	1619.0

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: Illustrated Parts Catalog.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-21A, dated 6 June 1986, entitled "Front Seat and Shoulder Harness Modification," Part I accomplished ___(date)___; Part II accomplished ___(date)___.

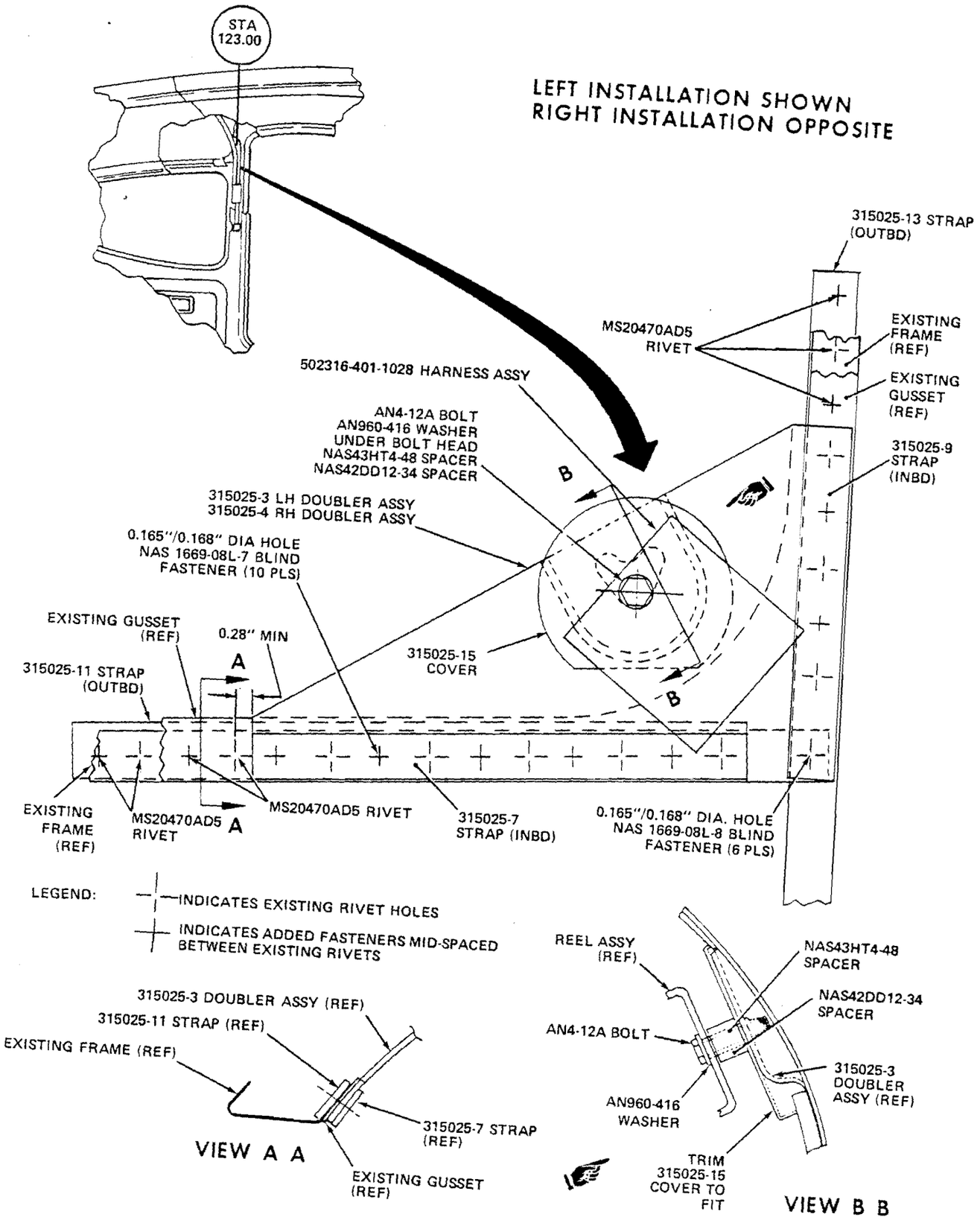


Figure 1.

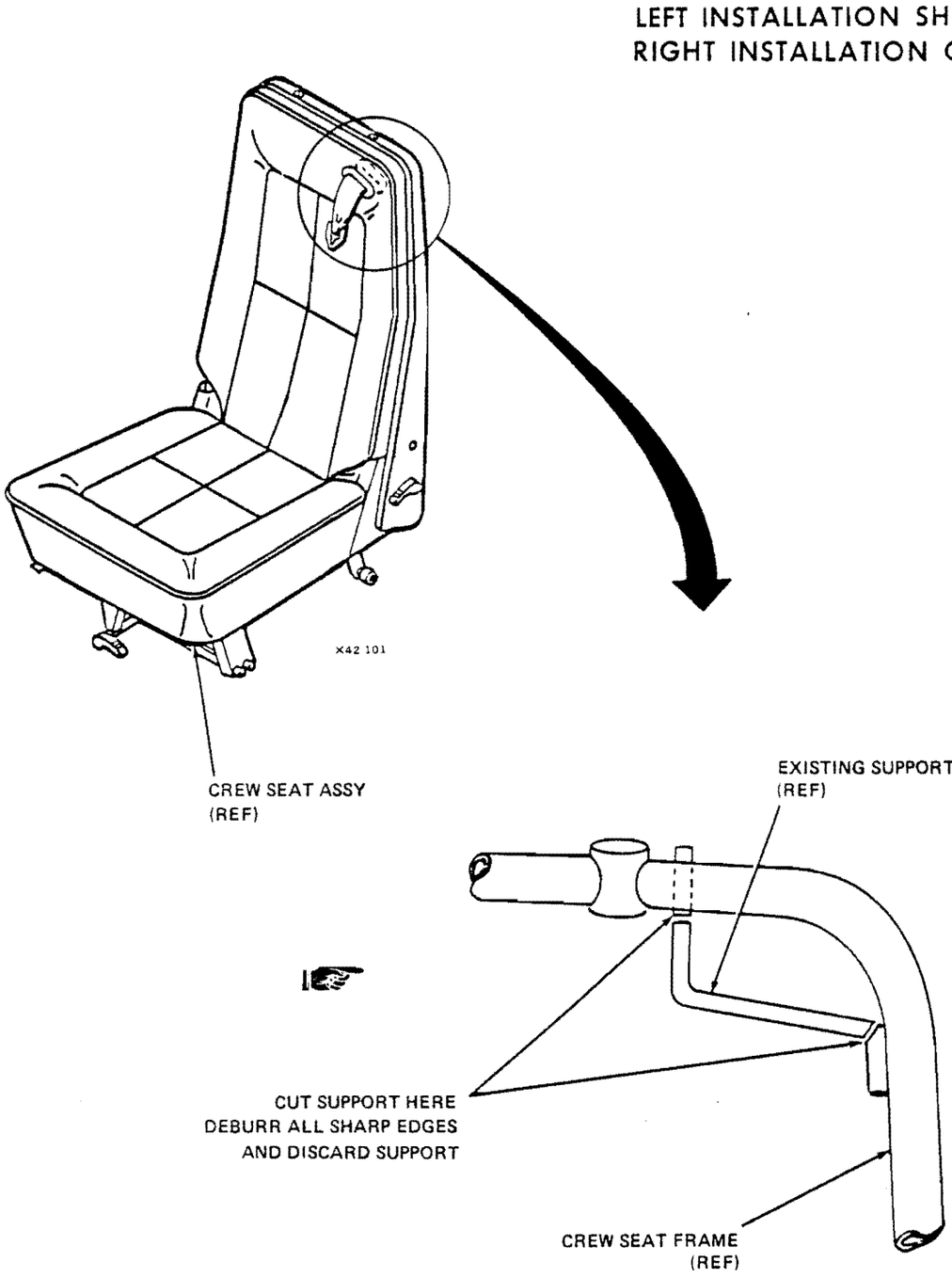


Figure 2.

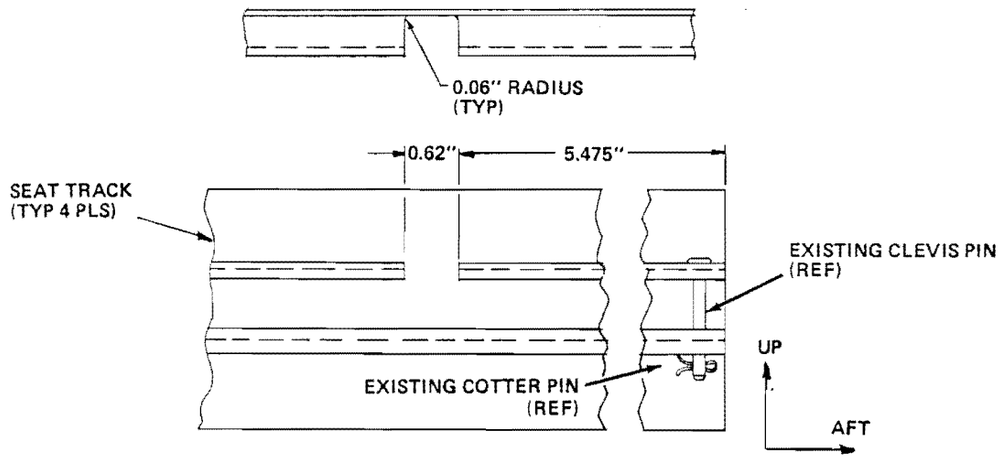


Figure 3.

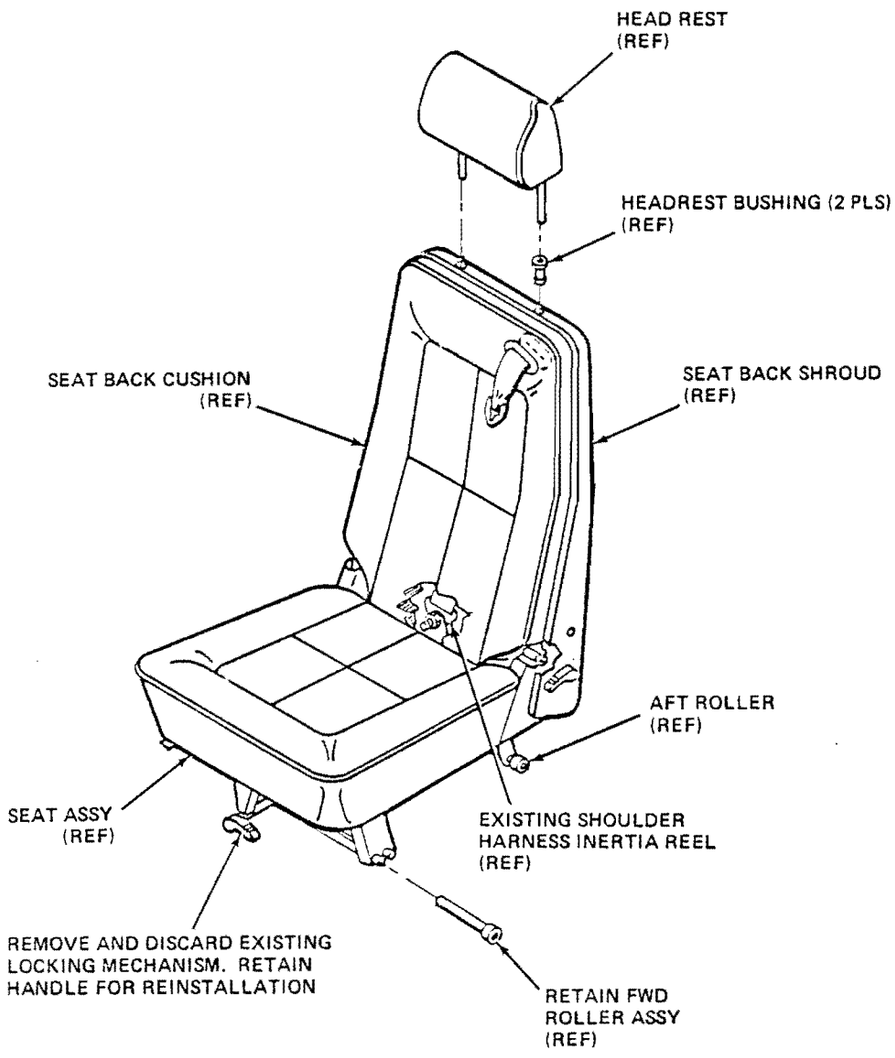
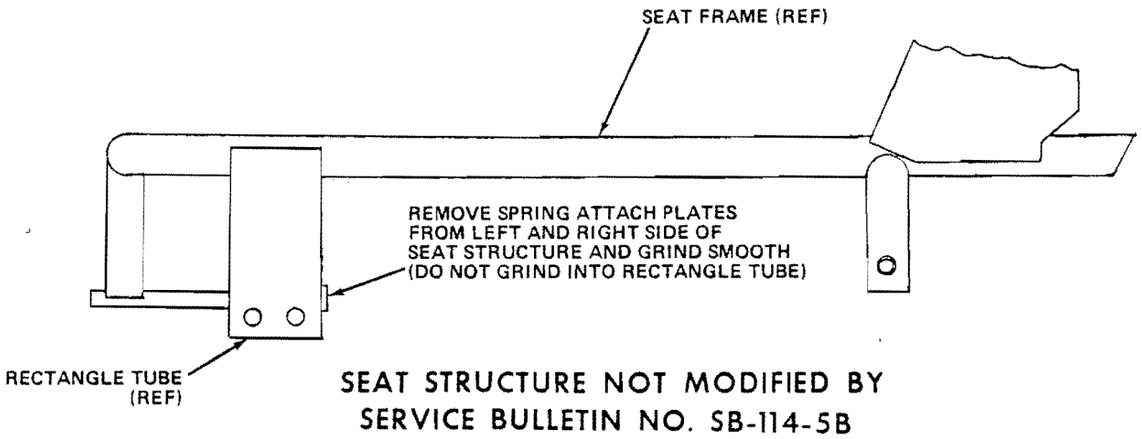
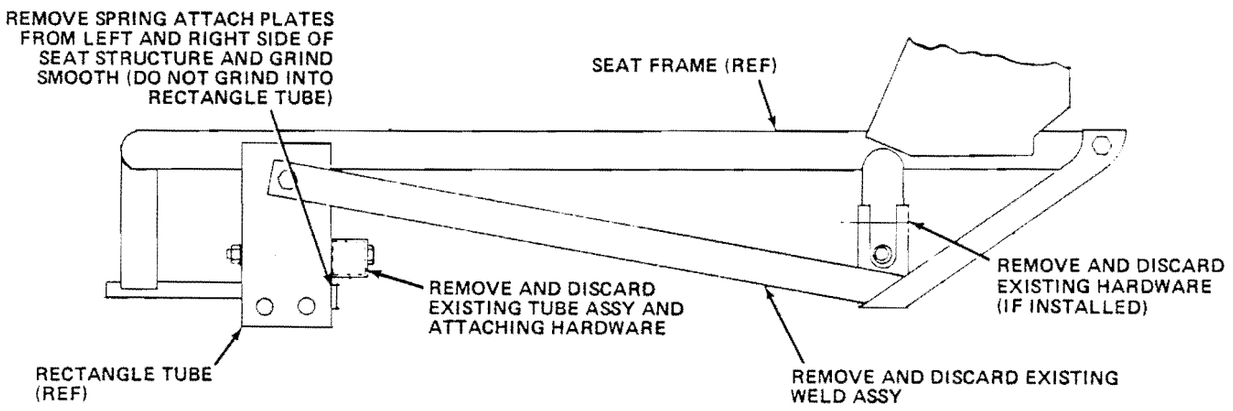


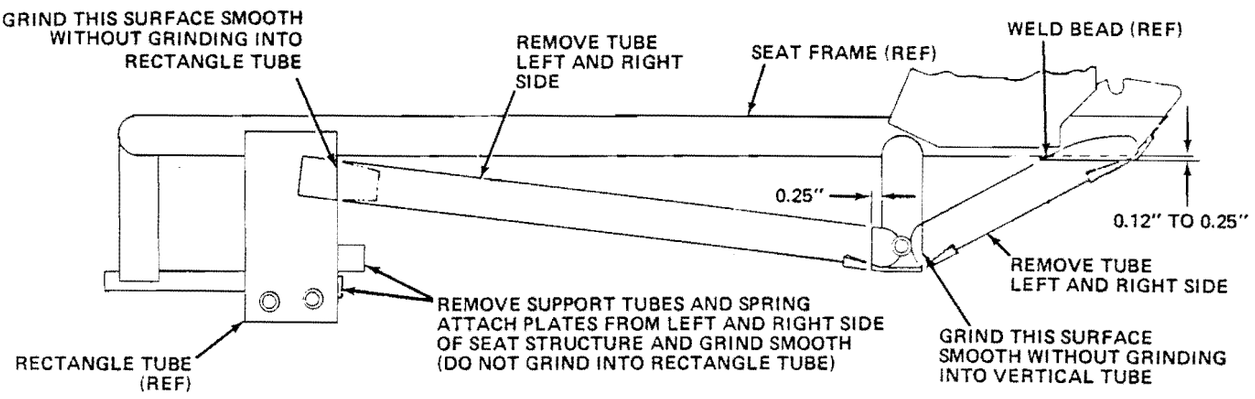
Figure 4.



SEAT STRUCTURE NOT MODIFIED BY SERVICE BULLETIN NO. SB-114-5B

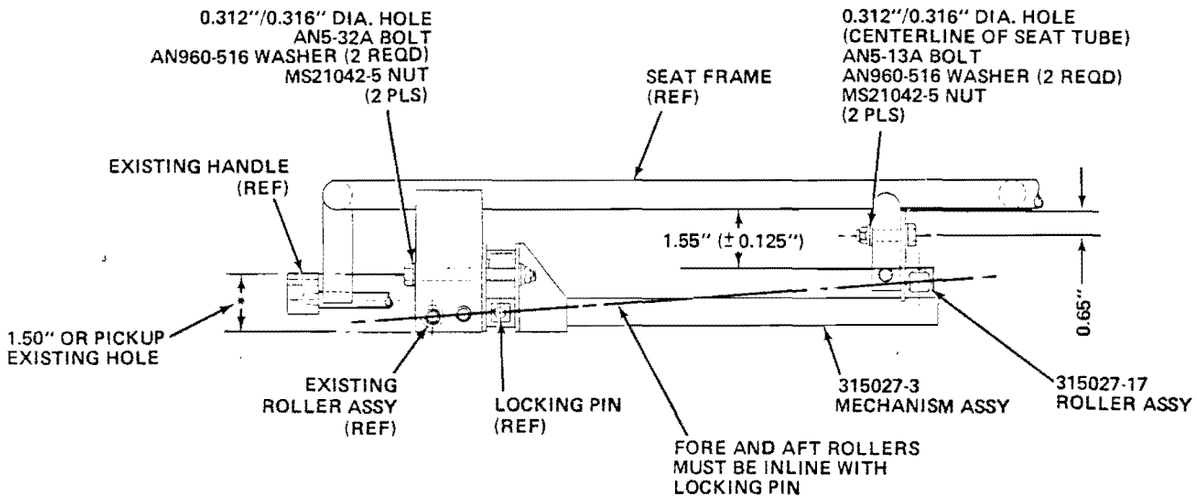


SEAT STRUCTURE MODIFIED BY SERVICE BULLETIN NO. SB-114-5B

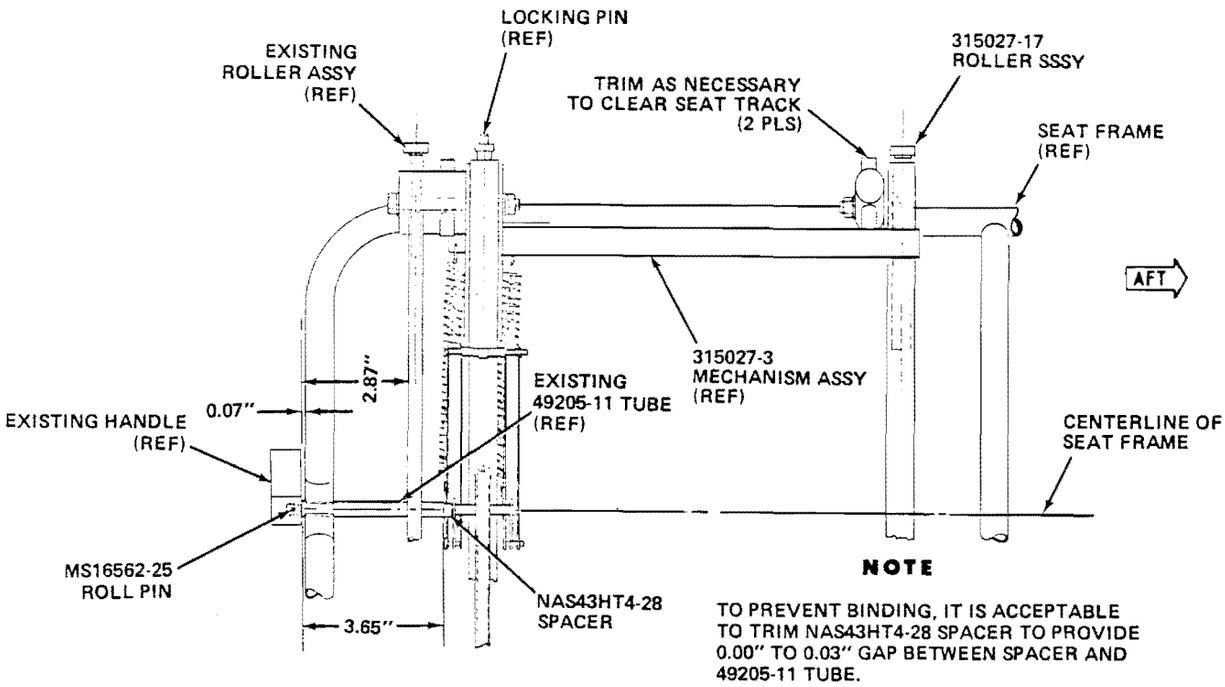


MODIFIED SEAT STRUCTURE INSTALLED AT FACTORY

Figure 5.



VIEW LOOKING INBD



VIEW LOOKING UP

LEFT INSTALLATION SHOWN
RIGHT INSTALLATION OPPOSITE

Figure 6.

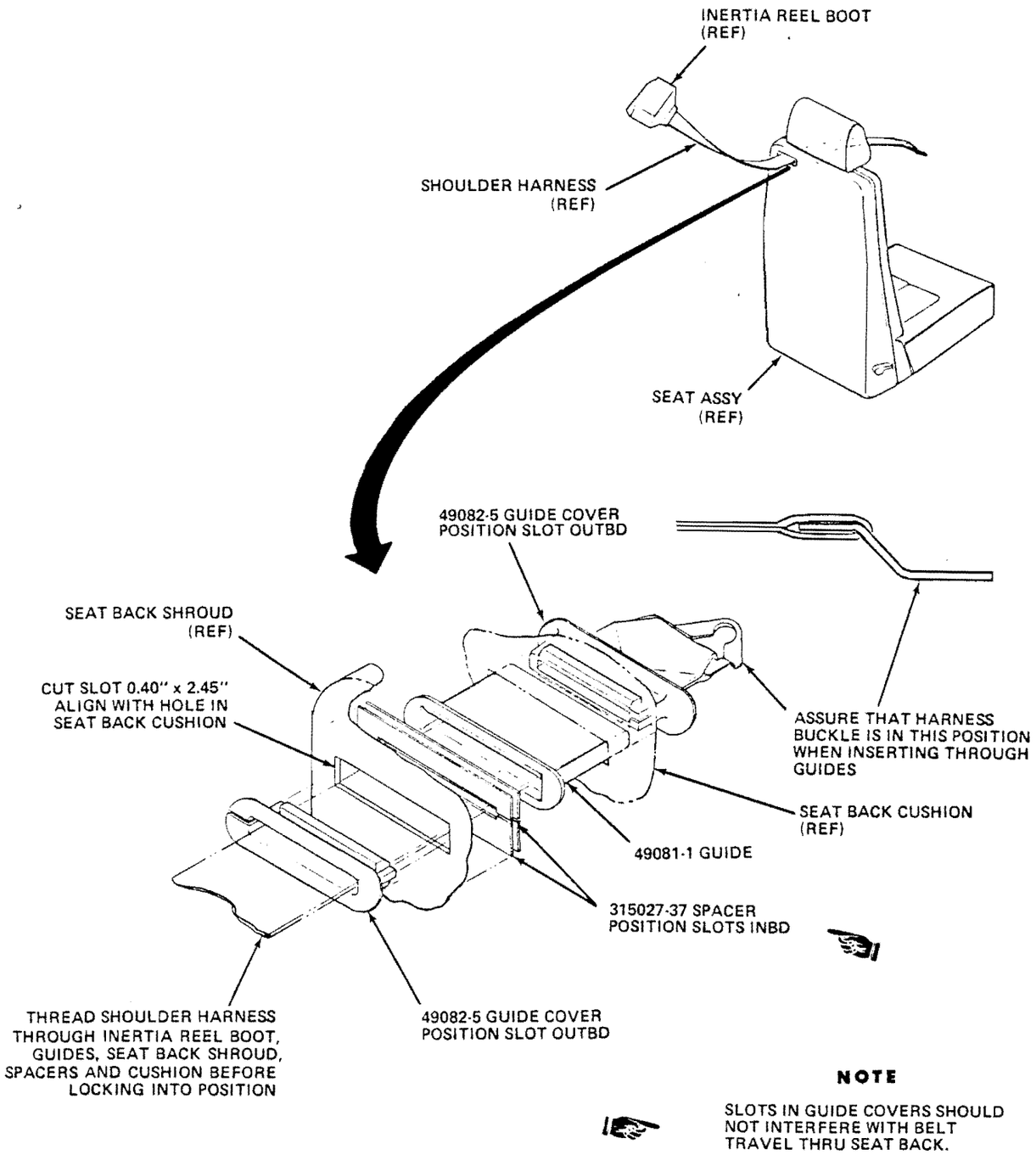


Figure 7.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-22C
(Supersedes Service Bulletin No. SB-114-22, -22A and -22B in their entirety)
November 1988

INSPECTION AND MODIFICATION OF FORWARD WING SPAR

NOTE

IF ANY PART OF SERVICE BULLETIN NO. SB-114-22, SB-114-22A OR -22B HAS BEEN COMPLIED WITH, YOU MUST ALSO COMPLY WITH THE APPROPRIATE PART OF THIS SERVICE BULLETIN THAT APPLIES TO YOUR AIRPLANE.

MODELS AFFECTED: MODELS 114 AND 114A, SERIAL NOS. 14001 THRU 14540.

NOTE

AIRPLANES MODIFIED PER GULFSTREAM AEROSPACE DRAWINGS 40002 RWK #1, #2, #4G, #4H OR 42000 RWK #3 (LEFT WING, RIGHT WING OR BOTH WINGS) ARE ONLY PARTIALLY IN COMPLIANCE WITH PART V OF THIS SERVICE BULLETIN AND MUST CONTACT THE FACTORY FOR FURTHER INSTRUCTIONS.

REASON FOR PUBLICATION: POSSIBLE CRACKS IN FORWARD WING SPAR, EITHER AROUND BOLT HOLES OR DIRECTLY ABOVE THEM.

COMPLIANCE: **PART I:** INSPECT LEFT AND RIGHT FORWARD WING SPARS WITHIN NEXT TWENTY-FIVE (25) HOURS TIME IN SERVICE, OR NEXT ANNUAL WHICHEVER COMES FIRST, AND EVERY ANNUAL INSPECTION THEREAFTER UNTIL PART II, PART III, PART IV OR PART V OF THIS SERVICE BULLETIN HAS BEEN ACCOMPLISHED.

NOTE

AIRPLANE MAY BE FERRIED TO APPROPRIATE STATION FOR INSPECTION AND/OR REPAIR.

REFER TO PART I INSTRUCTIONS TO DETERMINE WHICH PART OF THIS SERVICE BULLETIN IS REQUIRED FOR YOUR AIRPLANE UNLESS OTHERWISE NOTED UNDER COMPLIANCE.

NOTE

IN THE EVENT THAT ONLY ONE SIDE HAS BEEN MODIFIED, PART I CONTINUES TO APPLY TO THE UNMODIFIED WING UNTIL IT IS MODIFIED.

MODIFICATION PER THIS SERVICE BULLETIN MEETS THE REQUIREMENTS OF AIRWORTHINESS DIRECTIVE 87-14-03 ON THE AFFECTED AIRCRAFT.

PART II IF NO CRACKS ARE FOUND OR IF PART IV ONLY OF SB-114-22B HAS BEEN ACCOMPLISHED, PART II OF THIS SERVICE BULLETIN IS APPLICABLE. UNCRACKED AIRCRAFT CAN CONTINUE IN SERVICE FOR A PERIOD NOT TO EXCEED 300 ADDITIONAL FLIGHT HOURS OR THREE (3) CALENDAR YEARS, WHICHEVER OCCURS FIRST, PROVIDED INSPECTION REQUIREMENTS OF PART I ARE CONTINUED (REFER TO NOTE UNDER PART I COMPLIANCE).

IF CRACKS ARE FOUND, AS NOTED IN PART I INSTRUCTIONS, COMPLIANCE WITH PART II OF THIS SERVICE BULLETIN IS REQUIRED PRIOR TO NEXT FLIGHT (REFER TO NOTE UNDER PART I COMPLIANCE).

PART III IF PART II OF SB-114-22, PART II OF SB-114-22A OR PART II OR PART V OF SB-114-22B HAS BEEN ACCOMPLISHED, PART III OF THIS SERVICE BULLETIN IS APPLICABLE. UNCRACKED AIRCRAFT CAN CONTINUE IN SERVICE FOR A PERIOD NOT TO EXCEED 300 ADDITIONAL FLIGHT HOURS OR THREE (3) CALENDAR YEARS, WHICHEVER OCCURS FIRST, UNTIL PART III IS ACCOMPLISHED PROVIDED PART I INSPECTION REQUIREMENTS ARE MAINTAINED (REFER TO NOTE UNDER PART I COMPLIANCE).

PART IV PRIOR TO NEXT FLIGHT (REFER TO NOTE UNDER PART I COMPLIANCE).

PART V PRIOR TO NEXT FLIGHT (REFER TO NOTE UNDER PART I COMPLIANCE).

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT COMMANDER AIRCRAFT CO. PRODUCTS SUPPORT CENTER, HANGAR 8, WILEY POST AIRPORT, BETHANY, OK 73008, PHONE (405)495-8080.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: ENGINEERING DESIGN ASPECTS ARE FAA APPROVED.

ESTIMATED MAN HOURS:
PART I – INSPECT WING SPAR – 2.5 HOURS PER SIDE.
PART II – INSTALL FITTING, DOUBLER AND CLIP. (NEW INSTALLATION) – 30 HOURS PER SIDE.
PART III – INSTALL FITTING AND CLIP – 25 HOURS PER SIDE.
PART IV – INSTALL FITTING DOUBLER AND CLIP – 40 HOURS PER SIDE.
PART V – MODIFY WING SPAR (LEFT AND RIGHT SIDE) – 57 HOURS PER SIDE.

PARTS DATA: PARTS REQUIRED TO COMPLY WITH PART II, PART III, PART IV OR PART V OF THIS SERVICE BULLETIN MAY BE PROCURED THROUGH COMMANDER AIRCRAFT CO. PRODUCT SUPPORT CENTER, HANGAR 8 WILEY POST AIRPORT, BETHANY, OK 73008, PHONE (405)495-8080. REFERENCE THIS SERVICE BULLETIN, AIRCRAFT MODEL AND FACTORY SERIAL NUMBER WHEN ORDERING SERVICE BULLETIN NO. SB-114-22C KIT CONSISTING OF THE FOLLOWING:

NOTE

THE MS20426AD, MS20470AD AND NAS1738B RIVETS ARE TO BE PURCHASED LOCALLY.

If all parts are desired to be manufactured locally, contact Commander Aircraft Co. Product Support Center for blueprints.

PART II	KIT NO. 3 – LEFT WING SPAR
	KIT NO. 4 – RIGHT WING SPAR
PART III	KIT NO. 5 – LEFT WING SPAR
	KIT NO. 6 – RIGHT WING SPAR
PART IV	KIT NO. 7 – LEFT WING SPAR
	KIT NO. 8 – RIGHT WING SPAR
PART V	KIT NO. 1 – LEFT WING SPAR
	KIT NO. 2 – RIGHT WING SPAR

Kit No. 1 QTY	Kit No. 2 QTY	Kit No. 3 QTY	Kit No. 4 QTY	Kit No. 5 QTY	Kit No. 6 QTY	Kit No. 7 QTY	Kit No. 8 QTY	PART NO	DESCRIPTION
1 ea.	–	–	–	–	–	–	–	40002-RE59	Cap Splice
–	1 ea.	–	–	–	–	–	–	40002-RE60	Cap Splice
1 ea.	1 ea.	–	–	–	–	–	–	40002-RE65	Filler
1 ea.	–	–	–	–	–	–	–	40002-RE71	Doubler
–	1 ea.	–	–	–	–	–	–	40002-RE72	Doubler
1 ea.	1 ea.	1 ea.	1 ea.	–	–	1 ea.	1 ea.	40002-RE73	Door
2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	48553-1	Tube
2 ea.	2 ea.	–	–	2 ea.	2 ea.	–	–	165000-3	Shim
1 ea.	–	–	–	1 ea.	–	–	–	165002-5	Fitting
–	1 ea.	–	–	–	1 ea.	–	–	165002-6	Fitting
–	–	1 ea.	–	–	–	1 ea.	–	165002-7	Fitting
–	–	–	1 ea.	–	–	–	1 ea.	165002-8	Fitting
–	–	1 ea.	–	–	–	1 ea.	–	165003-1	Doubler
–	–	–	1 ea.	–	–	–	1 ea.	165003-2	Doubler
1 ea.	–	1 ea.	–	1 ea.	–	1 ea.	–	165003-17	Clip Assy
–	1 ea.	–	1 ea.	–	1 ea.	–	1 ea.	165003-18	Clip Assy
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	165003-7	Clip Assy
1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	165003-11	Shim
–	–	–	–	–	–	1 ea.	–	165003-13	Angle
–	–	–	–	–	–	–	1 ea.	165003-14	Angle
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	AN3-4A	Bolt
–	–	–	–	2 ea.	2 ea.	–	–	AN4C7A	Bolt
–	–	–	–	1 ea.	1 ea.	–	–	AN4C10A	Bolt
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	AN737TW26	Clamp
–	–	–	–	1 ea.	1 ea.	–	–	AN8-31	Bolt
14 ea.	14 ea.	14 ea.	14 ea.	–	–	14 ea.	14 ea.	AN960-10	Washer
8 ea.	8 ea.	–	–	3 ea.	3 ea.	–	–	AN960-10L	Washer
–	–	–	–	1 ea.	1 ea.	–	–	AN960C416	Washer
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	AN960D10	Washer
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	HL18PB-5-12	Pin*
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	HL70-5	Collar
3 ea.	3 ea.	3 ea.	3 ea.	–	–	3 ea.	3 ea.	HL79-8	Collar
2 ea.	2 ea.	2 ea.	2 ea.	–	–	3 ea.	3 ea.	HL62PB8-6	Pin*
1 ea.	1 ea.	1 ea.	1 ea.	–	–	–	–	HL62PB8-9	Pin*
–	–	–	–	1 ea.	1 ea.	–	–	MS21044N3	Nut
–	–	1 ea.	1 ea.	–	–	–	–	MS21044N4	Nut
14 ea.	14 ea.	14 ea.	14 ea.	–	–	14 ea.	14 ea.	MS21059L3	Nutplate
30 ea.	30 ea.	30 ea.	30 ea.	–	–	30 ea.	30 ea.	CCR264SS-3-2	Blind Rivet
4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	4 ea.	MS21919DG6	Clamp
1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	MS24665-283	Cotter Pin
–	–	–	–	1 ea.	1 ea.	–	–	MS35207-267	Screw
2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	2 ea.	MS35489-103	Grommet
–	–	1 ea.	1 ea.	1 ea.	1 ea.	–	–	NAS1581C4T4	Bolt
28 ea.	28 ea.	28 ea.	28 ea.	28 ea.	28 ea.	28 ea.	28 ea.	NAS1919B04-05	Blind Rivet
–	–	13 ea.	13 ea.	–	–	13 ea.	13 ea.	NAS1919B06-04	Blind Rivet
–	–	–	–	–	–	3 ea.	3 ea.	NAS1919B06-05	Blind Rivet
10 ea.	10 ea.	12 ea.	12 ea.	10 ea.	10 ea.	12 ea.	12 ea.	NAS1919B06-06	Blind Rivet
5 ea.	5 ea.	–	–	5 ea.	5 ea.	–	–	NAS1919B06-07	Blind Rivet
–	–	11 ea.	11 ea.	–	–	11 ea.	11 ea.	NAS1919B06-08	Blind Rivet
10 ea.	10 ea.	–	–	10 ea.	10 ea.	–	–	NAS1919B06-09	Blind Rivet
12 ea.	12 ea.	6 ea.	6 ea.	12 ea.	12 ea.	6 ea.	6 ea.	NAS1921B04-05	Blind Rivet
5 ea.	5 ea.	4 ea.	4 ea.	5 ea.	5 ea.	–	–	NAS1921B06-04	Blind Rivet
–	–	–	–	1 ea.	1 ea.	–	–	NAS43DD3-32	Spacer
14 ea.	14 ea.	14 ea.	14 ea.	–	–	14 ea.	14 ea.	NAS464P3-4A	Bolt
8 ea.	8 ea.	8 ea.	8 ea.	8 ea.	8 ea.	8 ea.	8 ea.	NAS1738B4-2	Rivet
1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	0222	Shop Aid
1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.		Compliance Card
1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	1 ea.	Service Bulletin No. SB-114-22C	Instructions

* Install AN960D washer under collar as required to adjust grip length. Maximum of two washers is allowed.

SPECIAL TOOLS: 90° ANGLE DRILL MOTOR, TUBE BENDER AND BLIND RIVET PULLERS.

ACCOMPLISHMENT INSTRUCTIONS:

PART I – INSPECT FORWARD WING SPAR

WARNING

The battery must be disconnected prior to starting this inspection to prevent inadvertent retraction of the landing gear.

1. Jack airplane as outlined in Airplane Maintenance Manual.

2. Gain access to area of wing spar to be inspected through main landing gear wheel well.

CAUTION

When removing side brace fittings, note location of any shims that may be installed under existing fittings to assure that they are reinstalled in same location.

3. Disconnect main landing gear side brace assembly at knuckle joint, disconnect hydraulic cylinder from side brace fitting and remove left and right side brace fittings from wing spar.

4. Thoroughly clean area of wing spar to be inspected, above side brace fitting location, using Methyl Ethyl Ketone (MEK) or an equivalent solvent (refer to Figure 1).

5. Dye penetrant inspect forward wing spar cap in area above side brace fitting location (refer to Figure 1). If there is an indication of a crack, remove zinc chromate primer and polish smooth with No. 400 emery cloth, or an equivalent, to remove all scratches and then dye penetrant inspect for cracks.

CAUTION

Care should be taken so as not to damage hydraulic lines when making cutout in step 6. When making cutout, dimensions shown in Figure 1. must be followed very closely so as not to cut into spar cap flange.

6. If necessary to facilitate inspection, make a cutout in side brace fitting doubler and in spar web to be used as an inspection hole as shown in Figure 1. Using an inspection mirror and flashlight or boroscope, inspect side brace fitting upper attach holes for cracks around holes in upper spar cap. Inspect aft side of spar cap (refer to Figure 1).

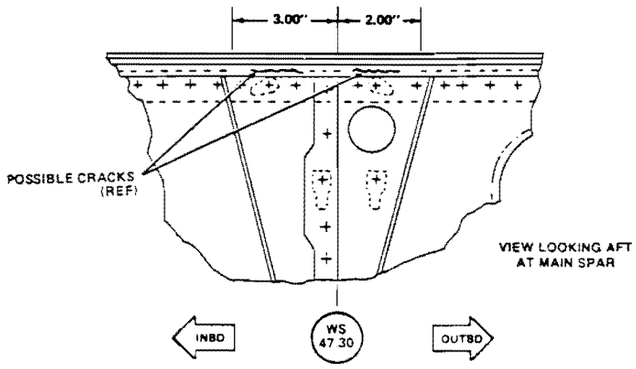
NOTE

If a flexible boroscope is available, it may not be necessary to make the cutout for inspection hole.

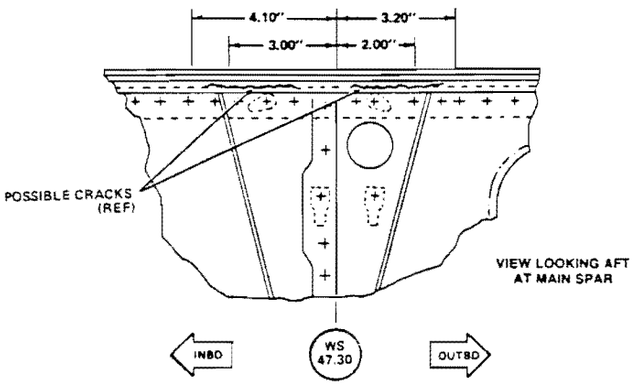
7. If NO cracks are found in wing spar, you may reinspect at next annual or comply with Part II of this Service Bulletin (Proceed to step 9).

8. If cracks are found in wing spar, proceed as follows:

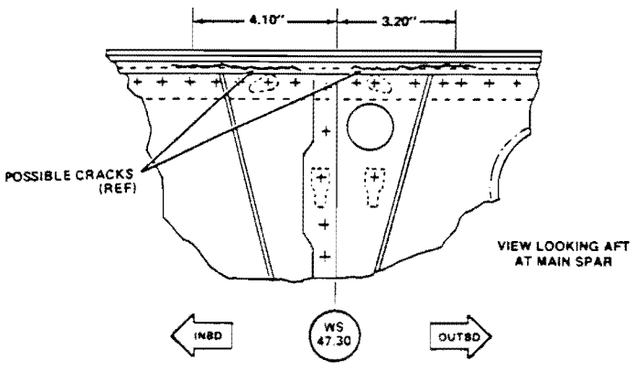
a. If upper bolt holes are cracked and cracks are found in radius of spar cap and cracks in radius extend less than 3.0 inches inboard or 2.0 inches outboard of wing station 47.30 trace, comply with Part IV of this Service Bulletin.



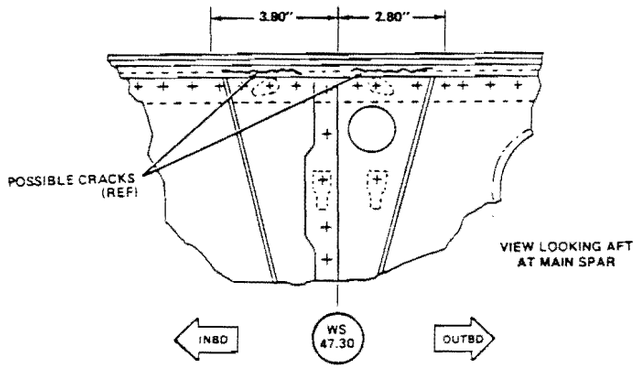
b. If upper bolt holes are cracked and cracks are found in radius of spar cap and cracks in radius extend less than 4.1 inches inboard or 3.2 inches outboard but more than 3.0 inches inboard or 2.0 inches outboard of wing station 47.30 trace, comply with Part V of this Service Bulletin.



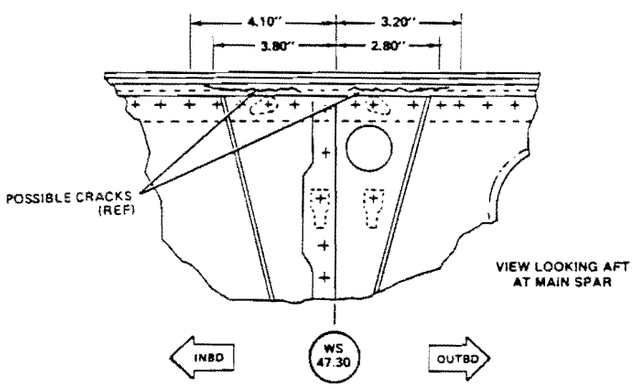
c. If cracks are found in radius of spar cap and cracks extend MORE than 4.1 inches inboard or MORE than 3.2 inches outboard of wing station 47.30 trace, contact the factory.



d. If upper bolt holes are NOT cracked and if cracks are found in radius of spar cap and cracks extend less than 3.8 inches inboard or less than 2.8 inches outboard of wing station 47.30 trace, comply with Part II of this Service Bulletin.



e. If upper bolt holes are NOT cracked and if cracks are found in radius of spar cap and cracks in radius extend MORE than 3.8 inches inboard or MORE than 2.8 inches outboard but less than 4.1 inches inboard or less than 3.2 inches outboard of wing station 47.30 trace, comply with Part V of this Service Bulletin.



9. Dye penetrant inspect existing 42274 side brace fittings. If side brace fitting is cracked, replace with new 42274 fitting or comply with Part II of this Service Bulletin.

NOTE

Replacement of fitting does not eliminate compliance requirements of this Service Bulletin.

10. If no cracks are found in fitting, clean area of dye penetrant and reinstall landing gear side brace fitting and any existing shims under fitting on forward wing spar using existing hardware. Torque bolts to 90 inch-pounds, loosen bolts and then retorque bolts to 70 inch-pounds.

NOTE

Part II of this Service Bulletin may be accomplished at this time.

11. Reconnect side brace assembly at knuckle joint and reconnect hydraulic cylinder to side brace fitting using existing hardware.

12. Reconnect airplane battery and functional check main landing gear as outlined in Section VI of the Airplane Maintenance Manual.

13. Remove jacks from airplane.

14. Fill out and mail Compliance Card specifying that Part I has been accomplished, state if cracks were found and list hours that airplane has been flown.

PART II – INSTALL FITTINGS, DOUBLERS AND CLIPS

WARNING

The battery must be disconnected prior to starting this modification to prevent inadvertent retraction of landing gear.

1. Jack airplane as outlined in airplane Maintenance Manual.

2. Disconnect main landing gear side brace assembly at knuckle joint and disconnect hydraulic cylinder from side brace fitting.

3. If installed, remove and discard 40002-RE87 support assembly, 40002-RE97 rod assembly, 175080-1 left fitting and 175080-2 right fitting (refer to Figure 3).

4. Remove and discard existing left or right main landing gear side brace fitting and attaching hardware.

5. Disconnect hydraulic lines at wing station 47.30 and cap all lines.

CAUTION

Care should be taken when cutting fuel vent line to prevent cutting hydraulic lines adjacent to fuel vent line.

6. Cut existing fuel vent line on each side of rib at wing station 47.30 and remove cutout section of vent line. Retain cut out section of fuel vent line for later reinstallation (refer to Figure 11).

7. Remove rivets from lower flange of forward rib at wing station 47.30 to facilitate installation of new doubler and side brace fitting. It may be necessary to remove some of the rivets from the upper flange of the rib in order to install rivets in 165003-1 or -2 doubler.

8. Remove existing left or right side brace fitting doubler (refer to Figure 2).

NOTE

When rivets that attach doubler to spar web are removed, the rivets that attach side brace fitting nutplates will also need to be removed.

9. Trim aft end of existing wing rib at station 47.30 as shown in Figure 4, view A-A.

10. Remove rivets thru upper wing skin and spar cap legs in area where 165003-1 and -2 doublers and 165002-7 and -8 fittings are to be installed (refer to Figure 4).

11. Position 165003-1 or -2 doubler on forward side of spar web and use doubler as a template to mark location for a 3.80-inch diameter access hole in spar web (refer to Figure 4).

12. Remove doubler and cut 3.80-inch diameter access hole in spar web. Deburr cut edges and brush alodine (refer to Figure 4).

13. Dye penetrant inspect upper side brace fitting holes in upper spar cap, from aft side, to assure that no radial cracks exist around holes.

14. If cracks exist around bolt holes, refer to Part I instructions to determine which Part of this Service Bulletin you need to comply with.

15. If no cracks exist around bolt holes, position 165003-1 or -2 doubler on spar web. Pick up existing rivet holes in spar web and spar cap and drill all existing attaching rivet holes for doubler. Pick up two (2) 0.250-inch diameter lower holes in spar web (holes that attached side brace fitting) and drill 0.250-inch diameter holes in doubler and then remove doubler . A hole finder may be used to locate holes (refer to Figure 4).

16. If cracks were found in radius of spar cap as noted in step 8. d. of Part I Inspection, proceed as follows:

    a. Remove rivets thru upper wing skin and spar cap doubler to facilitate installing a piece of full hard stainless steel sheet stock (0222 shop aid furnished with this kit) between vertical leg of spar cap and spar cap doubler (refer to Figure 2).

CAUTION

When stop drilling cracks in spar cap, it is recommended that a piece of full hard stainless steel sheet stock be placed between spar cap vertical leg and vertical leg of spar cap doubler to prevent drilling into spar cap doubler. If spar cap doubler is damaged while stop drilling cracks, contact factory before proceeding any further. This doubler is not installed on airplane serial nos. 14532 thru 14540.

17. Stop drill cracks in radius of spar cap as follows:

    a. Insert full hard stainless steel sheet stock between doubler and spar cap vertical leg to protect doubler (refer to Figure 6, view A–A).

NOTE

Step a. does not apply to airplane serial nos. 14532 thru 14540

    b. Mark end of No. 30 drill bit to assure that drill bit does not penetrate more than 0.09 inch into spar cap leg.

    c. Stop drill both ends of cracks with a No. 30 drill bit. Finish drilling hole using a flat-ended drill bit.

    d. Remove stainless steel sheet stock and assure that drill bit did not penetrate thru sheet stock.

    e. Dye penetrant cracks to assure that cracks do not extend past stop-drilled holes.

17a. Reattach existing spar cap doubler to spar cap and skin using MS20470AD4 rivets (refer to Figure 2).

18. With doubler removed from airplane, position 165002-7 or -8 fitting on 165003-1 or -2 doubler and align two (2) lower 0.250-inch diameter holes in fitting with two (2) lower 0.250-inch diameter holes in doubler. Drill upper 0.250-inch diameter hole in doubler to match upper hole in fitting (refer to Figure 4).

19. Insert 165003-11 shim between fitting flange and doubler flange, if necessary, to assure no gap exists between fitting and doubler when all three (3) 0.250-inch diameter holes are aligned properly. Drill holes in 165003-11 shim to match holes in fitting and doubler (refer to Figure 4).

NOTE

If the 165003-11 shim is too thick or too thin, check gap dimension and fabricate a shim to proper thickness to fill gap and brush alodine. Shim material is 2024-T3, QQ-A-250/5 aluminum sheet stock.

20. Lay out and drill remaining holes in fitting and doubler (refer to Figure 4).

21. Position 165003-1 or -2 doubler and 165002-7 or -8 fitting on spar web and drill remaining holes in spar (refer to Figure 4).

22. Ream three (3) 0.250-inch diameter holes in fitting, doubler, spar cap and spar web to 0.2655/0.2685 inch diameter (refer to Figure 4).

23. Position 40002-RE73 door on doubler and rotate door, as necessary, to align pilot holes in doubler and drill and ream fourteen (14) 0.1895/0.1915-inch diameter holes thru door, doubler and spar web. Since these are close tolerance holes, it is recommended that smaller holes be drilled first and then reamed to size (refer to Figure 4).

24. Locate and drill 165003-17 or -18 clip assembly on lower spar cap and fitting (refer to Figure 4, view B–B).

25. Drill hole (7 places) that attach forward wing rib to 165002-7 or -8 fitting (refer to Figure 4, view A–A).

26. Remove all parts from forward side of spar web, deburr all drilled holes, brush alodine and touch up paint on parts.

27. Deburr all holes in spar web and spar cap and brush alodine.

28. Install all parts on forward side of spar web and install fasteners (refer to Figure 4).

NOTE

Install flush fasteners thru doubler before installing fitting.

29. Intall MS21059L3 nutplates (14 places) on aft side of spar web using CCR264SS-3-2 blind rivets or MS20426AD3 rivets. Rivets are to go thru doubler and spar web (refer to Figure 4).

30. Install MS35489-103 grommets on side brace fitting using EC1403 cement or an equivalent (refer to Figure 11).

31. Install existing cutout section of fuel vent line, 48553-1 tube (2 places), 165003-7 clip assembly (4 places) and AN737TW26 clamps (refer to Figure 11).

32. Using a tube bender, reform existing hydraulic lines to clear side brace fitting, reconnect hydraulic lines and secure to rib using existing hardware.

33. Reconnect upper side brace assembly to side brace fitting and to lower side brace assembly using existing hardware.

34. Manually swing gear up into UP position to assure free and clear operation.

35. Reconnect hydraulic cylinder to side brace fitting using existing hardware and assure that landing gear switch is reinstalled on side brace assembly.

36. Install 40002-RE73 door using NAS464P3-4A bolt (14 places) and AN960-10 washer (14 places). Torque bolts 12 to 15 inch-pounds (refer to Figure 4).

37. Fillet seal around door with RTV 162 sealant or an equivalent sealant.

38. Reconnect cables to airplane battery.

39. Functional check landing gear system for operation and check panel for gear indication.

40. Remove jacks from airplane.

41. Touchup paint as necessary.

42. Fill out and mail Compliance Card specifying that Part II (left wing, right wing or both wings) has been accomplished.

PART III – INSTALL FITTINGS AND CLIPS

WARNING

The battery must be disconnected prior to starting this modification to prevent inadvertent retraction of landing gear.

1. Jack airplane as outlined in Airplane Maintenance Manual.

2. Disconnect main landing gear side brace assembly at knuckle joint and disconnect hydraulic cylinder from side brace fitting.

3. Remove and discard existing 40002-RE87 support assembly and attaching hardware (refer to Figure 3).

NOTE

It is acceptable to leave holes open in rib.

4. Remove and discard existing 40002-RE97 rod assembly and attaching hardware (refer to Figure 3).

5. Remove and discard existing 175080-1 left fitting and 175080-2 right fitting (refer to Figure 3).

6. Remove and discard existing left and right main landing gear side brace fittings and attaching hardware (refer to Figure 3).

7. Remove and discard existing angles (P/N 40002-RE61, -RE62, -RE63 and -RE64) and tapered shims from forward side of spar web (refer to Figure 3)

8. Remove rivets thru upper wing skin and spar cap legs in area where 165002-5 and -6 fittings are to be installed (refer to Figure 5).

9. Remove access door from spar web to facilitate installation of 165002-5 and -6 fittings.

9a. Dye penetrant inspect cap splice radius and bolt holes in cap splice for possible cracks. If cracks exist, contact the factory.

10. Disconnect hydraulic lines at wing station 47.30 and cap all lines.

CAUTION

Care should be taken when cutting fuel vent line to prevent cutting hydraulic lines adjacent to fuel vent line.

11. Cut existing fuel vent line on each side of rib at wing station 47.30 and remove cut out section of vent line. Retain cut out section of fuel vent line for later reinstallation (refer to Figure 11).

12. Trim aft end of existing wing rib at station 47.30 as shown in Figure 5, view A–A.

13. Remove rivets from lower flange of forward rib at wing station 47.30, if necessary, to facilitate installation of new doubler and side brace fitting. It may be necessary to remove some of the rivets from the upper flange of the rib in order to install rivets in 165002-5 or -6 fitting.

14. Install all flush rivets and micro-shave rivet heads to +0.000/–0.010 (refer to figure 5).

15. Locate and drill 165000-3 shim (2 places) on fitting and doubler (refer to Figure 5).

16. Position 165002-5 or -6 fitting on spar web and insert 165003-11 shim between fitting flange and existing cap splice. The three (3) 0.250-inch diameter holes in fitting should align with three (3) 0.250-inch diameter holes in existing doubler and cap splice. Assure no gap exists between fitting and cap splice (refer to Figure 5).

NOTE

If the 165003-11 shim is too thick or too thin, check gap dimension and fabricate a shim to proper thickness to fill gap and brush alodine. Shim material is 2024-T3, QQ-A-250/5 aluminum sheet stock.

17. Drill and back drill all holes in 165002-5 or -6 fitting (refer to Figure 5).

18. Locate and drill 165003-17 or -18 clip assembly on lower spar cap and fitting (refer to Figure 5, view B–B).

18a. Drill holes (7 places) that attach forward wing rib to 165002-5 or -6 fitting (refer to Figure 5, view A–A).

19. Remove all parts from forward side of spar web, deburr all drilled holes, brush alodine and touchup paint.

20. Deburr all holes in spar web and spar cap and brush alodine.

CAUTION

Install flush fasteners in doubler before installing fitting.

21. Install all parts on forward side of spar web and install fasteners (refer to Figure 5).

22. Install MS35489-103 grommets on side brace fitting using EC1403 cement or an equivalent (refer to Figure 11).

23. Install existing cutout section of fuel vent line, 48553-1 tube (2 places), 165003-7 clip assembly (4 places) and AN737TW26 clamps (refer to Figure 11).

24. Using a tube bender, reform existing hydraulic lines to clear side brace fitting, reconnect hydraulic lines and secure to rib using existing clamps, MS35207-267 screw, AN960-10L washer (3 places), NAS43DD3-32 spacer and MS21044N3 nut. Washers are to be installed under screw head and one (1) on each side of wing rib.

25. Reconnect upper side brace assembly to new side brace fitting using AN8-31 bolt and existing washers, nut and new MS24665-283 cotter pin.

26. Reconnect upper side brace assembly to lower side brace assembly at knuckle joint using existing hardware.

27. Manually swing gear up into UP position to assure free and clear operation.

28. Reconnect hydraulic cylinder to side brace fitting using existing hardware and assure that landing gear switch is reinstalled on side brace assembly.

29. Install existing access door on spar web using existing hardware. Torque bolts 12 to 15 inch-pounds.

30. Fillet seal around access door with RTV 162 sealant or an equivalent sealant.

31. Reconnect cables to airplane battery and functional check landing gear system for operation and check panel for gear indication.

32. Remove jacks from airplane.

33. Touchup paint as necessary.

34. Fill out and mail Compliance Card specifying that Part III (left wing, right wing or both wings) has been accomplished.

PART IV – CUT OUT SPAR CAP AND INSTALL FITTINGS, DOUBLERS AND CLIPS.

WARNING

The battery must be disconnected prior to starting this modification to prevent inadvertent retraction of landing gear.

1. Jack airplane as outlined in Airplane Maintenance Manual.

2. Disconnect main landing gear side brace assembly at knuckle joint and disconnect cylinder from side brace fitting.

3. Remove existing left or right main landing gear side brace fitting and attaching hardware.

4. Disconnect hydraulic lines at wing station 47.30 and cap all lines.

CAUTION

Care should be taken when cutting fuel vent line to prevent cutting hydraulic lines adjacent to fuel vent line.

5. Cut existing fuel vent line on each side of rib at wing station 47.30 and remove cutout section of vent line. Retain cutout section of fuel vent line for later reinstallation (refer to Figure 11).

6. Remove rivets from lower flange of forward rib at wing station 47.30 to facilitate installation of new doubler and side brace fitting. It may also be necessary to remove some of the rivets from the upper flange of the rib in order to install rivets in 165003-1 or -2 doubler.

7. Remove existing left or right side brace fitting doubler (refer to Figure 2).

NOTE

When rivets that attach doubler to spar web are removed, the rivets that attach side brace fitting nutplates will also need to be removed.

8. Trim aft end of existing wing rib at wing station 47.30 as shown in Figure 7, view A–A.

9. Remove rivets thru upper wing skin and spar cap legs in area where 165003-1 or -2 doubler and 165002-7 or -8 fitting are to be installed (refer to Figure 2).

10. Remove rivets from spar web in area where spar is to be cut out (refer to Figure 7).

11. Position 165003-1 or -2 doubler on forward side of spar web and use doubler as a template to mark location for a 3.80-inch diameter access hole in spar web and then remove doubler (refer to Figure 7).

12. Cut 3.80-inch diameter access hole in spar web. Deburr cut edges and brush alodine (refer to Figure 7).

13. Mark location for cutout of spar web and spar cap (refer to Figure 6).

14. To assure that wing rib is not cut, pull spar web away from spar cap and then make cutout in spar web only as shown in Figure 6. Be sure to maintain radius in corners of cutout. Deburr cut edges and brush alodine.

15. Remove and discard existing rib clip from forward end of aft rib at WS 47.30 (refer to Figure 6).

16. Remove rivets thru upper wing skin and spar cap doubler to facilitate installing a piece of full hard stainless steel sheet stock (0222 shop aid furnished with this kit) between vertical leg of spar cap and spar cap doubler (refer to Figure 2).

CAUTION

While cutting on the spar cap leg per step 17, it is recommended that a piece of full hard stainless steel sheet stock be placed between spar cap vertical leg and vertical leg of spar cap doubler to prevent scoring (scratching) doubler. If spar cap doubler is damaged while cutting spar cap vertical leg, contact factory before proceeding any further. This doubler is not installed on airplane serial nos. 14532 thru 14540.

NOTE

Steps a. thru f. do not apply to airplane serial nos. 14532 thru 14540. Proceed to step 19 for these airplanes after making cutout.

17. Using a router, cut out area of vertical leg of spar cap that contains crack(s) as shown in Figure 6. Assure that radius in corners is maintained. **Polish smooth cut edges using No. 400 emery cloth** or equivalent and brush alodine cut edges. Follow procedure steps very closely as follows:

    a. Insert FULL HARD stainless steel sheet stock between doubler and spar cap vertical leg to protect doubler when cutting spar cap (refer to Figure 6, Sheet 2 of 2).

    b. Cut vertical leg of spar cap completely through up to edge of spar cap doubler (refer to Figure 6, Sheet 2 of 2, view A–A).

CAUTION

When making cutout of upper spar cap vertical leg, assure that 0.44-inch radius in corners is maintained.

c. To cut vertical leg, from bottom of doubler up and across (horizontal) radius of spar cap, only allow router bit to penetrate halfway through thickness of material. This will prevent end of router bit from touching spar cap doubler and causing possible damage to doubler (refer to Figure 6, Sheet 2 of 2, view A–A.)

d. Remove stainless steel sheet stock.

e. Bend and break cut out portion of spar cap vertical leg.

f. Reinsert stainless steel sheet stock and remove remaining jagged edges.

g. Polish smooth cut edges using No. 400 emery cloth until no scratches or evidence of cutting procedure exists. Surface is to be mirror smooth.

h. Remove stainless steel sheet stock.

18. Reattach existing spar cap doubler to spar cap and skin using MS20470AD4 rivets (refer to Figure 2)

19. Locate, drill and install 165003-13 or -14 angle on wing station 47.30 rib (refer to Figure 7).

20. Position 165003-1 or -2 doubler on spar web. Pick up existing rivet holes in spar web and spar cap and drill all existing attaching rivet holes for doubler. Pick up two (2) 0.250-inch diameter lower holes in spar web (holes that attached side brace fitting) and drill 0.250-inch diameter holes in doubler and then remove doubler. A hole finder may be used to locate holes (refer to Figure 7).

21. With doubler removed from airplane, position 165002-7 or -8 fitting on 165003-1 or -2 doubler and align two (2) lower 0.250-inch diameter holes in fitting with two (2) lower 0.250-inch diameter holes in doubler. Drill upper 0.250-inch diameter hole in doubler to match upper hole in fitting (refer to Figure 7).

22. Insert 165003-11 shim between fitting flange and doubler flange, if necessary, to assure no gap exists between fitting and doubler when all three (3) 0.250-inch diameter holes are aligned properly. Drill holes in 165003-11 shim to match holes in fitting and doubler (refer to Figure 7).

NOTE

If the 165003-11 shim is too thick or too thin, check gap dimension, with shim removed, and fabricate a shim to proper thickness to fill gap and brush alodine. Shim material is 2024-T3, QQ-A-250/5 aluminum sheet stock.

23. Lay out and drill remaining holes in fitting and doubler (refer to Figure 7).

24. Position 165003-1 or -2 doubler and 165002-7 or -8 fitting on spar web and drill remaining holes in spar (refer to Figure 7).

25. Ream three (3) 0.250-inch diameter holes in fitting, doubler, spar cap and spar web to 0.2655/0.2685-inch diameter (refer to Figure 7).

26. Position 40002-RE73 door on doubler and rotate door, as necessary, to align pilot holes in doubler and drill and ream fourteen (14) 0.1895/0.1915-inch diameter holes thru door, doubler and spar web. Since these are close tolerance holes, it is recommended that smaller holes be drilled first then reamed to size (refer to Figure 7).

27. Locate and drill 165003-17 or -18 clip assembly on lower spar cap and fitting (refer to Figure 7, view B–B).

28. Remove all parts from forward side of spar web, deburr all drilled holes, brush alodine and touch up paint.

29. Deburr all holes in spar web and spar cap and brush alodine.

30. Install all parts on forward side of spar web and install fasteners (refer to Figure 7).

NOTE

Install flush fasteners in doubler before installing fitting.

30a. Drill hole (7 places) that attach forward wing rib to 165002-7 or -8 fitting (refer to Figure 7, view A–A).

31. Install MS21059L3 nutplates (14 places) on aft side of spar web using CCR264SS-3-2 blind rivets or MS20426AD3 rivets. Rivets are to go thru doubler and spar web (refer to Figure 7).

32. Install MS35489-103 grommets on side brace fitting using EC1403 cement or an equivalent (refer to Figure 11).

33. Install existing cutout section of fuel vent line, 48553-1 tube (2 places), 165003-7 clip assembly (4 places) and AN737TW26 clamps (refer to Figure 11).

34. Using a tube bender, reform existing hydraulic lines to clear side brace fitting, reconnect hydraulic lines and secure to rib using existing hardware.

35. Reconnect upper side brace assembly to side brace fitting and to lower side brace assembly using existing hardware.

36. Manually swing gear up into UP position to assure free and clear operation.

37. Reconnect hydraulic cylinder to side brace fitting using existing hardware and assure that landing gear switch is reinstalled on side brace assembly.

38. Install 40002-RE73 door using NAS464P3-4A bolt (14 places) and AN960-10 washer (14 places). Torque bolts 12 to 15 inch-pounds (refer to Figure 7).

39. Fillet seal around door with RTV162 sealant or an equivalent sealant.

40. Reconnect cables to airplane battery.

41. Functional check landing gear system for operation and check panel for gear indication.

42. Remove jacks from airplane.

43. Touchup paint as necessary.

44. Fill out and mail Compliance Card specifying that Part IV (left wing, right wing or both wings) has been accomplished.

PART V – MODIFY WING SPAR

WARNING

The battery must be disconnected prior to starting this modification to prevent inadvertent retraction of landing gear.

1. Jack airplane as outlined in Airplane Maintenance Manual.

2. Disconnect main landing gear side brace assembly at knuckle joint and disconnect hydraulic cylinder from side brace fitting.

3. Remove existing left or right main landing gear side brace fitting and attaching hardware.

4. Disconnect hydraulic lines at wing station 47.30 and cap all lines.

CAUTION

Care should be taken when cutting fuel vent line to prevent cutting hydraulic lines adjacent to fuel vent line.

5. Cut existing fuel vent line on each side of rib at wing station 47.30 and remove cutout section of vent line. Retain cut out section of fuel vent line for later reinstallation (refer to Figure 11).

6. Remove rivets from lower flange of forward rib at wing station 47.30 to facilitate installation of new doubler and side brace fitting. It may be necessary to remove some of the rivets from the upper flange of the rib in order to install rivets in 40002-RE71 or-RE72 doubler.

7. Remove and discard existing left or right side brace fitting doubler (refer to Figure 2).

NOTE

When rivets that attach doubler to spar web are removed, the rivets that attach side brace fitting nutplates will also need to be removed.

8. Trim aft end of existing wing rib at station 47.30 as shown in Figure 10, view A–A.

9. Remove rivets from spar web in area where spar is to be cut out (refer to Figure 2).

10. Remove rivets thru upper wing skin and spar cap legs in area where 40002-RE59 or -RE60 cap splice is to be installed (refer to Figures 2 and 10).

11. Position 40002-RE71 or -RE72 doubler on forward side of spar web and mark location for 3.80-inch diameter access hole in spar web and then remove doubler (refer to Figure 9).

12. Cut a 3.80-inch diameter access hole in spar web. Deburr cut edges and brush alodine (refer to Figure 9).

13. Mark location for cutout of spar web and spar cap (refer to Figure 8, Sheet 1 of 2).

14. To assure that wing rib is not cut, pull spar web away from spar cap and then make cutout in spar web only as shown in Figure 8. Be sure to maintain radius in corners of cutout. Deburr cut edges and brush alodine.

15. Position 40002-RE71 or -RE72 doubler on spar. Drill all rivet holes in doubler and spar and drill existing two (2) lower 0.250-inch diameter holes that attached existing side brace fitting. A hole finder may be used to locate holes (refer to Figure 10).

16. Remove 40002-RE71 or RE72 doubler from wing spar.

CAUTION

While cutting on the spar cap leg per step 17, it is recommended that a piece of full hard stainless steel sheet stock (0222 shop aid) be placed between spar cap vertical leg and vertical leg of spar cap doubler to prevent scoring (scratching) doubler. If spar cap doubler is damaged while cutting spar cap vertical leg, contact factory before proceeding any further. This doubler is not installed on airplane serial nos. 14532 thru 14540.

NOTE

Steps a. thru f. do not apply to airplane serial nos. 14532 thru 14540. Proceed to step 19 for these airplanes after making cutout.

17. Using a router, cut out area of vertical leg of spar cap that contains crack(s) as shown in Figure 8. Assure that radius in corners is maintained. **Polish smooth cut edges using No. 400 emery cloth** or equivalent and brush alodine cut edges. Follow procedure steps very closely as follows:

    a. Insert FULL HARD stainless steel sheet stock between doubler and spar cap vertical leg to protect doubler when cutting spar cap (refer to Figure 8, Sheet 2 of 2).

    b. Cut vertical leg of spar cap completely through up to edge of spar cap doubler (refer to Figure 8, Sheet 2 of 2).

CAUTION

When making cutout of upper spar cap vertical leg, assure that 0.44-inch radius in corners is maintained.

    c. To cut vertical leg, from bottom of doubler up and across (horizontal) radius of spar cap, only allow router bit to penetrate halfway through thickness of material. This will prevent end of router bit from touching spar cap doubler and causing possible damage to doubler (refer to Figure 8, Sheet 2 of 2).

    d. Remove stainless steel sheet stock.

    e. Bend and break cut out portion of spar cap vertical leg.

    f. Reinsert stainless steel sheet stock and remove remaining jagged edges.

    g. Polish smooth cut edges using No. 400 emery cloth until no scratches or evidence of cutting procedure exists. Surface is to be mirror smooth.

    h. Remove stainless steel sheet stock.

18. Reattach existing spar cap doubler to spar cap and skin using MS20470AD4 rivets (refer to Figure 2).

NOTE

If necessary, use MS20470AD5 rivets to fill hole properly. Inspect with feeler gauge after rivets are installed to assure no gaps exist between spar cap and wing skin.

18a. Locate 40002-RE73 door on 40002-RE71 or -RE72 doubler and pilot drill holes (refer to Figure 10).

19. Position 40002-RE59 or –RE60 cap splice on forward side of spar cap and drill holes through horizontal flange of cap splice and wing skin (refer to Figure 10).

NOTE

It may be necessary to trim corner of existing stiffener on spar assembly to allow for clearance of cap splice. Be sure to maintain edge distance on rivets in stiffener.

20. Position 40002-RE71 or –RE72 doubler on spar web and cap splice and drill upper holes in doubler and cap splice to match holes in vertical leg of spar cap (refer to Figure 10).

21. Remove doubler and cap splice from spar and cleco cap splice to doubler.

22. Position 165002-5 or -6 fitting on 40002-RE71 or -RE72 doubler and align two (2) lower 0.250-inch diameter holes in fitting with two (2) lower 0.250-inch diameter holes in doubler. Bolt fitting to doubler and drill upper 0.250-inch diameter hole in doubler to match upper hole in fitting (refer to Figure 10).

23. Insert 165003-11 shim between cap splice flange and fitting flange, if necessary, to assure no gap exists between fitting and cap splice when all three (3) 0.250-inch diameter holes are aligned properly. Drill holes in 165003-11 shim to match holes in fitting and cap splice (refer to Figure 10).

NOTE

If the 165003-11 shim is too thick or too thin, check gap dimension, with shim removed, and fabricate a shim to proper thickness to fill gap and brush alodine. Shim material is 2024-T3, QQ-A-250/5 aluminum sheet stock.

24. Lay out and drill remaining holes in fitting and doubler (refer to Figure 10).

25. Locate and drill 165000-3 tapered shim (2 places) between doubler and fitting (refer to Figure 10).

26. Position 40002-RE65 filler in spar web cutout and use masking tape to hold filler in place. Filler is to be installed between rib clip and new forward doubler (refer to Figure 10).

27. Position 40002-RE59 or -RE60 cap splice on spar cap using clecos to hold it in place (refer to Figure 10).

28. Position 40002-RE71 or -RE72 doubler in place and drill holes thru filler and spar web (refer to Figure 10).

29. Position 165002-5 or -6 fitting and 165003-11 shim (if used) on spar web and cap splice and cleco in place (refer to Figure 10).

30. Locate and drill 165003-17 or -18 clip assembly (refer to Figure 10, view B–B).

31. Drill hole (7 places) that attach forward wing rib to 165002-5 or -6 fitting (refer to Figure 10, view A–A).

32. Remove all parts from forward side of spar web, deburr all drilled holes, brush alodine and touch up paint on parts.

33. Assure that any masking tape is removed from spar web.

34. Deburr all holes in spar web and spar cap and brush alodine.

35. Install all parts on forward side of spar web and install fasteners (refer to Figures 9 and 10).

NOTE

It is acceptable to leave original nutplate attaching holes in spar web open.

It is also acceptable to use MS20470AD rivets in place of NAS1738B blind rivets.

Install flush fasteners thru doubler before installing fitting.

36. Ream three (3) 0.250-inch diameter holes in fitting, doubler, spar web and cap splice to 0.2655/0.2685-inch diameter (refer to Figure 10).

37. Position 40002-RE73 door on doubler and rotate door, as necessary, to align pilot holes in doubler and drill and ream fourteen (14) 0.1895/0.1915-inch diameter holes thru door, doubler and spar web. Since these are close tolerance holes, it is recommended that smaller holes be drilled first and then reamed to size (refer to Figure 10).

38. Deburr holes in door and doubler and brush alodine.

39. Install MS21059L3 nutplates on aft side of spar web using CCR264SS-3-2 blind rivets or MS20426AD3 rivets. Rivets are to go thru doubler and spar web (refer to Figure 10).

40. Install 40002-RE73 door using NAS464P3-4A bolt (14 places) and AN960-10 washer (14 places). Torque bolts to 12-15 inch-pounds (refer to Figure 10).

41. Fillet seal around door with RTV 162 sealant or an equivalent sealant.

42. Install MS35489-103 grommets on side brace fitting using EC1403 cement or an equivalent (refer to Figure 11).

43. Install existing cutout section of fuel vent line, 48553-1 tube (2 places), 165003-7 clip assembly (4 places) and AN737TW26 clamps (refer to Figure 11).

44. Reform existing hydraulic lines using a tube bender to clear side brace fitting, reconnect hydraulic lines and secure to rib using existing hardware.

45. Reconnect upper side brace assembly to side brace fitting and to lower side brace assembly using existing hardware.

46. Manually swing gear up into UP position to assure free and clear operation.

47. Reconnect hydraulic cylinder to side brace fitting using existing hardware and assure that landing gear switch is reinstalled on side brace assembly.

48. Reconnect cables to airplane battery and functional check landing gear system for operation and check panel for gear indication.

49. Remove jacks from airplane.

50. Touchup paint as necessary.

51. Fill out and mail Compliance Card specifying that Part V (left wing, right wing or both wings) has been accomplished.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from installation of this Service Bulletin is as follows:

		WEIGHT (LBS)	H-ARM (INCHES)	H-MOMENT (IN-LBS)
PART II	– Left Wing	+2.52	123	+310.00
	Right Wing	+2.52	123	+310.00
PART III	– Left Wing	+1.57	123	+193.10
	Right Wing	+1.57	123	+193.10
PART IV	– Left Wing	+2.56	123	+314.80
	Right Wing	+2.56	123	+314.80
PART V	– Left Wing	+2.70	123	+332.10
	Right Wing	+2.70	123	+332.10

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: NONE.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-22C, dated November 1988, entitled "Inspection and Modification of Forward Wing Spar," Part I accomplished ___(date)___; Part II (left, right or both wings) accomplished ___(date)___; Part III (left, right or both wings) accomplished ___(date)___; Part IV (left, right or both wings) accomplished ___(date)___; Part V (left, right or both wings) accomplished ___(date)___.

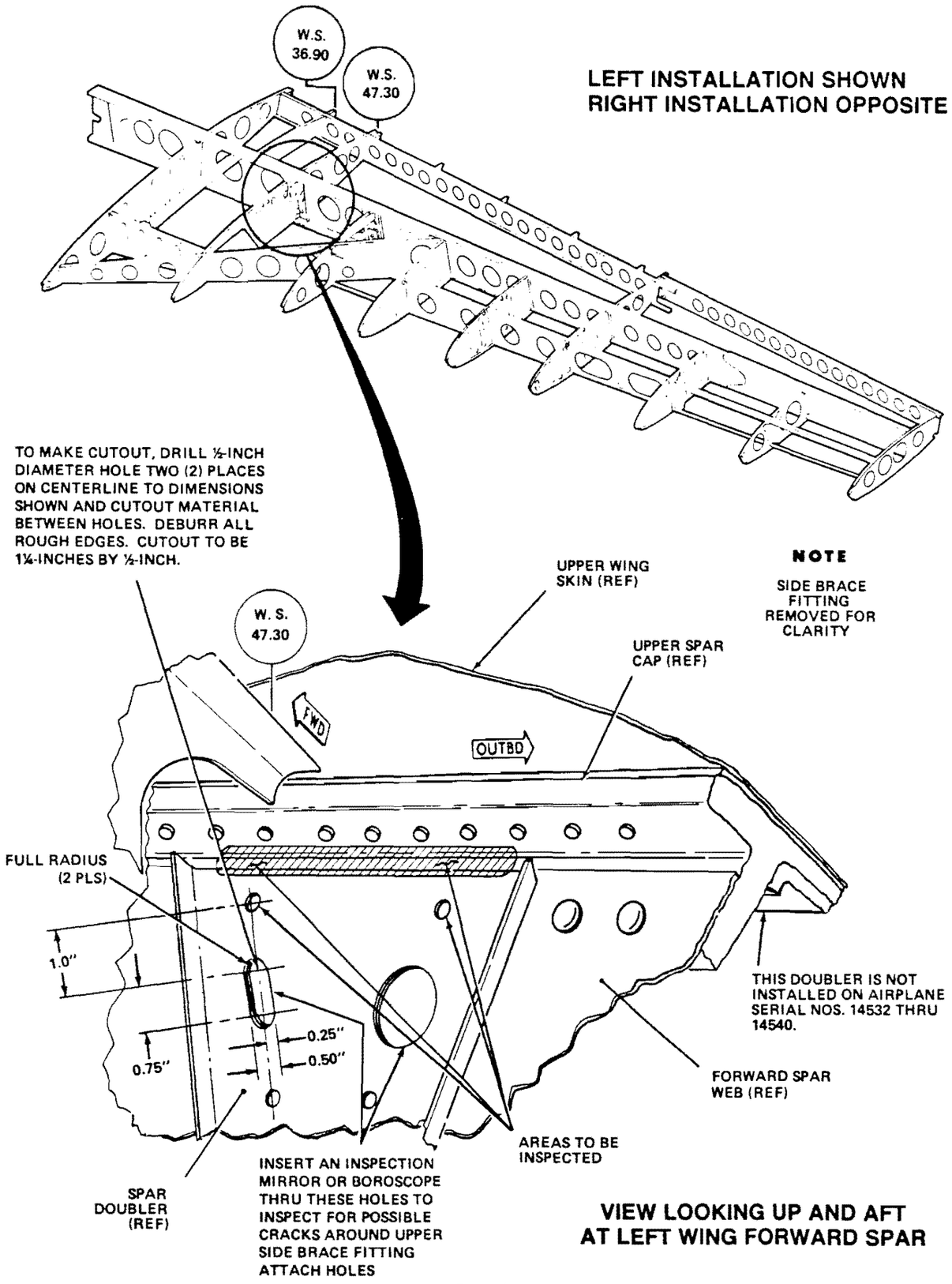


Figure 1.

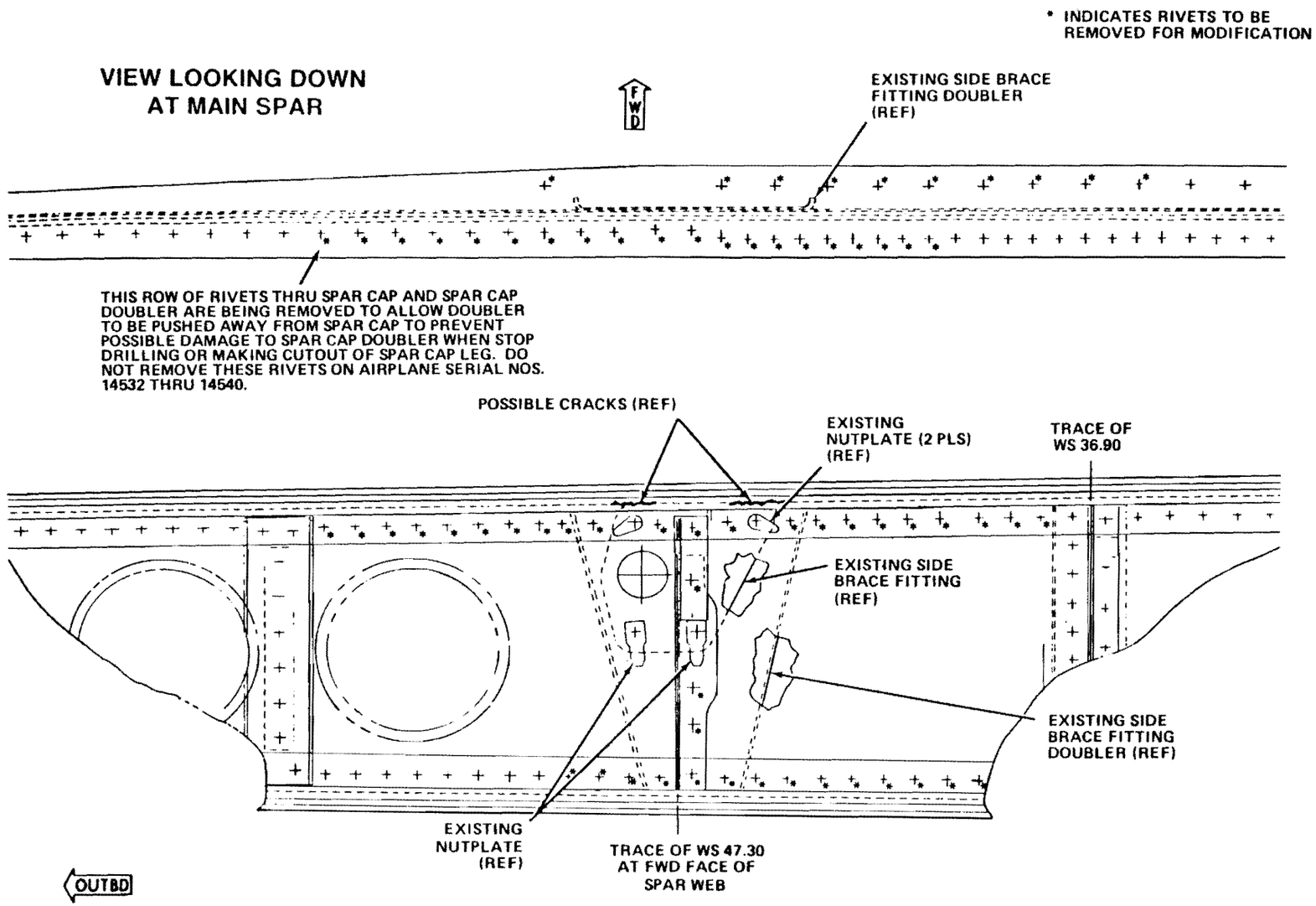
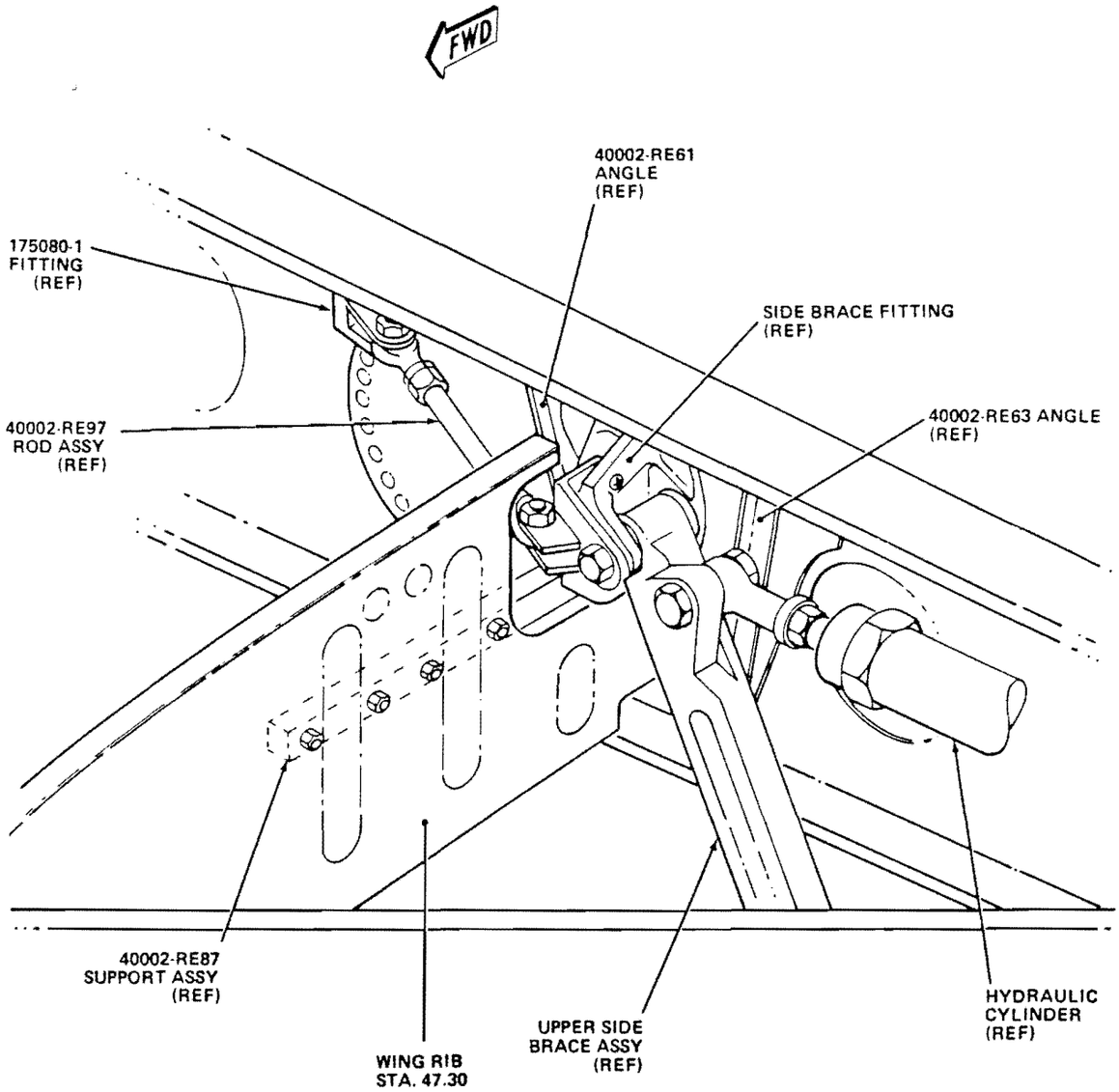


Figure 2.



LEFT INSTALLATION SHOWN
RIGHT INSTALLATION OPPOSITE

Figure 3.

PART II

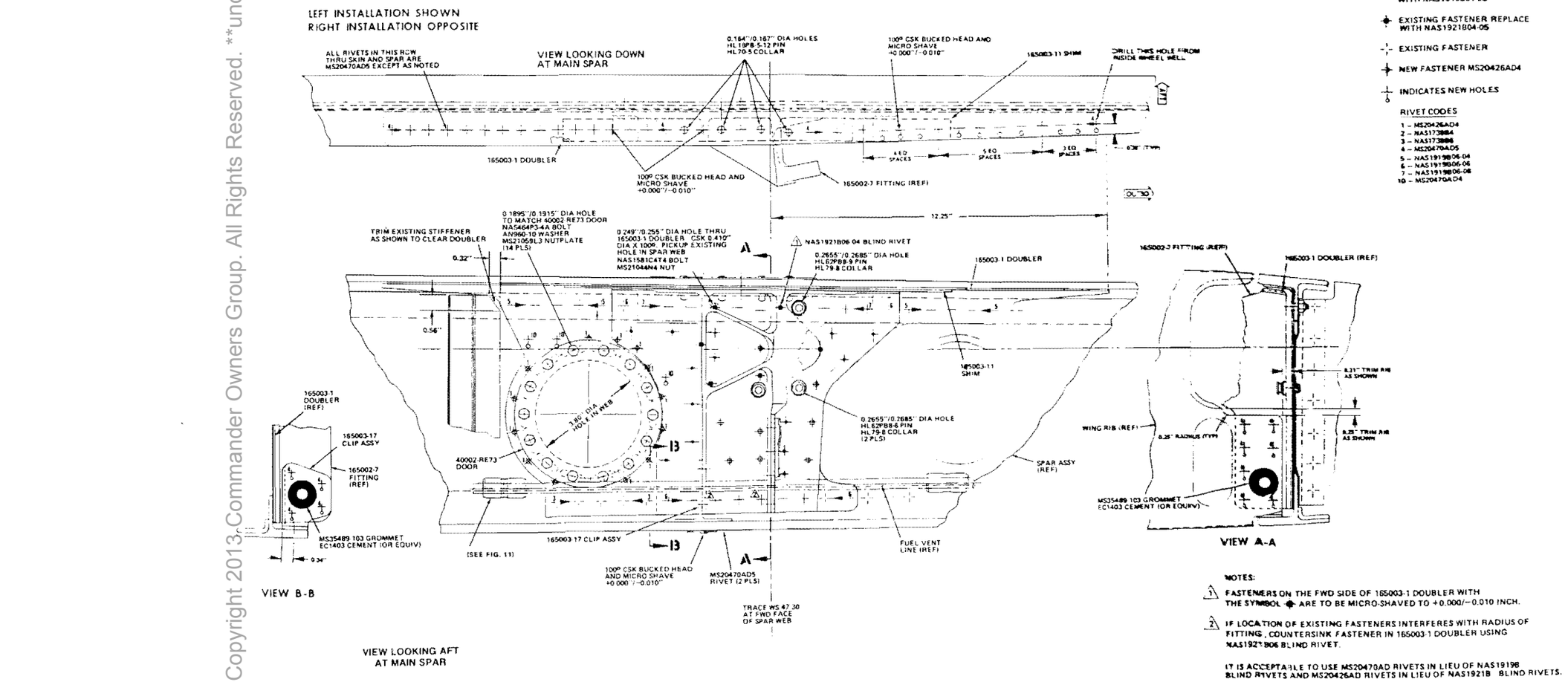
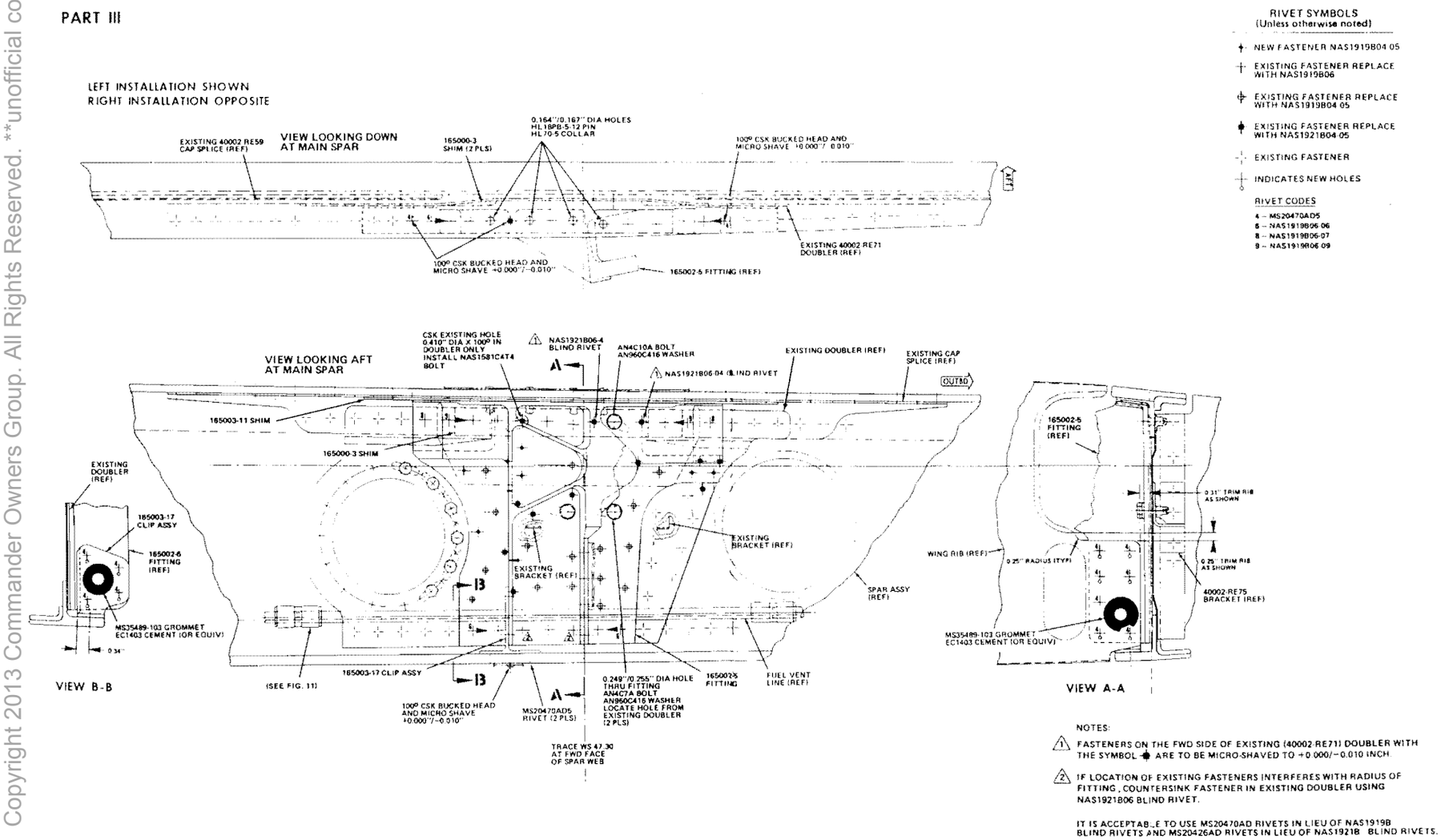


Figure 4.

PART III



NOTES:

1. FASTENERS ON THE FWD SIDE OF EXISTING (40002-RE71) DOUBLER WITH THE SYMBOL ◆ ARE TO BE MICRO-SHAVED TO +0.000/−0.010 INCH.
2. IF LOCATION OF EXISTING FASTENERS INTERFERES WITH RADIUS OF FITTING, COUNTERSINK FASTENER IN EXISTING DOUBLER USING NAS1921B06 BLIND RIVET.

IT IS ACCEPTABLE TO USE MS20470AD RIVETS IN LIEU OF NAS1919B BLIND RIVETS AND MS20426AD RIVETS IN LIEU OF NAS1921B BLIND RIVETS.

Figure 5.

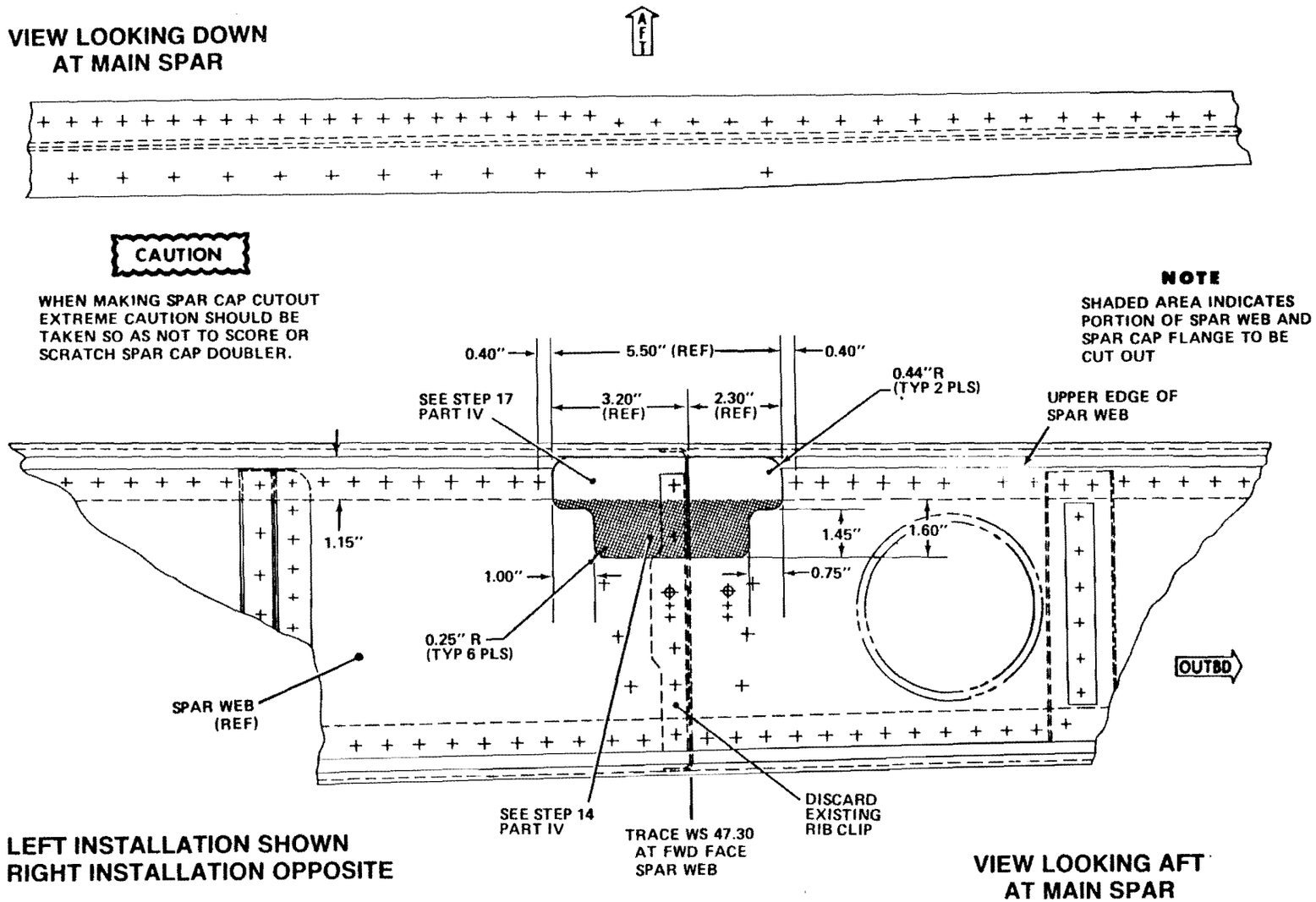


Figure 6. (Sheet 1 of 2)

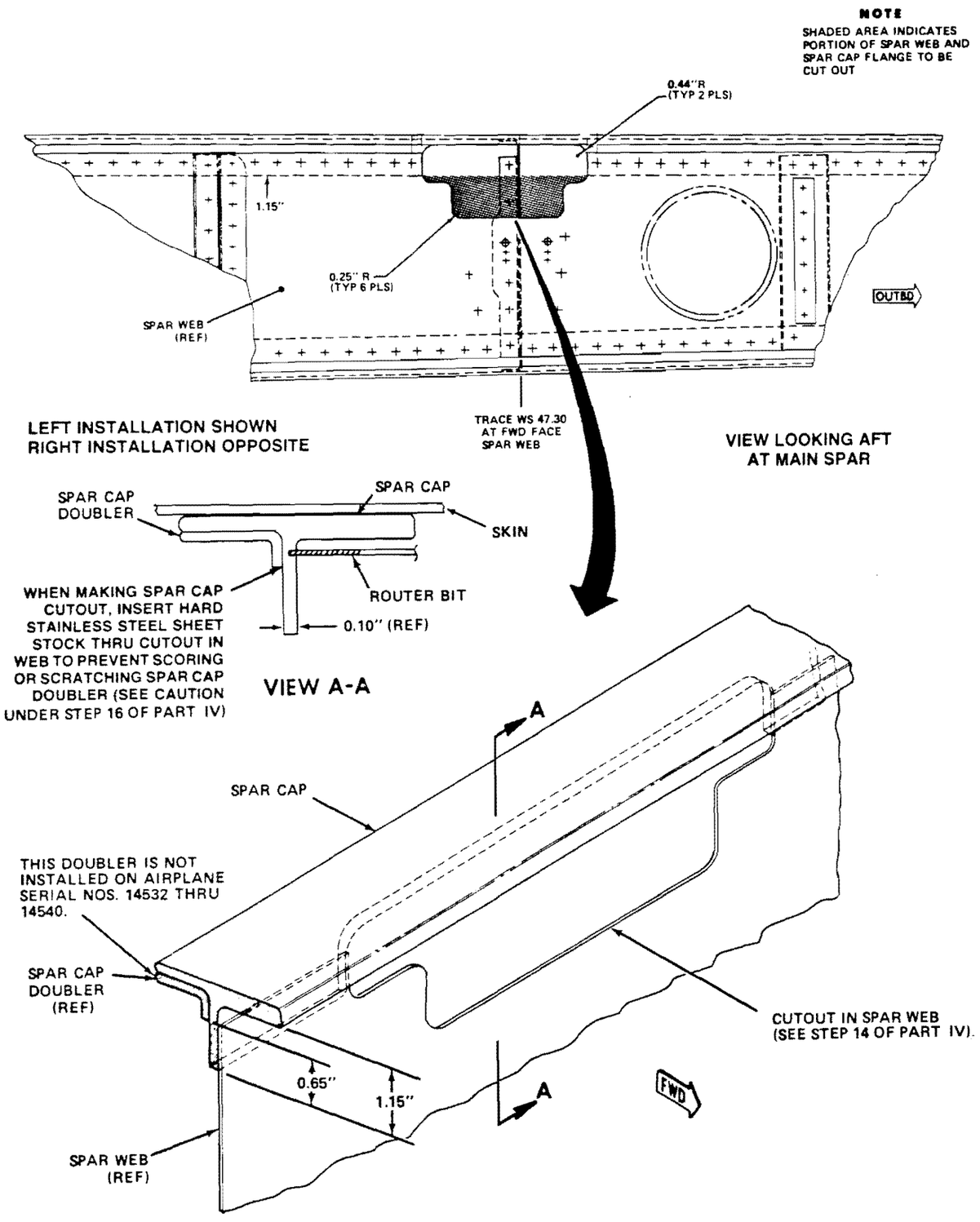


Figure 6. (Sheet 2 of 2)

PART IV

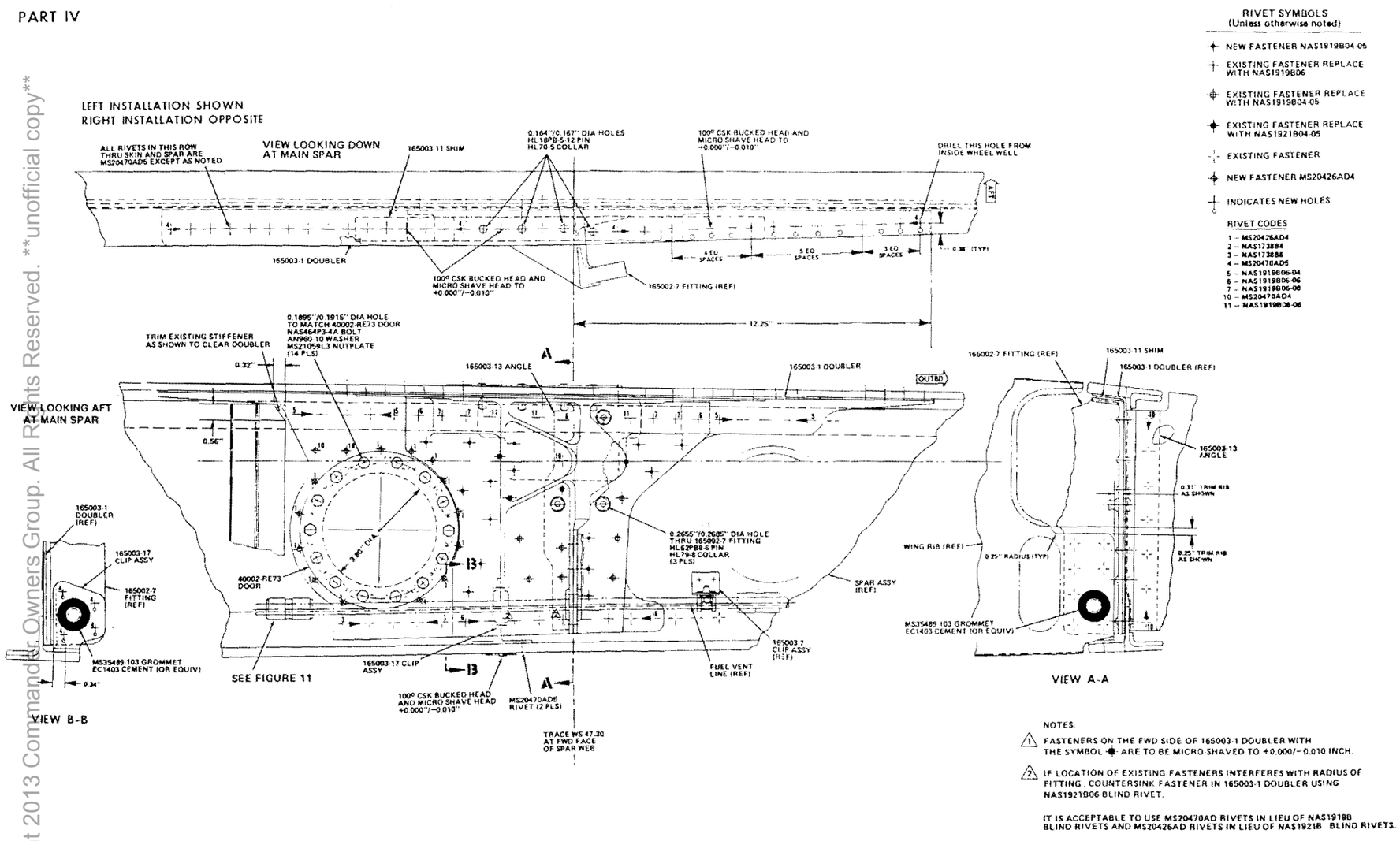


Figure 7.

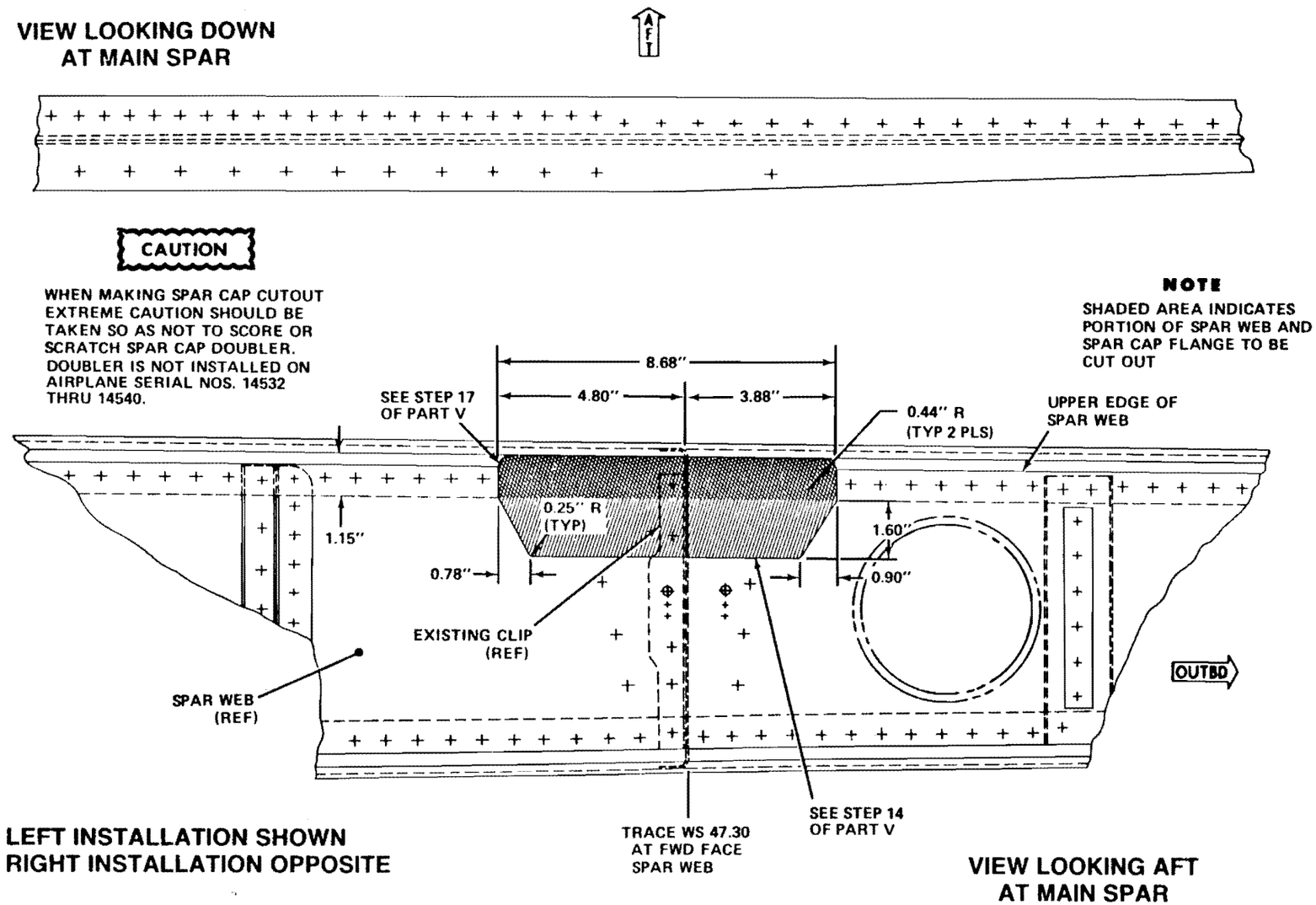


Figure 8. (Sheet 1 of 2)

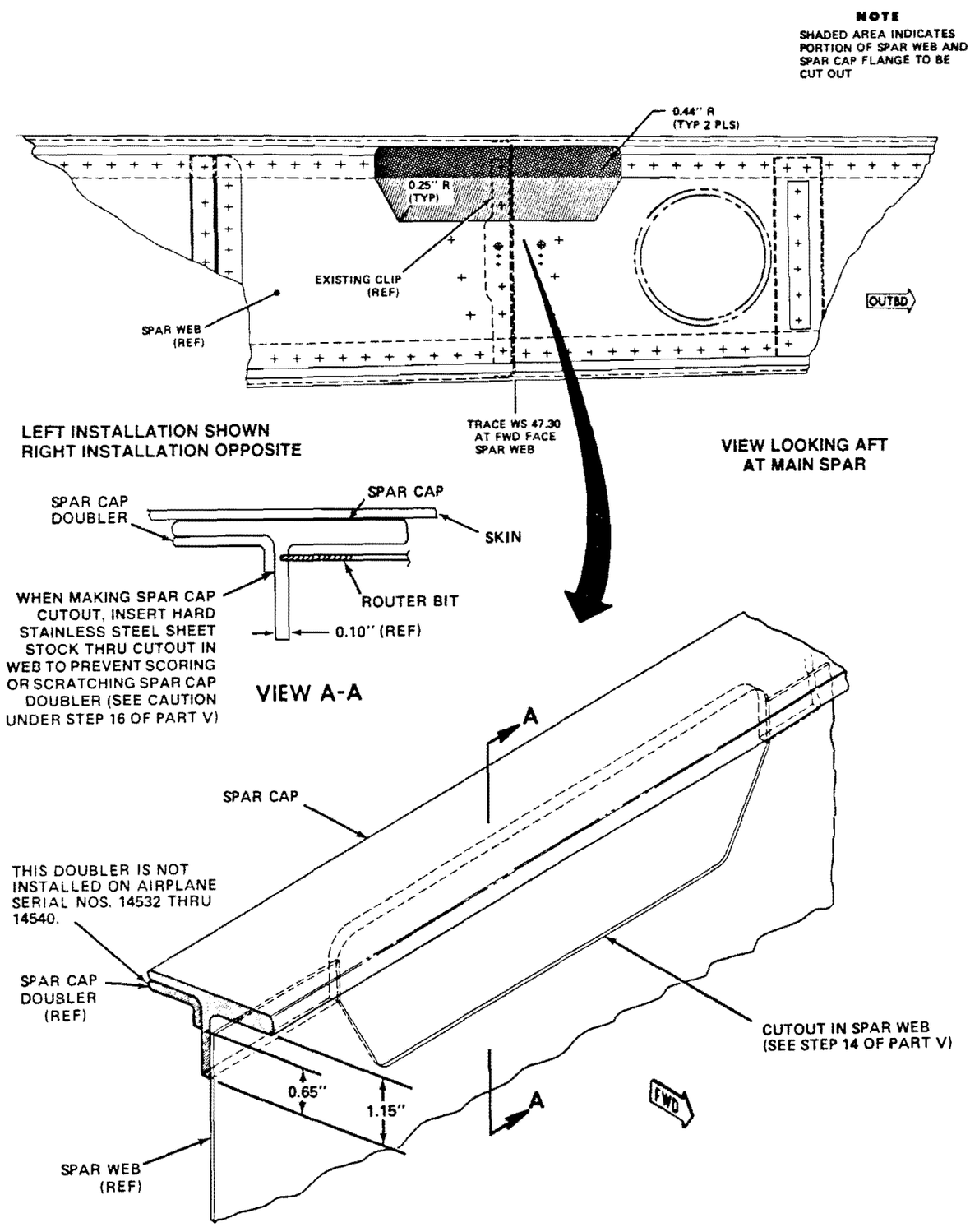


Figure 8. (Sheet 2 of 2)

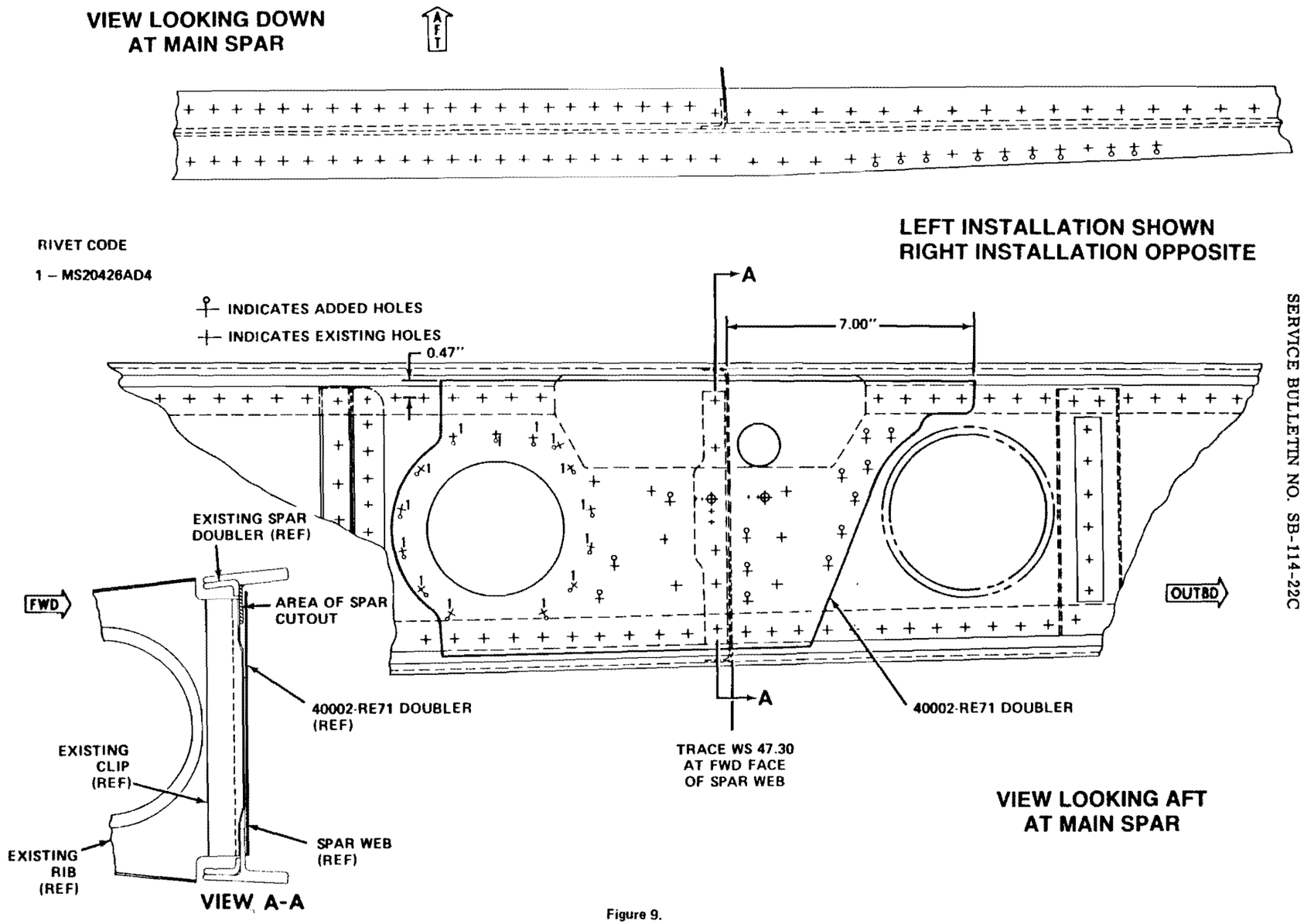
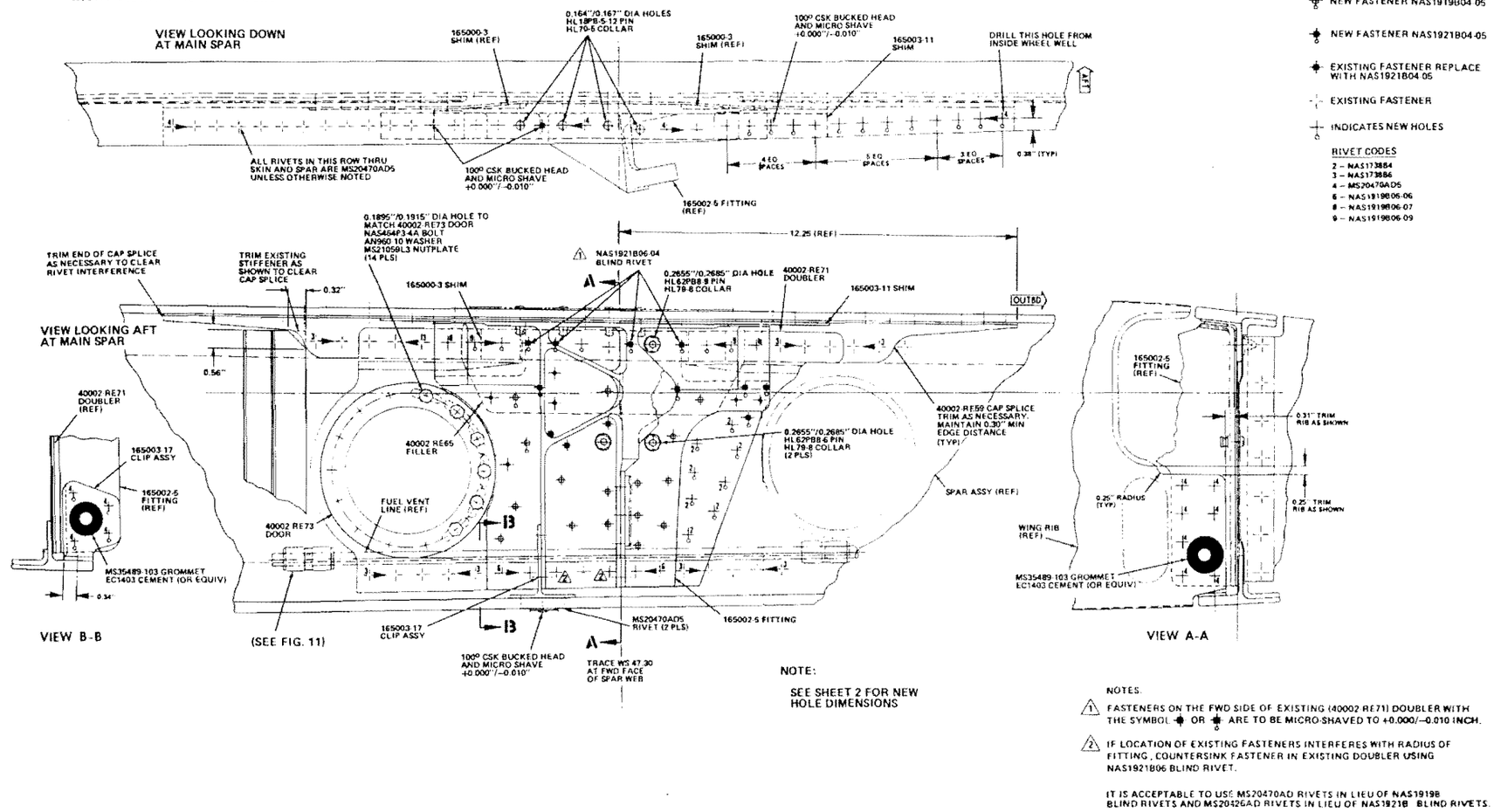


Figure 9.

PART V

LEFT INSTALLATION SHOWN
RIGHT INSTALLATION OPPOSITE



RIVET SYMBOLS
(Unless otherwise noted)

- NEW FASTENER NAS1919B04-05
- EXISTING FASTENER REPLACE WITH NAS1919B06
- EXISTING FASTENER REPLACE WITH NAS1919B04-05
- NEW FASTENER NAS1919B04-05
- NEW FASTENER NAS1921B04-05
- EXISTING FASTENER REPLACE WITH NAS1921B04-05
- EXISTING FASTENER
- INDICATES NEW HOLES

RIVET CODES
2 – NAS173B84
3 – NAS173B86
4 – MS20470AD5
6 – NAS1919B06-06
8 – NAS1919B06-07
9 – NAS1919B06-09

NOTES:

1. FASTENERS ON THE FWD SIDE OF EXISTING (40002 RE71) DOUBLER WITH THE SYMBOL ✦ OR ✦ ARE TO BE MICRO-SHAVED TO +0.000/–0.010 INCH.
2. IF LOCATION OF EXISTING FASTENERS INTERFERES WITH RADIUS OF FITTING, COUNTERSINK FASTENER IN EXISTING DOUBLER USING NAS1921B06 BLIND RIVET.

IT IS ACCEPTABLE TO USE MS20470AD RIVETS IN LIEU OF NAS1919B BLIND RIVETS AND MS20426AD RIVETS IN LIEU OF NAS1921B BLIND RIVETS.

Figure 10. (Sheet 1 of 2)

VIEW LOOKING AFT
AT MAIN SPAR

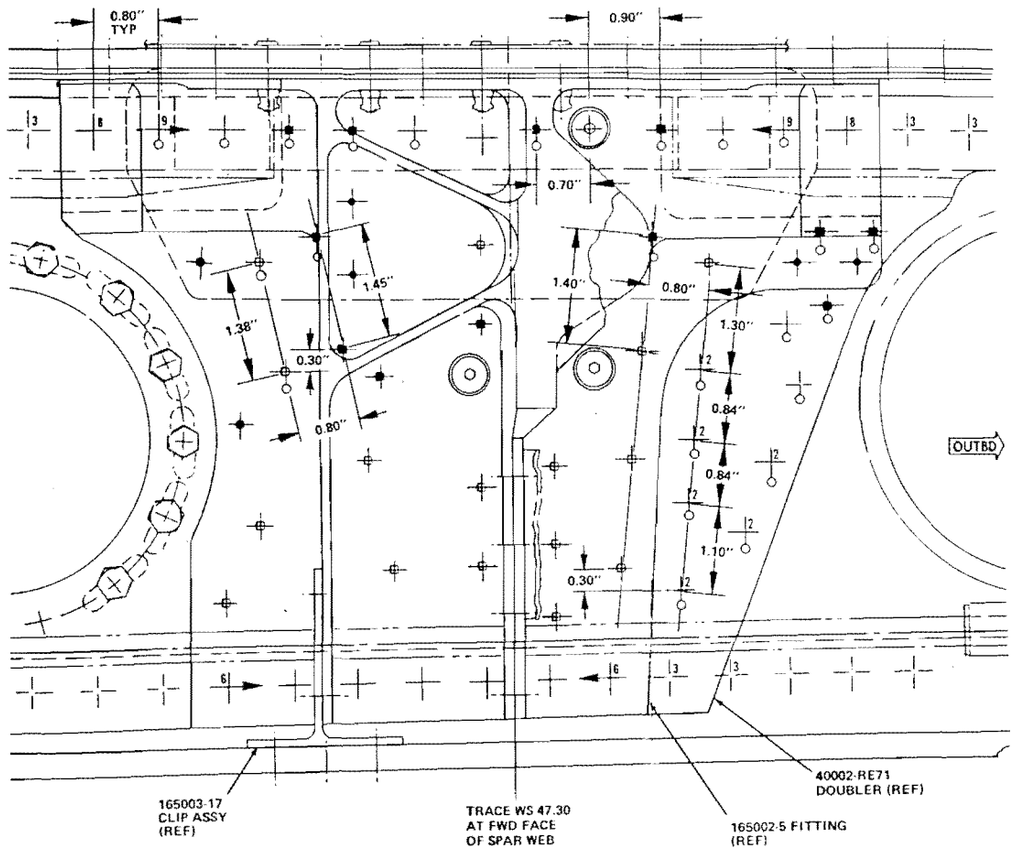
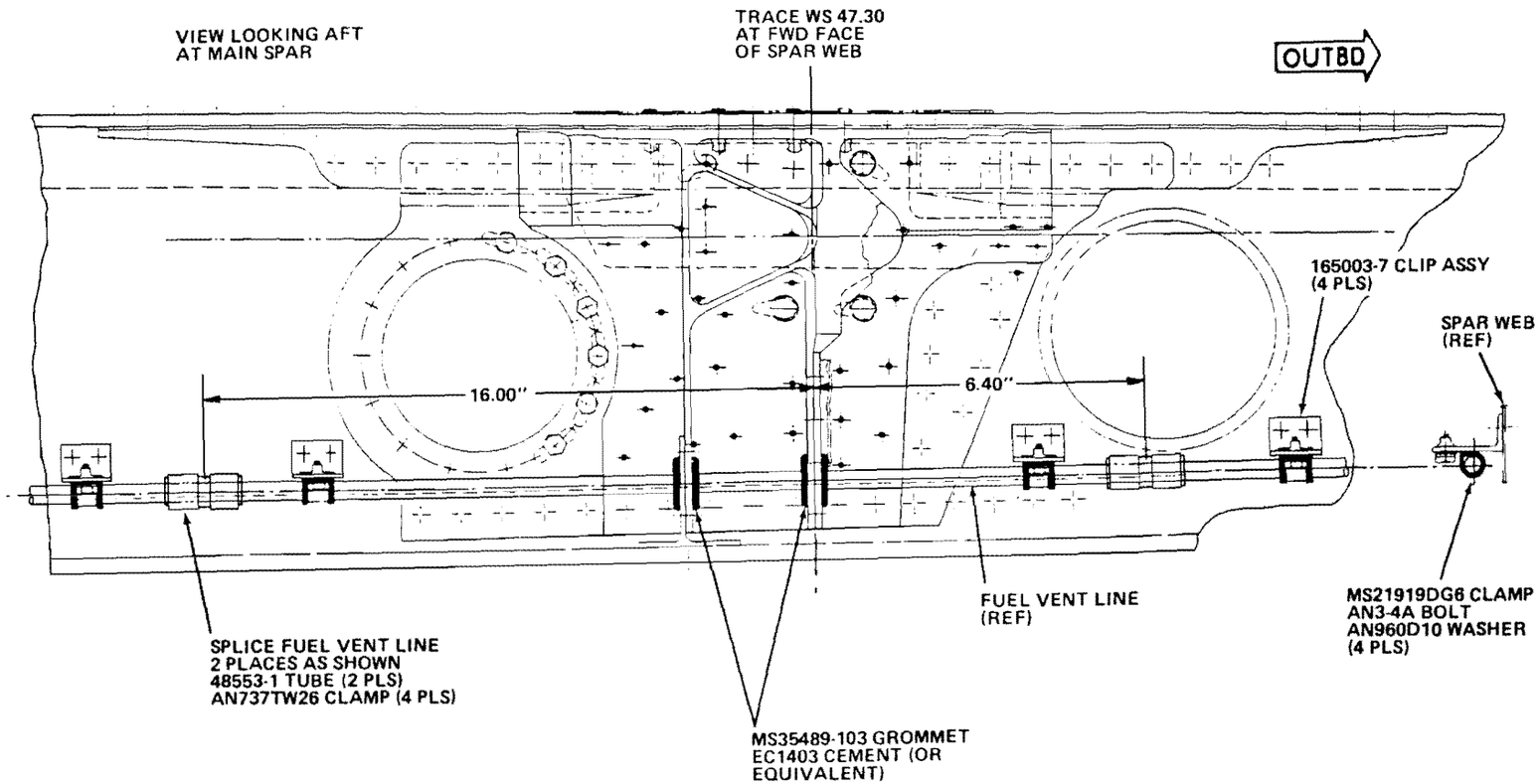


Figure 10. (Sheet 2 of 2)

LEFT INSTALLATION SHOWN
RIGHT INSTALLATION OPPOSITE



NOTE

ATTACH 165003-7 CLIP ASSY TO SPAR WEB WITH NAS1738B4-2 BLIND RIVETS

Figure 11.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-23A
(Supersedes Service Bulletin No. SB-114-23 in its entirety)
31 August 1987

INSPECTION AND/OR MODIFICATION OF VERTICAL STABILIZER FORWARD ATTACHMENT

MODELS AFFECTED: MODELS 114 AND 114A, SERIAL NOS. 14001 THRU 14540.

REASON FOR PUBLICATION: PART I – INSPECT FOR POSSIBLE CRACKS IN FUSELAGE FRAME (P/N 43205-1), AND VERTICAL FIN ATTACHMENT FITTING (P/N 43255-1).
PART II – MODIFY VERTICAL FIN ATTACHMENT.

COMPLIANCE: PART I WITHIN NEXT TEN (10) HOURS TIME IN SERVICE.
PART II BEFORE NEXT FLIGHT IF CRACKS ARE FOUND. AT NEXT ANNUAL INSPECTION IF NO CRACKS ARE FOUND.

NOTE

IF ANY PROBLEMS ARE ENCOUNTERED WHILE COMPLYING WITH THIS SERVICE BULLETIN, CONTACT YOUR NEAREST GULFSTREAM COMMANDER SINGLE ENGINE SERVICE FACILITY OR GULFSTREAM AEROSPACE PRODUCT SUPPORT.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P MECHANIC OR EQUIVALENT.

APPROVAL: ENGINEERING DESIGN ASPECTS ARE FAA APPROVED.

ESTIMATED MAN HOURS: PART I – ONE (1) HOUR.
PART II – THIRTY SIX (36) HOURS.

PARTS DATA: PARTS REQUIRED TO COMPLY WITH PART II OF THIS SERVICE BULLETIN MAY BE PROCURED THROUGH YOUR NEAREST GULFSTREAM COMMANDER AUTHORIZED SINGLE ENGINE SERVICE FACILITY FOR $220.85. REFERENCE THIS SERVICE BULLETIN, AIRCRAFT MODEL AND FACTORY SERIAL NUMBER WHEN ORDERING SERVICE BULLETIN NO. SB-114-23A KIT CONSISTING OF THE FOLLOWING:

NOTE

The MS20426AD4, MS20470AD4, MS20470AD5 and MS20470D5 rivets, as required, are to be procured locally

Price subject to change without notice

QTY	PART NO.	DESCRIPTION
1 ea.	43003-RE9	Angle
1 ea.	43003-RE10	Angle
1 ea.	43003-RE11	Fitting
1 ea.	43003-RE12	Fitting
1 ea.	43003-RE13	Doubler
1 ea.	43003-RE15	Doubler
1 ea.	43003-RE17	Channel
1 ea.	43003-RE18	Channel
2 ea.	43003-RE19	Shim
1 ea.	43255-501	Fitting Assy
2 ea.	AN4-7	Bolt
10 ea.	CR3243-5-3	Blind Rivet
2 ea.	MS17825-4	Nut
2 ea.	MS24665-134	Cotter Pin
4 ea.	MS21059L08K	Nutplate
4 ea.	NAS1097AD4-4	Rivet
1 ea.		Compliance Card
1 ea.	Service Bulletin No. SB-114-23A	Instructions

SPECIAL TOOLS FLASHLIGHT AND INSPECTION MIRROR.

ACCOMPLISHMENT INSTRUCTIONS:

PART I

1. Gain access, through baggage compartment, to aft fuselage frame P/N 43205-( ) at fuselage station 230.5 where forward vertical fin attaches to frame.

2. While the tip of horizontal stabilizer is being moved up and down, inspect the forward and aft upper section of the fuselage frame and vertical stabilizer spar attachment structure in the area between the rudder pulley bracket for cracking (refer to Figures 1 and 2) with particular emphasis on:

   a. Fuselage frame.
   b. Vertical fin attachment fitting.

3. If cracks are found, comply with Part II of this Service Bulletin prior to next flight.

4. If no cracks are found, comply with Part II of this Service Bulletin by next annual inspection.

5. Fill out and mail Compliance Card specifying that Part I has been accomplished, total hours on airplane and if cracks were found. List part number of cracked part(s).

PART II

NOTE

Removal of the vertical stabilizer is not required in order to perform this modification. All parts are to be drilled and temporarily installed with clecos prior to installing any fasteners unless noted otherwise.

1. Install tail stand on airplane.

2. Remove dorsal fin from airplane.

3. Remove screws attaching stinger assembly to aft fuselage, disconnect aft navigation light and remove stinger assembly.

4. Gain access, through baggage compartment, to aft fuselage frame at fuselage station 230.5 where vertical fin attaches to frame.

NOTE

If avionics equipment is installed in aft fuselage, it will be necessary to remove it in order to gain access to area to be modified.

5. Disconnect rudder control cables at turnbarrels just forward of fuselage station 230.5. Coil and stow for safety.

6. Remove rudder control cable pulleys and pulley brackets from fuselage frame at fuselage station 230.5.

7. Locate and drill a 0.50-inch diameter hole on center line of fuselage for rerouting of electrical wiring on vertical stabilizer strobe light. Reroute wiring through this hole and use existing grommet (refer to Figure 3, Sheet 1 of 2).

8. Increase cutout in fuselage skin just aft of existing 43255-1 fitting (refer to Figure 3, Sheet 1 of 2).

9. Remove and discard existing 43255-1 fitting and AN4-4A bolts from vertical stabilizer spar (refer to Figure 2).

10. Remove and discard existing skin doubler (P/N 43252-1) from fuselage skin (refer to Figure 2).

11. Dye penetrant inspect upper quadrant of fuselage frame at station 230.5 for cracks and to determine end of cracks. Stop drill cracks by drilling 3/32-inch to 1/8-inch diameter hole at extreme ends of cracks.

12. Drill out two (2) existing remaining rivets, left and right side, from wide flange of existing 43363-( ) left angle and 43363-( ) right angle. These rivets are located just forward of the two (2) rivets that attached the side of the 43255-1 fitting (removed in step 9.) to the vertical stabilizer skin. Also remove the two (2) rivets just above these rivets on each side (refer to Figure 3, sheet 1 of 2).

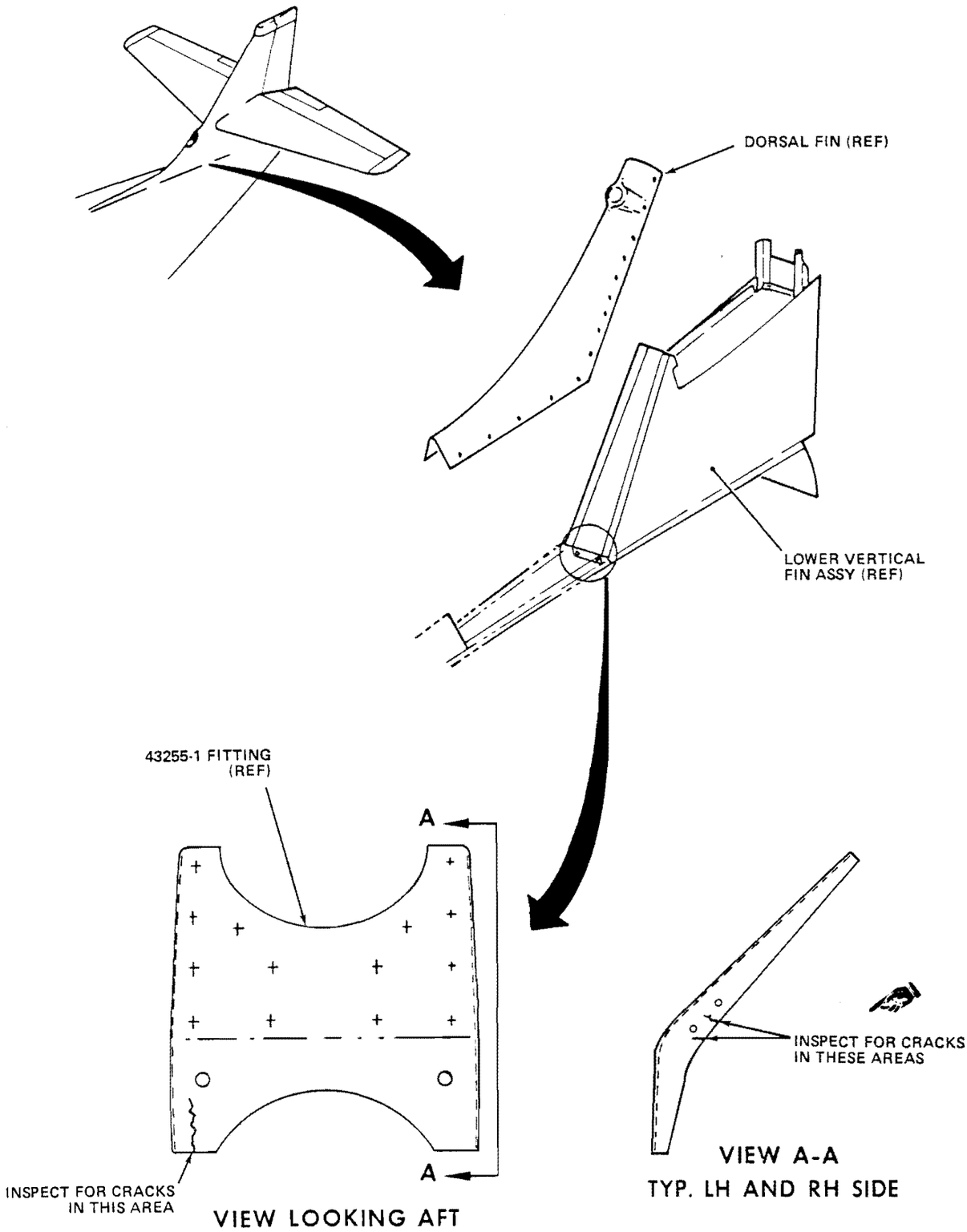


Figure 1.

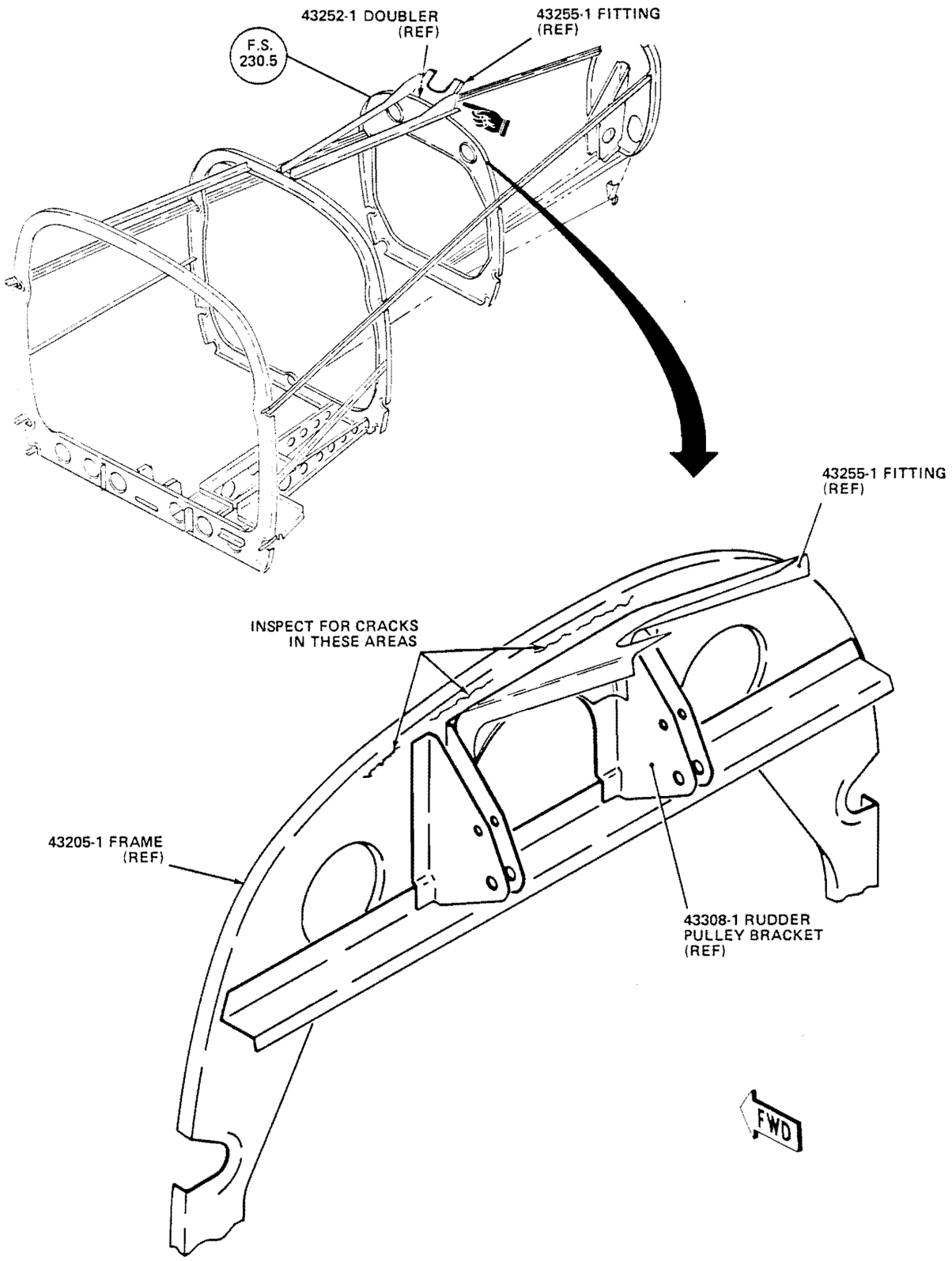


Figure 2.

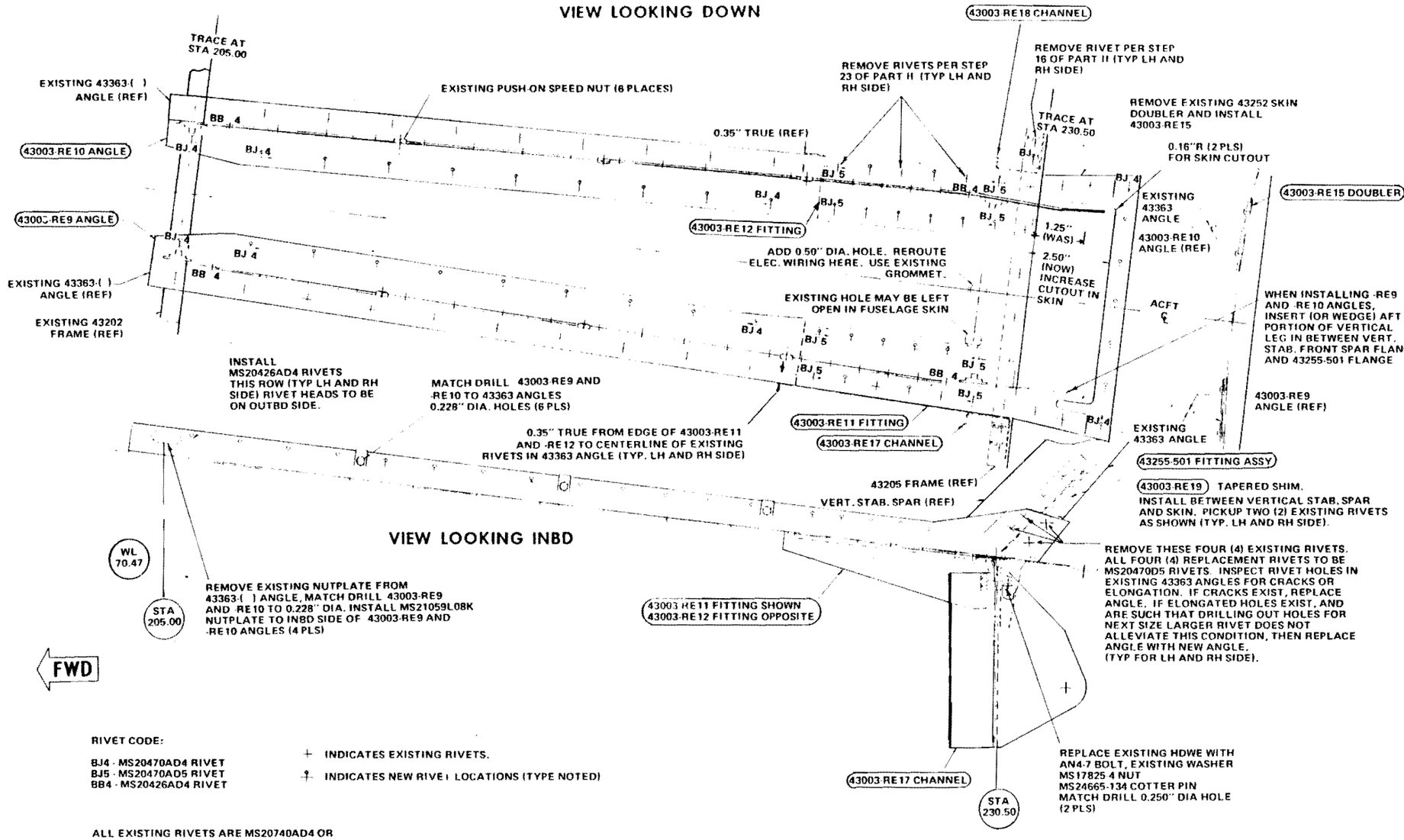
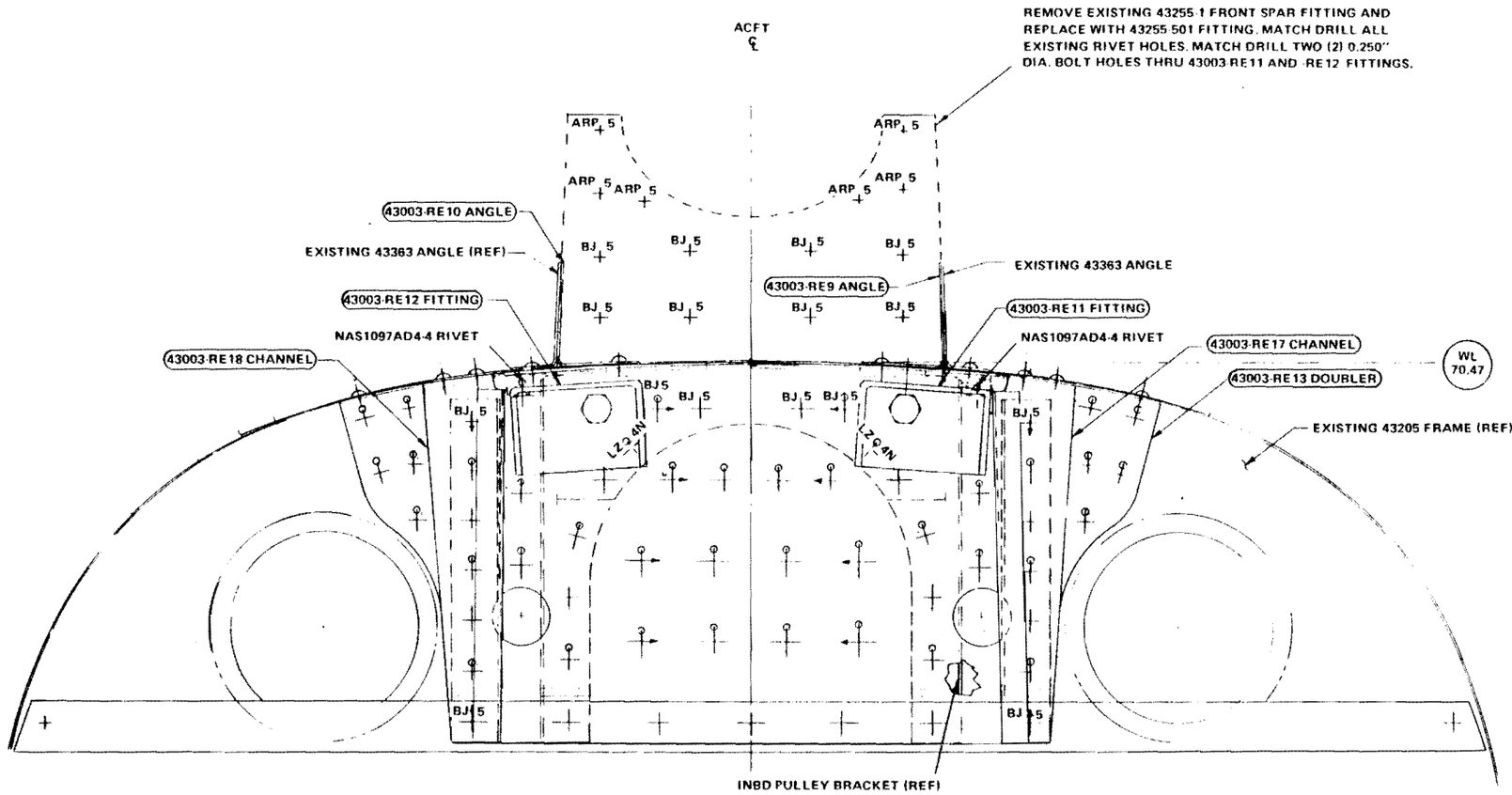


Figure 3 (Sheet 1 of 2)



RIVET CODE:

ARP5 - CR3243-5-3 BLIND RIVET
BJ4 - MS20470AD4 RIVET
BJ5 - MS20470AD5 RIVET
LZ4N - NAS1097AD4-4 RIVET
(N-INDICATES NEAR SIDE FOR RIVET HEAD)
ALL RIVETS ARE MS20470AD4 UNLESS OTHERWISE NOTED.

+ INDICATES EXISTING RIVETS.

INDICATES NEW RIVET LOCATION.

VIEW LOOKING AFT AT STA. 230.5

NOTE

DYE PENETRANT INSPECT AND STOP-DRILL ALL CRACKS IN 43205 FRAME PRIOR TO MOD INSTALLATION. DRILL 3/32" TO 1/8" DIA. HOLES AT EXTREME ENDS OF THE CRACKS.

Figure 3 (Sheet 2 of 2)

13. Inspect rivet holes in existing 43363-( ) left angle and 43363-( ) right angle for cracks or elongated holes. If cracks exist, remove and replace angle(s) (refer to Figure 3, Sheet 1 of 2).

14. If holes in existing 43363 angles are elongat( ), holes may be enlarged to accept MS20470D5 rivets. If holes are still too large, replace angles.

15. Locate, drill and install 43003-RE15 doubler with MS20470AD4 rivets. Do not install six (6) forward rivets at this time (refer to Figure 3, Sheet 1 of 2).

16. Locate and drill 43003-RE13 doubler on fuselage frame and back drill all existing holes in frame and doubler (refer to Figure 3, Sheet 2 of 2).

NOTE

It will be necessary to remove four (4) rivets from fuselage skin in order to nest doubler in upper portion of frame.

17. Temporarily install existing inboard rudder pulley bracket (P/N 43308-1) on aft side of fuselage frame using clecos.

18. Back drill all holes, including two (2) 0.250-inch diameter holes, in doubler, frame and pulley bracket (refer to Figure 3, Sheet 2 of 2).

19. Locate and drill 43255-501 fitting assembly on vertical stabilizer spar and frame as follows (refer to Figure 3):

    a. Drill two (2) No. 30 holes through lower flange of fitting assembly and frame and install clecos.
    b. Back drill two (2) 0.250-inch diameter holes through frame and fitting assembly.
    c. Install existing bolt, washer and nut thru fitting and frame and torque bolt.
    d. Drill all holes thru 43255-501 fitting assembly, frame and vertical spar web.
    e. Remove existing bolt, washer and nut.

20. Remove existing nutplates and push-on speed nuts from existing 43363 angles (refer to Figure 3, Sheet 1 of 2).

21. Locate and drill 43003-RE-9 and -RE10 angles on fuselage and on existing 43363 angles (refer to Figure 3, Sheet 1 of 2).

NOTE

Do not drill the six (6) aft inboard holes on each side, at this time, that attach the 43003-RE9 and -RE10 angles to the fuselage skin and to the 43003-RE11 and -RE12 fittings.

22. Install MS21059L08K nutplates on 43003-RE9 and -RE10 angles. Drill through existing hole location (0.228-inch diameter hole) (refer to Figure 3, Sheet 1 of 2).

NOTE

Nutplates are to be riveted to the 43003-RE9 and -RE10 angles only.

23. Remove rivets (6 places) for installation of 43003-RE11 and -RE12 fittings (refer to Figure 3, Sheet 1 of 2).

24. Locate and drill 43003-RE11 and -RE12 fittings on fuselage skin and angles as follows (refer to Figure 3):

    a. Locate fitting edge 0.35 inch from centerline of existing fastener holes as shown in Figure 3, (Sheet 1 of 2).
    b. Assure that the vertical surface of the fitting is flush against the 43003-RE13 doubler and the horizontal surface is up against the skin before drilling holes.
    c. Drill two (2) No. 30 holes, on forward end of 43003-RE11 and -RE12 fittings, through fitting, fuselage skin and angles. One (1) hole is to pick up the forward hole in the 43363 angle and the other hole is to pick up the forward pilot hole drilled in the fittings. Install clecos to hold fitting in place.
    d. Back drill 0.250-inch diameter hole (2 places) through fitting (refer to Figure 3, Sheet 2 of 2).
    e. Install AN4-7 bolts, existing washers and nuts in 43003-RE11 and -RE12 fittings and tighten nuts.
    f. Drill all holes that attach fitting to fuselage skin and angles to full size at this time (refer to Figure 3, Sheet 1 of 2).
    g. Remove bolts, washers and nuts from fittings.

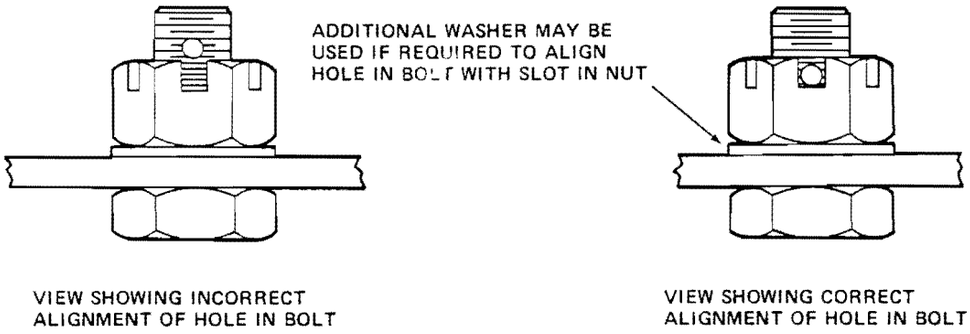


Figure 4.

25. Locate and drill 43003-RE17 and -RE18 channels and existing outboard pulley brackets on fuselage frame (refer to Figure 3).

26. Locate and drill 43003-RE19 shim (2 places) (refer to Figure 3, Sheet 1 of 2).

27. Remove all drilled parts and deburr all holes.

28. Touchup all parts, as necessary, with zinc chromate primer.

29. Install all parts as shown in Figure 3.

NOTE

When installing the 43255-501 fitting assembly, it is recommended that the fitting assembly be riveted to the fuselage frame first and then to the vertical stabilizer spar.

30. Replace existing hardware that attached 43255 fitting to frame with AN4-7 bolt (2 places), existing AN960-416 washers and MS17825-4 nut (2 places). Torque bolts to a minimum of 60 inch-pounds and, if necessary, continue to tighten until a slot in nut aligns with hole in bolt. Do not exceed 100 inch-pounds torque. Install MS24665-134 cotter pins (refer to Figure 4).

31. Reinstall pulleys on pulley brackets using existing hardware.

32. Reconnect rudder control cables using existing turnbarrels.

33. Rig rudder controls as outlined in Section VII of the Airplane Maintenance Manual.

34. Reinstall avionics equipment, if removed, in aft fuselage.

35. Reconnect aft navigation light and reinstall stinger assembly using existing hardware.

36. Reinstall all existing speed nuts on angles and reinstall existing dorsal fin using existing hardware.

37. Remove tail stand from airplane.

38. Fill out and mail Compliance Card specifying that Part II has been accomplished.

ELECTRICAL LOAD: NO CHANGE.

WEIGHT AND BALANCE: The weight and balance change resulting from installation of Part II of this Service Bulletin is as follows:

WEIGHT (LBS)	H-ARM (INCHES)	H-MOMENT (IN-LBS)
+1.439	224.17	322.58

SPARES AFFECTED: NO.

PUBLICATIONS AFFECTED: The Illustrated Parts Catalog change required by this document will be incorporated at the next scheduled revision.

RECORD COMPLIANCE: Make an appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-23A, dated 31 August 1987, entitled "Inspection and/or Modification of Vertical Stabilizer Forward Attachment," Part I accomplished ___(date)___; Part II accomplished ___(date)___.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-25
REVISION NO. 1
Release Date 8/19/93

INSPECTION AND/OR MODIFICATION OF NOSE GEAR EXTENSION ASSIST SPRINGS

APPROVAL: Engineering design aspects are FAA approved.

Page 1 of 5

Change **NOTE** immediately following title to read:

Aircraft meeting compliance with Service Bulletin No. SB-114-25, Pre-Release dated 2/24/93 are in compliance with Service Bulletin SB-114-25, dated 6/9/93 EXCEPT springs modified by SB-114-25, Pre-Release dated 2/24/93 must be replaced every 6200 hours.

COMPLIANCE:

Page 1 of 5

Change **NOTE** to read:

Springs modified by this service bulletin must be replaced every 6200 hours.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-25
(Supersedes Service Bulletin No. SB-114-25, Pre-Release Date 2/24/93 in its entirety)
Release Date 6/9/93

INSPECTION AND/OR MODIFICATION OF NOSE GEAR EXTENSION ASSIST SPRINGS

NOTE

Aircraft meeting compliance with Service Bulletin No. SB-114-25, Pre-Release dated 2/24/93 are in compliance with Service Bulletin SB-114-25, dated 6/9/93 EXCEPT springs modified by SB-114-25, Pre-Release dated 2/24/93 must be replaced every 500 hours.

MODELS AFFECTED: Model 114B S/N 14541 thru 14584

REASON FOR PUBLICATION: To prevent possible incomplete emergency gear extension.

COMPLIANCE: PART I: Test emergency extension of landing gear per instruction found on page 2 prior to next flight or after flight to nearest service center.

PART II: Modification of nose gear extension assist springs.

NOTE

Springs modified by this service bulletin must be replaced every 500 hours.

If any problems are encountered while complying with this service bulletin, contact Commander Aircraft Company, Product Support. (405) 495-8080

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent.

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS:
PART I: Test gear free fall - One half (1/2) hour.
PART II: Remove, modify, reinstall, and retest spring function - One and one half (1 1/2) hours

PARTS DATA: No parts are required for PART I.
No additional parts will normally be required to comply with PART II.

SPECIAL TOOLS REQUIRED: Pulley, Cable, 5 1/2 Lbs calibrated weight

ACCOMPLISHMENT INSTRUCTIONS:

PART I

1. EMERGENCY EXTENSION FREE FALL TEST:

   Jack the aircraft per aircraft Maintenance Manual, Section 2. Apply a 5 1/2 lbs weight to the nose wheel axle via a cable and pulley mounted to the tie down ring at the tail of the aircraft to simulate an air load (see Figure 1). Retract the landing gear and place the throttle in mid position.

   a. Pull the GEAR MTR circuit breaker.
   b. Place the landing gear selector switch in DOWN position.
   c. Push landing gear emergency valve control knob DOWN and hold. The valve and the control knob are located on the left forward side of the center console (see Pilot's Operating Handbook).
   d. With master switch on check for the following:
      1. Gear unsafe red indicator light on while in transit.
      2. Warning bell should not sound.
      3. Gear free falls in a positive motion.
      4. Gear safe green indicator lights on within 8 seconds of pushing the emergency control knob.
      5. Gear unsafe red indicator light off.
      6. Return emergency control knob to its normal up position.
      7. Push the GEAR MTR circuit breaker on.
      8. Place landing gear switch in the up position.
      9. Verify gear up.
      10. Repeat steps a through d until three(3) complete cycles have been accomplished.

2. If the nose gear has successfully extended and locked down all times attempted then the modification in PART II is not required.

3. Proceed to RECORD COMPLIANCE

4. If the nose gear fails to extend and lock on every attempt then proceed with PART II.

PART II

1. Remove both inner and outer assist springs from the nose gear by prying hook ends of springs out of the forward attach point being careful to avoid injury when the springs retract suddenly. Remove the springs from the aircraft.

2. Modify the outer spring by removing four coils (counting the formed hook) from the spring. An abrasive cut-off wheel is suggested to remove the coils. The last coil on the spring must then be formed into a hook by bending it down to match the opposite end of the spring (see Figure 3).

It is suggested to hold the spring in a vise with soft jaws to avoid marring the spring while reforming. Make sure that the newly formed hook encompasses at least the same arc as the original end to ensure that it cannot come loose during operation. Carefully remove any nicks or burrs from the hook end prior to reinstalling.

3. Remove seven (7) coils from the inner spring and reform the hook end as described above (see Figure 2).

4. Reinstall springs on nose gear and repeat the free fall test.

ELECTRICAL LOAD: NO CHANGE

WEIGHT AND BALANCE: NO CHANGE

PUBLICATIONS AFFECTED: NONE

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-25, Dated 6/9/93, entitled "Inspection and/or Modification of Nose Gear Extension Assist Springs", Part I accomplished (date) , Part II accomplished (date) .

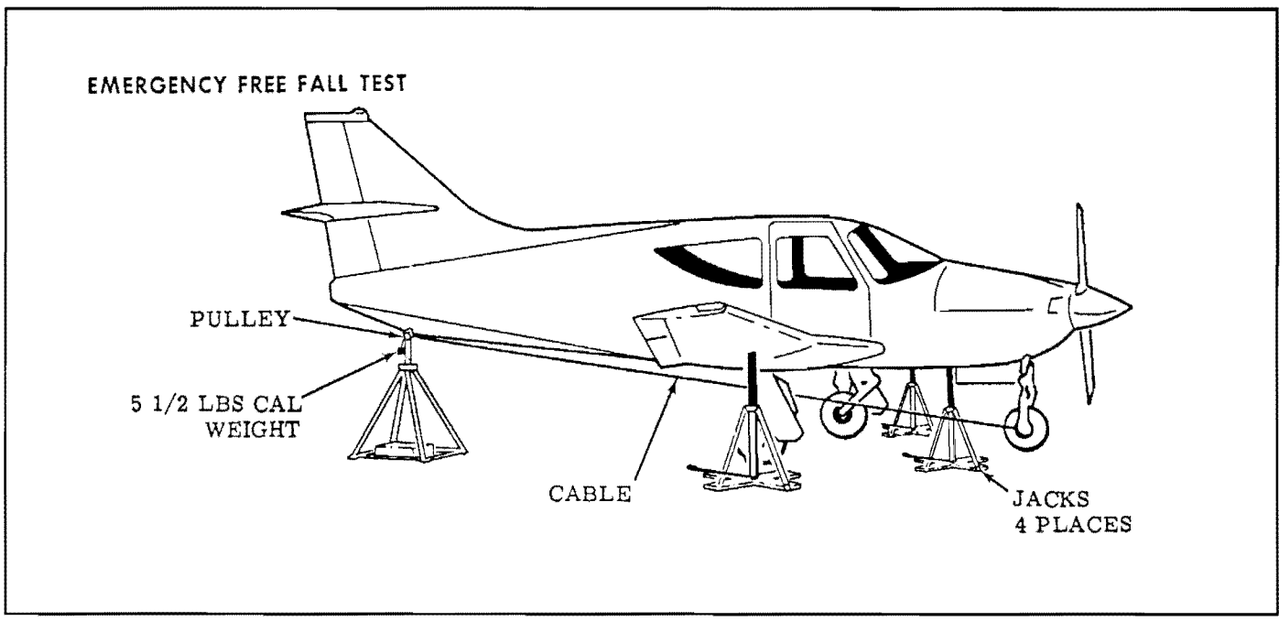


Figure 1

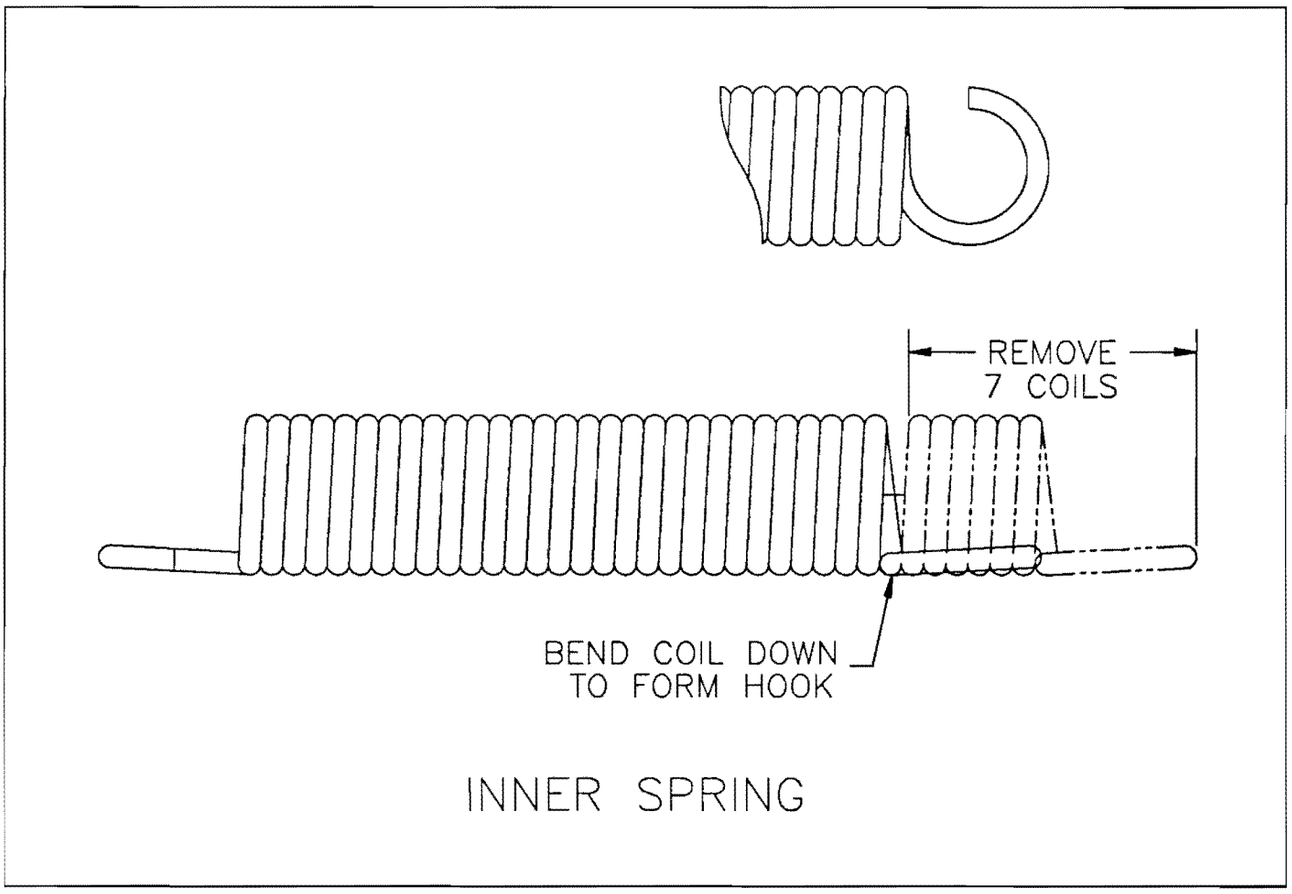


Figure 2

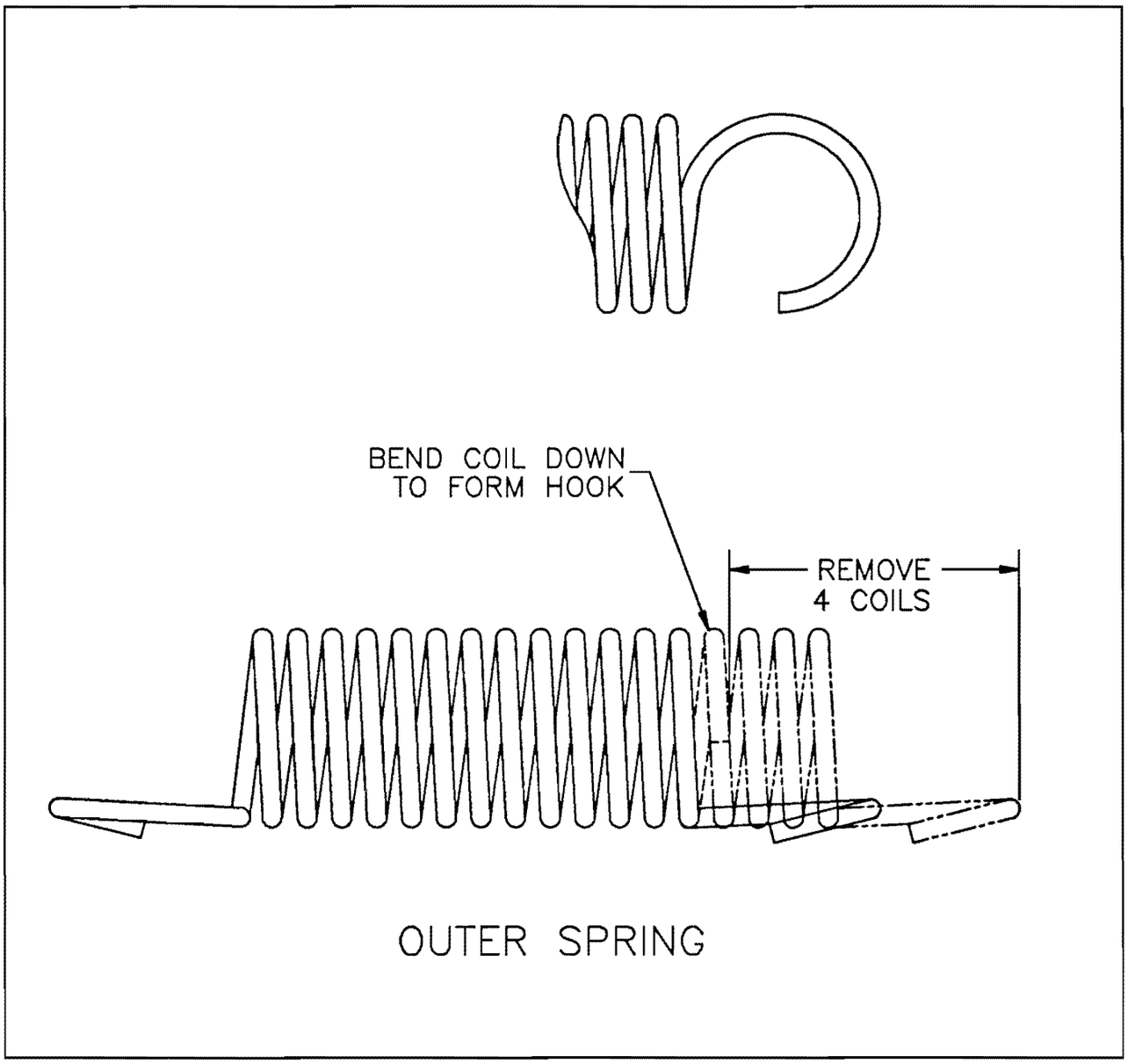


Figure 3

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-26
Date 5/13/93

INSPECTION AND/OR MODIFICATION OF THE HORIZONTAL STABILIZER REAR SPAR

MODELS AFFECTED: Model 114B, Serial Numbers 14541 thru 14580, excluding 14560, 14573, and 14579

REASON FOR PUBLICATION: To assure that aircraft did not leave the factory missing the rivets that attach the horizontal stabilizer strap doublers to the center section of the horizontal stabilizer rear spar upper flange.

COMPLIANCE: PART I: Prior to next flight

PART II: Prior to next flight or after flight to the nearest repair center

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: PART I: Ten (10) minutes
PART II: Two (2) hours

PARTS DATA

PART I: No parts or materials are required for Part I of this Service Bulletin

PART II:

QTY	PART NUMBER	DESCRIPTION
A/R	MS20470AD4	RIVET

Note: The MS20470AD4 rivets are to be procured locally.

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I:

1. Inspect the area where the horizontal stabilizer strap doublers are attached to the horizontal stabilizer rear spar upper flange (see Figure 1). There should be five (5) MS20470AD4 rivets visible within the cutout area of the upper center stabilizer skin.

2. Inspect the area where the horizontal stabilizer strap doublers are attached to the horizontal stabilizer rear spar lower flange (see Figure 1). There should be seven (7) MS20470AD4 rivets visible within the cutout area of the lower center stabilizer skin.

3. Upon completion of the inspection, fax the inspection findings to Commander Aircraft Co. (405) 495-8383.

4. If all the rivets are present, the modification in PART II is not required.

5. Proceed to RECORD COMPLIANCE.

6. If any rivets are not present, proceed with PART II.

PART II:

1. Remove the aircraft rudder per Maintenance Manual Section VII.

2. Replace any missing rivets with equally spaced MS20470AD4 rivets (see Figure 1).

3. Replace the aircraft rudder and rig rudder control per Maintenance Manual Section VII.

ELECTRICAL LOAD: NO CHANGE

WEIGHT AND BALANCE: NO CHANGE

PUBLICATIONS AFFECTED: NONE

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-26, Dated 5/13/93, entitled "INSPECTION AND/OR MODIFICATION OF HORIZONTAL STABILIZER REAR SPAR", Part I accomplished (date) , Part II accomplished (date) . Fill out and return Compliance Card. Note condition found in PART I.

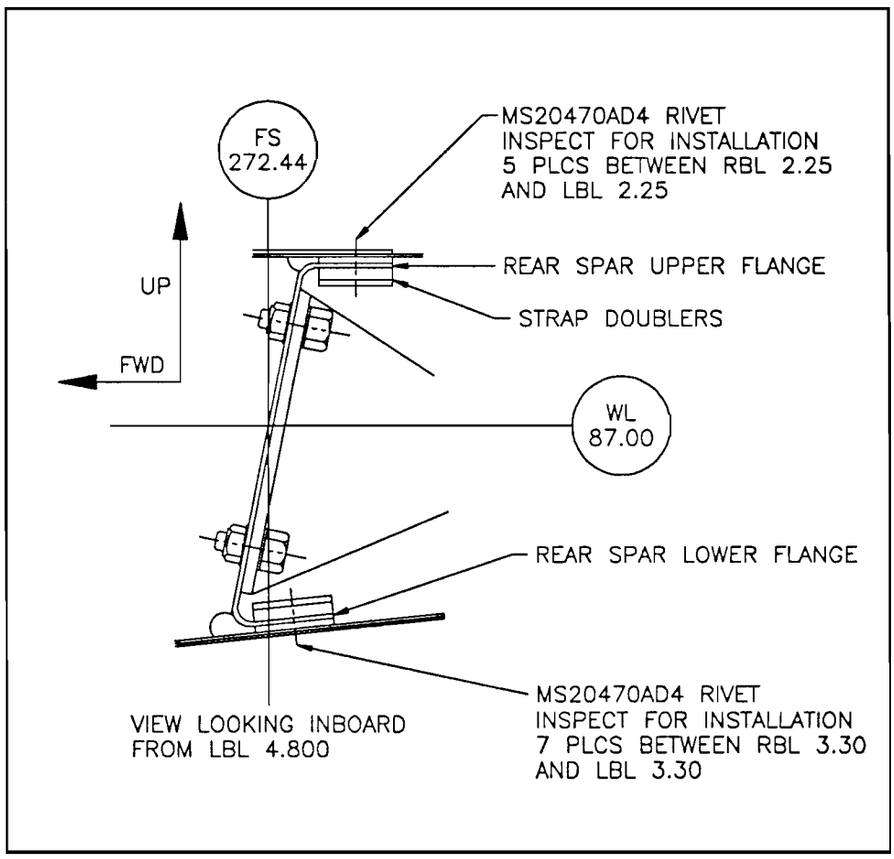


Figure 1

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-27
Date 6-3-93

FLUSHING OF HYDRAULIC SYSTEM

MODELS AFFECTED: Model 114B, Serial Numbers 14541 thru 14580

REASON FOR PUBLICATION: Reports of Hydraulic Power Pack failure due to contamination of the hydraulic fluid in the system necessitates flushing the system.

NOTE

The onset of a Hydraulic Power Pack failure may be indicated by evidence that the power pack is running continuously or cycling with an increasing frequency. Monitor the Volt/Amp meter in the "Amp" mode for signs of high or intermittent electric loads. Also, interior lights may dim or flicker as evidence that the electric motor of the Hydraulic Power Pack is being run outside it's normal duty cycle.

COMPLIANCE: PART I THRU VII: Within next ten (10) hours time in service.

PART I:	Setup
PART II:	Left Gear System Flush
PART III:	Right Gear System Flush
PART IV:	Emergency Extension Valve System Flush
PART V:	Nose Gear System Flush
PART VI:	Landing Gear Actuators Flush
PART VII:	Perform Function Test

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: PART I THRU PART VII: Eight to nine (8 to 9) hours

PARTS DATA:

PARTS I THROUGH VII:

1. New, clean hydraulic fluid (approx. 5 gallons) MIL-H-5606
2. Two discard reservoirs (approx. 5 gallon capacity)
3. Four (4) hose assemblies approx. 48" long, with one end having an MS24587-4D fitting and the other end open.

PARTS DATA: (con't)

PARTS DATA: (con't)

4. One (1) hose assembly (approx. 11" long) with an MS24587-4D fitting on both ends.

NOTE

Flush hoses with clean hydraulic fluid prior to use.

Clean fluid to contain no foreign objects/debris greater than 10 microns.

5. Nine (9) AN929-4D Caps, five (5) AN815-4D Unions, seven (7) AN806-4D Plugs.
6. Supplied - one (1) MS28775-047 Reservoir Seal.
7. Supplied - two (2) Stat-O-Seals P/N 600-001-10.

SPECIAL TOOLS REQUIRED: 28 volt 40 amp minimum power supply

ACCOMPLISHMENT INSTRUCTIONS:

FIELD PROCEDURE FOR HYDRAULIC SYSTEM FLUSH

This procedure establishes the requirements for flushing the landing gear hydraulic system.

It is essential that hydraulic system components be kept clean of any contamination by particles of dirt or other foreign materials during this procedure. All disconnected hydraulic line assemblies (hard line and hose assemblies) and all Hydraulic Power Pack fittings shall be cap plugged immediately.

PART I: Setup (See Figure 1)

1. Pull GEAR MTR circuit breaker (open circuit). Ensure that all equipment switches are off.

2. Gain access, through baggage compartment, to the Hydraulic Power Pack per the airplane Maintenance Manual, Section 3.

3. Gain access to Pilot Check Valve by removing rear seat assembly.

4. Remove upper and lower engine cowling per air airplane Maintenance Manual, Section IV. Disconnect nose and main gear doors per airplane Maintenance Manual, Section VI.

5. Jack airplane as outlined in the airplane Maintenance Manual, Section II.

6. Disconnect emergency free fall return line at union located at fuselage station 122.0 and cap forward line.

7. Drain reservoir of the Hydraulic Power Pack through aft return line and filter the fluid through a clean cloth or tissue.

8. Disconnect aft return line from Hydraulic Power Pack.

9. Disconnect and remove Hydraulic Power Pack from aircraft per the airplane Maintenance Manual, Section III.

10. Remove Hydraulic Power Pack reservoir and clean inside.

NOTE
If any contamination is found, record the type and quantity of the contamination and phone or fax the results to Commander Aircraft Co.
Phone (405) 495-8080 Fax (405) 495-8383

11. Reinstall reservoir on Hydraulic Power Pack using the new MS28775-047 seal and new Stat-O-Seals.

12. Flush aft return line with clean hydraulic fluid and cap both ends.

13. Reinstall the Hydraulic Power Pack in aircraft per airplane Maintenance Manual, Section III.

14. Connect gear up line, vent, and aft return line to Hydraulic Power Pack and ensure gear down line port is capped.

15. Connect hose assembly (approx. 48" long) and union to return line from Emergency Gear Extension Valve at fuselage station 122.0. The other end of hose goes into discard reservoir. (See Figure 1)

16. Connect hose assembly (approx. 48" long) and union to gear down line. The other end of hose goes into discard reservoir. (See Figure 1)

17. Disconnect gear down lines from Pilot Check Valve and cap check valve ports. Connect hose assembly (approx. 11" long) to gear down lines, by-passing check valve using unions. (See Figure 1)

18. Refill Hydraulic Power Pack with new clean fluid.

19. Ensure Emergency Gear Extension Valve is closed.

PART II: Left Gear System Flush (See Figure 2)

CAUTION
During the implementation of Part II thru Part V, DO NOT run Hydraulic Power Pack with hydraulic fluid supply exhausted. Replenish hydraulic fluid supply after each cycle.

1. Disconnect gear up and gear down lines from left gear actuator.

2. Cap actuator ports.

3. Connect gear up and gear down lines together using a union. (See Figure 2)

4. Connect 28 volt power supply to aircraft per airplane Maintenance Manual, Section X.

5. Cycle the Hydraulic Power Pack by placing the Gear Selector in the up position, GEAR MTR circuit breaker "in", and BATT MASTER "ON" for approximately 20 seconds. Filter the discarded hydraulic fluid with a clean white cloth or tissue to see if any contamination is present. Refill Hydraulic Power Pack with clean fluid.

NOTE

For subsequent pump cycling use the BATT MASTER

6. Repeat Step 5 (total cycle time of Hydraulic Power Pack shall be 40 seconds minimum) to complete Left Main Gear System Flushing. Continue to flush the lines and filter the discarded hydraulic fluid until there is no visual evidence of contamination.

7. Disconnect gear up and gear down lines from union and plug them.

PART III: Right Gear System Flush (See Figure 3)

1. Disconnect gear up and gear down lines from right gear actuator.

2. Cap actuator ports.

3. Connect gear up and gear down lines together using a union.

4. Fill Hydraulic Power Pack with clean hydraulic fluid.

5. Cycle the Hydraulic Power Pack for approximately 20 seconds. Filter the discarded hydraulic fluid with a clean white cloth or tissue to see if any contamination is present. Refill Hydraulic Power Pack with clean fluid.

6. Repeat Step 5 (total cycle time of Hydraulic Power Pack shall be 40 seconds minimum) to complete Right Main Gear System Flushing. Continue to flush the lines and filter the discarded hydraulic fluid until there is no visual evidence of contamination.

7. Disconnect gear up and gear down lines from union and plug them.

PART IV: Emergency Extension Valve Flush (See Figure 4)

1. Open Emergency Gear Extension Valve.

2. Cycle the Hydraulic Power Pack for approximately 20 seconds. Filter the discarded hydraulic fluid with a clean white cloth or tissue to see if any contamination is present. Refill Hydraulic Power Pack with clean fluid.

3. Repeat Step 2 (total cycle time of Hydraulic Power Pack shall be 40 seconds minimum) to complete Emergency Extension Valve System Flushing. Continue to flush the lines and filter the discarded hydraulic fluid until there is no visual evidence of contamination.

4. Ensure that Hydraulic Power Pack reservoir is full of hydraulic fluid.

5. Close Emergency Extension Valve.

PART V: Nose Gear System Flush (See Figure 5)

1. Disconnect gear up and gear down lines from nose gear actuator.

2. Cap actuator ports.

3. Connect gear up and gear down lines together using a union. (See Figure 5)

4. Cycle the Hydraulic Power Pack for approximately 20 seconds. Filter the discarded hydraulic fluid with a clean white cloth or tissue to see if any contamination is present. Refill Hydraulic Power Pack with clean fluid.

5. Repeat step 4 (total cycle time of Hydraulic Power Pack shall be 40 seconds minimum) to complete Nose Gear System flushing. Continue to flush the lines and filter the discarded hydraulic fluid until there is no visual evidence of contamination.

6. Return Gear Selector to the down position.

7. Disconnect gear up and gear down lines and plug them.

8. Reinstall Emergency Gear Extension return line at fuselage station 122.0.

9. Reinstall lines to Pilot Check Valve.

10. Reinstall gear down line to Hydraulic Power Pack.

PART VI: Landing Gear Actuators Flush

1. Place clean hydraulic fluid into a clean reservoir.

2. Connect a 48" hose assembly to the up port of the nose gear actuator with the open end in the clean fluid reservoir. Connect a 48" hose assembly to the down port of the actuator with the open end in the discard reservoir.

3. Hand actuate the landing gear to the up position and hold.

4. Reverse the open ends of the lines so that the hose assembly connected to the up port of the actuator runs to the discard reservoir and the hose assembly connected to the down port of the actuator runs to the clean fluid reservoir.

5. Hand actuate the landing gear to the down position.

6. Switch the open ends of the hose assemblies again and repeat steps 3 thru 5 (total number of cycles shall be 2 minimum).

7. Reconnect gear up and gear down lines to nose gear actuator.

8. Repeat Steps 1 thru 7 for the Right Gear Actuator and the Left Gear Actuator.

PART VII: Function Test

NOTE

Torque all fittings that were opened in Parts I thru VI
to 40 to 60 in/lbs and torque seal each fitting.

1. Ensure gear selector is in the down position.

2. Reconnect the nose and main wheel doors.

3. Install with a tee fitting, a 0 to 3,000 psi pressure gauge in the gear up and gear down portion of the system at the four way fitting at approximately fuselage station 142.0.

4. Perform a functional test of the landing gear retraction system per the airplane Maintenance Manual, Section III EXCEPT tee the pressure gauges at the gear up and gear down four way fittings.

5. Repeat function testing until all air has been purged from the system and the gear extends and retracts smoothly. Observe the pressure gauges for any evidence of internal leakage.

NOTE

It may require 2 - 4 cycles to purge air from the system. Once all air has been purged from the system, all of the landing gear shall retract within 8 seconds maximum and shall extend within 8 seconds maximum. Longer retract/ extension times may be evidence of a damaged power pack. If longer retract/ extension times are witnessed, Hydraulic Power Pack may be damaged or system may have internal/external leakage. Reference airplane Maintenance Manual for trouble shooting the hydraulic system for internal/external leakage. **If retraction/extension times continue to exceed maximum, contact the factory.**

6. Perform three emergency extension free fall tests.

NOTE

All of the landing gears shall free fall within 4 seconds maximum.

7. Remove power supply and test gauges. Torque fittings and apply torque paste.

8. Clean any spilled hydraulic fluid.

9. Lower and remove jacks, reinstall cowling, seats and left side aft baggage compartment panel. Return the aircraft to its normal configuration.

ELECTRICAL LOAD: None

WEIGHT AND BALANCE: None

PUBLICATIONS AFFECTED: None

RECORD COMPLIANCE:

Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-27, Dated 6-3-93, entitled "FLUSHING OF HYDRAULIC SYSTEM", Part I thru VI accomplished (date) . Fill out and return Compliance Card.

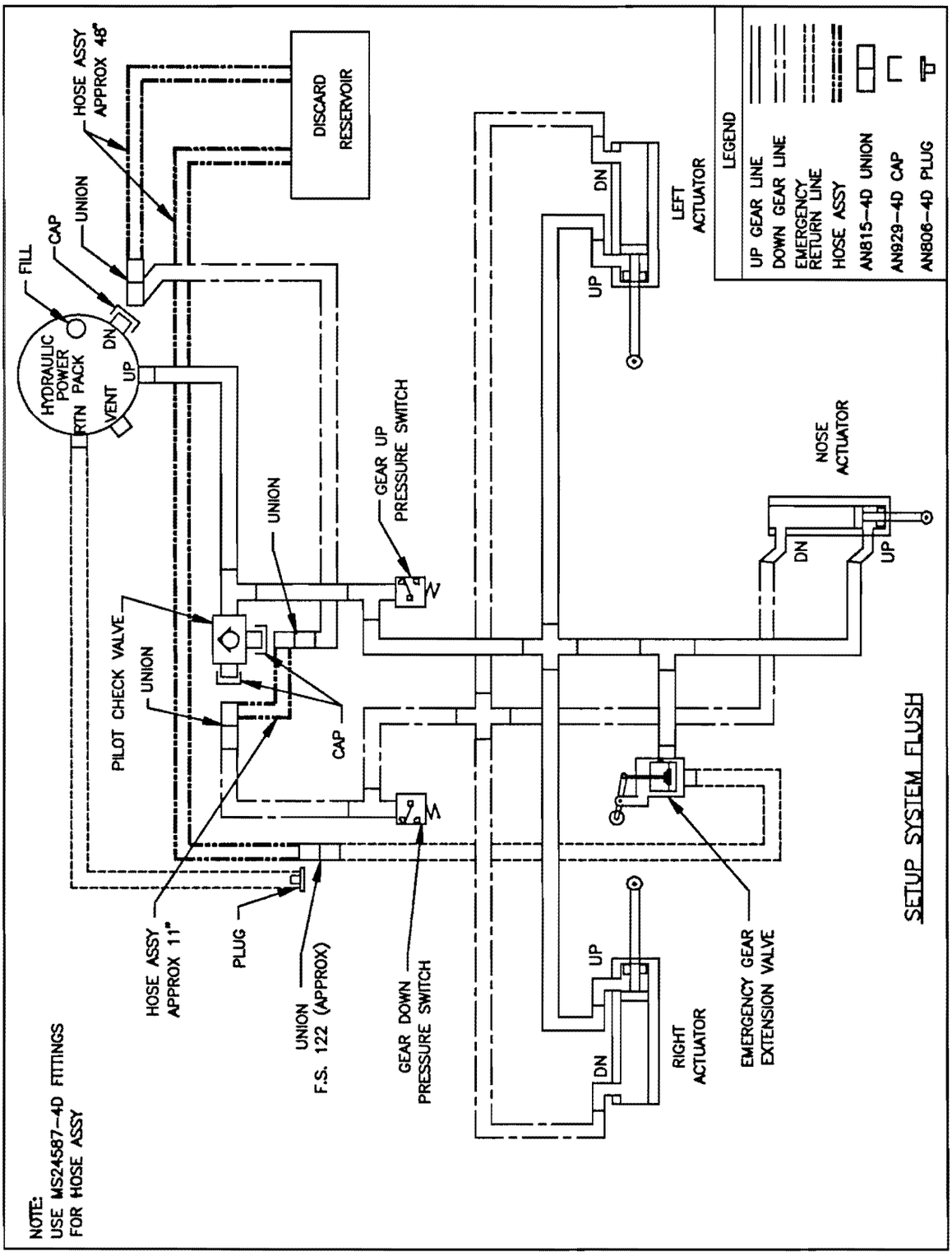


Figure 1

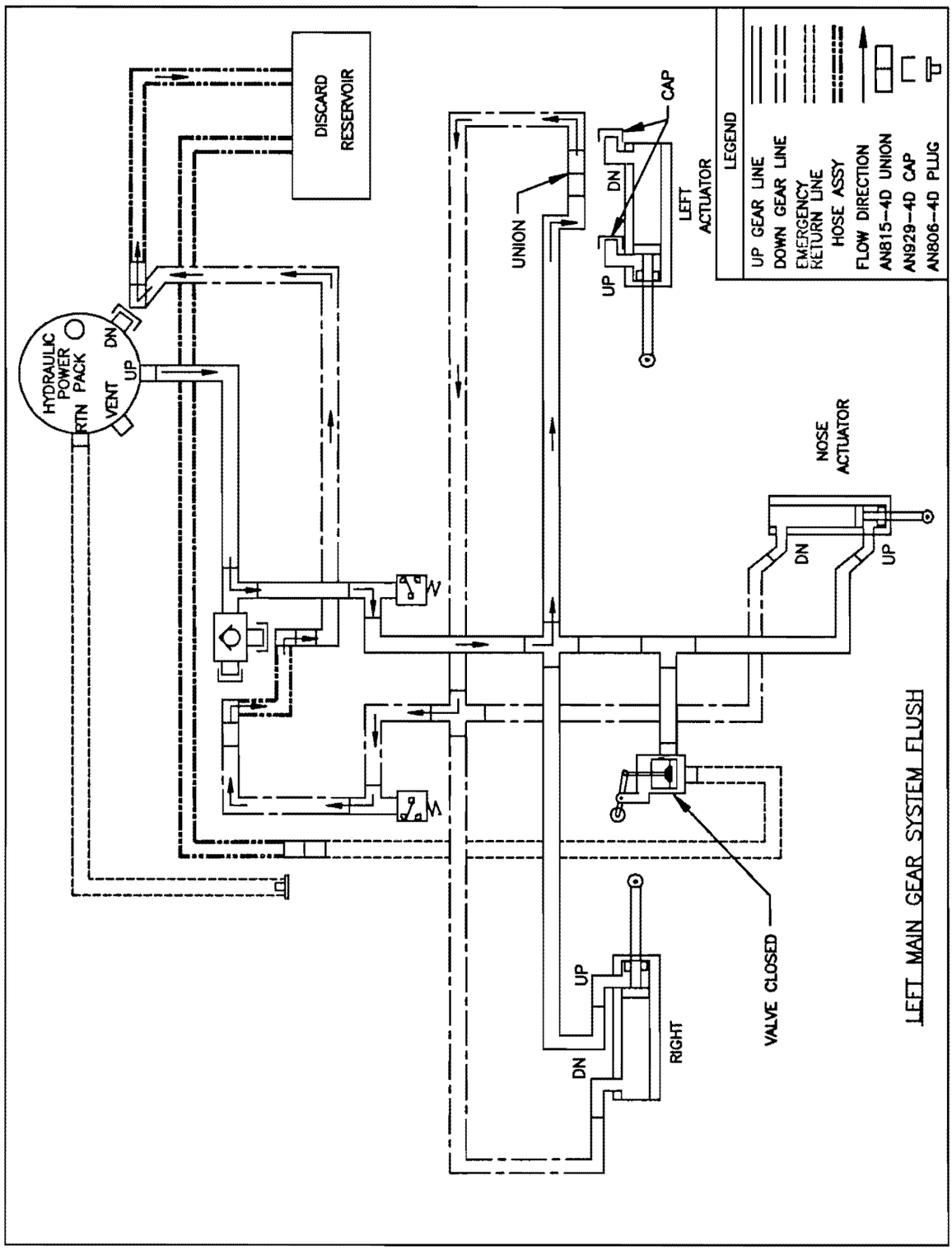


Figure 2

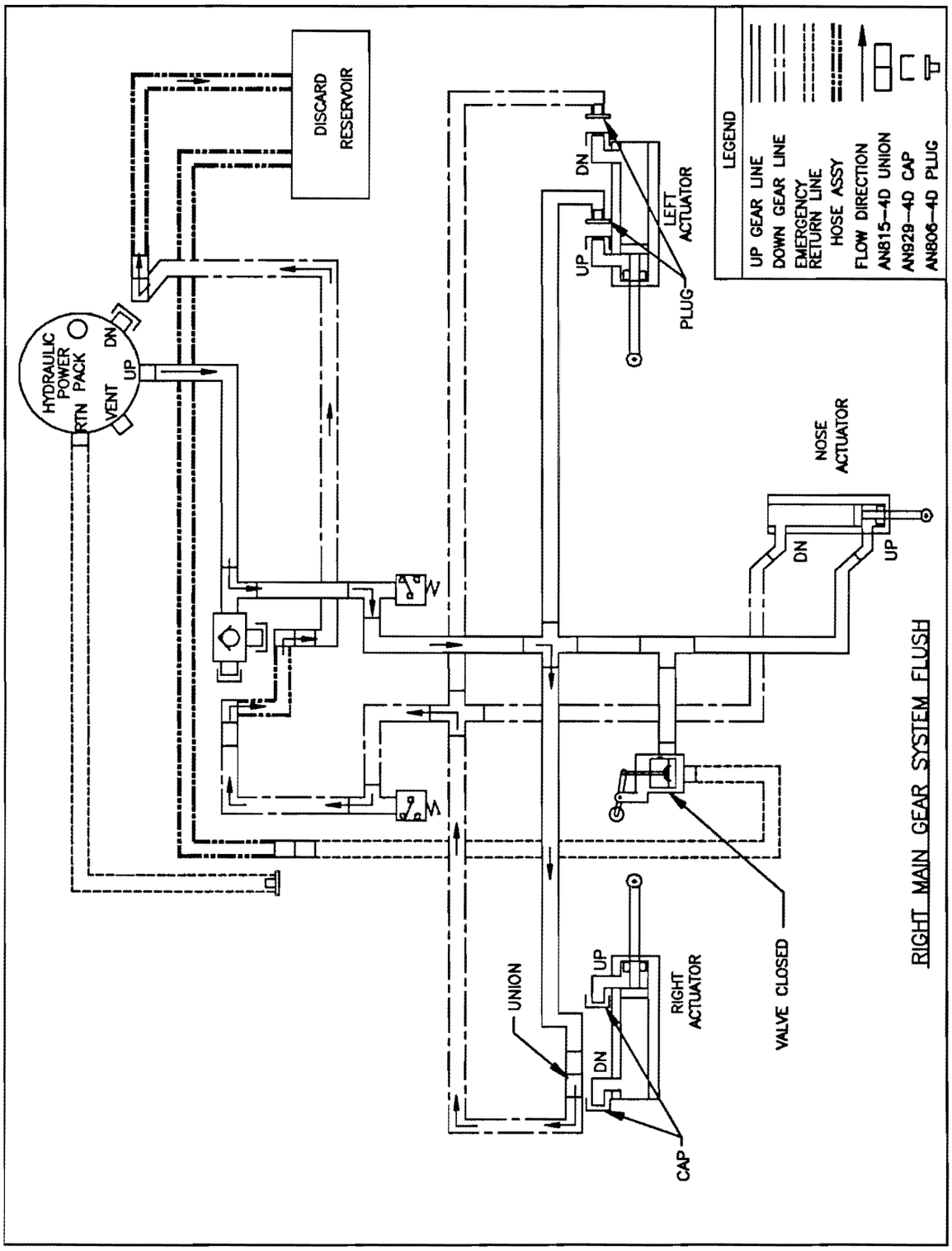


Figure 3

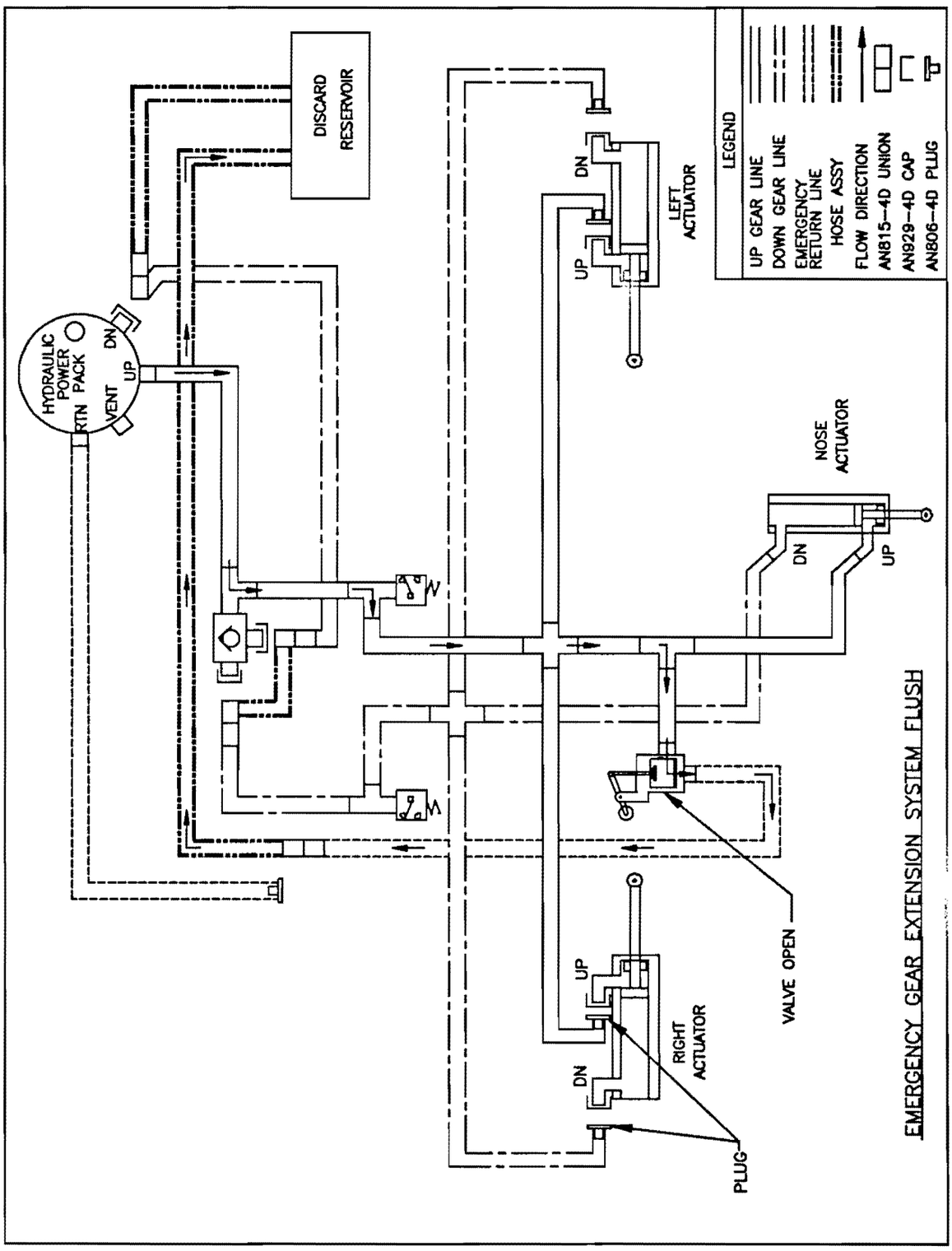


Figure 4

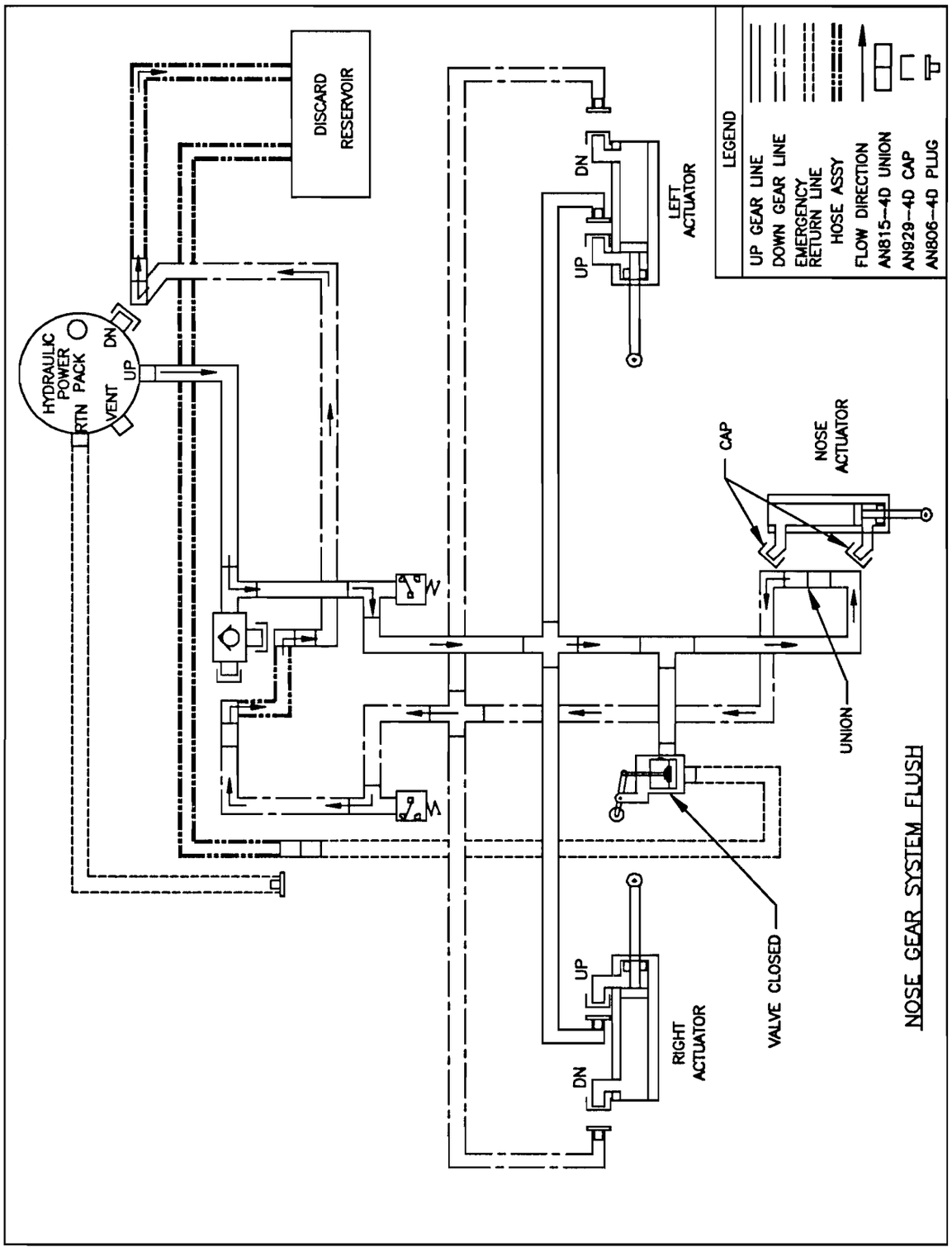


Figure 5

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-28
Date 5-3-94

INSPECTION OF WELDS ON NOSE LANDING GEAR STEERING PULLEY BRACKETS

MODELS AFFECTED: Model 114B, S/N 14543 thru 14615

REASON FOR PUBLICATION: To prevent possible failure of nose landing gear steering due to inadequate welding of pulley brackets.

COMPLIANCE:
- PART I: Within the next 50 hours or next regularly scheduled maintenance (whichever comes first)
- PART II: Within the next 50 hours or next regularly scheduled maintenance (whichever comes first)
- PART III: Within the next 50 hours or next regularly scheduled maintenance (whichever comes first)

BY WHOM WORK WILL BE ACCOMPLISHED:
- PART I: A & P Mechanic or equivalent
- PART II: A & P Mechanic or equivalent
- PART II (Item 9): Certified Welder
- PART III: A & P Mechanic or equivalent

> NOTE
>
> Welders must be certified under the certification requirements found in MIL-STD-1595, Qualification of Aircraft, Missile and Aerospace Fusion Welders.

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS:
- PART I: 45 Minutes
- PART II: 3 Hours
- PART III: 30 Minutes

SPECIAL TOOLS REQUIRED:
- PART I: None
- PART II: Tungsten - Inert Gas Arc Welder (T.I.G. Arc Welder)
- PART III: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I: INSPECTION OF NOSE LANDING GEAR STEERING PULLEY BRACKETS

1. Remove the upper and lower engine cowling per Section 4 of the Commander 114B Maintenance Manual.

2. Inspect the welds which attach each nose landing gear steering pulley bracket to the engine mount. The welds should resemble the welds shown in Figure 1.

3. If the welds have proper coverage then proceed to PART III. If the welds resemble any of the conditions in Figure 2, proceed to PART II.

PART II: REWELDING OF NOSE LANDING GEAR STEERING PULLEY BRACKETS

1. Jack the aircraft per Section 2 of the Commander 114B Maintenance Manual.

2. Remove the clamp that attaches the right hand exhaust stack to the Heat Muff-Tail Pipe Assembly.

3. Remove the right hand exhaust stack (cylinders 1,3, and 5) from the engine.

NOTE
It is not necessary to disconnect any thermocouples attached to the exhaust stack

4. Remove the Heat Muff-Tail Pipe Assembly and set it aside.

5. Remove the Nose Landing Gear per Section 6 of the Commander 114B Maintenance Manual.

6. Remove the Nose Landing Gear Steering Pulleys.

7. Remove the Nose Landing Gear Trunnion Bearings from the Engine Mount.

8. Grind away any paint and clean the area of the weld. Use a wire brush to roughen the area where any new weld will be.

9. Using a T.I.G. arc welder, weld the Nose Landing Gear Steering Pulleys Brackets to the engine mount per Figure 1.

10. Once all welding has been completed, apply a protective coating of red oxide primer to any unprotected areas.

11. Return the landing gear and exhaust stack to their normal configuration by reversing the removal procedure found in steps 2 thru 7.

12. Do a functional test of the landing gear as outlined in Section 6 of the Commander 114B Maintenance manual.

13. Remove aircraft from jacks.

PART III:

1. Replace the upper and lower engine cowl per Section 4 of the Commander 114B Maintenance Manual.

ELECTRICAL LOAD: No Change

WEIGHT AND BALANCE: No Change

PUBLICATIONS AFFECTED: None

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-28, Dated 5-3-94, entitled "Inspection of Welds on Nose Landing Gear Steering Pulley Brackets", Part I accomplished (date) , Part II accomplished (date) , Part III accomplished (date) . Fill out and return Compliance Card.

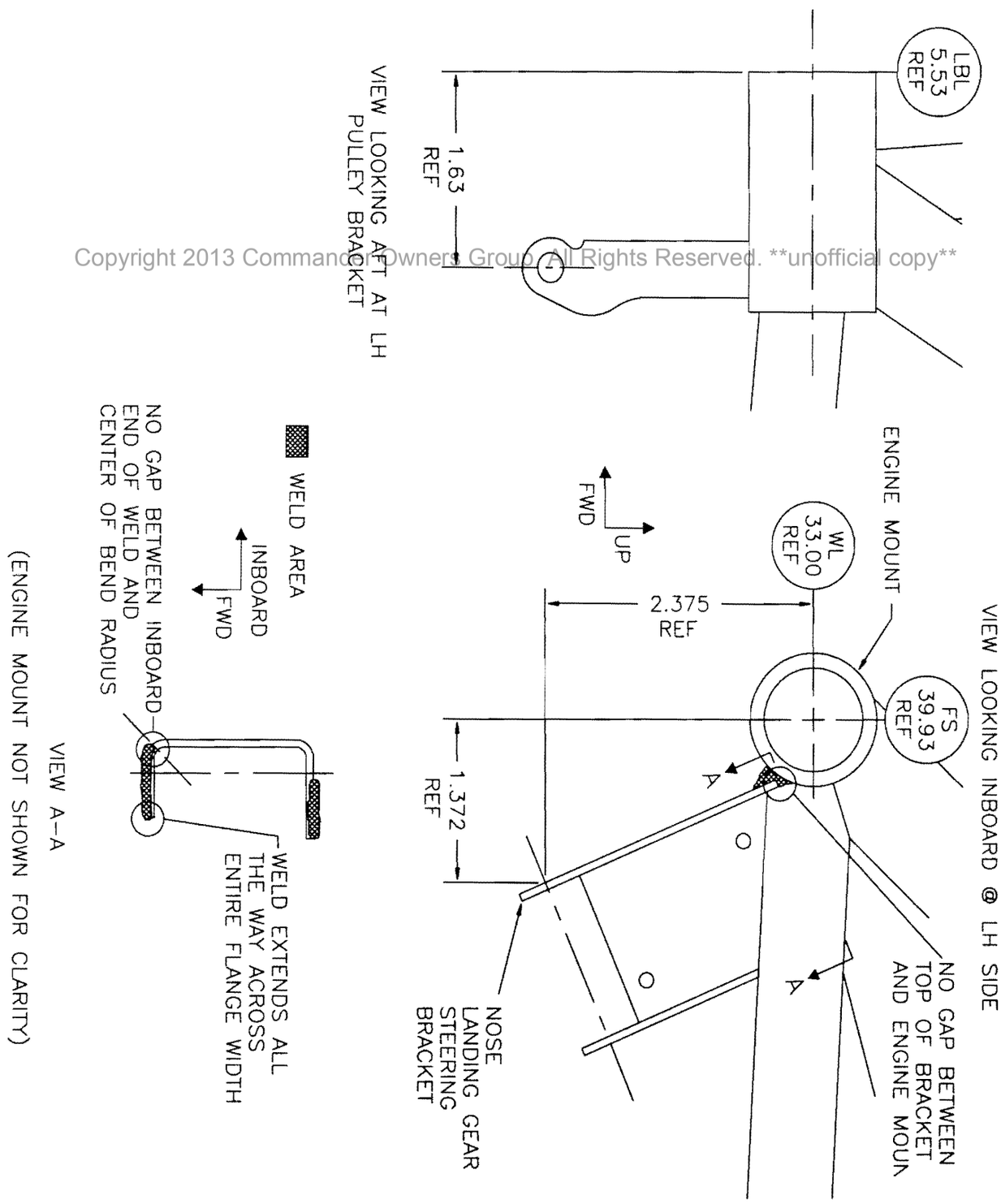


Figure 1. Example of Properly Welded Brackets

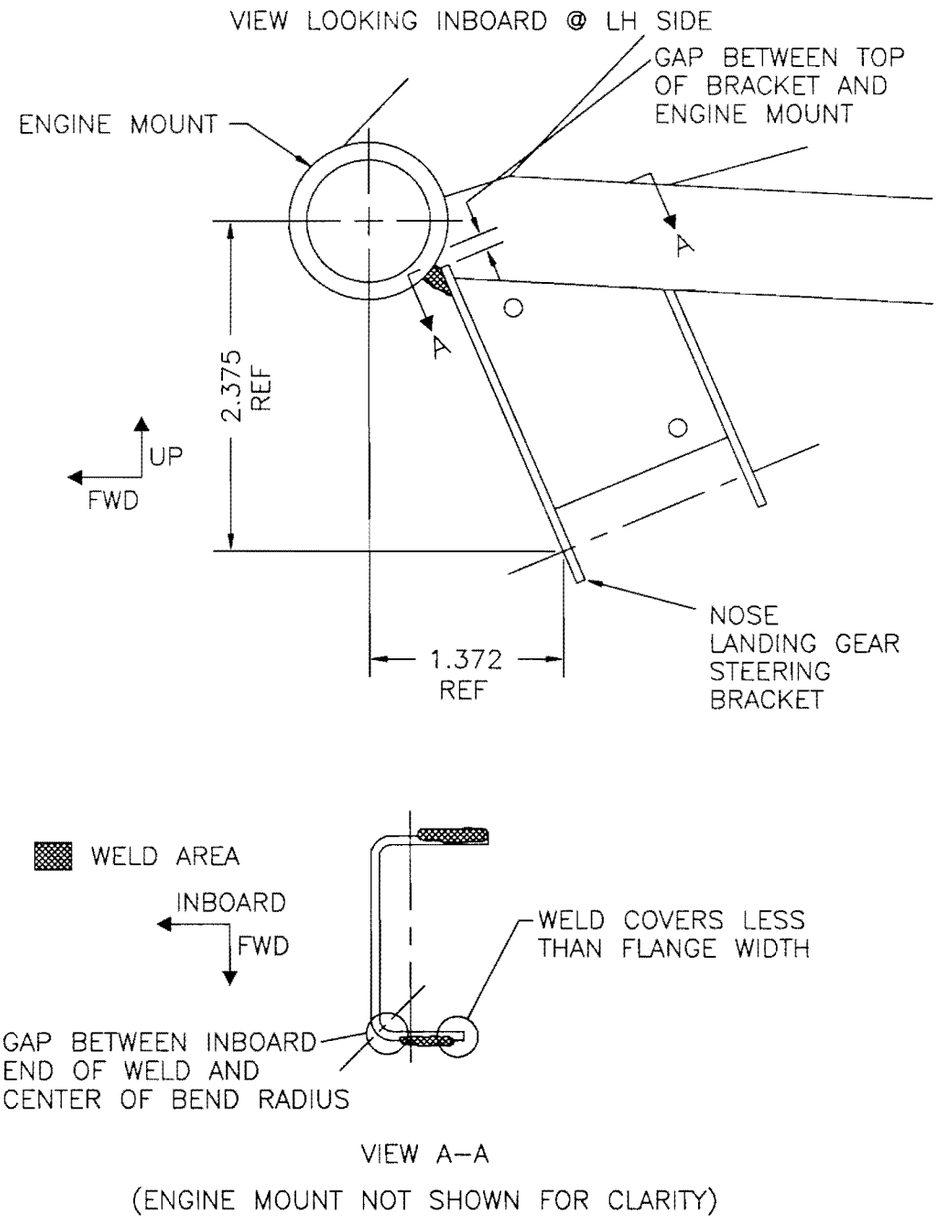


Figure 2. Example of Improperly Welded Brackets

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-30
Date 5-15-96

INSPECTION AND/OR MODIFICATION OF EMERGENCY DUMP VALVE COVER PLATE AND INSPECTION AND/OR REPLACEMENT OF FUEL LINE

MODELS AFFECTED: Model 114B, S/N 14541 thru 14639, Model 114TC, S/N 20001 thru 20009

REASON FOR PUBLICATION: To inspect for possible fuel line damage caused by improperly installed emergency dump valve cover plates.

COMPLIANCE:
- PART I: Prior to next flight
- PART II: Prior to next flight
- PART III: Prior to next flight or after flight to the nearest repair center.
- PART IV: Prior to next flight or after flight to the nearest repair center.

BY WHOM WORK WILL BE ACCOMPLISHED: Airframe Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS:
- PART I: Five (5) minutes
- PART II: Forty (40) minutes
- PART III: Six (6) hours
- PART IV: Thirty (30) minutes

PARTS DATA:

PART III:

QTY	PART NUMBER	DESCRIPTION
1	46099-171*	Fuel Line
1	SB-114-30	Service Bulletin

* The 46099-171 fuel line is used as a replacement in aircraft equipped with a 635019-3 fuel line.

Parts may be ordered from:
Commander Aircraft Company
7200 N.W. 63rd Street
Bethany, OK 73008
Phone (405) 495-8080
Fax (405) 495-8383

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I: INSPECTION OF THE 49061-101 EMERGENCY DUMP VALVE COVER.

1. Verify that the hole pattern for the screws attaching the 49061-101 Emergency Dump Valve Cover to the center console match the hole pattern shown in Figure 1. Loosen the screws and verify that there are no additional holes to indicate that the 49061-101 Emergency Dump Valve Cover was installed upside down at some point.
2. If the hole pattern matches the pattern shown in Figure 1 and no additional holes are found, proceed to the RECORD COMPLIANCE section.
3. If the hole pattern does not match the pattern shown in Figure 1 or additional holes are found, proceed to Part II.

PART II: INSPECTION OF THE 635019-3 OR 46099-171 FUEL LINE

Refer to Figure 1 and Figure 2

1. Remove the three screws attaching the 49061-101 Emergency Dump Valve Cover to the center console and remove the cover from the center console.

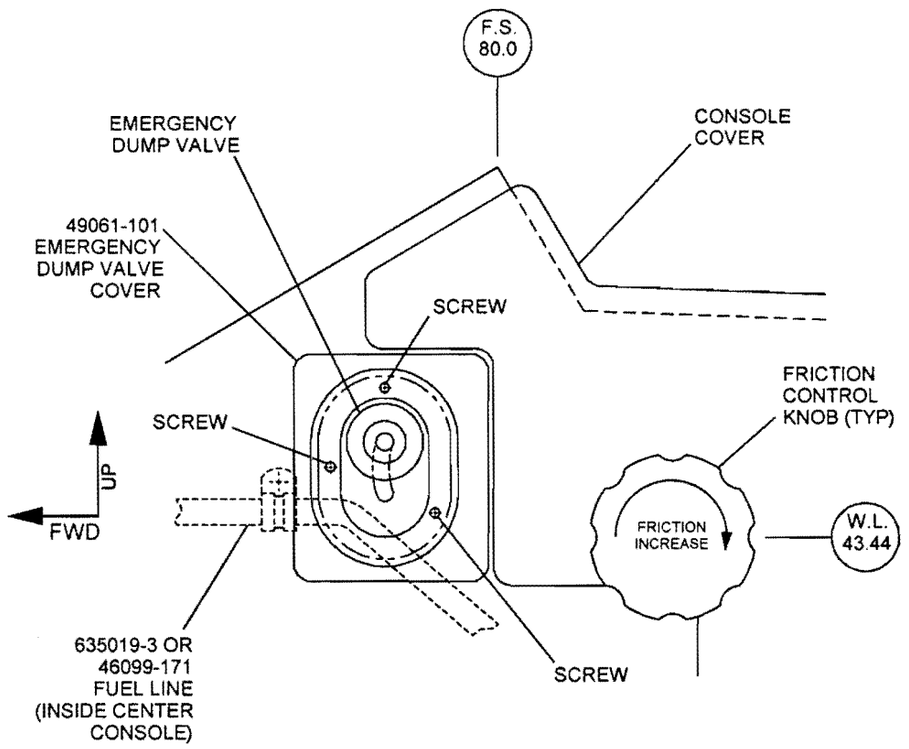


Figure 1
View looking inboard at Emergency Dump Valve

2. Remove the two friction control knobs.

NOTE
Place the fuel selector knob in the OFF position.

3. Remove the fuel selector knob and the selector plate from the center console.
4. Remove the screws attaching the console cover to the center console.
5. Remove the screws attaching the quadrant cover plate to the center console.
6. Remove the console cover from the center console.
7. Remove the screws attaching the slotted forward console cover to the center console.

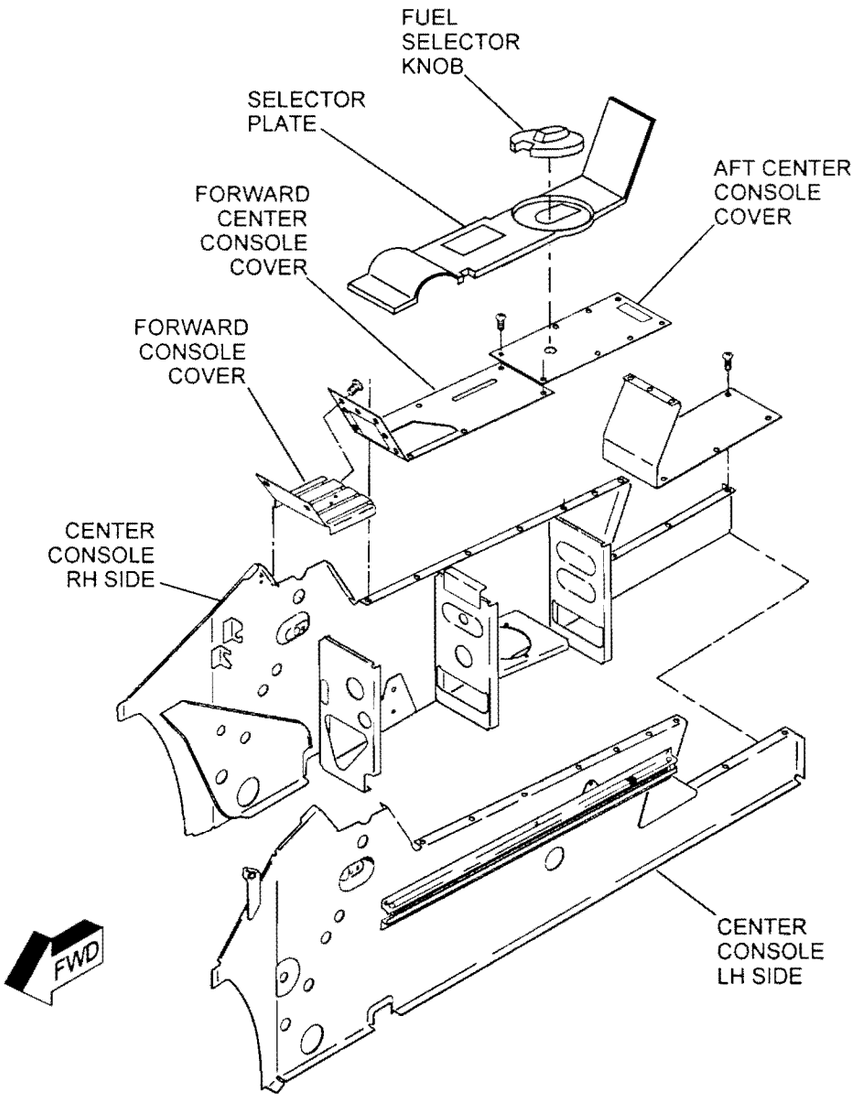


Figure 2.
(Console Cover Removed for Clarity)

8. Move the throttle lever forward until it clears the throttle warning microswitch. Raise the quadrant cover plate and the forward console cover to permit inspection of the 635019-3 or the 46099-171 Fuel Line for nicks or scratches in the area where the bottom screw attached the 49061-101 Emergency Dump Valve Cover to the center console.
   a. If no damage to the fuel line is found, proceed to PART IV.
   b. If a nick or scratch, is found in the area being inspected, or any other damage to the fuel line is found, proceed to PART III.

PART III: REPLACEMENT OF THE 635019-3 OR THE 46099-171 FUEL LINE

1. Remove the screw attaching the forward and aft center console covers to the center console and remove the covers from the center console. Refer to Figure 2.
2. Remove the two clamps securing the 635019-3 or the 46099-171 Fuel Line to the side of the center console.
3. Disconnect the ty-raps tying the static line to the 635019-3 or the 46099-171 Fuel Line.
4. Loosen the fitting connecting the 635019-3 or the 46099-171 Fuel Line to the fuel selector valve.
5. Loosen the fitting connecting the 635019-3 or the 46099-171 Fuel Line to the firewall union.

CAUTION

Do not permit the firewall union to turn while loosening the fitting.

NOTE

Place shop rags inside the center console under each end of the 635019-3 or the 46099-171 Fuel Line to capture any fuel still present in the fuel line.

6. As gently a possible, pull the aft fitting of the 635019-3 or the 46099-171 Fuel Line away from the fuel selector valve.
7. Pull the forward fitting of the 635019-3 or the 46099-171 Fuel Line away from the firewall union.
8. Pull the yoke fully aft.
9. Remove the 635019-3 or the 46099-171 Fuel Line from the aircraft by working it through the center console tunnel forward and to the right behind the instrument panel. It may be necessary to disconnect the right hand defroster ducting to accomplish this step.
10. The installation of the 635019-3 or the 46099-171 Fuel Line is the opposite of the removal.
11. Proceed to Part IV.

PART IV: REINSTALLATION OF THE 49061-101 EMERGENCY DUMP VALVE COVER.

1. Reinstall the console covers, quadrant cover plate, fuel selector plate, fuel selector valve knob, and friction control knobs.

NOTE

Move the throttle lever forward of the throttle warning microswitch prior to installing the quadrant cover plate.

2. Relocate the 49061-101 Emergency Dump Valve Cover to the position shown in Figure 1.
3. If required, drill three (3) .096 inches (No. 41) diameter holes through the cover and into the center console in their proper locations. Use a drill stop set to .20 inches.
4. Using the existing screws, reattach the 49016-101 Emergency Dump Valve Cover to the center console.

ELECTRICAL LOAD: No change

WEIGHT AND BALANCE: No change

PUBLICATIONS AFFECTED: The Maintenance Manual change required by this document will be incorporated at the next change/revision

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-30, Dated 5-15-96, entitled "Inspection and/or Modification of Emergency Dump Valve Cover Plate and Inspection and/or Replacement of Fuel Line", Part I accomplished (date) , Part II accomplished (date) , Part III accomplished (date) , Part IV accomplished (date) . Fill out and return Compliance Card.

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-31
Date November 18, 1996

INSPECTION AND/OR REPLACEMENT OF NOSE LANDING GEAR FORK ATTACHMENT NUTS

MODELS AFFECTED: Model 112, S/N 106, Model 114B, S/N 14571, 14586, 14591, 14592, 14594 thru 14632, 14634, 14636 thru 14647, Model 114TC, S/N 20001 thru 20011

REASON FOR PUBLICATION: To inspect for incorrect type nuts attaching nose landing gear fork to nose landing gear and install correct nuts if required.

COMPLIANCE: PART I: Within the next 50 hours time in service or the next regularly scheduled maintenance (whichever comes first).

PART II: Within the next 50 hours time in service or the next regularly scheduled maintenance (whichever comes first).

BY WHOM WORK WILL BE ACCOMPLISHED: Airframe Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: PART I: 10 Minutes
PART II: 30 Minutes

PARTS DATA:

PART II:

QTY	PART NUMBER	DESCRIPTION
4	MS20365-524	Nut*
1	SB-114-31	Service Bulletin
1	----------	Compliance Card

*Parts to be procured locally or can be ordered from Commander Aircraft Co.

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I: INSPECTION OF THE NOSE LANDING GEAR FORK ATTACHMENT NUTS

1. Inspect the four nuts which attach the nose landing gear fork to the nose landing gear.
2. If the nuts are type MS20365-524, then proceed to the Compliance Section. If the nuts are type MS20364-524 then proceed to Part II. The difference between the two types is shown in Figure 1.

PART II: REPLACEMENT OF MS20364-524 NUTS IF REQUIRED

Refer to Figure 1

1. Remove one of the four MS20364-524 nuts from the nose landing gear. Replace it with an MS20365-524 nut. Torque the nut 100 to 140 inch pounds.
2. Repeat Step 1 for the remaining three nuts.

CAUTION
Do not remove more than one nut at a time.

ELECTRICAL LOAD: No change

WEIGHT AND BALANCE: No change

PUBLICATIONS AFFECTED: No change

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-31, Dated November 11, 1996, entitled "Inspection and/or Replacement of Nose Landing Gear Fork Attachment Nuts", Part I accomplished (date) , Part II accomplished (date) . Fill out and return Compliance Card.

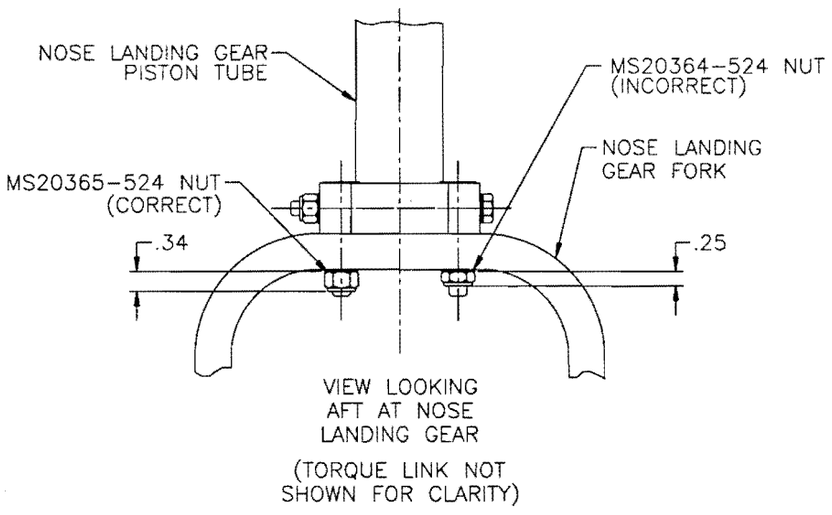


Figure 1

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-32
Date March 26, 1999

INSPECTION OF FRONT SEAT SHAFT ASSEMBLY

MODELS AFFECTED: Model 114/114A S/N 14000 thru 14540 complying with SB-114-21A or SB-114-21A Rev 1, Model 114B S/N 14541 thru 14663, Model 114TC S/N 20001 thru 20023

REASON FOR PUBLICATION: To inspect the 865103-503/315027-25 shaft assembly for proper operation. Improper operation can be caused by adjusting excessive clearance between the 865103-1/315027-31 clip and the 865103-7/315027-42 locking pin in the normal position or by flattening of the clips.

COMPLIANCE: Within the next 25 hours time in service after receipt of this service bulletin or next annual inspection, whichever comes first. Thereafter, every 100 hours and any time the front seat is removed from the aircraft.

NOTE
Improved Shaft Assemblies are available from Commander Aircraft Company. Requirements for inspection every 100 hours can be eliminated by installation of these assemblies. Contact Commander Aircraft Company for more details regarding SSP-11.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: 6 Hours

PARTS DATA: None

SPECIAL TOOLS REQUIRED: One 8 1/2 inch long (or longer) Ty-Rap

ACCOMPLISHMENT INSTRUCTIONS:

NOTE
To prevent damage to the rear seat upholstery, remove the rear seat first and place it in the baggage compartment. If this is not feasible, cover the rear seat with a heavy blanket prior to front seat removal.

1. Remove the rear seat using the following procedure:
   a. Remove the vertical carpet closeout immediately in front of the rear seat.
   b. Loosen the four forward frame attachment bolts that secure the seat assembly to the cabin structure.
   c. Remove the two baggage tiedown rings (behind the rear seat).
   d. Remove the rear seat closeout to reveal the two remaining rear frame center attachment bolts. Remove the rear frame attachment bolts.
   e. Move both seat backs to the forward position, and slide the rear seat aft to clear the forward frame attachment bolts, and place the rear seat in the baggage area.

2. If the portable oxygen option is installed in the aircraft, use the following procedure to remove the rear seat:
   a. Release the web belt restraint which clamps the oxygen system in place.
   b. Remove the vertical carpet closeout immediately in front of the rear seat.
   c. Push down on the oxygen system case, push aft and remove the case.
   d. Remove the four forward frame attachment bolts that secure the seat assembly to the cabin structure.
   e. Remove the two baggage tiedown rings (behind the rear seat).
   f. Remove the rear seat closeout to reveal the two remaining rear frame center attachment bolts. Remove the rear frame attachment bolts.
   g. Move both seat backs to the forward position, raise the rear seat 6", and place it into the baggage area.

3. Disconnect the front seat shoulder belts:
   Model 114B and Model 114TC:

> **NOTE**
> **A few Model 114B aircraft have shoulder belts that pass through the entire seat back instead of just the seat back shroud or over the top of the seat back. If this is the case, proceed to the Model 114 and Model 114A section of this procedure.**

   a. Slide the black plastic web slide at least 1 foot away from the connector.
   b. Carefully push the shoulder belt and the web slide through the shoulder belt guide located on the seat back shroud. Rotate the web slide as necessary to fit it through the shoulder belt guide.
   c. Carefully push the shoulder belt connector through the shoulder belt guide and let the shoulder belt retract freely.
   d. Set the lap belt aside.
   e. Proceed to step 4.

Model 114 and Model 114A
   a. Remove the front and rear plastic shoulder belt guides from the seat back. Remove the guides from the shoulder belt. The guides are split for easy removal.
   b. Carefully push the shoulder belt and the web slide through the opening in the seat back. Rotate the web slide as necessary to fit it through the opening.

c. Carefully push the shoulder belt connector through the opening in the seat back and let the shoulder belt retract freely.
d. Set the lap belt aside.

4. Remove the front seat headrests.

5. Remove the front seats using the following procedure:
   a. Remove the cotter pin and stop pin from the aft end of the seat tracks.
   b. Release the seat back and push it fully aft.

> **NOTE**
> **If the rear seat was not removed prior to front seat removal, push the seat back fully forward instead of fully aft.**

   c. Rotate the seat release lever, located on the front side of the seat and slide the entire seat aft until the rear rollers are clear of the seat track.
   d. Continue sliding the seat aft until the forward shaft assembly is aligned with the cutout in the seat track.
   e. Using the forward roller assemblies as a pivot point, rotate the entire seat forward until the shaft assembly clears the seat track.

> **NOTE**
> **With the rear seat in place, it may be necessary to adjust the position of the seat back to clear the rear seat.**

   f. Slide the seat aft until the forward roller assemblies are clear of the seat track, and remove the seat from the aircraft.

6. Inspection:

> **NOTE**
> **Model 114B, S/N 14625 thru 14663, and Model 114TC, S/N 20001 thru 20023 are equipped with a seat back operated locking pin release. Prior to inspection, place the seat back fully aft.**

   a. Disconnect both seat locking mechanism springs from the Seat Base Assembly. (Refer to Figure 1.)
   b. Remove the cotter pins, retaining pins, and spacers at the two 865103-7/315027-42 locking pins. (Refer to Figure 1.)
   c. Position the 865103-503/315027-25 Shaft Assemblies in the locked position so that in the locked position, the 865103-1/315027-31 clip rides on the flat of the 315026-9 tube at the .24 dimension, shown in Figure 2. The curve of the clip may be adjusted to achieve the 90° dimension by carefully bending the curved end of the clip. After any adjusting of the clip, verify that the .06 minimum and .460 minimum dimensions are met.

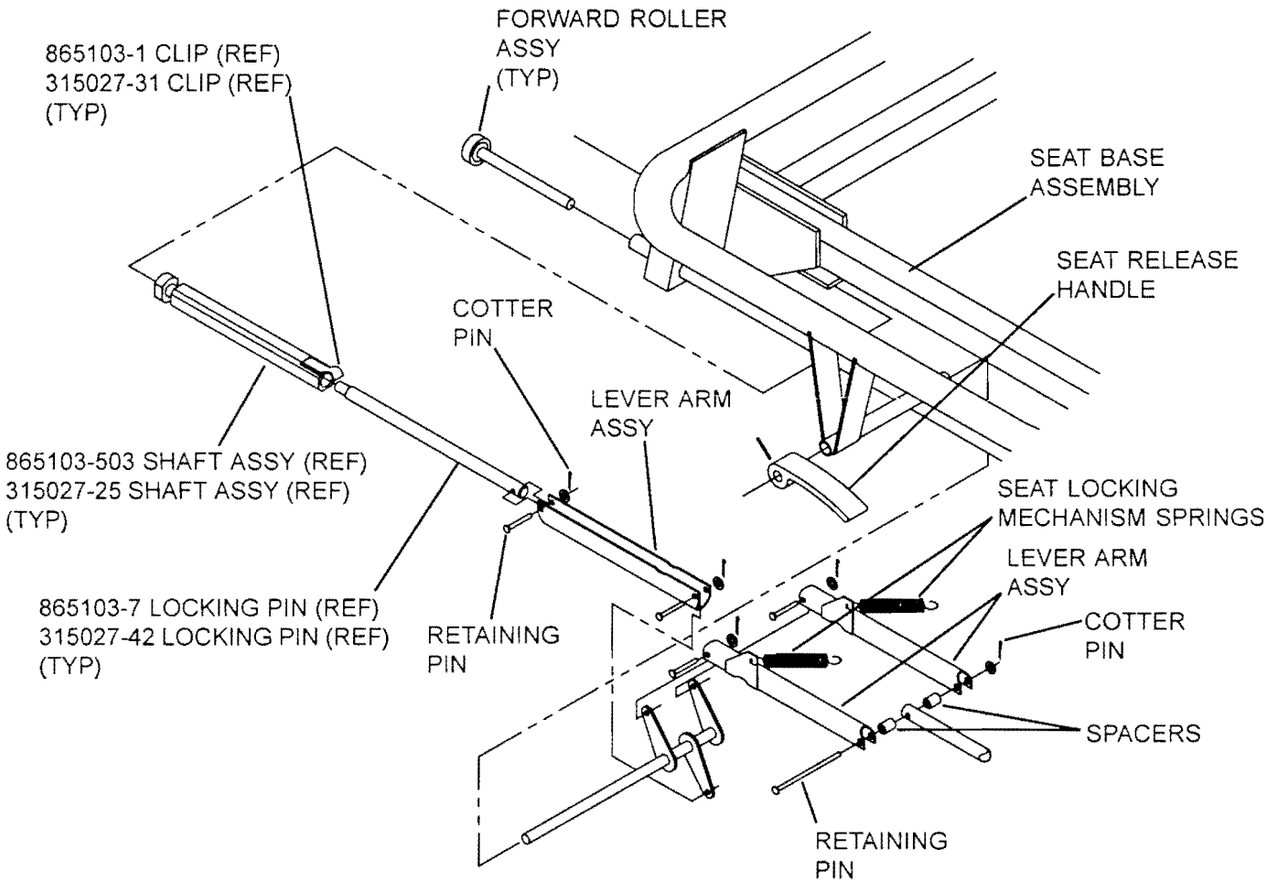


Figure 1. Seat Locking Mechanism

d. Slide the right hand 865103-503/315027-25 Shaft Assembly inwards until the 865103-1/315027-31 clip is clear of the 315026-9 Tube. Slide the 865103-7/315027-42 Locking Pin inward past the end of the 865103-1/315027-31 clip ensuring that the clip has positive clearance (approximately .003/.004 inches) and is not resting against the locking pin (See Figure 3). If the proper clearance between the 865103-1/315027-31 clip and the locking pin is not present, slightly bend the clip in the area shown in Figure 3 to adjust the clearance. Do not remove the Shaft Assembly from the seat base to adjust the clip.

NOTE
Do not open the 90° bend to adjust the clearance.

e. Closely visually inspect the 865103-1/315027-31 clip after any bending to ensure that there are no cracks in it.
f. Repeat steps 6d and 6e until all dimension are met.

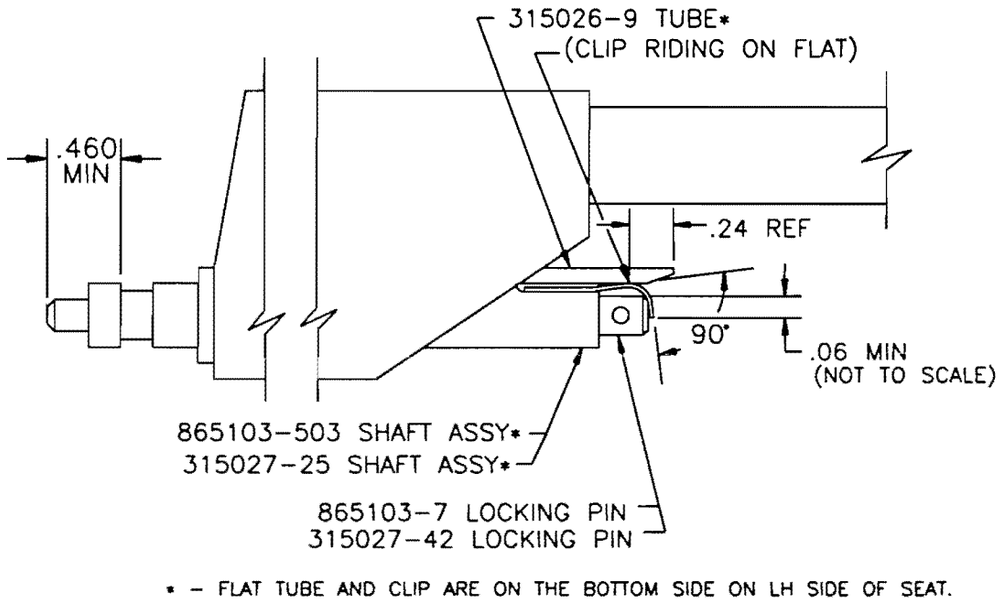


Figure 2. Locked Position
View looking aft at front seat (RH side of seat shown)

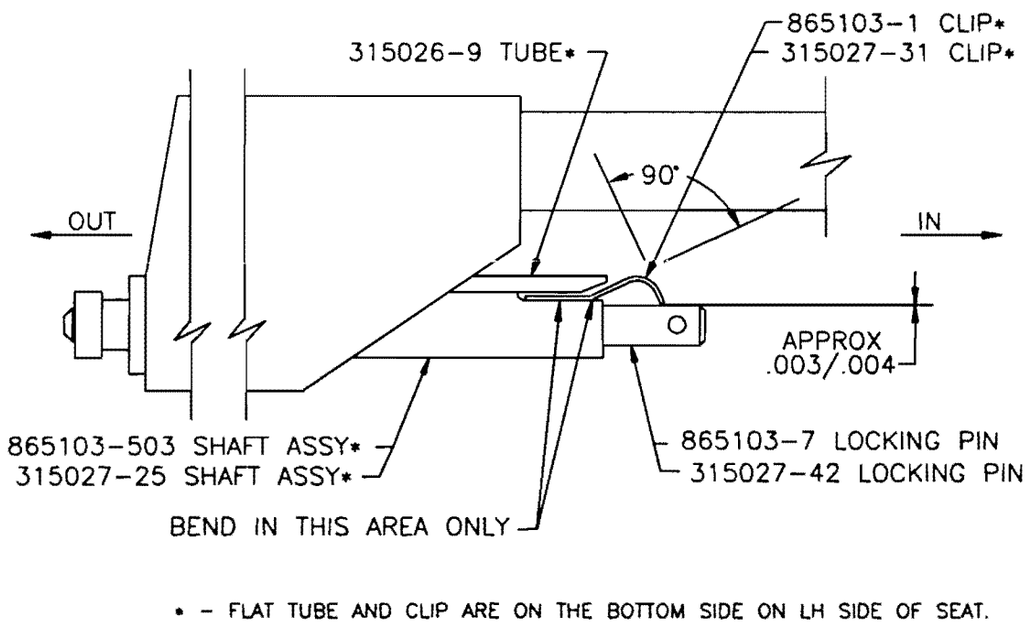


Figure 3. Normal Operating Position
View looking aft at front seat (RH side of seat shown)

g. Repeat steps 6d thru 6f on the left hand Shaft Assembly.
h. Reattach the locking pins to the lever arm assemblies using the cotter pins, retaining pins and spacers removed in step 6b.
i. Rotate the Seat Release Handle up to the release position and hold it there by Ty-Rapping the pair of Lever Arm Assemblies to the Seat Base Assembly using a 8 1/2 inch or longer Ty-Rap. This Ty-Rap is to remain in place until the seat is successfully reinstalled in the aircraft
j. Reconnect both seat locking mechanism springs to the base of the seat.

7. Reinstall the front seats, front seat headrests, lap and shoulder belts, in the reverse order as described in steps 3 thru 5.

WARNING

REMOVE THE TY-RAP AFTER THE SEATS HAVE BEEN REINSTALLED IN THE SEAT TRACKS.

Readjust the seats, as required, to ensure that the locking pins freely and fully engage the seat track locking holes at each seat position.

9. Replace the rear seat, if required, in the reverse order as described in step 1 or 2.

ELECTRICAL LOAD: NO CHANGE

WEIGHT AND BALANCE: NO CHANGE

PUBLICATIONS AFFECTED: The Maintenance Manual change required by this document will be incorporated at the next change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-32, dated March 26, 1999, entitled "Inspection of Front Seat Shaft Assembly", accomplished ___(date)___.

Service Bulletin

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008
USA

SERVICE BULLETIN NO. SB-114-33A
(Supersedes Service Bulletin No. SB-114-33 in its entirety)
Date May 9, 2000

REPLACEMENT OF AEROQUIP V-BAND EXHAUST CLAMP

MODELS AFFECTED: Model 114TC S/N 20001 thru 20027

REASON FOR PUBLICATION: To replace the Aeroquip V-band Exhaust Clamp, Aeroquip part number 00624-55677-340M (Lycoming alternate part number 40D21162-340M) with Aeroquip part number NH1009399-10.

COMPLIANCE: Commander Aircraft Company considers compliance with this service bulletin to be **mandatory**. Replacement of the 00624-55677-340M clamp per this service bulletin shall be accomplished at not more than 25 hours from the receipt of this service bulletin or not more than 25 hours following an inspection per Part I or Part II of Commander Aircraft Company Service Bulletin SB-114-33.

BY WHOM WORK WILL BE ACCOMPLISHED: A & P Mechanic or equivalent

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: 2.5 Hours

SPECIAL TOOLS REQUIRED: Rubber mallet, torque indicator wrench

PARTS DATA:
1 Aeroquip V-band Exhaust Clamp part number NH1009399-10
1 Service Bulletin SB-114-33A

Commander Aircraft Company will treat a request for parts to comply with this service bulletin as a warranty claim.

Commander Aircraft Company will honor warranty claims for the labor charges incurred by compliance with this Service Bulletin up to 2.5 hours provided the clamp removed in item 2 of the Accomplishment Instructions is returned to Commander Aircraft Company.

For information and warranty claims, contact:

Commander Aircraft Company
Product Support Department
7200 N.W. 63rd St.
Bethany, OK 73008
USA
Telephone: (405) 495-8080
Fax: (405) 495-8383

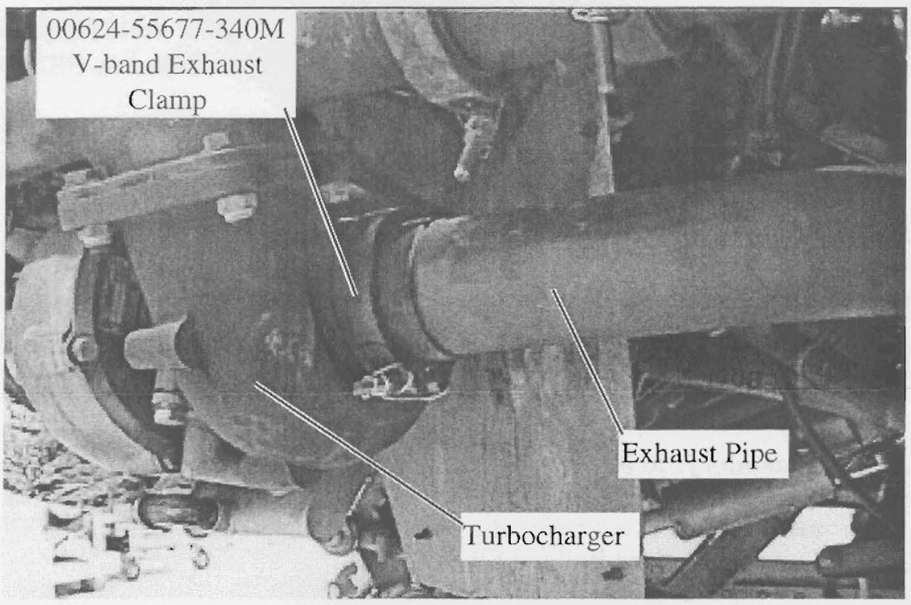


Figure 1

ACCOMPLISHMENT INSTRUCTIONS:

AT NOT MORE THAN 25 HOURS AFTER RECEIPT OF THIS SERVICE BULLETIN OR NOT MORE THAN 25 HOURS FOLLOWING AN INSPECTION PER PART I OR PART II OF COMMANDER AIRCRAFT COMPANY SERVICE BULLETIN SB-114-33.:

1. **With the engine cold**, remove the upper and lower cowling per Section 4 of the Commander 114B/114TC Maintenance Manual.

2. Refer to Figure 1 above. Remove the 00624-55677-340M V-band Exhaust Clamp from the aircraft.

3. Install a new NH1009399-10 V-band Exhaust Clamp.

   a. Press the new V-Band Exhaust Clamp over the flanges. Using a torque indicator wrench, tighten the clamp nut to approximately 70% of the torque value (approximately 38 in. lbs.).
   b. Gently tap the outer surfaces of the clamp with a rubber mallet to distribute the band tension. Check the torque again and continue tightening until the net torque (torque in addition to the torque required to overcome the resistance of the locknut) of 50 to 60 in. lbs. is reached.
   c. Repeat steps a. and b. until the torque reading stabilizes. When the reading stabilizes, safety wire the nut.

4. Reinstall the upper and lower cowling per Section 4 of the Commander 114B/114TC Maintenance Manual.

5. Ship the clamp removed in step 2 to Commander Aircraft Company at the address found on page one of this Service Bulletin.

ELECTRICAL LOAD: NO CHANGE

WEIGHT AND BALANCE: NO CHANGE

PUBLICATIONS AFFECTED: Any Maintenance Manual changes required by this document will be incorporated at the next change/revision.

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-33A, dated May 9, 2000, entitled "Replacement of Aeroquip V-band Exhaust Clamp", accomplished ____(date)____.

Notify Commander Aircraft Company by fax of compliance with this service bulletin at (405) 495-8383, using the form found on the page 4 of this Service Bulletin. If a fax is unavailable, please mail the form to Commander Aircraft Company at the address found on page 1 of this Service Bulletin.

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008
USA
Phone (405) 495-8080
Fax (405) 495-8383

PLEASE COMPLETE THIS FORM AND FAX IT TO COMMANDER AIRCRAFT COMPANY (405) 495-8383

ATTENTION: PRODUCT SUPPORT DEPARTMENT

SB-114-33A
REPLACEMENT OF AEROQUIP V-BAND EXHAUST CLAMP

Owner's Name: _____

Address: _____

_____

City: _____ State/Province: _____ Country: _____

Phone Number: _____ Fax Number: _____

Aircraft Registration Number: _____ Aircraft Serial Number: _____

Current Tach/Hobbs: _____

Name of Mechanic Performing replacement: _____

Phone number: _____ Fax Number: _____

Date replacement was accomplished: _____

NOTE: THIS IS NOT A WARRANTY CLAIM FORM.

For Warranty Claim information, contact Commander Aircraft Company.

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-34
Date April 19, 2000

INSPECTION OF RUDDER HORN ASSEMBLY WELD

MODELS AFFECTED: Model 114B, S/N 14597 thru 14670, Model 114TC, S/N 20001 thru 20028

REASON FOR PUBLICATION: To inspect for incomplete rudder horn assembly weld.

COMPLIANCE: Prior to further flight.

BY WHOM WORK WILL BE ACCOMPLISHED: Aircraft Owner or Operator

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: 30 Minutes

PARTS DATA: None

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

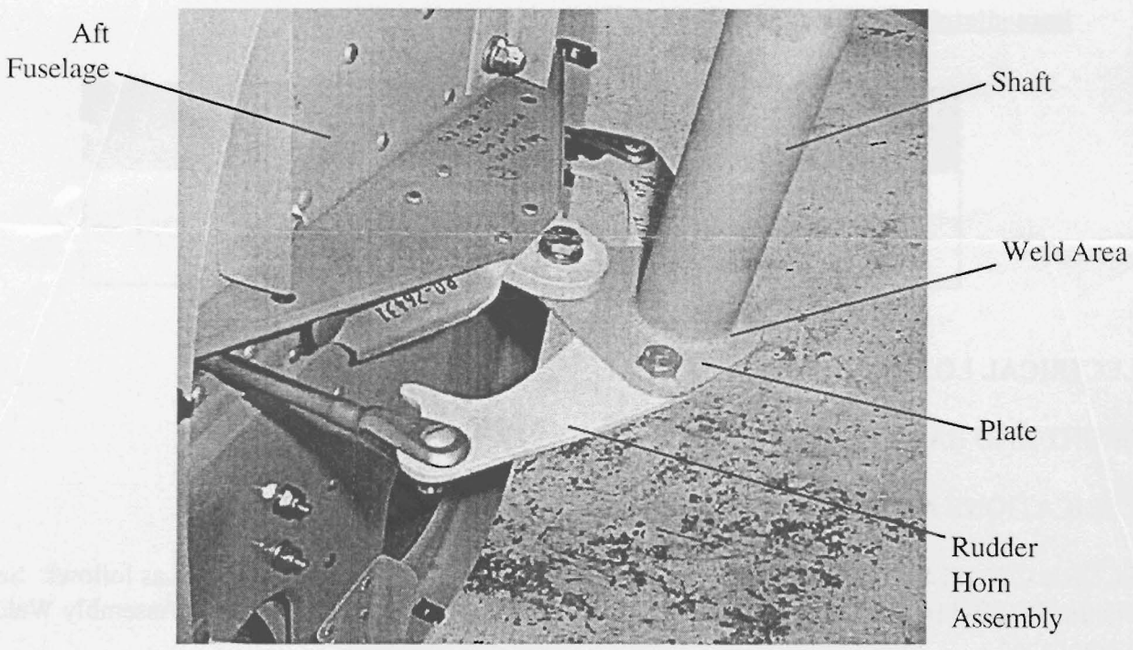


Figure 1

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-34
Date April 19, 2000

INSPECTION OF RUDDER HORN ASSEMBLY WELD

MODELS AFFECTED: Model 114B, S/N 14597 thru 14670, Model 114TC, S/N 20001 thru 20028

REASON FOR PUBLICATION: To inspect for incomplete rudder horn assembly weld.

COMPLIANCE: Prior to further flight.

BY WHOM WORK WILL BE ACCOMPLISHED: Aircraft Owner or Operator

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS: 30 Minutes

PARTS DATA: None

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

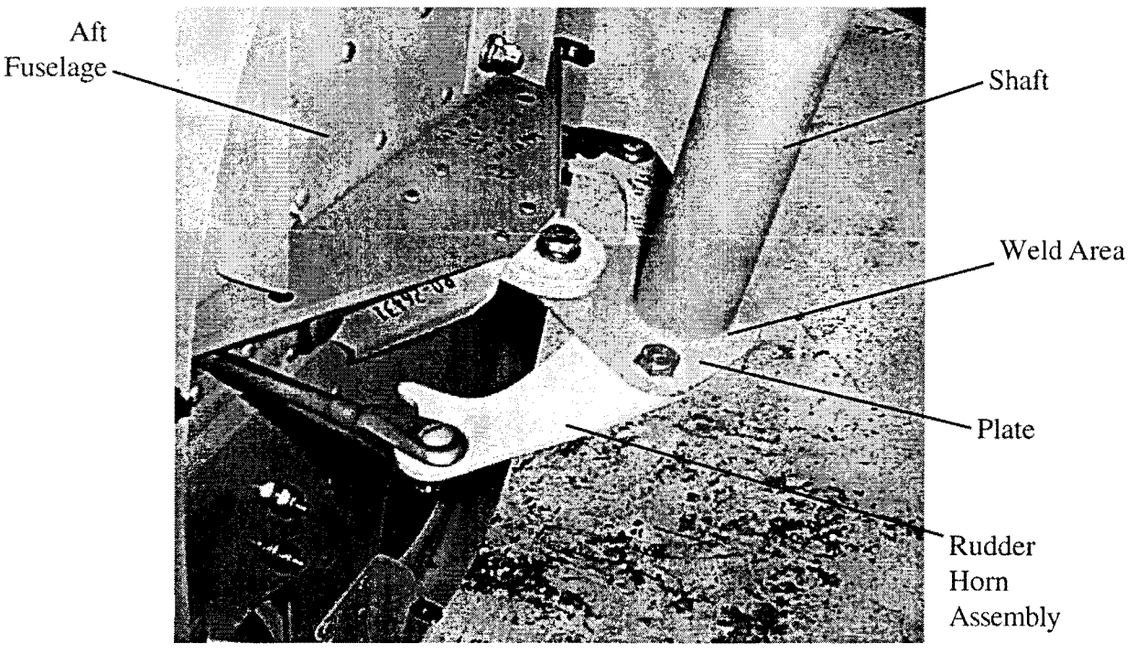


Figure 1

INSPECTION OF THE RUDDER HORN ASSEMBLY WELD

1. Remove the screws attaching the tailcone assembly to the aft fuselage. Do not disconnect any electrical wiring.

> **NOTE**
> **To prevent possible damage to electrical wiring, do not allow tailcone assembly to dangle unsupported.**

2. Visually inspect the weld area on the Rudder Horn Assembly as shown in Figure 1. The weld attaching the Shaft to the Plate should go around the shaft a full 360°.
3. If the weld is complete, reattach the tailcone assembly to the aft fuselage and fax the compliance form found on the last page of this Service Bulletin to Commander Aircraft Company. If a fax is unavailable, mail a copy of the compliance form to:

   Commander Aircraft Company
   Product Support Department
   7200 N.W. 63rd St.
   Bethany, OK 73008
   USA

4. If the weld DOES NOT go around the shaft a full 360° contact Commander Aircraft Company **immediately** for repair instructions.

> **WARNING**
>
> **DO NOT ATTEMPT FURTHER FLIGHT UNTIL REPAIR INSTRUCTIONS HAVE BEEN RECEIVED FROM COMMANDER AIRCRAFT COMPANY.**

ELECTRICAL LOAD: No change

WEIGHT AND BALANCE: No change

PUBLICATIONS AFFECTED: No change

RECORD COMPLIANCE: Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-34, Dated April 19, 2000, entitled "Inspection of Rudder Horn Assembly Weld", accomplished ____(date)____.

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008
USA
Phone (405) 495-8080
Fax (405) 495-8383

PLEASE COMPLETE THIS FORM AND FAX IT TO COMMANDER AIRCRAFT COMPANY (405) 495-8383

ATTENTION: PRODUCT SUPPORT DEPARTMENT

SB-114-34 COMPLIANCE FORM

INSPECTION OF RUDDER HORN ASSEMBLY WELD

INSPECTION RESULTS

Owner's Name: _____

Address: _____

_____

City: _____ State/Province: _____ Country: _____

Phone Number: _____ Fax Number: _____

Aircraft Registration Number: _____ Aircraft Serial Number: _____

Name of Person Performing inspection: _____

Phone number: _____ Fax Number: _____

Date inspection was done: _____

Rudder Horn Weld Assembly Condition:

If the Rudder Horn Assembly Weld passes the inspection described in item 2 of the Accomplishment Instructions, place a check mark in the Weld Complete box. Weld Complete ☐

Service Bulletin

Commander®
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008

SERVICE BULLETIN NO. SB-114-35
Date January 18, 2001

INSPECTION OF WING RIB

MODELS AFFECTED: Model 114B, S/N 14661, 14667, and 14670 thru 14679, Model 114TC, S/N 20001 thru 20038

REASON FOR PUBLICATION: To inspect for missing drain hole in 175089 rib.

COMPLIANCE: At next scheduled maintenance.

BY WHOM WORK WILL BE ACCOMPLISHED: Airframe mechanic

APPROVAL: Engineering design aspects are FAA approved.

ESTIMATED MAN HOURS:

Part I:	5 Minutes
Part II:	5 Minutes
Part III:	4 Hours

PARTS DATA: None

SPECIAL TOOLS REQUIRED: None

ACCOMPLISHMENT INSTRUCTIONS:

PART I: INSPECTION OF THE 175089 RIB

NOTE
Perform the following inspection on both the left hand and right hand wings.

WARNING

DO NOT ATTEMPT THE FOLLOWING INSPECTION WITH MORE THAN 20 GALLONS LOADED IN THE FUEL TANK.

1. Uncap the fuel filler port and push the flap valve down and forward as far as possible.
2. Refer to Figure 1, Inspection Area A. Using a flashlight, look down into the fuel tank through the fuel filler port and as far forward as possible past the 175091 Baffle. Inspect the 175089 Rib for a 1.25 inch diameter hole. If there is a 1.25 inch diameter hole in the rib, recap the fuel filler port and proceed to the RECORD COMPLIANCE section of this Service Bulletin. If there is no 1.25 inch diameter hole in the rib, proceed to PART II: INSPECTION OF THE 175091 BAFFLE.

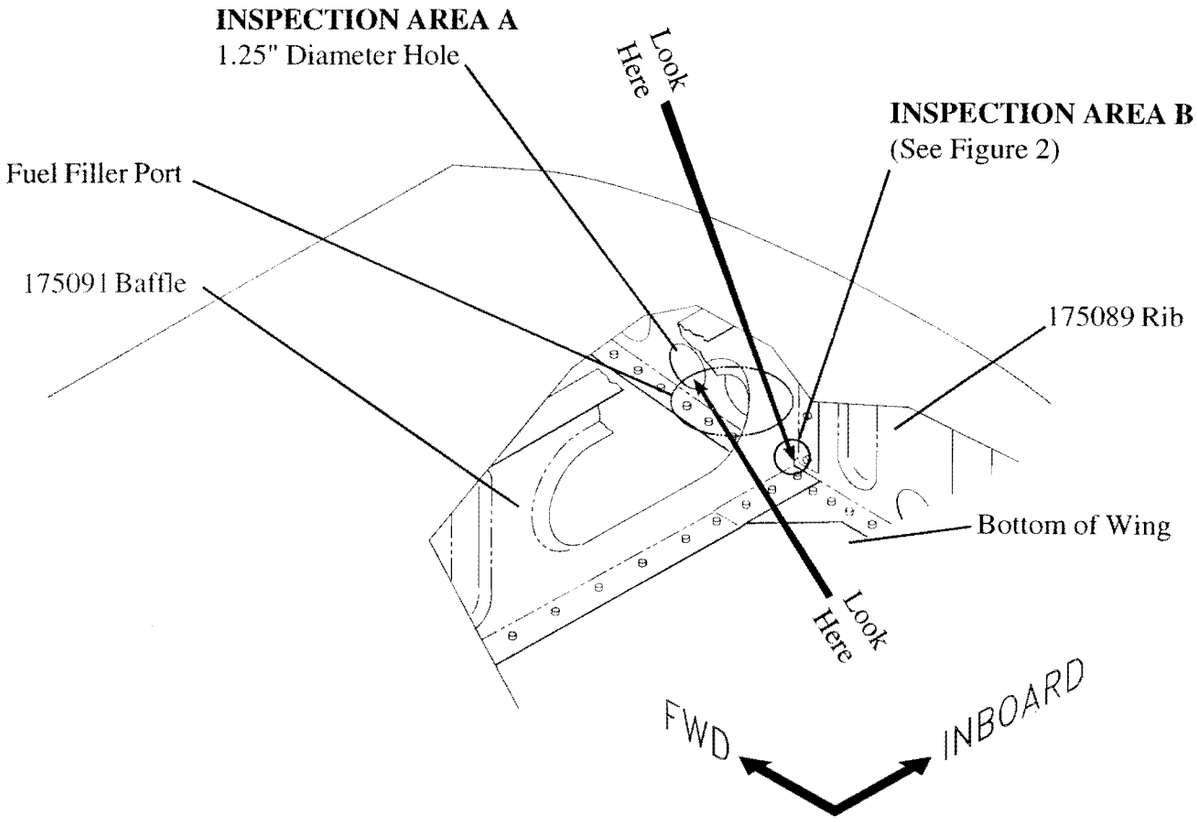


Figure 1.
Left Wing Shown
Fuel Port Flap Valve Removed for Clarity

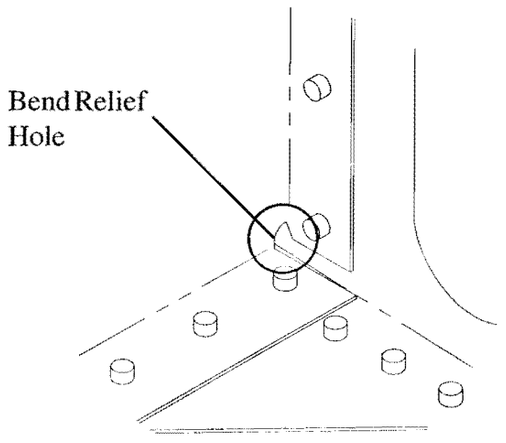


Figure 2. Inspection Area Detail

PART II: INSPECTION OF THE 175091 BAFFLE

1. Push the flap valve down and forward.
2. Refer to Figure 1, Inspection Area B. Looking forward and inboard of the fuel filler port, inspect the area where the 175089 rib and the 175091 Baffle meet the bottom of the wing.
3. Refer to Figure 2. If the bend relief hole in the lower inboard corner of the Baffle is sealed, proceed to PART III: CREATE A DRAIN HOLE. If the bend relief hole in the lower inboard corner of the Baffle is open, recap the fuel filler port and proceed to the RECORD COMPLIANCE section of this Service Bulletin.

PART III: CREATE A DRAIN HOLE

NOTE
If necessary, perform the following on both the left hand and right hand wings.

WARNING

DO NOT ATTEMPT THE FOLLOWING PROCEDURE WITHOUT DRAINING THE FUEL TANK.

1. Drain the fuel tank using the Defueling procedure found in Section 2 of the Commander 114B/114TC Maintenance Manual.
2. Open the farthest outboard fuel tank inspection panel.
3. Refer to Figure 2. Using a small punch, clean out the sealant in the bend relief hole to create a 1/8 inch diameter drain hole.
4. Using a tack rag, clean all sealant debris from the fuel tank.
5. Clean and reseal the fuel tank inspection panel with a MIL-S-8802, Class B sealant.
6. Proceed to the RECORD COMPLIANCE section of this Service Bulletin.

ELECTRICAL LOAD: No change

WEIGHT AND BALANCE: No change

PUBLICATIONS AFFECTED: No change

RECORD COMPLIANCE: Fill out and fax the compliance form found on page 4 of this service bulletin to Commander Aircraft Company. If a fax is not available, mail a copy of the form to:

Commander Aircraft Company
Product Support Department
7200 N.W. 63rd St.
Bethany, OK 73008
USA

Make appropriate entry in airplane maintenance records as follows: Service Bulletin No. SB-114-35, Dated January 18, 2001, entitled "Inspection of Wing Rib", accomplished ____(date)____.

Commander
AIRCRAFT COMPANY
Wiley Post Airport
7200 N.W. 63rd
Bethany, OK 73008
USA
Phone (405) 495-8080
Fax (405) 495-8383

PLEASE COMPLETE THIS FORM AND FAX IT TO COMMANDER AIRCRAFT COMPANY (405) 495-8383

ATTENTION: PRODUCT SUPPORT DEPARTMENT

SB-114-35 COMPLIANCE FORM

INSPECTION OF WING RIB

INSPECTION RESULTS

Owner's Name: _____

Address: _____

_____

City: _____ State/Province: _____ Country: _____

Phone Number: _____ Fax Number: _____

Aircraft Registration Number: _____ Aircraft Serial Number: _____

Name of Person(s) Performing inspection and/or work: _____

Phone number: _____ Fax Number: _____

PART I:

If the 1.25 inch diameter hole exists in the 175089 rib, check the box to the right. ☐

If the 1.25 inch diameter hole does not exist in the 175089 rib, check the box to the right. ☐

Date Part I was completed: _____

PART II:

If the bend relief hole is open, check the box to the right. ☐

If the bend relief hole is not open, check the box to the right. ☐

If required, date Part II was completed: _____

PART III:

If required, Date Part III was completed: _____