



SUBJECT: Outboard Empennage Attach Fittings on some production M20R and M20TN Aircraft and procured through Mooney Service Parts.

MODELS/ SN Mooney M20R - Serial Numbers 29-0513 thru 29-0519

AFFECTED: Mooney M20TN - Serial Numbers 31-0101 thru 31-0127

Procured Parts - Serial Numbers M20M 27-0057, M20R 29-0141, M20C 2313, M20E 761

TIME OF COMPLIANCE: **WITHIN NEXT 10 HOURS OF FLIGHT**

INTRODUCTION: During Post-Hibernation inspection of production line aircraft, three outboard empennage attach fittings, were found to be out of tolerance. These attach fittings are used on current production M20R and M20TN Airplanes, as well as through the Mooney Service Parts Department. We are issuing this Service Bulletin because we have determined these parts are not manufactured to Mooney's Type Design. This will require an inspection, and if found to be discrepant, corrective action taken. **The attached compliance card needs to be filled out and returned to Mooney International Corporation upon completion of this Service Bulletin M20-318.**

INSTRUCTIONS: **Read entire procedures before beginning work.**

NOTE:

All work to be done in accordance with FAA AC43.13-2B.

STEP 1 - Empennage Outboard Attach Fitting(s) - Inspection:

- 1.1. Turn master switch - OFF.
- 1.2. Remove LH and RH empennage fairing and inspection panel(s).
- 1.3. Remove empennage assembly per applicable Mooney Service and Maintenance Manual, (refer to Chapter 53). Stow empennage onto a cradle making sure assembly is properly secured while performing the work described in this service bulletin.
- 1.4. Measure thickness of each outer empennage attach fittings 350061-007 (LH) and 350061-008 (RH) with an appropriate micrometer or caliper. The thickness requirements are .190" +/- .010" (refer to Figure SB M20-318-2).
- 1.5. If both attach fittings are within tolerance, proceed to STEP 1.7 of this service bulletin.
- 1.6. If one or both attach fittings are out of tolerance, proceed to STEP 2 of this service bulletin.
- 1.7. Reinstall Empennage Assembly per applicable Mooney Service and Maintenance Manual refer to Chapter 53 with new mounting hardware found in the M20-318-001 Service Bulletin kit. Shim as required with NAS1149F0463P and NAS1149F0432P Washers. One minimum each end of 914081-003 Bushings, 3 total maximum per side (refer to Figures SB M20-318-1 & 2) - Proceed to Step 2.9 of this Service Bulletin.

STEP 2 - Empennage Outboard Attach Fitting(s) - Removal and Replacement:

- 2.1. Remove tailcone fairing by drilling out Avex rivets 1691-0410 per section 51 of the applicable Mooney Service and Maintenance Manual, (refer to Figures SB M20-318-1 & 3).
- 2.2. Remove tailcone skin rivets MS20470AD (as required) to access the empennage attach fittings per section 51 of the applicable Mooney Service and Maintenance Manual, (refer to Figures SB M20-318-1 & 3).

CAUTION:

Take care when removing existing rivets or huck bolts with a drill bit or huck collar splitter tool, do not damage or distort existing holes - Do not crease or bend tailcone skin when accessing attach fittings.



- 2.3. Using a huck collar splitter or equivalent tool, carefully cut and remove the existing huck bolt/collars (qty 5 per side) and MS20470AD rivets (qty 5 per side) to remove outer attach fitting(s).
- 2.4. Using the new parts from either the M20-318-002 and/or -003 kit, match drill all components to existing structure, per section 51 of the Mooney Service and Maintenance Manual (refer to Figures SB M20-318-1 & 2). It may be necessary to install AN174-20A mounting bolt, 914081-003 Bushing and NAS1149F0463P washers and/or NAS1149F0432P washers as required to keep attach fitting alignment while match drilling for huck bolt and rivet holes, use cleco fasteners as required.

NOTE:

All work to be done in accordance with FAA AC43.13-2B. Verify and adjust mounting hardware grip lengths as required.

- 2.5. Secure new parts with new rivets MS20470AD (qty 5 per side), Hi-Lok® P/N HL20PB5-10 Pins and HL86-5 collars (qty 4 per side) and Hi-Lok® HL20PB5-9 Pins and HL86-5 collars (qty 1 per side) into place as required, per the Hi-Lok® Installation instructions (refer to Figures M20-318-1 & 3).

CAUTION:

When securing new outboard attach fittings (Match Set), it is critical to ensure proper alignment with existing empennage attachment bolt holes.

- 2.6. Visually inspect all MS20470AD rivets and (10) Hi-Lok® fasteners to insure they are properly secured.
- 2.7. Reattach tailcone skin with new MS20470AD rivets and the tailcone fairing using 1691-0410 rivets as required per section 51 of the applicable Mooney Service and Maintenance Manual, (refer to Figures SB M20-318-1 & 3).
- 2.8. Reinstall Empennage Assembly per applicable Mooney Service and Maintenance Manual refer to Chapter 53 with new mounting hardware found in the M20-318-001 Service Bulletin kit. Shim as required with NAS1149F0463P and NAS1149F0432P Washers. One minimum each end of 914081-003 Bushings, 3 total maximum per side (refer to Figures SB M20-318-1 & 2)
- 2.9. Verify rigging of the flight controls and trim system per applicable MAC Service and Maintenance Manual.
- 2.10. Reinstall LH and RH empennage fairing and inspection panel(s).
- 2.11. Complete log book entry.

NOTE:

Fill out compliance card and send by MAIL, FAX or EMAIL to Mooney International Corporation as indicated on the attached Compliance Card (see to Figure M20-318-4).

- 2.12. Return aircraft to service.
- 2.13. Procedure complete.

WARRANTY: Mooney International Corporation will warrant labor 6 hours for STEP 1 and 12 hours per side (or 24 hours both) for STEP 2 when corrective action is done in accordance with procedures of this Service Bulletin for aircraft currently covered under the Mooney International Corporation factory warranty program.

REFERENCE DATA: 1. Mooney Service and Maintenance Manual (applicable A/C)
2. Hi-Lok® Installation Instructions
3. FAA AC43.13-2B (or current revision)



PARTS LIST: kit part number(s):

Service Bulletin Kit M20-318-001 (Hardware Kit)

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
1.	AN174-20A	Bolt	2
2.	NAS1149F0463P	Washer, (shim as required) (.063" thick)	8
3.	NAS1149F0432P	Washer, (shim as required) (.032" thick)	8
4.	MS21044-N4	Nut	2
5.	914081-003	Bushing	2
6.	AN5H-32	Bolt	1
7.	NAS1149F0563P	Washer	2
8.	AN310-5	Nut	1
9.	MS24665-151	Pin, Cotter	2
10.	440019-000	Spacer	4
11.	AN5H-15	Bolt	1
12.	NAS1149F0563P	Washer	2
13.	914017-000	Bushing	1
14.	AN310-5	Nut	1

Service Bulletin Kit M20-318-002 (Empennage Attachment Kit - Left Hand Side)

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
15.	M20-318-005	Empennage Attach Fitting Set (LH)	1
17.	HL20PB5-10	Hi-Lok® Pins	4
	HL86-5	Hi-Lok® Collars	4
18.	HL20PB5-9	Hi-Lok® Pins	1
	HL86-5	Hi-Lok® Collars	1
19.	1691-0410	Rivet, Avex	25
	NPN	Hi-Lok® Installation Instructions (copy)	1
Note:	MS20470AD	Rivet(s) - Shop performing work to supply as required	
	NPN	Safety Wire - as required	

Service Bulletin Kit M20-318-003 (Empennage Attachment Kit - Right Hand Side)

<u>Item</u>	<u>P/N</u>	<u>Description</u>	<u>Qty</u>
16.	M20-318-004	Empennage Attach Fitting Set (RH)	1
17.	HL20PB5-10	Hi-Lok® Pins	4
	HL86-5	Hi-Lok® Collars	4
18.	HL20PB5-9	Hi-Lok® Pins	1
	HL86-5	Hi-Lok® Collars	1
19.	1691-0410	Rivet, Avex	25
	NPN	Hi-Lok® Installation Instructions (copy)	1
Note:	MS20470AD	Rivet(s) - Shop performing work to supply as required	
	NPN	Safety Wire - as required	

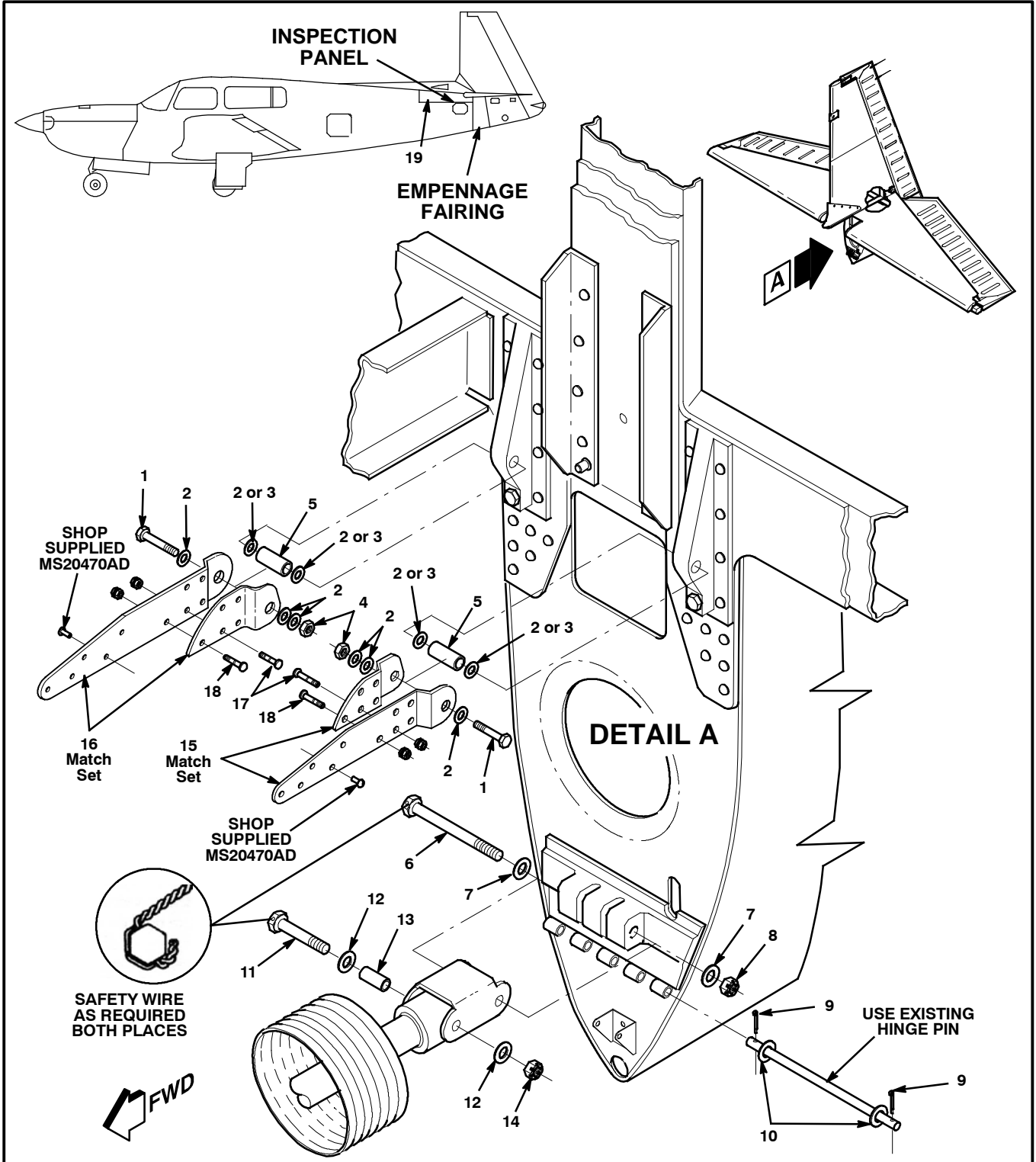


Figure SB M20-318-1 - EMPENNAGE TRIM ATTACH FITTING INSPECTION AND REPLACEMENT

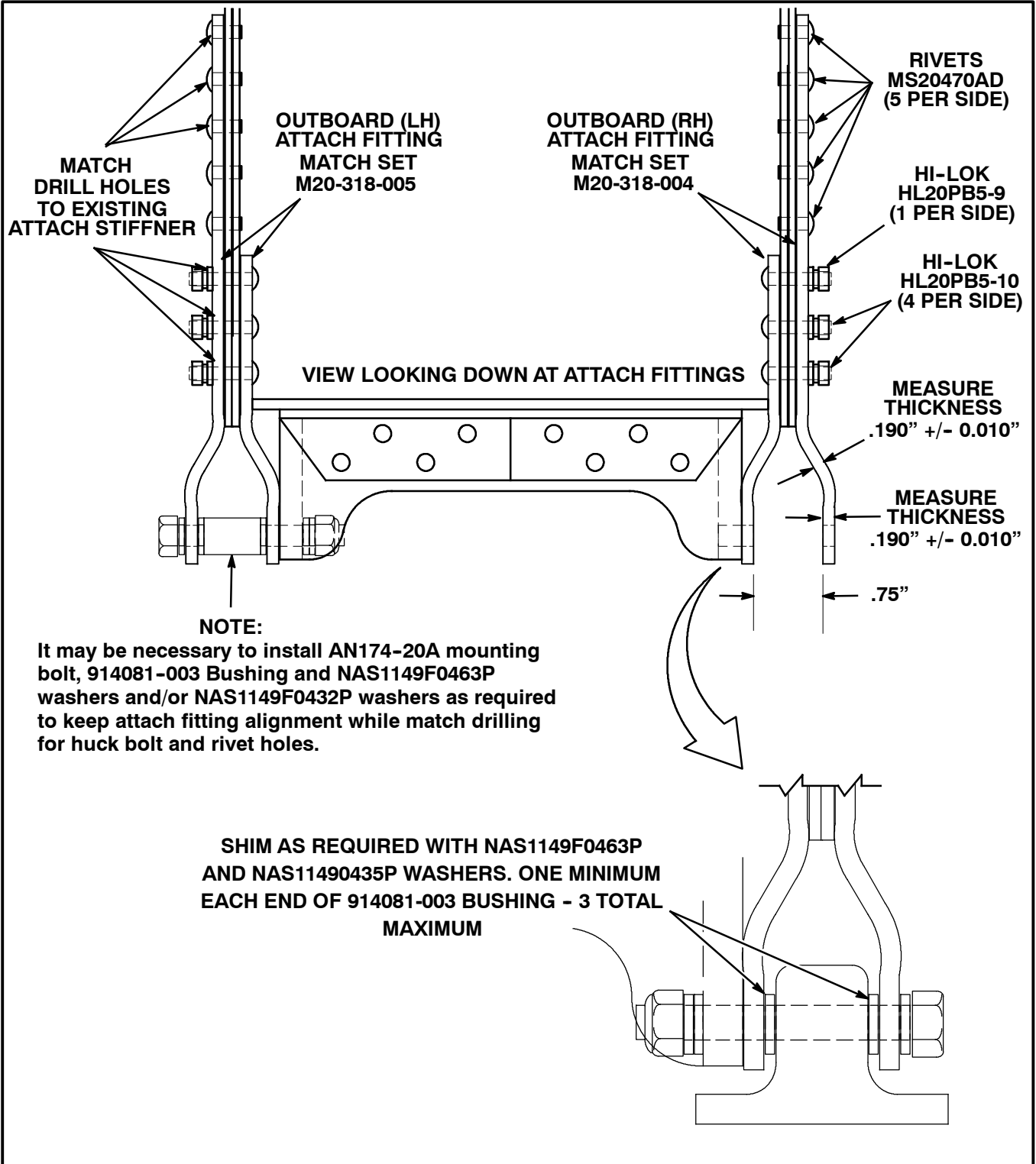
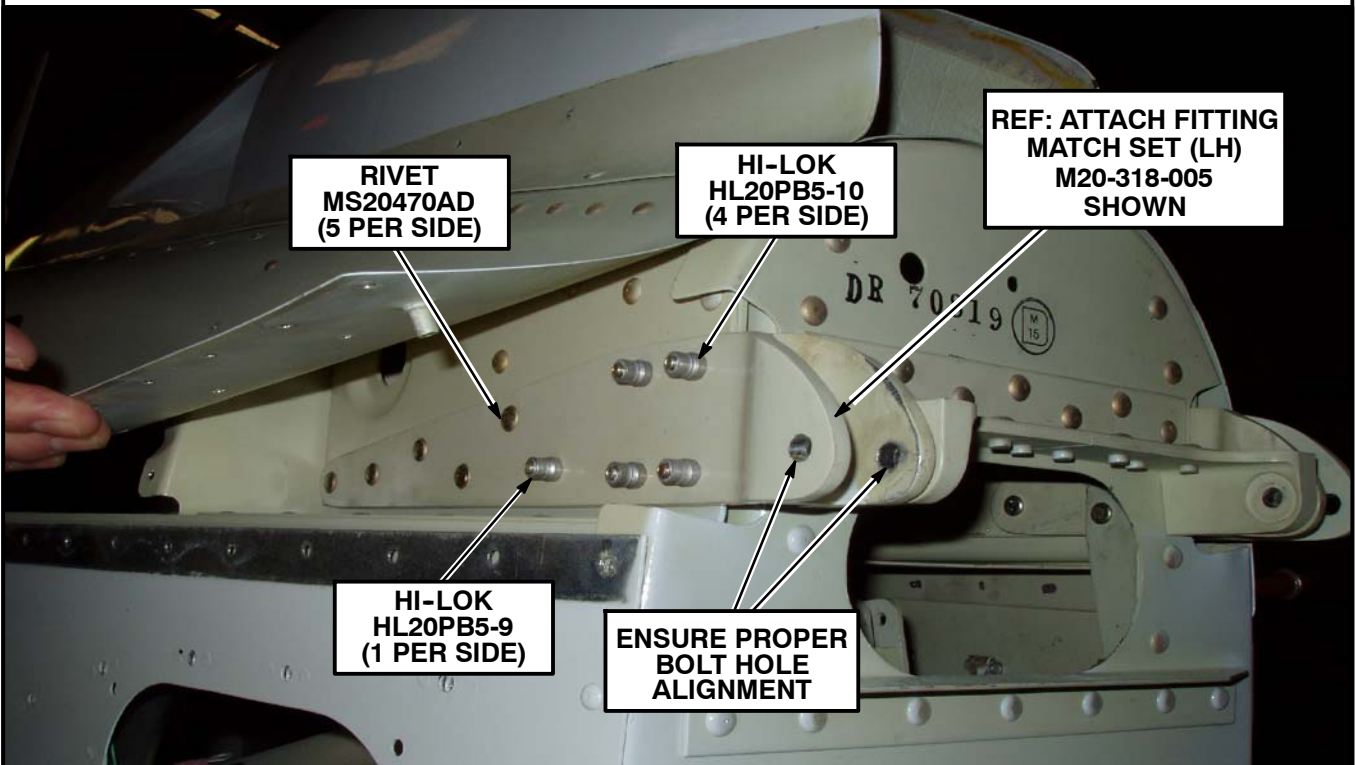


Figure SB M20-318-2 - EMPENNAGE TRIM ATTACH FITTING MEASUREMENT AND FIXTURE



CAUTION:

Take care when removing existing rivets or huck bolts with a drill bit or huck collar splitter tool, do not damage or distort existing holes - Do not crease or bend tailcone skin when accessing attach fittings.



CAUTION:

When securing new outboard attach fittings, it is critical to ensure proper alignment with existing empennage attachment bolt holes.

Figure SB M20-318-3 - TAILCONE SKIN REMOVAL



MOONEY INTERNATIONAL CORPORATION
KERRVILLE, TEXAS 78028 - FAX 830-257-4635

SERVICE (BULLETIN) (INSTRUCTION) NO. _____ HAS BEEN COMPLIED
WITH ON AIRCRAFT MODEL _____ SERIAL NUMBER _____

Tach. Time: _____ N-Number _____ (Reg. No.)
Owner: _____ Date of Compliance: _____
_____ Complied
By: _____

Inspection Report: _____

Form 07-0001

PLACE
STAMP
HERE

MOONEY INTERNATIONAL CORPORATION
ATT'N: TECHNICAL SUPPORT
165 Al Mooney Road, North
Kerrville, Texas 78028

SEND TO: Mooney International Corporation
165 Al Mooney Road North
Kerrville, TX 78028
FAX: (830) 257-4635 or EMAIL support@mooney.com

Figure SB M20-318-4 - Compliance Card