Nomad
ALERT SERVICE BULLETIN

Reference No 219

TRANSMITTAL LETTER
FOR
SERVICE BULLETIN ANMD-53-12 REVISION 2

FUSELAGE - STUB FIN - INSPECTION FOR DEFORMATION OF STUB FIN FRONT SPAR

Reason

1. Revision 2 incorporates minor changes to Tooling, Accomplishment Instructions Part 2, Material Information and editorial changes.

Instructions

1. Remove Service Bulletin ANMD-53-12 Rev 1, dated 7 Aug 90 and insert the attached Service Bulletin NMD-53-12 Rev 2, dated 15 Nov 90 into the Service Bulletin publication and annotate the index accordingly.

Revision Status

Original	25 Jul 90
Rev 1	7 Aug 90
Rev 2	15 Nov 90

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FUSELAGE - STUB FIN - INSPECTION FOR DEFORMATION OF STUB FIN FRONT SPAR

1. PLANNING INFORMATION

A. Effectivity

All Nomad N22 and N24 Series aircraft whose log books do not reflect compliance with Service Bulletin NMD-53-12 at any revision level.

B. Reason

Inspection of a number of aircraft has revealed the presence of "dishing" of the stub fin front spar face on the starboard side beneath the lower horizontal stabiliser stop plate. Such "dishing" is a symptom of deformation of the stub fin starboard spar boom angle and is unacceptable. On two aircraft inspected, the "dishing" was accompanied by cracking of the horizontal brackets which support the spar, this is also unacceptable.

Revision 1 provided repair instructions and relaxed the allowable damage limits.

Revision 2 provides changes to Tooling, Inspection, Repair and Material Information, instructions to carry out Service Bulletin ANMD-53-13, inspection of reinforcing channels as well as editorial corrections.

C. Description

Part 1 - The stub fin front spar and supporting structure is inspected for deformation.

Part 2 - Deformed front spar boom and damaged support structure is removed and replaced with serviceable items.

D. Compliance

MANDATORY

Aircraft whose log books DO NOT reflect compliance with Service Bulletin NMD-53-5 or the embodiment of Mods N600A or N600B.

Part 1 - Within 25 hours time in service and thereafter at intervals not exceeding 100 hours time in service.

Part 2 - Deformed or cracked parts shall be repaired in accordance with this Service Bulletin before further flight.

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Aircraft whose log books DO show compliance with Service Bulletin NMD-53-5 or embodiment of Mods N600A or N600B.

Part 1 - At the next 100 hourly inspection and thereafter at intervals not exceeding 100 hours time in service.

Part 2 - Deformed or cracked parts shall be repaired in accordance with this Service Bulletin before further flight.

Aircraft with Mod N663 incorporated require a one time only inspection.

E. Approval

This Service Bulletin has been approved pursuant to Civil Aviation Regulation 35 and conforms with type certification requirements. The CAA (Australia) have been requested to produce an Airworthiness Directive.

F. Manpower

Part 1 - Inspection - 0.7 manhours
Part 2 - Repair - 40 manhours

G. Material - price and availability

The materials required are to be obtained from ASTA General Aviation. Price and availability will be advised on request, refer to this Service Bulletin.

H. Tooling - price and availability

Obtain from local supplier:

Qty 1 Reamer size 9/32 inch with tapered lead-in of about 1/2 to 3/4 inch - for use with 'Y' bolts, or

Qty 1 Reamer size 17/64 inch with a tapered lead in of about 1/2 to 3/4 inch - for use with 'X' bolts.

I. Weight and Balance

None

J. References

Service Bulletins NMD-53-5 and ANMD-53-13
Maintenance Manual Chaps 7-00-00, 8-00-00, 27-21-00, 27-21-03, 27-41-00, 27-41-02, 27-41-06, 55-20-00, 55-30-00 and 55-40-00

K. Publications Affected

Structural Repair Manual
Maintenance Manual (N22 & N24) Chap 5-50-00

2. ACCOMPLISHMENT INSTRUCTIONS

A. Part 1 - Inspection

CAUTION: Ensure flying controls cannot be operated while personnel are working near the horizontal stabiliser.

(1) Remove the dorsal fin (Ref MM 55-30-00).

(2) Adjust the flight controls to set the leading edge of the horizontal stabiliser to its fully up position. Use horizontal stabiliser rigging bar or some other appropriate means to lock the horizontal stabiliser into position.

(3) Inspect the stub fin front spar for damage:

(a) Place a straight edge along each line 'A', 'B', 'C', 'D' and 'E' in turn and using a feeler gauge, measure deformation between the stub fin and the straight edge (Ref Fig 1).

(b) Record the measurements on the attached form and return to ASTA General Aviation.

NOTE: Clearances in excess of the following limits will require the stub fin to be repaired prior to further flight.

1 Aircraft incorporating Mod N600A or N600B (Service Bulletin NMD-53-5) - Maximum allowable clearance is 0.061 inch.

2 Aircraft not incorporating Mod N600A or N600B - Maximum allowable clearance is 0.011 inch.

Operators finding deformation greater than that allowed in 1 or 2 are to advise ASTA General Aviation immediately using page 10 to report.

If not already incorporated, it is expected that Mods N600A or N600B will be incorporated at the same time as the repair of the structure.

(4) Remove the access panel from the port side of the stub fin and examine the rear face of the spar for damage, pay particular attention to the flange of the horizontal bracket where cracking has been seen on some aircraft (Ref Fig 2).

(5) Repair any damaged spar boom angle in accordance with the procedure shown in Part 2 and replace Bracket P/N 1E/N-12-50 as required.

(6) Remove the horizontal stabiliser rigging bar.

(7) Install the dorsal fin (Ref MM 55-30-00).

(8) Replace the access panel on the port side of the stub fin.

B. Part 2 - Repair

NOTE: If Mod N600A or N600B is not already incorporated, it should be fitted in conjunction with this repair (Refer to ASTA Nomad SB NMD-53-5).

(1) Jack aircraft and level in accordance with MM Chap 7-00-00 and 8-00-00.

(2) Place Rear Fuselage Aft Support Stand under rear frame 420.0 (N22 Series) or 465.0 (N24 Series).

(3) Remove dorsal fin (Ref MM Chap 55-30-00).

(4) Remove horizontal stabiliser (Ref MM Chap 55-20-00).

(5) Remove rudder (Ref Chap 55-40-00).

(6) Remove vertical stabiliser (Ref Chap 55-30-00).

(7) Remove trim control torque shaft assembly (Ref Chap 27-41-06).

(8) Measure and record distance between LH and RH pivot bearing inner races.

NOTE: Ensure pivot bearings are correctly seated against the shoulder in the pivot brackets.

(9) Remove RH fin/horizontal stabiliser attachment bracket and stop plate.

NOTE: All derivetting is to be carried out as follows:

(a) Drill heads of rivets only and gently chisel off.

(b) Where possible, seperate parts and remove rivet tails using a punch on a workbench.

(c) For in situ removal, support area adjacent to rivet tail with suitable bucking bar and remove rivet tails using a punch.

(d) Note the rivet types used.

(10) To gain access to damaged area, refer to Figure 3, carefully derivet RH stub fin side skin (Item 1) between stub fin front spar Sta 437.89 (N22) or Sta 482.89 (N24) and rear frame Sta 463.81 (N22) or Sta 508.31 (N24). It will be necessary to remove the forward top Camloc receptacle for access to top bolt of fin/horizontal stabiliser attachment bracket.

(11) Remove upper two screws holding RH side plate of rudder lower pivot bearing. Remove rivets from RH side plate and remove side skin (Item 1), retain all parts for refitting.

NOTE: Access to lower three screws' attachment nuts can be made during removal of the fuselage skin (Item 2).

(12) Refer to Figure 3. Derivet RH fuselage top skin (Item 2) between Sta 420 (N22) or Sta 465 (N24) and rear frame Sta 463.81 (N22) or Sta 508.31 (N24) to WL 105.75 skin joint. Before removing skin, carefully derivet and remove stringer (Item 4). Retain skin (Item 2) for refitting.

(13) Derivet RH stub fin lower side skin (Item 3) and then derivet RH Side Angle P/N 1Y/N-12-194.

(14) Inspect reinforcing channels fitted to the stub fin rib and to the stub fin LH and RH forward and aft stringers for loose rivets. Repair as necessary.

(15) Derivet Doubler Strap P/N 1V/N-12-194 and remove from structure together with angle. Seperate doubler strap and angle. If not damaged, retain doubler strap for refitting.

NOTE: Replace damaged doubler strap with new item. Refit together with angle.

Remove Camloc receptacles and packers from angle and retain for refitting.

(16) If Bracket P/N 1E/N-12-50 is cracked, derivet and remove.

(17) Clean area of metal swarf, remove all rivet tails and inspect all holes for serviceability or elongation. Inspect area of stub fin front spar web deformation for cracks or creases (refer to ASTA General Aviation for further repair scheme if found). Carefully dress flat the web diaphragm if cracks or creases are not found.

(18) If Service Bulletin ANMD-53-13 has not been complied with, carry out Service Bulletin ANMD-53-13 before proceding to step (19).

(19) If Bracket P/N 1E/N-12-50 was removed, install a new Bracket P/N 1E/N-12-50.

(20) Locate RH Reinforcing Strap P/N 1/N-12-380 (if fitted by Mod N600A or N600B, refer to SB NMD-53-5) on RH stub fin web. Align with existing RH stub fin web holes using existing bolts removed from fin/horizontal stabiliser attachment bracket. Drill two 2.4 mm holes in centre of reinforcing strap through web, countersink holes in aft face of web and forward face of strap and tack rivet together. Refer to Figure 4 and step 31.

(21) Locate new RH Angle P/N 1Y/N-12-194 to stub fin and clamp top and bottom to web diaphragm. Position carefully to ensure existing holes are in safety and side skin datum line is maintained.

(22) Temporarily refit vertical stabiliser. Attach RH fin/horizontal stabiliser attachment bracket to vertical stabiliser only. Check web diaphragm is sitting flush to attaching face of bracket and

that no gaps exist. Adjust position of Angle P/N 1Y/N-12-194 to achieve fit.

(23) Drill angle through web diaphragm to match existing 3.3 mm and 4.8 mm holes in web diaphragm. Secure every 3rd hole with skin pins. DO NOT DRILL BOLT HOLES in fin/horizontal stabiliser attachment bracket area at this time. Check the dimension measured in step 8 to ensure that it has been maintained. Maintain this dimension with spacer tube SIMILAR to that referenced in Service Bulletin NMD-53-5.

(24) Remove angle and clean and deburr holes. Clean swarf from inside of stub fin and ensure holes are serviceable.

(25) Fit Doubler Strap 1V/N-12-194 (dress flat if necessary with non-metallic mallet) and check position is the same as on original angle. Rivet all items EXCEPT the fin/horizontal stabiliser attachment bracket reinforcing strap and stop bracket.

(26) Fit fuselage side skin and stub fin side skins using skin pins and drill 2.5 mm and 3.3 mm holes through existing holes into angle. Drill 3.3 mm pilot hole through Camloc hole centres.

(27) Open up pre drilled holes for Camloc receptacles in angle to match skin. Drill and countersink 2.5 mm attaching rivet holes in angle. Fit Camlocs, packers and rivet.

(28) Remove fuselage side skin and stub fin side skins, deburr holes and check inside stub fin for cleanliness.

(29) Using a drill bush with an outside diameter to match the diameter of the existing holes and 3.5 mm inside diameter (refer to Figure 2), drill the two bolt holes in the third row from the top and using a reamer open up to 0.265 inch. Temporarily bolt RH fin/horizontal stabiliser attachment bracket to stub fin using existing bolts.

(30) Using a 6.5 mm drill and a 9/32 inch reamer, drill and ream to suit Bolts P/N NAS 6204-8Y, -9Y, -11Y and -19Y, one hole at a time, all bracket attachment holes into angle (including the two holes used for location in step 29). Ensure bolts are a good push fit in their respective holes.

NOTE: 1. If incorporating on aircraft not previously fitted with Mod N600A or N600B, Bolts P/N NAS 6204-8X, -9X, -11X and -19X (reamer size 17/64 inch) shall be used in lieu of the 'Y' bolts.

2. If incorporting Mod N600A or N600B, delete the dimension check in step 8 and refer to SB NMD-53-5.

3. If using 'Y' bolts and reamed holes are oversize, contact ASTA General Aviation for repair scheme.

(31) Refer to Figure 4. Remove RH fin/horizontal stabiliser attachment bracket and reinforcing strap (remove tack rivets installed in step 20). Drill 3.3 mm diameter holes in angle to match countersunk rivet locations beneath reinforcing strap, drill (2.5 mm diameter) tack rivet hole right through and completely rivet reinforcing strap. Install RH fin/horizontal stabiliser attachment bracket using bolts listed in step 30.

(32) Remove vertical stabiliser to enable access to stub fin during re-assembly.

(33) Fit and rivet stop plate.

(34) Refit side skins and rudder lower pivot side plate assembly, wet assemble using pigmented jointing compound, pin and rivet.

(35) Fit vertical stabiliser (Ref MM Chap 55-30-00).

(36) Wet assemble attachment bracket. Fit bolts and torque to between 50 and 70 lb in.

(37) Install trim control torque shaft assembly (Ref MM Chap 27-41-06).

(38) Check setting of horizontal stabiliser trim control screwjack assembly and chain assembly (Ref MM Chap 27-41-02). If required check rigging (Ref MM Chap 27-41-00).

(39) Fit rudder (Ref MM Chap 55-40-00).

(40) Check setting of rudder trim control screwjack assembly and chain assembly (Ref MM Chap 27-21-03). If required check rigging (Ref MM Chap 27-21-00).

(41) Fit horizontal stabiliser (Ref MM Chap 55-20-00).

(42) Fit dorsal fin (Ref MM Chap 55-30-00).

(43) Remove stands and lower aircraft (Ref MM Chap 7-00-00 and 8-00-00).

3. MATERIAL INFORMATION

Per aircraft.

New P/N	Qty	Description	Old P/N	Instructions/ Dispostion
1E/N-12-50	1	Bracket		(Purchase
1V/N-12-194	1	Doubler Strap		(separately if (required
1Y/N-12-194	1	Angle		
NAS 6204-8Y	2	Bolt, close tolerance		
NAS 6204-9Y	2	Bolt, close tolerance		
NAS 6204-11Y	2	Bolt, close tolerance		
NAS 6204-19Y	2	Bolt, close tolerance		

NOTE: On pre Mod N600A and N600b aircraft, 'X' bolts in Mod N600A/B kit may be used in lieu of 'Y' bolts.

MS20426AD3-3	20	Rivet
MS20426AD3-4	20	Rivet
MS20426AD3-5	20	Rivet
MS20426AD3-6	8	Rivet
MS20426AD4-8	4	Rivet
MS20470AD3-3	30	Rivet
MS20470AD3-4	30	Rivet
MS20470AD3-5	30	Rivet
MS20470AD4-3	46	Rivet
MS20470AD4-4	100	Rivet
MS20470AD4-5	100	Rivet
MS20470AD4-6	30	Rivet
MS20470AD4-7	10	Rivet
MS20470AD4-8	2	Rivet
MS20470AD5-5	12	Rivet
MS20470AD5-6	6	Rivet
MS20470AD5-7	4	Rivet
MS20470AD6-6	20	Rivet
MS20470AD6-7	10	Rivet
MS20470AD6-9	16	Rivet
MS20470AD6-10	4	Rivet
CR 3223-4-3	10	Rivet, Cherrymax
CR 3233-4-4	20	Rivet, Cherrymax

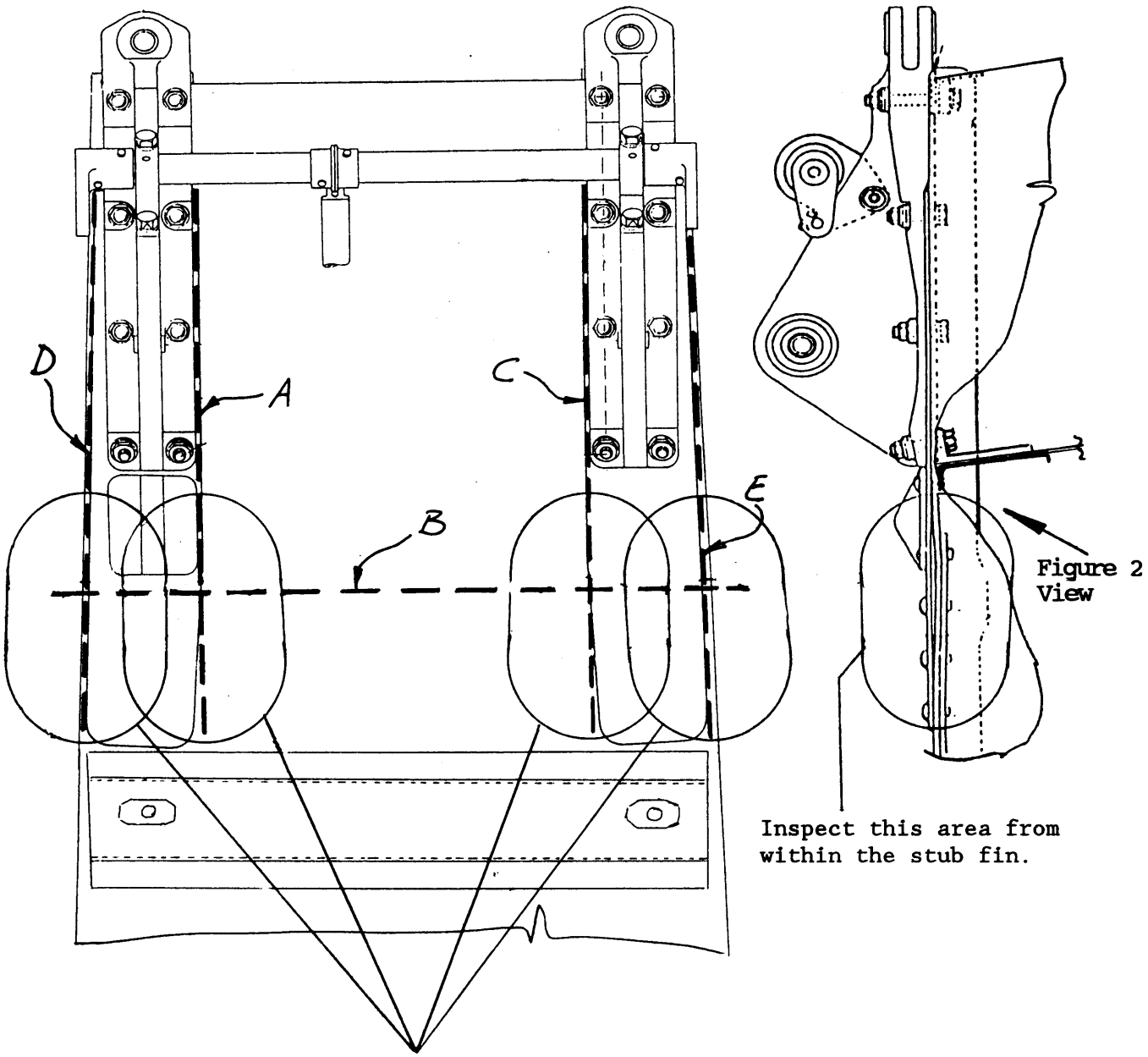
NOTE: Use Cherrymax rivets for refitting of stubfin skins only where it is impossible to fit solid rivets.

4. SPECIAL TOOLS AND EQUIPMENT

None.

5. RECEORDING ACTION

Record compliance with Service Bulletin ANMD-53-12 Rev 2 in aircraft logbook.



Place a straight edge along each line 'A', 'B', 'C', 'D' and 'E' in turn and measure deformation in these areas using a feeler gauge.
Maximum allowed - 0.061 inch (Post Mod N600A or N600B)
- 0.011 inch (Pre Mod N600A or N600B).

Figure 1 View on Forward Face of Stub Fin (Shown with Mod N600 Installed)

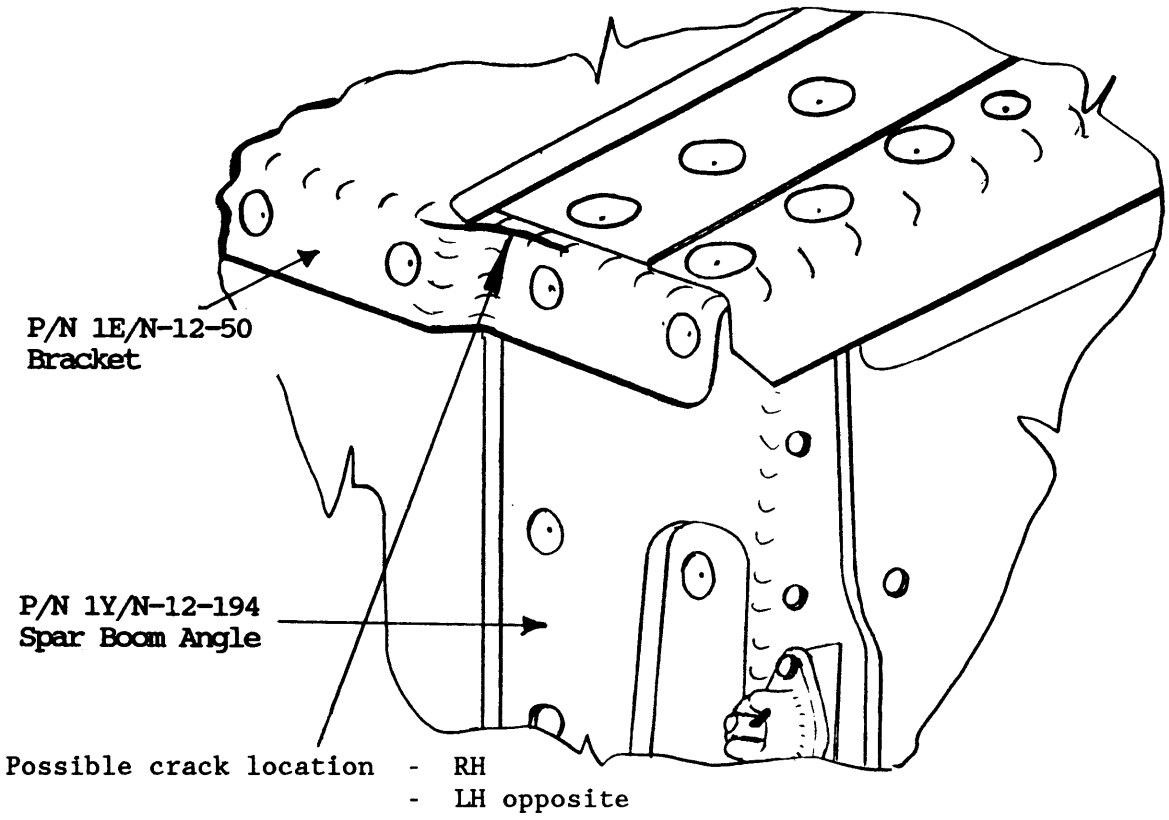


Figure 2 View Inside Stub Fin Looking Through Inspection Panel

REPORT TO ASTA: Aircraft Serial Number .....

Total Flying Hours.....

Maximum Deformation: LINE A .....inch

LINE B Port.....inch

Starboard .....inch

LINE C .....inch

LINE D .....inch

LINE E .....inch

Cracking in flange of bracket per Figure 2.

LH	YES / NO	)	Delete
RH	YES / NO	)	as required

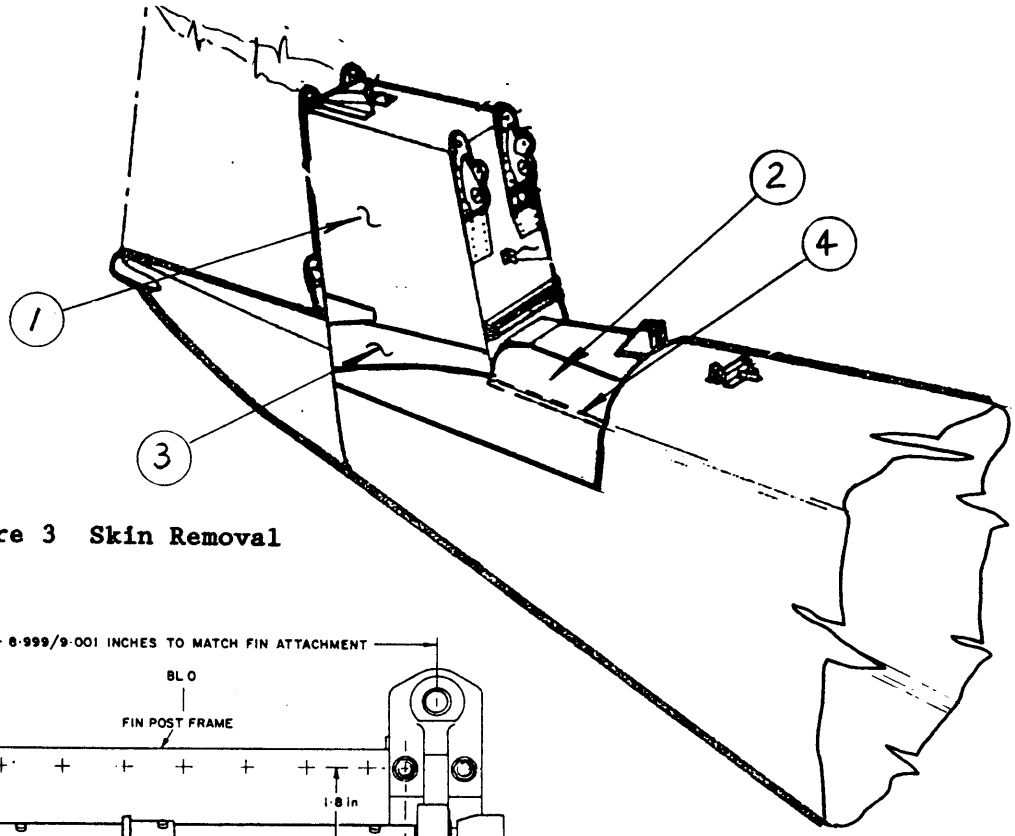
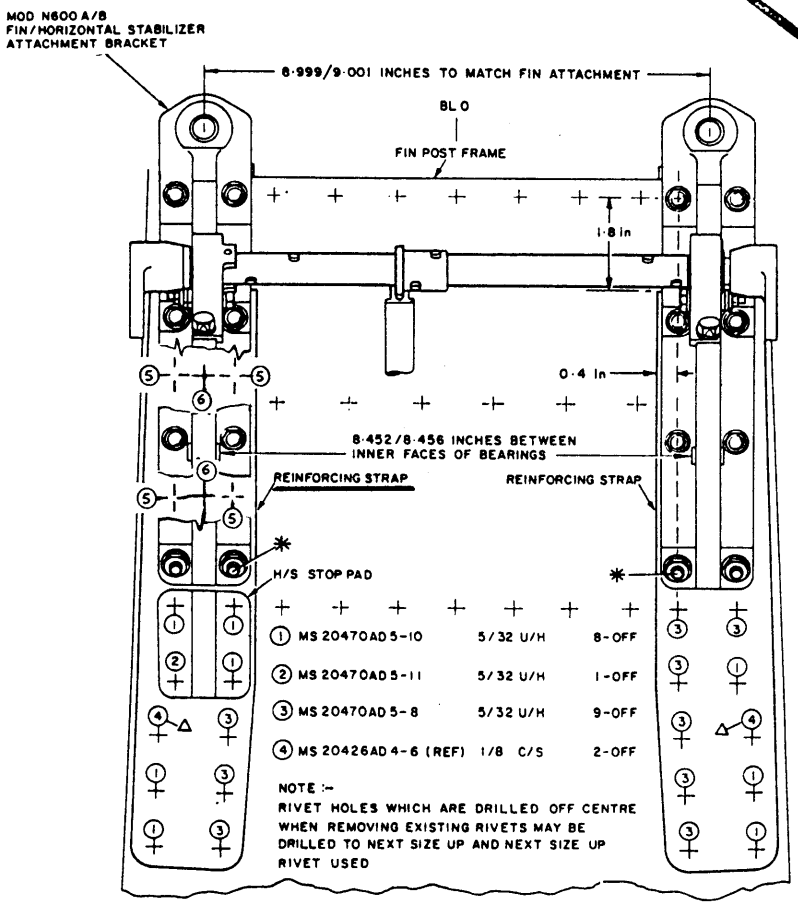


Figure 3 Skin Removal



⑤ MS20426AD3
Through Diaphragm and Angle (hidden)

⑥ MS20426AD3
Tack rivet through reinforcing strap

Figure 4 Mod N600 Reinforcing Strap