GOVERNMENT AIRCRAFT FACTORIES

Nomad

Reference No. 138

SERVICE BULLETIN

SUBJECT: REDESIGNED RUDDER STOPS (MODIFICATION N307)

1. Planning Information

A. Effectivity

(1) Aircraft Affected

All Nomad N22-Series (except N22S-Series) and N24-Series Aircraft whose log books do not already record the embodiment of MOD N307 or compliance with Service Bulletin NMD-55-17.

Pre-certification implementation of the intent of this service bulletin is recorded in the airframe log book as MOD N307.

(2) Spares Affected

All rudder assemblies held as spares which do not have MOD N307 embodied or Service Bulletin NMD-55-17 incorporated. It is recommended that spare rudder assemblies in either of these categories be reworked as detailed in Para 2 Part 1 of this Service Bulletin.

B. Reason

To reduce possible damage to the structures adjacent to the rudder stop bolts in the rear fuselage and the rudder stop brackets on the rudder during high wind gusting conditions.

C. Description (Ref Figures 1 and 2)

(1) The stop brackets and reinforcing plates riveted to the rudder are replaced by redesigned parts and attaching hardware.

(2) The existing stop bolts, stop bolt mounting plates and angles attached to the rear fuselage lower rudder hinge are replaced by modified items.

D. Compliance

It is strongly recommended that operators incorporate the rework described in this Bulletin as soon as possible.

E. Approval

The rework detailed herein has been approved pursuant to Air Navigation Regulation 40 and conforms with the type certification requirements.

F. Manpower

1. Rework of rudder - 2 manhours.
2. Rework of rear fuselage - 3 manhours.

G. Material - Price and Availability

The parts required to incorporate the rework detailed in this Service Bulletin are availalbe as Kit P/N NMD-55-17-1 (Rework of Rudder Structure) and P/N NMD-55-17-2 (Rework of Rear Fuselage) from the operator's local distributor. Distributors are to place a purchase order on G.A.F. through the normal procurement procedure. Purchase orders are to quote the Aircraft Serial number and Service Bulletin NMD-55-17. These kits will be available ex-factory from December 1982 at the prices listed below. The price remains effective for 90 days from the date of this service bulletin.

Kit P/N	Cost Per Kit
NMD-55-17-1	$180
NMD-55-17-2	$269

H. Tooling - Price and Availability

None required.

J. Weight and Balance

Negligible effect.

K. References

M.M. - Maintenance Manual
I.P.C. - Illustrated Parts Catalogue

L. Publications Affected

Maintenance Manual
Illustrated Parts Catalogue

2. Accomplishment Instruction

Part 1

A. Rework Rudder Stop Bracket Assemblies

(1) Remove the rudder assembly (Ref MM 55-40-00)

(2) Drill out the eleven 1/8 inch dia pop rivets and the two 5/32 inch dia universal head rivets attaching the LH and RH reinforcing plates P/N 1AU/N-33-130 (LH) and 1AV/N-33-130 (RH) to the rudder assembly. Discard the LH and RH reinforcing plates.

(3) Drill out the four 1/8 inch dia universal head rivets attaching the LH and RH stop brackets to the forward face of the rudder front spar. Discard the LH and RH stop brackets.

(4) Plug the four rivet holes from which rivets were drilled out (Ref step 3) with Cherry rivets P/N CR3223-4-1.

NOTE: If rivet holes were damaged when removing existing rivets open up the damaged holes to 4.1 mm dia and plug with Cherry rivet P/N CR3223-5-1.

(5) Drill out the rivets identified 'A' shown on Figure 1 (Ref view on arrow B) and open the rivet holes to 4.1 mm dia.

(6) Using a grip pin or suitable alternative, temporarily attach the new LH stop bracket P/N 1/N-33-208 at the 4.1 mm dia hole (Ref step (5)) to the forward face of the rudder front spar as shown in Figure 1 (Ref view on arrow B and section A-A).

(7) Using the top rivet hole in the stop bracket as a guide, drill a 4.1 mm dia hole in the rudder front spar.

(8) Remove the LH stop bracket from the rudder front spar, coat the mating surfaces of the stop bracket and the front spar with barium chromate jointing compound then, using Cherry rivets P/N CR3223-5-3, rivet the stop bracket to the front spar. Wipe off any excess jointing compound.

(9) Repeat steps (6) to (8) inclusive for the RH stop bracket P/N 1/N-33-207.

(10) Form the new reinforcing plates P/N 1/N-33-209 (2 off) to suit the contour of the rudder at the place of attachment i.e. LH and RH sides respectively.

(11) Place the formed reinforcing plate for the LH side of the rudder in position and mark off the positions for the eleven rivet holes and two bolt holes on the plate.

(12) Drill the eleven rivet holes using a 3.30 mm (.129 to .132 inch) dia drill and the two bolt holes using a 4.90 mm (.192 to .195 inch) dia drill in the reinforcing plate. Deburr the holes.

(13) Rivet the drilled reinforcing plate to the LH side of the rudder using Cherry rivets at the positions shown on Figure 1.

(14) Fit bolts P/N MS27039-1-22 (head facing outboard) through the reinforcing plate and stop bracket. Assemble washers P/N AN960-10L and self-locking nuts P/N MS20364-1032 on the bolts. Torque tighten the nuts to between 12 and 15 pound inches.

(15) Repeat steps (11) to (14) inclusive for the installation of the reinforcing plate for the RH side of the rudder.

(16) Paint the LH and RH reinforcing plates to match the paint scheme of the rudder.

(17) Amend the rudder part number by adding /NMD-55-17 Part 1 after the existing part number (Ref Para 3.B.).

Part 2

A. Rework the Rudder Stops and Associated Support Structure

(1) Remove the two rudder stop bolt assemblies and locknuts (Ref IPC 53-18-05 items 19 and 20).

(2) Drill out the five 1/8 inch dia rivets, two 3/32 inch dia rivets and two 3/16 inch dia rivets which attach the angles, packers and anchor nuts to each side of the rudder hinge platform plate and the LH and RH side plates. Discard angles, packers and anchor nuts.

(3) Locate in position rudder stop angles P/N 1/N-12-290 (LH) and 1/N-12-291 (RH) to the internal face of the side plates and under the rudder hinge platform plate (Ref Fig 2 Detail C) temporarily secure using a grip pin or a suitable alternative.

(4) Position rudder stop angles P/N 1/N-12-286 (LH) and 1/N-12-287 (RH) in conjunction with the rudder stop bolt brackets P/N 1/N-12-285 (2-off) on the external faces of the side plates and secure with grip pins or a suitable alternative. With a pencil or other suitable marking instrument mark the centre of the rudder stop bolt hole onto the side plate through the stop bolt hole in the bracket. Remove the rudder stop bolt bracket.

(5) Drill a pilot hole through the centre of the pencil or other mark on the side plates that were made in step (4). Using the pilot hole as a guide, drill a hole 15/32 inch diameter through the rudder stop angles and the side plates. Refit the rudder stop bolt brackets to the side plates.

(6) Using a 3.30 mm (.129 to .132 inch) dia drill, back drill through the rivet holes in the side plates in four places and through the top of the rudder hinge platform plate in three places each side (Ref Fig 2 view on arrows B and D).

(7) Using a 4.90 mm (.191 to .193 inch) dia drill, back drill through the 3/16 inch holes on the side plate and angles 1/N-12-286 (LH) 1/N-12-287 (RH) in two places.

(8) Screw the rudder stop bolt assembly through the rudder stop bolt bracket and check that it does not bind on the holes in the angles at any point of its travel.

(9) Disassemble all angles, rudder stop bolt assemblies and rudder stop brackets from the structure, deburr, re-assemble the angles and the rudder stop brackets to the structure and rivet up using rivets MS20470AD4-7 (4-off) MS20470AD4-8 (4-off) MS20470AD4-4 (6-off) and MS20470AD6-9 (4-off).

(10) Screw the LH rudder stop bolt assembly locknut onto the thread of the stop bolt and then screw the rudder stop bolt assembly into the rudder stop bracket. Repeat for RH stop bolt assembly.

NOTE: Do not tighten the rudder stop bolt at this time, it will be adjusted and tightened after the rudder is refitted to the aircraft.

B. Refit Rudder to Aircraft (Ref MM 55-40-00)

WARNING: AFTER ALL MAINTENANCE ACTIVITIES INVOLVING FLYING CONTROLS, OR WHENEVER FLYING CONTROL SERVICING AND ACCESS PANELS ARE REMOVED ENSURE THAT THE AREAS CONCERNED ARE CLEAN AND FREE FROM FOREIGN OBJECTS.

NOTE: After re-connecting rudder control attachments two independent inspections must be carried out.

3. Materials Information

A. Parts Required per Aircraft

(1) One each kit P/N NMD-55-17-1 and one kit P/N NMD-55-17-2 are required per aircraft.

(2) Each kit P/N NMD-55-17-1 comprises the following items:

Item P/N	Title	Qty
1/N-33-207	Stop Bracket LH	1
1/N-33-208	Stop Bracket RH	1
1/N-33-209	Reinforcing Plate	2

(3) Each kit P/N NMD-55-17-2 comprises the following items:

Item P/N	Title	Qty
1/N-12-285	Rudder Stop Bracket	2
1/N-12-290	Rudder Stop Angle LH	1
1/N-12-291	Rudder Stop Angle RH	1
1/N-12-286	Rudder Stop Angle LH	1
1/N-12-287	Rudder Stop Angle RH	1
1/N-12-300	Stop Bolt Assembly	2
AN316-6	Jam Nut	2

(4) The following items are to be obtained from the operator's stock or local sources, for parts 1 and 2.

Item P/N	Title	Qty
MS20364-1032	Nut, Self-locking	4
MS27039-1-22	Bolt	4
AN960-10L	Washer	4
MS20470AD4-4	Rivet, Universal Head	6
MS20470AD4-8	Rivet, Universal Head	4
MS20470AD4-7	Rivet, Universal Head	4
MS20470AD6-9	Rivet, Universal Head	4
CR3223-4-1	Rivet, Cherry Max	8
CR3223-4-2	Rivet, Cherry Max	14
CR3223-4-3	Rivet, Cherry Max	4
CR3223-5-3	Rivet, Cherry Max	4
	Barium Chromate Jointing Compound	A/R

B. Parts Modified and Re-identified by Operator

Old P/N	Title	P/N After Modification
3/N-33-125	Rudder Assembly (Post Mod N39)	3/N-33-125/NMD-55-17 Part 1
4/N-33-125	Rudder Assembly (Post Mod N268)	4/N-33-125/NMD-55-17 Part 1
8/N-33-125	Rudder Assembly (Post Mod N293)	8/N-33-125/NMD-55-17 Part 1
9/N-33-125	Rudder Assembly (Post Mod N440)	9/N-33-125/NMD-55-17 Part 1
101/N-33-125	Rudder Assembly (Basic)	101/N-33-125/NMD-55-17 Part 1

Old P/N	Title	P/N After Modification
102/N-33-125	Rudder Assembly (Post Mod N268)	102/N-33-125/NMD-55-17 Part 1
106/N-33-125	Rudder Assembly (Post Mod N293)	106/N-33-125/NMD-55-17 Part 1
107/N-33-125	Rudder Assembly (Post Mod N440)	107/N-33-125/NMD-55-17 Part 1

C. Parts Required to Modify Spares (Part 1 only)

Item P/N	Title	Qty
1/N-33-207	Stop Bracket LH	1
1/N-33-208	Stop Bracket RH	1
1/N-33-209	Reinforcing Plate	2
MS20364-1032	Nut, Self-locking	4
MS27039-1-22	Bolt	4
AN960-10L	Washer	4
CR3223-4-1	Rivet, Cherry Max	8
CR3223-4-2	Rivet, Cherry Max	14
CR3223-4-3	Rivet, Cherry Max	4
CR3223-5-3	Rivet, Cherry Max	4

D. Removed Parts (Parts 1 and 2)

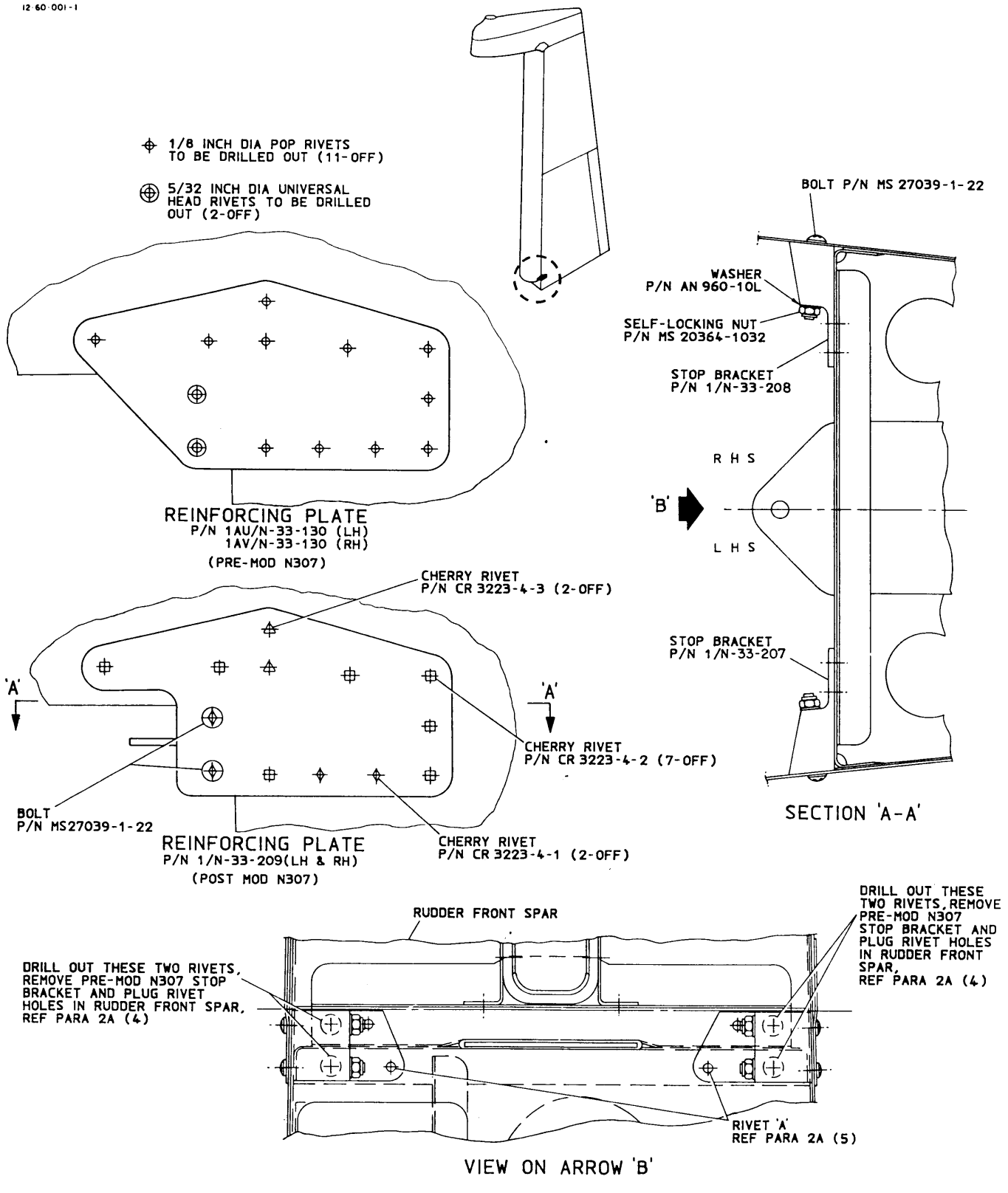
Item P/N	Title	Qty	Recommended Disposition
1B/N-12-105	Stop Bolt Assembly	2	Scrap
AN316-5	Jam Nut	2	Scrap
1BH/N-12-34	Angle LH	1	Scrap
1BJ/N-12-34	Angle RH	1	Scrap
1/N-12-209	Angle Assembly LH	1	Scrap
1/N-12-210	Angle Assembly RH	1	Scrap
1AU/N-33-130	Reinforcing Plate LH	1	Scrap
1AV/N-33-130	Reinforcing Plate RH	1	Scrap
1/N-33-148 (Basic)	Stop Bracket LH	1	Scrap
1/N-33-182 (Mod N32)	Stop Bracket RH	1	Scrap
1/N-33-149 (Basic)	Stop Bracket LH	1	Scrap
1/N-33-183 (Mod N32)	Stop Bracket RH	1	Scrap

E. Special Tools and Equipment

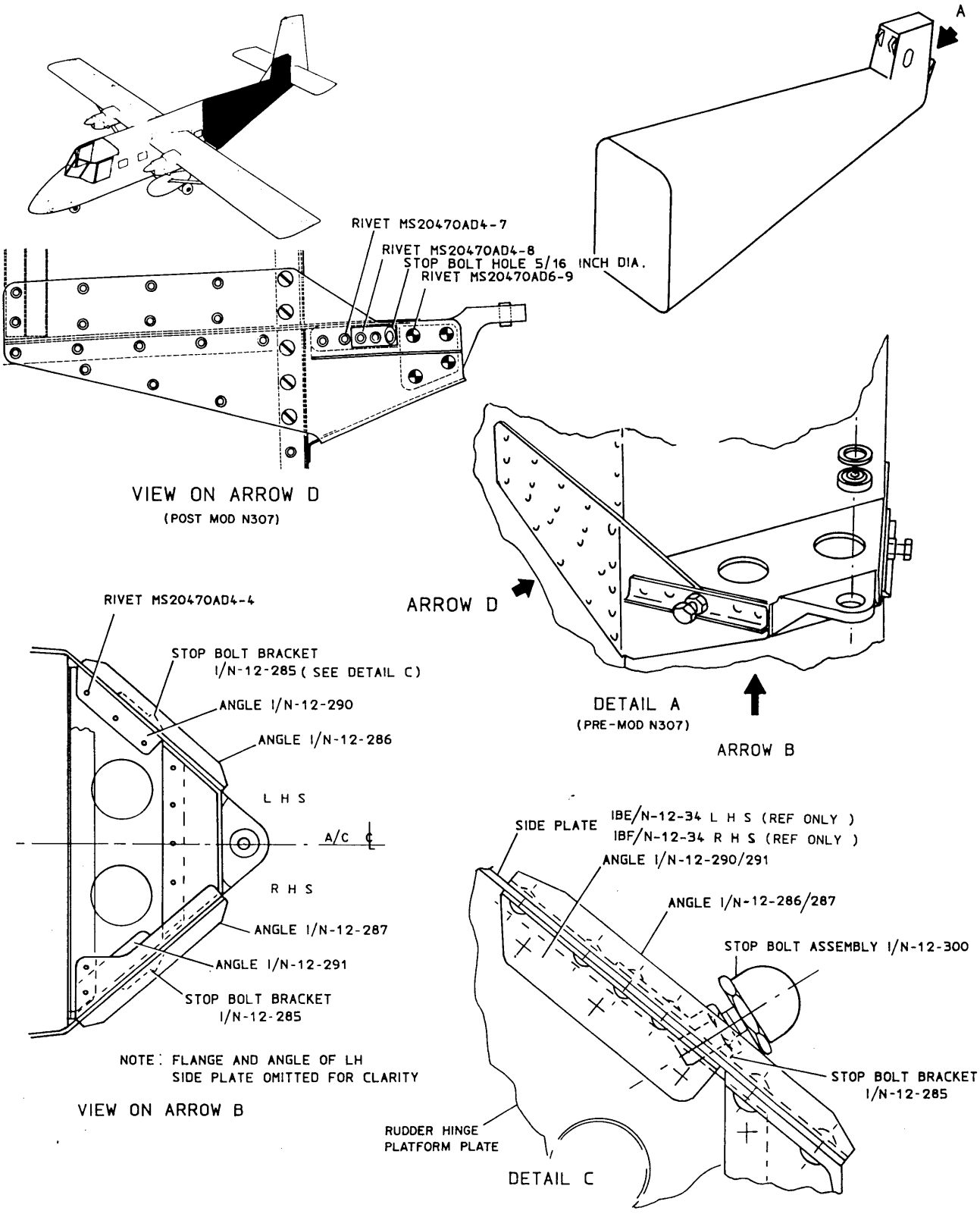
None.

F. Recording Action (Part 2 only)

Record compliance with Service Bulletin NMD-55-17 Part 2 in the airframe log book.



Rudder-Mod N307 Installation
Figure 1



Rear Fuselage Mod N307 Installation
Figure 2