STABILISERS — HORIZONTAL STABILISER — CENTRE SECTION INSPECTION AND REPAIR (MOD N663 AND MOD N768)

1. PLANNING INFORMATION

A. Effectivity

(1) Aircraft Affected.

All Nomad N22 and N24 Series aircraft including aircraft with Mod N663 incorporated.

All Nomad N22 and N24 Series aircraft whose log books do not already record the incorporation of Mod N663 or compliance with Service Bulletin ANMD–55–26 Parts 2 and 3.

Horizontal Stabiliser S/No GAF–157, aircraft S/No N22C–69 fitted with Horizontal Stabiliser S/No GAF–179 and aircraft S/No N22S–159 to N22S–165 inclusive whose log books do not already record the incorporation of Mod N768 or compliance with Service Bulletin ANMD–55–26 Part 4.

(2) Spares Affected.

All horizontal stabiliser assemblies held as spares which do not have Mod N663 embodied or Alert Service Bulletin ANMD–55–26 Part 3 incorporated.

B. Reason

(1) Field reports have been received of cracking in the stabiliser centre section. Despite existing inspection recommendations for the area, which are relatively stringent, a recent accident suggests that undetected cracks could propagate to the extent that tailplane failure may occur. The enquiry concluded, inter alia, that the cracking around the centre lightening hole was most likely due to long periods of engine ground running. Subsequent testing indicates that engine ground running at moderate to high power settings may cause accelerated crack growth.

(2) Reason for Revision 1.

Eddy current inspections have identified visually non-detectable cracks emanating from the centre section lightening hole.

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Inspection reports received by ASTA Defence following the original issue of this bulletin have revealed that, in some instances, cracks are occurring in the spar cap flanges of aircraft fitted with Mod N568. Reports of these cracks being detected on aircraft with low flight frequencies were received. As Mod N568 impedes inspection of the area, removal of the Machined Braces PN 1/N–30–250 is required.

(3) Reason for Revision 2.

Editorial changes required to correct minor errors and to enhance readability.

(4) Reason for Revision 3.

To change compliance requirements, add the recording of Horizontal Stabiliser S/No and Aircraft S/No to the Maintenance/Operation Survey sheets as well as editorial changes.

(5) Reason for Revision 4.

Change of Effectivity to include aircraft with Mod N663 incorporated. Engine ground running conditions, initial inspection and accomplishment instructions have also been altered.

(6) Reason for Revision 5.

Introduces repairs which will terminate the inspection requirements for cracking around the centre lightening hole and in the spar cap flanges. The Service Bulletin is divided into four parts:

Part 1 — Inspection,

Part 2 — Dorsal fin and rear fuselage rework to reduce the possibility of severe wind gusts causing structural damage,

Part 3 — Horizontal stabiliser main spar assembly rework, and

Part 4 — Pivot bracket and spar web rework to reduce bolt end play and increase pivot bracket and spar web strength (Mod N768). For Post-Mod N663 aircraft only.

(7) Reason for Revision 6.

Editing changes to text and Figures 6, 7, 10, 13, 17, 20, and 21 and the addition of an horizontal stabiliser weight table. Also reference to Alert Service Bulletin ANMD–55–30, Gust Damper Mounting Bolts Replacement (Post-Mod N663 aircraft only) and Service Bulletin NMD–30–2, Revised Mounting Bracket De-icing Tailplane (Mod N779) for aircraft with Customer Option G18/G18–24 fitted.

(8) Reason for Revision 7.

Editing changes to text and Figures 10 and 20. Additional reference is made to Service Bulletin NMD–55–12 (Mod N439) Horizontal Stabiliser Trim Tab Gap and Alert Service Bulletin ANMD–55–31 Inspection of the Trunnion Gap.

(9) Reason for Revision 8.

Editing changes to the text and Figure 20 to incorporate lockwiring of the tailplane push rod bolt and the rigging procedure for the horizontal stabiliser.

(10) Reason for Revision 9.

To clarify that only the Horizontal Stabiliser Main Spar hours revert to zero.

C. Description

(1) Part 1 — Inspection.

(a) A detailed visual inspection is performed for cracking on the horizontal stabiliser centre section box spar.

(b) A detailed visual inspection is performed of attachment bolts and nuts, and pivot bearings.

(c) Eddy-current inspections are performed of the centre section lightening hole flange, around fasteners in the web, and along the spar cap.

(d) Mod N568 Machined Braces are removed and the area restored to the pre-modification condition.

(e) The following practices are now required as precautionary measures to minimise loads on the horizontal stabiliser and apply to the Pre- and Post-Mod N663/768 conditions.

1 Engine ground running is to be conducted with flaps set at 0°.

2 During engine ground running the control column should be held firmly against the forward horizontal stabiliser control stops. The horizontal stabiliser gust lock should not be fitted during ground runs.

NOTE

- Repairs are to be performed in accordance with the Nomad Structural Repair Manual, or ASTA Defence approved repair procedures.
- The results of ALL inspections are required by ASTA Defence and are to be submitted on the pro-forma provided with this bulletin.
- Some operators have performed repairs to tailplanes without seeking ASTA Defence approval. Details of any such repairs should be transmitted to ASTA Defence immediately.

(2) Part 2 — Dorsal Fin and Rear Fuselage Reinforcement.

The dorsal fin internal structure is reinforced and modified to accommodate gust stop strikers. The rear fuselage is strengthened to accept the tailplane gust loads. Part 2 may be incorporated in advance of Part 3 as a Pre-Mod N663/768 horizontal stabiliser can still be fitted after completion of Part 2.

CAUTION

DO NOT FIT A POST MOD N663/768 HORIZONTAL STABILISER TO AN AIRCRAFT WHICH HAS NOT HAD PART 2 OF THIS SERVICE BULLETIN INCORPORATED.

(3) Part 3 — Pre-Mod N663 Horizontal Stabiliser Rework.

The horizontal stabiliser is reworked to incorporate a strengthened main spar assembly that includes a gust stop spring box and modified mass balance arm. The trim tab hinges are moved 0.17 in aft and fairings are added to the bottom skin of the horizontal stabiliser to permit increased trim tab movement. Mod N768 is a basic fit to Part 3.

(4) Part 4 — Post-Mod N663 Horizontal Stabiliser Rework — Mod N768.

The pivot brackets, attachment bolts and spar web doubler are replaced with strengthened components.

D. Compliance

(1) Part 1 — Inspection.

(a) Initial Inspection.

1 Prior to further flight after 16 March 1990. Aircraft in remote areas are cleared for a one-time only flight to a maintenance facility.

2 Aircraft which comply with Revision 2 of this bulletin shall comply with Revision 3 at the next subsequent inspection.

3 Tailplanes which are not fitted to an aircraft shall be inspected before being fitted.

4 Post-Mod N663 — Not later than 100 hours TIS after receipt of this Service Bulletin OR not exceeding 1.5 hours of accumulated single engine or two engine ground running at power levels greater than 50 psi of torque.

NOTE

TIS hours refer to tailplane in-service hours not airframe hours.

(b) Subsequent Inspections.

1 At intervals not exceeding 100 hours.

2 At intervals not exceeding 1.5 hours of accumulated single engine or two engine ground running at power levels greater than 50 psi of torque since previous inspection.

NOTE

The requirement for subsequent inspections will cease on the satisfactory incorporation of Parts 2 and 3 (Pre-Mod N663 aircraft) and Part 4 (Post-Mod N663 aircraft). Except that the practices stated in Para 1 and 2 must still be followed.

(2) Part 2, 3 and 4.

Mandatory. To be incorporated not later than 30 April 1992.

E. Approval

This service bulletin has been approved pursuant to Civil Aviation Regulation 35 and conforms with Type Certification requirements.

The Civil Aviation Authority has been requested to issue an Airworthiness Directive to address this revision.

F. Manpower

(1) Part 1 — Inspection.

Estimated at about 13 manhours.

NOTE

Manhours for Parts 2, 3 and 4 are approximate subject to completion of Trial Installation by ASTA Defence.

(2) Part 2 — Dorsal Fin and Rear Fuselage Rework

Make dorsal fin jig	1 hrs	
Rework dorsal fin	40 hrs,	42 hours for aircraft with Customer Option G372 Crash Locator Beacon fitted
Rework rear fuselage	16 hrs	
Total Hours	57 hrs,	59 hrs

(3) Part 3 — Horizontal Stabiliser Rework

Rework horizontal stabiliser	110 hrs
Removal/installation and rigging	8 hrs
Total Hours	118 hrs

(4) Part 4 — Horizontal Stabiliser — Mod N768 (Post-Mod N663 only)

Rework horizontal stabiliser	44 hrs
Removal/installation and rigging	8 hrs
Total Hours	52 hrs

(5) For the installation of Parts 2, 3 and 4, ASTA Defence will assist as follows:

(a) ASTA Defence will offer a rebate on the cost of installation based on total manhours determined by ASTA Defence and validated labour costs for each operator relative to the work performed. To qualify for the rebate the following criteria shall be met:

1 All modification parts kits must be installed by 30 Apr 92.

2 Proof of installation is required. This is achieved by completing the attached Certificate of Incorporation (Annex A) and forwarding it to ASTA Defence no later than 31 May 92.

(b) ASTA Defence advisers will only be available upon request.

G. Material — Price and Availability

(1) On receipt of this service bulletin place a Free of Charge (FOC) confirmation purchase order on ASTA Defence for the applicable modification parts kits. Ensure the purchase order clearly states:

(a) that the modifications shall be incorporated by 30 April 1992,

(b) delivery address for each kit,

(c) quantity of each kit required.

(d) identification (LS No) of each aircraft, and

(e) identification (S/No) of horizontal stabilisers which are:

1 fitted to aircraft, and/or

2 held as spares.

(2) The modification parts kits are identified below.

(3) Part 2 — Dorsal Fin and Rear Fuselage Reinforcement.

Mod Kit PN ANMD–55–26–1A for use on N22, N22B, N22C and N22S (Pre-Mod N663)

Mod Kit PN ANMD–55–26–1B for use on N24A

Mod Kit PN ANMD–55–26–1C for use on N22FP (Floatmaster)

(4) Part 3 — Horizontal Stabiliser Rework.

Mod Kit PN ANMD–55–26–2 for use on Pre-Mod N663 horizontal stabilisers only — Mod N768 is fitted as basic to this Mod Kit

(5) Part 4 — Horizontal Stabiliser — Mod N768.

Mod Kit PN ANMD–55–26–3 for use on Post-Mod N663 horizontal stabilisers only

H. Tooling — Price and Availability

Horizontal Stabiliser Jig PN 1630–4014 is required for Part 3 and Locating Jig PN 1630–3509 is required for Part 4. The jigs are available on loan from ASTA Defence on payment of a refundable deposit. Contact ASTA Defence for deposit cost and availability.

I. Weight and Balance

(1) Part 1 — Inspection. Mod N568 removal only.

	N22 Series		N24 Series	
	SI	Imperial	SI	Imperial
Weight	–0.26 kg	–0.58 lb	–0.26 kg	–0.58 lb
Arm	11 169 mm	439.75 in	12 312 mm	484.75 in
Index Units	–2.99 kg mm/1000	–0.26 lb in/1000	–3.24 kg mm/1000	–0.28 lb in/1000

(2) Part 2 — Dorsal fin and rear fuselage reinforcement.

	N22 Series		N24 Series	
	SI	Imperial	SI	Imperial
Weight	+1.86 kg	+4.11 lb	+1.86 kg	+4.11 lb
Arm	10 869 mm	427.92 in	12 012 mm	472.92 in
Index Units	+20.26 kg mm/1000	+1.76 lb in/1000	+22.39 kg mm/1000	+1.94 lb in/1000

(3) Part 3 — Pre-Mod N663 horizontal stabiliser rework.

	N22 Series		N24 Series	
	SI	Imperial	SI	Imperial
Weight	+2.6 kg	+5.73 lb	+2.6 kg	+5.73 lb
Arm	11 169 mm	439.75 in	12 312 mm	484.75 in
Index Units	+29.04 kg mm/1000	+2.52 lb in/1000	+32.01 kg mm/1000	+2.78 lb in/1000

(4) Part 4 — Post-Mod N663 horizontal stabiliser rework – Mod N768.

	N22 Series		N24 Series	
	SI	Imperial	SI	Imperial
Weight	+0.37 kg	+0.81 lb	+0.37 kg	+0.81 lb
Arm	11 130 mm	438.22 in	12 273 mm	483.22 in
Index Units	+4.09 kg mm/1000	+0.35 lb in/1000	+4.51 kg mm/1000	+0.39 lb in/1000

J. References

Civil Aviation Order CAO 105.AD/GAF–N22/58
Civil Aviation Order CAO 105.AD/GAF–N22/59
Civil Aviation Order CAO 105.AD/GAF–N22/60
Service Bulletin NMD–30–2 (Mod N779)
Service Bulletin NMD–55–12 (Mod N439)
Service Bulletin ANMD–55–13 (Mod N462)
Service Bulletin ANMD–55–30
Service Bulletin ANMD–55–31

Maintenance Manual	Chap 27–00–00, 27–40–00, 27–40–06, 27–41–00, 55–20–00, 55–30–00 and G18 CO Supplement
Illustrated Parts Catalogue	Chap 27–40–00, 27–40–02 and 55–00–00
Structural Repair Manual	Chap 51–30–00, 51–50–00 and 55–10–00

K. Publications Affected

Service Letter 91–5
Service Letter 91-2
Service Letter 91-5
Service Bulletin N22–55–1
Service Bulletin ANMD–55–13
Service Bulletin ANMD–55–18 (M0d N568)

Service Bulletin ANMD–55–27
Service Bulletin ANMD–55–29
Maintenance Manual
Illustrated Parts Catalogue
Structural Repair Manual
Inspection Requirements Manual

2. **ACCOMPLISHMENT INSTRUCTIONS**

A. Part 1 — Inspection

NOTE

If, at any time, the horizontal stabiliser centre section has been repaired without ASTA Defence approval, the aircraft is to be grounded immediately and full details of the repair forwarded to ASTA Defence. This service bulletin is not to be commenced nor the aircraft flown until advice is received from ASTA Defence.

(1) Preparation

The following preparations must be made prior to inspection:

(a) Pre-Mod N663

1 Remove horizontal stabiliser from aircraft (Ref MM Chap 55–20–00).

2 If De-ice is fitted, disconnect, derivet, and remove the plumbing support bracket across the centre section lightening hole.

(b) Post-Mod N663

1 Remove access panel PN 1/N–30–288 from spar centre section lightening hole. Retain washers.

(c) If Mod N568 (Service Bulletin NMD–55–18**)** is fitted, proceed as follows:

1 Remove the top and bottom horizontal bolts in the pivot brackets. Retain washers.

2 Remove the four rivets immediately forward of the main spar web in each of the upper and lower LH and RH channels. Remove the Mod N568 Machined Braces (4).

3 Install rivets PN MS20470AD6–8 in the upper channels and PN MS20470AD6–9 in the lower channels.

4 Install PN NAS1303–7 bolts through the top and bottom horizontal bolt holes in the pivot brackets. Use PN MS21299C3 washers beneath the bolt heads, and PN AN960C10 and AN960C10L washers, and PN MS21042L3 nuts. Torque to 35–40 lb in.

(d) For eddy current inspections, ensure that the inspection areas are clean of dirt, grease and loose or flaking paint.

(2) Visual Inspection.

Using a mirror and powerful torch, perform a detailed internal and external close visual inspection for cracking of the horizontal stabiliser centre section box spar. Particular attention is required as follows:

(a) Along the radius of the lightening hole flange in the web and doubler, inside the spar centre section and externally on the doubler around the lightening hole and fasteners.

(b) The structure inside the horizontal stabiliser around the upper and the lower left and right horizontal stabiliser pivot bracket bolts. The pivot bracket vertical attachment fasteners and holes.

(c) Visually inspect the stub fin structure and the stub fin stabiliser pivot brackets and supporting structure for cracking.

(d) Repair any cracking in accordance with ASTA General Aviation approved repair schemes. Contact ASTA Defence as necessary.

NOTE

Parts found with cracks shall not be eddy current inspected. All other parts shall be eddy current inspected.

(3) Eddy Current Inspection.

(a) Equipment.

1 Suitable eddy current machine operating at 100 kHz to 500 kHz.

2 Right-angle shielded type probe.

3 Straight shielded type probe.

4 Aluminium Test Block No 29A029 (7075 T6) and 0.2 mm, 0.5 mm and 1.0 mm slots (0.008 in, 0.020 in and 0.040 in).

(b) Preparation.
For example, using a Hocking Locator:

1 Connect 200 kHz to 500 kHz shielded probe and select 200 kHz to 500 kHz operating frequency.

2 Select 'Al/Mg'.

3 Train probe on aluminium test block.

4 Set 'zero'.

5 Set sensitivity to give a deflection of 60% from the 0.5 mm slot in the test piece.

6 Ensure deflection from the 1 mm slot is greater than 100%.

7 Set alarm to 60%.

(c) Inspection — Pre-Mod N663

1 Train probe on skin adjacent to lightening hole away from any edge or fastener effect.

2 Scan around all fasteners in the web and doubler and along the spar caps (Ref Fig 1, 2 and 3).

3 Scan around the outside of the lightening hole (Ref Fig 1, 2 and 3).

4 Cracks will be indicated by a sharp upscale needle movement and an alarm signal.

NOTE

- Ensure needle does not move below zero.
- Re-zero the instrument whenever necessary.

(d) Inspection — Post-Mod N663.

1 Train probe on skin adjacent to access hole away from any edge or fastener effect.

2 Scan around the outside of the access hole.

3 Cracks will be indicated by a sharp upscale needle movement and an alarm signal.

NOTE

- Ensure needle does not move below zero.
- Re-zero the instrument whenever necessary.

(e) This inspection procedure is to be performed by:

1 a person with level 2 or level 3, MIL–STD–410D or AS3669 approval, or

2 a person holding eddy current NDT approval from the appropriate airworthiness authority specifically authorised to perform the inspection of this Service Bulletin.

(f) Repair any cracking in accordance with ASTA Defence approved repair schemes. Contact ASTA Defence as necessary.

(4) Reassembly.

(a) Post-Mod N663 — Re-install access plate PN 1/N–30–288 over spar centre section lightening hole. Ensure countersunk washers PN MS21299–C3 are fitted under bolt heads. Wet assemble using sealing compound PR 1422B or equivalent (Ref SRM Chap 51–30–00 and 51–50–00). Torque tighten bolts to 20 – 25 lb in.

(b) Pre-Mod N663 — If De-ice system is fitted:

1 Install PN NAS682A08 anchor nuts at existing rivet holes on de-ice plumbing support bracket using PN MS20426AD3 rivets (rivet holes may be enlarged to 0.165 in dia).

2 Re-install de-ice plumbing support brackets using PN MS35206–242 screws (4) (attachment holes in spar web may be enlarged to 0.165 in dia).

(c) If Mod N568 was fitted, or if De-ice system is fitted, re-balance horizontal stabiliser (Ref SRM Chap 55–10–00).

(d) Install horizontal stabiliser (Ref MM Chap 55–20–00). Inspect the horizontal stabiliser pivot bearing and bolt for proper fit and smooth operation. Any binding of the bearing or bearing free play is cause for rejection.

(5) Engine Ground Running Warning Decal.

Install in a suitable position in full view of the pilot a locally made placard stating:

ENGINE GROUND RUNNING TO BE CONDUCTED WITH: 1. FLAPS SET AT 0° 2. CONTROL COLUMN HELD FIRMLY AGAINST FORWARD HORIZONTAL STABILISER CONTROL STOPS 3. HORIZONTAL STABILISER GUST LOCK REMOVED

B. Part 2 — Dorsal Fin and Rear Fuselage Reinforcement

(1) Use modification parts kits PN ANMD–55–26–1A for N22, N22B, N22C and N22S (Pre-Mod N663); PN ANMD–55–26–1B for N24A or PN ANMD–55–26–1C for N22FP.

NOTE

- Use 3.2 mm dia or No 30 drill for 1/8 in dia rivet holes.
- Use 4.0 mm dia or No 22 drill for 5/32 in dia rivet holes.
- Damaged rivet holes may be drilled to accept the next larger size rivet.
- Wet assemble blind rivets using a suitable epoxy-polyamide primer.
- Wet assemble faying surfaces using polysulphide rubber compound PR1436–G B–4 or similar suitable alternative (Ref SRM Chap 51–30–00 and 51–50–00).
- Assembly of RH side described. LH assembly is similar unless noted.
- Deburr all fastener holes prior to final assembly.

(2) Remove the dorsal fin (Ref MM Chap 55–30–00).

(3) Manufacture a dorsal fin jig in accordance with Figure 4. Fit dorsal fin to the jig.

(4) Modification of Dorsal Fin.

(a) Installation — Gust Stop Support Bracket — Top (GSSBT).

1 Remove rivets securing the LH skin PN 1A/N–32–150 to the structure. Remove skin and retain for use as a template during reassembly.

2 Remove the following angle assemblies:
PN 1S/N–32–150 (LH), 1T/N–32–150 (RH), 1V/N–32–150 (LH), 1W/N–32–150 (RH), 1X/N–32–150 (LH), 1Y/N–32–150 (RH).
Retain angle assemblies for refitting (Ref Fig 5).

3 Remove and discard the following angle assemblies:
PN 1D/N–32–153, 1E/N–32–153 (Ref Fig 5).

4 Mark 10.5% spar with dorsal fin centre line (Ref Fig 5).

NOTE

Dorsal fin centre line is that point which is mid-way between the LH and RH dorsal fin side skins.

5 Wet assemble loosely attached anchor nuts PN MS21075–L3 to diaphragm sub-assembly PN 1/N–32–175 (Ref Fig 6).

6 With reference to Figure 7 Section E–E, locate, pilot drill 2.8 mm dia holes and pin the following items centrally on the 10.5% spar:

- Reinforcing Angle (RA) 1A/N–32–167
- Packer (P) 1E/N–32–177
- Diaphragm Sub-assy (D) 1/N–32–175

NOTE

- Ensure radius of D is a snug fit into radius of RA.
- Packer (P) may not be required. If not, use different length rivets in Para 24.

7 Transcribe dorsal fin centre line position onto D and RA.

8 Drill 6 x 3.2 mm dia holes in RA, P and D. Backdrill through existing holes in 10.5% spar. Clamp up with skin clamps.

9 Using a right angled scriber (or similar), scribe through holes on upper rib onto RA. Also interpitch additional four holes on upper rib onto RA.

10 Remove RA, P and D from the dorsal fin.

11 Drill 3.2 mm dia holes marked in Para 9.

12 Disassemble RA, P and D and deburr holes.

13 Reassemble RA, P and D to dorsal fin using skin clamps.

CAUTION

TAKE CARE THAT THE DRILL DOES NOT BREAK THROUGH SUDDENLY AND DAMAGE THE SPAR WEB WHEN DRILLING UP THROUGH RA, P, D AND THE RIB DIAPHRAGM.

14 Mark off and drill two extra 3.2 mm dia rivet holes, one each side, open up to 4 mm and deburr (Ref Fig 7 View on Arrow F).

15 Using a right angled scriber (or similar), mark off holes through spar web onto RA (Ref Fig 7 View on Arrow F).

16 Remove RA, P and D from the dorsal fin and disassemble.

17 Drill 3.2 mm dia holes marked in Para 15. Deburr holes.

18 Assemble D with GSSBT PN 1/N–32–168. Line up pilot holes in D with anchor nuts in GSSBT, ensure GSSBT is centrally positioned.

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NOTE

Exercise care to ensure GSSBT is not dislodged from its centreline position.

19 Open up pilot holes in D 4.8 mm dia to take No 10–32 bolts. Deburr the drilled holes.

20 Attach GSSBT to D with No 10–32 bolts. Screw bolts into anchor nuts on GSSBT.

21 Drill 4 x 3.2 mm dia holes in D to match the holes in GSSBT. With D clamped to GSSBT, open holes to 4 mm. Disassemble and deburr.

22 Assemble RA, P and D with GSSBT still attached and clamp together with skin pins. Ensure the pilot holes in RA and GSSBT are aligned. Drill 3.2 mm dia pilot holes. Open up to 4 mm, disassemble and deburr.

23 Wet assemble RA to spar and hold in place with skin pins. Insert 2 off Cherrymax 4–2 rivets before riveting GSSBT to RA and spar web with 4 off Cherrymax 5–3 rivets (Ref Fig 7 View on Arrow F). Insert four more Cherrymax 4–2 rivets in top row through RA and spar web.

24 Place D and P in position. Clamp assembly to structure by fitting 2 off No 10–32 bolts into anchor nuts on GSSBT. Insert 4 off Cherrymax 5–3 rivets through D into GSSBT. Rivet flanges of D to structure using 9 off MS20470AD4–4, 6 off MS20470AD5–6 and 2 off MS20470AD5–7 rivets (Ref Fig 7 Sect E–E).

25 Bolt Gust Stop Striker Block — Upper (GSSBU) PN 1/N–32–174 (N22, N22B, N22C and N22S), 1/N–32–182 (N22FP) and 1/N–32–180 (N24A) to D. Torque tighten bolts to 15–20 lb in (Ref Fig 7 Sect E–E).

(b) Installation — Gust Stop Support Bracket — Bottom (GSSBB).

1 Remove and discard angle PN 1AP/N–32–150 (Ref Fig 5).

2 Drill 12 pilot hole in channels PN 1K/N–32–167 LH and 1L/N–32–167 RH and deburr (Ref Fig 6).

3 Clamp channels PN 1K/N–32–167 LH and 1L/N–32–167 RH to top diaphragm PN 1/N–32–175 and lower diaphragm PN 1G/N–32–167 (Ref Fig 6).

NOTE

Use old skin pinned back in position to establish correct contours of channels.

4 Using a pencil, mark position of channels 1K/N–32–167 and 1L/N–32–167 on top diaphragm.

5 Remove channels LH and RH and measure distance from pencil mark to centre line of locknut on top diaphragm. Transpose this measurement onto the forward face of channels to establish position of hole for bolt PN NAS6603–4 (Ref Fig 6).

6 Clamp reinforcing plate PN 1B/N–32–167 into position and drill 3.2 mm dia pilot hole. Open up to take Bolt PN NAS6603–4. Drill rivet holes. Deburr holes and rivet reinforcing plate PN 1B/N–32–167 in position (Ref Fig 6).

7 Bolt channels PN 1K/N–32–167 LH and PN 1L/N–32–167 RH to top diaphragm PN 1/N–32–175 (Ref Fig 6).

8 Measuring from lower dorsal fin locating pin brackets (Ref Fig 8 View A), locate channel PN 1G/N–32–167 centrally in the dorsal fin.

9 Pilot drill existing Diaphragms PN 1AL/N–32–150 LH and PN 1AM/N–32–150 RH to match channel PN 1G/N–32–167 (Ref Fig 8 and 9). Deburr holes then pin channel into position.

10 Position Gust Stop Striker Block — Lower (GSSBL) PN 1/N–32–173 (all N22 variants) and 1/N–32–179 (N24A) centrally on channel PN 1G/N–32–167 (Ref Fig 9). Pilot drill 2.5 mm dia holes using a drill bush in the channel to match the holes in the GSSBL.

11 Remove the GSSBL and open up pilot holes to 4.8 mm dia. Deburr holes. Reposition GSSBL onto channel PN 1G/N–32–167.

12 Place GSSBB PN 1/N–32–169 into position (Ref Fig 9) Sect G–G) and temporarily secure with bolts PN NAS6603–3 and washers PN MS21299–C3.

13 Place diaphragm PN 1H/N–32–167 into position (Ref Fig 9). Using a scriber, mark the forward GSSBL bolt holes on diaphragm PN 1H/N–32–167. Remove diaphragm drill holes, deburr and install anchor nuts MS21069–L3.

14 Place diaphragm PN 1H/N–32–167 into position and bolt to channel 1G/N–32–167 and GSSBL with bolts PN NAS6603–3 and washers PN MS21299–C3. Torque tighten to 15–20 lb in.

15 Using GSSBB as a template, drill 5 mm dia holes into diaphragm PN 1H/N–32–167 (Ref Fig 9). Remove GSSBB and deburr holes.

16 Refit GSSBB and rivet to diaphragm PN 1H/N–32–167.

NOTE

Carefully remove spot welded stiffeners PN 1C/N–32–150 LH and 1E/N–32–150 LH to allow skin to lay flat in Para 17.

17 Using the removed LH skin as a template, drill pinning holes in skin sub–assembly PN 1A/N–32–177S/L or alternative PN 2A/N–32–177S/L to suit angles removed at paragraph B.(4)(a)2. Deburr holes then pin angles to skin sub–assembly. Open rivet holes, disassemble and deburr all holes. Reassemble angles and rivet to skin (Ref Fig 9).

18 Refit skin to structure and backdrill pilot holes through channel 1K/N–32–167 LH into skin. Open up pilot holes to 3.2 mm. Remove skin, deburr holes in skin and channel and rivet skin to structure.

19 Remove rivets securing the RH skin PN 1B/N–32–150 to the structure.

NOTE

Carefully remove spot welded stiffeners PN 1D/N–32–150 RH and 1F/N–32–150 RH to allow skin to lay flat in Para 20.

20 Using the removed skin as a template, drill pinning holes in skin sub–assembly PN 1B/N–32–177S/L or alternative PN 2B/N–32–177S/L to suit angles removed at paragraph B.(4)(a)2. Deburr holes then pin angles to skin sub–assembly. Open rivet holes, disassemble and deburr all holes. Reassemble angles and rivet to skin (Ref Fig 10).

21 Refit skin to structure and backdrill pilot holes through channel 1L/N–32–167 RH into skin. Open up pilot holes to 3.2 mm. Remove skin, deburr holes in skin and channel and rivet skin to structure.

22 Establish a measurement of 265 mm on the LH side skins (Ref Fig 8 View B). Place diaphragm PN 1M/N–32–167 LH and 1N/N–32–167 RH into position (Ref Fig 6 and 8). Drill, deburr and pin diaphragm 1M/N–32–167 RH to diaphragm PN 1H/N–32–167 at top riveting point nearest to side skin (Ref Fig 6).

23 Correctly locate diaphragms PN 1M/N–32–167 LH and 1N/N–32–167 RH (Ref Fig 6) and drill pinning holes to skin. Deburr holes. Pin diaphragms into position. Open rivet holes, deburr, then rivet diaphragms to side skins (Ref Fig 10 Note 1).

24 Correctly position channels PN 1K/N–32–167 LH and 1L/N–32–167 RH (Ref Fig 6). Drill pinning holes to side skins and to channel PN 1G/N–32–167. Deburr holes. Open holes, deburr, then rivet channels into position (Ref Fig 10 Sect D-D).

25 Rivet GSSBB into position (Ref Fig 9).

26 Torque bolts securing GSSBL to 15–20 lb in.

27 Locate and rivet Camloc springs to skins at positions shown in Figure 10.

28 Remove jig from dorsal fin.

29 Place dorsal fin in position on aircraft drill 5.2 mm dia holes in mounting angles to match screw holes in aircraft.

30 Position angle PN 1J/N–32–167 as shown in Figure 6. Clamp and pilot drill to diaphragms PN 1M/N–32–167 LH and 1N/N–32–167 RH. Remove dorsal fin from aircraft. Open holes, deburr, then rivet angle to diaphragms.

31 Drill, deburr and rivet diaphragms PN 1M/N–32–167 and 1N/N–32–167 RH to diaphragm PN 1H/N–32–167 (Ref Fig 6).

32 Install cleat PN IE/N–32–167 LH and 1F/N–32–167 RH and cleat PN 1P/N–32–167 LH and 1Q/N–32–167 RH (Ref Fig 9 Sect H–H).

(c) Remove access cover plate PN 1C/N–32–177 (Ref Fig 10) and form an 'in-situ' gasket as follows:

1 Clean inside of cover and applicable area of skin with MEK.

2 Apply FREKOTE 33 or similar release agent to the inside of the cover.

3 Apply sealing compound PR 1422B or similar (Ref SRM Chap 51–30–00 and 51–50–00) to the doubler plate. Ensure that the sealant does not foul the anchor nuts.

4 Attach cover to skin using all screws.

5 Permit sealant to cure then remove cover and remove excess sealant.

6 Use MEK to clean release agent from cover and gasket. When dry, dust gasket with talc or similar material. Replace cover.

(d) Treat bare metal surfaces with alodine and prime with epoxy primer.

(e) Aircraft with CO G372 VHF Crash Location Beacon fitted need the LH side skin re-worked to fit access door as follows:

1 Remove from old skin door frame assembly PN 1/N–82–451 with door assembly PN 1/N–82–463 attached.

2 Using the old skin as a template, mark the position of the hole.

3 Cut out hole and deburr.

4 Locate door frame assembly, with door assembly attached, into position and back drill 2.5 mm dia rivet holes through door frame assembly in to skin.

5 Remove door frame assembly and deburr holes.

6 Refit door frame assembly and wet assemble using rivets PN MS20470AD3–3 (obtain from own stock).

(f) Remove existing serial plate. Stamp new serial plate PN SD 254 with serial number and PN 1/N–32–177 where side skins 1A/N–32–177S/L and 1B/N–32–177S/L are fitted and PN 2/N–32–177 where side skins 2A/N–32–177S/L and 2B/N–32–177S/L are fitted.

(5) Modification of Rear Fuselage.

WARNING

DO NOT OPERATE FLIGHT CONTROLS WITH CONTROL COMPONENTS DISCONNECTED OR WHEN PERSONNEL ARE WORKING IN THE AREA CONCERNED. SERIOUS INJURY TO PERSONNEL OR DAMAGE TO FLIGHT CONTROL COMPONENTS AND STRUCTURE COULD OCCUR.

(a) Release rudder trim control cables (Ref MM Chap 27–21–01).

(b) Remove rudder trim control screw jack assembly and chain assembly (Ref MM Chap 27–21–03).

(c) Release rudder primary cables (Ref MM Chap 27–20–02).

CAUTION

COVER AUTO PILOT SERVO ACTUATORS TO PREVENT THE INGRESS OF SWARF.

(d) Remove crank arm from tailplane control torque shaft in rear fuselage and rework as shown in Figure 11. Alodine and epoxy prime all bare metal and re-part number crank arm 1A/N–12–427.

(e) Manufacture a LH and RH dummy attachment angle as shown in Figure 12. Use attachment angles PN 1/N–12–407 LH and 1/N–12–408 RH as patterns.

(f) Position dummy angles (Ref Fig 12 and 13) centrally over lower end of diaphragms PN 1M/N–32–167 LH and 1N/N–32–167 RH. Back mark position of two holes then drill and ream (Ref Fig 10). Fit dummy attachment angles to the dorsal fin with 4-off bolts PN NAS6603–3 (Ref Fig 20) and washers PN AN960KD10.

(g) Position the dorsal fin on the rear fuselage and temporarily secure in position with the Camloc fasteners and three screws into the leading edge skin. Reach inside the dorsal fin, and mark the area to be slotted in the rear fuselage skin to clear the LH and RH attachment angles (Ref Fig 13 Scrap View on Arrow E).

(h) Remove the dorsal fin and remove the dummy attachment angles.

(i) Slot the skin, as marked, in accordance with Figure 13. Deburr and paint.

(j) Position attachment angles PN 1/N–12–407 LH and 1/N–12–408 RH on the dorsal fin and bolt up.

(k) Refit the dorsal fin and temporarily secure with Camloc fasteners, three screws at the leading edge and at least two screws in the dorsal fin flange adjacent to each skin cut-out.

(l) Position diaphragm PN 1A/N–12–411, flange PN 1B/N–12–411 LH and flange PN 1C/N–12–411 RH (Ref Fig 13) and clamp up. Drill sufficient 2.3 mm dia pilot holes through attachment angles, flanges and diaphragm to correctly position parts.

NOTE

It may be necessary to remove rivets through fuselage skin lap joints to allow flanges to sit correctly.

(m) Pin parts in position.

(n) Drill pilot holes through angles of flanges and fuselage skin.

(o) Remove dorsal fin, diaphragm and flanges from aircraft and attachment angles from dorsal fin.

(p) On the bench, open up pilot holes in diaphragm, flanges and attachment angles for 4.8 mm rivets (Ref Fig 13) and deburr.

(q) Rivet parts together using zinc chromate primer and 4.8 mm rivets.

(r) Insert riveted assembly up through rear fuselage, place dorsal fin in position with as many fasteners as possible and attach dorsal fin to attachment angles.

(s) Pin flanges of diaphragm and angles of flanges to fuselage skin and open up pilot holes for 4.0 mm rivets.

(t) Remove dorsal fin and riveted assembly from aircraft and deburr holes.

(u) Relocate the riveted assembly in the rear fuselage, wet assemble and rivet up using 4.0 mm rivets.

(v) Fill the gap between the attachment angles and the skin with sealing compound.

(w) Remove covering from auto pilot servo actuator and vacuum all swarf and debris from rear fuselage.

(x) Refit rudder trim control screw jack assembly and chain assembly (Ref MM Chap 27–21–03).

(y) Reconnect rudder trim control cables, retension and safety lock (Ref MM Chap 27–21–01.

(z) Reconnect rudder primary cables, retension and safety lock (Ref MM Chap 27–20–02).

(aa) Fit reworked crank arm to tailplane control torque shaft using new lock nuts and split pin.

CAUTION

ENSURE THAT THE RUDDER FLIGHT CONTROL SYSTEM, THE RUDDER TRIM CONTROL SYSTEM AND THE HORIZONTAL STABILISER CONTROL SYSTEM ARE FREE FROM OBSTRUCTIONS.

(ab) Carry out flight control functional checks.

(ac) Treat any bare metal with Alodine then prime with epoxy primer. Surface finish dorsal fin and rear fuselage match existing colour scheme.

C. Part 3 — Pre-Mod N663 Horizontal Stabiliser Rework

(1) Use modification parts kit PN ANMD–55–26–2.

NOTE

- Ensure that the horizontal front spar assembly has been inspected in accordance with Alert Service Bulletin ANMD–55–31.
- Use 3.2 mm dia or No 30 drill for 1/8 in dia rivet holes.
- Use 4.0 mm dia or No 22 drill for 5/32 in dia rivet holes.
- Damaged rivet holes may be drilled to accept the next larger size rivet.
- Wet assemble blind rivets using a suitable epoxy–polyamide primer.
- Wet assemble faying surfaces using polysulphide rubber compound PR1436–G B–4 or similar suitable alternative (Ref SRM Chap 51–30–00 and 51–50–00).
- Assembly of RH side described. LH assembly is similar unless noted.
- Deburr all fastener holes prior to final assembly.

(2) Remove the dorsal fin (Ref MM Chap 55–30–00).

(3) Remove the trim tabs then remove the horizontal stabiliser (Ref MM Chap 55–20–00).

(4) Replace the Horizontal Stabiliser Leading Edge and Centre Spar as follows:

(a) Remove the tip fairings PN 1/N–30–187, mark fairings to ensure they are refitted to the same side.

(b) Remove and retain mass balance plates PN 1/N–30–130 and associated mounting hardware (Ref Fig 15).

(c) Remove all access covers.

(d) Turn the horizontal stabiliser so that the bottom skin is uppermost. Referring to note plate on jig, fit jig PN 1630–4014 picking up the mounting brackets, push rod bearings as shown in Figure 16. Drill four 4.8 mm holes in the bottom skin to match the jig and fit the four jig pins (Ref Fig 16).

(e) Turn the horizontal stabiliser so that top skin is uppermost. Ensure that the horizontal stabiliser main box structure is firmly supported and held in position.

(f) Accurately measure and record the spanwise position of the trim tab (Ref Fig 17).

(g) Ensure the two halves of the horizontal stabiliser remain rigid when the front spar is removed. Clamp a 3 m length of rigid material eg 100 mm x 50 mm piece of timber, along the trailing edge of horizontal stabiliser. Protect skin from clamp.

(h) Remove CO G18/G18–24 Airframe De-icing hardware, if fitted, and retain items except mounting Bracket PN 1C/N–72–50, for refitting.

(i) Remove all rivets attaching the leading edge skin to the main spar and ribs. Remove the skin and place aside for later refitting.

(j) Remove the rivets attaching the following leading edge ribs to the main spar: PN 1/N–30–141, 1/N–30–142, 1C/N–30–121 (2 off) and 1D/N–30–121 (2 off). Identify and retain all ribs for later refitting with the exception of the rib at BL 6.04.

(k) Remove leading edge mass balance weights and any associated plates located between the two outboard ribs. Retain for refitting.

(l) Derivet joint plates 1F/N–30–124, spar assembly and area where the forward flange of inboard slooping ribs meet the rear spar web.

(m) Release jig pins in the mounting brackets and push rod bearings. Separate sub-assembly A from jig PN 1630–4014. Remove and discard the front spar assembly PN 1/N–30–124, 2/N–30–124 or 3/N–30–124.

NOTE

Mark joint plate PN 1F/N–30–124 to ensure correct reassembly.

(n) Attach a string line to upper surface of horizontal stabiliser secured at each end to the outboard ribs. Place an identical spacer under each of the outboard ends of the string. Make string taut.

(o) Trim 0.20 in from forward face of sloping rib PN 1/N–30–199 RH and 1/N–30–200 at BL 6.0 (Ref Fig 17 Detail B). Re-part number reworked ribs as PN 1A/N–30–321 RH and 1B/N–30–321 LH.

(p) Fit jig sub-assembly A to new front spar assembly PN 4/N–30–310 using push rod bolt PN 1/N–30–300 then position new front spar into horizontal stabiliser and fit jig pins into the mounting brackets and push rod bearings. Reassemble jig sub-assembly A to jig PN 1630–0014.

(q) With string taut, ensure gap between string and horizontal stabiliser upper skin is equal along the full span of the horizontal stabiliser.

NOTE

If new joint plate PN 1F/N–30–124 is fitted, ensure 0.080 in joggle is located on lower spar cap.

(r) Back drill main spar to match with existing rivet holes in aft ribs from BL 21.35 to BL 53.35. Deburr holes and rivet into position.

(s) Rivet the leading edge ribs retained from Para (j) to the main spar and aft ribs, using rivets as shown in Figure 17, View on Arrow C and Arrow D.

(t) Fit rib angle PN 1/N–30–336 to the oblique inboard aft rib (Ref Fig 17 Detail B).

NOTE
Proceed to Para (w) where CO G18/G18–24 is NOT fitted.

(u) Install new de-icing mounting bracket tee piece PN 1/N–72–238 (Ref Service Bulletin ANMD–30–2).

(v) Refit CO G18/G18–24 Airframe De-icing hardware removed at Para (h).

(w) Position leading edge skin and pin to aft ribs and leading edge ribs. Ensure that the skin is fitted correctly. Using the skin as a template, drill required rivet holes in main spar.

(x) Locate leading edge rib PN 1B/N–30–290 (loosely attached to spar) at BL 6.04. Hold firmly in place and progressively drill and pin.

(y) Using skin pins assemble cover plate PN 1/N–30–287 with channel PN 1/N–30–309 attached (loosely attached to spar) and mark rivet holes through channel onto leading edge rib.

(z) Remove cover plate and channel, leading edge skin and leading edge rib. Drill holes marked in Para (y) in rib. Deburr all drilled holes in leading edge skin and rib.

(aa) Assemble rib to channel and then complete rib, channel and cover plate assembly to spar.

(ab) Pin leading edge skin in position and rivet using rivets as shown in Figure 17.

(ac) Install leading edge mass balance weights and any associated plates removed in Para (j).

(ad) Replace all removed rivets then remove the jig.

(5) Replace Trim Tab Hinge as follows:

(a) Remove the upper trim tab mass balance fairing PN 1/N–30–221 at BL 69.35. Retain fairing and mounting hardware.

(b) Remove rivets attaching the hinge to the horizontal stabiliser. Remove hinge.

(c) Assemble a new hinge PN 1/N–30–326 into dummy hinge jig (part of jig PN 1630–0014).

(d) With reference to the measurements taken in Para (f), push hinge PN 1/N–30–326 RH into position between the rear spar and the upper skin. Ensure jig butts up to horizontal stabiliser rear spar (Ref Fig 18).

NOTE
When fitting the trim tabs ensure that a clearance of between 0.15 and 0.18 in exists between the outboard end of the tab and the stabiliser (Ref Service Bulletin NMD-55-12 Sect 2.B(1) Note 1 and Fig 19).

(e) Using the skin as a template and starting at the inboard end, drill 3.2 mm dia holes, deburr and progressively pin the hinge.

(f) Commencing at the inboard end, rivet the hinge to the skin and rear spar using rivets identified in Figure 17. If oversize rivets are required use CR3243–4–2 and/or CR3243–4–3 rivets. Position and rivet anchor nut for trim tab mass balance fairing screw.

(g) Remove the hinge pin and trim tab hinge jig.

(6) Fit Trim Tab Mass Balance Weight Fairing To Bottom Skin as follows:

(a) Remove existing rivets in seven places (Ref Fig 17 Detail E).

(b) On the bottom skin at BL 67.60, position the doubler plate PN 1A/N–30–322 RH and 1B/N–30–322 LH and, using the doubler plate as a template, mark the position for the cut–out. Cut out the bottom skin as marked ensuring that the cut-out is positioned symmetrically about the mass balance weight (Ref Fig 17 Detail E).

(c) Pin the doubler plate in position with the 3.3 mm dia hole to the front. Using the doubler plate as a template, drill remaining rivet holes. Remove plate and deburr holes.

(d) Strip paint from area to be covered by doubler plate PN 1A/N–30–322.

(e) With reference to the Assembly Notes, rivet the doubler plate to the skin using rivets as shown in Figure 17.

(f) Position the mass balance fairing PN 1/N–30–323 and mark area to be trimmed to clear rivet head (Ref Fig 17 Detail E). Using a file, trim marked area from fairing.

(g) Pin the fairing in position and, using the fairing as a template, drill the remaining rivet holes. Deburr holes. Wet assemble and rivet fairing in position using rivets identified in Figure 17 Detail E.

(7) Remove the hinge pin and place the trim tab aside. Refer to Fig 19 and drill out the two rivets attaching reinforcing plate PN 1AC/N–30–231 to the skin. Rivet new reinforcing plate to skin and drill a 3/32 in dia hole in the top skin and plate as shown.

(8) Stamp serial plate PN SD 338 with horizontal stabiliser S/N and PN 4/N–30–324. Position and rivet to the mass balance arm (Ref Fig 15).

(9) Vacuum all swarf from internal areas of horizontal stabiliser.

(10) Refit tip fairings PN 1/N–30–187 using rivets PN CR1984–4–4. Refit all access covers.

NOTE

- Where rivet holes are oversize, due to rivets spinning, use repair fasteners PN CR91484–5–2 only when the following minimum edge distances prevail:
  Glass fibre (Tip fairing) $E/D \geq 0.33$ in
  Metal support structure (Tailplane) $E/D \geq 0.25$ in
- Where the hole diameter is ≤ 0.132 in, nominal size rivets should be used, i.e. CR91484–4–2 or CR1984–4–4 (alt).

(11) Treat any bare metal with Alodine then prime with epoxy primer. Surface finish horizontal stabiliser to match existing colour scheme.

(12) Support the trim tab and install a new hinge pin PN 1B/N–30–232. Engage the bent over end of the hinge pin in the locating hole in the horizontal stabiliser trailing edge (Ref Fig 19).

(13) Temporarily connect the trim tab control rod to the trim tab.

(14) Weigh the horizontal stabiliser and carry out a static balance check (Ref Table 1). Refer to Figure 15 for details of mass balance weights fitment.

NOTE

The static balance may be carried out on the aircraft, after Para (b), if balance fixture PN 1600–0003 is not available.

Table 1 Horizontal Stabiliser Weight Details

Horizontal Stabiliser Configuration	Weight of Balanced Horizontal Stabiliser		Total Weight of Mass Balance	
	lb	kg	lb	kg
Standard (i.e. 2 coats of polyurethane or acrylic paint)	158.8 ±3.1	72.0 ±1.4	18.8 ±0.95	8.2 ±0.43
Standard plus option G18 (de-icing boots)	162.0 ±3.1	73.9 ±1.4	15.4 ±0.95	7.0 ±0.43
Standard plus option R18A (military de-icing kit)	162.3 ±3.1	73.6 ±1.4	17.4 ±0.95	7.9 ±0.43
Standard plus option R18B (military de-icing kit)	161.0 ±3.1	73.0 ±1.4	17.9 ±0.95	8.1 ±0.43

NOTE

Standard tailplanes fitted with CO G288, Static Discharge Wicks, are allowed a total weight of 0.7 kg above that listed in Table 1. The mass balance must be within the limits listed for the respective tailplane configuration.

(15) Install horizontal stabiliser (Ref MM Chap 55–20–00).

(a) Install the shouldered bolts, washers and nuts (Ref Fig 20 Scrap View on Arrow D).

(b) Torque tighten nuts to 30–40 lb in. Check that the horizontal stabiliser moves freely. Drill bolts and install split pins.

(c) Connect the bonding lead from the fin to the horizontal stabiliser (Ref Fig 20 Scrap View on Arrow D).

(d) Connect the bonding lead between the tailplane push rod and the horizontal stabiliser. Secure bonding lead to push rod (Ref Fig 20 Sect C–C).

(e) Connect the tailplane push rod to the horizontal stabiliser, fitting the washer and spacer as shown in Figure 20 Sect C–C. Torque tighten the tailplane push rod bolt to 95–110 lb in.

(f) Drill a 1/16 hole through the mass balance arm at 0.25 in forward of the edge of the tail plane push rod bolt access hole. Treat any bare metal with alodine, then prime with epoxy primer.

(g) Lockwire the bolt head to the mass balance arm using lock wire PN MS20995-C32 (alt: MS20995-N32) (Ref Fig 20 Sect C-C). Fit the blanking grommet.

(h) Remove the lifting sling.

(16) Rig the horizontal stabiliser as follows:

(a) The rigging described below assumes that as only the horizontal stabiliser has been removed, the basic aircraft rigging should be unchanged. If further rigging information is required, refer to Maintenance Manual Chapter 27–40–00.

(b) Fit rigging pin PN 1/N–88–82 through the structure and control quadrant as shown in Figure 21. If the rigging pin cannot be fitted, refer to Maintenance Manual Chapter 27–40–00.

(c) Place the rigging bar PN 1/N–88–240 (N22, N22B, N22C and N22S), 1/N–88–262 (N22FP) and 1/N–88–261 N24A) at the -3° (N22, N22B, N22C and N22S), -3.5° (N22FP) and -1° (N24A) position on the extended shaft of the horizontal stabiliser push rod bolt.

(d) Align the rigging point pick-up on the bottom of the rigging bar with the locating hole in the rigging bracket at sta 424.65 (N22 variants) and sta 469.65 (N24A) (Ref Fig 21).

(e) If it is not possible to align the holes, remove the rigging bar. Support the horizontal stabiliser and disconnect the control rod at the connection to the torque shaft crank.

(f) Adjust the control rod until it is possible to fit the rigging bar, at the -3° (N22, N22B, N22C and N22S), -3.5° (N22FP) and -1° (N24A) position, between the extended shaft and the rigging bracket. Install a 1/4 in dia nut and bolt through the rigging point pick-up, on the rigging bar, and the rigging bracket and a 1/4 in dia nut on the extended shaft.

(g) Rigging line may be painted on the LH side of the stub fin to coincide with rigged neutral position. Use horizontal stabiliser lower skin at the rear spar as datum.

(h) Remove the rigging pin from the horizontal stabiliser quadrant and the rigging bar from the horizontal stabiliser.

CAUTION

ENSURE THAT THE HORIZONTAL STABILISER CONTROL SYSTEM IS FREE FROM OBSTRUCTION.

(i) Move the control column back until it is possible to align the rigging bar at the -18° (all N22 variants) and -16° (N24A) position between the extended shaft and the rigging bracket. Using a 1/4 in dia bolt and nut, bolt the rigging pick-up point to the rigging bracket and fit a 1/4 in dia nut to the extended shaft.

(j) Adjust the lower gust stop on the horizontal stabiliser until it just contacts the stop assembly on the rigging bar. Torque tighten the locknut to 95-110 lb in.

(k) Install witness marking plate PN 1/N-12-431 using rivets PN CCR274SS-3-2 as shown in Figure 21.

(l) Remove the rigging bar and re-fit it to the extended shaft at the +8° (N22, N22B, N22C and N22S), +4° (N22FP) and +10° (N24A) position. Move the control column forward until the rigging pick-up point, on the rigging bar, and the hole in the rigging bracket are aligned. Using a 1/4 in dia bolt and nut, bolt the rigging pick-up point to the rigging bracket and fit a 1/4 in dia nut to the extended shaft.

(m) Adjust the upper gust stop on the horizontal stabiliser until it just contacts the stop assembly on the rigging bar. Torque tighten the locknut to 95-110 lb in.

(n) Install witness marking plate PN 1/N-12-431 using rivets PN CCR274SS-3-2 as shown in Figure 21.

(o) Adjust the trim tab control rod length so that when connected to the trim tab, a dimension of 0.63 in ±0.05 in (N22, N22B, N22C, N22S and N24A) and 0.63 ±0.12 in (N22FP) is obtained between the trailing edge of the horizontal stabiliser and the trim tab (Ref MM Chap 27–00–00 Fig 1). After adjustment, check that the end fitting is 'in safety' then tighten the locknut. Reconnect the rod to the trim tab with the bolt head on the outboard face, torque tighten nut to 20–25 lb in and install split pin (Ref Fig 14). Check that the clearance between the bolt and slot in the spar is 0.025 in minimum; if necessary, relieve the spar cut-out to achieve the minimum clearance required.

(p) Remove the rigging bar.

(q) Ensure that the tailplane push rod end is 'in safety' and that the locknut is torque tightened to 270–300 lb in.

(r) Ensure all rigging tools have been removed.

CAUTION

ENSURE THAT THE HORIZONTAL STABILISER CONTROL SYSTEM IS FREE FROM OBSTRUCTION.

(17) Operate the horizontal stabiliser and check for full and free movement.

(18) Carry out a break-out check (Ref MM Chap 27–40–00).

(19) Perform a dual inspection of the horizontal stabiliser and pitch trim systems.

(20) Install dorsal fin (Ref MM Chap 55–30–00).

(a) Check that the horizontal stabiliser is within ± 3/16 in of the witness marking plates PN 1/N-12-431 when horizontal stabiliser gust damper contacts the gust stop support brackets in the dorsal fin. If these limits are exceeded, gain access to the horizontal stabiliser gust stop through the access doors in the dorsal fin, and adjust the upper and/or lower gust stops so that the horizontal stabiliser is within 3/16 in of the witness marking plates when the gust stops contact the stop brackets in the stub fin. Torque tighten the locknuts to 95-110 lb in.

D. Part 4 — Post-Mod N663 Horizontal Stabiliser Rework — Mod 768

(1) Use modification parts kit PN ANMD–55–26–3.

NOTE

- Use 3.2 mm dia or No 30 drill for 1/8 in dia rivet holes.
- Use 4.0 mm dia or No 22 drill for 5/32 in dia rivet holes.
- Damaged rivet holes may be drilled to accept the next larger size rivet.
- Wet assemble blind rivets using a suitable epoxy-polyamide primer.
- Wet assemble faying surfaces using polysulphide rubber compound PR1436–G B–4 or similar suitable alternative (Ref SRM Chap 51–30–00 and 51–50–00).
- Deburr all fastener holes prior to final assembly.

(2) Remove the dorsal fin (Ref MM Chap 55–30–00).

(3) Remove the horizontal stabiliser (Ref MM Chap 55–20–00). Support the horizontal stabiliser on trestles.

(4) Carry out an inspection in accordance with Part 1 (Ref Para A.) of this service bulletin before commencing Mod N768 rework.

(5) Disconnect rods to the trim tabs (Ref Fig 14).

(6) Supporting the trim tab, remove hinge pins PN 1/N–30–232 and place the trim tabs aside for later refitting.

(7) Remove access covers.

(8) Carefully derivet and remove closing pieces PN 1AA/N–30–231 RH and 1AB/N–30–231 LH and angles PN 1V/N–30–231 RH top, 1W/N–30–231 LH top, 1X/N–30–231 RH bottom, 1Y/N–30–231 LH bottom, 1A/N–30–231 RH, 1B/N–30–231 LH, 1C/N–30–231 RH and 1D/N–30–231 LH. Retain for refitting.

(9) Carefully derivet and remove sloping (inboard) ribs PN 1A/N–30–321 RH and 1B/N–30–321 LH complete with diaphragms attached. Derivet and remove gust stop lug PN 1/N–30–188.

(10) Assemble the drilling tool (part of special jig PN1630–3509) into pivot brackets. Drill tooling holes through aft doubler plate and spar web. Deburr holes when parts are removed.

(11) Remove horizontal stabiliser pivot bracket assemblies PN 1/N–30–281.

(12) Derivet, remove and scrap rib angles PN 1/N–30–307. Wet assemble and rivet new rib angles PN 1/N–30–336 to each sloping rib (Ref Fig 17 Detail B).

(13) Identify front spar aft doubler plate PN 1/N–30–285 orientation then carefully derivet and remove. Derivet and remove electrical bonding angle PN 1/N–30–327. Retain doubler plate for use as a template then scrap. Scrap electrical bonding angle.

(14) Fit new pivot brackets PN 1/N–30–332 and spar web insert PN 1/N–30–335 into special jig PN 1630–3509 locating raised boss towards pivot locaters. Ensuring correct orientation, place old doubler plate on top of spar web insert and locate centrally over access hole align tooling pins with tooling holes drilled in Para (10)(Ref Fig 22).

(15) Drill all rivet holes in spar web insert by backdrilling through old doubler and pilot drill 16 off pivot bracket attachment holes using a 1/4 in dia drill bush. Remove parts from jig and deburr.

(16) Locate new pivot bracket assemblies PN 1/N–30–332 and spar web insert PN 1/N–30–335 into special jig PN 1630–3509 (Ref Fig 22). Open up the 16 pivot bracket attachment pilot holes drilled in Para (15) to 6.1 mm dia. Remove parts from jig and deburr.

(17) Wet assemble and rivet in place the spar web insert PN 1/N–30–335 and new electrical bonding angle PN 1/N–30–327 to front spar. Do not rivet holes required for attaching rib angles PN 1/N–30–336.

NOTE

Before assembling electrical bonding angle to spar web insert clean the mating surfaces to bare metal to ensure good electrical bonding. After assembly seal around the edges of electrical bonding angle with a suitable sealant to prevent the ingress of moisture.

(18) Temporarily fit new pivot brackets PN 1/N–30–332 to horizontal stabiliser spar web. Use two slave 1/4 in dia bolts in each pivot bracket. Open up the pivot bracket attachment bolt holes with a 1/4 in dia reamer. Remove and deburr.

(19) Wet assemble sloping ribs PN 1/N–30–199 RH and 1/N–30–200 LH and rivet to horizontal stabiliser front spar and skins.

(20) Install gust stop bracket.

(21) Wet assemble and rivet in place angles PN 1V/N–30–231 RH top, 1W/N–30–231 LH top, 1X/N–30–231 RH bottom, 1Y/N–30–231 LH bottom, 1A/N–30–231 RH, 1B/N–30–231 LH, 1C/N–30–231 RH and 1D/N–30–231 LH and closing pieces PN 1AA/N–30–231 RH and 1AB/N–30–231 LH previously removed at Para (9).

(22) Wet assemble new pivot brackets PN 1/N–30–332 to front spar with bolts PN NAS6604–10 and NAS6604–11. Place countersunk washers PN MS21299–C4 under bolt heads and flat washers PN AN960KD416 under self locking nuts PN MS21042–L4. For bolts PN NAS6604–10 only, ensure shank of bolt protrudes past bracket, a second flat washer PN AN960KD416 may be used to prevent nut binding on shank. Torque tighten to 30–45 lb in.

(23) Carry out Alert Service Bulletin ANMD–55–30.

(24) Refit trim tabs and trim tab control rods (Ref MM Chap 55–20–00, Service Bulletin NMD–55–12 Sect 2.B.(1) Note 1 and Fig 19).

(25) Derivet and remove front spar assembly and horizontal stabiliser serial plates.

(26) Stamp one serial plate PN SD338 with horizontal stabiliser S/N and PN 3/N–30–324. Stamp the second serial plate with front spar assembly S/N and PN 3/N–30–310. Rivet serial plates to upper mass balance channel (Ref Fig 15).

(27) Carry out a static balance check of the horizontal stabiliser (Ref Part 3, Table 1).

(28) Install the horizontal stabiliser using pivot bolts PN 2/N–00–969, with washers PN AN960–416 under castellated nuts PN MS17825–4 and split pins PN MS24665–153 (Ref Fig 19 and MM Chap 55–20–00).

(29) Install dorsal fin (Ref MM Chap 55–30–00).

3. MATERIALS INFORMATION

A. Part 1 — Inspection

The following list of materials is required for each horizontal stabiliser.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Parts to be obtained from operator's stock or local sources				
AN960C10	4	Washer	AN960C10	Re-use
AN960C10L	4	Washer	AN960C10L	Re-use
MS20426AD3	8	Rivet		
MS20470AD6–8	8	Rivet		Trim as required
MS20470AD6–9	8	Rivet		Trim as required

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
MS21042L3	4	Nut	MS21042L3	Discard used nuts
MS21299C3	4	Washer, csk	MS21299C3	Re-use
MS35206–242	4	Screw, 5/32 in dia		Or equivalent
NAS1303–7	4	Bolt	NAS1303–11	Discard old bolt
NAS682A–08	4	Nut, Anchor		Or equivalent
Parts removed				
	4	Braces, Machined (Mod N568)	1/N–30–250	Scrap

B. Part 2 — Dorsal Fin and Rear Fuselage Reinforcement

(1) Modification parts kit PN ANMD–55–26–1A is to be used on Pre-Mod N663 N22, N22B, N22C and N22S aircraft.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit PN ANMD–55–26–1A				
AN960KD10	4	Washer, No 10 size bolt		
CR3523–4–2	6	Rivet, Cherrymax		
CR3523–5–2	2	Rivet, Cherrymax		
CR3523–5–3	8	Rivet, Cherrymax		
CR3523–6–3	4	Rivet, Cherrymax		
MS20426AD3–3	20	Rivet, 100° csk hd		
MS20426AD3–4	20	Rivet, 100° csk hd		
MS20426AD3–5	10	Rivet, 100° csk hd		
MS20426AD4-4	20	Rivet, 100° csk hd		
MS20426AD4-5	20	Rivet, 100° csk hd		
MS20470AD3-4	35	Rivet, Universal hd		
MS20470AD4-4	380	Rivet, Universal hd		
MS20470AD4-5	10	Rivet, Universal hd		
MS20470AD5-5	20	Rivet, Universal hd		
MS20470AD5-6	10	Rivet, Universal hd		
MS20470AD5-7	5	Rivet, Universal hd		
MS20470AD6-6	10	Rivet, Universal hd		
MS20470AD6-7	10	Rivet, Universal hd		
MS20600AD4W1	6	Rivet, Blind		
MS21069–L3	2	Nut, Anchor		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
MS21299–C3	8	Washer		
NAS1097AD5-5	2	Rivet. Solid		
NAS6603–3	10	Bolt, Close tolerance		
NAS6603–4	2	Bolt, Close tolerance		
SD 254	1	Plate, Modification and serial	SD 254	Scrap
1/N–12–407	1	Assembly, Attachment Angle, LH		
1/N–12–408	1	Assembly, Attachment Angle, RH		
1/N–32–168	1	Bracket, Gust Stop Support, Top		
1/N–32–169	1	Bracket, Gust Stop Support, Bottom		
1/N–32–173	1	Assembly, Gust Stop Striker Block, Lower		
1/N–32–174	1	Assembly, Gust Stop Striker Block, Upper		
1/N–32–175	1	Sub-assembly, Diaphragm		
1A/N–12–411	1	Diaphragm		
1A/N–32–167	1	Angle, Reinforcing		
1A/N–32–177S/L	1	Assembly, Side Skin, LH or Altve 2A/N–32–177S/L		
1B/N–12–411	1	Flange, LH		
1B/N–32–167	2	Plate, Reinforcing		
1B/N–32–177S/L	1	Assembly, Side Skin, RH or Altve 2B/N–32–177S/L		
1C/N–12–411	1	Flange, RH		
1E/N–32–167	1	Cleat, LH		
1E/N–32–177	1	Packing		
1F/N–32–167	1	Cleat, RH		
1G/N–32–167	1	Channel WL 124.50		
1G/N–32–177	2	Strip, Reinforcing		
1H/N–32–167	1	Diaphragm		
1J/N–32–167	1	Angle		
1K/N–32–167	1	Channel, LH		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
1L/N–32–167	1	Channel, RH		
1M/N–32–167	1	Diaphragm, LH		
1N/N–32–167	1	Diaphragm, RH		
1P/N–32–167	1	Cleat, LH		
1Q/N–32–167	1	Cleat, RH		

(2) Modification parts kit PN ANMD–55–26–1B is to be used on Pre-Mod N663 N24A aircraft.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit ANMD-55-26-1B				
AN960KD10	4	Washer, No 10 size bolt		
CR3523–4–2	6	Rivet, Cherrymax		
CR3523–5–2	2	Rivet, Cherrymax		
CR3523–5–3	8	Rivet, Cherrymax		
CR3523–6–3	4	Rivet, Cherrymax		
MS20426AD3–3	20	Rivet, 100° csk hd		
MS20426AD3–4	20	Rivet, 100° csk hd		
MS20426AD3–5	10	Rivet, 100° csk hd		
MS20426AD4-4	20	Rivet, 100° csk hd		
MS20426AD4-5	20	Rivet, 100° csk hd		
MS20470AD3-4	35	Rivet, Universal hd		
MS20470AD4-4	380	Rivet, Universal hd		
MS20470AD4-5	10	Rivet, Universal hd		
MS20470AD5-5	20	Rivet, Universal hd		
MS20470AD5-6	10	Rivet, Universal hd		
MS20470AD5-7	5	Rivet, Universal hd		
MS20470AD6-6	10	Rivet, Universal hd		
MS20470AD6-7	10	Rivet, Universal hd		
MS20600AD4W1	6	Rivet, Blind		
MS21069–L3	2	Nut, Anchor		
MS21299–C3	8	Washer		
NAS1097AD5-5	2	Rivet, Solid		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
NAS6603–3	8	Bolt, Close tolerance		
NAS6603–4	2	Bolt, Close tolerance		
NAS6603–5	2	Bolt, Close tolerance		
SD 254	1	Plate, Modification and serial	SD 254	Scrap
1/N–12–407	1	Assembly, Attachment Angle, LH		
1/N–12–408	1	Assembly, Attachment Angle, RH		
1/N–32–168	1	Bracket, Gust Stop Support, Top		
1/N–32–169	1	Bracket, Gust Stop Support, Bottom		
1/N–32–175	1	Sub-assembly, Diaphragm		
1/N–32–179	1	Assembly, Gust Stop Striker Block, Lower		
1/N–32–180	1	Assembly, Gust Stop Striker Block, Upper		
1A/N–12–411	1	Diaphragm		
1A/N–32–167	1	Angle, Reinforcing		
1A/N–32–177S/L	1	Assembly, Side Skin, LH or Altve 2A/N–32–177S/L		
1B/N–12–411	1	Flange, LH		
1B/N–32–167	2	Plate, reinforcing		
1B/N–32–177S/L	1	Assembly, Side Skin, RH or Altve 2B/N–32–177S/L		
1C/N–12–411	1	Flange, RH		
1E/N–32–167	1	Cleat, LH		
1E/N–32–177	1	Packing		
1F/N–32–167	1	Cleat, RH		
1G/N–32–167	1	Channel WL 124.50		
1G/N–32–177	2	Strip, Reinforcing		
1H/N–32–167	1	Diaphragm		
1J/N–32–167	1	Angle		
1K/N–32–167	1	Channel, LH		
1L/N–32–167	1	Channel, RH		
1M/N–32–167	1	Diaphragm, LH		
1N/N–32–167	1	Diaphragm, RH		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
1P/N–32–167	1	Cleat, LH		
1Q/N–32–167	1	Cleat, RH		

(3) Modification parts kit PN ANMD–55–26–1C is to be used on Pre-Mod N663 N22FP (Floatmaster) aircraft.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit ANMD-55-26-1C				
AN960KD10	4	Washer, No 10 size bolt		
CR3523–4–2	6	Rivet, Cherrymax		
CR3523–5–2	2	Rivet, Cherrymax		
CR3523–5–3	8	Rivet, Cherrymax		
CR3523–6–3	4	Rivet, Cherrymax		
MS20426AD3–3	20	Rivet, 100° csk hd		
MS20426AD3–4	20	Rivet, 100° csk hd		
MS20426AD3–5	10	Rivet, 100° csk hd		
MS20426AD4-4	20	Rivet, 100° csk hd		
MS20426AD4-5	20	Rivet, 100° csk hd		
MS20470AD3-4	35	Rivet, Universal hd		
MS20470AD4-4	380	Rivet, Universal hd		
MS20470AD4-5	10	Rivet, Universal hd		
MS20470AD5-5	20	Rivet, Universal hd		
MS20470AD5-6	10	Rivet, Universal hd		
MS20470AD5-7	5	Rivet, Universal hd		
MS20470AD6-6	10	Rivet, Universal hd		
MS20470AD6-7	10	Rivet, Universal hd		
MS20600AD4W1	6	Rivet, Blind		
MS21069–L3	2	Nut, Anchor		
MS21299–C3	8	Washer		
NAS1097AD5-5	2	Rivet, Solid		
NAS6603–3	10	Bolt, Close tolerance		
NAS6603–4	2	Bolt, Close tolerance		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
SD 254	1	Plate, Modification and serial	SD 254	Scrap
1/N–12–407	1	Assembly, Attachment Angle, LH		
1/N–12–408	1	Assembly, Attachment Angle, RH		
1/N–32–168	1	Bracket, Gust Stop Support, Top		
1/N–32–169	1	Bracket, Gust Stop Support, Bottom		
1/N–32–173	1	Assembly, Gust Stop Striker Block, Lower		
1/N–32–175	1	Sub–assembly, Diaphragm		
1/N–32–182	1	Assembly, Gust Stop Striker Block, Upper		
1A/N–12–411	1	Diaphragm		
1A/N–32–167	1	Angle, Reinforcing		
1A/N–32–177S/L	1	Assembly, Side Skin, LH or Altve 2A/N–32–177S/L		
1B/N–12–411	1	Flange, LH		
1B/N–32–167	2	Plate, Reinforcing		
1B/N–32–177S/L	1	Assembly, Side Skin, RH or Altve 2B/N–32–177S/L		
1C/N–12–411	1	Flange, RH		
1E/N–32–167	1	Cleat, LH		
1E/N–32–177	1	Packing		
1F/N–32–167	1	Cleat, RH		
1G/N–32–167	1	Channel WL 124.50		
1G/N–32–177	2	Strip, Reinforcing		
1H/N–32–167	1	Diaphragm		
1J/N–32–167	1	Angle		
1K/N–32–167	1	Channel, LH		
1L/N–32–167	1	Channel, RH		
1M/N–32–167	1	Diaphragm, LH		
1N/N–32–167	1	Diaphragm, RH		
1P/N–32–167	1	Cleat, LH		
1Q/N–32–167	1	Cleat, RH		

(4) The following list of parts and their instructions apply to both N22 and N24 models and all variants.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Parts retained for re-use				
	1	Angle, LH	1S/N–32–150	Retain
	1	Angle, RH	1T/N–32–150	Retain
	1	Angle, LH	1V/N–32–150	Retain
	1	Angle, RH	1W/N–32–150	Retain
	1	Angle, LH	1X/N–32–150	Retain
	1	Angle, RH	1Y/N–32–150	Retain
Parts modified and re-identified by operator				
1A/N–12–427	1	Arm, Crank	1/N–45–1409	Rework
Parts removed				
	1	Skin, Side, LH	1A/N–32–150	Retain for use as template then scrap
	1	Angle	1AP/N–32–150	Scrap
	1	Skin, Side, RH	1B/N–32–150	Retain for use as template then scrap
	1	Angle	1D/N–32–153	Scrap
	1	Angle	1E/N–32–153	Scrap

C. Part 3 — Pre-Mod N663 Horizontal Stabiliser Rework

Modification parts kit PN ANMD–55–26–2 is to be used on all horizontal stabilisers.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit ANMD-55-26-2				
AN960–10L	1	Washer, No 10 size bolt		
AN960–416	2	Washer, 1/4 size bolt		
AN960D10	1	Washer, No 10 size bolt		
AN960KD616	1	Washer, 3/8 size bolt		
CCR274SS–3–2	4	Rivet, Cherrylock		
CR91484–4–2	88	Rivet, Cherrylock		
		Altve CR1984–4–4		
CR3213–4–2	230	Rivet, Cherrymax, uni hd		
CR3213–4–3	72	Rivet, Cherrymax, uni hd		
CR3223–4–2	20	Rivet, Cherrymax, uni hd		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
CR3243–4–2	66	Rivet, Cherrymax, uni hd o/s		
CR3243–4–3	14	Rivet, Cherrymax, uni hd o/s		
G36	1	Grommet, Blanking		
MS17825–4	2	Nut, Castellated		
MS20426AD3–4	4	Rivet, 100° csk hd		
MS2047OAD4-4	144	Rivet, Universal hd		
MS2047OAD4-5	492	Rivet, Universal hd		
MS2047OAD4-6	30	Rivet, Universal hd		
MS2047OAD5-4	12	Rivet, Universal hd		
MS2047OAD5-5	114	Rivet, Universal hd		
MS2047OAD5-6	54	Rivet, Universal hd		
MS20995-C32	1	Lockwire		
MS20600AD4W2	14	Rivet, Blind		
MS20600AD4W3	2	Rivet, Blind		
MS21044N4	8	Nut, Stiff		
MS21059–3	2	Nut, Anchor		
MS24665–153	4	Pin, Cotter		
MS25083–2BB7	1	Lead, Bonding, copper	MS25083–2BB4	Scrap
MS3367–1–9	2	Strap		
MS35207–263	1	Screw		
MS35338–43	1	Washer, Spring		
NAS43DD6–106	1	Spacer		
SD338	1	Plate, Serial		
1/N–12–431	2	Plate, Witness marking		
1/N–30–300	1	Bolt, Tailplane Push Rod	1/N–00–130	Scrap
1/N–30–323	2	Fairing		
1/N–30–325	1	Hinge, Trim Tab, RH		
1/N–30–326	1	Hinge, Trim Tab, LH		
1/N–30–336	2	Angle, Rib		
1A/N–30–322	1	Plate, Doubler, RH		
1AC/N–30–231	2	Plate, Reinforcing	1AC/N–30–231	Scrap
1B/N–30–322	1	Plate, Doubler, LH		
1F/N–30–124	2	Plate, Joint		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
2/N-00-969	2	Bolt, Shoulder	1/N-00-969	Use until existing stocks are finished
4/N–30–310RETRO	1	Assembly, Front Spar, Horizontal stabiliser	1/N–30–124 2/N–30–124 (Post-Mod N462) 3/N–30–124 (Post-Mod N568)	Scrap
Parts obtained from operator's stock or local source				
1/N–30–232	2	Pin, Hinge	1/N–30–232	Discard used pin
Parts retained for re-use				
	A/R	Plate, Mass balance	1/N–30–130	Retain
	1	Rib, Leading edge, LH	1/N–30–141	Retain
	1	Rib, Leading edge, RH	1/N–30–142	Retain
	2	Fairing, Tip	1/N–30–187	Identify LH and RH and retain
	2	Rib, Leading edge	1C/N–30–121	Retain
	2	Rib, Leading edge	1D/N–30–121	Retain
	21	Skin, Leading edge	2/N–30–159	Retain
Parts modified and re-identified by operator				
1A/N–30–321	1	Rib, Sloping, RH	1/N–30–199	Rework
1B/N–30–321	1	Rib, Sloping, LH	1/N–30–200	Rework

D. Part 4 — Post Mod N663 Horizontal Stabiliser Rework — Mod N768

Modification parts kit PN ANMD–55–26–3 is to be used on all Post-Mod N663 horizontal stabilisers.

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit ANMD-55-26-3				
AN960–416	2	Washer, 1/4 size bolt	AN960KD516	Scrap
AN960KD416	26	Washer, 1/4 size bolt		
MS17825–4	2	Nut, Castellated	AN310–5	Scrap
MS20470AD3–3	150	Rivet, Universal hd		
MS20470AD4–4	10	Rivet, Universal hd		
MS2047OAD4-5	14	Rivet, Universal hd		

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
MS20470AD4–6	4	Rivet, Universal hd		
MS20470AD4–7	4	Rivet, Universal hd		
MS2047OAD5-4	60	Rivet, Universal hd		
MS2047OAD5-6	4	Rivet, Universal hd		
MS2047OAD5-7	11	Rivet, Universal hd		
MS2047OAD5-8	5	Rivet, Universal hd		
MS20600AD4W2	4	Rivet, Blind		
MS21042L4	16	Nut, Self-locking		
MS21299C4	16	Washer		
MS24665–153	2	Pin, Cotter	MS24665–136	Scrap
SD338	2	Plate, Serial		
NAS6604–10	8	Bolt		
NAS6604–11	8	Bolt		
NAS6604–10X	8	Bolt, 1st oversize		
NAS6604–10Y	2	Bolt, 2nd oversize		
NAS6604–11X	8	Bolt, 1st oversize		
NAS6604–11Y	2	Bolt, 2nd oversize		
1/N–30–327	1	Angle, Electrical bonding	1/N–30–327	Scrap
1/N–30–332	2	Bracket, Pivot, assembly	1/N–30–281	Scrap
1/N–30–335/950	1	Insert, Spar web		
1/N–30–336	2	Angle, Rib	1/N–30–307	Scrap
2/N-00-969	2	Bolt, shoulder	1/N-00-969	Use until existing stocks are finished
Parts removed				
	2	Washer, csk	MS20002C5	Scrap
	2	Bolt, Close tolerance	NAS6205–21D	Scrap
	1	Plate, Doubler	1/N–30–285	Scrap
	1	Panel, Access	1/N–30–288	Scrap
		Shim, Pivot bracket	1/N–30–291	Scrap
Parts retained for re-use				
	1R	Lug	1/N–30–188	Retain
	1	Rib, Sloping, LH	1/N–30–199	Retain
	1	Rib, Sloping, RH	1/N–30–200	Retain

New Part No	Qty.	Description	Old Part No	Instruction/Disposition
	1	Angle, RH	1A/N–30–231	Retain
	1	Angle, LH	1B/N–30–231	Retain
	1	Angle, RH	1C/N–30–231	Retain
	1	Angle, Top, RH	1V/N–30–231	Retain
	1	Angle, Top, LH	1W/N–30–231	Retain
	1	Angle, Bottom, RH	1X/N–30–231	Retain
	1	Angle, Bottom, LH	1Y/N–30–231	Retain
	1	Piece, Closing, RH	1AA/N–30–231	Retain
	1	Piece, Closing, LH	1AB/N–30–231	Retain
Parts modified and re-identified by operator				
3/N–30–310	1	Assembly, Front spar	1/N–30–310	Rework
3/N–30–324	1	Assembley, Tailplane structure	1/N–30–324	Rework

4. **SPECIAL TOOLS AND EQUIPMENT**

PN 1/N-32-177 Jig, Dorsal Fin.

PN 1630–3509 Jig, Location (Mod N768)

PN 1630-4014 Jig, Horizontal Stabiliser.

PN 1/N–88–240 Bar, Rigging (N22, N22B, N22C and N22S)

PN 1/N–88–261 Bar, Rigging (N24A)

PN 1/N–88–262 Bar, Rigging (N22FP)

5. **RECORDING ACTION**

A. Part 1

Record compliance with Alert Service Bulletin ANMD–55–26 Revision 3.

Post-Mod N663 — Record compliance with Alert Service Bulletin ANMD–55–26 Revision 4.

Remove/obscure reference to Service Bulletin NMD–55–18 if it appears adjacent to horizontal stabiliser PN.

Complete Maintenance and Operations Survey and forward to ASTA Defence. Include, as necessary, illustrations which identify the location of cracks discovered during the inspection.

B. Part 2 and 3

Pre-Mod N663 — Record compliance with Service Bulletin ANMD–55–26 Rev 6 Parts 2 and 3 (Mod N663 and N768) and zero horizontal stabiliser hours in Airframe Log Book.

NOTE

Horizontal Stabiliser Main Spar hours revert back to zero on incorporation of Mod N663 and N768.

C. Part 4

Post-Mod N663 — Record compliance with Service Bulletin ANMD–55–26 Rev 6 Part 4 (Mod N663) in Airframe Log Book.

AEROSPACE TECHNOLOGIES OF AUSTRALIA
A.C.N. 008 622 008
A BOEING AUSTRALIA COMPANY

MAINTENANCE/OPERATIONS SURVEY

(Delete items which are not applicable)

Owner/Operator:_____

Aircraft Serial No: _____ Registration: _____ Model: _____

Horizontal Stabiliser Serial No: _____ Part No: _____

Type of Operation: Commuter/Military/Freight/Surveillance/Medical/Utility/
Other (Specify) _____

Total Time In Service: _____ hours. Current landings/hour rate: _____

Total Landings: _____ Maximum Previous landings/hour rate: _____

PREVIOUS REPAIR HISTORY: of spar

* Refer to SRM Chapter 55–10–00

First Repair: Web/Top Cap/Bottom Cap; at _____ TIS _____ cycles

Second Repair: Web/Top Cap/Bottom Cap; at _____ TIS _____ cycles

Third Repair: Web/Top Cap/Bottom Cap; at _____ TIS _____ cycles

* Locally approved repairs: supply details

TYPICAL OPERATIONAL HISTORY: (Estimated)

Type of Runway	**% of Operations**
Grass	_____%
Gravel	_____%
Bitumen	_____%
Other (specify)_____	_____%

TYPICAL OPERATIONAL ALTITUDES

0 to 5000 feet _____%

5000 to 10 000 feet _____%

10 000 to 15 000 feet _____%

AMOUNT OF TRAINING: _____%

GROUND ENGINE RUNNING (Estimated)

Typical Duration (each 100 hours): Total: _____ minutes

At above 50 psi torque: _____ minutes

Is gust lock installed during ground run operations? YES/NO

During ground run operations, the controls are held: Against Stops/Free of Stops

Please write, in the space below, any other important comments or remarks regarding engine ground run operations:

NOTE

Cracked spar sections are to be forwarded to ASTA Defence (Freight Collect) with complete data regarding aircraft serial number, operating hours, operating cycles and horizontal stabiliser serial number to aid ASTA Defence in its investigations.

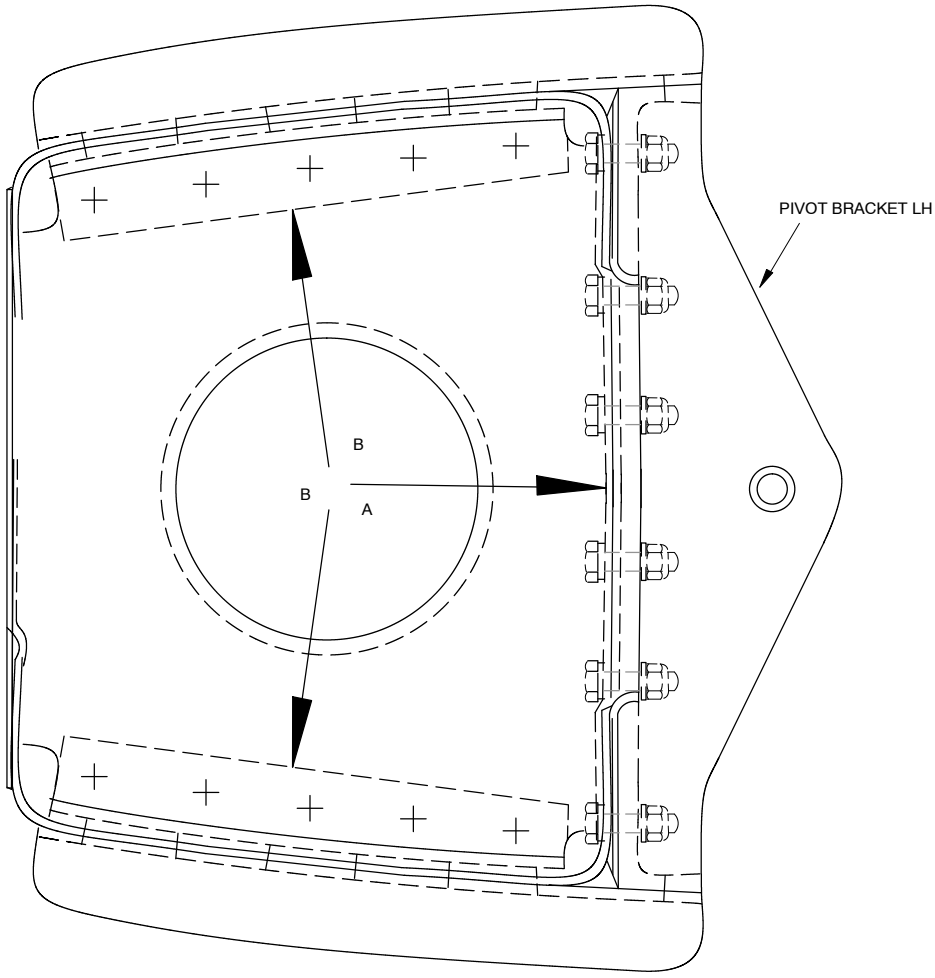
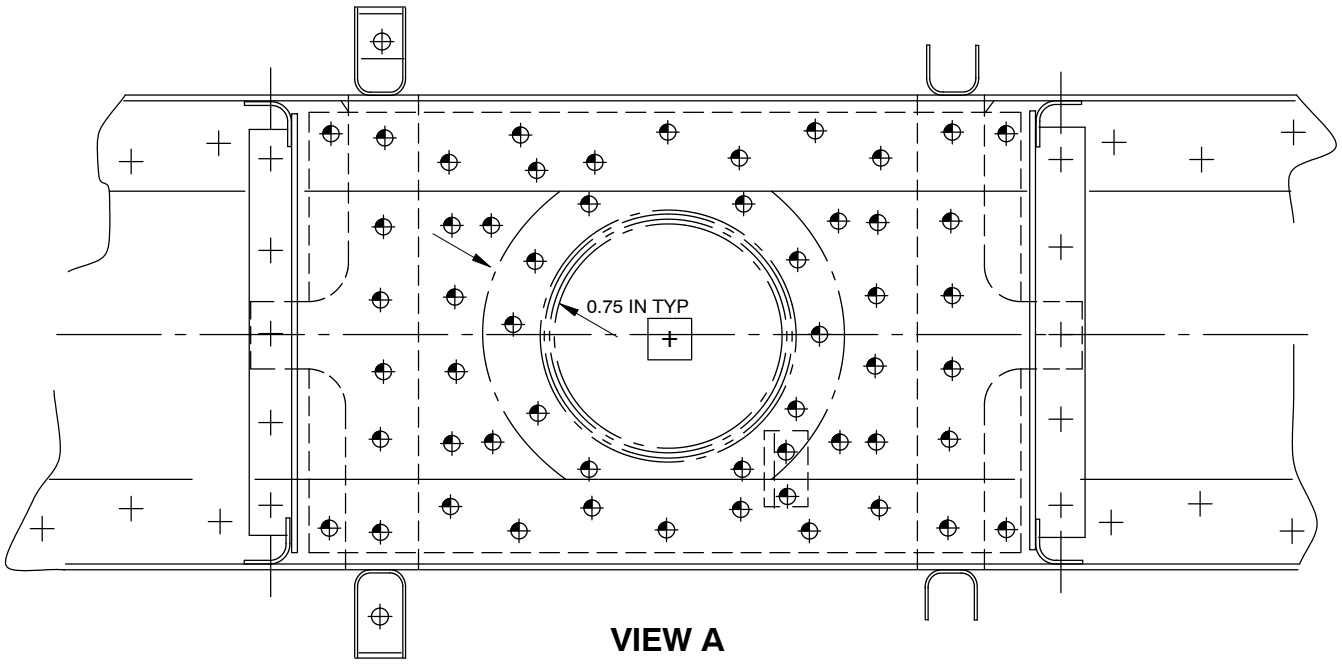


Figure 1 Cross Section of Horizontal Stabiliser Centre Section Showing Inspection Views



VIEW A

VIEW A: INTERIOR OF AFT FACE OF SPAR

- Eddy current inspect around all fasteners marked
- Eddy current inspect web and doubler area marked
- Mark locations and length of all cracks. Cracks on outer face of web shall be shown as dotted lines.

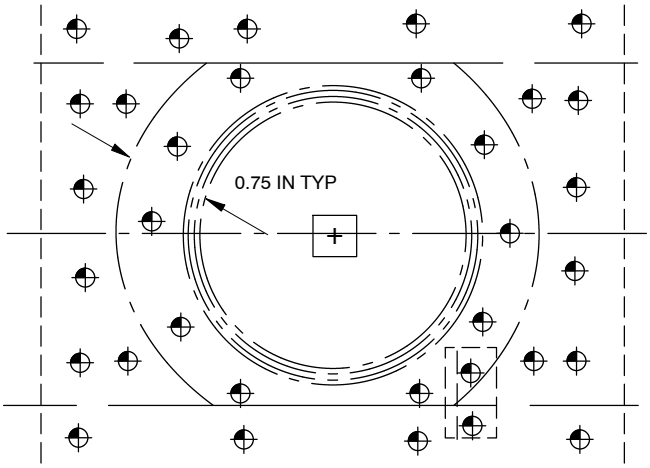
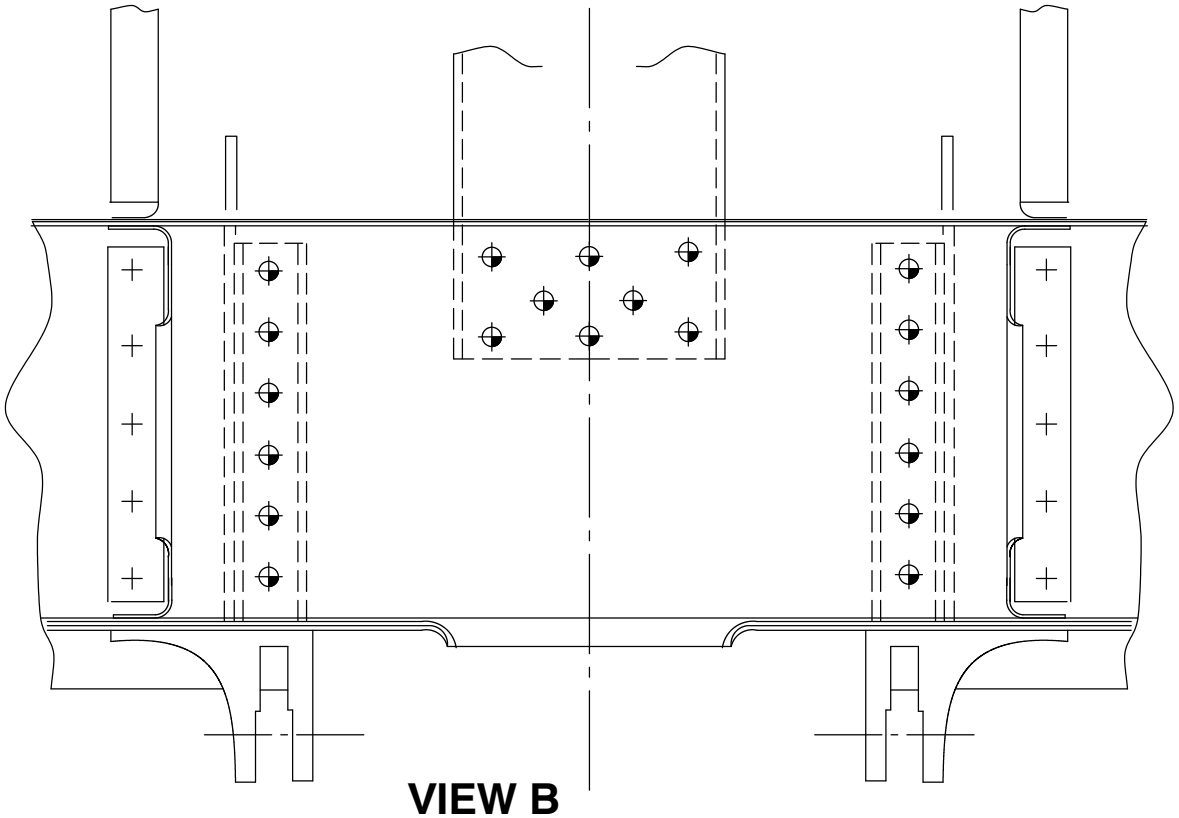


Figure 2 Spar Centre Section — Pre-Mod N663

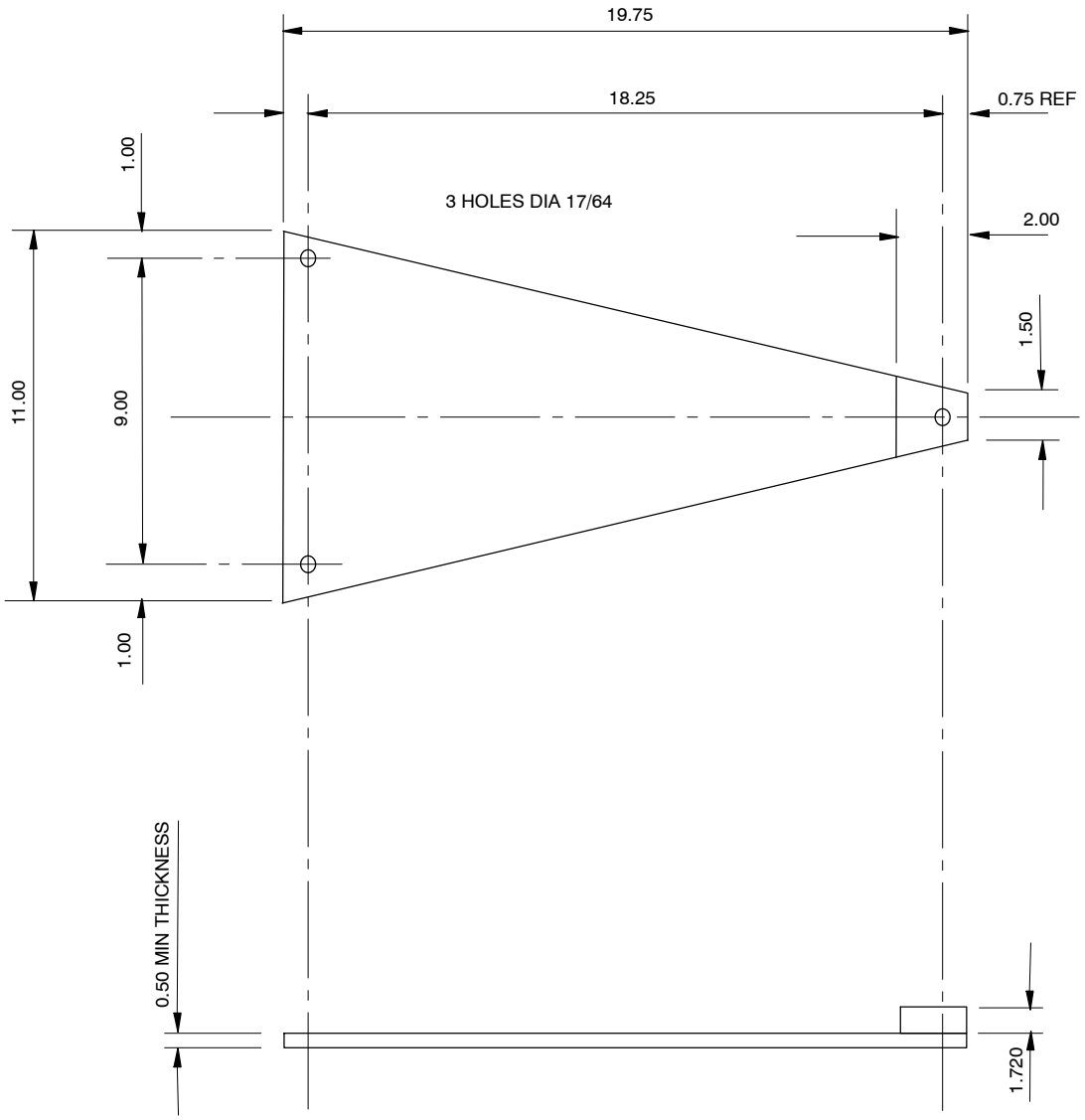


VIEW B

VIEW B: TOP/BOTTOM VIEW OF SPAR

- Eddy current inspect around all fasteners marked ⊕
- Mark locations and length of cracks. Indicate whether cracks are top or bottom of spar.

Figure 3 Spar Centre Section — Pre-Mod N663



MATERIAL: WOOD OR METAL

ALL DIMENSIONS IN INCHES

Figure 4 Dorsal Fin Jig

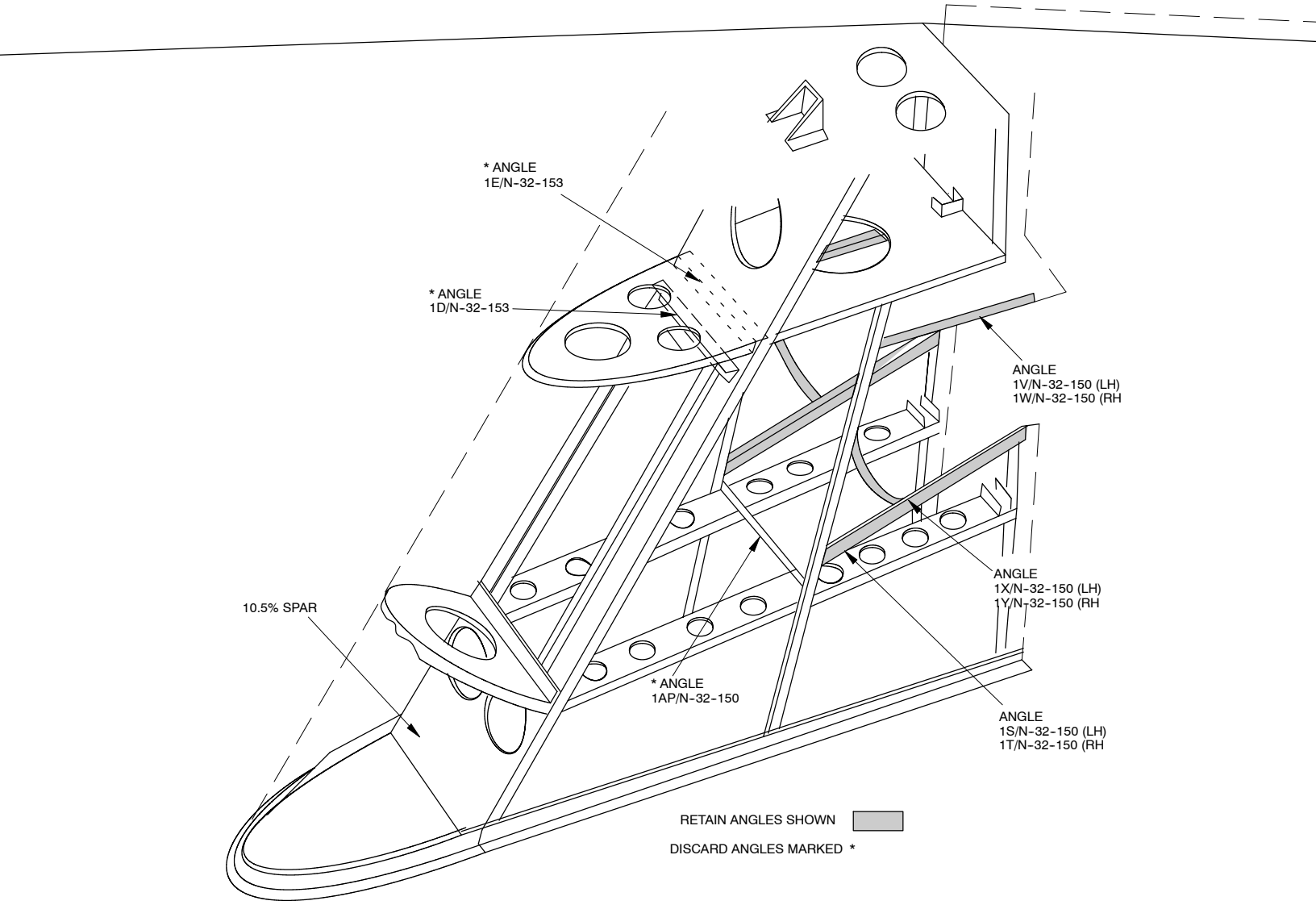


Figure 5 Dorsal Fin Internal Structure (Pre-Mod N663)

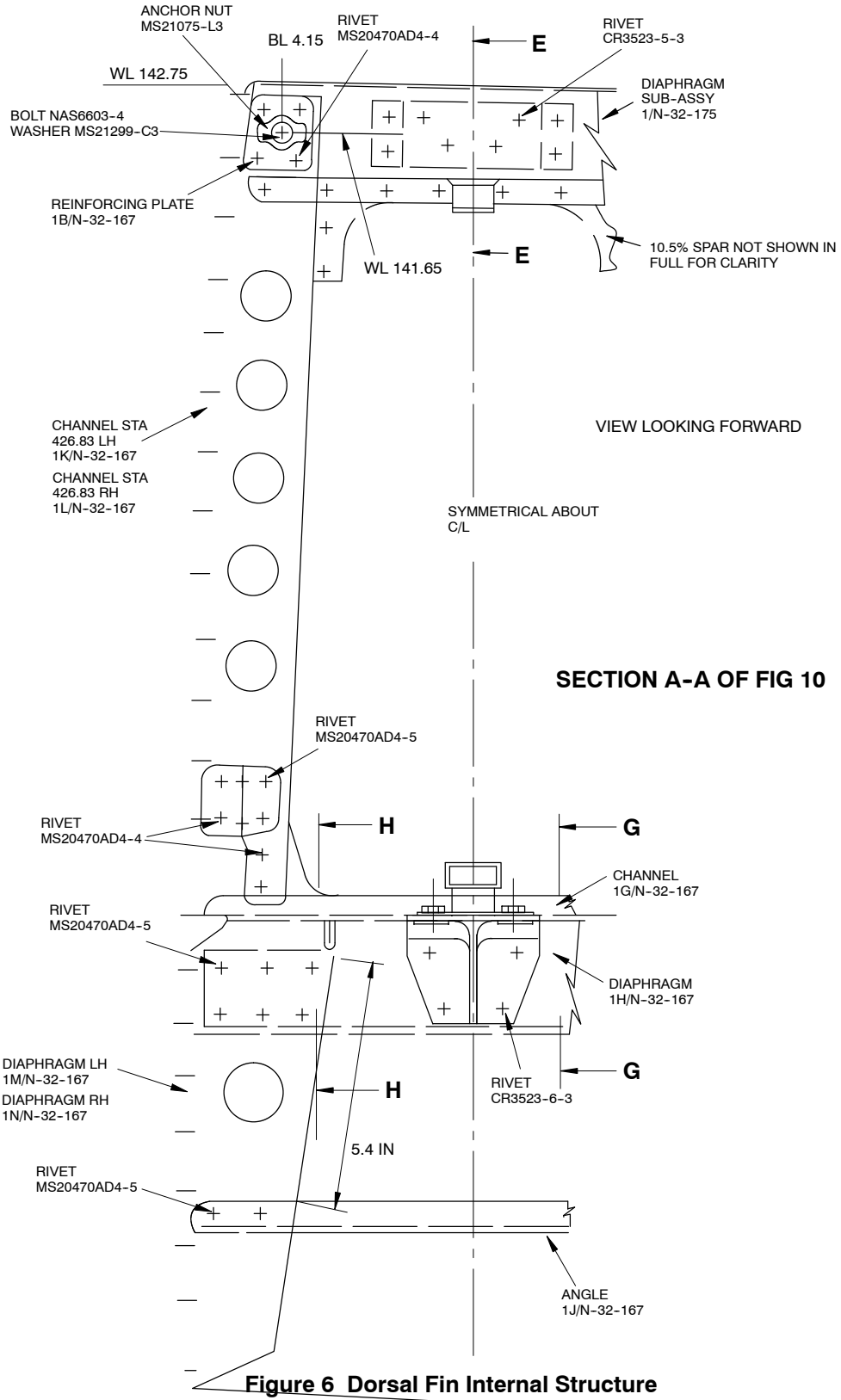


Figure 6 Dorsal Fin Internal Structure

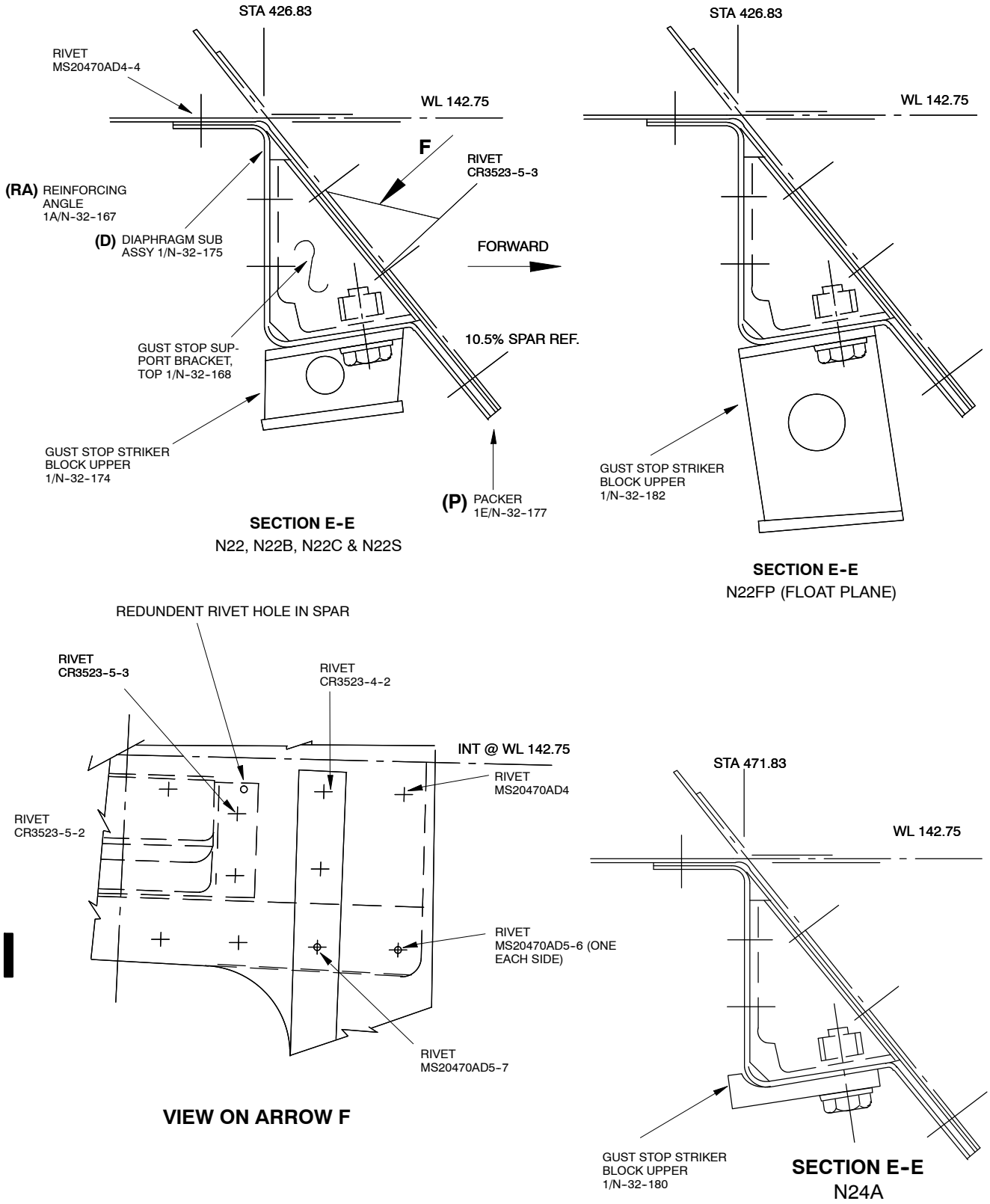


Figure 7 Gust Stop Support Bracket Assembly — Upper

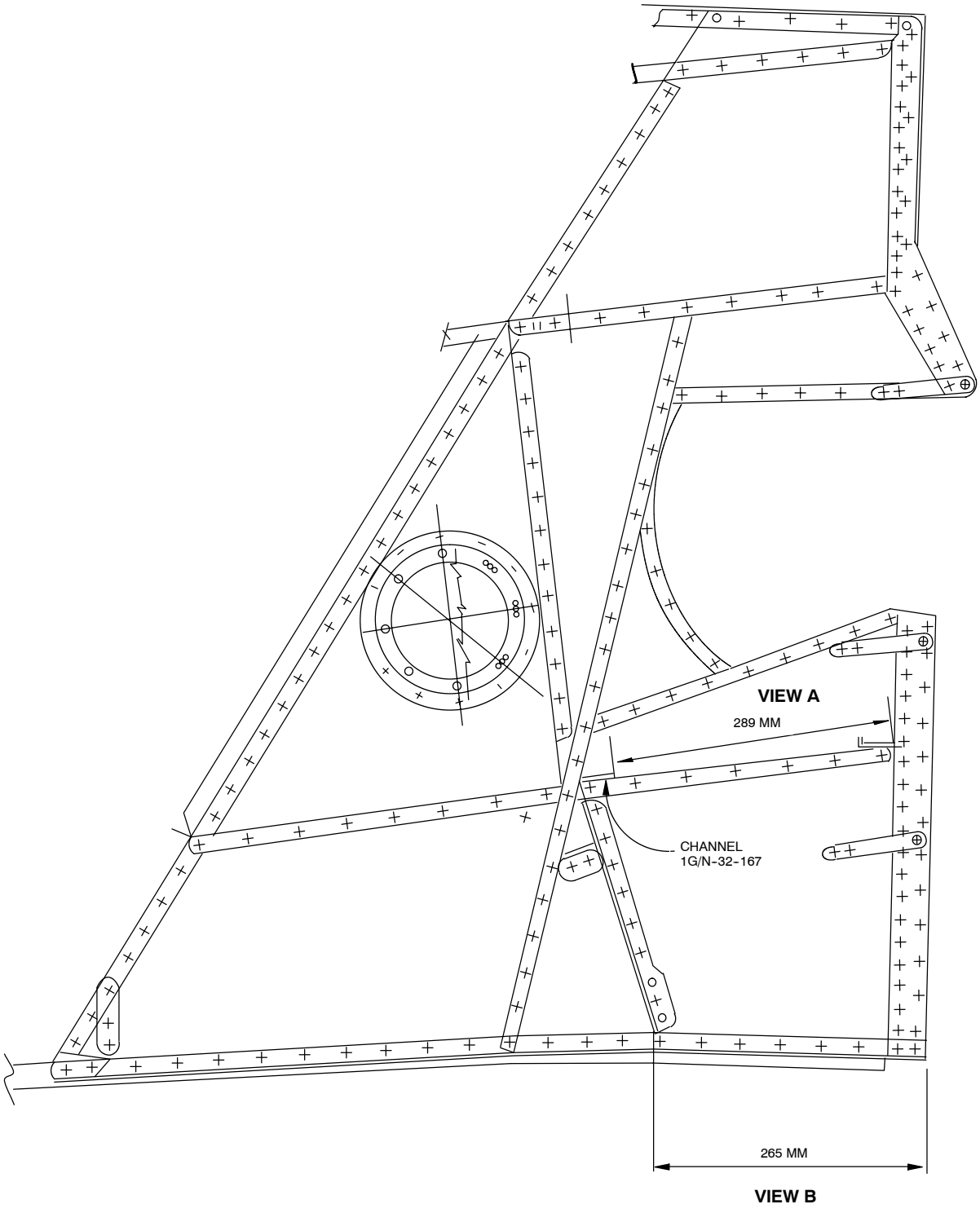


Figure 8 Diaphragm Installation

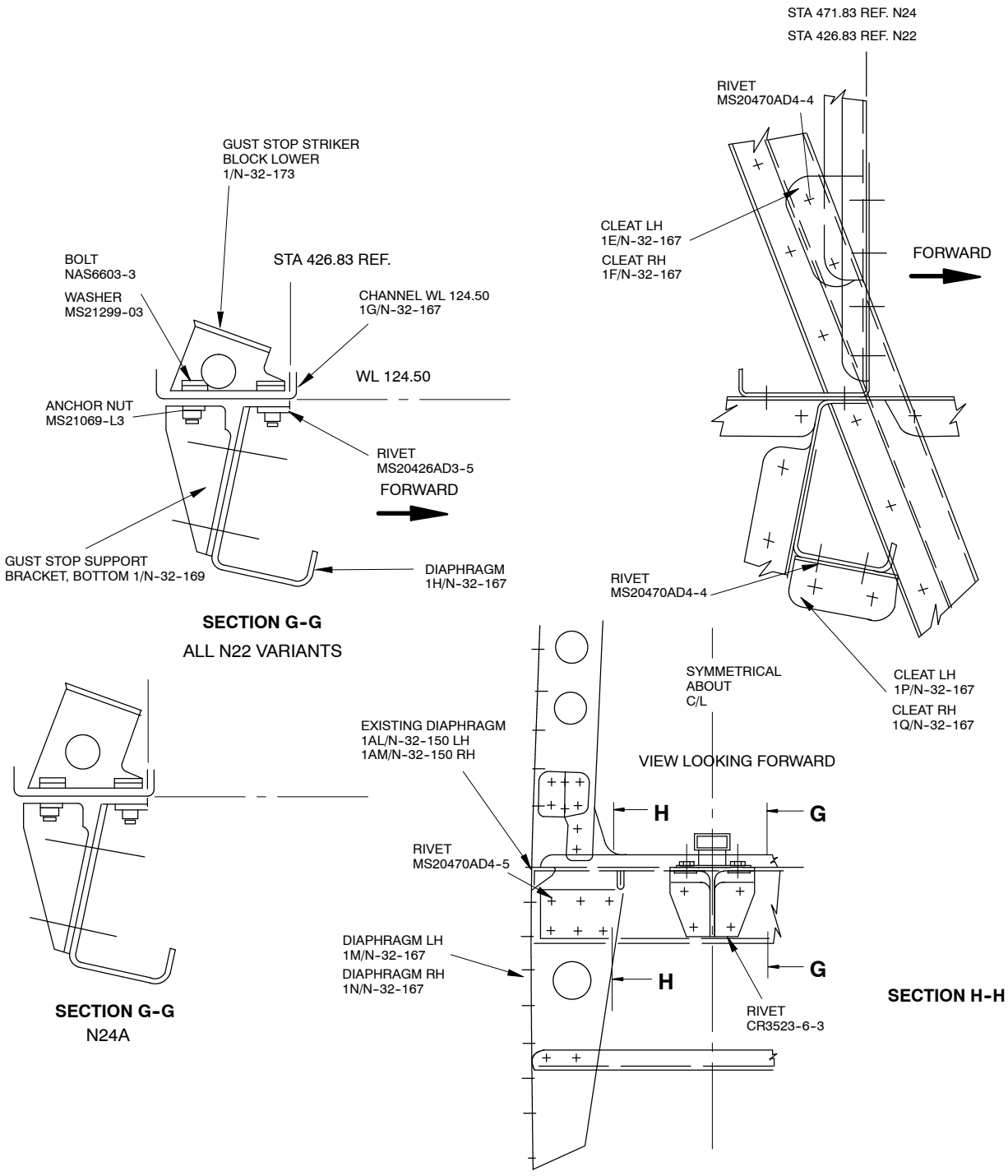


Figure 9 Channel Installation

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