

Nomad

SERVICE BULLETIN

FLIGHT CONTROLS-FITMENT OF MASS BALANCE TO RUDDER TAB

NOTE

This revision carries additional information to facilitate incorporation of the modification, and includes embodiment of Mod N361 (Alert Service Bulletin ANMD-55-6). Refer Flight Manual for current operational limits.

1. PLANNING INFORMATION

A. Effectivity

(1) Aircraft Affected

Nomad N22 and N22B aircraft:

N22-3, N22-4, N22-5, N22B-6, N22B-7, N22-8, N22-9,
N22B-11, N22B-12, N22B-13, N22B-15, N22B-16, N22-17

Affected aircraft other than those listed above will be modified prior to delivery or included in subsequent revision to this Service Bulletin.

(2) Spares Affected

New Part No	Description	Recommended Disposition
2/N-33-125	Rudder Assy	Rework
2/N-33-150	Tab	Rework

B. Reason

Tests carried out at GAF have indicated that wear and backlash which may develop in the Rudder Tab operating system during service, may erode to an unacceptable degree the flutter speed reserves which were designed into the system. The fitment of a mass balance to the Tab lifts flutter speed well above the original reserve, and fully compensates for backlash and wear developing during service.

C. Description

This Service Bulletin requires the removal of the Rudder assy from the aircraft. The Tab is removed and fitted with a Steel Mass Balance Arm. The modified Tab is refitted to the Rudder and the assembly balanced. The assembly is then fitted to the aircraft and controls rigged.

D. Compliance

To be carried out within 30 days of receipt of modification kits, in order to preserve warranty.

E. Approval

The rework described herein has been approved by the D.O.T. Designated Engineering Representative at Government Aircraft Factories.

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F. Manpower

Approximately 5 manhours and a crew of 1 man is required to carry out this modification.

G. Material, Price and Availability

The kit of Parts PN N22-27-3-1 in para 3.A. is classified "no charge" and a "no charge" purchase order is to be placed on your local distributor within 90 days to receive this offer. Distributors are to place a "no charge" Purchase Order on GAF through the normal procurement method. Purchase Orders are to quote the aircraft serial number and Service Bulletin number.

H. Tooling Price and Availability

None.

I. Weight and Balance

2.33 lbs at STN 469.17

giving a moment $1.093 \frac{\text{lb.inches}}{1000}$

1.06 Kg at Arm 11917

giving moment $12.595 \frac{\text{Kgmm}}{1000}$

J. References

Maintenance Manual Chapter 55-40-00.

K. Publications Affected

Flight Manual, Maintenance Manual and Illustrated Parts Catalogue.

2. ACCOMPLISHMENT INSTRUCTIONS

WARNING

TO AVOID INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT, MAKE CERTAIN ADEQUATE PRECAUTIONS ARE TAKEN WHILE PERFORMING ANY WORK IF ELECTRICAL POWER IS APPLIED TO THE AIRCRAFT.

CAUTION

ELECTRICALLY GROUND THE AIRCRAFT.

A. Remove the rudder from the aircraft in accordance with the maintenance manual chap. 55-40-00.

B. Remove the trim tab from the rudder as detailed in the maintenance manual chap. 55-40-00.

C. Rework of trim tab

Remove and replace the pop rivets in the tab rib at WL 110 and replace with cherry rivet NAS1738E5-1 (8 places) and NAS1738ES 2 (2 places). Refer figure 1. Relieve the hinge, and skin at tab to obtain clearance for the pivot lug 2/N-33-177 per figure 1.

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Locate the packer 1H/N-33-150 and the mass balance plate 1/N-33-178 on the bottom rib ensuring the pivot hole will be in line with the hinge centreline. Using the predrilled mass balance plate as a template, drill (.176/.180) the seven locations. The two rivet locations in the welded flange are to be filled with 1/8 pop rivets. Attach packer and mass balance by applying sealing compound PR1222 or equivalent and cherry lock rivet NAS1738MW5-4. Reidentify the trim tab as 3/N-33-150.

D. Rework of rudder

Remove 9 rivets from M rudder skin at WL110, plus 4 rivets from the vertical channel and lift skin to gain access. Remove and discard cleat 1BA/N-33-150. Fit the pivot 2/N-33-177 beneath the rib, trimming skin and hinge where necessary (refer fig. 2). Above the rib locate the cleat 1/N-33-181 picking up existing rivet locations and attach to the vertical channel using 2 each 1/8 cherry rivets NAS1738E4-1. Locate pivot lug 2/N-33-177 ensuring the threaded hole is in line with the hinge centreline and drilling 4 holes .176/.180 DIA per figure 2 and attach pivot lug with 5/32 cherry rivets NAS1738MW5-2. Shim each side between skin and pivot lug with shim ICD/N-33-130 as necessary. Replace skin using 1/8 cherry rivets NAS1738E4-1 (13 places) and NAS1738E4-2 (2 places) refer figure 2. The side skins are to be relieved by approx. .125" to give clearance between the mass balance and rudder.

E. Reassembly

Trim hinge pin IC/N-33-165 to clear pivot lug. Refit the trim tab as per the maintenance manual. Fit the threaded hinge pin I/N-33-179 from underneath and lock using split pin MS24665-132. Reidentify the rudder assy as 3/N-33-150.

F. Balancing

At the completion of the rework carry out static balance check in accordance with structural repair manual Chap 55-40-00.

G. Installation to A/C

Complete final assembly of the aircraft as per Maintenance Manual Chap 55-40-00.

Carry out system checks as per Maintenance Manual chap 27.

3. MATERIAL INFORMATION

A. Parts Required per Aircraft

(1) One each kit PN N22-27-3-1 is required per aircraft.

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New Part No	Qty	Description	Old Part No
1/N-33-155	1	Balance Weight	IBA/N-33-130
1/N-33-178	1	Mass Balance Assy	
1/N-33-179	1	Hinge Pin (Prior S/B ANMD-55-6)	
2/N-33-179	1	Hinge Pin (Post S/B AMND-55-6)	
1/N-33-181	1	Cleat	
1H/N-33-150	1	Packer	
2/N-33-177	1	Pivot Lug	
MS24665-132	1	Split Pin	
NAS1738E4-1	26	Rivet	
NAS1738E4-2	4	Rivet	
NAS1738E5-1	12	Rivet	
NAS1738MW5-2	4	Rivet	
NAS1738MW5-4	7	Rivet	
AGS2051-524BS	2	Rivet	

(2) The following parts are to be manufactured or procured from operators stock.

New Part No	Qty	Description	Old Part No
PR1222	AR	Compound	
or equivalent			
ICD/N-33-130	2	Shim-Made from Alcad Sht QQ-A-250/5 T3.032 thick 1.25 x .5 (inches)	

(3) Parts Required to Modify Spares

(a) Spare Rudder Assy PN 2/N-33-125 are to be reworked to para 2. of this Service Bulletin. The parts required to modify each Rudder Assy are the same as para 3.A.(1). After rework reidentify Rudder Assy as 3/N-33-125.

(b) Spare Tab Assy PN 2/N-33-150 are to be reworked to para 2. of this Service Bulletin. The following parts are required to modify each Tab Assy.

1 each 1/N-33-178 Mass Balance

7 each NAS1738MW5-4 Rivet

12 each NAS1738E5-1 Rivet

After rework reidentify the tab as 3/N-33-150.

B. Removed Parts

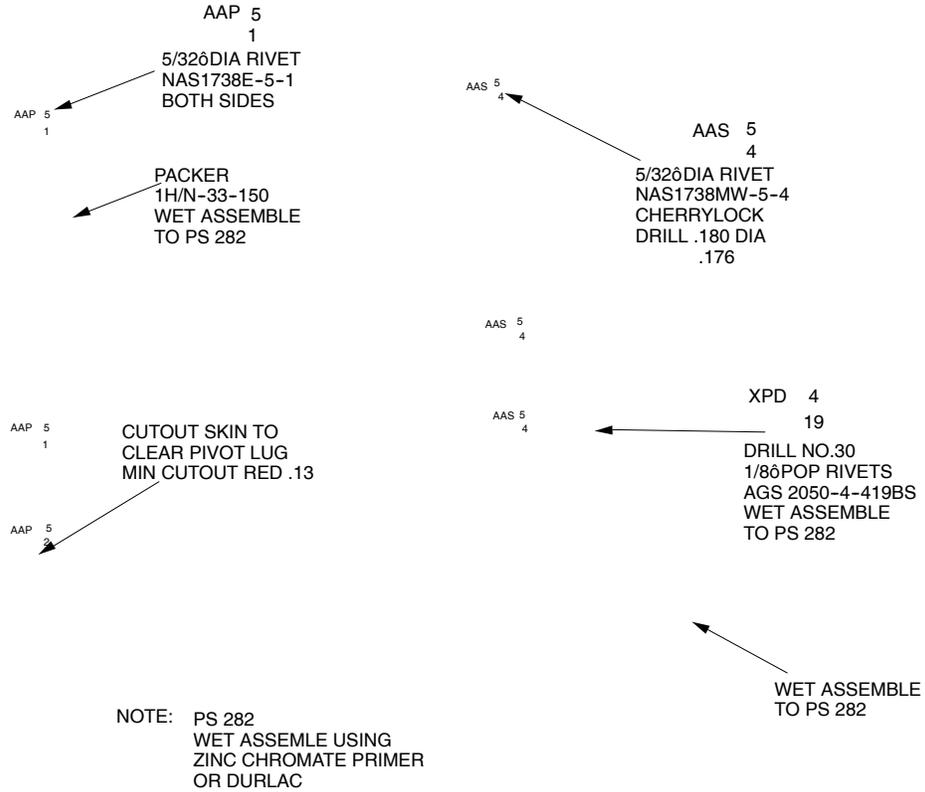
Part No	Qty	Description	Recommended Disposition
IBA/N-33-130	1	Cleat	Scrap

4. SPECIAL TOOLS AND EQUIPMENT REQUIRED.

None.

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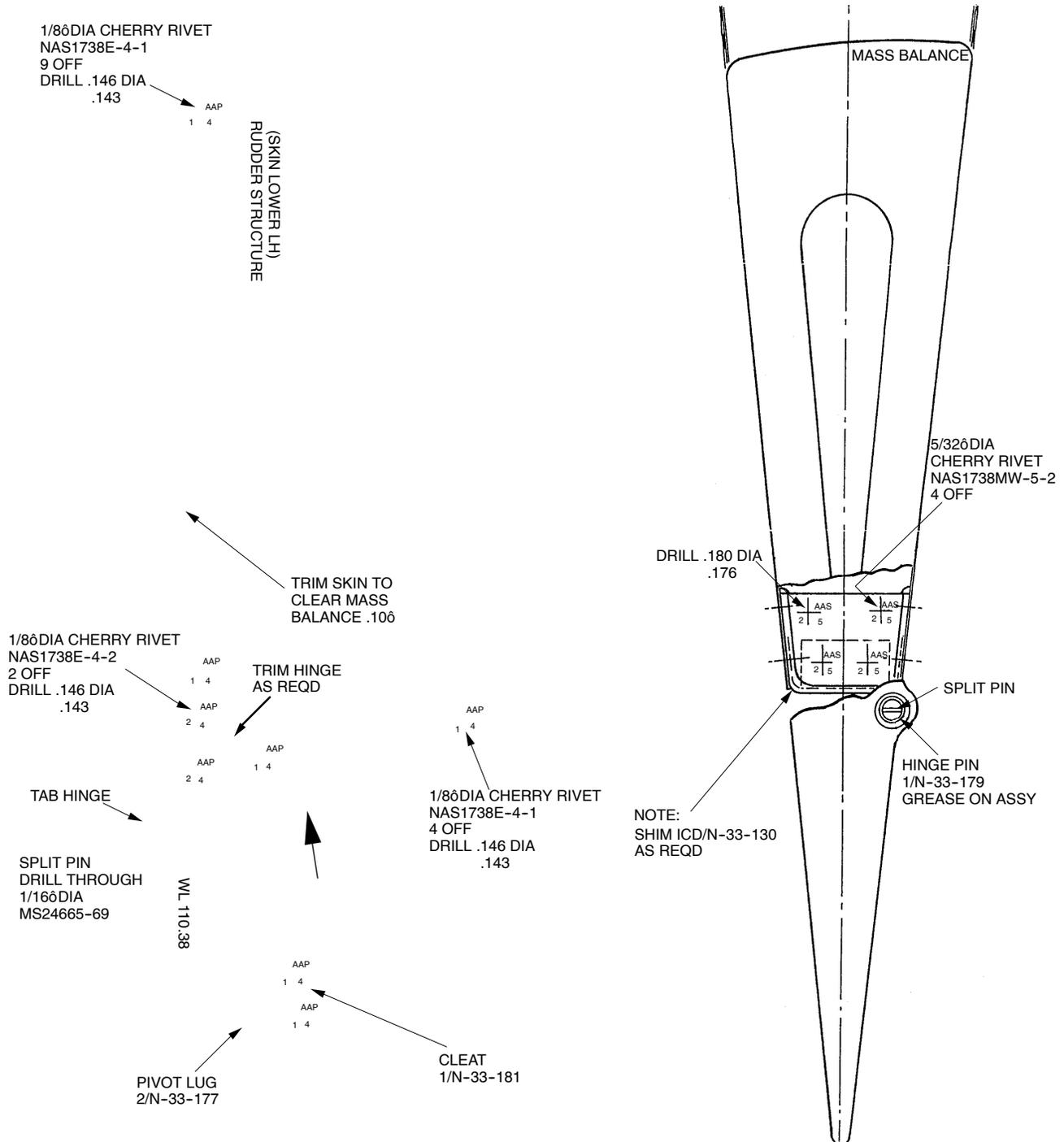


MASS BALANCE

Figure 1 Fixing Mas Balance To Rudder Trim Tab

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13 Nov 75
Rev 1 8 June 79

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NMD-27-3
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