SERVICE BULLETIN

SUBJECT: HORIZONTAL STABILISER TRIM TABS IMPROVED DURABILITY OF CONTROL SYSTEM (MODIFICATION N398)

1. Planning Information:

A. Effectivity:

(1) Aircraft Affected:

Nomad N22 Series

N22-2	N22-3M	N22-4	N22-5M
N22B-6M	N22B-7	N22-8M	N22-9M
N22B-11M	N22B-12M	N22B-13M	N22B-15M
N22-16M	N22-17M	N22B-18M	N22B-19M
N22B-20M	N22B-21M	N22B-22M	N22B-23M
N22-24M	N22B-25	N22B-26	N22B-27
N22-31M	N22B-33	N22B-35	N22B-37
N22-40M	N22-41M	N22-43M	N22-45M
N22-47M	N22-48M	N22-49M	N22B-50
N22-51M	N22B-52	N22B-53	N22B-54
N22B-55	N22B-56	N22B-57	N22B-58
N22B-59	N22F-61	N22-63M	N22B-65M
N22B-66	N22B-67	N22B-68	N22B-69
N22B-70	N22S-82	N22B-83	N22S-84
N22B-85M	N22S-86	N22S-87	N22B-88M
N22S-90	N22B-91M	N22S-92	N22B-93
N22B-95	N22B-97M	N22B-100M	

Nomad N24 Series

N24-30	N24-32	N24-34	N24-36
N24-38	N24-42	N24A-46	N24-60
N24A-64	N24A-71	N24A-72	N24A-73
N24A-74			

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

Pre-certification implementation of the intent of this service bulletin is recorded in the airframe log book as Mod.N398.

(2) Spares Affected:

Part No	Nomenclature	Recommended Disposition
1/N-30-120	Tailplane Assy	Rework
201/N-30-178	Tailplane Assy	Rework
1/N-30-145	Trim Tab	Rework
2/N-30-145	Trim Tab	Rework
1/N-30-146	Trim Tab	Reword
2/N-30-146	Trim Tab	Rework
1F/N-30-145	Bracket	Scrap
1G/N-30-145	Bracket	Scrap
1F/N-30-146	Bracket	Scrap
1G/N-30-146	Bracket	Scrap
1/N-30-151	Rod Assy	Rework
1/N-30-180	Rod Assy	Rework

B. Reason

This modification is introduced to improve the durability of the horizontal stabiliser trim tab control system.

C. Description

The trim tab control rod attachment brackets are replaced with heat treated steel brackets and the tab control rod end is changed to a double row bearing self aligning rod end. The overall rod length is increased to allow for an improved range of adjustment.

D. Compliance

Before 1st August, 1980.

E. Approval

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

F. Manpower

One man eight hours.

G. Material, Price and Availability

The kit required to accomplish this modification shall be procured through the operators local distributor. Kit Part No. NMD-55-8-1 is classified "no charge" and a "no charge" purchase order must be placed with the 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 service bulletin number and the aircraft serial number.

H. Tooling - Price and Availability

The rigging bars called up in Para 3D may be procured through the operators local distributor. Jig 1630-1620 is available on loan. Operators are to negotiate with their local distributor for availability of this tool.

I. Weight and Balance

Negligible effect.

J. References

Illustrated Parts Catalogue - (I.P.C.)
Maintenance Manual - (M.M.)
Structural Repair Manual - (S.R.M.)

K. Publications Affected

Illustrated Parts Catalogue.

2. Accomplishment Instructions

A. Remove the horizontal stabiliser trim tabs (Ref M.M. 55-20-00 Maintenance Practices) and rod assemblies (Ref M.M. 27-41-04 Maintenance Practices).

B. Rework of Trim Tabs

Note:

Take care that component segregation is observed during disassembly as the trim tab assemblies are handed.

(1) Remove the LH tab inboard end rib and support angle.

(2) Remove the LH tab control rod attachment brackets and the supporting bracket.

(3) Install the modified doubler P/N IG/N-03-598 picking up the existing rivet locations through the hinge and the three (3) rivet holes though the tab web (Ref Figure 1 - view on arrow B).

(4) Locate the external doubler P/N 1A/N-03-598 and the tab control rod attachment brackets P/N 1C/N-03-598 and 1E/N-03-598 to the LH tab.

(5) Install the tab assembly in the rework jig P/N 1630-1620. Locate and permanently attach the control rod attachment brackets using six (6) MS20426AD-5-5 solid rivets as detailed in Figure 1.

(6) Back drill the three holes in the tab lower surface through the new external doubler P/N 1A/N-03-598.

(7) Refit the trim tab end rib using rivets as detailed in Figure 1.

(8) Drill and ream the control rod attachment bracket using the trim tab rework jig P/N 1630-1620 fittings to obtain correct alignment.

(9) Carry out the rework procedure (steps 1 to 8) on the RH trim tab using the applicable doublers and control rod attachment brackets as detailed in Figure 1.

Note:

During assembly wet assemble the doublers and rivets using barium chromate pigmented jointing compound or equivalent.

C. Rework of Horizontal Stabiliser Trim Tab Control Rods

(1) Ref I.P.C. 27-40-01 Figure 2.
Remove fixed rod-end (item 13) and rod-end bearing (item 9) from rod (item 14).

Note: Do not remove male end fitting (Item 12).

(2) Reduce the length of control rod to 29.20 $\pm$ .030 inches.

(3) Measure internal diameter of rod (0.402 inches nominal) and reduce the male end fitting 1/N-30-153 to give a clearance fit of -0.000 to + 0.002 inches.

(4) Wet assemble control rod and male end fitting using barium chromate pigmented jointing compound or equivalent. Retain end fitting using taper pins (Ref. Figure 3).

(5) Assemble rod end bearings P/N REP B3N. Lock forward rod end bearing by tightening jam nut and installing 1/16 inch cotter pin (Ref. Figure 3).

D. Rework of Horizontal Stabilizer

(1) Refit the modified horizontal stabiliser trim tabs (Ref MM 55-20-00 Maintenance Practices) and the replacement tab control rods P/N 1/N-03-603 (Ref Figure 2 and MM 27-41-04 Maintenance Practices).

CAUTION: (1) ENSURE THAT THE INNER RACE OF THE ROD END BEARINGS ARE CLAMPED AND THAT THE BOLTS ARE NOT SHANK BOUND.

(2) ENSURE THAT POSITIVE CLEARANCE EXISTS BETWEEN THE TRIM TABS AND THE TRAILING EDGE OF THE HORIZONTAL STABILISER WITH THE STABILISER TRAILING EDGE FULLY DOWN AND THE TRIM CONTROL SET TO FULL NOSE UP.

(2) Check balance of the horizontal stabiliser (with the modified tabs and rods installed) in accordance with the SRM 55-10-00 Para 2. The balancing procedure may be carried out in situ utilizing the aircraft mounts as pivot points.

(3) Rig the horizontal stabiliser trim control (Ref MM 27-41-00 Maintenance Practices).

Note:

(1) For pre-mod. N211, N22, N22B and N24 aircraft use rigging bar P/N 1/N-88-113 and rigging pin P/N 1/N-88-60.

(2) For post mod. N211, N22 and N22B aircraft use rigging bars P/N 1/N-88-183 and P/N 1/N-88-180.

(3) For post mod. N211 N24 aircraft and N24A use rigging bars P/N 1/N-88-181 and P1/N-88-180.

(4) During all rigging use the applicable travel dimensions as detailed in SL 79-08.

Recording Action

Record in aircraft log book that modification N398 has been incorporated.

3. Material Information

A. Parts Required Per Aircraft

(1) One each kit Part No NMD-55-8-1 is required per aircraft.

Parts Required Per Aircraft (Cont'd)

New Part No	Qty per -1 Kit	Nomenclature	Old Part No
1A/N-03-598	1	Doubler	
AN316-4R	2	Nut	
MS24692-60P	4	Taper Pin	
REP B3N	4	Rod-End	AGS 3056 or 1/N-30-154
1B/N-03-598	1	Doubler	
1C/N-03-598	1	Bracket	1J/N-30-145 OR 1F/N-30-145
1D/N-03-598	1	Bracket	1J/N-30-146 OR 1F/N-30-146
1E/N-03-598	1	Bracket	1H/N-30-146 OR 1G/N-30-145
1F/N-03-598	1	Bracket	1H/N-30-145 OR 1G/N-30-146
1G/N-03-598	1	Doubler	
1H/N-03-598	1	Doubler	
CR3523-4-1	34	Rivet	
(ALT)CR3223-4-1			
(ALT)CR3243-4-1			
CR3523-4-2	14	Rivet	
(ALT)CR3223-4-2			
(ALT)CR3243-4-2			
MS20426AD5-5	12	Rivet	
(ALT)NAS1739MW5-3			
AN310-3	4	Nut	MS21044N3
AN960-10D	2	Washer	
AN960-10L	2	Washer	AN960D10
NAS1103-12	2	Bolt	NAS1103-9
NAS1103-9	2	Bolt	NAS1103-8
MS24665-153	4	Split Pin	
1/N-30-153	2	End Fitting	
	AR	Jointing Compound	

(2) The following items are to be procured from operators stock or local sources.

Part No	Qty	Nomenclature
	AR	Barium chromate pigmented jointing compound.

(3) Parts to be modified and reidentified by the operator.

Old Part No	Nomenclature	New Part No
1/N-30-120	Tailplane Assy	202/N-30-178*
201/N-30-178	Tailplane Assy	202/N-30-178*
1/N-30-180	Control Rod	1/N-03-603

Old Part No	Nomenclature	New Part No
1/N-30-151	Control Rod	1/N-03-603
1/N-30-145	Trim Tab	1/N-03-598
2/N-30-145	Trim Tab	1/N-03-598
1/N-30-146	Trim Tab	2/N-03-598
2/N-30-146	Trim Tab	2/N-03-598

*Note:

Reidentification is not to take place until the incorporation of service bulletins NMD-55-7, NMD-55-9, NMD-55-10 and this service bulletin.

B. Parts Required to Modify Spares

Spare tailplane assy's 1/N-30-120 and 201/N-30-178 are to be reworked to Para 2 of this service bulletin. Kit NMD-55-8-1 is required to modify each tailplane.

Spare trim tabs 1/N-30-145, 2/N-30-145 are to be reworked to Para 2B of this service bulletin. The following parts are required to modify each trim tab.

1 each	1A/N-03-598	Doubler
1 each	1C/N-03-598	Bracket
1 each	1E/N-03-598	Bracket
1 each	1G/N-03-598	Doubler
11 each	CR3523-4-1	Rivet
ALT	CR3223-4-1	
7 each	CR3523-4-2	Rivet
ALT	CR3223-4-2	
6 each	MS20426AD5-5	Rivet
ALT	NAS1739MW5-3	
AR		Jointing Compound

Spare trim tabs 1/N-30-146 and 2/N-30-146 are to be reworked to Para 2b of this service bulletin. The following parts are required to modify each trim tab.

1 each	1B/N-03-598	Doubler
1 each	1D/N-03-598	Bracket
1 each	1F/N-03-598	Bracket
1 each	1H/N-03-598	Doubler
11 each	CR3523-4-1	Rivet
ALT	CR3223-4-1	
6 each	MS20426AD5-5	Rivet
ALT	NAS1739MW5-3	
7 each	CR3523-4-2	Rivet
ALT	CR3223-4-2	
AR		Jointing Compound

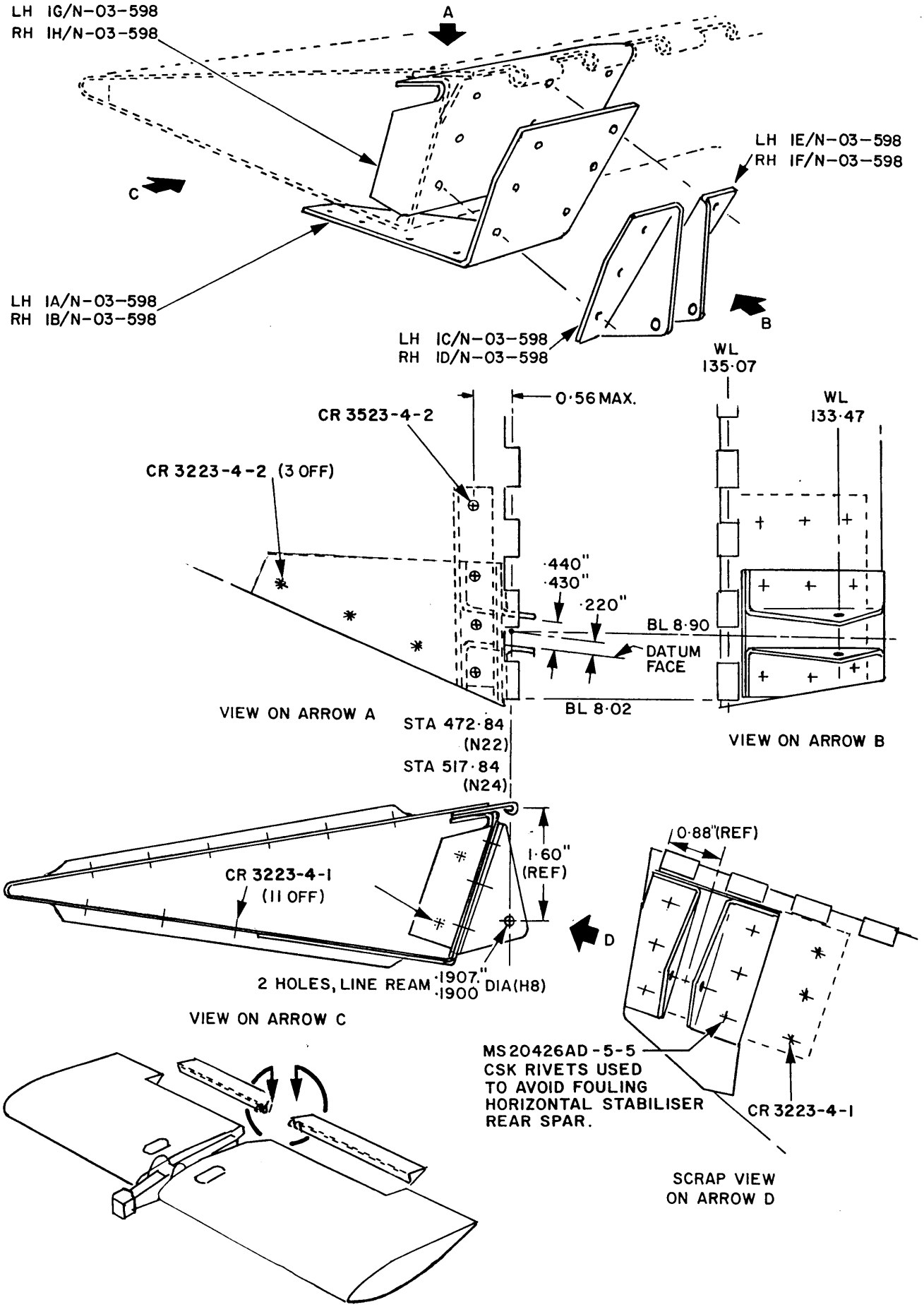
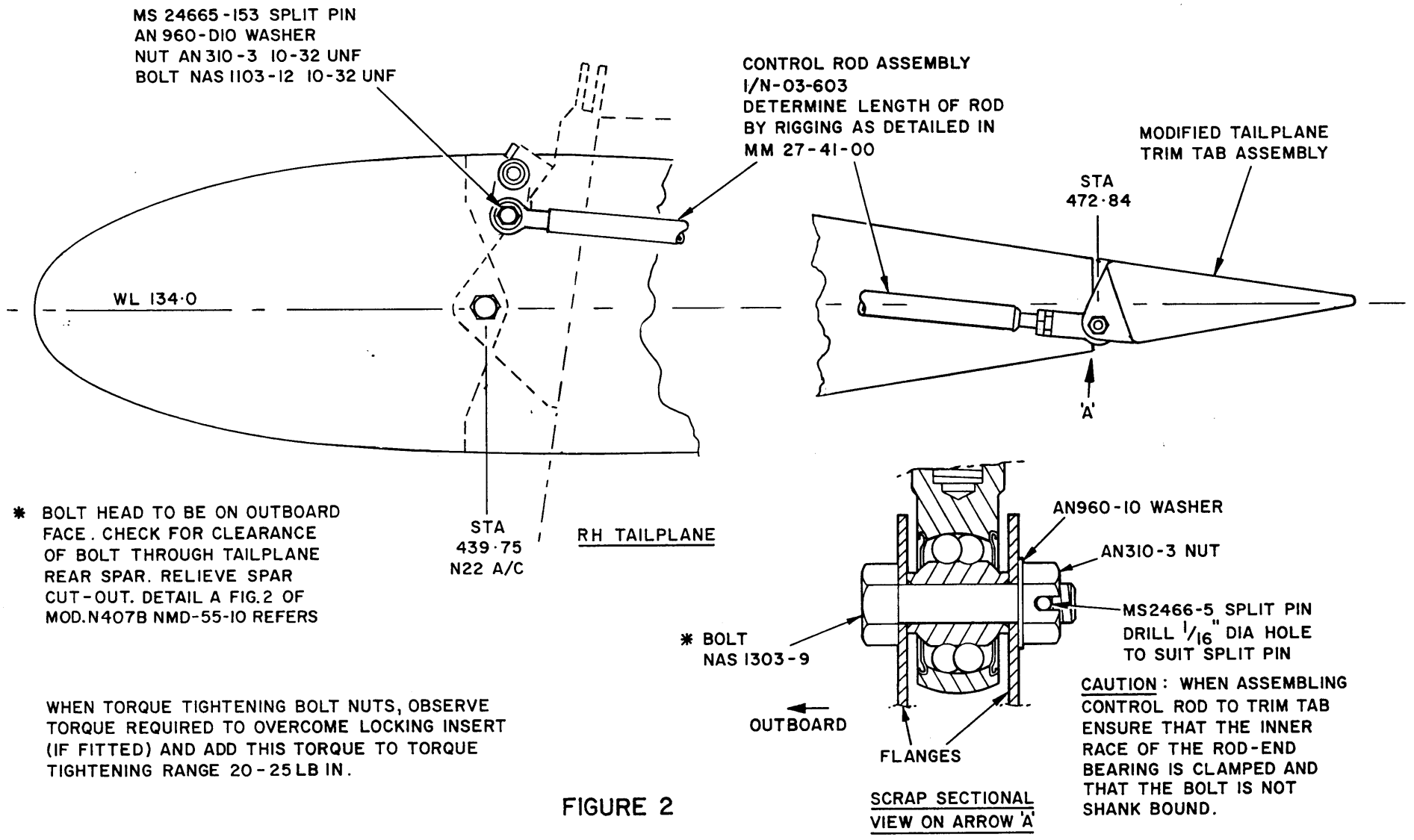

LH IG/N-03-598
RH IH/N-03-598
A
LH IE/N-03-598
RH IF/N-03-598
C
LH IA/N-03-598
RH IB/N-03-598
B
LH IC/N-03-598
RH ID/N-03-598
WL 135·07
WL 133·47
0·56 MAX.
CR 3523-4-2
CR 3223-4-2 (3 OFF)
·440"
·430"
·220"
BL 8·90
DATUM FACE
BL 8·02
VIEW ON ARROW A
STA 472·84 (N22)
STA 517·84 (N24)
VIEW ON ARROW B
0·88"(REF)
1·60" (REF)
CR 3223-4-1 (11 OFF)
D
2 HOLES, LINE REAM ·1907" ·1900 DIA(H8)
VIEW ON ARROW C
MS20426AD-5-5 CSK RIVETS USED TO AVOID FOULING HORIZONTAL STABILISER REAR SPAR.
CR 3223-4-1
SCRAP VIEW ON ARROW D

FIGURE 1

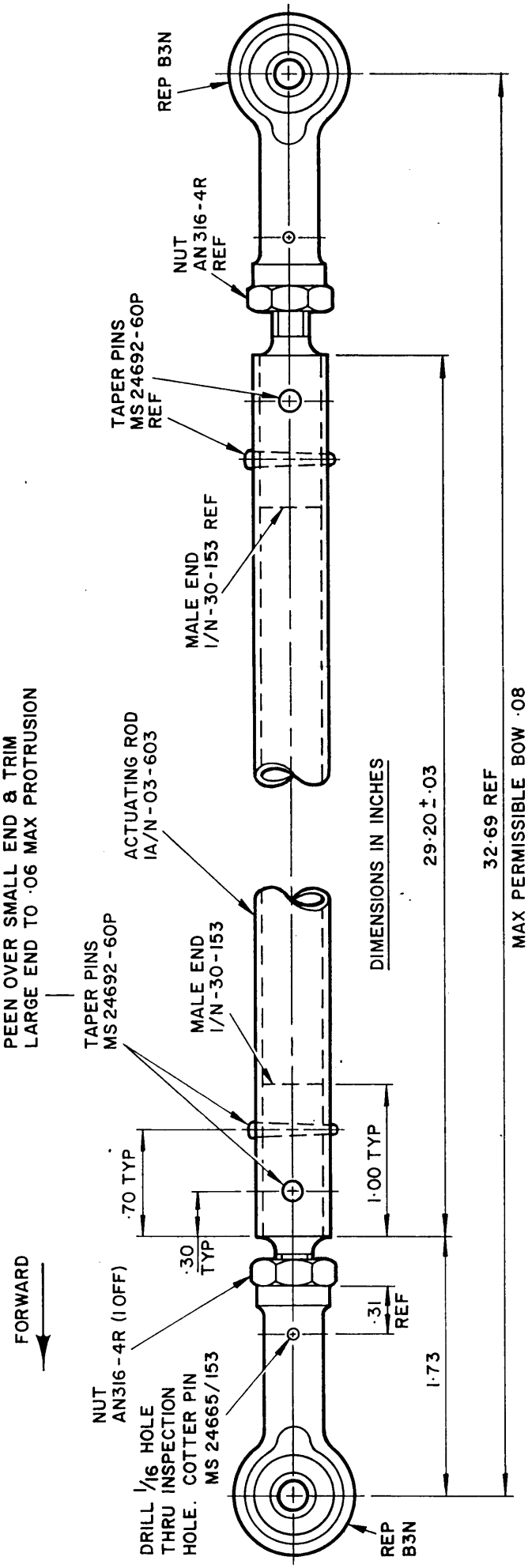


* BOLT HEAD TO BE ON OUTBOARD FACE. CHECK FOR CLEARANCE OF BOLT THROUGH TAILPLANE REAR SPAR. RELIEVE SPAR CUT-OUT. DETAIL A FIG.2 OF MOD.N407B NMD-55-10 REFERS

WHEN TORQUE TIGHTENING BOLT NUTS, OBSERVE TORQUE REQUIRED TO OVERCOME LOCKING INSERT (IF FITTED) AND ADD THIS TORQUE TO TORQUE TIGHTENING RANGE 20-25 LB IN.

CAUTION: WHEN ASSEMBLING CONTROL ROD TO TRIM TAB ENSURE THAT THE INNER RACE OF THE ROD-END BEARING IS CLAMPED AND THAT THE BOLT IS NOT SHANK BOUND.

FIGURE 2



NOTE - (WET ASSEMBLE WITH PIGMENTED JOINTING COMPOUND) (BARIUM CHROMATE)

FIGURE 3

Spare control rods 1/N-30-180, 1/N-30-151 are to be reworked to Para 2C of this service bulletin. The following parts are required to modify each control rod.

2 each	REP B3N	Rod-End Bearing
2 each	MS24692-60P	Taper Pin
1 each	1/N-30-153	End Fitting
1 each	AN316-4R	Nut
1 each	MS24665-153	Cotter Pin
AR		Jointing Compound

C. Parts Removed

Part No	Nomenclature	Recommended Disposition
1E/N-30-145	Doubler	Scrap
1E/N-30-146	Doubler	Scrap
1F/N-30-145	Bracket	Scrap
OR		
1J/N-30-145	Bracket	Scrap
1F/N-30-146	Bracket	Scrap
OR		
1J/N-30-146	Bracket	Scrap
1G/N-30-145	Bracket	Scrap
OR		
1H/N-30-145	Bracket	Scrap
1G/N-30-146	Bracket	Scrap
OR		
1H/N-30-146	Bracket	Scrap
AN310-3	Bolt	Scrap
AN960D10	Washer	Scrap
MS21044N3	Nut	Scrap
NAS1103-8	Bolt	Scrap
NAS1103-9	Bolt	Scrap
AGS3056-RH	Rod End	Scrap

D. Special Tools and Equipment Required

Part No	Qty	Nomenclature
1/N-88-60	1	Rigging Bar
1/N-88-113	1	Rigging Bar
1/N-88-180	1	Rigging Bar
1/N-88-181	1	Rigging Bar
1630-1620	1	Jig-Trim Tab

Note:

Refer to Para 2D (3) Notes for aircraft rigging bar applicability.

4. Recording Action

Record compliance with modification N398 in the airframe log book.

PRODUCT SUPPORT: .....J.J. McFadyen.....

POST DESIGN SECTION: .....Peter J. Shaw.....

for GOVERNMENT AIRCRAFT FACTORIES