Nomad
SERVICE BULLETIN

REDESIGNED CABLE CLAMPS FOR AUTOPILOT SYSTEMS (MODIFICATION N554)

1. **PLANNING INFORMATION**

A. **Effectivity**

(1) Aircraft Affected

(a) All Nomad N22 Series Aircraft fitted with Option G48 autopilot systems whose log books do not already record the embodiment of Mod N554 or compliance with Service Bulletin NMD-27-22.

(b) All Nomad N24 Series Aircraft fitted with Option G48-24 autopilot systems whose log books do not already record the embodiment of Mod N554 or compliance with Service Bulletin NMD-27-22.

Pre-certification implementation of the intent of this service bulletin is recorded in the airframe log book as Mod N554.

(2) Spares Affected

Nil.

B. **Reason**

To improve fatigue life of the autopilot bridle cables in the horizontal stabilizer trim and aileron autopilot control systems.

C. **Description**

The cable clamp assemblies which secure the autopilot bridle cables to the primary control cables of the aileron control system and to the control cables of the horizontal stabilizer trim tab system are replaced by more efficient type clamps. The cable assembly, between the clamp and the turnbuckle of the aileron autopilot bridle cable, is replaced by an eye-end fitting.

D. **Compliance**

Within 100 hours Time in Service after receipt of service bulletin kit P/N NMD-27-22-1.

E. **Approval**

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

Page No	1	2	3	4	5	6	7
Rev No	0	0	0	0	0	0	0

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

F. **Manpower**

Four manhours.

G. **Material Price and Availability**

The parts required to incorporate the modification detailed in this Service Bulletin are available free of Charge as Kit No. NMD-27-22-1 from the operatorös local distributor. Distributors are to place a ôNo Chargeôpurchase order on G.A.F. through the normal procurement procedure. Purchase orders are to quote the Aircraft Serial No. and Service Bulletin No. NMD-27-22. This Kit will be available ex-factory from July, 1982.

H. **Tooling Price and Availability**

None required.

I. **Weight and Balance**

Negligible effect.

J. **References**

MM Maintenance Manual.

Maintenance Manual and Illustrated Parts Catalogue sections of the following Customer Option Supplements.

G48
G48-24

K. **Publications Affected**

Maintenance Manual and Illustrated Parts Catalogue sections of the following Customer Option Supplements.

G48 (N22 Series Aircraft)
G48-24 (N24 Series Aircraft)

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

2. **ACCOMPLISHMENT INSTRUCTIONS**

WARNING

DO NOT OPERATE FLIGHT CONTROLS WHILST PERSONNEL ARE WORKING IN THE AREA. SERIOUS INJURY COULD RESULT.

A. **Aileron autopilot servo system (Ref Figure 1)**

(1) Replace the bridle cable clamp assemblies PN 1/N-45-1315 and cable assembly 1/N-45-1317 (Ref Customer Option G48 or G48-24 Supplement IPC Section Figure 1 Sheet 2, (items (35)) and 40).

(a) Select the BATTERY switch to OFF and trip the autopilot circuit breaker identified AFCS located on the overhead console.

(b) Remove the LH equipment bay access panel on the rear of the frame at sta 132 (Ref MM Chap 25-20-00) for access to the aileron autopilot servo bridle cables and cable clamps.

(c) Set the ailerons in the neutral position and insert rigging pin P/N 1/N-88-83 into the cable drum and shaft sprocket assembly at sta 95.40 (Ref MM 27-10-00 Figure 201 Sheet 2).

(d) Remove the locking clips on the upper servo bridle cable turnbuckle and disconnect cable assembly (item 40) from the turnbuckle body.

(e) Remove the upper and lower cable clamp assemblies (item (-35)) from the aileron primary cables. Discard the clamps and the cable assembly attached to the upper cable clamp.

CAUTION

ALWAYS TENSION THE AILERON PRIMARY CABLES WITH THE BRIDLE CABLES SLACKENED OR DISCONNECTED

(f) Cheek the tension of the aileron primary cables using a suitable tensiometer and adjust the tensions as necessary (Ref MM Chap 27-10-00).

(g) Assemble the eye-end fitting PN MS21254-2LS to the turnbuckle body so that half of the threaded portions of the eye-end and the end-fitting of cable assembly PN 1/N-45-1318 (item (42)) are engaged in the turnbuckle body.

(h) Loosely assemble the cable clamps PN 1/N-45-1625 and 1626 about the upper aileron primary cable with three of each of the following: bolt PN AN3-6A, washer PN AN960PD1OL and self-locking nut PN MS21042-L3.

NOTE

When assembling the cable clamps to the upper aileron primary cable ensure that the recessed ends of the clamps are nearest to the servo unit.

(i) Insert the eye end into the recessed ends of the cable clamps and secure with bolt PN AN3-6, washers (2 off under the nut) PN AN960PD10 and castellated nut PN AN320-3. Tighten the nut finger tight, then back off the nut until the split pin hole in the bolt is aligned

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

with the nearest slot in the castellated nut. Fit split pin PN MS24665-153 to nut and bolt assembly. Cheek that the eye end pivots freely on the bolt.

(j) Slide the cable clamp assembly along the upper aileron primary cable until the slack is taken up on the upper servo bridle cable without turning the servo unit capstan. Ensure that the bridle cable seats correctly in the servo capstan grooves then torque tighten the clamp assembly self-locking nuts to between 20 and 25 pound inches. Cheek again that the eye end still pivots freely and that tightening the clamps to the cable has not produced excessive end-float in the bolt and castellated nut assembly. Adjust the castellated nut if necessary.

NOTE

In the rigging position, each bridle cable should wrap around the capstan approximately two turns.

(k) Loosely assemble cable clamps (2 off) PN 047-3536-01 to the lower aileron primary cable and lower servo bridle cable with bolts PN AN3-6A, washers PN AN960PD10L and self-locking nuts PN MS21042-L3.

(l) Slide the cable clamp assembly along the lower aileron primary cable until the slack is taken up on the lower servo bridle cable, then torque tighten the self-locking nuts to between 20 and 25 pound inches.

(m) Using the turnbuckle on the upper servo unit bridle cable and using a suitable tensiometer, tension the bridle cables to between 30 and 40 pounds, check that the turnbuckle is in safety then refit the turnbuckle locking clips.

(n) After tensioning the aileron servo unit bridle cables, re check that the tension of the aileron primary cables is still within tolerance (Ref MM 27-00-00 Figure 201).

(o) Remove rigging pin PN 1/N-88-83 from.the cable drum and shaft sprocket assembly at sta 95.40.

(p) Cheek that the ailerons are free from obstruction then operate the ailerons over the full range of travel and ensure there is no fouling of the aileron primary cables or servo unit cables and cable clamps where they pass through the structure adjacent to the rework area.

(q) Refit the LH equipment bay access panel to the rear of the frame at sta 132 (Ref MM Chap 25-20-00).

B. **Horizontal stabilizer trim autopilot system (Ref Figure 1)**

(1) Replace the horizontal stabilizer trim autopilot servo bridle cable clamps PN 1/N-45-1316 (Ref Customer Option G48 or G48 -24 Supplement, IPC Section Figure 1 Sheet 2, item (-65).

(a) Set the horizontal stabilizer trim control wheel to zero and remove the engine control box console (Ref MM 76-10-00). Install rigging pin PN 1/N-88-60 in the horizontal stabilizer trim indicator drum (Ref MM 27-41-00 Figure 201).

(b) Support the rear fuselage as detailed in MM Chap 7-00-00.

(c) Gain access to the horizontal stabilizer trim autopilot servo bridle cables (Ref Customer Option G48 or G48-24 Supplement IPC Section Figure 1 Sheets 1 and 2, items (78) and (80)). Temporarily tie the bridle cables (below the cable clamps) to the trim control cables: slacken the bridle cables by adjusting the turnbuckle, then remove the cable clamp

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

assemblies (2 off, items (65)) from their respective bridle and trim control cables. Discard the clamp assemblies.

CAUTION

ALWAYS TENSION THE HORIZONTAL STABILIZER TRIM CONTROL CABLES WITH THE BRIDLE CABLES SLACKENED OR DISCONNECTED.

(d) Cheek the tension of the horizontal stabilizer trim control cables using a suitable tensiometer and adjust the tension as necessary (Ref MM Chap 27-41-00).

(e) Loosely assemble the cable clamps PN 047-4094-01 to the trimcontrol and associated bridle cables with bolts PN AN3-6A, washers PN AN960PD10L and self looking nuts. PN MS21042-L3.

(f) Remove the temporary ties from the cables (Ref step (c)) and slide one of the cable clamp assemblies up the associated trim control cable until all slack is taken up on the bridle cable without turning the servo unit capstan, then torque tighten the self locking nuts to between 20 and 25 pounds inches.

NOTE

In the rigging position, each bridle cable should wrap around the capstan approximately two turns.

(g) Slide the other cable clamp up the associated trim control cable until all slack is taken up on the bridle cable then torque tighten the self-locking nuts to between 20 and 25 pound inches.

(h) Using a suitable tensiometer , tension the bridle cables at the turnbuckle, to between 22 and 26 pounds. Check that the turnbuckle is in safety then refit the turnbuckle locking clips.

(i) After tensioning the horizontal stabilizer trim servo unit bridle cables, re check that the tension of the horizontal stabilizer trim control cables is still within tolerance (Ref MM 27-00-00 Figure 201).

(j) Remove the rigging pin PN 1/N-88-60 from the horizontal stabilizer trim indicator drum.

(k) Check that the horizontal stabilizer and trim tabs are free from obstructions, then operate the stabilizer and trim tabs over the full ranges of movement and ensure that there is no fouling of the trim tab control cables or associated servo unit bridle cables and clamps where they pass through structure adjacent to the rework area.

(l) Refit the engine control box console (Ref MM Chap 76-10-00).

(m) Remove ,the support trestles clear of the rear fuselage.

(n) Select the BATTERY switch to ON and set the autopilot circuit breaker identified AFCS on the overhead console.

C. **Functionally test the autopilot system for correct operation (Ref Customer Option G48 or G48-24 Supplements and Collins Radio Co. handbooks).**

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

3. **MATERIALS INFORMATION**

A. **Parts Required per Aircraft**

(1) Kit PN NMD-27-22-1 is required for each aircraft fitted with Option G48 (Nomad N22 Series Aircraft) or G48-24 (Nomad N24 Series Aircraft).

(2) Each kit PN NMD-27-22-1 comprises the following items:

New Part No	QTY	Description	Old Part Number	Instruction/Disposition
MS21254-2LS	1	Eye end, turnbucke		
1/N-45-1625	1	Clamp, bridle cable		
1/N-45-1626	1	Clamp, bridle cable		
047-3536-01	2	Clamp, cable (King)		
047-4094-01	4	Clamp, cable (King)		

(3) The following items are to be obtained from the operatorís stock or local sources.

New Part No	QTY	Description	Old Part Number	Instruction/Disposition
AN3-6A	12	Bolt		
AN960PD1OL	12	Washer		
MS21042-L3	12	Nut, self locking		
AN3-6	1	Bolt		
AN960PD10	2	Washer		
AN320-3	1	Nut, castellated		
MS24665-153	1	Split pin		

B. **Parts Modified and Re identified by Operator**

None.

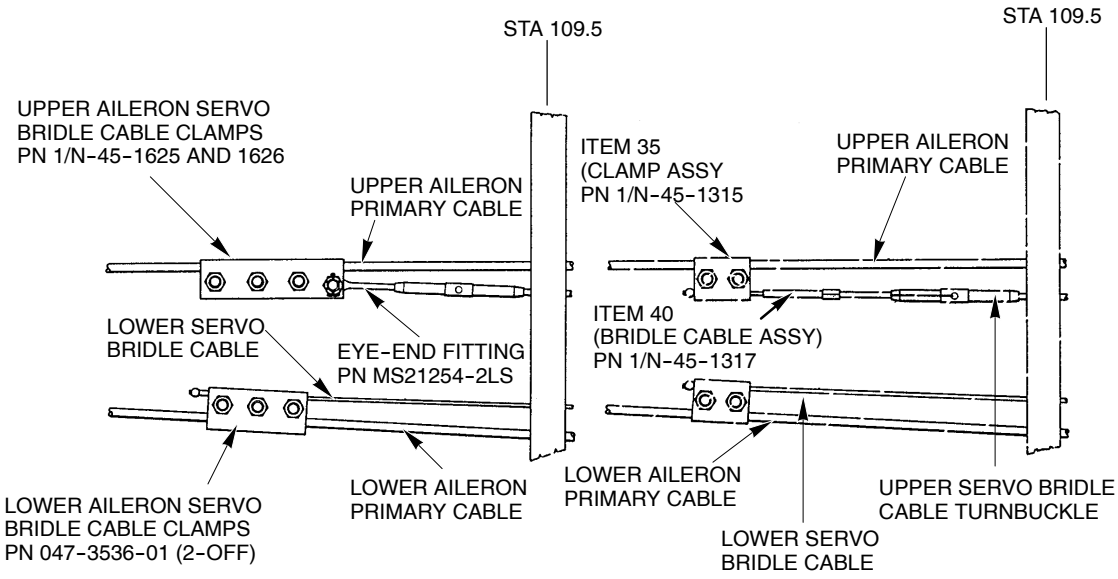
4. **SPECIAL TOOLS AND EQUIPMENT**

None.

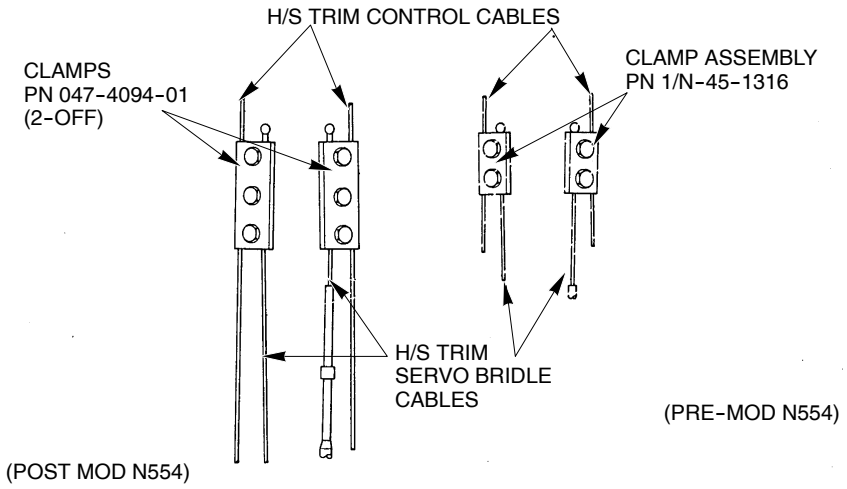
5. **RECORDING ACTION**

Record compliance with Service Bulletin NMD-27-22 in the airframe log book.

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



AILERON A/P SYSTEM
(VIEW LOOKING OUTBOARD ON LH SIDE OF FRONT FUSELAGE)



CLAMPS-VIEWED LOOKING AFT

HORIZONTAL STABILIZER TRIM A/P SYSTEM
(VIEWED IN REAR FUSELAGE)

Figure 1 MOD N554-Installation

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