

AUTOPILOT — INSTALLATION OF RF FILTER BETWEEN AUTOPILOT AND ASSOCIATED LOOM CONNECTORS (MOD N309)

1. PLANNING INFORMATION

A. Effectivity

- (1) All Nomad N22 series and N24 series aircraft fitted with both Options G69 (ASB 100A HF/AM/SSB Transmitter Receiver) and Option G48 or G48-24 (2-axis autopilot) and whose Log Books do not already record the embodiment of Mod N309 or compliance with Service Bulletin NMD-22-3.

NOTE

Mod N291 (new inner keying guides fitted to autopilot loom connectors CPTR-P1 AND CPTR-P2) is a prerequisite to embodiment of Mod N309.

- (2) Spares Affected
None

B. Reason

To reduce HF interference to autopilot.

C. Description

R.F.I. filter box assembly is fitted between the autopilot wiring harness and the autopilot computer.

- (1) Part 1 – Installation of a R.F.I. filter box assembly where G234 is not fitted.
- (2) Part 2 – Installation of a R.F.I. filter box assembly where G234 is fitted (i.e 6.25 in Avionics mounting strips for lower console as shown in Figure 2).

D. Compliance

The incorporation of this Service Bulletin is recommended.

E. Approval

The requirement detailed herein has been approved by a person authorised under Civil Aviation Regulation 35 and conforms to the type certification requirements.

F. Manpower

Approximately 4.0 manhours.

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

G. Material – Price and availability

Parts required to incorporate this Service Bulletin are available upon request to Customer Services – ASTA Defence (Logistics).

H. **Tooling**

None required

I. **Weight and Balance Change**

Negligible

J. **References**

Maintenance Manual Chap 20-00-00 Chap 39-10-00

K. **Publications Affected**

Maintenance Manual
Illustrated Parts Catalogue
Flight Manual

The Option G48 or G48-24 Supplements of the following:

- (1) Maintenance Manual
- (2) Illustrated Parts Catalogue
- (3) Wiring Diagram Manual

2. **ACCOMPLISHMENT INSTRUCTIONS**

A. **Part 1 – Option G234 not fitted**

WARNING

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

- (1) Ensure that all electrical power is switched off.
- (2) Remove the top panels or avionics units fitted to the centre console to provide sufficient access to the autopilot cable loom (Ref MM Chap 39-10-00).
- (3) Locate the branches of the autopilot cable loom (PN 2/N-80-344 for N22 aircraft or PN 102/N-80-344 for N24 Aircraft) connected to Computer P1 and P2.
- (4) Disconnect the branches from the Computer P1 and P2 of the autopilot cable loom and rework as follows:
 - (a) Re-ident "COMP, P1" to "R.F.I. FILTER-1".
 - (b) Re-ident "COMP, P2" to "R.F.I. FILTER-2".
 - (c) Re-part number loom (PN 2/N-80-344 to 4/N-80-344 for N22 aircraft or PN 102/N-80-344 to 104/N-80-344 for N24 aircraft).
- (5) Position the filter box PN 1/N-80-516 on the upper surface of the nosewheel well top panel as shown in Figure 1.
- (6) Using the mounting holes in the filter box as a drill guide, drill four 3.7mm dia holes in the panel and deburr (Ref Fig 1).

- (7) Prepare filter box and panel mating surfaces as shown in Fig 1 of MM Chap 20-00-00.
- (8) Secure and electrically bond the filter box to the floor panel using four screws PN MS35206-231, four washers PN AN960-6 and four locknuts PN MS21083-N06.
- (9) Check that the electrical bond between the filter box casing and the floor panel does not exceed 0.006 ohm.
- (10) Connect the branches identified "R.F.I. FILTER-1" and "R.F.I. FILTER-2" to the electrical receptacles 1 and 2 of the filter box.
- (11) Connect the filter box cable connectors CMPRT-P1 and CMPRT-P2 to the electrical receptacles P1 and P2 of the autopilot computer.
- (12) Ensure that all wiring is clear of undercarriage screw jack (Ref Fig 1).
- (13) Refit access panels or avionics units to the centre console (Ref MM Chap 39-10-00).
- (14) Remove the label PN 1/N-03-543 ("DO NOT TRANSMIT ON HF WITH AUTOPILOT ENGAGED") attached directly below King KMA 20 Audio Control.
- (15) Stamp the mod plate at location Sta 67.95 as follows:
 - (a) Strike No.92 on plate stamped 11/N-00-111 for N22B aircraft.
 - (b) Strike No.62 on plate stamped 201/N-00-1010 for N24A aircraft.
- (16) Confirm that the autopilot system operates normally with the R.F.I filter installed. At a safe altitude and in each mode of autopilot control, transmit a voice modulated signal in both AM and SSB modes. On each channel, confirm that nil, or a safe and acceptable level of interference is noted.

B. Part 2 – Option G234 fitted



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

- (1) Ensure that all electrical power is switched off.
- (2) Remove the top panels or avionics units fitted to the centre console to provide sufficient access to the autopilot cable loom (Ref MM Chap 39-10-00).
- (3) Locate the branches of the autopilot cable loom (PN 2/N-80-344 for N22 aircraft or PN 102/N-80-344 for N24 aircraft) connected to computer P1 and P2.
- (4) Disconnect the branches from the computer P1 and P2 of the autopilot cable loom and rework as follows:
 - (a) Re-ident "COMP, P1" to "R.F.I. FILTER-1".
 - (b) Re-ident "COMP, P2" to "R.F.I. FILTER-2".
 - (c) Re-part number loom (PN 2/N-80-344 to 4/N-80-344 for N22 aircraft or PN 102/N-80-344 to 104/N-80-344 for N24 aircraft).

- (5) Drill out the two rivets attaching the Z section PN 1J/N-80-364 to diaphragm PN 1A/N-80-364. Enlarge these holes to 3.7mm dia and deburr (Ref Fig 2).
- (6) Position the mounting plate PN 2A/N-80-517 as shown in figure 2. Ensure that the mounting plate abuts the edge of angle PN 1G/N-80-364. Using the enlarged holes in the diaphragm as a drill guide, drill two 3.7mm dia holes in the mounting plate and deburr.
- (7) Prepare the mounting plate and the diaphragm mating surfaces as shown in Fig 1 of MM Chap 20-00-00.
- (8) Secure and electrically bond the mounting plate to the diaphragm using two screws PN MS35206-231, two washers PN AN960-6 and two locknuts PN MS21083-N06.

NOTE

Ensure that these screws are installed with their heads towards the RH side of the aircraft.

- (9) Check that the electrical bond between the mounting plate and the diaphragm does not exceed 0.006 ohm.
- (10) Using the two bottom holes in the mounting plate as a drill guide, drill two 3.7mm dia holes in Z section PN 1J/N-80-364.
- (11) Prepare the filter box and the Z section mating surfaces as shown in Fig 1 of MM Chap 20-00-00.
- (12) Secure and electrically bond the filter box to the mounting plate and Z section using four screws PN MS35206-231, four washers PN AN960-6 and four locknuts PN MS21083-N06.
- (13) Check that the electrical resistance between the filter box casing and the aircraft structure does not exceed 0.006 ohms.
- (14) Connect the branches identified "R.F.I. FILTER-1" and "R.F.I. FILTER-2" to the electrical receptacles 1 and 2 of the filter box.
- (15) Connect the filter box cable connectors CMPRT-P1 and CMPRT-P2 to the electrical receptacles P1 and P2 of the Autopilot Computer.
- (16) Refit access panels or avionics units to the centre console (Ref MM Chap 39-10-00).
- (17) Remove the label PN 1/N-03-543 ("DO NOT TRANSMIT ON HF WITH AUTOPILOT ENGAGED") attached directly below King KMA 20 Audio Control.
- (18) Stamp the mod plate at location Sta 67.95 as follows:
 - (a) Strike No.92 on plate stamped 11/N-00-111 for N22B aircraft.
 - (b) Strike No.62 on plate stamped 201/N-00-1010 for N24A aircraft.
- (19) Confirm that the autopilot system operates normally with the R.F.I filter installed. At a safe altitude and in each mode of autopilot control, transmit a voice modulated signal in both AM and SSB modes. On each channel, confirm that nil, or a safe and acceptable level of interference is noted.

(3) MATERIALS INFORMATION

A. Parts required per Aircraft

Mod N309 — Refer to paragraph 1 A.(1) for aircraft applicability. One kit PN NMD-22-3-1 is required per aircraft and comprises the following items.

New Part No	Qty	Description	Old Part No	Instruction/Disposition
Kit PN NMD-22-3-1				
1/N-80-516	1	Filter Box		Dispose 2 screws for part 1 installation Dispose 2 washers for part 1 installation Dispose 2 locknuts for part 1 installation
MS35206-231	*6	Screw		
AN960-6	*6	Washer		
MS21083-N06	*6	Locknut		
2A/N-80-517	1	Mounting Plate (Option G234 only)		
Removed Parts				
1/N-03-543	1	Placard		Scrap
MS20470AD4-4	2	Rivet (Option G234 only)		Scrap

* Quantities for part 2 installation.

(4) **SPECIAL TOOLS AND EQUIPMENT**

None

(5) **RECORDING ACTION**

Record compliance with Service Bulletin NMD-22-3 in the Airframe Log Book.