

Nomad

ALERT SERVICE BULLETIN

INSPECTION AND REPLACEMENT OR REWORK OF CONTROL WHEEL SUB-ASSEMBLIES

1. PLANNING INFORMATION

A. Effectivity

(1) Aircraft Affected

All N22 Series and N24 Series aircraft whose log books do not already record the embodiment of Mod N579 or compliance with Alert Service Bulletin ANMD-27-27 Rev 1.

Pre-certification implementation of the intent of this Alert Service Bulletin is recorded in the airframe log book as Mod N579.

(2) Spares Affected

Pre-Mod N579 control wheel assemblies, all of which are fitted with control wheel sub-assembly PN 1/N-45-1208.

B. Reason

Instances have been reported in which partial failure of the control wheel assembly has occurred.

C. Description

Part A –Installed Pre-Mod N579 control wheel assemblies are inspected for possible cracking.

Part B –Installed Pre-Mod N579 control wheel assemblies are replaced by modified or reworked items.

D. Compliance

Part A –Within 10 hours Time in Service following receipt of this bulletin and thereafter at each subsequent 100 hourly inspection until Part B is complied with.

Part B –Within 300 hours Time in Service from the date of this revision, but not later than 1st January, 1983.

E. Approval

The inspection and replacement or rework procedures detailed herein have been approved pursuant to Air Navigation Regulation 40 and conform with the type certification requirements.

F. Manpower

Six manhours.

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G. Material – Price and Availability

- (1) The repair and rework of damaged and unmodified control wheels as detailed herein may be accomplished by operators having appropriate facilities. Refer to Para 3.A. for material specification and to Figure 1 for manufacturing dimensions and quantities of parts.
- (2) As an alternative, distributors have agreed to operate a service whereby unmodified control wheels can be exchanged for modified control wheels. Details of associated costs and delivery times should be requested from the operator's distributor.

H. Tooling – Price and Availability

None required.

I. References

Maintenance Manual
Illustrated Parts Catalogue
Wiring Diagram Manual
G48 or G48-24 Option Supplements (if autopilot fitted)

J. Publications Affected

Illustrated Parts Catalogue
Wiring Diagram Manual
G48 or G48-24 Option Supplement, WDM Section (if autopilot fitted).

2. ACCOMPLISHMENT INSTRUCTIONS

A. Part A – Inspection

- (1) Pull the LH control wheel fully aft to gain access to the forward face of the control wheel sub-assembly (Ref IPC 27-40-02 Fig 2 Sheet 1 Item 10A).
- (2) Inspect the circumference of the weld joining the shaft spigot to the control wheel back plate for possible cracking.

NOTE

The use of a dye-penetrant method is recommended.

- (3) Repeat steps (1) and (2) to the RH control wheel if installed.
- (4) Control wheels found to be cracked are to be removed and replaced by a modified or reworked control wheel (Ref Part B.).
- (5) Please report findings as a result of this inspection to GAF, TELEX NOMAD AA 34397.

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B. Part B – Modification by Replacement or Rework.

(1) Replacement of Control Wheel sub-assembly.

The control wheel sub-assembly PN 1/N-45-1208 is replaced by a modified sub-assembly PN 2/N-45-1208 (Alt. PN 1/N-03-734) incorporating reinforcing gussets welded between the shaft spigot and back plate (Ref Figure 1).

- (a) Remove each control wheel sub-assembly (Ref MM Chap 27-10-14).
- (b) Disconnect the wire from the post light and remove the post light and clock (LH control wheel) or blanking plate (RH control wheel).
- (c) Remove the autopilot control switch housing and disconnect the wires if fitted (Ref Option G48 or G48-24) from the LH control wheel.
- (d) Remove the RT/ICS switch, disconnect the wires and remove the wiring from the control wheel.
- (e) Mark the control wheel sub-assembly and control wheel shaft to identify as LH or RH assemblies as appropriate (do not damage the chrome plating).
- (f) Remove the four rivets securing the control wheel sub-assembly to the control wheel shaft and separate the control wheel sub-assembly from the shaft.
- (g) Remove the protective foam pad from the central boss of the control wheel, exercising care so that the pad may be refitted again after the wheel has been reworked.
- (h) Rework the control wheel sub-assembly (Ref step (2)) or return the unmodified or defective control wheel sub-assembly to the operator's distributor for modification, or an exchange item.

NOTE

Refer to Para 1.G.

- (i) Fit a modified or reworked control wheel sub-assembly (PN 2/N-45-1208 or 1/N-03-734 respectively) to the appropriate control wheel shaft (Ref step (e)). Align the control wheel sub-assembly correctly ensuring that the gust lock locating hole (at the rear end of the shaft) is uppermost.
- (j) Check the alignment of the four rivet holes in the shaft and control wheel shaft spigot. If the holes do not align, either of the following procedures may be used:
 - 1 Enlarge the holes by drilling out to 4 mm dia and attach the control wheel sub-assembly to the control wheel shaft using NAS 1738MW-5-2 rivets.
 - 2 Drill four holes using a NO 30 drill (0.128 inches dia) interpitched between the existing rivet holes and attach the control wheel sub-assembly to the control wheel shaft using NAS 1738 MW-4-2 rivets
- (k) Re-thread the wires, for the RT/ICS switch and autopilot switch (if fitted), through the control wheel handle. Re-connect and refit the switches (Ref WDM Chap 33-10-00 for RT/ICS switch and Option G48 or G48-24 WDM supplement for autopilot switch). Refit the autopilot switch housing where appropriate.

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- (l) Secure the foam pad (removed at step (g)) to the central boss of the control wheel, using PR1221B or PR 1422B compound or suitable alternative.
- (m) Refit the clock and post light and re-connect the wire to the post light (Ref WDM Chap 33-10-00) on the LH control wheel sub-assembly or refit the blanking plate to the RH control wheel sub-assembly.
- (n) Repart number the modified control wheel assembly as follows:

Original Part No.	New Part No.
1/N-45-1206	2/N-03-734
1/N-45-1207	3/N-03-734
2/N-45-1206	4/N-03-734
2/N-45-1207	5/N-03-734
201/N-45-2020	6/N-03-734
201/N-45-2021	7/N-03-734

- (o) Refit the control wheel (Ref MM Chap 27-10-14).
- (2) Rework of Control Wheel sub-assembly.
- Operators with access to suitable facilities may wish to arrange for the rework of their control wheel sub-assemblies. To enable local rework of control wheel sub-assemblies, the following procedure is provided.
- (a) Remove the control wheel sub-assembly from the control wheel (Ref Para 2. Part B (1) (a) to (g)).
 - (b) Apply a protective covering of thick polythene sheeting (or suitable alternative) and masking tape to the control wheel handle.
 - (c) Use abrasive blast equipment to remove the cadmium plating from the areas to be welded and to remove the paint from the inside of the shaft spigot.
 - (d) Where no cracking is present proceed to step (e). Where cracks are present, grind the top surface of the crack as shown in Fig 1 and weld along the crack.

NOTES ON WELDING

- (1) Use only Tungsten Inert Gas (TIG) process.
 - (2) Filler rod to be MIL-R-5632 class 1 (alt. BS 1453 type 2).
 - (3) Stress relieving not required.
- (e) Locally manufacture gussets and weld gussets to the control wheel sub-assembly as shown in Fig 1, taking care to avoid heat damage to the black plastic coating on the wheel arms.
 - (f) Remove all scale.
 - (g) Carefully inspect all welded joints with a medium power (at least 10 X power) magnifying glass.

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- (h) Paint all bare steel surfaces with a zinc chromate primer and when dry, apply a matt black paint to all external surfaces that will be exposed after the clock shroud is refitted.
- (i) Re-identify the reworked control wheel sub-assembly to 1/N-03-734.
- (j) Refit the control wheel (Ref Para 2. Part B (1) (j) to (o)).

3. MATERIALS INFORMATION

A. Parts Required per Control Wheel Assembly (Pre-Mod N579)

- (1) Pre-Mod N579 control wheel assemblies being modified by replacement will require one control wheel sub-assembly PN 2/N-45-1208 (Alt. PN 1/N-03-734) for each control wheel assembly.
- (2) Pre-Mod N579 control wheel assemblies whose control wheel sub-assembly's PN 1/N-45-1208 are to be reworked 'in the field' will require the gussets (Ref Fig 1) to be locally manufactured from AISI 4130 (MAT: .063-MIL-S-18729 COND N) steel sheet.

B. Parts Modified and Re-identified by the Operator

Item Old PN	Title	Item New PN
1/N-45-1208	Control Wheel Sub-assy	1/N-03-734
1/N-45-1206	Control Wheel Assy	2/N-03-734
2/N-45-1206	Control Wheel Assy	4/N-03-734
2/N-45-1207	Control Wheel Assy	5/N-03-734
201/N-45-2020	Control Wheel Assy	6/N-03-734
201/N-45-2021	Control Wheel Assy	7/N-03-734

C. Parts Required to Modify Spares

Refer Figure 1.

D. Parts Removed

New Part No	Qty	Description	Instruction/Disposition
1/N-45-1208	On condition	Control Wheel Sub-assy	Return to distributor or rework (Ref) Para 2. Part B(2).

4. SPECIAL TOOLS AND EQUIPMENT

None.

5. RECORDING

Record compliance with Alert Service Bulletin ANMD-27-27 Revision 1 in the airframe log book.

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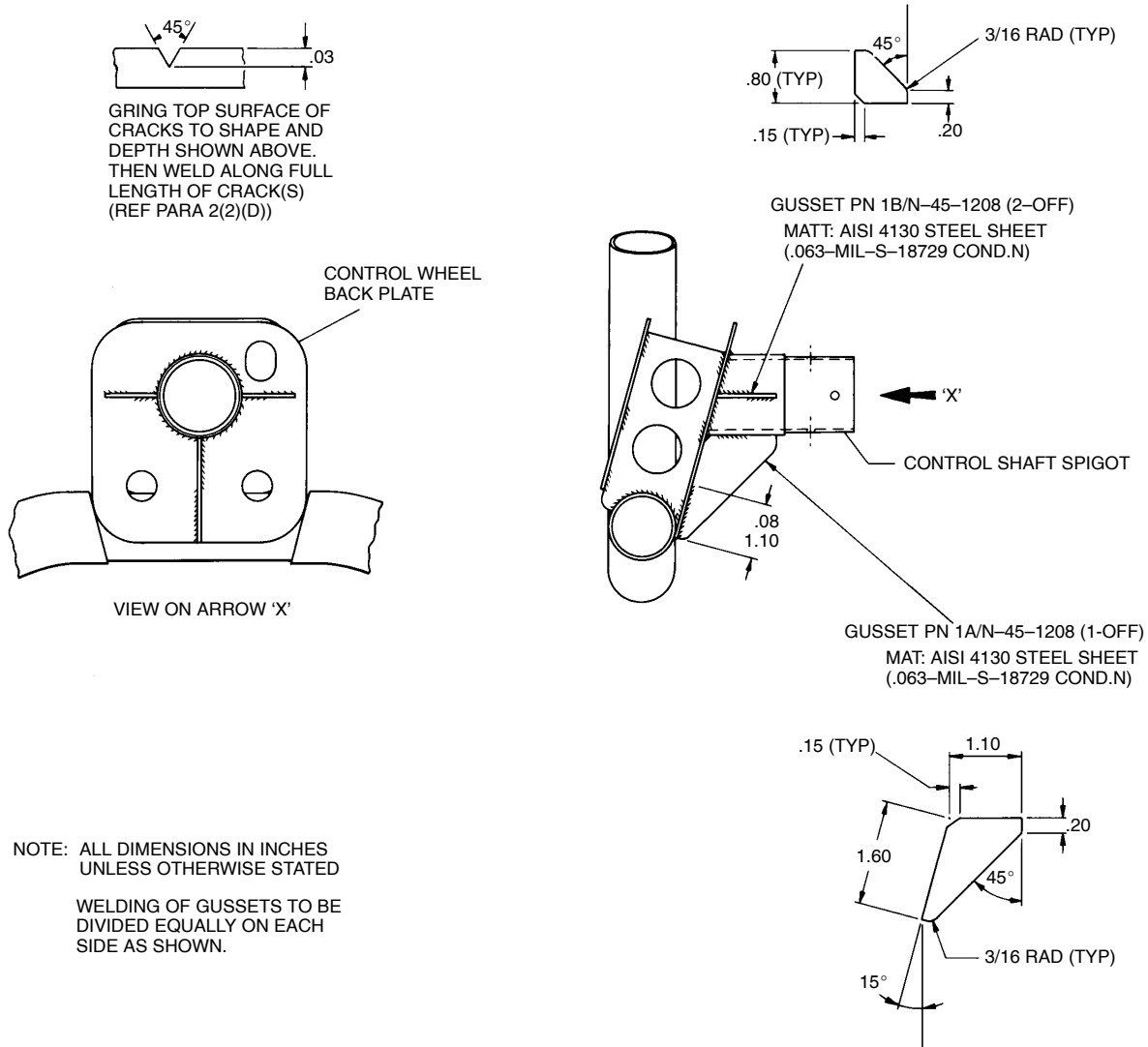


Figure 1 Rework of Control Wheel Sub-Assembly PN 1/N-45-1208