

*Nomad*

# SERVICE BULLETIN

SUBJECT: NOMAD N24-SERIES AND N22-SERIES

IMPROVED LANDING GEAR ACTUATION

(MODIFICATION N421)

## 1. Planning Information

### A. Effectivity

#### (1) Aircraft Affected

All Nomad N24-Series and N22-Series aircraft whose log books do not already record the embodiment of Mod N421 or compliance with Service Bulletin NMD-32-16.

Pre-certification implementation of the intent of this service bulletin is recorded in the airframe log book as Mod N421.

#### (2) Spares Affected

Nil

### B. Reason

A number of operators have experienced difficulties with the landing gear actuator system circuit breaker trip time.

### C. Description

A time delay relay is fitted into the landing gear retract circuit which limits the total run time to 12 seconds. This allows the 20A circuit breaker to be replaced with a 25A circuit breaker.

### D. Compliance

Incorporation of this modification is recommended.

### E. Approval

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

F. Manpower

3 Manhours.

G. Material - Price and Availability

Refer to Para 3.

H. Tooling - Price and Availability

None Required.

J. Weight and Balance

Negligible effect.

K. References

MM - Maintenance Manual  
IPC - Illustrated Parts Catalogue  
WDM - Wiring Diagram Manual

L. Publications Affected

MM - Maintenance Manual  
IPC - Illustrated Parts Catalogue  
WDM - Wiring Diagram Manual

2. Accomplishment Instructions

A. Install the Time Delay Relay (N22, N22B and N24 Aircraft Only)

- (1) Ensure the battery switch is in the OFF position and all external power supplies are disconnected from the aircraft.
- (2) Remove the seats and the carpeting in the passenger cabin as necessary to facilitate the removal of the forward left hand side longitudinal floor panel. Remove the floor panel.
- (3) Locate the time delay relay mounting bracket P/N 1/N-81-629 forward of the actuator relay panel so that the pilot holes in the bracket are 0.75 inch forward of the diaphragm tooling hole (above and slightly forward of the lightening hole) and so that the centre line of the bracket lines up with the centre line of the lightening hole (Ref Figure 2).
- (4) Drill out the pilot holes through the bracket and diaphragm using a No.30 (0.1285 in dia) drill. Remove the bracket and deburr all the holes. Relocate the bracket and rivet up using rivets P/N MS20470AD4-4.

- (5) Position the time delay relay P/N 4621-A-1202 onto the lower mounting position on the bracket and secure, using four stiffnuts P/N MS21083-N04.
- (6) There are five pins on the time delay relay at clock positions 12 o'clock (marked index dot), 2, 4, 6 and 9 o'clock, referred to hereafter as pin 12, pin 2, etc. Disconnect wire G6B22 from the landing gear actuator relay terminal C1 and connect it to the time delay relay pin 9 (Ref Figure 1).
- (7) Connect the anode of the diode P/N 20A2 to pin 9 and the cathode to pin 2. Connect the 2.7 Ohm 5W resistor across pins 2 and 12. Connect the 4.0 mF capacitor across pins 12 and 6 and connect wire G16A22 from pin 4 (Ref Figure 1) to the landing gear actuator relay terminal C1 (Ref Figure 2).
- (8) Connect wire G17A22N to pin 6 and the other end to the earthing bolt at the landing gear actuator relay mounting bracket. (Ref Figure 2)
- (9) Using an epoxy cement, (Araldite or suitable alternative), in accordance with the manufacturer's instructions, adhere the resistor, capacitor and diode to the body of the time delay relay.
- (10) The following wires G14A22, G14B22, G14C22, G15A22N, G16B22 and G16C22 are made redundant by the incorporation of this Service Bulletin and should be removed and discarded.

B. Install the Time Delay Relay (N24A Aircraft Only)

- (1) Disconnect wires G4A22 and G2A22 from the retract limit time delay relay and extend limit time delay relay respectively. Disconnect wires G15A22N, G14A22, G14B22 and G14C22 from the extend limit time delay relay and disconnect wire G15A22N at its earth end and wire G14A22 from the top terminal in the landing gear switch on the pilots panel.
- (2) Disconnect wires G16B22, G16C22 and G17A22N from the retract limit time delay relay.
- (3) Remove the extend limit and retract limit time delay relays.
- (4) Refer to Para 2.A.(5) to (10) inclusive, for installation details of the replacement time delay relay.

C. Install the 25 A Circuit Breaker

- (1) On the overhead console in the flight compartment remove the 20A circuit breaker marked LANDING GEAR ACT and replace it with a 25A circuit breaker P/N MS24510-25. (Ref WDM 32-30-00)

D. Function Test

- (1) Jack the aircraft (Ref MM Chap 7).
- (2) If the aircraft battery is not fitted, connect an external 27.5V DC ground supply to the aircraft.
- (3) Trip the landing gear actuator circuit breaker and disconnect electrical leads G10A10 and G11A10 from terminals 1 and 2 respectively of the rotary actuator relay unit.
- (4) Ensure that the landing gear control circuit breaker is set.
- (5) Select the battery switch to ON.
- (6) Select the landing gear selector switch to UP and check that the actuator relay unit actuates immediately i.e. continuity between terminals 1 and 3 of the unit. After approximately 12 seconds the time delay relay should operate and in doing so causing the actuator relay unit to de-energise i.e. no continuity between terminals 1 and 3 of the unit.
- (7) After satisfactory operation of the time delay relay select the battery switch to OFF, trip the landing gear control circuit breaker and reconnect the leads to their respective terminals on the actuator relay unit (Ref WDM 32-30-00).
- (8) Carry out normal landing gear actuation checks (Ref MM 32-00-00 and 32-30-00).

3. Materials Information

A. Parts Required per Aircraft

(1) The following items may be purchased ex-factory at the listed prices.

<u>Item P/N</u>	<u>Title</u>	<u>Qty</u>	<u>Price</u>
4621-A-1202	Time Delay Relay (Hi-G)	1	\$198.47
1/N-81-629	Bracket	1	\$ 42.21

(2) The following items are to be obtained from the operator's stock or local sources.

<u>Item P/N</u>	<u>Title</u>	<u>Qty</u>
Commercial	Resistor 2.7 Ohm 5W 5%	1
20A2	Diode	1
Commercial	Capacitor 4.0 mF Polycarbonate	1
	200VW, Hermetically Sealed	
Commercial	Alt. Capacitor 4.7 mF Polyester 250VW,	1
	Hermetically Sealed	
MS24510-25	Circuit Breaker, 25A	1
-	Epoxy Cement (Araldite)	A/R
MS20470AD4-4	Rivet	2
MS21083-N04	Stiffnut	4

B. Parts Modified and Re-identified by Operator

Nil

C. Parts Required to Modify Spares

Nil

D. Removed Parts

<u>Item P/N</u>	<u>Title</u>	<u>Qty</u>	<u>Recommended Disposition</u>
G14A22	Wire	1	Scrap
G14B22	Wire	1	Scrap
G14C22	Wire	1	Scrap
G15A22N	Wire	1	Scrap
G16B22	Wire	1	Scrap
G16C22	Wire	1	Scrap
4621-A-1202	Time Delay Relay (Hi-G) (N24A Aircraft)	1	Retain for spares
MS24510-20	Circuit Breaker 20A	1	Retain for spares

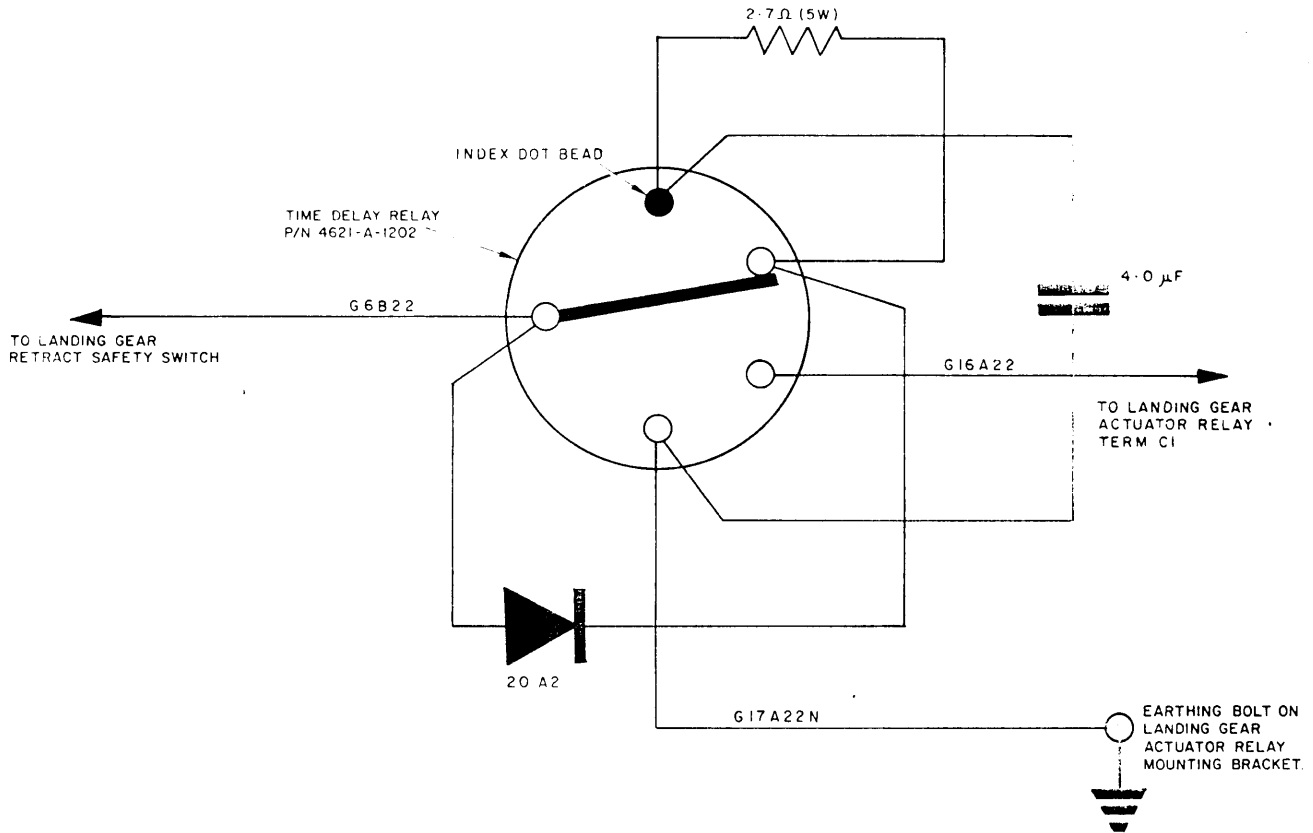
E. Special Tools and Equipment

None

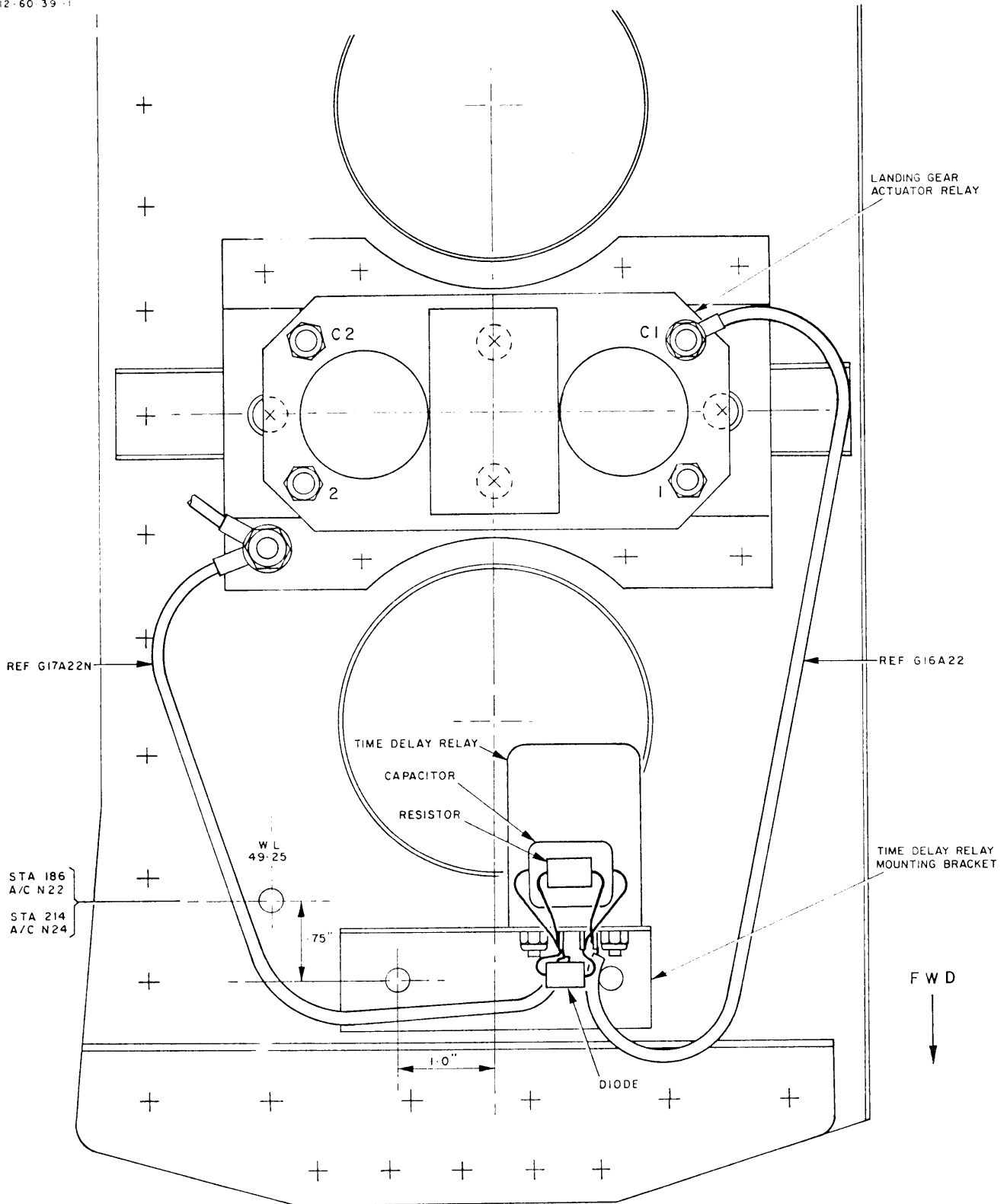
F. Recording Action

Record compliance with Service Bulletin NMD-32-16 in the airframe log book.

12 60 43 11



Wiring Connections  
Figure 1



Time Delay Relay Installation  
Figure 2