

Nomad SERVICE BULLETIN

NOSE WHEEL UNDERCARRIAGE — EXCLUSION OF NOSE WHEEL SHIMMY CONTRIBUTORY FACTORS

1. PLANNING INFORMATION

A. Effectivity

(1) Aircraft Affected

- (a) All Nomad N22 and N24 Series aircraft prior to S/No. 39 and aircraft whose Log Books do not record the embodiment of Mod N161 and/or Mod N166 or compliance with Service Bulletin NMD-32-9.
- (b) All Post-Mod N161 nomad aircraft that have “in-service wear” on nose torque links in excess of max 0.001 in free play (Ref Para 2.A.(5)(c)).

(2) Spares Affected

Part No	Description	Instruction/Disposition
1/N-41-620	Nose Landing Gear	Rework
1/N-41-623	Link Assy	Rework
1/N-41-621	Torque Link	Rework
1/N-41-657	Fork Assy	Rework
1A/N-41-600	Thrust Washer	Scrap
1/N-41-630	Pivot Pin	Scrap
1/N-41-681	Bush	Scrap
1/N-41-655	Shim	Scrap
RBJ213L	Bearing	Scrap

B. Reason

These mods were introduced to remove contributory causes of nose wheel shimmy.

Reason for Revision 1

To clarify the correct shim lamination thickness and introduce some minor editing changes.

C. Description

(1) Part 1

Details the instructions to incorporate the intent of Nomad Mod N161 which is the introduction of modified torque link pins and bushes to obtain a closer tolerance fit. This Service Bulletin also re-introduces laminated shims PN 1A/N-41-655 and 1B/N-41-655 to eliminate in-service wear of Post Mod N161 torque links.

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(2) Part 2

Details the instructions to incorporate the intent of Nomad Mod N166 which is the introduction of tight fit upper cradle bearings to reduce bearing end float.

D. Compliance

The introduction of these modifications is recommended if the aircraft develops nose wheel shimmy that is not resolved by routine maintenance as detailed in Service Letter 89-03. Either, or both modifications N161 and N166 may be incorporated on the aircraft.

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

(1) Part 1 4 man-hours

(2) Part 2 8 man-hours

G. Materials Price and Availability

Contact Boeing Aircraft Systems - Nomad Spares for price and availability of parts.

H. Weight and Balance

None.

I. References

Maintenance Manual	Chap 32-20-11	Chap 32-20-12
Illustrated Parts Catalogue	Chap 32-20-03	

J. Publications Affected

Maintenance Manual	Chap 32-20-12	
Illustrated Parts Catalogue	Chap 32-20-03	Chap 53-14-05
Component Maintenance Manual	Chap 32-01-02	

2. ACCOMPLISHMENT INSTRUCTIONS

A. Part 1 - Modification of Torque Links and Introduction of Modified Pins (Ref IPC Chap 32-20-03 Fig 1)

(1) Remove nose undercarriage torque links Assy PN 1/N-41-621 from nose oleo.

NOTE

It is not necessary to separate links at centre torque link bolt.

(2) Remove and retain grease nipples PN MS 15001-1 from pivot pins PN 1/N-41-630 and discard pins.

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- (3) Remove bushes PN 1/N-41-681 (4 off) from links assy PN 1/N-41-621 and replace with new bushes PN 1/N-41-718. Push fit bushes ensuring that inner face of bush remains below the counter bored surface. Maximum bush protrusion on outside face of links to be 0.020 in. Bush may be filed to achieve this dimension. Line ream bushes to 0.6250/0.6253 in dia and clean out swarf (Ref Fig 1).

NOTE

Use locally manufactured puller for removal and insertion of bushes to prevent damage to bushes and links (Ref Fig 3).

- (4) Using a copper drift remove and inspect bushes PN 1/N-41-139 from nose wheel fork PN 1/N-41-657 (Ref IPC Chap 32-20-03). Drill out centre of nose wheel fork pivot pin hole to 0.640 in dia to provide clearance within hole for line reaming new bushes. Refit serviceable bushes PN 1/N-41-139 using locally manufactured mandrel. Line ream bushes to 0.6250/0.6253 in dia and clean out swarf. Repeat for bushes PN 1/N-41-139 within torque link pick-up PN 1/N-41-623 (Ref IPC Chap 32-20-03 & Fig 2).

- (5) Fit modified torque links assy, as follows:

- (a) Install thrust washers PN 1F/N-40-879 onto roll pins and temporarily assemble upper link to torque link pick-up.

NOTE

Cadmium plated side against torque link or washer.

- (b) Using feeler gauges measure free play gap between thrust washer and torque link pick-up.
- (c) Select from laminated shim PN 1A/N-41-655 (0.002 lamination) and PN 1B/N-41-655 (0.003 lamination) which will, when fitted, reduce free play gap to 0.001 in maximum. This will allow assembly such that the shims fitted either side of torque link pick-up have a maximum differential of 0.002 in.

NOTE

Laminated shims can be rubbed down in thickness but this surface must be placed adjacent to the link and not thrust washer cadmium plated surface.

- (d) Repeat steps (a) to (c) for lower torque link connection to nose wheel fork.
- (e) Assemble the torque links assy, to upper and lower attachment points on the leg using lubricated pivot pins PN 1/N-41-713 complete with lubrication fittings PN MS 15001-1 (removed in Part 1 Para 2 above).

NOTE

- Bushes and thrust washers are to be lubricated with grease Spec. MIL-G-21164C (DTD 5527).
- These instructions can be used to eliminate in-service wear to Post Mod N161 torque links which have been assembled without the use of laminated shims PN 1A/N-41-655 and 1B/N-41-655 .

- (6) Subsequent to incorporation of Mod N161, strike No. 3 on Mod Data Plate PN 1/N-41-620 located on the oleo leg.

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B. Part 2 - Modification of Nose Undercarriage Cradle Bearings

- (1) Remove nose oleo assy PN 1/N-41-620 from cradle (Ref MM Chap 32-20-11).
- (2) Remove cradle assy PN 1/N-41-659 as follows:
 - (a) Remove nose gear lower drag link struts PN 1/N-41-613 (Ref MM Chap 32-20-12).
 - (b) Support weight of cradle. Remove cotter pins PN MS 24665-287, nut PN AN310-8, washers PN AN960D816 from pivot pins PN 1/N-41-645 withdrawing pins into cockpit (Ref IPC Chap 32-20-00).
 - (c) Remove cradle assy from nose wheel bay.
- (3) From within the wheel well wall on RH side, remove plate PN 1/N-10-64 and on LH side remove bearing retaining ring PN NAM 1300-250. Remove bearings PN RBJ 213L and replace with bearings PN RBJ 213L-TF. Refit retaining ring and bearing retaining plate (Ref IPC Chap 53-14-05).
- (4) Refit cradle assy PN 1/N-41-659 in reverse order of removal as instructed in step 2 above. Torque tighten pivot pins PN 1/N-41-645 to 480-690 lb in.
- (5) Refit nose gear lower drag links (Ref MM Chap 32-20-12).
- (6) Refit nose oleo assy PN 1/N-41-620 (Ref MM Chap 32-20-11).
- (7) Functionally check undercarriage and nose steering.
- (8) Strike No. 14 on data plate PN 1/N-10-520 located on the forward face of bulkhead frame 67.95.

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3. MATERIALS INFORMATION

A. Parts Required per Aircraft

- (1) One each parts kit NMD-32-9-1 and NMD-32-9-2 are required per aircraft. Kit NMD-32-9-1 is required to incorporate para 2 Part 1 and Kit NMD-32-9-2 is required to incorporate para 2 Part 2 of this Service Bulletin.

New Part No	Qty	Description	Old Part No	Instruction/Disposition
Contents of Service Bulletin Kit NMD-32-9-1				
1/N-40-698	4	Dowel	1/N-40-698	Scrap
1F/N-40-879	4	Thrust Washer	1A/N-41-600	Scrap
1/N-41-713	2	Pin Pivot	1/N-41-630	Scrap
1/N-41-718	4	Bush	1/N-41-681	Scrap
1/N-41-139	4	Bush	1/N-41-139	Scrap
1/N-41-156	1	Tab Washer	1/N-41-156	Scrap
1/N-41-255	1	Tab Washer	1/N-41-255	Scrap
1A/N-41-655	2	Shim - Laminated	1/N-41-655	Scrap
1B/N-41-655	2	Shim - Laminated	1/N-41-655	Scrap
Contents of Service Bulletin Kit NMD-32-9-2				
RBJ213L-TF	2	Bearing	RBJ213L	Scrap
2/N-03-478	2	Bearing (ALT)	RBJ213L	Scrap
1/N-41-643	4	Dowel Pin	1/N-41-643	Scrap
1/N-41-662	1	Shim - Laminated	1/N-41-662	Scrap
Parts to be modified and reidentified by the operator				
1/N-41-620	1	Nose Landing Gear	1/N-41-620	Rework
1/N-41-715	1	Link Assy	1/N-41-623	Rework
1/N-41-719	1	Torque Link	1/N-41-621	Rework
1/N-41-657	1	Fork Assy	1/N-41-657	Rework

B. Parts Required to Modify Spares

Parts to be modified	Description	Required Parts	Qty	Instructions
1/N-41-620 (Spare)	Nose Landing Gear	NMD-32-9-1 (Kit)	1	Rework to para 2A Part 1
1/N-41-623 (Spare)	Link Assy	1/N-41-139 (Bush)	2	Rework to para 2A Part 1(4)
1/N-41-657 (Spare)	Fork Assy	1/N-41-139 (Bush)	2	Rework to para 2A Part 1(4)
1/N-41-621 (Spare)	Torque Link	1/N-41-718 (Bush)	2	Rework to para 2A Part 1(3)

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C. **Special Tools and Equipment**

The following special tools are required to incorporate this Service Bulletin.

Part No	Qty	Description	Remarks
NPN	1	Mandrel	Manufacture per figure 2
NPN	1	Puller	Manufacture per figure 3

4. **RECORDING ACTION**

■ Record compliance with Service Bulletin NMD-32-9 Rev 1 in the Airframe Log book.

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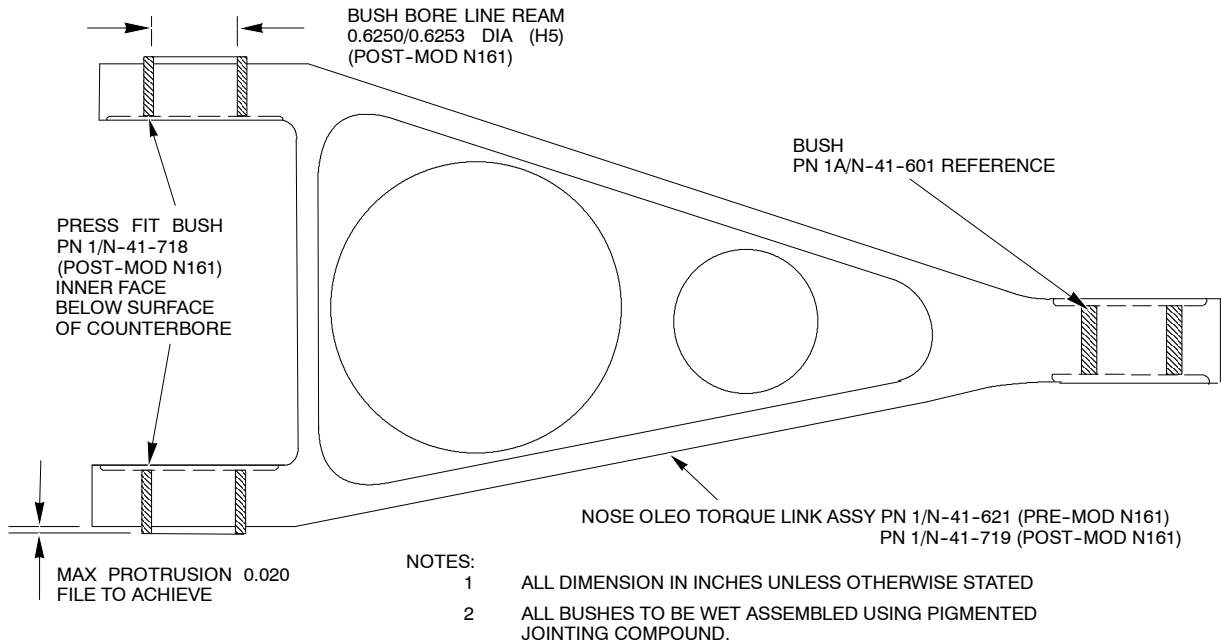


Figure 1

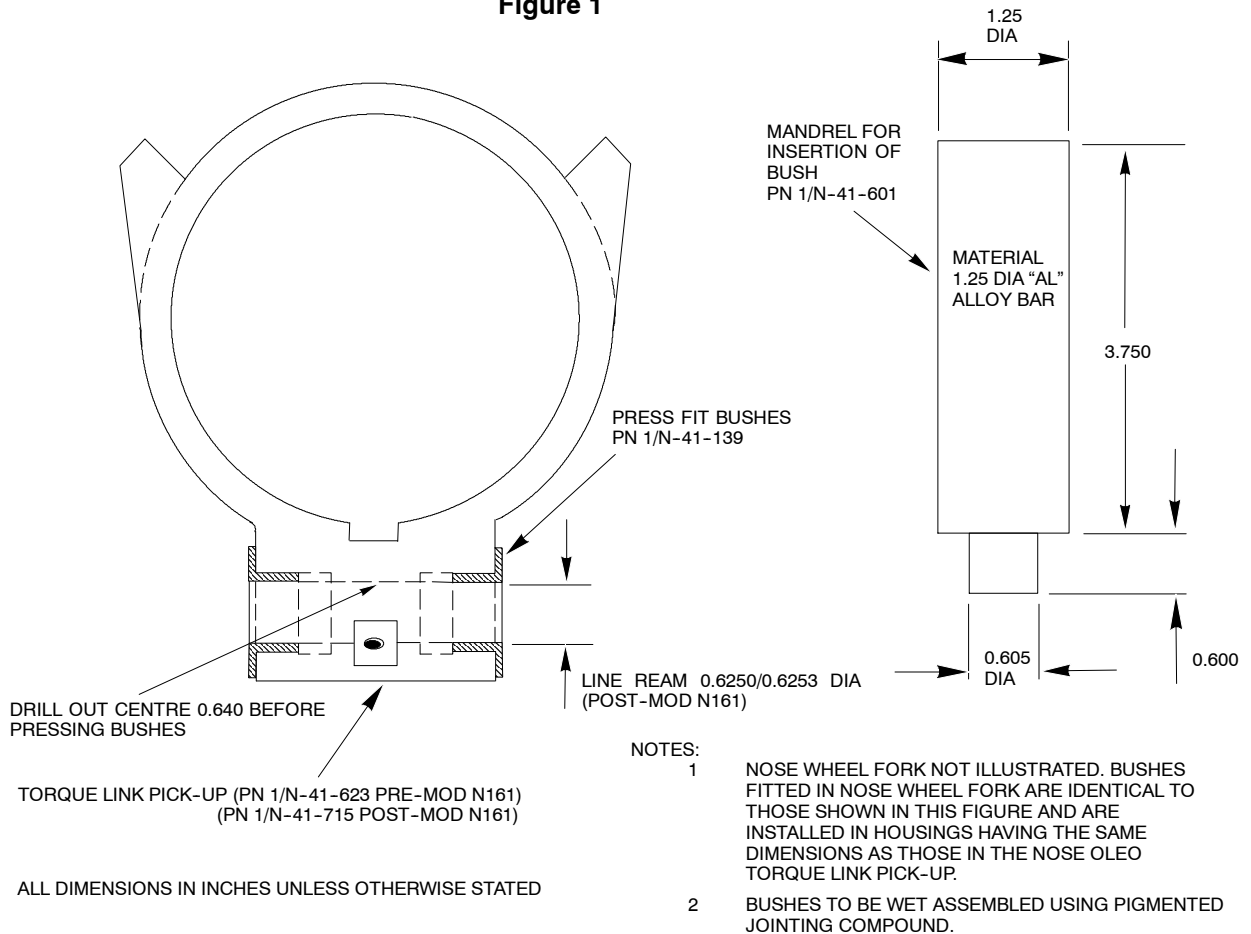


Figure 2

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	NOSE TORQUE LINKS-TWIN BUSHES	GEAR TORQUE LINKS-TWIN BUSHES
A	2.50	
B	1.00	
C	0.50	
R	0.20	
E DIA	0.710	
	0.708	
F DIA PIN	0.618	
	0.617	
G DIA	0.718	
	0.717	
H DIA	1.00	
J DIA	1.20	
K THREAD		
SIZE	1/2-20 UNF	
A+B	3.50	

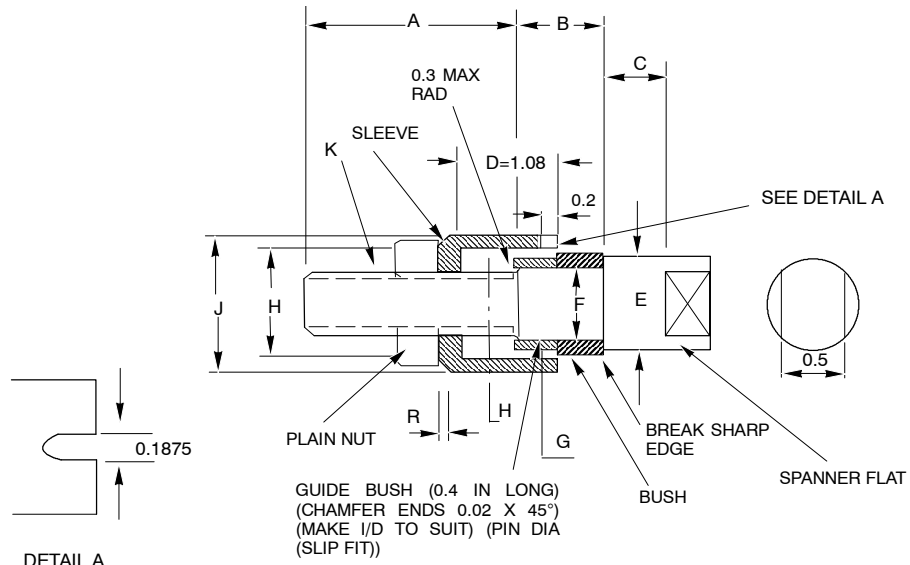


Figure 3 Puller for Nose Oleo Torque Link Bushes

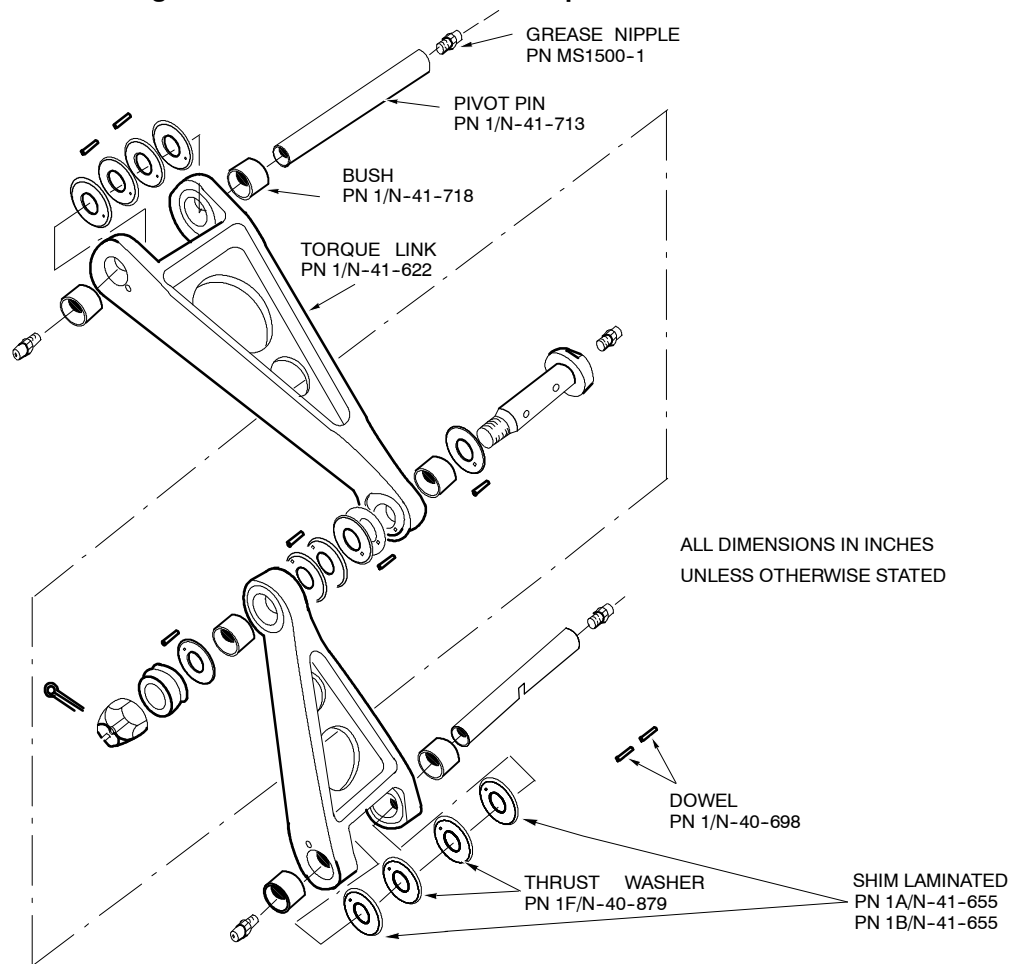


Figure 4 Post Mod N161 Torque Links Assy 1/N-41-719 (Assy Components)

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