

Cleveland

Wheels & Brakes

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PRODUCT REFERENCE MEMO

40-77 WHEEL ASSEMBLY, TIE BOLT/OVERHAUL SET AVAILABILITY

APPLICABILITY: All P/N 40-77 Wheel Assemblies used on:

- Taylor Aircraft Model F-22 Aircraft
- SME Aerospace Model MD3-160 Aircraft
- Diamond Model DV-40 Aircraft
- FLS Aerospace Ltd. (Lovaux Optica Model ASW20, 21, 22, & 23 Aircraft)
- Pacific Aerospace Corp Model CT/4E Airtrainer Aircraft
- Cirrus Model SR20 and SR22 Aircraft
- Sadler Model A-22, Lasa, and 18-100OPV Aircraft

- Cessna Model 150 All models, 152, A152, F152, and FA152, 172 all models, 182 G through P, and 182 S, 205, 206 all models, 207 all models, 210 and 210D through N Aircraft
- Waco Model Meteor, Minerva, and Vela Aircraft

EFFECTIVITY: All Parker Hannifin (Cleveland Wheels & Brakes) P/N 40-77 Wheel Assemblies. Beginning February 2007 the subject wheel assemblies will be provided with the new low profile all metal lock nut.

REASON: To inform Owner/Operators of a new tie-bolt service and overhaul set available for the 40-77 wheel assemblies. No failure has occurred as a result of the existing tie-bolt system.

Review of the tie-bolt system found that under some conditions the standard AN hardware may not provide a minimum of one thread exposed above the nut as recommended by current FAA AC 43.13-1B, Chapter 7, Pg. 7-11.

A low profile all metal lock nut is available that meets the suggested minimum of one thread exposed above the nut under all conditions. The low profile nut will provide distinct visual indication of proper bolt engagement. Use of the nyloc nut is still an accepted configuration, however a different torque value is required.

CAUTION: Operators are advised that the entire fastener system should be changed to maintain proper torque-tension relationship. It is recommended to change the fastener system as a complete set each tire change or overhaul.



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DESCRIPTION: This PRM provides the inspection guidance and replacement instructions of tie-bolt set in the 40-77 Wheel Assemblies. The following procedures are provided to assure proper installation of low profile tiebolt nuts when accomplishing an overhaul.

The Cleveland Wheels and Brakes Component Maintenance Manual Number AWBCMM0001, latest issue, is available and should be used for general maintenance of the subject Cleveland wheel assemblies.

COMPLIANCE: Optional, at owner's discretion. The existing tie-bolt nut remains an acceptable configuration for the 40-77 Wheel Assemblies. (Continued use of 094-10300 nut requires a different torque value, see Hardware Reference Photo's).

MATERIALS REQUIRED: Service kits 199-264 upgrades and includes components to overhaul one (1) 40-77 wheel assembly. Rubber grease seals, grease rings, retaining rings, bearings, and optional parts should be ordered separately.

<u>PART NUMBER</u>	<u>DESCRIPTION</u>	<u>QUANTITY</u>
103-10500	Bolt	3
094-01200	Nut	3
095-10200	Washer	6
217-00100	Grommet	1
154-00600	Felt grease Seal	2
166-19700	Nameplate	1
166-20000	Nameplate	1
PRM 73	Product Reference Memo	1
PRM 78	Product Reference Memo	1
PRM 86	Product Reference Memo	1

APPROVAL: The engineering contents of this Product Reference Memo are FAA DER approved.

WT & BALANCE: Not affected.

PUBLICATIONS: The information contained in this Product Reference Memo (PRM 86) will be incorporated into the Product Catalog and Maintenance Manual at the next revision.

INSPECTION At next tire change or overhaul replace the tie-bolt set and incorporate the low profile nut per this Product Reference Memo. (Refer to Figures 1 and 2)

At next available maintenance interval, and at Owner's discretion, inspect tie-bolt system for evidence of one complete thread exposed from the nut. If one complete bolt thread is exposed above the nut, aircraft may be returned to service at Owner's discretion.

INSTRUCTIONS: 1. Deflate tire and remove wheel assemblies from aircraft in accordance with aircraft manufacturer's instructions.

2. Remove valve core from tire.

CAUTION: ALWAYS REMOVE THE VALVE CORE AFTER THE TIRE IS DEFLATED.

3. Disassemble and service wheel in accordance with instructions in AWBCMM0001, latest issue, Component Maintenance Manual and proceed as follows: Remove and discard the tiebolts, nuts, washers, grease felts, and grommet. Deepwell 7/16 and 5/16 six-point sockets are recommended.



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4. Thoroughly clean wheel assembly per Component Maintenance Manual. Completely remove the contained grease and clean the bearings and bore. Refer to AWBCMM0001, latest issue, for grease packing instructions and pack bearings with Mobile SHC-100. Install new felt grease seals lubricated with Mobile SHC-100.

5. Align tube on wheel half and join inner and outer wheel halves assuring that the tube is free from the joint line between wheel halves.

CAUTION: NEVER INFLATE THE MOUNTED TIRE AND TUBE WITHOUT ALL TIE BOLTS INSTALLED AND PROPERLY TORQUED.

6. Install new tie-bolts, washers, and nuts as a set. The washers are installed under each bolt head and under each nut.

CAUTION: THE USE OF POWER TOOLS TO INSTALL NUTS AND BOLTS IS NOT A RECOMMENDED PRACTICE. IT MAY CAUSE OVER TORQUING OF THE FASTENER SYSTEM AND RESULT IN DAMAGE TO THE FASTENER OR MATING COMPONENTS.

Note: Fastener torque information is also available in the Cleveland Wheel and Brake Component Maintenance Manual, AWBCMM0001, latest issue, or Technician's Service Guide. If there is any conflict or question regarding dry torque value on your assembly, contact Cleveland Customer Support for assistance.

WARNING: FAILURE TO PROPERLY TORQUE THE WHEEL ASSEMBLY BOLTS MAY RESULT IN PREMATURE FAILURE OF THE MATING COMPONENTS OR HARDWARE.

7. Reassemble wheel per maintenance manual instructions installing one (1) washer under each nut and DRY torque nuts in two steps; first to 35 in-lbs then to 75 in-lbs. ALWAYS restrain the bolt head and torque the nuts until all nuts are properly torqued. Lubricant is **NOT** to be used.

8. Place Warning label adjacent to valve hole.

9. Place identification label opposite valve hole.

10. Reinstall wheel on aircraft per applicable aircraft manual.

RETURN TO SERVICE:

1. When returning the wheel assembly to service, apply a liberal amount of Mobile Aviation SHC-100 aircraft bearing grease to the bearings per PRM 78, the mating cavity areas, and lightly coat all surfaces of the grease felts or install rubber lip grease seals, if equipped.

2. After installation of the wheel assembly on the aircraft, torque the axle nut to manufacturer's recommendation and secure with cotter pin as specified in the Airframe Owner's Handbook, install hubcap and secure with screws as applicable.



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3. Make an appropriate logbook entry referencing the change of hardware and identification labels. Record the flight hours from the Hobbs meter, the length of time wheels have been in service, number of tire changes, the torque applied to the tiebolt nuts, inflation pressure, and date that the aircraft is returned to service. Signature and certificate number are required logbook entries.

WARNING: WHEN INFLATING TIRES OR CONDUCTING INFLATION CHECKS FOLLOWING A DISASSEMBLY ALWAYS USE A BLASTPROOF EXPLOSION CAGE TO PROTECT FROM PERSONAL INJURY.

HARDWARE REFERENCE IDENTIFICATION PHOTOS:

