Cleveland
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PRODUCT REFERENCE MEMO

40-142 WHEEL ASSEMBLY. – LOW PROFILE TIE BOLT NUT– INSPECT / REPLACE

APPLICABILITY: All P/N 40-142 Wheel Assemblies used on:

Piper Model PA46-500 Meridian Aircraft

Cessna Model P210 and 303 Aircraft

Aermacchi Model SF-260 Aircraft

Valmet Model L-90 TP Redigo Aircraft

Vulcanair Model P68 and Vr Series Aircraft

EFFECTIVITY: All Parker Hannifin (Cleveland Wheels & Brakes) P/N 40-142 Wheel Assemblies. Beginning March 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 40-142 wheel assembly. Piper requested that Parker Hannifin (Cleveland Wheels & Brakes) review the thread engagement of the tie bolt system used on the subject wheel assembly. 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 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 existing nut is still an accepted configuration.

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.

DESCRIPTION: This PRM provides the inspection guidance and replacement instructions of tie bolt set in the 40-142 Wheel Assembly. The following procedures are provided to assure proper installation of low profile tiebolt nuts when accomplishing an overhaul.

The Cleveland Wheels & Brakes Component Maintenance Manual Number AWBCMM0001, latest issue, is available and should be used for general maintenance guidelines for External Design Wheels and brakes.

COMPLIANCE: Optional, at owner's discretion. The existing tie bolt nut remains an acceptable configuration for the 40-142 wheel assembly.

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MATERIALS REQUIRED: Service kit 199-262 will upgrades and includes components to overhaul one (1) wheel assembly. Rubber grease seal, grease rings, retaining rings, bearings, and optional parts should be ordered separately.

PART NUMBER	DESCRIPTION	QUANTITY
103-20400	Bolt-(AN5-35A)	6
094-12700	Nut-(MS21042-5)	6
095-10500	Washer-(AN960-516)	6
154-00300	Felt grease Seal	1
154-01300	Felt grease Seal	1
166-19700	Nameplate	1
166-20000	Nameplate	1
PRM 73	Product Reference Memo	1
PRM 78	Product Reference Memo	1
PRM 84	Product Reference Memo	1

APPROVAL: The engineering contents of this PRM are FAA DER approved.

WT & BALANCE: Not affected.

PUBLICATIONS: The information contained in this Product Reference Memo (PRM 84) will be incorporated into the Product Catalog and Maintenance Manual at the next revision.

INSPECTION (Refer Hardware Reference Identification Photos)

At next tire change or overhaul replace the tiebolt set and incorporate the low profile nut per this Product Reference Memo.

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. Prior to disassembly, note the orientation of washers, bolts and nuts relative to the disc so the same orientation is used during reassembly.
4. Disassemble and service wheel in accordance with instructions in AWBCMM0001, latest issue, Component Maintenance Manual and proceed as follows: Remove and discard the tie bolts, nuts, and washers. Thoroughly clean wheel assembly per Component Maintenance Manual. Deepwell 1/2 and 3/8 6-point sockets are recommended.
5. 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.

6. 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 TUBE WITHOUT ALL TIEBOLTS INSTALLED AND PROPERLY TORQUED.

7. Install new tie bolts, washers, and nuts as a set. The bolt head must be located against the brake disc flange and the washers are installed under the nuts.

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.

Fastener torque information is also available in the Cleveland Wheels & Brakes 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.

8. Reassemble wheel per maintenance manual instructions installing one (1) washer under each nut and DRY torque nuts in two steps; first to 75 in-lbs then to 150 in-lbs. ALWAYS restrain the bolt head and torque the nuts using a crisscross pattern until all nuts are properly torqued. Lubricant is **NOT** to be used.
9. Place Warning label adjacent to valve hole.
10. Place identification label opposite valve hole.
11. 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 Aircraft grease SHC-100 to the bearings per PRM 78, the mating cavity areas, and lightly coat all surfaces of the grease felts. Install rubber lip grease seals per PRM 85, 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 snap ring as applicable.
3. Make a 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.

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: