INSTRUCTIONS

FOR

CONTINUED AIRWORTHINESS

FOR

GROVE NOSE WHEELS

WITH

FAA-TSO APPROVAL

DOCUMENT 1711-11
Rev IR

April 20, 2017

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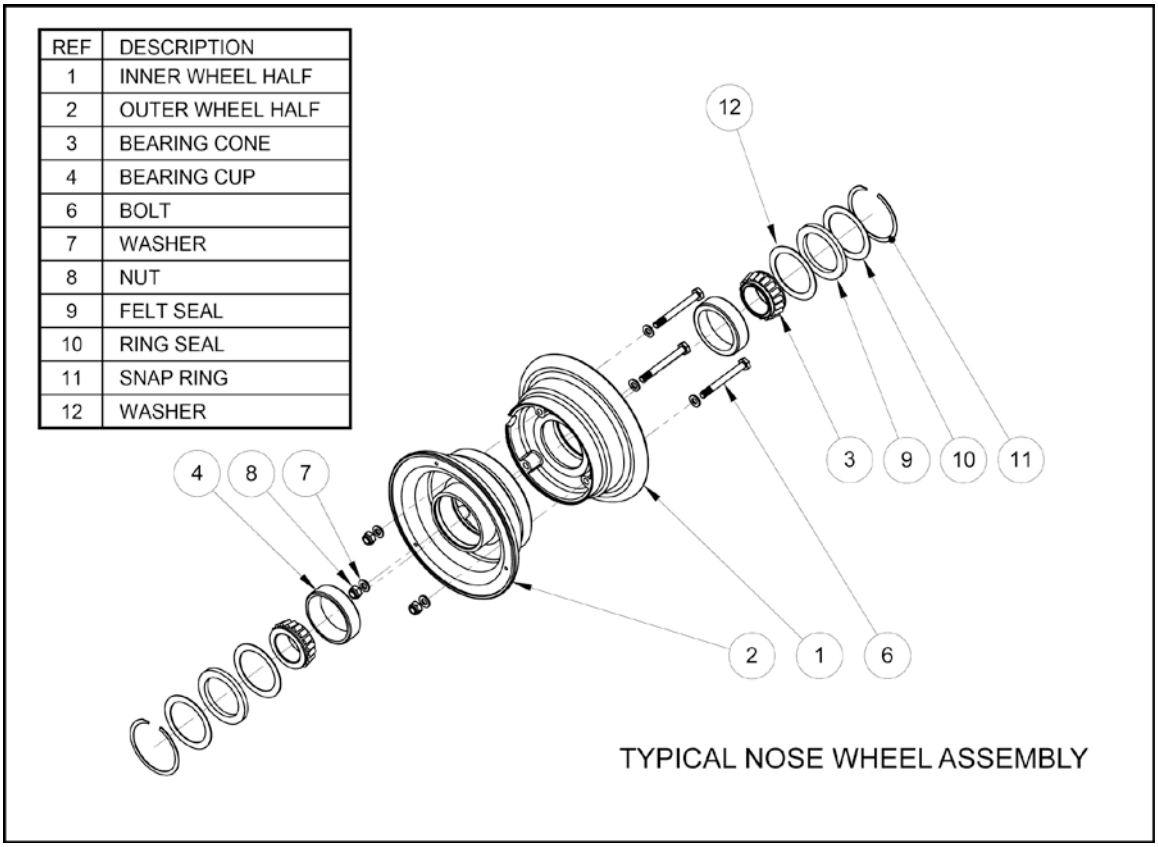


Figure 1

INTRODUCTION

This document provides installation and continued airworthiness instructions for Grove Nose Wheel assemblies with FAA-TSO approval. These articles have been tested to meet the requirements of TSO-C26d but do not have installation eligibility for specific aircraft.

As such, this is not an FAA approved document, but rather a guide for aircraft manufacturers and others who obtain installation eligibility on their aircraft. The information contained herein will be helpful to these persons as a basis to amend and include in their approved installation and continued airworthiness documents.

The following paragraphs detail the inspection and repair processes for these articles. Information regarding specific part numbers and tolerances can be obtained by contacting Grove Aircraft Landing Gear Systems Inc.

Figure 1 on the preceding page shows the main components of a typical Grove Nose Wheel assembly

NOSE WHEEL ASSEMBLY INSPECTION AND MAINTENANCE

1. VISUAL INSPECTION

Failure of any of the following inspections will require maintenance and/or repair as detailed in the following sections.

1.1 Insure that the wheel tie bolts are secure and have not worked loose.

1.2 Visually inspect the wheel for corrosion, cracks, or other visible damage.

2. MAINTENANCE AND REPAIR

2.1. Removal of the Wheel Assembly

2.1.1 Jack and secure the aircraft in accordance with manufacture's instructions.

2.1.2 Ensure that the aircraft is stable.

2.1.3 Deflate the tire by depressing the valve stem plunger until no more air escapes.

> **CAUTION:** Do not attempt to remove valve stem core, loosen the axle nut, or disassemble the wheel halves until all tire pressure has been released. Failure to do so can result in severe personal injury.

2.1.4 Remove the wheel/tire assembly from the aircraft in accordance with manufacturer's instructions.

2.2. Disassembly of the wheel

2.2.1 Place the wheel assembly on a clean flat working surface. Care must be taken to prevent damage to the wheel such as scratches and/or nicks which will destroy the corrosion resistant protection of the wheel.

2.2.2 Separate the tire beads from the wheel halves using a tire bead breaker or other suitable tool. Do not pry between the tire and wheel flange as damage to tire and/or wheel may occur.

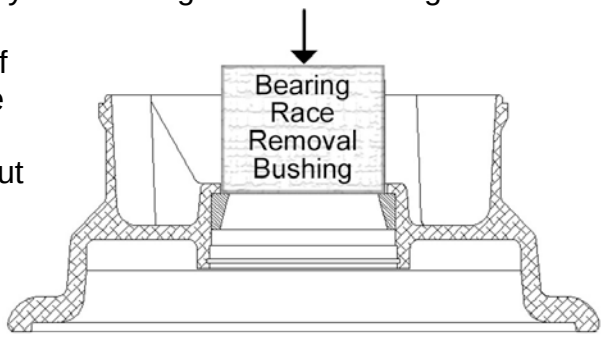
2.2.3 Remove the nuts, washers and bolts that hold the wheel halves together.

2.2.4 Separate each wheel half from the tire using care to not damage the inner tube or its valve stem.

2.2.5 Remove the retaining snap rings, washers, felt grease seals and wheel bearings using care to prevent damage to the wheel or bearings.

2.3. Inspection and Repair

2.3.1 Inspect the bearing races for scoring, corrosion, signs of over heating or other physical damage. Loose bearing races are cause for rejection of the wheel half. If replacement of the race is necessary, carefully press it out using a press and properly sized bushings as illustrated.



2.3.2 Visually inspect each wheel half for cracks, nicks, corrosion or other damage. Particular attention should be paid to the tire bead seat area. Obvious cracks and severe corrosion are cause for rejection of the part. A further inspection using the dye penetrant method should be performed on any part whose serviceability is questionable. Small nicks, scratches and pits may be blended out and polished with fine (400 grit) sandpaper and then painted and/or treated for corrosion resistance.

2.3.3 Clean the wheel bearings in a suitable solvent and air dry using compressed air being careful to not allow the compressed air to spin the bearings.

2.3.4 Inspect the bearings for pitting, cracks, evidence of overheating, or excessive corrosion, any of which is cause for rejection of the part.

2.3.5 Inspect the felt grease seals. Excessively worn, hardened or contaminated seals are cause for replacement. Serviceable seals should be cleaned in solvent, air dried, and set aside in a clean, protected environment until required for reassembly.

2.3.6 Inspect the felt seal retaining washers and snap rings for distortion, excessive corrosion or other physical damage which is cause for rejection.

2.3.7 Inspect wheel tie bolts for cracks, bending, thread damage, or excessive corrosion, any of which is cause for rejection. The tie bolts are subjected to fatigue type loads and should be replaced whenever there is any question as to their serviceability.

2.3.8 Test the wheel tie bolt nuts by temporarily installing them onto the bolts. If the nut can be turned by hand past the self-locking section, it must be replaced.

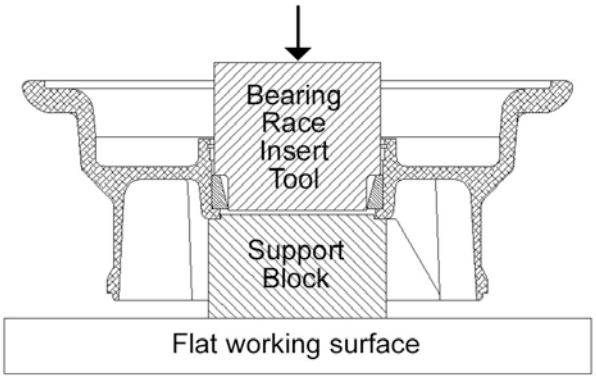
2.4. Reassembly of the Wheel

2.4.1 Reassembly of the wheel is basically the reverse of the disassembly process. Assemble the wheel on a clean, flat surface being careful to not nick, scratch, or damage the protective finish of the wheel.

2.4.2 Reinstall the bearing races if applicable. Heating the wheel and/or cooling the bearing race is of minimal benefit in the installation process.

2.4.3 Clean the wheel bearing race bore and apply a thin coat of wheel bearing grease.

2.4.4 Place the bearing race in the wheel bore, being careful to ensure that it is aligned properly and not cocked.



2.4.5 Place the wheel half in the press as shown in the adjacent figure being sure to support the wheel half at the bottom of the bearing seat. Failure to do so may result in breakage of the wheel casting if too much force is applied.

2.4.6 Press the bearing race into the wheel until it is fully seated.

2.4.7. Remove the wheel from the press and visually check to see that the race is fully seated and that it is tight in the wheel.

2.4.8 Prior to mounting the tire on the wheel, ensure that the wheel is clean and dry. Particular attention should be paid to the bead seat area to ensure that it is clean, dry and free of grease or other contamination.

2.4.9 Insert the inner tube into the tire. Align the red dot on the tire (its lightest point) with the white or yellow dot on the tube (its heaviest point). If the tube does not have a white dot, align the red dot on the tire with the valve stem of the tube. In order to allow the tube to move freely within the tire, it is recommended that you coat the tube and inner part of the tire with talc powder.

2.4.10 Inflate the inner tube to approximately 10 psi, allowing it to take the shape of the tire. Deflate the tube to the point that it just retains its shape.

2.4.11 Place the wheel half with the valve stem hole in it on a flat clean working surface with the inboard side of the wheel facing up.

2.4.12 Place the tire and tube onto the wheel half carefully inserting the valve stem through the hole in the wheel half.

2.4.13 Insert the other wheel half into the tire with the tie bolt holes aligned, using care not to pinch the inner tube.

2.4.14. Insert a tie bolt with a washer under the head, into each of the tie bolt holes.

2.4.15 Rotate the wheel from the working surface in order to be able to attach the nuts to the tie bolts. Hand tighten a nut with washer on each of the tie bolts. Care should be taken to ensure that the wheel halves are in contact with each other and not pinching the inner tube.

2.4.16 Torque the tie bolt nuts to the value indicated on the wheel label. Observe the amount of torque required to turn the nut due to the locking friction of the nut and add this to get the proper torque wrench reading.

2.4.17 New wheels, when shipped by Grove, have wheel bearings that are pre-greased and do not need further action. After that, during maintenance, you must re-pack the bearings using MIL-G-81322 grease such as Aeroshell 22, Mobil 28, or equivalent.

2.4.18 With the wheel on a flat working surface, lightly coat the bearing race with bearing grease, then place a re-packed wheel bearing into the bearing race.

2.4.19 Install the washers, felt grease seal and retention snap ring. A light coat of light weight oil on the felt grease seal is recommended.

2.4.20 Turn the wheel over and repeat steps 18 and 19.

2.4.21 Place the wheel in a protective enclosure and inflate to 60 psi. Deflate the tire by depressing the valve stem plunger and re-inflate to the pressure recommended by the aircraft manufacturer.

2.2. Reinstalling the Wheel on the Aircraft

2.2.1 Re-install the wheel and tire assembly onto the aircraft in accordance with the manufacturer's instructions.

2.2.2 Rotate the wheel to ensure that it is secure and rotates freely.

2.2.3 Lower the aircraft to the ground following aircraft manufacturer's instructions.