INSTALLATION, MAINTENANCE & SERVICE BULLETIN

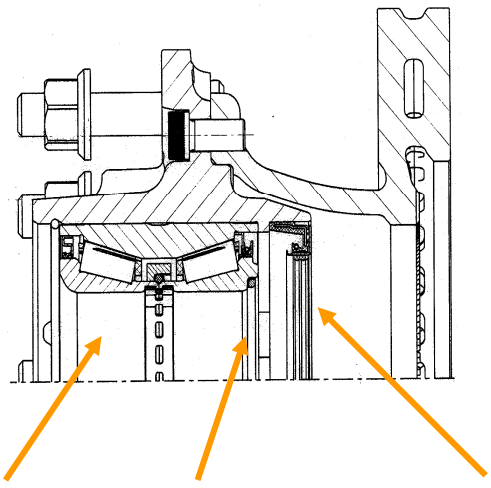
UNITIZED WHEEL END MAINTENANCE

SCOPE

SKF LUNAR ADH range consists of a cartridge (THU1) bearing unit. This bearing is permanently sealed and lubricated, and the bearing is not serviceable. While the LUNAR hub offers reduced maintenance, it still requires regular inspection. This procedure covers inspection, removal and installation.
Please consult “HUB & WHEEL INSTALLATION” Bulletin KPM-003-0310 for information not covered in this procedure e.g. wheel rim installation.

Axles can be identified from the hubcap with inscription on it:

”SKF LUNAR HUB WITH CR SEALING TECHNOLOGY.”
Description of SKF LUNAR ADH components is below:



Cartridge (THU1) Bearing	O-Ring on bearing inboard side of bearing	Additional inboard seal (See section 5 for part number details)

Figure 1

(Scotseal is a registered trade mark of SKF AUSTRALIA PTY LTD).

1. Vehicle Inspection

1.1 Interval

Normal Duty Operation - Inspect the wheel end every 200,000kms or 12 months, whichever comes first.

Heavy Duty Operation - Inspect the wheel end every 100,000kms or 6 months, whichever comes first.

2. Wheel End Inspection

The wheel inspection consists of checking the smooth rotation of the wheel and bearing assembly, check for excessive movement of the bearing and look for any signs of seal leaks.

2.1 Checking Smooth Rotation and Movement:

1. Rotate the Hub.

2. Listen for worn bearings that make a low-pitched grinding sound while the hub is rotated. The wheel rims will amplify the noise if assembled. If the bearing is noisy, check the bearing endplay.

2.2 Checking the Seals:

1. Check the additional inboard seal for leakage. There may be some grease on the spindle shoulder from installation, this is not classified as leakage.

2. Remove hubcap and check O-Ring for splits or cracks. Replace O-Ring (P/N: CRS.OR150.0x5.0-S) if damaged.

2.3 Checking bearing endplay:

1. Check the bearing endplay:

    a. Remove the wheel rim and tyre.
    b. Remove the hubcap.
    c. Attach a magnetic base of a dial indicator to the end of the spindle with the dial indicator point touching the hub.
    d. Push the hub inward until the dial indicator does not change and zero the dial indicator. Do not rotate the hub.
    e. Pull the hub outward until the dial indicator does not change and record the dial indicator reading. Do not rotate the hub.

2. Take the following action depending on the endplay recorded:

    a. If endplay is less than 0.08mm, no action is required.
    b. If endplay is above 0.08mm, then:

        i. Open the lock tab washer.
        ii. While rotating the hub a minimum of 10 times, tighten the castellated nut, torque the nut to 950Nm (700 lb/ft).
        iii. Fold at least two of the tabs on the lock tab washer over the nut to lock the nut in position.

    c. If endplay is above 0.20mm after tightening the nut, then replace the bearing.

3. Removing the hub.

Following standard procedures to remove tyre and wheel rim depending on wheel rim used, ensure that all safety requirements are followed.

1. Ensure the hub weight is securely held to support its weight when hub is removed from axle.

2. Remove six hubcap bolts and hubcap.

3. Open the tabs on lock tab washer.

4. Remove the castellated nut and thrust washer.

5. Hold the hub with both hands and pull the hub as straight as possible to prevent damaging or dislodging the centre clip in the bearing inner ring. If hub does not slide off, then tap lightly & evenly on the axle inboard of where the additional seal is located on the axle, while pulling on the hub. If hub still does not move, then use a puller.

4. Installing the hub.

Do not try and assemble the hub with wheel and rim attached. The additional seal should be replaced each time the hub is removed, fit a new seal (P/N: Scotseal 47693) before installing hub.

1. Using a clean rag, clean the hub bore and axle spindle.

2. Check the axle spindle, hub bore, and axle spindle shoulder for scratches, burrs and any surface imperfection. If required use emery paper to repair. Clean again after using the emery paper.

3. Inspect the thread and nut, clean & lubricate both and run the nut up the full length of the thread to ensure it is free and not affected by high spots.

4. Apply a light film of Anti-frett paste (Available from SKF, P/N: LGAF 3E/05 > 0.5kg or LGAF 3E/30 > 30kg) to the entire bore of the bearing unit, including the O-Ring on the inboard side of the bore.

5. To ensure proper seal life of the additional inboard SKF Scotseal , fill the inside seal cavity with a good wheel bearing grease. (Castrol APX T / LMX or equivalent) (As shown in figure 2)

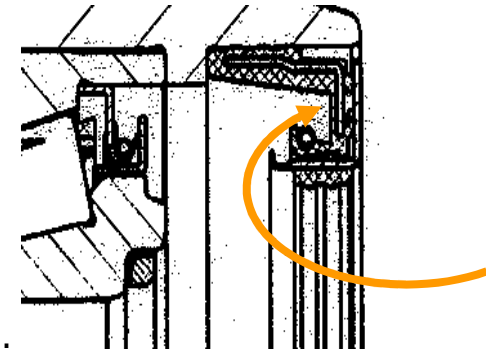


Figure 2

6. Take time to carefully align the hub bore with the axle spindle, and slide the hub straight on. If the hub jams, remove the hub repeat installation taking additional care aligning the hub. Do not force the hub if it jams.

7. Lightly lubricate the face of the castellated nut with grease, install the thrust washer and the castellated nut.

8. Torque the nut to 950Nm (700 lb/ft), **While rotating the hub a minimum of 10 times**.

9. Fold at least two of the tabs on the lock tab washer over the nut to lock the nut in position.

10. Ensure the hub rotates freely, and measure the bearing endplay as per section 2.3.

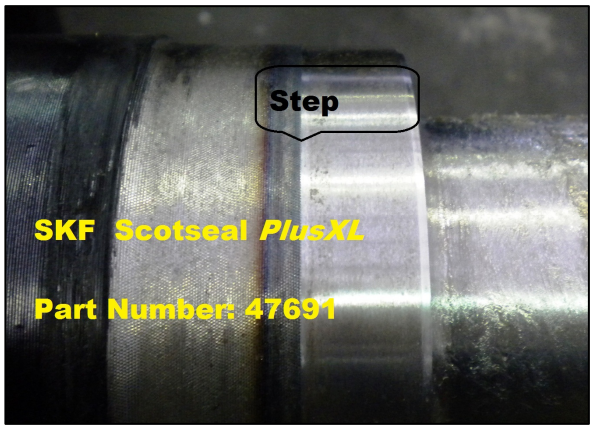
11. Check hubcap and hubcap mating surfaces are free of dirt and burrs. Check the O-Ring for splits or cracks, replace O-ring if damaged. Lightly grease the O-Ring before installing hubcap. Lock washers of the split, conical or internal toothed design may be used in conjunction with the fastening bolts (do not use flat washers). Thread all bolts loosely, and then tighten down uniformly in a star pattern with 16 to 22 Nm.

5. Replacing the additional inboard seal.

The additional seal must be replaced each time the hub is removed.
Note: Be careful not to confuse the additional seal with the inner and outer seals within the cartridge bearing, these seals are not replaceable.

Ensure that the correct SKF Scotseal is selected. Check the axle spindle surface where the seal is resting on for the following.

If the seal area is about 18mm wide with a step, please use the SKF Scotseal PlusXL Part Number 47691.



If the seal area is about 45mm wide **without** a step, please use the SKF Scotseal Classis Part Number 47693.

1. Remove the additional seal using a seal removal tool (SRT-1). If this tool is not used, ensure the end of the cartridge bearing is protected by placing a plate over the end of the bearing.

2. Place the hub assembly flat or at least 45^{o} angle on a clean surface for seal installation.

3. Check the hub bore is clean and free of any scratches and burrs.

4. Install the seal with recommended seal installation tool. Ensure the seal is evenly seated and bottomed out in the bore. As in any seal installation, apply an even driving force to avoid cocking the seal or damaging the flange surface. Replace the seal if it is cocked or damaged during installation.

5. To ensure proper seal life of the additional inboard SKF Scotseal, fill the inside seal cavity with a good wheel bearing grease. (Castrol APX T / LMX or equivalent) (As shown in figure 2)

DO NOT WELD WHEEL HUBS

Welding on any portion of a Wheel Hub will result in substantial structural damage and void any product warranty.