

3D Bush Removal and Replacement Guide Using a Hydraulic Bush Service Tool

CONTENTS OF SAF 3D-BUSH HYDRAULIC KIT

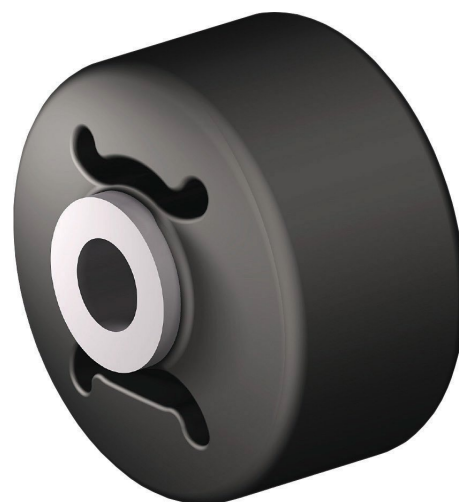
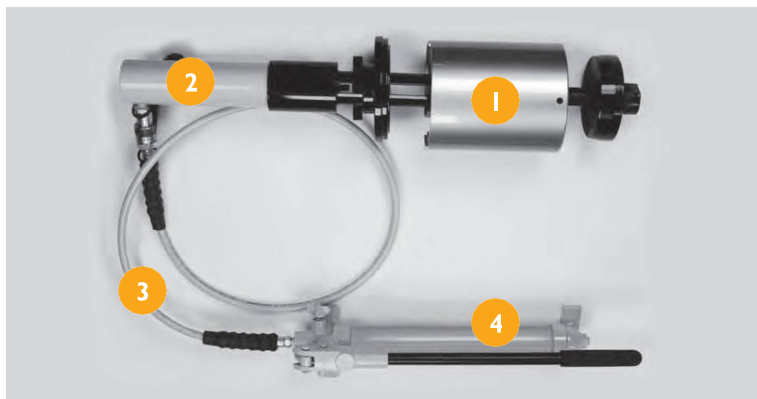


Photo Item	Description	Part No.
1	Hydraulic Intra 3D Bush Tool Mounting Tool	3 434 3317 00
2	Hydraulic Intra 3D Bush Tool Actuator (Hydraulic Ram)	4 434 3302 00
3	Hydraulic Intra 3D Bush Tool Connecting Hose	4 434 3303 00
4	Hydraulic Intra 3D Bush Tool Pump	4 434 3304 00

PREPARATION

Prior to removing the pivot bushing, perform the following steps in accordance with the relevant operating instructions and the associated repair and maintenance manual, observing the indicated safety instructions:

1. Place wheel chocks in front of and behind the trailer wheels to prevent the trailer from rolling

⚠ WARNING

Failure to use wheel chocks might allow the vehicle to roll which could result in death or serious injury.

2. Bleed all air from the air suspension system
3. Suitably support the axle
4. Remove the adjustable pivot bolt and discard along with the nuts
5. Remove the shock absorber from the trailing arm, and discard the nuts
6. Lower the axle
7. Replacement part numbers are:
4177303500K - 3D Bush and Installation Lubricant
RK2380 - 3D Bush, Installation Lubricant and Replacement Mounting Hardware

REMOVAL

Preparing the Pivot Bush Replacement Tool

The pivot bushing removal tool (here after abbreviated to removal tool) consists of:

- (1) Enerpac hydraulic actuator
- (2) Hydraulic connecting hose
- (3) Hydraulic ram
- (4) Threaded rod
- (5) Receiver tube
- (6) Drive nut
- (7) Cover plate
- (8) Ram adapter
- (9) Ram extension



Fig. 1 - Identification of removal tool components

Prior to removing the pivot bushing, assemble the removal tool correctly.

For this purpose, assemble the components as shown in figure 2, Screw the Ram (3), Ram Adapter (8), Ram Extension (9) and Threaded Rod (4) together in that order, attach the Cover Plate (7) over the Ram Extension, then slide the Receiver Tube over (5) the Threaded Rod.



Fig. 2 - Assembled Removal Tool

! IMPORTANT

When assembling the removal tool, always make sure that the receiver tube end (5) with out a centering ring faces toward the cover plate. The centering ring (Fig.3) of the receiver tube is used to center the receiver tube on the trailing arm receptacle. When the removal tool is used, the centering ring must always face toward the trailing arm receptacle.

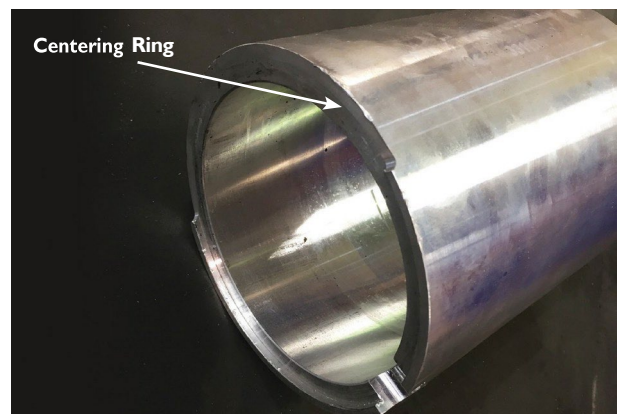


Fig. 3 - Receiver tube with centering ring

Removing the Pivot Bushing

! IMPORTANT

The pivot bushings must always be replaced in pairs on an axle. Always remove and replace one pivot bushing before beginning to remove the second pivot bushing in order to make sure that the pivot bushing that still has not been removed is available as a reference point for adjusting the spring center correctly.

To remove the pivot bushing, proceed as follows:

1. Identify the raised position locator (whitened in)
2. Using a white marker pen, draw a line (Fig. 5) on the outside of the trailing arm receptacle at the raised position locator of the pivot bushing. This line marks the orientation of the existing pivot bushing within the receptacle and will be used to properly orient the replacement bushing during installation.

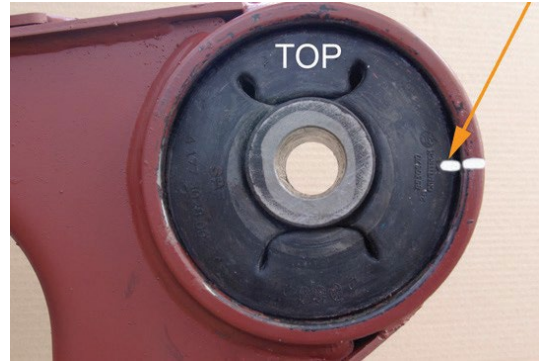


Fig. 4 - Raised bushing position locator

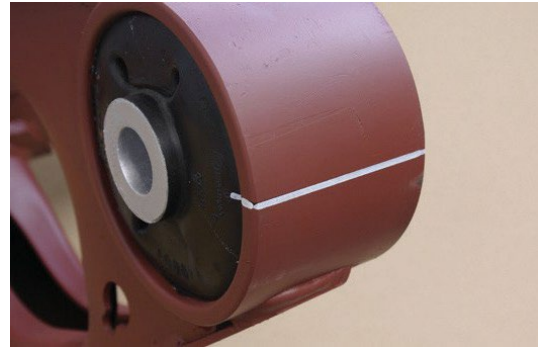


Fig. 5 - Marking the bushing orientation



Fig. 6 - Removal tool installation

3. Lubricate the Drive nut (6) and the threads on the threaded rod (4). Use standard grease.

4. Insert the threaded rod end (4) of the correctly pre-assembled removal tool through the hole in the pivot bushing until the centering ring of the receiver tube (5) fits the bushing receptacle. Screw the drive nut (6) onto the threaded rod of the removal tool until it goes no further (Fig. 6).

Connect the Hydraulic Pump (1) to the Ram (3) using the Connecting Hose (2).

5. Operate the Hydraulic pump until the drive nut (6) and the pivot bushing are completely drawn into the receiver tube (5). Fig 7.

6. Remove the removal tool from the trailing arm.

7. Continue to push the pivot bushing until it is forced in to the widened section of the conical receiver tube (5) from where it can be easily removed.

8. Clean out pieces of old bushing and any foreign material left in the receptacle using a wire brush.



Fig. 7 - Removal tool installation



INSTALLATION

! IMPORTANT

The centering ring of the receiver tube is used to center the receiver tube on the trailing arm receptacle. When the installation tool is used, the centering ring must always be positioned against the trailing arm receptacle.

Installing the Pivot Bushing

1. Lubricate the threads on the threaded rod (4).
2. Apply installation lubricant evenly to the internal surface of the receptacle as illustrated in Fig. 8 and to the external surface of the replacement pivot bushing as shown in Fig. 9.
3. Use installation lubricant P-80 Emulsion.

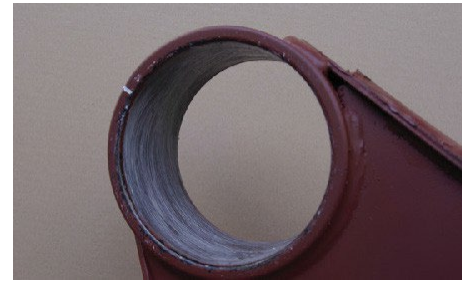


Fig. 8 - Lubricated receptacle

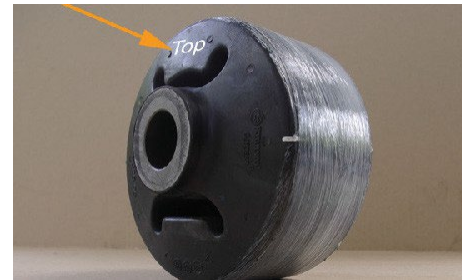


Fig. 9 - Lubricated pivot bushing

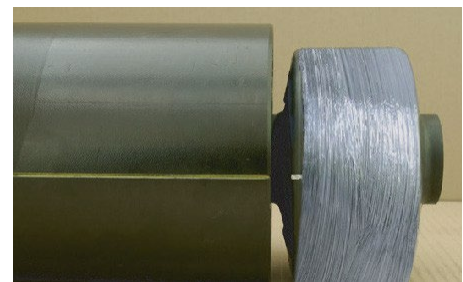


Fig. 10 - Correctly aligned pivot bushing

4. Insert the pivot bushing into the receiver tube end opposite of the centering ring. Make sure that the pivot bushing is properly aligned in the receiver tube using the bushing position locator as a reference point (Fig. 10). The bushing position locator of the replacement bushing must be aligned with the line on the outside of the receiver tube. The orientation index marked "Top" must face upward as illustrated in Fig. 10. If need be, readjust the pivot bushing.

5. Push the pivot bushing and the drive disc (6) completely into the receiver tube as shown in Fig. 11.

Note: Use the same tool for installation.

6. Insert the threaded rod (4) of the pre-assembled installation tool from the wheel side through the receptacle, making sure that the cover plate (4) is positioned properly against the receptacle as illustrated in Fig. 12.

7. Slide the receiver tube (5) over the exposed threaded rod (4) with the centering ring of the receiver tube facing toward the receptacle until the receiver tube rests squarely on the receptacle. Fasten the drive nut ensuring the drive plate is in place.

Make sure that the line previously drawn on the external surface of the receptacle is aligned with the line on the receiver tube.

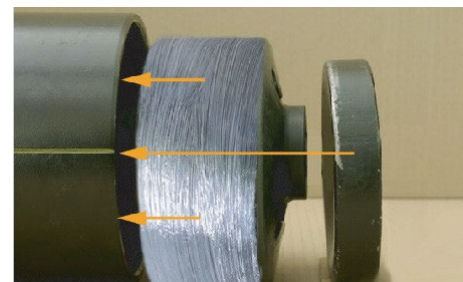


Fig. 11 - Installing the drive disc



Fig. 12 - Correct receiver tube position

8. Operate the Hydraulic pump until the drive nut (6) and the pivot bushing are completely drawn into the receptacle (5) and the receiver tube becomes loose and can be removed (Fig. 13).

⚠ CAUTION

Failure to support loose receiver tube may allow it to fall, resulting in minor injury or property damage.

9. Remove the receiver tube and continue to operate the hydraulic actuator until the pivot bushing is completely drawn into the receptacle.

10. Disassemble and remove the installation tool.

11. Check the spring center and readjust as needed using dead blow mallet.

Fig. 14 shows a spring center of 1300 mm, for example.

Dual tyre standard measurements:

940mm Intra disc

960 Intra drum

12. Check the proper orientation of the pivot bushing. Make sure that the orientation index marked "TOP" (in white colour for illustration purposes) faces upward and that the bushing position locator of the replacement bushing is aligned with the bushing orientation line drawn on the outside of the receptacle (Fig. 15). If the replacement pivot bushing is not installed properly, remove and reinstall it.

Remove the pivot bushing on the opposite axle side as described earlier and install a replacement pivot bushing as outlined.

FINAL STEPS

Upon replacement of the pivot bushing, perform the following final steps in compliance with the relevant operating instructions and the associated repair and maintenance manual. Observe the relevant safety instructions and the specified tightening torques:

1. Lift the axle ensuring new wear mounts are installed.
2. Install and slightly tighten new pivot bolts and nuts.
3. Install the shock absorber using new nuts.
4. Remove the axle supports.
5. Apply air pressure to the air suspension system.
6. Remove the wheel chocks.
7. Adjust the ride height.
8. Check the axle alignment of the trailer.
9. Tighten the pivot bolt, referring to the appropriate tightening instructions and specifications on the following page.



Fig. 13 - Removed receiver tube



Fig. 14 - Checking spring center

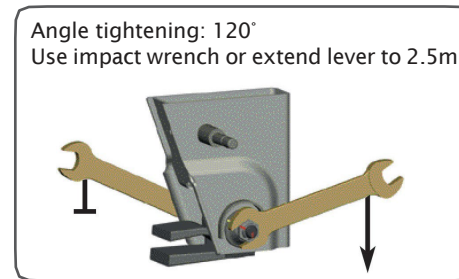
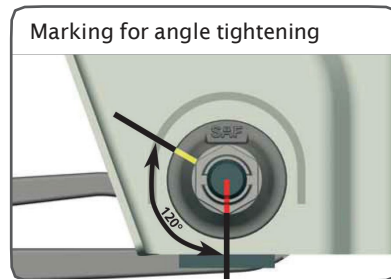
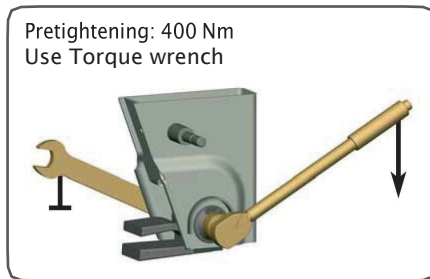
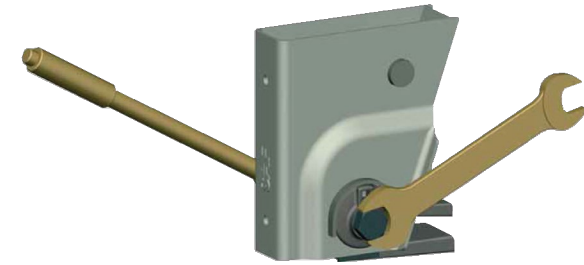


Fig. 15 - Checking installation position

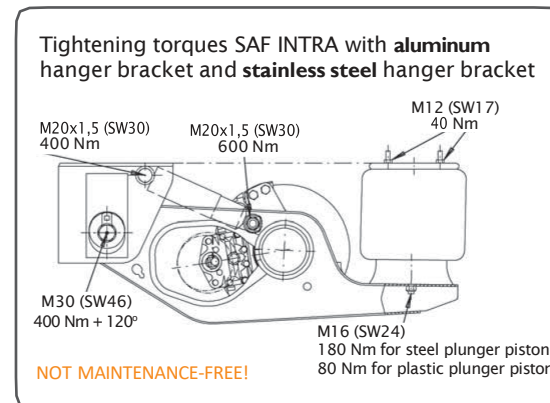
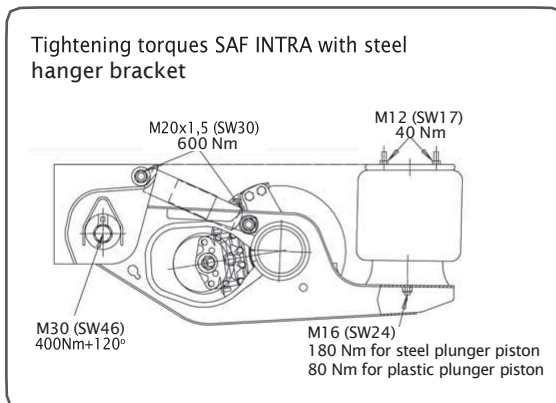
Tightening instructions for adjustable pivot bolt

Attention:

- Tighten only within the specified ride height range!
- No paint residues between eccentric/thrust washer and hanger!
- Bolt head always on the eccentric washer side and to the outside of the trailer
- Check torque settings after the first 5000kms for steel hangers
- For aluminum and stainless steel hangers check the torque settings after 500KMS
- Do not reuse pivot bolt and nut
- Do not oil or grease threads



Tightening torques for SAF air suspension systems



Attention!

- Pivot Bolt and Nut to be used only once
- Threads not to be oiled or greased!
- Shock absorber nuts to be used only once
- Service Intervals for Steel Hanger Brackets:
 - First check after 5000kms
 - Further checks every 12 months
- Service intervals for aluminum hanger brackets and stainless steel hanger brackets: first check after 500km, further check after every 6 months.
- Pivot bolt: Inspection torque 1,200 Nm
- Shock absorber bolt: Inspection torque 600 Nm

