

ATRO *Leaf Spring Bushings*

INSTALLATION GUIDE FOR FRONT LEAF SPRING BUSHINGS

IMPORTANT INFORMATION AND SAFETY PRECAUTIONS

This product will provide excellent service life when it has been properly installed and maintained.

Read the instructions carefully. Pay particular attention to the **NOTE** sections which contain helpful information to make the installation as easy as possible. Also pay close attention to the sections with the following warning symbol next to them:

WARNING

These are provided to help avoid personal injury, property damage or to prevent future safety problems with the vehicle. In addition, we recommend that you strictly adhere to all federal and state approved shop safety practices and procedures. Carefully inspect the vehicle suspension that is being repaired. Correct or replace all defective components.

INSURE THE CORRECT BUSHING/KIT IS BEING INSTALLED

Before starting the installation process verify the following:

1. Make sure the Gross Axle Weight Rating (GAWR) of the front steering axle for the vehicle does not exceed 20,000 lbs.
2. Measure the leaf spring and hanger bracket widths and insure they match the **ATRO**® leaf spring bushing length.
3. Measure the leaf spring eye diameter and frame hanger bracket eye diameter to insure that they match the outer diameter of the **ATRO**® leaf spring bushing.
4. Make sure the sidebar C-C is correct.


REQUIRED TOOLS

A special bushing installation tool is required when installing an **ATRO**® spring eye bushing. To identify the required bushing installation tool, please refer to your **ATRO**® catalog or to our website at www.atrobushing.com.

NOTE: Be sure to use the proper **ATRO**® leaf spring bushing installation tool. Use of the wrong tool may damage the bushing assembly and void your warranty.

REMOVAL OF OLD COMPONENTS – FRONT OF FRONT SPRING EYE

 **WARNING** *The use of safety glasses is recommended while performing this procedure to protect your eyes from flying objects.*

 **WARNING** *Overheating the spring eye could weaken the spring resulting in a premature failure.*

1. Securely support the vehicle to remove the weight off of the front leaf springs.
2. Remove the old front of front spring pin and spring eye bushing.



NOTE: It is not necessary to completely remove the leaf spring from the axle.

ATRO® LEAF SPRING BUSHING INSTALLATION – FRONT OF FRONT SPRING EYE

- ⚠ WARNING** *Always wear safety glasses and any other necessary safety gear while performing this procedure to protect against bodily injury.*
- ⚠ WARNING** *If the leaf spring eye was heated during bushing removal, allow it to cool before installing the **ATRO®** leaf spring bushing. This will prevent overheating of the bushing/polyurethane material. Overheating of the material could lead to premature failure.*
- ⚠ WARNING** *Inspect the leaf spring eye for cracks, out-of-round or worn out bore conditions. If any of these conditions exist, replace the damaged components. Failure of any of these components could result in an accident, serious property damage and severe injury or death.*

1. Remove all burrs and corrosion from the spring eye with a file, hone or wire brush and wipe clean.
2. Insert the correct bushing installation tool into the **ATRO®** leaf spring bushing. (Refer to Figure 1)
3. Align **ATRO®** leaf spring bushing with bore of spring eye.
4. Using the correct installation tool in conjunction with a press (preferred) or impact hammer, install the bushing into the spring eye.
5. Remove any contaminants, such as rust or dirt, which may have been deposited in the inner diameter of the bushing during installation.

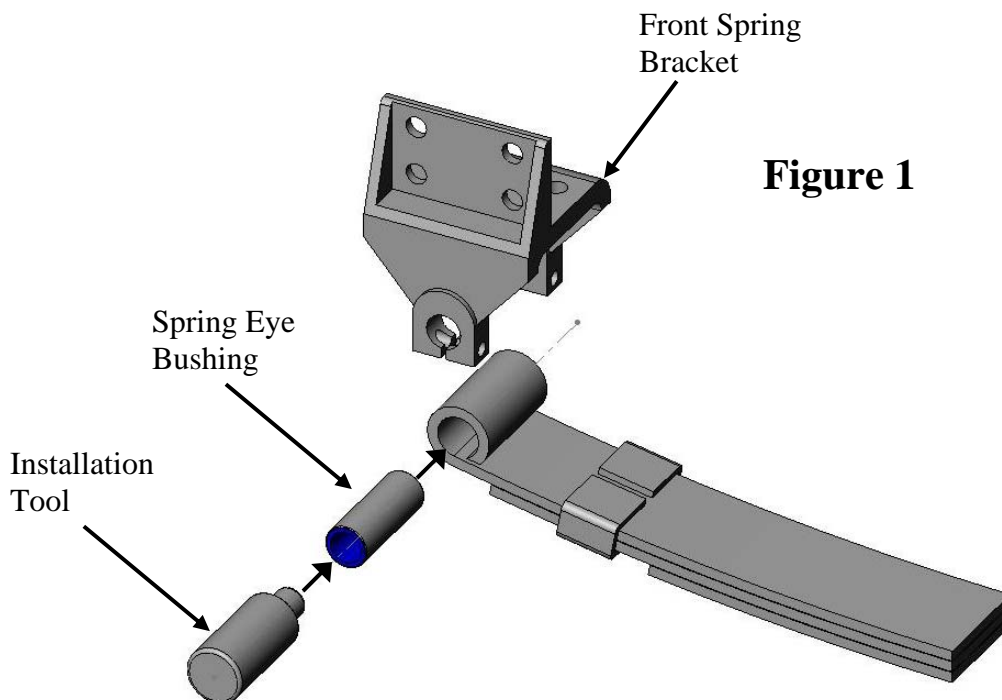


Figure 1

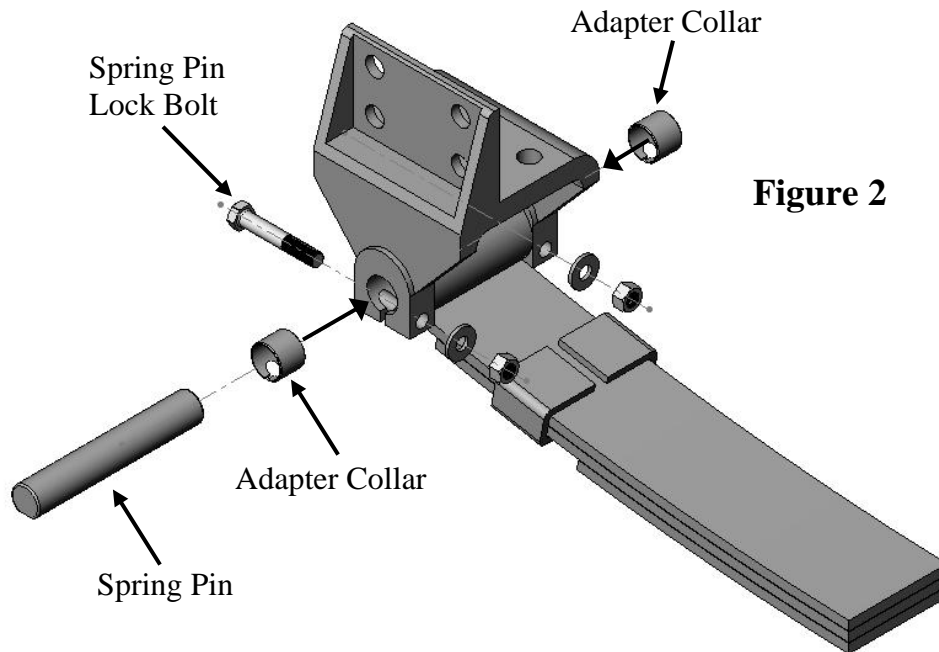


6. Install adapter collars into frame hanger bracket, aligning the groove in the adapter collar so that the lock bolt will slide through it. (Refer to Figure 2)

NOTE: Not all bushings require adapter collars. If adapter collars were not included in the kit, insure the diameter of the spring pin matches the spring pin bore of the hanger bracket.

7. Apply a small amount of lubricant such as grease or a graphite lube to the spring pin to aid installation.
8. Align bore of spring eye bushing and shims (if included with bushing) with the spring pin holes in hanger bracket. (Refer to Figure 2)
9. Insert spring pin through adapter collar/hanger bracket, shims (if required), and spring eye bushing.

NOTE: It may be necessary to tap the spring pin in with a brass hammer or mallet during installation.



10. Insure grooves in adapter collars and spring pin are aligned so that the spring pin lock bolts will slide through them.

11. Install new spring pin lock bolts and torque to the following specifications:

- 1/2"-20 Grade 8 Cap Screw – 110 lbf-ft
- 7/16"-20 Grade 8 Cap Screw – 70 lbf-ft

NOTE: Do not use air tools to tighten locking nuts. A torque wrench must be used to attain the required torque and prevent over-tightening.

⚠ WARNING *Be sure that the adapter collars are properly aligned and installed. After tightening the spring pin lock bolts, the pin and adapter collars should be clamped firmly within the hanger bracket. Failure to properly install the adapter collars will damage the bushing assembly and cause premature failure.*

⚠ WARNING *NEVER reuse old bolts and nuts.*



⚠ WARNING *Do not weld the **ATRO**® leaf spring bushing into the leaf spring eye. Welding the **ATRO**® leaf spring bushing will damage it and **VOID** your warranty!*

REMOVAL OF OLD COMPONENTS – REAR OF FRONT SPRING EYE

⚠ WARNING *The use of safety glasses is recommended while performing this procedure to protect your eyes from flying objects.*

⚠ WARNING *Overheating the spring eye could weaken the spring resulting in a premature failure.*

1. Securely support the vehicle to remove the weight off of the front leaf springs.
2. Remove the old shackle assembly.

NOTE: It is not necessary to completely remove the leaf spring from the axle.

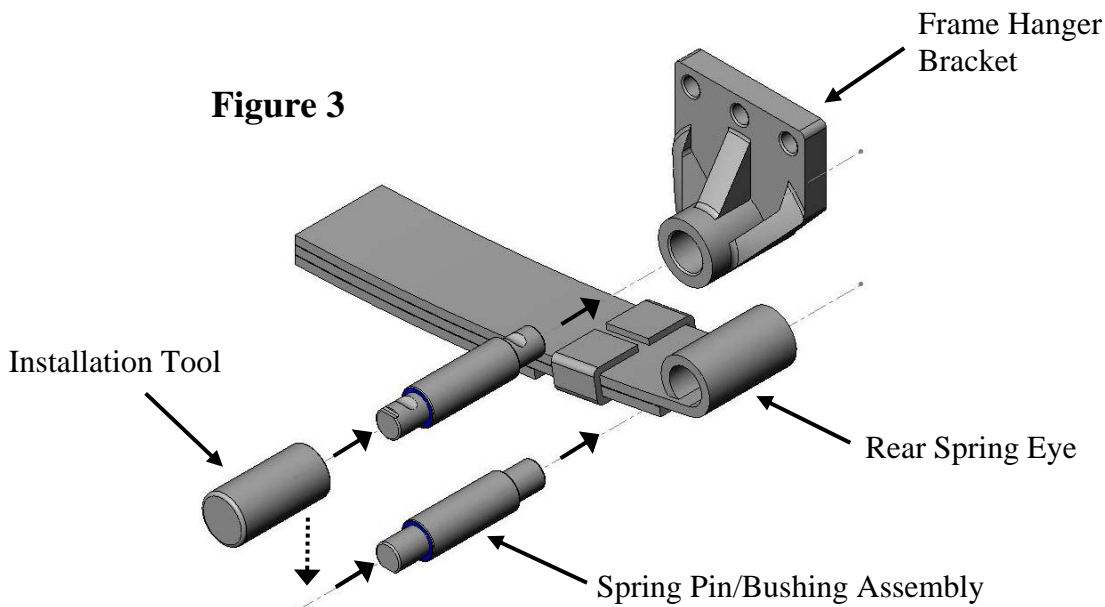
ATRO® LEAF SPRING BUSHING INSTALLATION – REAR OF FRONT SPRING EYE & BRACKET

⚠ WARNING *Always wear safety glasses and any other necessary safety gear while performing this procedure to protect against bodily injury.*

⚠ WARNING *If the leaf spring eye or bracket were heated during bushing removal, allow them to cool before installing the **ATRO**® leaf spring bushings. This will prevent overheating of the bushing/polyurethane material. Overheating of the material could lead to premature failure.*

⚠ WARNING *Inspect the frame hanger bracket and the leaf spring eye for cracks, out-of-round or worn out bore conditions. If any of these conditions exist, replace the damaged components. Failure of any of these components could result in an accident, serious property damage and severe injury or death.*

1. Remove all burrs and corrosion from the spring eye and bracket with a file, hone or wire brush and wipe clean.
2. Insert spring pin into bore of spring eye bushing.
3. Insert spring pin/bushing assembly into installation tool. (Refer to Figure 3)





4. Align **ATRO**® spring eye bushing with bore of frame hanger bracket.
5. Using the correct installation tool in conjunction with a press (preferred) or impact hammer, install the bushing into the frame hanger bracket.
6. If the hanger has been removed, reinstall following the manufacturers instructions.
7. Repeat steps 2-5 to install a spring pin/bushing assembly in the rear spring eye.

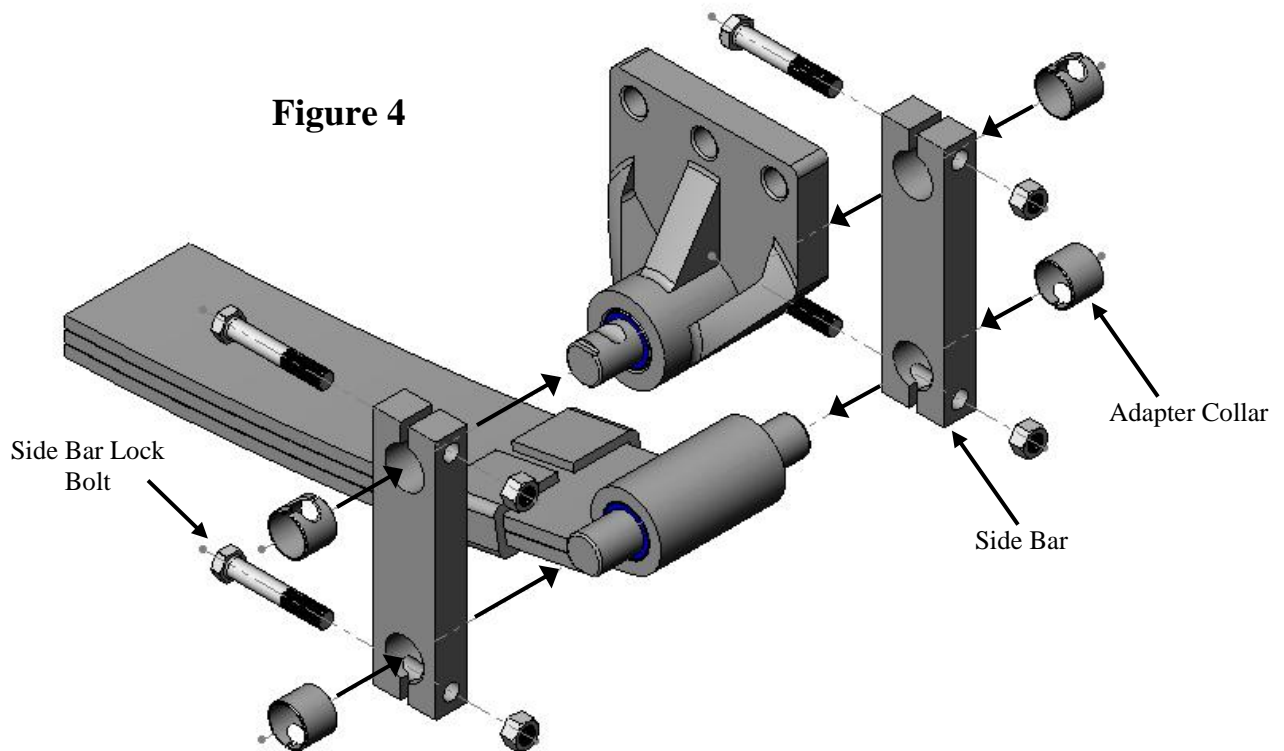
⚠ WARNING *Do not weld the **ATRO**® leaf spring bushing into the leaf spring eye. Welding the **ATRO**® leaf spring bushing will damage it and VOID warranty!*

SIDE BAR INSTALLATION

1. Install adapter collars into side bars, aligning the groove in the adapter collar so that the lock bolt will slide through it. (Refer to Figure 4)
2. If shims were included in the bushing kit, install them on both ends of each spring pin.

NOTE: Not all bushings require shims. If shims were included in the bushing kit, they must be installed as described to prevent excessive lateral movement of the leaf spring.

3. Making sure the grooves in the spring pins and adapter collars are aligned so that the side bar lock bolts will slide through them, install the side bars on the ends of the pins protruding from the frame hanger bracket and the leaf spring. (Refer to Figure 4)



⚠ WARNING *Inspect side bars for excessive wear. If necessary, replace side bars. Failure to do so could result in an accident, serious property damage and severe injury or death.*

4. Install NEW side bar lock bolts and locking nuts. (See Figure 4)




5. Tighten the side bar lock bolts and locking nuts. Torque to the following specifications:

1/2"-20 Grade 8 Cap Screw – 110 lbf-ft

7/16"-20 Grade 8 Cap Screw – 70 lbf-ft

NOTE: Do not use impact tools to tighten the locking nuts. A torque wrench must be used to attain the required torque and prevent over-tightening.

 **WARNING** *NEVER reuse old bolts and nuts.*

 **WARNING** *Be sure that the adapter collars are properly aligned and installed. After tightening the side bar lock bolts, the pin and adapter collars should be clamped firmly within the side bars. Failure to properly install the adapter collars will damage the bushing assembly and cause premature failure.*

FRONT END ALIGNMENT

After installing the **ATRO**® Leaf Spring Bushing it may be necessary to perform a front end alignment check for caster, camber, and toe-in. Use the manufacturers' guidelines and specifications for performing this task.

MAINTENANCE

The **ATRO**® leaf spring bushings are self-lubricating and virtually maintenance-free. The spring, hanger bracket, side bars, and **ATRO**® leaf spring bushings should be visually inspected during every oil change. Also, the lock bolts should be re-torqued periodically to insure the integrity of the leaf spring bushings.

WARRANTY NOTICE

Follow the guidelines below to take full advantage of your **ATRO**® spring eye bushing warranty. Failure to do so could void your warranty and may lead to premature failure, damages and/or injuries:

- DO NOT use alternate components and/or hardware in conjunction with **ATRO**® spring eye bushings
- Always use matching **ATRO**® components on both sides of the vehicle
- DO NOT exceed the 20,000lb GAWR
- Use proper installation tools and installation methods (see installation instructions)
- DO NOT expose **ATRO**® spring eye bushings to excessive heat (i.e. welding or torch use)

ATRO® Engineered Systems, Inc. *can not be held responsible for any failure, damages, or injuries that may result from not adhering to these guidelines.*