

URO® Shackle Kit

Covered under U.S. Patent 4,840,395

INSTALLATION INSTRUCTIONS FOR FRONT LEAF SPRING SHACKLE KIT

I. INTRODUCTION

A. NOTES AND SAFETY INSTRUCTIONS

Proper and careful installation is important to the service life of this or any other product. It is the intention of this product to provide excellent service life when it has been properly applied, installed and maintained.

Read the instructions carefully, making full use of all explanations and instructions. Pay particular attention to the word **NOTE** which contains a special message or reminder to help make the installation as easy as possible. Also pay particular attention to the safety alert symbol ***!*** and to the word **WARNING** after the safety alert symbol. These are followed by a special message to help avoid the risk of personal injury or 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. Also, be sure to inspect vehicle suspension that is being repaired and correct or replace all defective components.

B. DETERMINING THE CORRECT KIT FOR THE VEHICLE

Before starting the installation process of this kit, you must verify the following:

1. Determine the suspension capacity of the vehicle. Refer to the vehicle manual or the vehicle certification label and read the Gross Axle Weight Rating (GAWR) for the axle of the suspension being repaired.
2. Make sure the GAWR does not exceed the maximum axle rating of the bushing pin diameter.

MAXIMUM AXLE RATING FOR URO® SHACKLE BUSHING

Pin Diameter
1.0 Inch

Maximum Axle Rating
20,000 GAWR

3. Measure the leaf spring width to make sure this matches the URO® Shackle Bushing length (Refer to Figure 1).
4. Measure the frame hanger bracket width to make sure this matches with the URO® Shackle Bushing length (Refer to Figure 1).
5. Measure the leaf spring eye and frame hanger bracket diameters to make sure they match with the outer diameter of the URO® Shackle Bushing.

II. PARTS LIST

ITEM	DESCRIPTION	QTY.
1	Bushing Assembly	2
2	Shackle Side Bar	2
3	Hex Head Cap Screw	4
4	Hex Head Stover Lock Nut	4
5	Installation Instructions	1

Before starting the installation of this kit, you must verify the following:

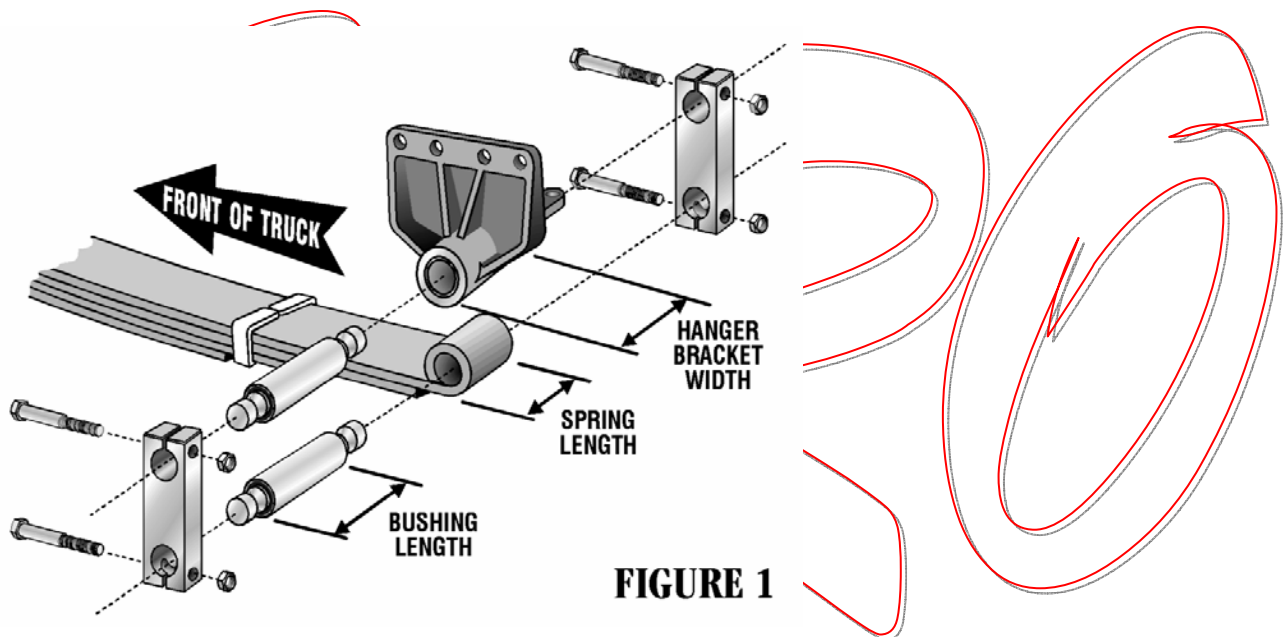


FIGURE 1

Items are only available in Kit form. If parts are missing, contact a **URO®** Bushing Distributor.

III. SPECIAL TOOLS

A special Bushing Driver Installation Tool is required when installing the **URO®** Shackle Bushing Kit. To identify the special Bushing Driver Installation Tool required, your **URO®** Bushing Distributor should be able to supply the correct Installation Kit.

NOTE:

Failure to use this special Driver when performing **URO®** Shackle Bushing Installation will damage the Bushing Assembly and VOID your warranty.

IV. REMOVAL OF OLD COMPONENTS

!!*WARNING*!!

Falling or flying parts may result in eye and bodily injury.

It is necessary to wear safety glasses when performing this procedure to protect your eyes from flying objects.

- 1. Securely support the vehicle, using industry standard approved jack stands, to remove the weight off the front leaf springs.**
- 2. Remove the old shackle side bars by removing the lock bolts with an impact wrench. Knock off the old side bars with a hammer. Support spring securely and use an air impact hammer to drive out the old bushings.**

NOTE:

It is not necessary to completely remove the leaf spring. Install the URO® Shackle Bushing Kit on rear of leaf spring, the frame hanger bracket. Inspect and clean the leaf spring eye bore and the frame hanger bracket bore. Remove all dirt, burrs and other foreign materials.

- 3. If required, remove frame hanger bracket and press or use an air impact hammer to drive old bushing out of the hanger bracket. Reinstall bracket once old bushing is removed. New Grade 8 flange style bolts should be used to reinstall the frame hanger bracket.**

!!*WARNING*!!

Inspect the frame hanger bracket and the leaf spring eye for cracks and out-of-round bore conditions. If either condition exists, replace the damage components. Failure of these components could result in an accident, serious property damage and severe injury or death.

- 4. If old bushing is welded into the spring eye, remove old weld.**

!!*WARNING*!!

IF HEATING THE LEAF SPRING EYE, ALLOW TO COOL BEFORE INSTALLING THE URO® SHACKLE BUSHING, FAILURE TO DO SO MAY DAMAGE THE BUSHING ASSEMBLY AND VOID YOUR WARRANTY.

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

V. *URO*® SUSPENSION BUSHING INSTALLATION

!!*WARNING*!!

It is necessary to wear safety glasses while performing this procedure to protect your eyes from flying objects.

A. BRACKET

1. Remove all burrs with a file or hone as explained in Section IV and wipe clean.
2. Lubricate inside bore with white lithium grease or an anti-seize compound.
3. Coat bushing with white lithium grease or an anti-seize compound (see Figure 2).
4. Insert the *URO*® Shackle Bushing Pin into the Bushing Drive Tool, insert end with locator hole at the end of the pin (see Figure2).

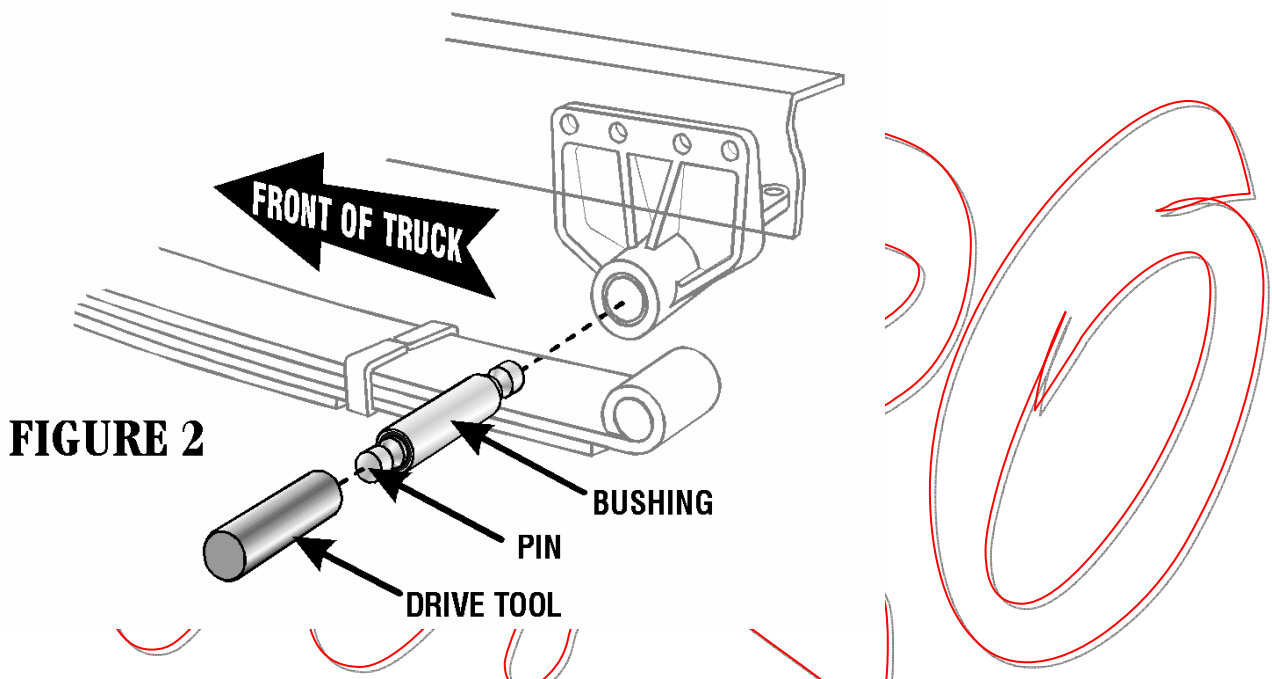


FIGURE 2

5. Align *URO*® Shackle Bushing with bore of frame hanger bracket. Using an air impact hammer and Bushing Drive Tool, press Bushing and Pin into frame hanger bracket together. In some cases, you may want to remove the hanger from the frame and press the *URO*® Shackle Bushing with a Hydraulic Press (see Figure 2).

NOTE:

BUSHING AND PIN MUST BE INSTALLED AS AN ASSEMBLY. DO NOT REMOVE FROM BUSHING DURING INSTALLATION. ONCE INSTALLED, DO NOT REMOVE PIN FROM BUSHING.

B. SPRING

1. Remove any burrs with a file or hone as explained in Section IV and wipe clean.

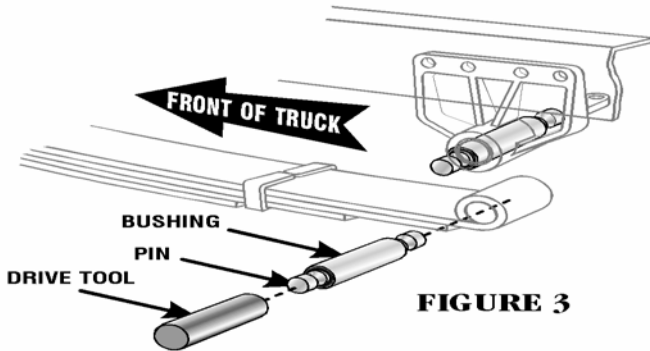


FIGURE 3

2. Check leaf spring for cracks or signs of failure.
3. Lubricate the inside of the leaf spring eye with a white lithium grease or an anti-seize compound.
4. Coat bushing with a white lithium grease or an anti-seize compound (see Figure 3).
5. Insert the URO® Shackle Bushing Pin into the Bushing Drive Tool, insert end with locator hole at the end of the pin (see Figure 3).
6. Align URO® Shackle Bushing with bore of leaf spring eye. Using an air impact hammer and Bushing Drive Tool, press Bushing and Pin into leaf spring eye together (see Figure 3).

In some cases, you may want to press the URO® Shackle Bushing with a Hydraulic Press.

NOTE:

Do not weld the URO® Shackle Bushing into the leaf spring eye. Welding the URO® Shackle Bushing will damage the URO® Bushing Assembly and will VOID your warranty!

C. SHACKLE SIDE BAR (Inside Frame)

1. Wipe pin ends clean with a cloth to remove any grease or anti-seize.

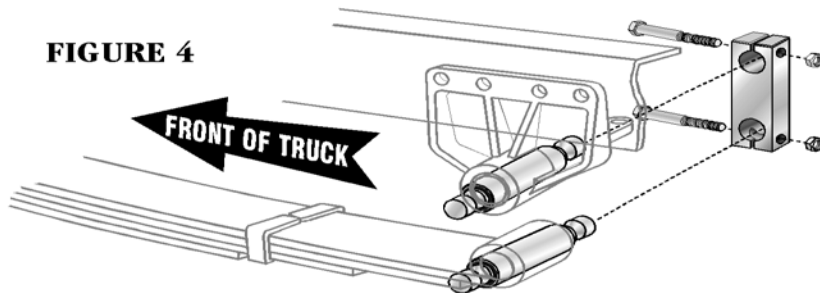


FIGURE 4

3. Install shackle side bar on ends of pins protruding from the frame hanger bracket and the leaf spring eye (see Figure 4).
3. Lubricate threads of Hex Head Cap Screws with a light weight oil. Install Hex Head Cap Screws and Hex Head Stover Locking Nuts (see Figure 4).
4. DO NOT use old sidebars. The pin diameter is different.

NOTE:

Do not tighten Hex Head Cap Screws (Item 5) and Hex Head Stover Locking Nuts (Item 7) at this time (see Figure 4)

G SHACKLE SIDE BAR (Outside Frame)

1. Wipe pin ends clean with a cloth to remove any grease or anti-seize.
2. Install shackle side bar on ends of pins protruding from the frame hanger bracket and the leaf spring eye (see Figure 5).
- 3.

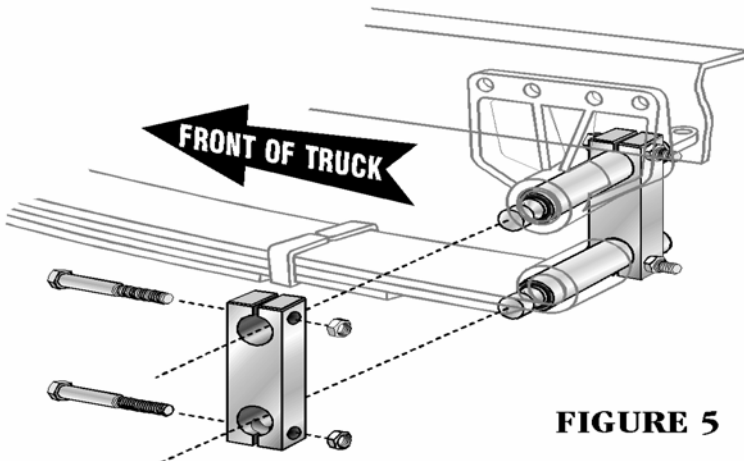


FIGURE 5

3. Lubricate threads of Hex Head Cap Screws with a lightweight oil. Install Hex Head Cap Screws and Hex Head Stover Locking Nuts (see Figure 5).

NOTE:

Do not tighten Hex Head Cap Screws and Hex Head Stover Locking Nuts at this time (see Figure 5).

E. FINAL ADJUSTMENT

1. Using a "C" clamp compress both shackle sidebars so as to fit snugly together (see Figure 6).

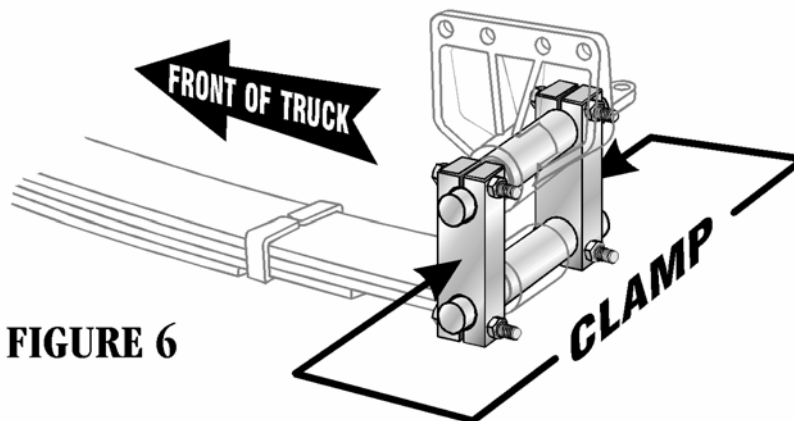


FIGURE 6

2. While holding Hex Head Cap Screw to keep it from rotating, use a torque wrench to tighten the Hex Head Stover Locking Nut to a minimum of 75 ft. lbs.
3. Reassemble vehicle parts removed during the installation of the **URO®** Shackle Bushing Kit. Raise vehicle, remove jack stands and lower vehicle to the ground.

NOTE:

Do not use air tools to tighten Hex Head Stover Locking Nuts - use a torque wrench. This maintains required torque and prevents over-tightening.

F. VEHICLE FRONT END ALIGNMENT

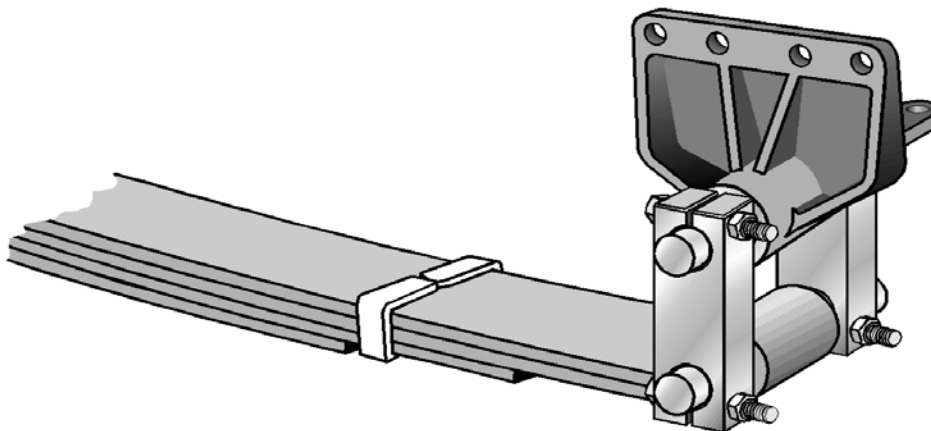
Installing the **URO®** Shackle Bushing Kit restores free movement of the spring and requires an alignment check. Make sure front end alignment meets the factory specifications for caster, camber, toe-in and toe-out before operation of the vehicle.

G MAINTENANCE

The **URO®** Shackle Bushing Kit is self-lubricating and virtually maintenance-free, however the shackle should be visually inspected and tightness of side bar lock bolts should be checked. Make sure to visually inspect spring, hanger bracket, sidebars and the **URO®** Shackle Bushings during every oil change.

3 YEAR WARRANTY

The **URO®** Shackle Bushing is guaranteed to be free from defects in workmanship under normal use and service. Our obligation under this warranty is limited to replacing our products that shall be returned to us with freight charges prepaid. We warrant to each original retail purchaser of a **URO®** Shackle Bushing to be free from defects in material and workmanship under normal use and service. If on inspection, cause of failure is determined to be defective material or workmanship and not by misuse, accident or improper installation, our obligation shall be limited to the cost of any replacement parts necessary to correct such a defect. The warranty becomes void if a product is used for a purpose other than that for which it was originally designed or altered in any way that would adversely affect its performance or reliability, or has been damaged through misuse, negligence, or improper installation. This warranty is valid only provided defective unit is removed from the vehicle and returned to us not later than three years after date of installation. We shall not be responsible for labor charges incurred as a result of any material defects.



URO®

Remit the following information to register your **URO®** Shackle & Suspension Bushing Kit Warranty to the address below.

Record and keep the following information about your **URO®** Shackle Bushings to insure warranty coverage:

COMPANY NAME: _____
 ADDRESS: _____
 CITY: _____ STATE: _____ ZIP: _____
 TELEPHONE: _____ E-MAIL: _____
 PART NUMBER: _____
 MAKE OF VEHICLE: _____ MODEL: _____
 VIN: _____
 TYPE OF VEHICLE: _____ FRONT AXLE CAPACITY: _____
 DATE OF PURCHASE: _____ DATE OF INSTALLATION: _____
 INSTALLATION MILEAGE: _____
 MILEAGE AT TIME OF CLAIM: _____
 PURCHASED FROM: _____

I. PRODUCT LITERATURE and TECHNICAL ASSISTANCE

Related brochures, additional information and technical assistance about this product can be handled by calling:

1-800-724-7751

11377 Mercer Pike, Meadville, PA 16335
 Telephone: (814) 724-7746
 FAX: (814) 724-7747

NOTICE ON KIT GROSS AXLE WEIGHT RATING

URO® SHACKLE BUSHINGS are designed for Gross Axle Weight Rating according to the spring pin diameter.

1" Inch Spring Pin Diameter: Rated **ONLY** for steering axle suspensions with up to 20,000# Gross Axle Weight Rating.

OVERLOADING THIS PRODUCT IS NOT RECOMMENDED AND WILL VOID ALL WARRANTIES.

In accordance with company policy of continual product improvement, the specifications contained in this installation manual are subject to change without notice. Technical data listed in this manual is based on the latest information available at the time of printing and is also subject to change without notice.