



RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual

(For Aftermarket Applications)

Table of Contents

Introduction	2
Safety	2
Double-Eye Leaf Spring Replacement	3
Resources Required	3
Installation	3
Spring Axle Torque Specifications	5
Slipper Roller Leaf Spring Replacement	6
Resources Required	6
Installation	6
Heavy Duty Slipper Roller Leaf Spring Replacement	8
Resources Required	8
Installation	8
Wheel Torque Requirement Chart	10
Notes	10



RV Leaf Springs (Slipper and Double-Eye) and Bushings

Installation Manual

(For Aftermarket Applications)

Introduction

Additional information about this product can be obtained from lci1.com/support or by using the LippertNOW app. Replacement kits can be ordered from <https://store.lci1.com/> or by using the LippertNOW app.

The LippertNOW app is available for free on Apple App Store® for iPhone® and iPad® and also on Google Play™ for Android™ users.

App Store® and iPad® are registered trademarks of Apple Inc.
Google Play™ and Android™ are trademarks of Google Inc.

For additional support on this product, scan this QR code or go to: <https://support.lci1.com/suspension-parts>



Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels. This manual provides general instructions. Many variables can change the circumstances of the instructions, i.e., the degree of difficulty, operation and ability of the individual performing the instructions. This manual cannot begin to plot out instructions for every possibility, but provides the general instructions, as necessary, for effectively interfacing with the device, product or system. Failure to correctly follow the provided instructions may result in death, serious personal injury, severe product and/or property damage, including voiding of the Lippert limited warranty.

WARNING

THE “WARNING” SYMBOL ABOVE IS A SIGN THAT A PROCEDURE HAS A SAFETY RISK INVOLVED AND MAY CAUSE DEATH OR SERIOUS PERSONAL INJURY IF NOT PERFORMED SAFELY AND WITHIN THE PARAMETERS SET FORTH IN THIS MANUAL.

WARNING

FAILURE TO FOLLOW INSTRUCTIONS PROVIDED IN THIS MANUAL MAY RESULT IN DEATH, SERIOUS PERSONAL INJURY AND/OR SEVERE PRODUCT AND PROPERTY DAMAGE, INCLUDING VOIDING OF THE COMPONENT WARRANTY.

WARNING

ALWAYS LIFT THE RV BY ITS FRAME AND NEVER BY ITS AXLE OR SUSPENSION. AXLE AND SUSPENSION COMPONENTS ARE NOT DESIGNED, OR RATED, FOR THE DEAD WEIGHT, POINT-OF-CONTACT LOADS THAT THE RV’S FRAME IS. DO NOT GO UNDER THE TRAILER UNLESS IT IS SUPPORTED BY APPROPRIATELY RATED JACK STANDS. IMPROPERLY SUPPORTED TRAILERS CAN COLLAPSE, CAUSING POSSIBLE SERIOUS PERSONAL INJURY OR DEATH.

CAUTION

THE “CAUTION” SYMBOL ABOVE IS A SIGN THAT A SAFETY RISK IS INVOLVED AND MAY CAUSE PERSONAL INJURY AND/OR PRODUCT OR PROPERTY DAMAGE IF NOT SAFELY ADHERED TO AND WITHIN THE PARAMETERS SET FORTH IN THIS MANUAL.

CAUTION

MOVING PARTS CAN PINCH, CUT OR CRUSH. KEEP CLEAR AND USE CAUTION.

CAUTION

WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) WHEN PERFORMING SERVICE OR MAINTENANCE OPERATIONS. ALWAYS WEAR EYE PROTECTION WHEN SERVICING TRAILER AXLES, BRAKES, HUBS, SPRINGS AND WHEELS. NOT USING PPE MAY RESULT IN PERSONAL INJURY.

CAUTION

IT IS IMPORTANT TO ACHIEVE THE CORRECT TORQUE VALUES FOR THE PROPER OPERATION OF THE SUSPENSION. THE HANGER AND THE EQUALIZER BOLTS MUST CLAMP THE INNER STEEL SLEEVE IN THE RESPECTIVE BUSHINGS SO THE INNER SLEEVES DO NOT ROTATE. ALL ROTATION OCCURS IN THE INNER BUSHINGS.

RV Leaf Springs (Slipper and Double-Eye) and Bushings

Installation Manual

(For Aftermarket Applications)

Double-Eye Leaf Spring Replacement

Resources Required

- 1-2 persons, depending on task
- Assorted deep well sockets
- Floor jacks
- Hammer or mallet
- Jack stands
- Torque wrench (ft-lb)
- Pneumatic air or impact gun

Installation

1. Using floor jacks, lift the frame slightly and place properly-rated jack stands under the axles (**Fig. 1**) so the shackle bolts can be driven out with a hammer.
2. Place a suitable block under the axle tube near the area to be repaired.

NOTE: The block acts as a support for the weight of the axle only, allowing suspended system components to be serviced or replaced freely. Multiple axle trailers **MUST** have the weight of each axle properly supported before disassembly of any suspension system components.

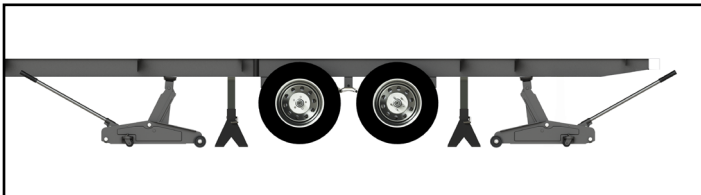


Fig.1

3. Remove tires and wheels -curbside and roadside- from the axle (**Fig. 2**) with the affected leaf spring.
4. Set wheel and lug nuts (**Fig. 2**) aside for later installation.
5. Inspect axle/brake assembly electrical wiring and/or hydraulic hoses for length. If lines are too short to allow lowering the axle, disconnect lines before lowering.

NOTE: Make sure electrical power is off and hydraulic system has been de-energized before disconnecting lines.

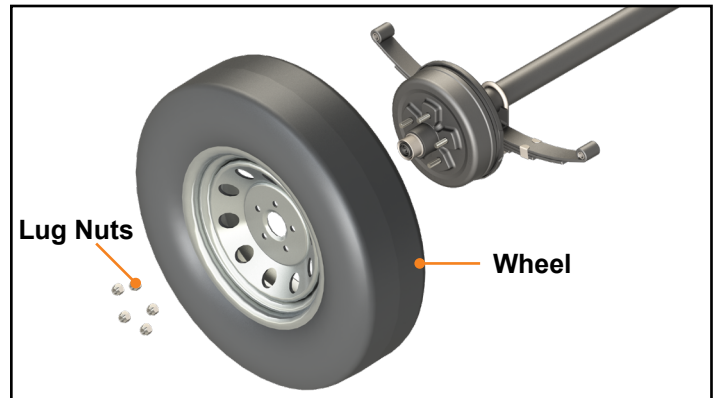


Fig.2

6. With an impact gun or an appropriate wrench, loosen the nuts on the leaf spring bolts and the shackle bolts (**Fig. 3**).

NOTE: Hold the head of the bolts with a wrench.

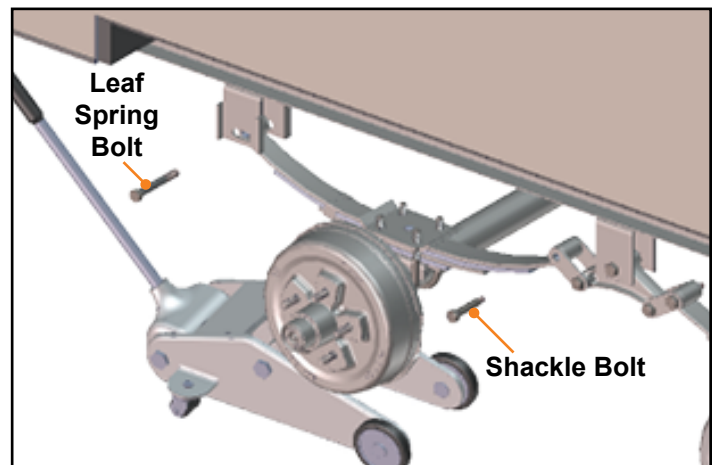


Fig.3

7. Remove the nuts from the leaf spring bolts and the shackle bolts.
8. Drive out the leaf spring bolts with a mallet or hammer until the unseat from their hanger.
 - A. Inspect the threaded end of the bolts for damage to the threads.
 - B. If threads are damaged, replace bolts. Otherwise, set bolts and nuts aside for later installation.



RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual (For Aftermarket Applications)

9. Drive out the shackle (wet) bolts of the shackle link assemblies with a mallet or hammer until they unseat from their leaf spring and equalizer.

A. Inspect the threaded end of the shackle (wet) bolts for damage to the threads.

B. If threads are damaged on one or both bolts, replace shackle link assembly. Otherwise, set shackle link assemblies, shackle links and nuts aside for later installation.

NOTE: At this point in the installation, Lippert recommends inspecting the equalizer shackle links. If the shackle links are worn, Lippert recommends replacing them.

NOTE: Shackle links MUST be reinstalled using the same shackle orientation used previously.

10. Adjust the floor jacks so the jack stands can be removed from under the axle.

11. Using the floor jacks, lower the axle of the leaf spring being replaced.

12. Position and orient the new leaf spring (Fig. 4) underneath the trailer to help expedite installation.

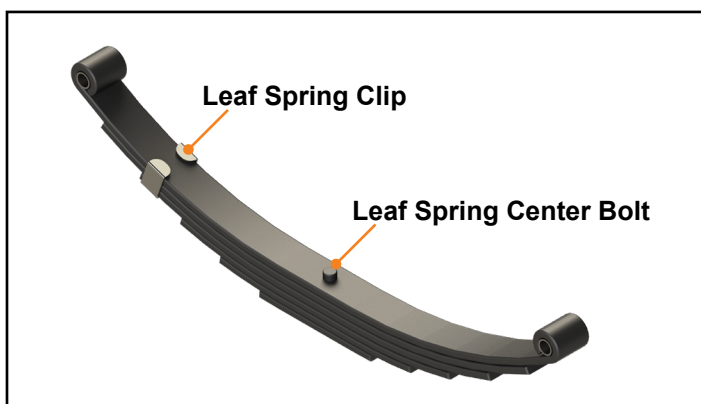


Fig.4

13. After the axle and leaf springs have been lowered from the chassis hangers and shackle links:

A. Remove U-bolt nuts (Fig. 5A) from the affected leaf spring.

B. Remove U-bolts (Fig. 5B) and tie (spring) plate (Fig. 5C) from the axle (Fig. 5E) holding the affected leaf spring (Fig. 5D).

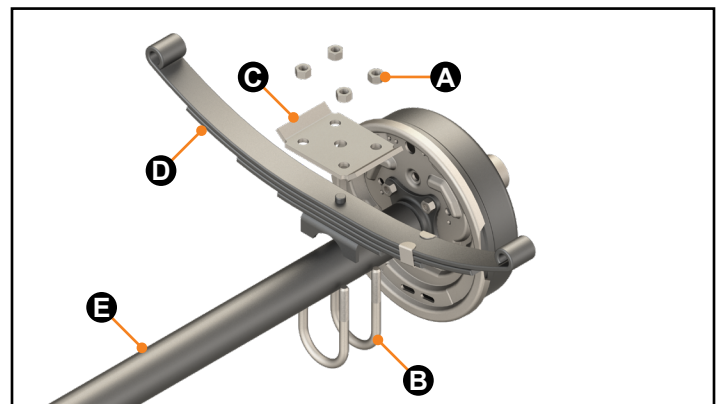


Fig.5

C. Set U-bolts, nuts and tie (spring) plate aside. DO NOT reuse U-bolts or nuts. Tie (spring) plate may be reused if it is not damaged.

D. Set removed leaf spring aside. Do NOT reuse affected leaf spring.

14. Place the new leaf spring (Fig. 5) onto the axle with the leaf spring clip pointing towards the front of the trailer. Make sure spring center bolt engages the center hole of the tie (spring) plate.

RV Leaf Springs (Slipper and Double-Eye) and Bushings

Installation Manual

(For Aftermarket Applications)

15. Position new U-bolts and tie (spring) plate on the axle (Fig. 6).

A. Install new washers, if equipped, and hand-start new nuts.

B. Hand-tighten nuts until snug. (Fig. 6).

C. Verify the following:

I. Center bolt is engaged in tie (spring) plate (Fig. 6).

II. Leaf spring is square to the axle (Fig. 6).

III. U-bolts are straight up and down and not splayed in or out.

IV. U-bolts have approximately the same amount of thread sticking out of each nut.

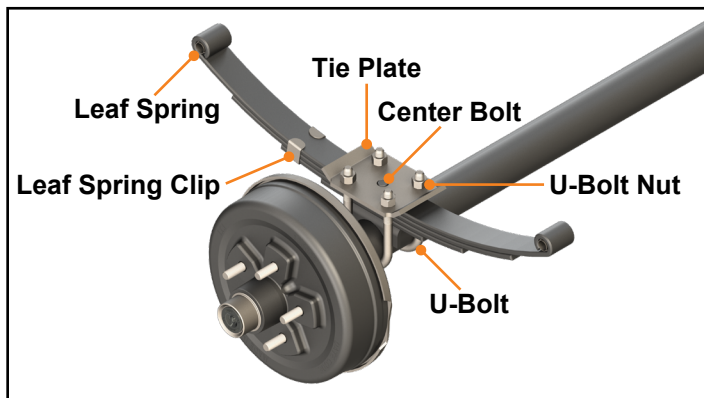


Fig.6

16. Progressively tighten tie (spring) plate nuts in a criss-cross pattern, in the order given (Fig. 7), until the final torque is obtained. Refer to Spring Axle Torque Specifications chart for bolt torque requirements.

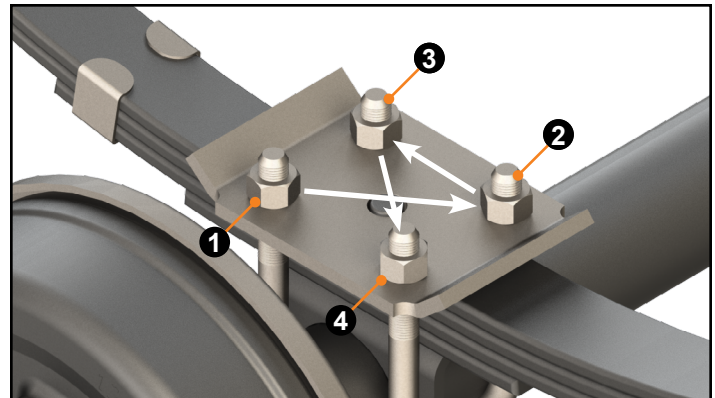


Fig.7

Spring Axle Torque Specifications

Bolt Type	Axle Capacity	Torque
3/8" U-Bolt Nuts	2K	35 ft-lbs
1/2" U-Bolt Nuts	3.5K	50 ft-lbs
9/16" U-Bolt Nuts	5.2K	65 ft-lbs
9/16" U-Bolt Nuts	6-8K	90 ft-lbs
Overslung Orientation Silver U-Bolts	8K	145 ft-lbs
Spring Eye, Equalizer and Shackle Nuts	All Double Eye	30-50 ft-lbs

17. Verify the following:

A. Leaf spring is square to the axle.

B. Tie (spring) plate is flat against leaf spring.

C. U-bolts are straight.

D. U-bolts have approximately the same amount of thread sticking out of each nut.

E. All nuts are torqued.



RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual (For Aftermarket Applications)

18. Use floor jacks and jack stands to raise axle assembly into position for reinstallation to the trailer's frame, do as follows:

- A.** Reinstall previously removed leaf spring hanger and shackle bolts and nuts.
- B.** When installing wet bolts, use a steel tube and hammer to drive in wet bolts to prevent damage to the grease fitting.
- C.** Refer to Spring Axle Torque Specifications chart for bolt torque requirements.

NOTE: Hold the head of the bolts with a wrench.

D. If installing new or previously removed wet bolts, apply new grease. Use NLGI code GC-LB.

E. Reconnect any disconnected electrical lines and/or hydraulic hoses (step 5).

NOTE: If reconnecting hydraulic hoses, make sure all hydraulic lines are purged of air.

19. Reinstall previously removed tires, wheels and lug nuts (steps 3 and 4) onto the axle (**Fig. 2**).

- A.** Start all wheel lug nuts by hand to prevent cross-threading.
- B.** Continue to hand-tighten wheel lug nuts in the sequential pattern shown in Figure 8.
- C.** After wheel lug nuts are fully hand-tightened, torque nuts in stages and in the sequential pattern shown in Figure 8.
- D.** Torque wheel lug nuts to the torque values listed in the Wheel Torque Requirement Chart.

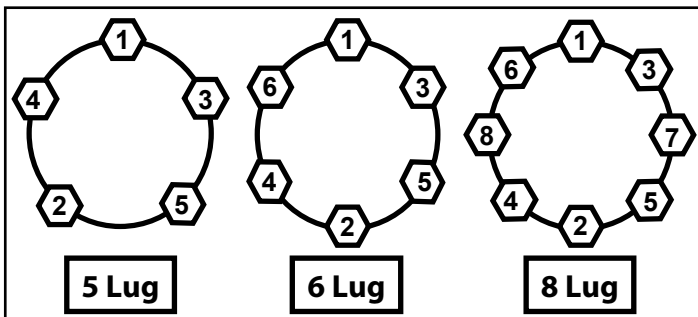


Fig.8

Slipper Roller Leaf Spring Replacement

Resources Required

- Cordless or electric drill or screw gun
- Appropriate drive bits
- Torque wrench (ft-lbs)
- Floor jacks
- Jack stands
- Hammer
- Wrenches
- Personal protective equipment (PPE) (If needed)
- 1 3/4" block to place between frame and equalizer

Installation

1. Park the trailer on a level surface.
2. With the trailer still connected to the tow vehicle, lower the front landing gear or the tongue jack until making contact with the ground.
3. Disconnect all internal and external power supplies.
4. Using the properly-rated floor jacks, lift the trailer according to the manufacturer's recommendation until the wheels are no longer in contact with the ground (**Fig.9**).

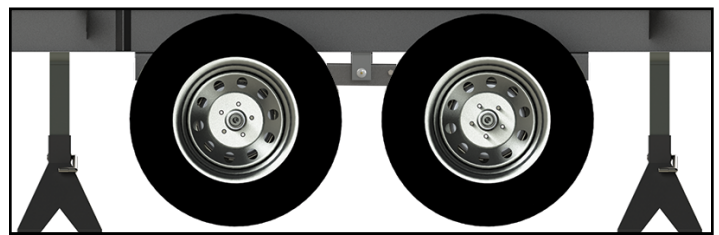


Fig.9

5. Support framework in accordance with the manufacturer's recommendations.
6. Remove the wheels and set aside wheels and lug nuts.
7. Using a floor jack, lift the axles slightly and place the additional properly-rated jack stands under the axles (**Fig.10**) so that the bolts can be driven out with a hammer.

NOTE: Allowing the axles to drop could result in damage to the wiring for the electric brakes.



RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual (For Aftermarket Applications)

8. With an impact wrench or an appropriate wrench, loosen the nuts of the leaf spring hanger bolts (Fig.10A), the nuts on the bolts (Fig.10B), and the nut on the equalizer bolt (Fig.10C).

NOTE: Hold the head of the bolts with a wrench.

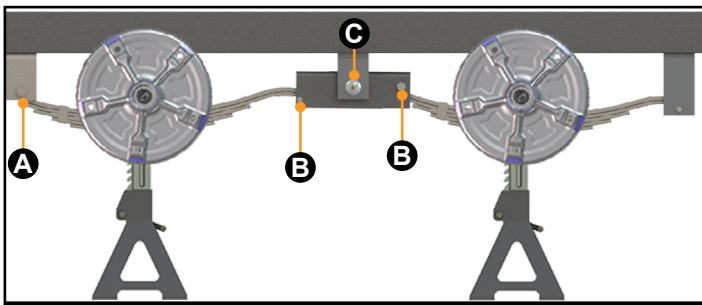


Fig.10

9. Drive out the leaf spring hanger bolts (Fig.10A) and equalizer bolt (Fig.11A), with a hammer, so that the bolt unseats from the hanger and remove.

NOTE: A pry bar may be used to remove the equalizer bolt. The equalizer should hang freely from the spring bolt.

10. Remove the equalizer (Fig.11B) from the leaf spring eyelet (Fig.11C).

11. The trailer is ready for the installation of the new Lippert A/P kit.

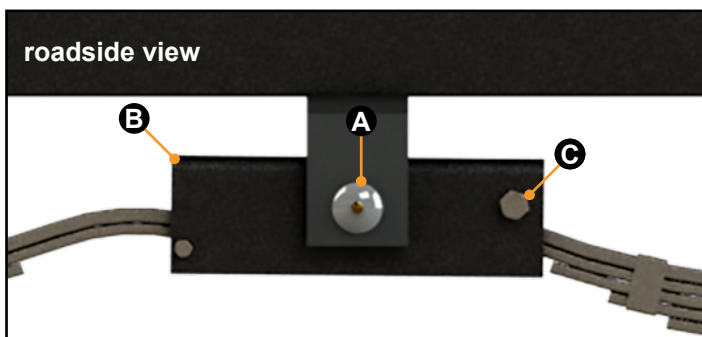


Fig.11

12. Using the 1" bolts and nuts, attach the equalizers to the hangers (Fig. 12).

NOTE: To ensure the equalizers are parallel to the frame, place a 1 1/4" block between the frame and equalizer. This is a critical step to make sure the springs operate correctly.

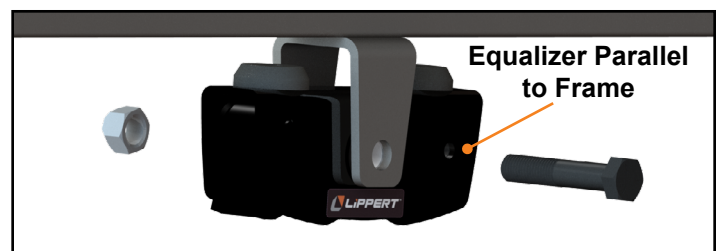


Fig.12

13. Torque the bolts and nuts to 200 to 250 ft-lb.

14. Slide the slipper end of the springs onto the front of the equalizers (Fig. 13) and through the hooks on the rear hangers (Fig. 14).

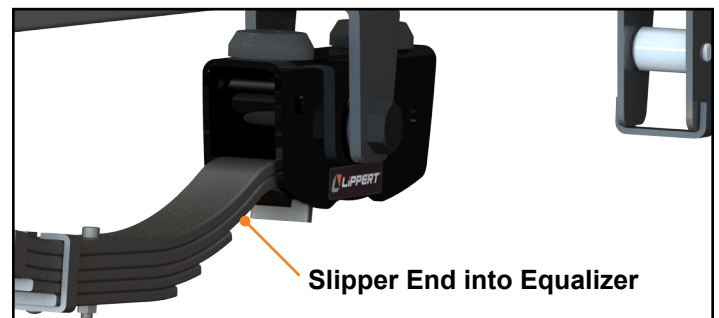


Fig.13

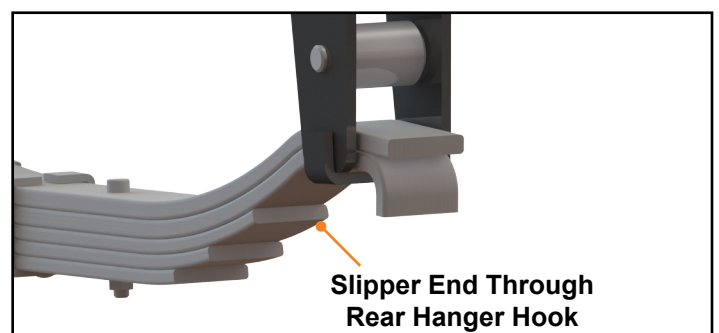


Fig.14

RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual (For Aftermarket Applications)

15. Using the $\frac{9}{16}$ " bolts, attach the eye of the springs to the front hangers and to the rear of the equalizers (Fig. 15).

16. Add nuts and torque to 120 to 140 ft-lb.

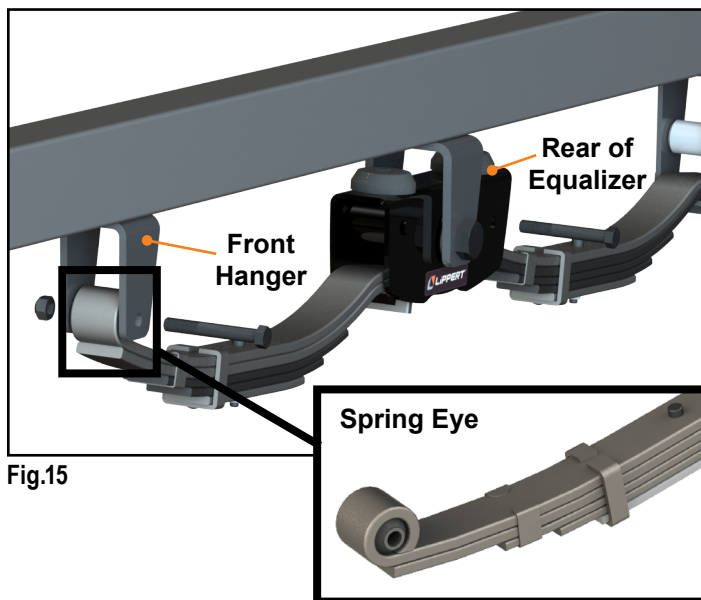


Fig.15

Heavy Duty Slipper Roller Leaf Spring Replacement

Resources Required

- Cordless or electric drill or screw gun
- Appropriate drive bits
- Torque wrench (ft-lbs)
- Floor jacks
- Jack stands
- Personal protective equipment (PPE) (If needed)
- Hammer
- Wrenches
- 1 $\frac{1}{3}$ " block to place between frame and equalizer

Installation

1. Park the trailer on a level surface.
2. With the trailer still connected to the tow vehicle, lower the front landing gear or the tongue jack until making contact with the ground.
3. Disconnect all internal and external power supplies.

4. Using the properly-rated floor jacks, lift the trailer according to the manufacturer's recommendation until the wheels are no longer in contact with the ground (Fig.16).

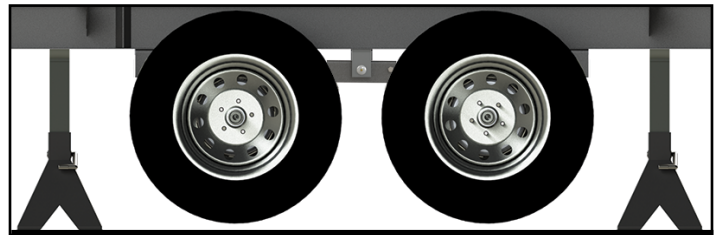


Fig.16

5. Support framework in accordance with the manufacturer's recommendations.

6. Remove the wheels and set aside wheels and lug nuts.

7. Using a floor jack, lift the axles slightly and place the additional properly-rated jack stands under the axles (Fig.17) so that the bolts can be driven out with a hammer.

NOTE: Allowing the axles to drop could result in damage to the wiring for the electric brakes.

8. With an impact wrench or an appropriate wrench, loosen the nuts of the leaf spring hanger bolts (Fig.17A), the nuts on the bolts (Fig.17B), and the nut on the equalizer bolt (Fig.17C).

NOTE: Hold the head of the bolts with a wrench.

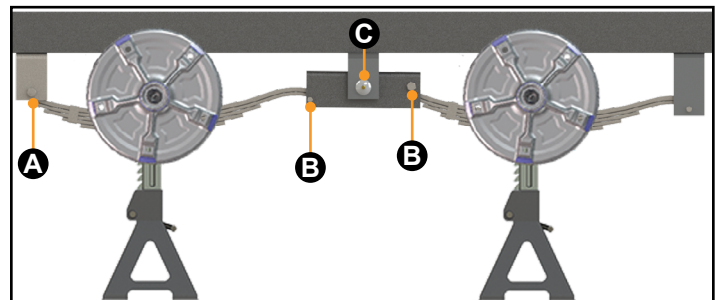


Fig.17

RV Leaf Springs (Slipper and Double-Eye) and Bushings

Installation Manual

(For Aftermarket Applications)

9. Drive out the leaf spring hanger bolts (Fig.17A) and equalizer bolt (Fig.18A), with a hammer, so that the bolt unseats from the hanger and remove.

NOTE: A pry bar may be used to remove the equalizer bolt. The equalizer should hang freely from the spring bolt.

10. Remove the equalizer (Fig.18B) from the leaf spring eyelet (Fig.18C).

11. The trailer is ready for the installation of the new Lippert A/P kit.

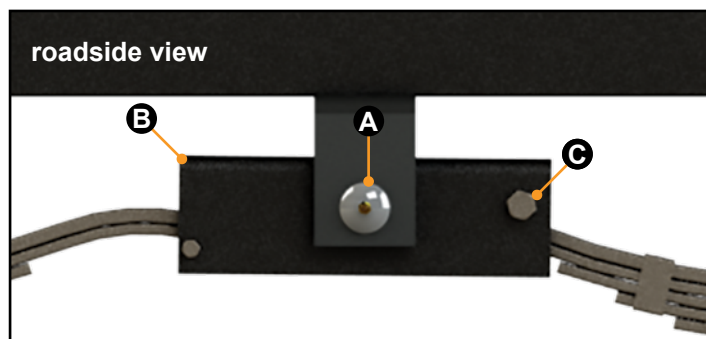


Fig.18

12. Using the 1 1/8" bolts and nuts, attach the equalizers to the hangers (Fig. 19).

NOTE: To ensure the equalizers are parallel to the frame, place a 1 1/2" block between the frame and equalizer. This is a critical step to make sure the springs operate correctly.

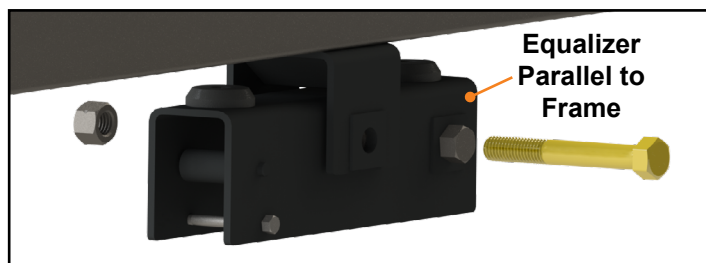


Fig.19

13. Torque the bolts and nuts to 300 to 350 ft-lb.

14. Slide the slipper end of the springs onto the front of the equalizers (Fig. 20) and through the hooks on the rear hangers (Fig. 21).

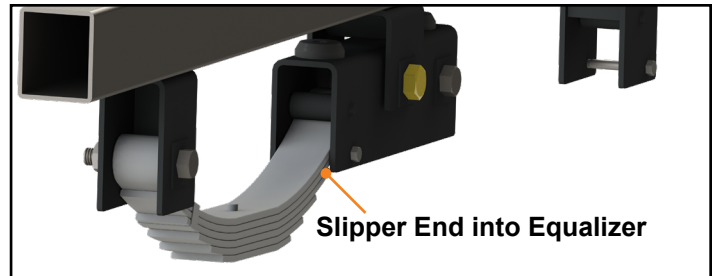


Fig.20

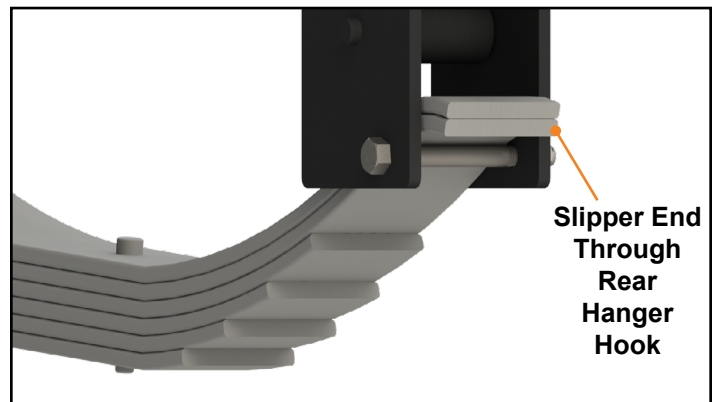


Fig.21

15. Using the 1" bolts, attach the eye of the springs to the front hangers and to the rear of the equalizers (Fig. 22).

16. Add nuts and torque to 200 to 250 ft-lb.

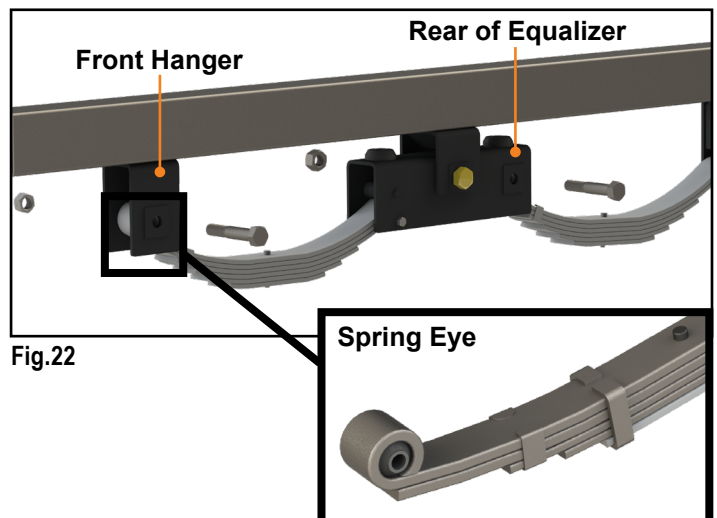


Fig.22



RV Leaf Springs (Slipper and Double-Eye) and Bushings Installation Manual (For Aftermarket Applications)

Wheel Torque Requirements Chart

Wheel Size	Stud Size	Torque Sequence		
		1st Stage	2nd Stage	3rd Stage
14"	1/2"	20-25 ft-lbs (27-34 Nm)	50-60 ft-lbs (68-81 Nm)	90-120 ft-lbs (122-163 Nm)
15"	1/2"	20-25 ft-lbs (27-34 Nm)	50-60 ft-lbs (68-81 Nm)	90-120 ft-lbs (122-163 Nm)
16"	1/2"	20-25 ft-lbs (27-34 Nm)	50-60 ft-lbs (68-81 Nm)	90-120 ft-lbs (122-163 Nm)
16.5"	1/2"	20-25 ft-lbs (27-34 Nm)	50-60 ft-lbs (68-81 Nm)	90-120 ft-lbs (122-163 Nm)
14.5" Demount	1/2"	Tighten sequentially to 85-95 ft-lbs (115-129 Nm)		
16"	9/16"	20-25 ft-lbs (27-34 Nm)	60-70 ft-lbs (81-95 Nm)	120-140 ft-lbs (163-190 Nm)
16.5"	9/16"	20-25 ft-lbs (27-34 Nm)	60-70 ft-lbs (81-95 Nm)	120-140 ft-lbs (163-190 Nm)
16" Dual and 17.5" 2 pc. Swivel Flange Nut	5/8"	30-40 ft-lbs (41-54 Nm)	80-90 ft-lbs (109-122 Nm)	150-175 ft-lbs (203-237 Nm)
16" Dual and 17.5" Flange Nut	5/8"	50-60 ft-lbs (68-81 Nm)	150-200 ft-lbs (203-271 Nm)	275-325 ft-lbs (373-441 Nm)
17.5" Dual Flange Nut	M22	50-100 ft-lbs (68-136 Nm)	250-300 ft-lbs (339-407 Nm)	450-500 ft-lbs (610-678 Nm)



Manual information may be distributed as a complete document only, unless Lippert provides explicit consent to distribute individual parts.

All manual information is subject to change without notice. Revised editions will be available for free download at lippert.com. Manual information is considered factual until made obsolete by a revised version.

Please recycle all obsolete materials and contact Lippert with concerns or questions.