Pinnacle Suspension Inspection & Bump Stop Installation

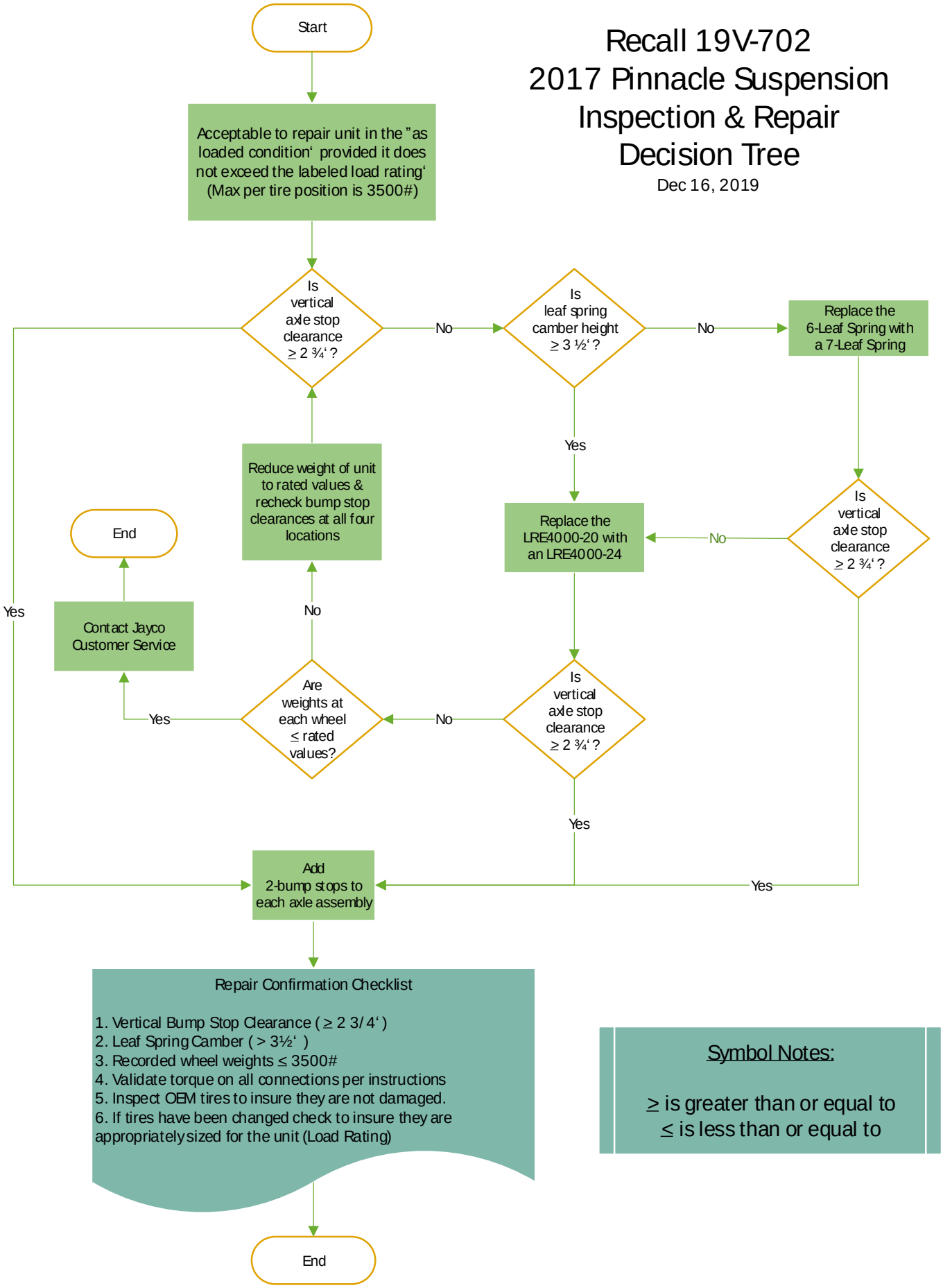
Bulletin Type:	Recall
Bulletin #:	19V-702 US 2019-551 Canadian
Job Code:	9901443
Flat Rate(s):	**RC024 Inspect Vertical Axle Clearance .2 Hour** **RC025 Inspect all 4 leaf springs .5 Hour** **RC026 Replace 4 leaf springs 2.5 Hour** **RC027 Replace 2 Rubber Shear Springs 1.7 Hour** **RC028 Install 4 bump stops .7 Hour**

Publication Date:	2019
Make:	Jayco
Model:	Pinnacle FW
Model Year(s):	2017

Incident:	**Inspect Pinnacle Suspension System components for proper load dimensions. If dimensions are out of specification, the leaf springs and/or rubber shear springs may require replacement.** **Note: ALL units WILL require installation of four (4) rubber bump stops.**
Affected Units:	**ALL 2017 Model Year Pinnacle Fifth Wheels**
Parts Kits: **19V-702A Bump Stop** **19V-702B Steel Leaf Spring** **19V-702C Rubber Shear Spring**	**19V-702A** Bump Stop Kit–***4 per Unit*** *(Quantities shown below are per unit)* 4-Bump Stop Assembly *Jayco #2000322* 8-Hex Bolts 5/16-18 x 5” GR5, Jayco #2000323 8-Washer Flat 5/16, Jayco #0011766 8-Washer Lock Split 5/16, Jayco #0011773 8-Nut Hex 5/16-18 GR5 Jayco #0011665 1-Gauge Block Wood 2 ¾” x 2 ¾” x ½” Jayco #2000321 **19V-702B** Leaf Spring Kit–***4 per Unit*** *(Quantities shown below are per unit)* 4-Double eye- 7-leaf spring stacks w bronze bushings, Jayco # 2000292 8-U bolts .56-18 x 7.25” Zinc, Jayco #0309179 16-Nut Hex .56-18 GR8 Zinc, Jayco #0309194 (u bolt) 16-Washers, Flat Hardened 9/16, Jayco #0088280 (u bolt) 8-Bolt Shackle (Wet) Shoulder .56 x 3.24”, Jayco #0315400 (leaf spring) 8-Nut .44-20 Prevision TQ Zinc, Jayco #0297635 (leaf spring) NOT IN PARTS KIT 4-Leaf Spring tie plates, use component on repair unit **19V-702C** Rubber Shear Spring Kit–***2 per Unit*** *(Quantities shown below are per unit)* 2-LRE4000-24 Rubber Shear Spring, Jayco #0276717 1-LRE4000-24 Hardware Installation Kit, Jayco #0276718
Misc. Tools & Supplies:	Screw gun 1/2" socket & ratchet 1/2” wrench Tape Measure & 28” long steel straight edge Torque Wrench Adjustable (0-50 Ft/lbs.)

Recall 19V-702
2017 Pinnacle Suspension Inspection & Repair Decision Tree

Dec 16, 2019



Symbol Notes:

≥ is greater than or equal to
≤ is less than or equal to

Recall 19V-702
2017 Pinnacle Suspension Inspection & Repair Decision Tree

Dec 16,2019

Dealer Name:	
Record VIN:	
Inspection Date:	
Repair Date:	
Technician Name:	

Record Wheel Weight Below (≤ 3500#)

ODS-F:		DS-F:	
ODS-R:		DS-R:	

Record # Springs found:	

Dealer Note:

- Perform inspections and record the **"as found"** inspection results for the axle stop distance and leaf spring camber. These inspection results will determine which repair kits to order.

- Submit this sheet with the **"as repaired"** dimensions and all blocks completed with your warranty claim submission

Vertical Axle Stop Clearance must be ≥ 2 ¾"
Record the ***as-found*** Gauge Block (Pass/ Fail) below

ODS-F:	
ODS-R:	
DS-F:	
DS-R:	

Use the go/ no-go gage included in your recall kit when checking the axle stop clearances
Ref: Step 2, Fig 2

Vertical Axle Stop Clearance must be ≥ 2 ¾"
Record the ***as-repaired*** Gauge Block (Pass/ Fail) below

	ODS-F:
	ODS-R:
	DS-F:
	DS-R:

Leaf Spring Camber must be ≥ 3 1/ 2" at all locations. Record the ***as found*** dimensions below

	Forward	Rear
ODS-F:		
ODS-R:		
DS-F:		
DS-R:		

Follow the inspection procedure included in your recall kit when checking spring camber
Ref: Step 3, Fig 3-5

Leaf Spring Camber must be ≥ 3 1/ 2" at all locations. Record the ***as repaired*** dimensions below

Forward	Rear	
		ODS-F:
		ODS-R:
		DS-F:
		DS-R:

Additional Notes:
- If any Spring Camber measures less than the 3 ½" - replace all four springs.
- If a Rubber Shear Spring needs replaced - replace both sides.

Section I: TRAILER SUSPENSION COMPONENT INSPECTION

These instructions detail the inspection and service work required on the 2017 Pinnacle fifth wheel as follows:

Section I: Provides steps required to inspect the suspension components and installation of a rubber bump stop above each axle in four locations.
Section II: Provide the detailed instruction for removing and replacing Steel Leaf Springs
Section III: Provide the detailed instructions for removing and replacing the rubber shear spring

Section I – Step 1: INITIAL SETUP OF THE TRAILER

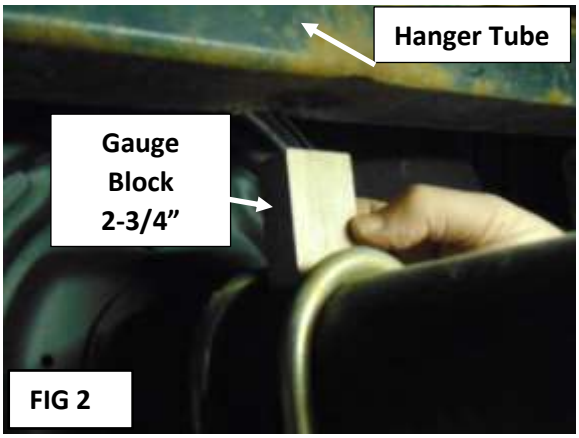
STEP 1:

- Position the unit on a flat level surface.
- Support the unit on the pin box using a suitable stand or a forklift (**Fig 1**).
- The unit must be in a level condition.
- Retract ALL stabilizer jacks.
- The unit can be in an "as loaded" state, however not to exceed 3500 pounds for any one tire.
- Record tire weights on inspection sheet in the space provided (page 3 of this document)

Section I – Step 2: VERTICAL AXLE TRAVEL USING A GAUGE BLOCK

STEP 2:

- **Inspect the vertical axle travel distance by placing the** 2 ¾" gauge block (from the kit) between the top of the axle tube and the bottom of the 2"x 3" hanger tube as shown in Fig. 2. Repeat inspection at the four (4) axle locations. Write Pass or Fail in the space provided ion the inspection sheet *(page 3 of this document).*
- **PASS:** Gauge block fits in the space between axle tube and hanger tube at *all* four (4) axle locations. **GO TO STEP 5.**
- **FAIL: IF THE GAUGE BLOCK FAILS TO FIT IN ONE OR MORE OF THE FOUR (4) LOCATIONS GO TO STEP 3.**



NOTE: The gauge block measurement method shown in figure 2 may need repeated after **STEP 3,** and again after **STEP 4** depending on the components changed.

Section 1-Step 3: INSPECT LIPPERT STEEL LEAF SPRINGS

STEP 3: PARTS KIT 19V-702B MAY BE REQUIRED

- Count the number of leaves that make up the leaf spring (6 or 7).
- Record this number on the inspection sheet (*page 3 of this document).* Enter the number under the "**AS FOUND**" section.

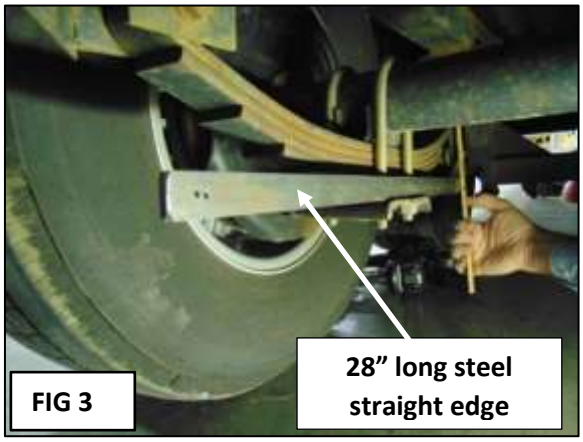
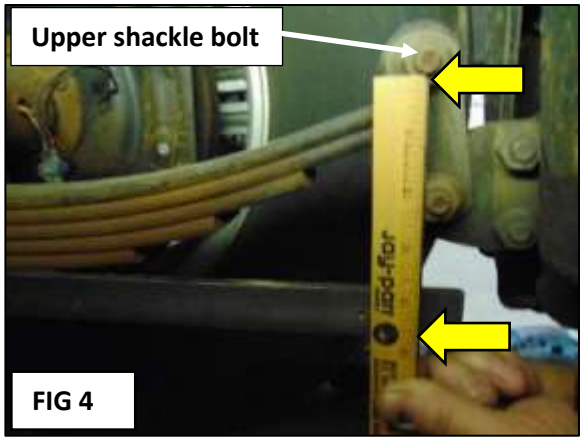


FIG 3:

- Place a 28 inch long steel straight edge so it rests on top of the spring tie plate.
- Steel straight edge needs to be 28 inches long so it can balance on the spring tie plate and extend out to the end of each spring to make measuring easier.



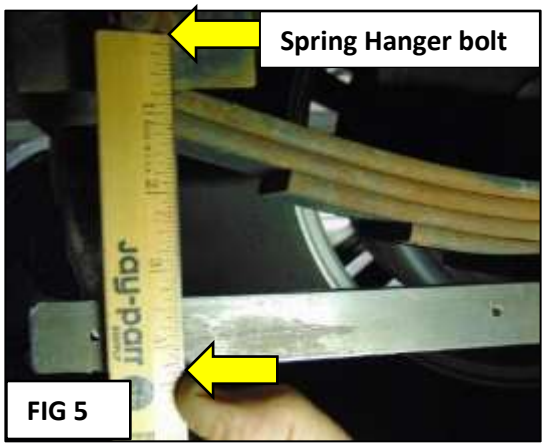


FIG 4:

- Measure the vertical distance between the bottom of the straight edge, and the bottom of the upper shackle bolt threads (located at the equalizer) (between arrows in photo).
- Measure this dimension on ALL springs.
- Record dimensions for all springs on the inspection sheet *(page 3 of this document)* under "**AS FOUND**" section.

FIG 5:

- Measure the vertical distance between the bottom of the straight edge, and the bottom of the spring hanger bolt thread section (between arrows in the photo).
- Measure this dimension on ALL springs.
- Record dimensions for all springs on the inspection sheet *(page 3 of this document)* under "**AS FOUND**" section.
- These two dimensions will give you the approximate vertical distance from the spring eye to the tie plate. This is how the flatness of the spring under load is determined.
- **PASS:** If all of the leaf springs measurements were greater than 3-1/2 inches, but the gauge block fails to fit into the space between the axle tube and the hanger tube (Fig 2), in one or more of the 4 axle locations…**GO TO STEP 4.**
- **FAIL:** If **ANY** of the leaf springs measurements are less than 3-1/2 inches, ALL (4) leaf springs will need replaced.
    - Remove the 6-leaf spring and replace with a **7-leaf springs** in accordance with the instructions from Lippert Components, Inc (the axle manufacturer) found on pages 10 through 19 of these instructions.

  Repair inspection - After ALL leaf springs are replaced you will need to *recheck the clearance between the axle tube and the hanger tube (Fig 2), using the SAME gauge block provided in the kit.*
- **PASS:** Recheck spacing using the gauge block and if it now fits between the axle tube and the hanger tube (in all 4-locations), record results in the "As-Repaired section of the inspection sheet (page 3 of this document), **THEN PROCEED TO STEP 5.**
- **FAIL:** If after replacing the springs, the gauge block fails to fit between the axle tube and the hanger tube in any or the 4 locations, **THEN PROCEED TO STEP 4**.

Section 1-Step 4 RUBBER SHEAR SPRING INSPECTION

STEP 4: PARTS KIT 19V-702C MAY BE REQUIRED

4.1 Inspect the LRE 4000-20 rubber shear spring for damage according to the MORryde inspection instructions *(page 20 of this document).*

- **PASS:** If there is no damage to the 4000-20 rubber shear spring, **GO TO STEP 4.2**.
- **FAIL:** If the 4000-20 rubber leaf spring has damage, replace both spring blocks with the **LRE 4000-24** rubber shear springs from the kit. Installation shall be in accordance with the MORryde instructions (page 21-27 of this document). Refer also to the LRE Suspension System Owner's Manual from MorRyde.

4.2 If the leaf spring measurements were correct (greater than 3-1/2 inches) but the 2 ¾" gauge block did not fit between the axle tube and the hanger tube, then the MORryde Rubber Shear Spring requires replacement.

- Remove the MORryde LRE 4000-20 rubber shear springs and replace them with the **LRE 4000-24** rubber shear springs. Installation shall be in accordance with the instructions from MORryde instructions (page 21 - 27 of this document). Refer also to the LRE Suspension System Owner's Manual from MORryde.
- After replacing both rubber shear springs, recheck the axle vertical clearance (Step #2) using the gauge block provided (fig 2). Write Pass or Fail in the "As-Repaired" section of the inspection sheet (page 3 of this document).
- **PASS:** if the clearance is now sufficient for the gauge block to fit between the axle tube and the hanger tube, **THEN PROCEED TO STEP 5.**

- **FAIL:** if the gauge block still fails to fit between the axle tube and the hanger tube (after replacing the leaf springs and the rubber shear springs), you will need to call Jayco Customer Service for further information on how to evaluate this unit.

Section II-Step 5 INSTALLATION OF RUBBER BUMP STOPS (4 TOTAL)

STEP 5: PARTS KIT 19V-702A IS REQUIRED ON ALL UNITS

- Install the rubber bump stops ONLY if the gauge block has successfully fit into the space between the axle tube and the hanger tube behind each wheel, FOUR (4) locations. Reference (Fig 2).


FIG 6


FIG 7

FIG 6:

- Bump Stops (4 per unit).
- Mounting hardware for one bump stop: two 5/16-18 x 5" Gr5 hex bolts, two 5/16 Gr5 flat washers, two 5/16 Gr5 lock washers, and two 5/16-18 Gr5 hex nuts.

FIG 7:

- Position the bump stop over the top of the axle between the spring hanger U-bolts.
- Spring pack will fit in the notches on each leg of the bump stop bracket.

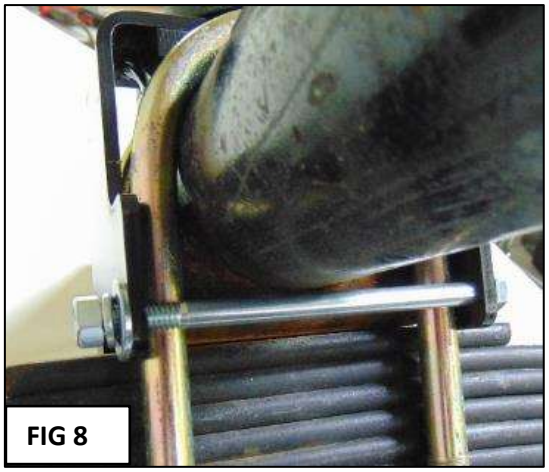


FIG 8

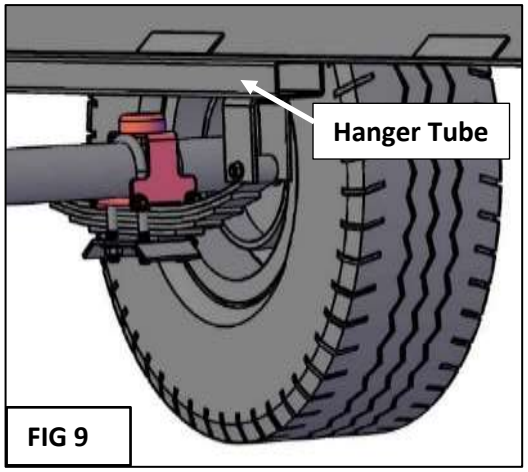


FIG 9

FIG 8:

- Install two 5/16-18 hex bolts through the holes in the bump stop bracket.
- Place a flat washer, lock washer and nut on each of the bolts.
- **Torque to 10-12 Ft/lbs.** (nuts should be tightened together)

FIG 9:

- Completed bump stop for one axle location.
- Repeat installation process at all three (3) remaining wheel locations.

REFERENCE SECTION: SUGGESTED TOOL LIST FOR CHANGING THE STEEL LEAF SPRINGS & RUBBER SHEAR SPRINGS

1. ***The photo above shows the following tools***:
2. ½ inch drive Adjustable Torque wrench (zero – 50 Ft/lbs.) (not shown)
3. ½ inch ratchet
4. 3/8 inch ratchet with 16mm socket
5. Punch (approximately 3/8” diameter)
6. Small Sledge hammer
7. 28” long steel straight edge
8. Impact driver with following ½” drive impact sockets: 11/16, 13/16, 14mm, 15mm, 17mm, 19mm
9. Screw gun with 6” long 3/8” nutsetter bit (or standard 3/8” nutsetter bit with 6” bit extension)
10. Drill with a 3/16” drill bit
11. Tape Measure
12. Mechanics Creeper
13. Grease Gun with a tube of Wheel bearing grease Jayco p/n 0230435
14. Lippert Manuals:
15. Wet Bolt Installation (p/n ccd 0002018)
16. Axle and Suspension Installation (p/n ccd 0001412)
17. Trailer Axle Owner Manual 2K-7K

REFERENCE SECTION: PHOTOGRAPHS FOR STEEL LEAF SPRING KIT, RUBBER SHEAR SPRING KIT & RUBBER BUMP STOP KIT

RUBBER BUMP STOP 19V-702A
Required on ALL Units

RUBBER SHEAR SPRING
& OWNERS MANUAL 19V-702C
Required based upon Inspection results

STEEL LEAF SPRINGS 19V-702B
Required based upon inspection results

The photos above show suspension component replacement

Jayco's sole obligation under our limited warranty is to repair or replace defective materials and/or workmanship deemed our responsibility as determined by Jayco in our sole discretion. Jayco reserves the right to use new and/or remanufactured parts or materials of similar quality to complete any work, and to make parts and/or design changes as appropriate without notice to anyone. Jayco designs and/or materials changes are done without obligation to incorporate such changes in previously manufactured product. Jayco makes every reasonable effort to ensure field remedies will not adversely affect performance and/or safety of the unit. This field remedy is not intended to extend to future performance of this RV, or any of its materials, components or parts beyond the standard warranty period. The RV owner's obligation to notify Jayco, or one of its independent, authorized dealers, of a claimed defect does not modify any obligation placed on the RV owner to contact Jayco directly when attempting to pursue remedies under state or federal law. Jan. 2019.

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Section II: STEEL LEAF SPRING REPLACEMENT

LEAF SPRING REPLACEMENT ON AN EXISTING AXLE BEAM

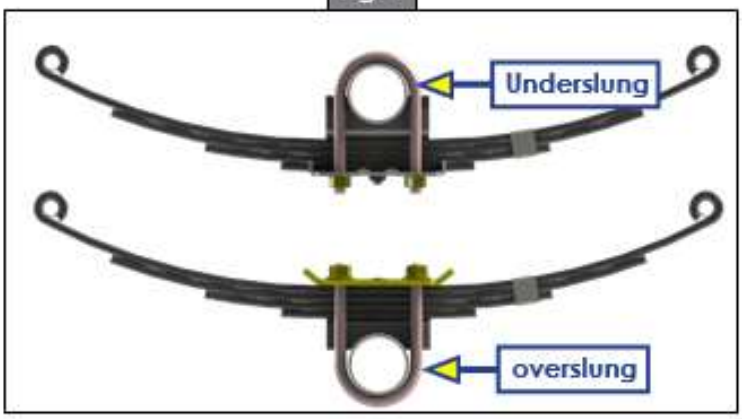
TI-345

AXLES AND SUSPENSION

Purpose

This document outlines the process for replacing the double-eye leaf spring components on an existing axle beam assembly. The following procedure is applicable for both underslung—when the leaf spring is mounted, or "slung", under the axle—and overslung—when the leaf spring is mounted, or "slung", over the axle (Fig. 1).

Fig. 1



NoTE: Images used in this document are for reference only when assembling, installing and/or operating this product. Actual appearance of provided and/or purchased parts and assemblies may differ.

Safety

Read and understand all instructions before installing or operating this product. Adhere to all safety labels.

⚠WARNING

The trailer MUST be supported per manufacturer's recommendations before working underneath. Failure to do so may result in death, serious personal injury, severe product and/or property damage.

⚠WARNING

Always lift the trailer 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 trailer's frame is. Do not go under the railer unless it is supported by appropriately rated jackstands. Improperly supported trailers can collapse, causing possible serious personal injury or death.

⚠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.

LEAF SPRING REPLACEMENT ON AN EXISTING AXLE BEAM

TI-345

AXLES AND SUSPENSION

Resources Required

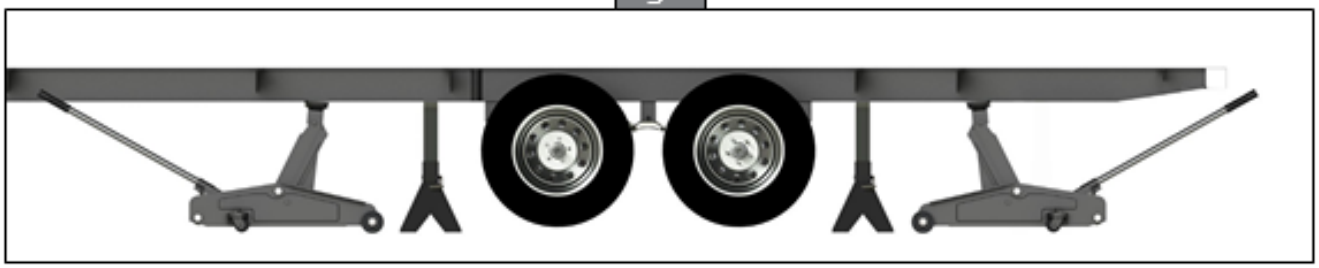
- 1 - 2 persons, depending on task
- Floor jacks
- Jack stands
- Pneumatic air or impact gun
- Assorted deep well sockets
- Hammer or mallet
- Torque wrench (ft-lb)

Replacement Procedure

1. Using floor jacks, lift the frame slightly and place properly-rated jack stands under the axles (Fig. 2) 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. 2



3. Remove tires and wheels—curbside and roadside—from the axle (Fig. 3) with the affected leaf spring.
4. Set wheel and lug nuts (Fig. 3) 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.

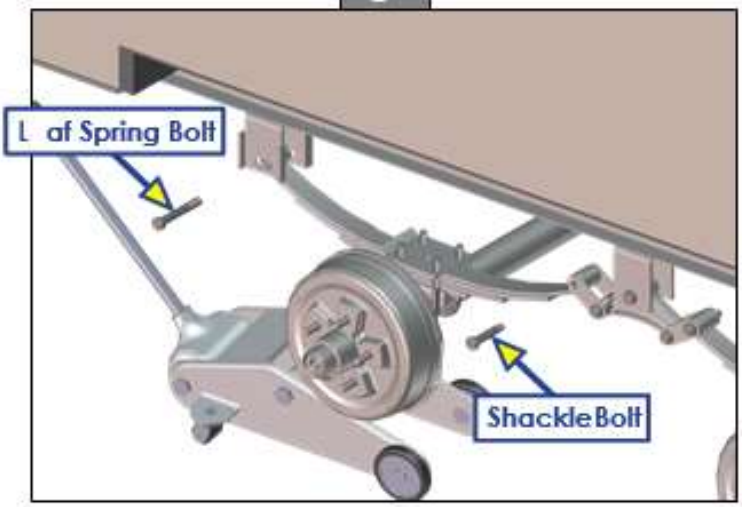
NoTE: Make sure electrical power is off and hydraulic system has been de-energized before disconnecting lines.

Fig. 3

6. With an impact gun or an appropriate wrench, loosen the nuts on the leaf spring bolts and the shackle bolts (Fig. 4).

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

Fig. 4



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 they 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.
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.

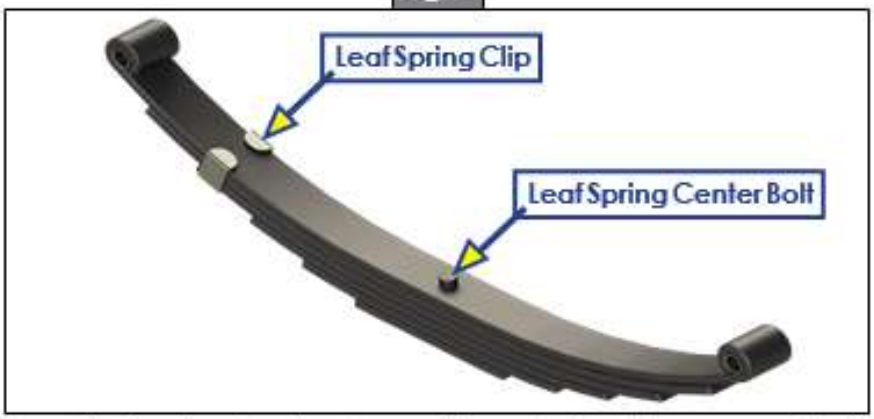
NOTE: At this point in the installation, LCI recommends inspecting the equalizer shackle links. If the shackle links are worn, LCI recommends replacing them.

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.

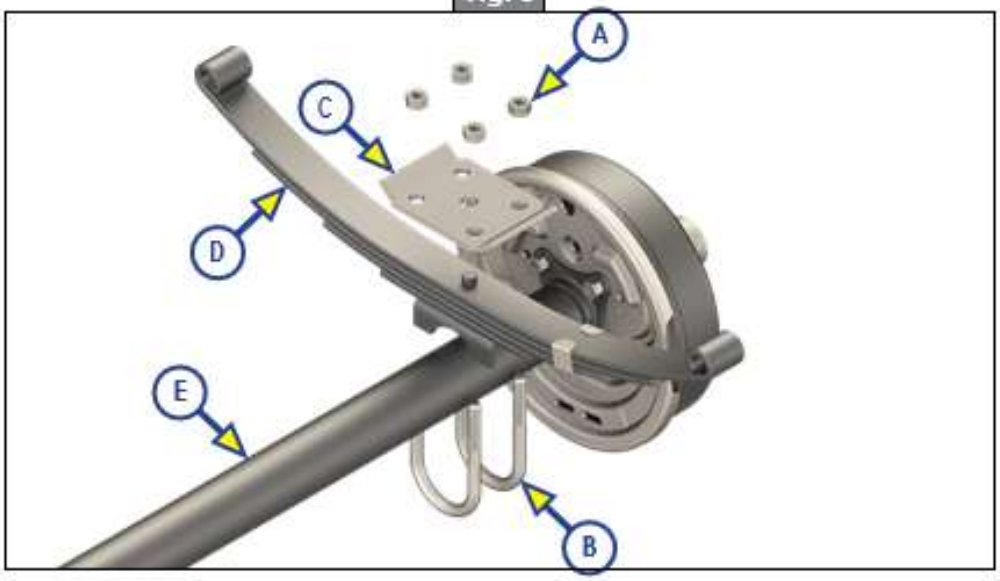
12. Position and orient the new leaf spring (Fig. 5) underneath the trailer to help expedite installation.

Fig. 5



13. After the axle and leaf springs have been lowered from the chassis hangers and shackle links:
    A. Remove U-bolt nuts (Fig. 6A) from the affected leaf spring.
    B. Remove U-bolts (Fig. 6B) and tie (spring) plate (Fig. 6C) from the axle (Fig. 6E) holding the affected leaf spring (Fig. 6D).

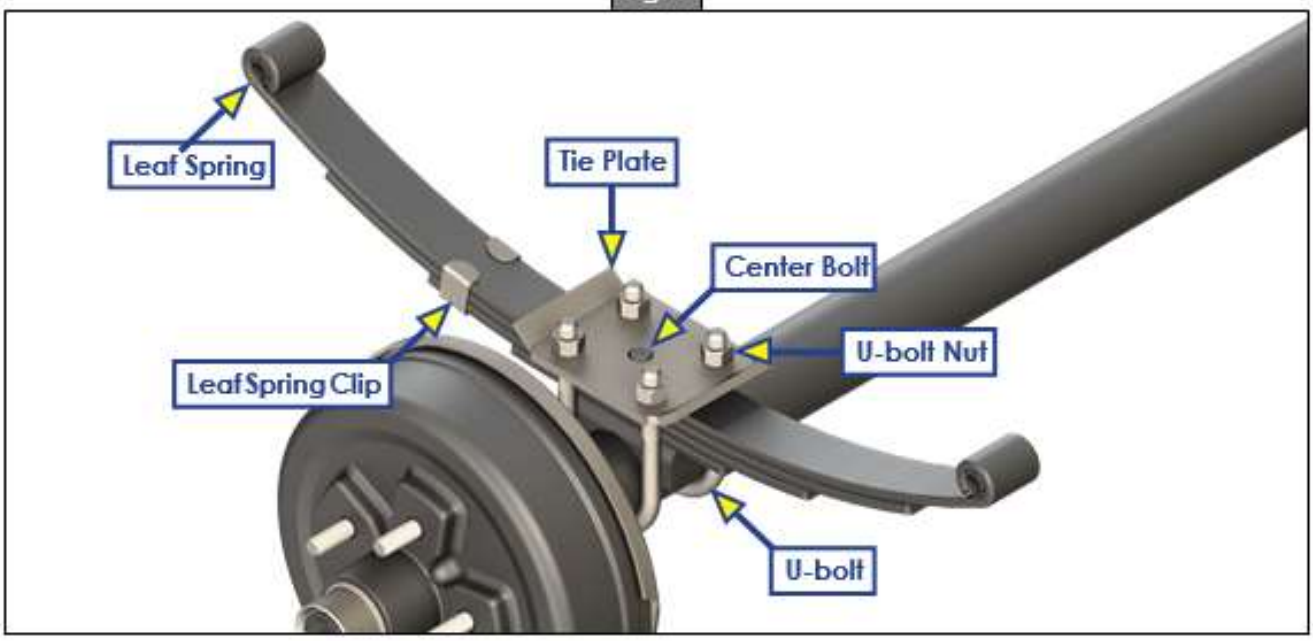
Fig. 6



C. Set U-bolts, nuts and tie (spring) plate aside for later installation.
D. Set removed leaf spring aside. Do **NoT** reuse affected leaf spring.

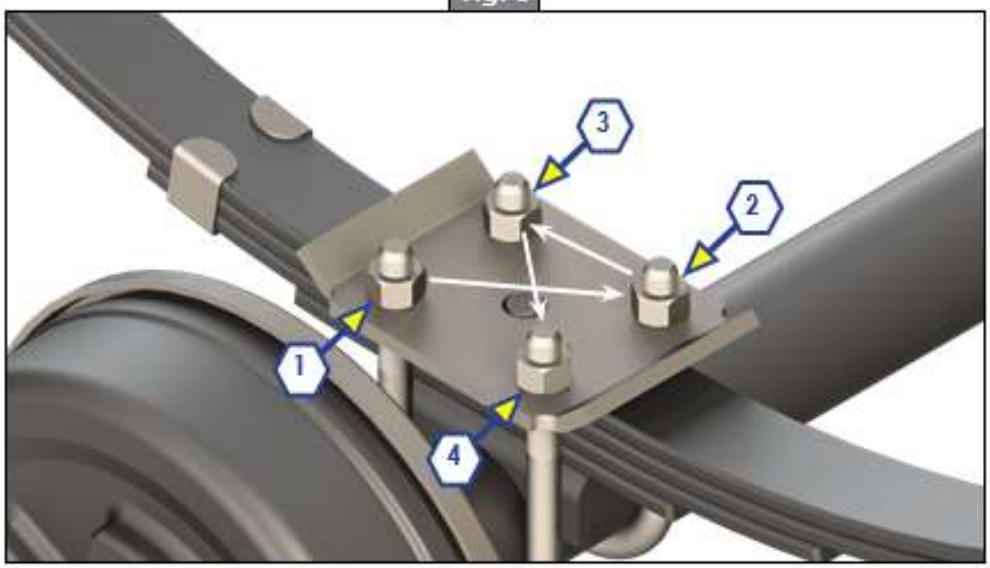
14. Place the new leaf spring (Fig. 6) onto the axle with the leaf spring clip pointing towards the front of the trailer. Make sure spring center bolt engages the center hole of the tie (spring) plate.
15. Position U-bolts and tie (spring) plate on the axle (Fig. 7).
    A. Install washers, if equipped, and hand-start nuts.
    B. Hand-tighten nuts until snug (Fig. 7).
    C. Verify the following:
        I. Center bolt is engaged in tie (spring) plate (Fig. 7).
        II. Leaf spring is square to the axle (Fig. 7).
        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. 7



16. Progressively tighten tie (spring) plate nuts in a criss-cross pattern, in the order given (Fig. 8), until the final torque is obtained. Refer to Spring Axle Torque Specifications chart for bolt torque requirements.

Fig. 8



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
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.
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.

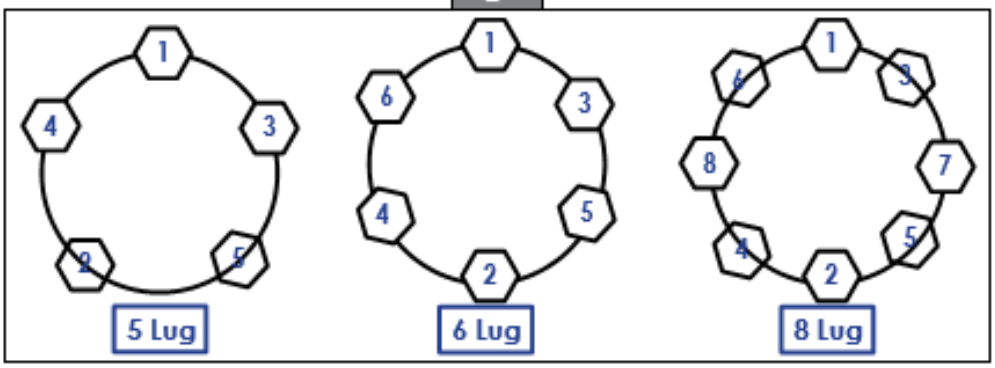
NoTE: Hold the head of the bolts with a wrench.

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. 3).
   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 9.
   C. After wheel lug nuts are fully hand-tightened, torque nuts in stages and in the sequential pattern shown in figure 9.

Fig. 9



D. Torque wheel lug nuts to the torque values listed in the Wheel Torque Requirement Chart.

Wheel Torque Requirement Chart				
Wheel Size	Stud Size	Torque Sequence		
		1st Stage	2nd Stage	3rd Stage
14"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
15"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
16"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
16.5" x 6.75"	1/2"	20-25 ft-lbs	50-60 ft-lbs	90-120 ft-lbs
16"	9/16"	20-25 ft-lbs	60-70 ft-lbs	120-130 ft-lbs
16.5" x 6.75"	9/16"	20-25 ft-lbs	60-70 ft-lbs	120-130 ft-lbs
16" Dual and 17.5" Cone Nut	5/8"	50-60 ft-lbs	100-120 ft-lbs	190-210 ft-lbs
16" Dual and 17.5" Flange Nut	5/8"	50-60 ft-lbs	150-200 ft-lbs	275-325 ft-lbs
14.5" Demount	1/2"	Tighten sequentially to 85-95 ft-lbs		

20. The leaf spring replacement procedure is now complete.

WET BOLT INSTALLATION

TI-124

AXLES AND SUSPENSION

Recommended Tools:

- Alignment Tool- Spud Wrench or Bull Pin or similar
- Floor Jack
- Grease Gun
- Hammer
- Jack Stands
- Pneumatic Impact Gun w/ 7/16" Impact Socket

Reference TI-083 for standard chassis blocking

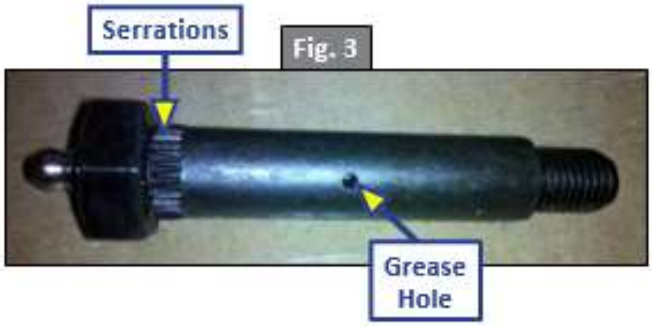
1. Using jack stands to support chassis, support axle for safe disassembly of axle bolts and hardware. After removing axle bolts, inspect spring eyes for brass bushings. Change if needed by using the following procedure:
   - A. Place brass bushing on an appropriately sized punch. An appropriate sized punch will allow the bushing to slip onto the shaft, but not slide off the other end.
   - B. Insert end of punch into spring eye.
   - C. Drive old bushing out with hammer.
   - D. As the old bushing is driven out, the new bushing will be inserted into the spring eye.
   - E. The new bushing should be seated as shown (See Fig. 1).
2. Replace standard mounting hardware, one at a time, with wet bolts and 7/16" locking flange nuts (See Fig. 2). Insert the wet bolts with the grease zerks on the inside of the spring hangers into the axle mounting holes as shown (See Figs. 4 & 5). The serrations under the head of the wet bolt should be fully inserted into the brass bushing.

Fig. 1

Fig. 2

NOTE: Grease hole should be positioned at 3 or 9 o'clock. If the grease holes are not installed properly, the weight of the chassis will prevent the grease from fully lubricating the brass bushings (See Fig. 3 for location of grease hole).

Fig. 3



WET BOLT INSTALLATION

AXLES AND SUSPENSION

Fig. 4

Fig. 5

3. Tighten locking flange nuts to shoulders of wet bolts. If the serrations under the head of the wet bolt are not fully inserted into the brass bushing, carefully tap the wet bolt into position with a rubber mallet or similar tool. Care should be taken not to damage the grease zerks.
4. Apply enough grease to fully lubricate the brass bushing. Typically, two squirts from a manual grease gun are sufficient.
5. Reconnect electric brakes, if applicable.
6. Remount wheels.

RUBBER SHEAR SPRING
REPLACEMENT CRITERIA

Rubber Shear Spring Inspection

Rubber shear springs should be periodically inspected for any tears or cracks. It is recommended to inspect them during each oil change. If a rubber spring exhibits a 3" long and ¾" deep crack or tear, the rubber shear spring should be replaced. This can be checked by using a flat tool such as a putty knife. The putty knife can be used to probe the rubber shear spring in the affected area. If the knife can be inserted ¾" deep, by at least 3" long, the spring rate of the spring is affected and should be replaced.

THINGS TO CONSIDER:

- It is normal to see rubber spring weather-checking, which is small surface cracks in the rubber. Weather-checking or spider-webbing does not require a rubber spring to be replaced.
- Every unit has specific axle weight rating specifications. Overloading your unit past its axle weight rating can cause premature wear on your rubber shear springs.
- Shear springs do not need to be replaced until a tear goes all of the way across the body of the shear spring and works its way into the shear spring a minimum of ¾". Please refer to the images to the right for replacement criteria.

If your rubber shear springs are showing signs of significant wear, please contact the MORryde Parts Department at (574) 293-1581.

MORryde Above. Beyond. Always.

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WET BOLT KIT
UPGRADE
INSTALLATION INSTRUCTIONS
LRE12-001 WET BOLT KIT
(GREASE-ABLE SHACKLE BOLTS)

The LRE12-001 kit is used on any two (2) axle trailer that features the MORryde LRE suspension system. The kit provides a heavier duty shackle set up, grease-able bolts, and stronger spring eye bushings. This kit will provide longer life to the shackles and spring eye area.

EACH TWO-AXLE KIT INCLUDES:

a) Four (4) RE43-004 Shackles with 9/16"-7/16-20 Wet Bolt 3.4" long
b) Eight (8) Bronze Bushings
c) Four (4) LRE43-001 Shear Spring brackets
d) Sixteen (16) 3/18-16 x 1 Grade 8 Yellow Zinc Bolt
e) Twelve (12) 7/16"-20 Flange Lock Nut
f) Four (4) RE150-004 two hole shackles
g) Eight (8) 7/16-14 x 1.25 Grade 5 Zinc Bolts
h) Four (4) 9/16"-7/16-20 Wet Bolt 2.90" long
i) Eight (8) .44-14 Grade 2 Lock Nut
j) Sixteen (16) 3/8-16 Grade 5 Zinc Lock Nut

TOOLS NEEDED FOR INSTALLATION:

- Jack Stands (minimum of two (2), four (4) are preferred)
- Floor Jack (minimum of one (1), two (2) are preferred)
- C-Clamp
- Hammer
- 9/16 Box Wrench
- 5/8 Box Wrench
- 13/16 Box Wrench
- Socket Wrench (1/2" drive preferred) or Impact gun
- 9/16 Socket
- 11/16 Socket
- Drill and Reaming Bit or a thin file or rasp
- ¼ inch chisel or standard screw driver
- Centering pin

SUPPORT OF UNIT

The trailer should first be supported safely. This should be done by placing jack stands **directly to the frame** towards the front and the rear of the coach equally balancing the weight of the unit on all four points. The front landing gear may be used if only two jack stands are available. Be sure to raise the trailer to where all four tires are off the ground and the wheel can spin freely without resistance.

WARNING: THE UNIT SHOULD BE ON A LEVEL SURFACE. DO NOT ATTEMPT THIS INSTALL ON SOFT GROUND OR ON AN UNEVEN SURFACE. FOLLOW YOUR TRAILER MANUFACTURERS SPECIFICATIONS ON LIFTING AND SUPPORTING OF THE UNIT. PROPER CAPACTIY JACKS AND SUPPORTS SHOULD BE USED AT ALL TIMES. DO NOT SUBSTITUE BLOCKS OR OTHER ITEMS FOR JACKS.

NOTE: These instructions are based on lifting and supporting the entire weight of the trailer at once, this installation can be done by only supporting one side of the trailer at a time however the level of difficulty will increase. The best practice for this installation is to support the entire weight of the unit by jack stands/supports at one time.

DISASSEMBLY OF CURRENT CENTER EQUALIZER HARDWARE

STEP 1: Remove the wheels and tires on both sides of the trailer and place them out of the way.

The center tower portion is the frame hanger for the MORryde LRE Shear spring, and the outside frame hangers are the positions for the front and rear leaf spring eyes. If your suspension assembly does not resemble this picture, please stop installation and contact MORryde for a review of your unit to determine the proper kit needed for installation on your trailer.

STEP 2: Beginning on either side of the center equalizer, use the 11/16 socket and 13/16 wrench to remove the four nuts fastening the bolts for the center equalizer, DO NOT REMOVE THE BOLTS.

STEP 3: Use the floor jack to support the forward axle, gently raise the axle to remove weight from the center equalizer.

NOTE: *If using two floor jacks duplicate process of Step 3 for rear axle.*

STEP 4: Remove the two bolts and shackle assembly from the front equalizer area.

STEP 5: Release the weight from the jack and repeat process for rear axle. Once finished, release the floor jack lowering the axle down. Both axles will be disconnected from the center equalizer at this time.

STEP 6: Using 9/16 socket and wrench, remove eight nuts and bolts holding the MORryde LRE Rubber Shear Spring into the frame hanger. There are four on each side of the center frame hanger. Once all eight are removed you should now be able to lower the rubber shear spring out of the housing.

STEP 7: Using the 11/16 socket and 5/8 wrench, remove the four nuts and bolts holding the LRE Shear Spring Brackets from the shear spring.

NOTE: *At this point the disassembly of the center equalizer is complete.*

Old shackle assembly and disassembled equalizer.

REASSEMBLY OF CENTER EQUALIZER

WARNING: BRONZE BUSHINGS AND THE FASTENING BOLTS MAY NOT INSTALL EASILY AND AT TIMES WILL NEED TO BE HAMMERED INTO PLACE. DO NOT STRIKE THE ZERK FITTING DIRECLTY WITH THE HAMMER AS THIS WILL DAMAGE THE FITTING. PLACE A SECTION OF PIPE WITH AN INSIDE DIAMETER OF 3/8 OVER THE ZERK FITTING ENCIRCLING THE ZERK. STRIKE THE END OF THIS TUBE OR DROP A SMALL SOCKET OVER THE ZERK AND HIT THAT.

STEP 1: Using the 11/16 socket and 5/8 wrench, install two of the new LRE43-001 Shear Spring brackets (c) onto the rubber shear spring using four of the new 7/16-14 x 1.25 Grade 5 Zinc Bolts (g) and four of the 7/16-14 Grade 2 Lock Nut (i). Torque rating on these is 45 foot pounds.

STEP 2: The shear spring is now ready for reinstallation into the center frame hanger. Position the shear spring into the center hanger and fasten into place using eight of the 3/18-16 x 1 Grade 8 Yellow Zinc Bolts (d) and eight of the 3/8-16 Grade 5 Zinc Lock Nuts (j). Torque rating on these is 40 foot pounds.

STEP 3: Using the chisel or standard screw driver remove the plastic bushing from the spring eye.

STEP 4: Insert one of the bronze bushings (b) into the spring eye. Installation of this may be difficult and may require the use of the C-Clamp to push the bushing into the spring eye. The file may also be used to "chamfer" or "round" the edge of the bushing to help insert it into the spring eye. Once bushing is installed, reaming tool may be required to allow bolt to insert easily.

STEP 5: Using the floor jack, raise the front axle up to where the spring eye is in position for the new shackle bracket/bolt assembly to be installed.

NOTE: *The grease zerk may be installed to the inside or to the outside, this is done at customer preference. The grease exit hole location on the bolt should face sideways to allow for ease of grease flow.*

STEP 6: Once the new shackle/ bolt assembly is installed with the zerk fittings set to the preferred direction, attach the two hole shackle plate (a) and fasten using two of the 7/16"-20 Flange Lock Nut (e). The torque rating on this is 50 foot pounds.

STEP 7: Repeat Step 6 process for the rear side of the shear spring assembly.

New shear spring bracket & installed shackle bolt assembly.

STEP 8: Repeat Steps 1 through 7 for the opposite side of the unit for the LRE Shear Spring Assembly area.

NOTE: *At this point the reassembly of the center equalizer is complete.*

INSTALLATION OF FRONT AND REAR LEAF SPRING EYE HARDWARE

STEP 1: Using the 11/16 socket and 13/16 wrench, remove the nut from the front spring eye.

STEP 2: Position the floor jack beneath the axle, raise slightly allowing the floor jack to hold the weight of the axle.

STEP 3: Remove the spring eye bolt and discard.

STEP 4: Release the jack pressure slowly allowing the axle and leaf spring eye to drop out of the frame hanger.

STEP 5: Using the chisel or a standard screw driver, remove the plastic bushing from the spring eye.

STEP 6: Insert the new bronze bushing (b) into the spring eye. A C-Clamp may be required for this Step.

STEP 7: Apply pressure to the floor jack helping to raise the axle and leaf spring back into the frame hanger. Use a centering pin to help center this.

STEP 8: Once centered, insert one 9/16"-7/16-20 Wet Bolt 2.90" long (h) and fasten with one 7/16"-20 Flange Lock Nut (e). Tighten with 13/16 socket and wrench, torque rating is 50 foot pounds.

NOTE: *The grease zerk may be installed to the inside or to the outside, this is done at customer preference. Note the grease exit hole location on the bolt, this should face sideways to allow for ease of grease flow.*

STEP 9: Repeat Steps 1-8 on the rear leaf spring eye.

STEP 10: Repeat Steps 1-9 on the opposite side.

NOTE: *Once all four spring eye areas are installed, the leaf spring eye area is complete.*

At this point use NLGI Standard No 2 automotive grease to lubricate each fitting. Grease should flow easily through the zerk fitting, bolt cavity, and exit into spring eye bushing area. If grease flow is restricted, repeat the above Steps for the necessary bolt location and check the grease exit hole position of the bolt. The hole position may need to be altered to better allow grease flow. Once all grease fittings are accepting grease, reinstall the tires and remove the unit from the jack stands. Torque wheel bolts to correct torque specification.

REPLACING THE LRE 4000-20 RUBBER SHEAR SPRINGS

TOOLS REQUIRED:

- Jack stands (minimum of two (2), four (4) are preferred).
- Floor jack (minimum of one (1), two (2) are preferred)
- 9/16” wrench and socket
- 5/8” wrench
- 11/16” socket
- 13/16” wrench
- Ratchet or Impact gun
- Torque wrench (Ft/lbs.)

WARNING: THE UNIT SHOULD BE ON A LEVEL SURFACE. DO NOT ATTEMPT THIS INSTALLATION ON SOFT GROUND OR AN UNEVEN SURFACE. FOLLOW YOUR TRAILER MANUFACTURER’S SPECIFICATIONS ON LIFTING AND SUPPORTING OF THE UNIT. PROPER CAPACITY JACKS AND SUPPORTS SHOULD BE USED AT ALL TIMES. DO NOT SUBSTITUTE BLOCKS OR OTHER ITEMS FOR JACKS.

NOTE: These instructions are based on lifting and supporting the entire weight of the trailer at once. This installation can be done by only supporting one side of the trailer at a time, however the level of difficulty will increase. The best practice for this installation is the support the entire weight of the unit by jack stands/supports at one time.

1. The trailer should be supported safely. This should be done by placing jack stands directly to the frame towards the front and the rear of the RV equally balancing the weight of the unit on all four points. The front landing gear may be used if only two jack stands are available. Be sure to raise the trailer to where all four tires are off the ground and the wheels can spin freely without resistance.

2. Remove the wheels on both sides of the trailer and place them out of the way.

3. Beginning on either side of the LRE, use the 11/16” socket and 13/16” wrench to remove the four nuts fastening the shackle links to the LRE and leaf springs. **DO NOT REMOVE THE SHACKLE LINKS.**

4. Use the floor jack to support the front axle, gently raise the axle to remove weight from the LRE.

   NOTE: if you are using two floor jacks, duplicate the process of Step 4 for the rear axle.

5. Remove the shackle links from the front side of the LRE.

6. Release the weight from the floor jack and repeat the process for the rear axle. Once finished, release the floor jack lowering the axle down. Both axles will be disconnected from the LRE at this time.

7. Using the 9/16" socket and wrench, remove the eight nuts and bolts holding the LRE rubber shear spring in the LRE hanger box. There are 4 bolts on each side of the hanger box. Once all eight are removed, lower the rubber shear spring out of the hanger box.
(**refer to exploded view on page 27**)

8. Using the 11/16" socket and 5/8" wrench, remove the 4 nuts and bolts holding the LRE shackle brackets to the rubber shear spring.

9. Reinstall the LRE shackle brackets onto the new rubber shear spring (**LRE 4000-24**) using the 7/16" hardware and the 11/16" socket and 5/8" wrench.
TORQUE TO 45 FT LBS.

10. Position the rubber shear spring in the LRE hanger box so that the center plate is lower than the outer plates and fasten into place using the 3/8" hardware and the 9/16" socket and wrench.
TORQUE TO 40 FT LBS.

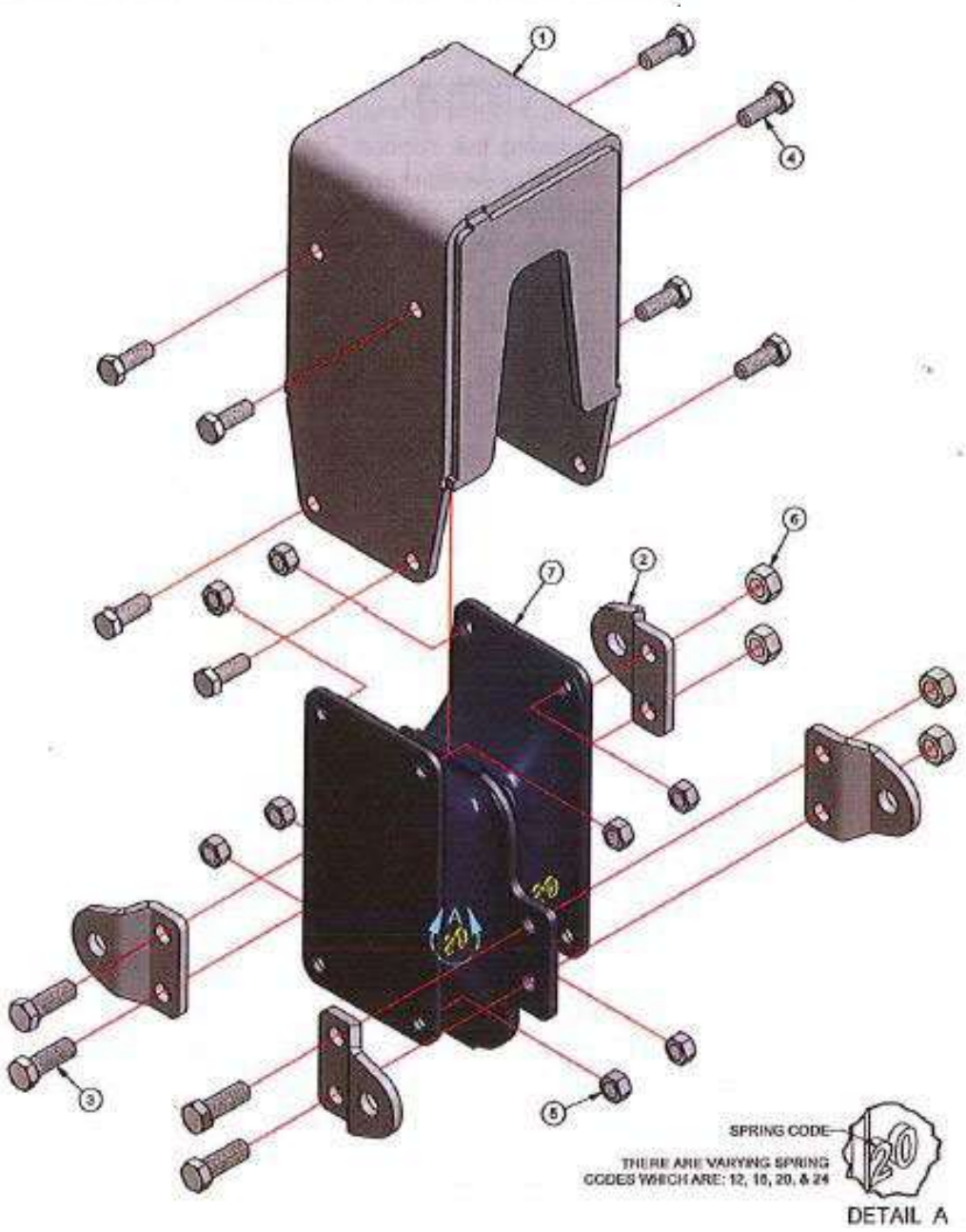
11. Using the floor jack, raise the front axle up to where the leaf spring eye is in position for the shackle links to be installed. Insert the shackle link assembly, then place the loose shackle link on the bolts and reinstall 7/16" flange nuts using the 11/16" wrench and 13/16" socket.
TORQUE TO 50 FT LBS.

12. Repeat Step 11 to attach the shackle links to the rear side of the rubber shear spring.

13. Repeat Steps 3 through 12 for the opposite side of the trailer.

14. Reinstall the wheels on both sides of the trailer. Lower the trailer to the ground and remove the jack stands. Torque the lug nuts to manufacturer specifications.

Parts List		
ITEM	QTY	DESCRIPTION
1	1	HANGER BOX
2	4	SHACKLE BRACKET
3	4	7/16-14 X 1.25 HEXHEAD CAPSCREW
4	8	3/8-16 x 1 HEXHEAD CAPSCREW
5	8	3/8-16 HEXNUT
6	4	7/16-14 HEXNUT
7	1	SHEAR SPRING



Replace the LRE4000-20 with LRE4000-24