

Bushing Assembly and Replacement Instructions for:

- RTL-239 – 6K Capacity Tandem Axle (2390003)
- RTL-239 – 3K Capacity Single Axle (2390101)

RTL-239 6K Tandem Axle – Bushing Replacement Kit

| Bushing Kit Part No. | Pivot Hardware | Torque Values | |
|----------------------|--|---------------|--------------|
| | | foot-pound | Newton-meter |
| 6040133 | Bushing kit w/o hardware | 310 ft-lb | 420 N-m |
| 6040134 | Pivot Bolt (HHCS) Pivot Nut (Locknut) | 310 ft-lb | 420 N-m |

CAUTION Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty. Refer to the engineering drawing of each model for torque specifications.

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving. Exhaust all air from the air system. Disassemble suspension to reach pivot connections.

CAUTION Failure to properly chock wheels and exhaust air system could allow vehicle/suspension movement that could result in serious injury.

Bushing Replacement Procedure – RTL-239 6K Tandem Axle Suspension

Bushing should be replaced in the eight pivot connections at the same time (Figure 1).

1. Remove the pivot hardware by cutting/grinding away the Huck® Collar. Discard pivot hardware.
2. Remove the bushing assembly from the rod eye. Clean the rod eye of foreign debris/corrosion.
3. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of each bushing half. NOTE: Do not substitute - urethane bushing lubricant is included with all bushing replacement kits.

4. Press bushing halves into the eye of the torque rod until halves are snug against the eye. NOTE: Mallet may be needed to install the bushing.
5. Press the bushing inner sleeve into the center opening of the installed bushing. NOTE: Mallet or bushing press will be needed to insert sleeve into installed bushing.

6. Check that installed bushing inner sleeve is flush with both sides of new bushing.
7. Reassemble suspension. Torque to specifications.
8. Install pivot hardware and torque to specifications.

CAUTION Failure to torque pivot hardware can result in suspension failure and void the warranty.

Notes and Cautions

This instruction uses two types of service notes:

“NOTE”: Provides additional instructions or procedures to complete tasks and make sure that the suspension functions properly.

CAUTION Indicates a hazardous situation or unsafe practice that, if not avoided, could result in equipment damage and serious injury.

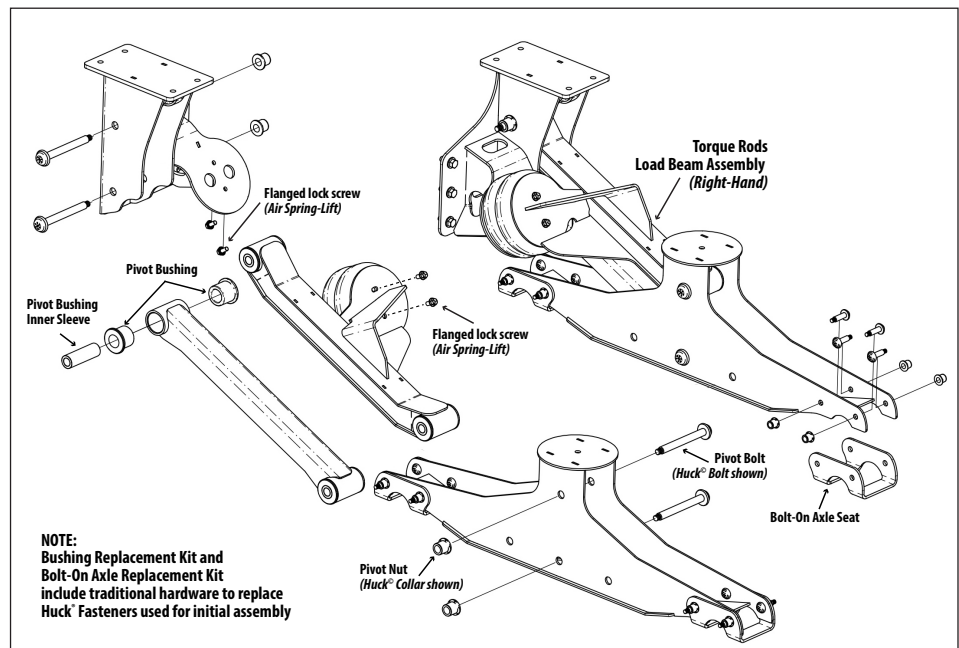


Figure 1. The bushing replacement kit with hardware includes traditional hardware to replace the Huck® Fasteners used for initial assembly.

RTL-239 3K Single Axle – Bushing Replacement Kit

| Bushings Kit Part No. | Pivot Hardware | Torque Values | |
|-----------------------|--|---------------|--------------|
| | | foot-pound | Newton-meter |
| 6040133 | Bushing kit w/o hardware | 310 ft-lb | 420 N-m |
| 6040134 | Pivot Bolt (HHCS) Pivot Nut (Locknut) | 310 ft-lb | 420 N-m |

CAUTION Failure to install and maintain the suspension fasteners at torque specifications could result in suspension failure and void the warranty. Refer to the engineering drawing of each model for torque specifications.

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving. Exhaust all air from the air system. Disassemble suspension to reach pivot connections.

CAUTION Failure to properly chock wheels and exhaust air system could allow vehicle/suspension movement that could result in serious injury.

Bushing Replacement Procedure – RTL-239 3K Single Axle Suspension

Bushing should be replaced in the eight pivot connections at the same time (Figure 2).

1. Remove the pivot hardware by cutting/grinding away the Huck® Collar. Discard pivot hardware.
2. Remove the bushing assembly from the rod eye. Clean the rod eye of foreign debris/corrosion.
3. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of each bushing half. NOTE: Do not substitute - urethane bushing lubricant is included with all bushing replacement kits.
4. Press bushing halves into the eye of the torque rod until halves are snug against the eye. NOTE: Mallet may be needed to install the bushing.
5. Press the bushing inner sleeve into the center opening of the installed bushing. NOTE: Mallet or bushing press will be needed to insert sleeve into installed bushing.
6. Check that installed bushing inner sleeve is flush with both sides of new bushing.
7. Reassemble suspension. Torque to specifications.
8. Install pivot hardware and torque to specifications.

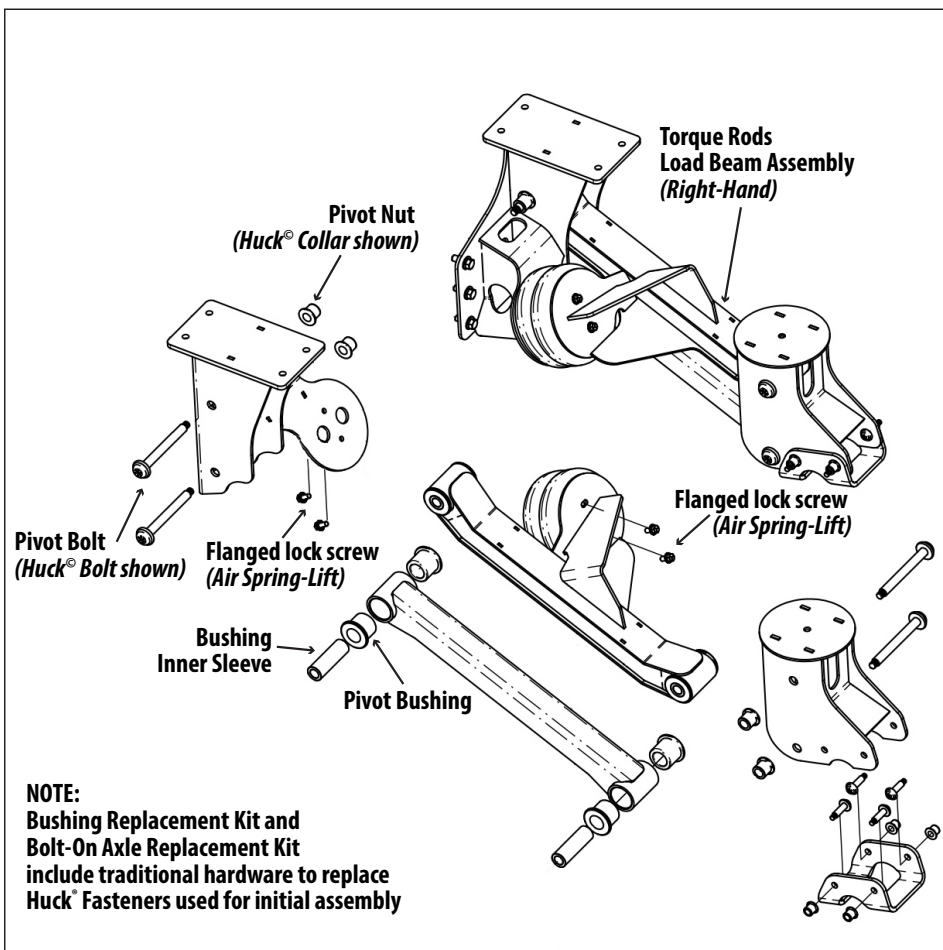


Figure 2.
The bushing replacement kit with hardware includes traditional hardware to replace the Huck® Fasteners used for initial assembly.

CAUTION Failure to torque pivot hardware can result in suspension failure and void the warranty.

RTL-239 Bolt-On Axle Seat – Replacement Kit

| Axle Kit Part Number | Replacement Components for One Axle | Quantity | Part No. |
|--------------------------|---|----------|----------|
| 6030116 | (Bolt-On) Seat for 3-inch Diameter Axle | 2 | 8004622 |
| (2390003-6K Tandem Axle) | HHCS 1/2" 13NC (Length - 1.25") | 8 | 1140084 |
| | Flanged Locknut 1/2" 13NC (Grade 8) | 8 | 1150012 |
| 6030117 | (Bolt-On) Seat for 3-inch Diameter Axle | 2 | 8001589 |
| (2390101-3K Single Axle) | HHCS 1/2" 13NC (Length - 1.25") | 8 | 1140084 |
| | Flanged Locknut 1/2" 13NC (Grade 8) | 8 | 1150012 |

CAUTION Failure to install and maintain fasteners at torque specifications could result in suspension failure and voiding of the warranty. Refer to the engineering drawing for torque specifications.

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving. Raise vehicle to height that removes load from suspension and support with jack stands. Disconnect the linkage from the height control valve(s), if equipped. Exhaust all air from the air system.

CAUTION Failure to properly chock wheels, exhaust the air system and safely support the vehicle could allow vehicle/suspension movement that could result in serious injury.

Bolt-On Axle Seat Replacement Procedure

The bolt-on axle seat replacement kit includes traditional hardware to replace the Huck® Fasteners used for initial assembly.

1. Remove wheels and tires from axle. Provide vehicle support for axle removal and replacement (Figure 3).
2. Cut/grind away the Huck® Fasteners used for the axle seats on the right- and left-hand load beam assembly and discard. Remove axle from the suspension.
3. Refer to the engineering drawing for correct axle seat orientation. Attach axle seat with replacement hardware. Torque to 80 ft-lb (108 N-m).
4. Center replacement axle between the load beam assemblies. Make sure that the electric brake wiring is positioned correctly and place axle on axle seats. Weld axle to each axle seat according to Ridewell Weld Process #2 (Page 4).

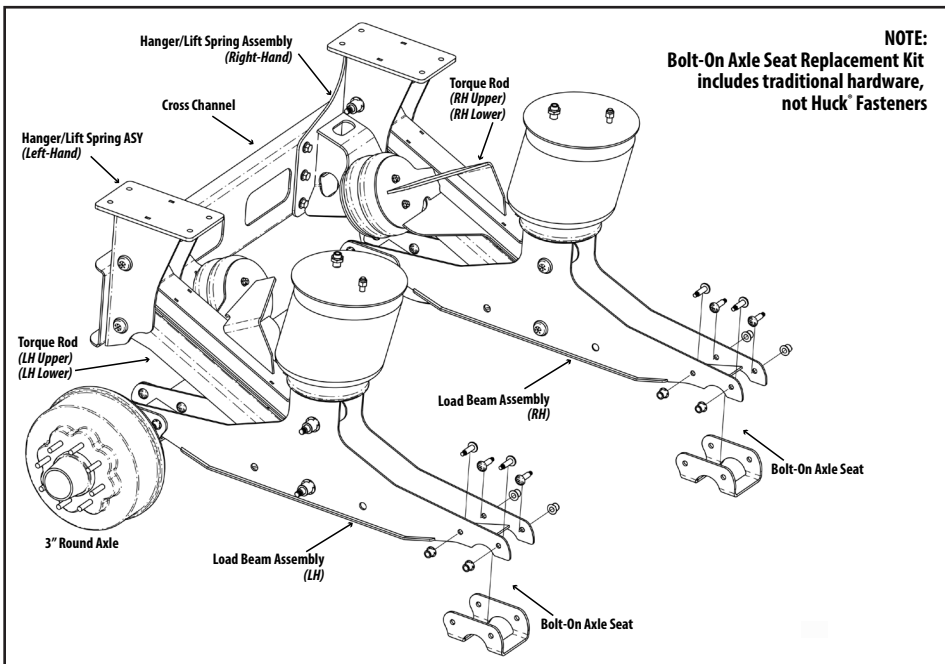
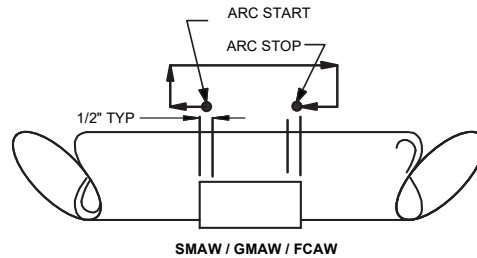
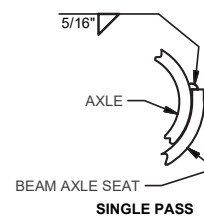
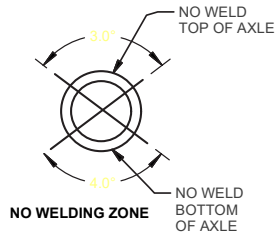
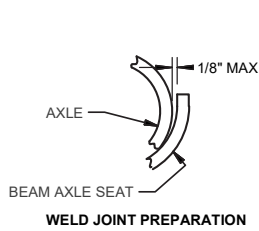


Figure 3.
Bolt-On Axle Replacement Kit includes two axle seats and traditional hardware to replace one axle.

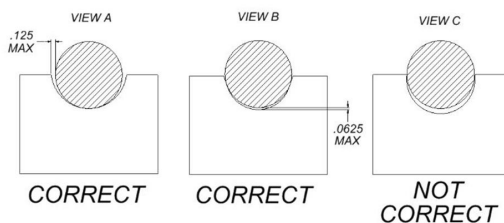
Remove axle support. Install wheels and tires. Connect height control valve linkage, if necessary. Inflate air springs. Raise vehicle and remove support stands. Lower vehicle to ground.


CAUTION Failure to follow procedures and design specifications could result in injury, damage to the axle or suspension, and void the warranty.



REPRESENTATIVE AXLE SEAT (PROFILE DEPENDENT ON SUSPENSION PRODUCT)

- 1 - CAUTION: All welds must be kept away from the top and bottom of the axle where maximum stresses occur (see "NO WELDING ZONE" illustration above). Do not test-weld the arc on any part of the axle tube.
- 2 - All welders and welding operators should be certified as per the requirements of the American Welding Society (AWS) or equivalent. All electrodes used should meet the AWS specifications and classifications for welding carbon and low-alloy steels.
- 3 - Recommended Welding Methods: Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW) or Flux Cored Arc Welding (FCAW). The welding method used and the electrode selected must develop a minimum weld tensile strength of 70,000 psi per AWS specifications. The best fusion and mechanical properties will be obtained by using the voltage, current, and shielding medium recommended by the electrode manufacturer. If the SMAW method is used, the stick electrodes must be new, dry, free of contaminants and stored per AWS specifications.
- 4 - Weld Joint Preparation: The joint to be welded should be positioned in the flat or horizontal position. All grease, dirt, paint, slag or other contaminants must be removed from the weld joint without gouging the axle tube. CAUTION: Never weld when the axle is cold. The axle and beam assemblies to be welded should be at a temperature of at least 60°F (15°C). Pre-heat the weld zone to the axle manufacturer's recommended pre-heat temperature, if required. This will reduce the chance of an area of brittle material forming adjacent to the weld.
- 5 - The axle should fit into the beam assembly with a maximum root gap of 1/8-inch between the axle and the beam axle seat (see "WELD JOINT PREPARATION" illustration above).
- 6 - NOTE: Clamp the axle to the beam axle seat with a C-clamp prior to welding to make sure that proper contact occurs (see "CORRECT" illustration below).
- 7 - Ground the axle to one of the attached axle parts such as the brake chamber brackets, cam brackets or brake spider. Never ground the axle to a wheel or a hub as the spindle bearing may sustain damage.
- 8 - Single-pass welding on the beam/axle connection uses the following guidelines: 8.1-Total fillet weld size should be 5/16-inch. 8.2-Weld pass start and stop performed as illustrated above. 8.3-Never start or stop weld at the end of the weld joint. 8.4-Start weld at least 1/2 inch from the end and backweld over the start. Backstep fill all craters. 8.5-Weld must go to within 1/8-inch +/- 1/16-inch of the ends of the axle seat. Weld must not go beyond or around the ends of the axle seat. 8.8-Post-weld peening is recommended, but not required. Hold the needles perpendicular to the axle. A uniform dimpled pattern will appear when properly peened.



| REV | PROJECT | DESCRIPTION | DATE | BY | CHK | APPD |
|---------------|---------|-------------|------|--|-----|------|
| DRAWN BY: GWH | | 3/27/2018 | |  RIDEWELL CORPORATION PO BOX 4586 SPRINGFIELD, MISSOURI 65808 | | |
| CHECKED: | | | | | | |
| APPROVED: | | | | TITLE: RIDEWELL WELD PROCESS #2 3" DIA. AXLE SINGLE PASS WELD | | |
| PROJECT NO: | SCALE: | A-SIZE: NTS | | | | |
| MATERIAL: | WEIGHT: | | | SHEET 1 OF 1 | | |
| | | | | | | |
| | | | | REV: - | | |