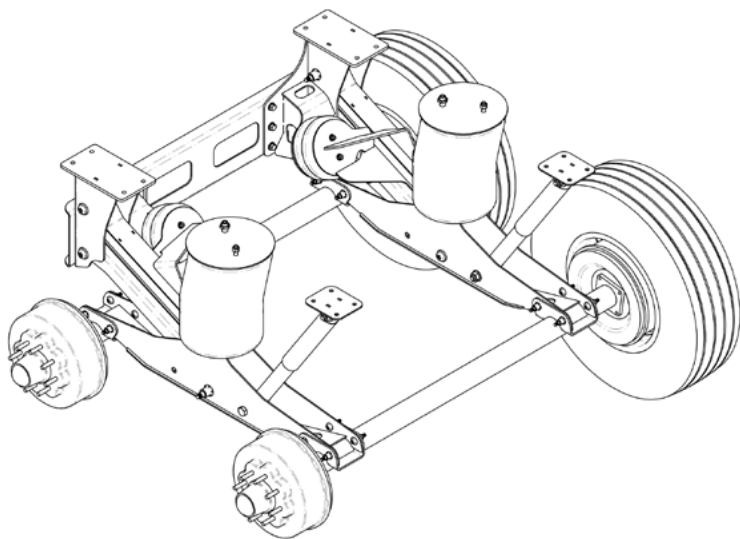


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# RTL 239 – 3K/6K

## NonSteerable Auxiliary Axle Suspension



## Installation and Service Manual

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PART NO:

SUSP. NO:

SERIAL NO:

GROSS AXLE WEIGHT RATING CERTIFICATION IS PER THE FINAL STAGE MANUFACTURER OR ALTERER.

THIS PRODUCT MAY BE COVERED UNDER ONE OR MORE PATENTS, ADDITIONAL PATENTS MAY BE PENDING.

[www.ridewellcorp.com](http://www.ridewellcorp.com)

(800) 641-4122

## Suspension Identification Tag

The **Part Number** is listed as a 606xxxx Installation/ Assembly Number when other system components are factory installed onto the suspension.

The **Suspension Number** and **Serial Number** refer to the suspension model and date of manufacture.

Please refer to the suspension number/part number and serial number when contacting Ridewell for customer service, replacement parts and warranty information.

## Notes and Cautions

All work should be completed by a trained technician using the proper tools and safe work procedures.

Read through the entire Installation and Service Manual (ISM) before performing any procedures.

The ISM uses two service notes to provide important safety guidelines for the suspension operation. The service notes are defined as:

“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.



RTL-239 Pivot connection installation/maintenance information is posted inside the “233-32-KP/Bushing-Parts Guide.”

Scan/click on the QR-Code to launch ISM support webpage. Find the publication under “Axles-Service Part Information.”

## RTL-239 Suspension System – Available Beam/Frame Centers

2390101 (3K-Single Axle)	2390003 (6K-Tandem Axle)	2390005 (6K-Tandem Axle)	2390102 (3K-Bolt-On Axle)
41.00"	41.00"	41.00"	40.00"
41.50"	41.50"	41.50"	40.50"
42.00"	42.00"	42.00"	41.00"
42.50"	42.50"	42.50"	41.50"
43.00"	43.00"	43.00"	42.00"
43.50"	43.50"	43.50"	42.50"

The Ridewell Tandem Liftable (RTL) 239 Trailer Suspension System provides a lightweight auxiliary axle for state and federal bridge law optimization.

The RTL-239-3K and RTL-239-6K Suspension systems are available with and without a factory integrated 3" axle with electric brakes.

The 239-3K Single Axle Trailer Suspension can be configured for a customer-supplied bolt-on axle.

## NonSteerable Lift-Axle Operation

Raising non-steerable lift axles is recommended before turning a corner, especially when navigating a sharp corner. A non-steerable axle that is not lifted when turning will scrub concrete/asphalt; causing premature wear and possibly damage the tires as well as impose a high lateral stress on the wheel/ chassis vehicle components.

Raising the non-steerable lift-axle decreases tire wear, reduces maintenance costs, and ensures the proper functioning of the lift-axle.

Operators should be aware of the wide variety of federal, state and local regulations that apply to the lifting of axles. If lifting is prohibited, it may be best to configure a steerable lift-axle for the vehicle

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## Prior to Installation

Refer to the suspension model engineering drawing for dimensional requirements; available ride height; and, the suspension system operating parameters.

Installations can vary. Procedures should be adapted for different vehicles, as needed:

- The Gross Axle Weight Rating (GAWR) is determined by the system component with the lowest load rating. Please consult the tire, wheel, axle and brake manufacturers before installation to determine the GAWR.
- If vehicle chassis modifications are required, consult with the vehicle manufacturer to ensure that such changes are permitted.
- Welding or altering of suspension components is not permitted without the express written permission of Ridewell Suspensions.

## Installer Responsibilities

The installer of the suspension has the sole responsibility for proper attachment of the suspension system to the vehicle chassis.

- The installer is responsible for locating the suspension system on the vehicle to provide the proper load distribution.
- The installer must verify that vehicle crossmembers are positioned to support the suspension at the installing location.
- The installer must verify the axle conforms to the suspension when installing/integrating axle(s). Refer to the suspension model engineering drawing to determine the axle specification for the individual suspension.
- The installer must verify there is sufficient clearance for proper functioning of the installed auxiliary suspension – air springs; brake chambers; steering components; axle (including axle to driveline clearance); and, tires and wheels.
- It is the installer's responsibility to determine that axle spacing conforms to the applicable federal and local bridge laws.
- The installer must verify that air reservoir volume requirements are met after suspension installation. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121 for more information.

## Axle Integration

The RTL-239-3K and RTL-239-6K Suspension Systems are available with and without a factory integrated 3" axle utilizing electric brakes. Bolt-On Axle Seats are welded to the axle-body before factory integration.

The 239-3K Trailer Suspension can also be configured for a customer-supplied bolt-on axle.

NOTE: The suspension crosschannel is welded to the frame hangers after the bolt-on axle installation.

### Weld 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 weld joint.

The axle and suspension components should be at a minimum temperature of 60°F (15.5°C). Pre-heat the weld zone to the axle manufacturer's recommended pre-heat temperature, if required.

### Axle-Seat Weld Procedure

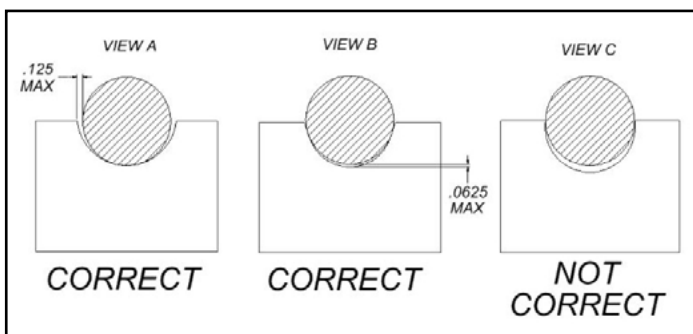
Customer-supplied axle assemblies must be positioned correctly before welding the axle seat to the axle. Use the top-center mark on the axle, if available, to identify the center of the axle.

1. Center axle assembly on the beams.
2. Check the gap between the axle and the axle seats before welding (Figure 1).  
Side gaps should be no greater than 1/8".  
The gap at the bottom of the axle seat should be no greater than 1/16".

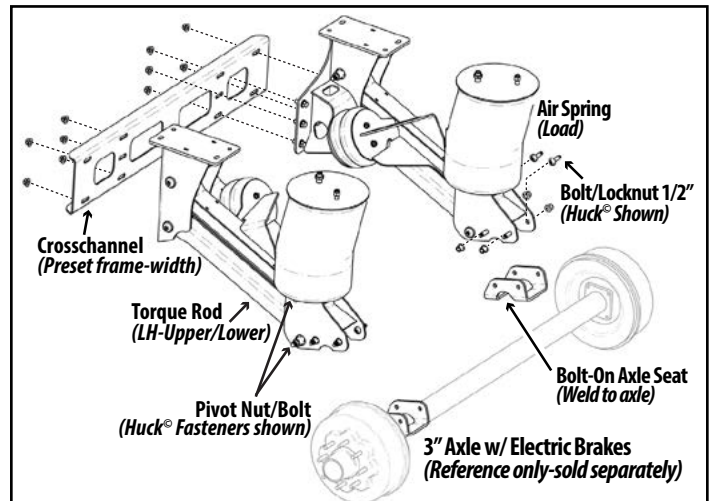
3. Weld the axle to the seat according to Ridewell Weld Process #2 (Page 5).

NOTE: Mounted air springs should be covered to protect them from welding spatter.

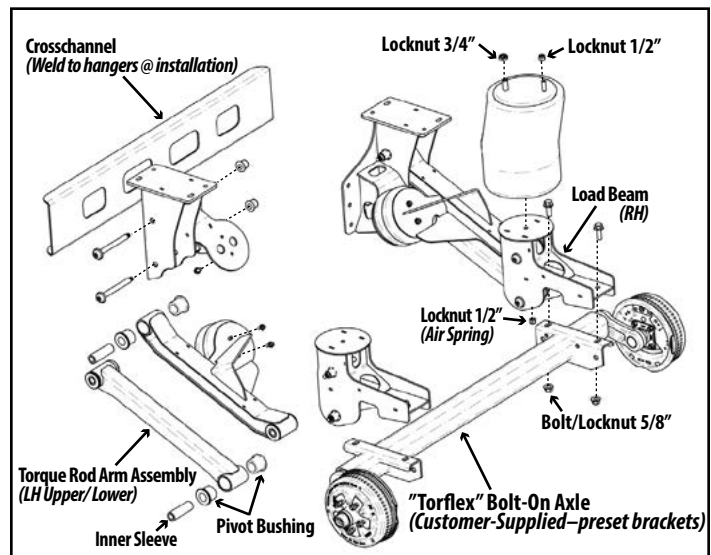
**CAUTION** Failure to follow the procedures and design specifications could result in injury, damage to the axle or suspension and void the warranty.



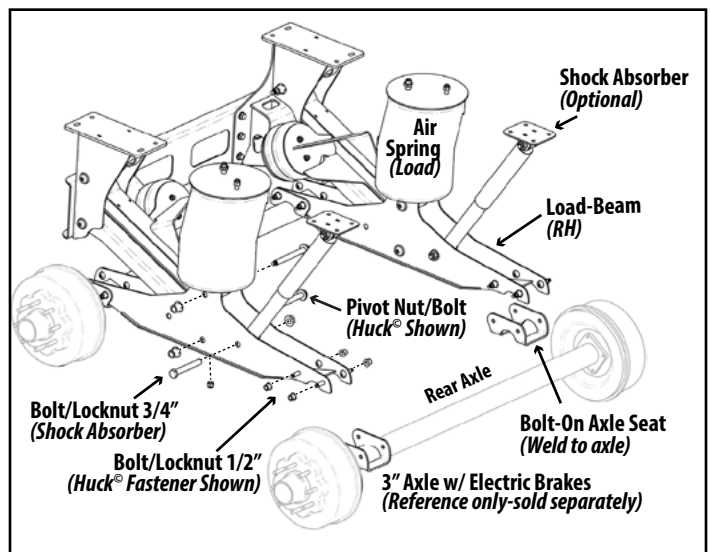
**Figure 1.**  
Correct axle-seat position before welding.



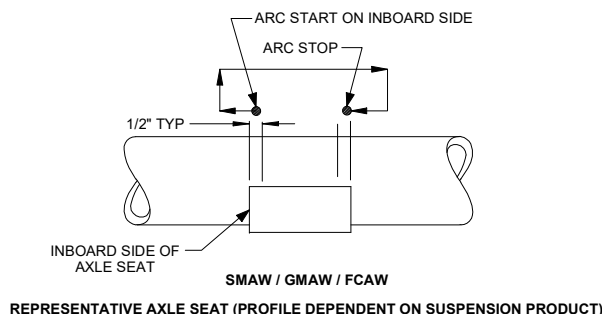
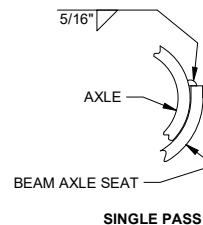
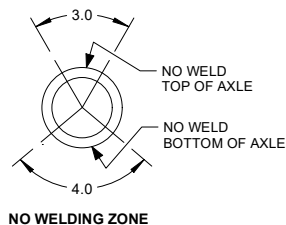
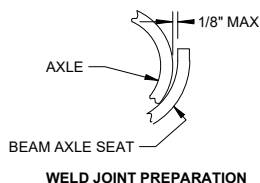
**239-3K Suspension (Bolt-On Axle Seats)**



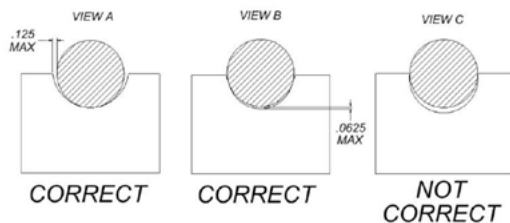
**239-3K Suspension (Bolt-On Axle)**




**239-6K Tandem Axle Suspension (Bolt-On Axle Seats)**



- 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. It is recommended that paint be removed a minimum of 2" away from the weld joint. 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). The root gap should be as equal as possible on each side of the beam axle seat. The axle must be centered laterally in the beams.
- 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.



C	23101	ADDED 9710040 TO DRAWING NUMBER	11/13/23	AAS	BB	CJB
REV	PROJECT	DESCRIPTION	DATE	BY	CHK	APPD
DRAWN BY:	GWH	11/13/2023	 <b>RIDEWELL CORPORATION</b> PO BOX 4586 SPRINGFIELD, MISSOURI 65808			
CHECKED:	AAS	3/27/2018				
APPROVED:	MJK	3/27/2018				
PROJECT NO:	-	SCALE: A-SIZE: NTS				
MATERIAL:	-	WEIGHT:	<b>TITLE:</b> <b>RIDEWELL WELD PROCESS #2</b> <b>3" DIA. AXLE SINGLE PASS WELD</b>			
SHEET 1 OF 1			PART NO:	9710040-WELD PROCESS No2	REV:	C

UNCONTROLLED IF PRINTED



## Suspension Mounting

The suspension installer has the final responsibility of attaching the suspension to the vehicle frame.

### Bolt-On Installation

Grade-8 bolts, flanged locknuts or locknuts with hardened washers for suspension installation are supplied by the installer.

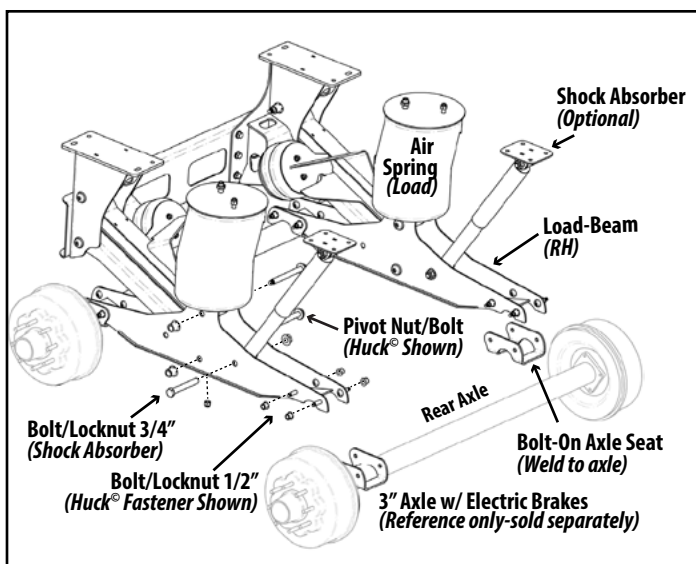
**CAUTION** Before installation, verify that any wires, hoses or other vehicle/suspension components will not be affected by drilling into the frame rail.

Refer to the engineering drawing for the hanger and air spring bolt-hole locations. Clamp the hangers, air spring mounting plates, and filler plates, if used, into place. Drill bolt-holes into frame.

### Final Assembly and Inspection

- Inspect entire suspension assembly for any loose or missing fasteners.  
Verify component fasteners are torqued to proper values (Page 9/Engineering Drawing).
- Lift axle to raised position. Check air system tubing and connections for leaks.
- Check that wheels can rotate freely and brakes are properly adjusted.
- Raise and lower the suspension assembly through entire range of travel. Confirm sufficient clearances for all components have been provided.

**CAUTION** Pressure to the load air springs must be reduced below 10 PSI when lowering the auxiliary axle on an unloaded vehicle.  
Failure to keep the air system air-pressure below stated limits could result in damage to air spring/axle assembly.



### Optional Shock Absorber (239-6K Tandem Axle Suspension)

The optional shock absorber kit can be installed after the suspension is completely assembled and installed on the vehicle.

Refer to the shock absorber kit engineering drawing (P/N 6030115) for the correct mounting location.

### Shock Absorber Installation Procedure

Bolt the shock absorber upper mounting brackets to vehicle frame crossmember with customer-supplied Grade 8 bolts and flanged locknuts.

Attach shock absorber to upper mounting bracket with the supplied bolt and locknut.  
Do not apply final torque.

Attach the shock absorber to beam assembly with supplied bolt and locknut.

Torque the shock absorber connection bolts to specifications (200 ft-lb; 270 N-m).

Raise and lower suspension to verify shock absorbers clear all vehicle components and do not overextend.

**CAUTION** Failure to torque components to specifications can result in suspension failure and void the warranty.

### Regulate load with air spring pressure

The load capacity of the auxiliary axle is adjusted by increasing or decreasing the air pressure to the air springs.

By applying more air, the lift axle takes on a greater percentage of the load's weight. The load capacity is decreased as air pressure decreases.

Accurate readings of load capacity can be obtained by parking a loaded vehicle over a calibrated scale and lowering the axle onto the scale. The air pressure to the air springs is manually adjusted up or down to obtain the axle load weight at various air pressures.

- Do not exceed 19-PSI pressure to the load springs of the RTL-239 3K Single Axle.
- Do not exceed 45-PSI pressure to the load springs of the RTL-239 6K Tandem Axle.

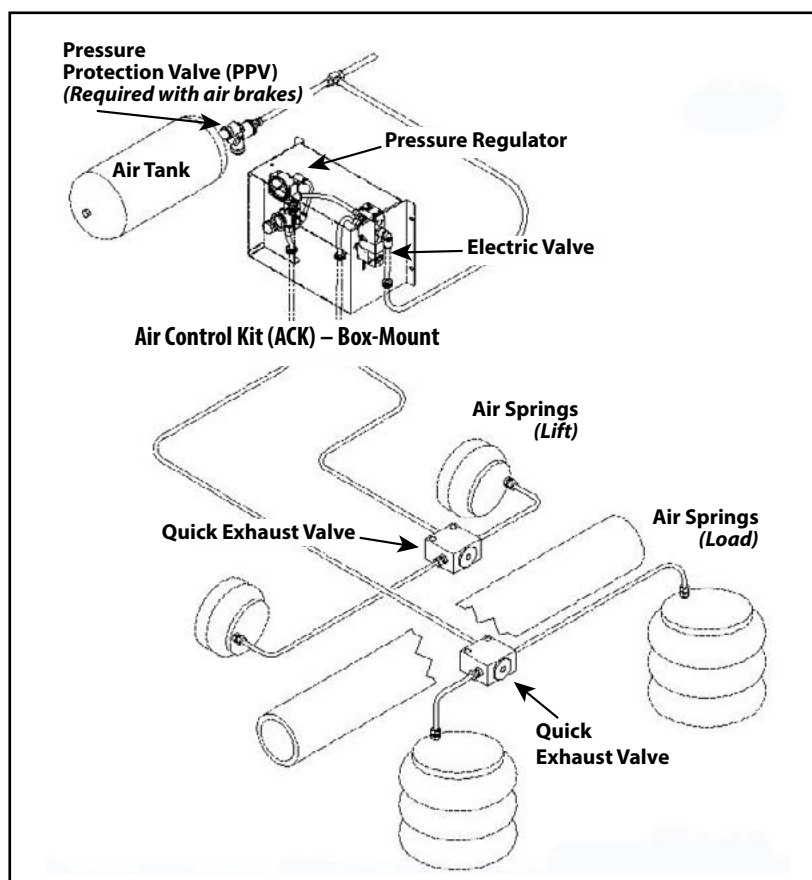
**CAUTION** Do not exceed the rated load capacity of the suspension system or other components. Exceeding the load capacity may cause component failure and void the warranty.

## Air Control Kit (ACK) Components

The air control kit (ACK) consists of a pressure regulator with a gauge connected to an air valve controlled by an electric switch or manual knob.

The operator controls the pressure to the air springs to support different loads (Figure 2). Ridewell has a number of manual/electric air control kit configurations available. Installation will vary by the ACK type.

**CAUTION** The installer is responsible for making sure that air system requirements comply with the appropriate Federal Motor Vehicle Safety Standards.



**Figure 2.**  
**Air Control Kit (ACK) installation example**

AIR CONTROL KIT — TROUBLESHOOTING		
Problem	Possible Cause	Solution
<b>Air springs fill but do not exhaust.</b>	<ul style="list-style-type: none"> <li>— Obstructed air line.</li> <li>— Faulty controls wiring.</li> <li>— Manual override pushed in.</li> </ul>	<ul style="list-style-type: none"> <li>— Check for pinched/blocked lines.</li> <li>— Check wiring with voltmeter and correct wiring/installation.</li> <li>— Release manual override.</li> </ul>
<b>Air system leaks down after a short period of time.</b>	<ul style="list-style-type: none"> <li>— Leak in air system beyond accepted standards NOTE: Some valves will leak at an acceptable rate.</li> </ul>	<ul style="list-style-type: none"> <li>— Pressurize system and spray soapy water solution onto the tubing, valves and fittings. Check for bubbles (leaks).</li> <li>— Check that tubing cuts are straight and smooth. Re-cut and reassemble fitting joints, if necessary.</li> </ul>
<b>Auxiliary unit will not stay up</b>	<ul style="list-style-type: none"> <li>— Loose air fitting connection/Damaged air lines.</li> <li>— Air lines to lift and load air springs are reversed.</li> <li>— Damaged or worn air springs.</li> </ul>	<ul style="list-style-type: none"> <li>— Check and retighten fittings. Repair or replace component, as necessary.</li> <li>— Check installation. Air line from regulator goes to (load) air springs.</li> <li>— Replace air spring if worn or damaged.</li> </ul>
<b>Auxiliary unit not achieving correct lift</b>	<ul style="list-style-type: none"> <li>— Air lines to lift and load air springs are reversed.</li> <li>— Lift air springs do not have proper air pressure.</li> <li>— Interference with driveline/other chassis components.</li> <li>— Air control system not installed correctly.</li> </ul>	<ul style="list-style-type: none"> <li>— Check installation. Air line from regulator goes to (load) air springs.</li> <li>— Check for loose fittings or worn/damaged lines. Verify air tank pressure with gauge.</li> <li>— Visually inspect auxiliary unit operation for proper clearance. Retighten any loose fasteners.</li> <li>— Check air control kit installation; refer to OEM installation procedures.</li> </ul>

## MAINTENANCE

### Recommended Service Intervals

Ridewell Suspensions recommends these minimum service intervals for standard duty, on-highway usage applications. More frequent intervals are recommended for heavier duty applications.

#### Daily/Pre-Trip Inspections

- \_\_\_ Visually inspect suspension structure for signs of damage or excessive wear.
- \_\_\_ Check for loose or missing bolts/nuts as well as irregular movement in suspension components.
- \_\_\_ Check tires for proper inflation, damage or excessive wear.
- \_\_\_ Check wheel-ends for obvious signs of lubricant leakage. Check for missing components.
- \_\_\_ Make sure air controls are operating properly. Drain all moisture from air reservoirs.

#### First 6,000 miles of use

- \_\_\_ Torque all suspension bolts/nuts to specifications (Page 9/Engineering Drawing).
- \_\_\_ Verify suspension is operating at ride height.

#### Every 12,000 miles of use

- \_\_\_ Inspect air springs for any damage/excessive wear. Torque air spring bolts/nuts to specifications (Page 9/Engineering Drawing).
- \_\_\_ Check air system for leaks.

#### First 50,000 miles of use

- \_\_\_ Torque suspension bolts/nuts to specifications (Page 9/Engineering Drawing).

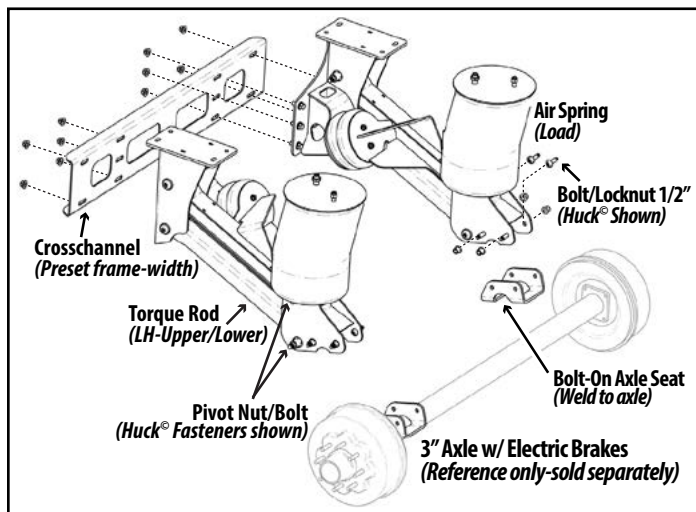
#### Annual/100,000 Miles Inspection

- \_\_\_ Inspect pivot connections for worn bushings/wear washers. Replace if necessary. Torque hardware to specifications (Pg 9/Engineering Drawing).
- \_\_\_ Check suspension hanger and air spring mounting plate connections to frame.
- \_\_\_ Check beam-to-axle connections welds.
- \_\_\_ Check air system for leaks.
- \_\_\_ Test air tank pressure protection valve (PPV), if equipped.
- \_\_\_ Refer to Axle Manufacturer's Guidelines for axle/wheel end maintenance procedures.

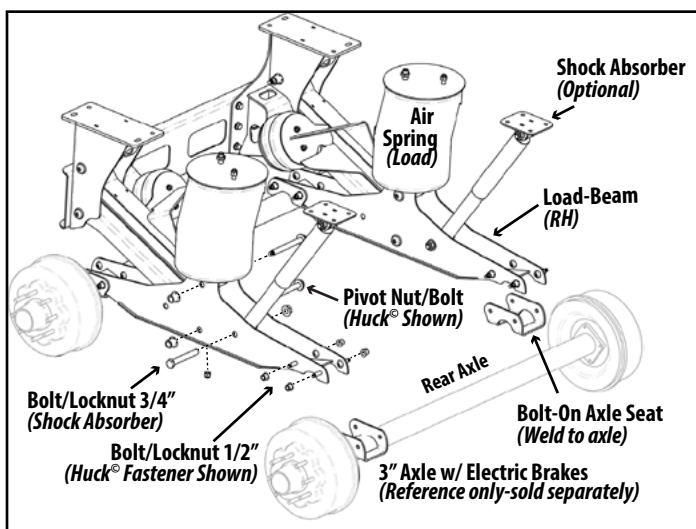
**CAUTION** Failure to torque bolts/nuts of suspension components to specifications can result in suspension failure and void the warranty.

Refer to these Technology & Maintenance Council (TMC) Recommended Procedures for additional vehicle/suspension maintenance information

RP 619	Air System Inspection Procedure
RP 643	Air Ride Suspension Maintenance Guide
RP 728	Trailer Axle Maintenance



**239-3K Suspension (Bolt-On Axle Seats)**



**239-6K Tandem Axle Suspension (Bolt-On Axle Seats)**



## (2390101) 239-3K SINGLE AXLE SUSPENSION WITH BOLT-ON AXLE SEAT – BUSHING REPLACEMENT

Bushings Replacement Kit	Item Description	Size	Torque Specifications	
			foot-pound	Newton-meter
<b>6040134</b>	Pivot Bolt/Nut (HHCS/Locknut)	3/4" -16NF	310 ft-lb	420 N-m
<b>6040133</b>	No Pivot Hardware	—		
<b>6040078</b>	Pivot Bolt/Nut (Huck® Hardware)	3/4" GR 8	—	—
<b>Fasteners</b>	Locknut - (Air Spring, Upper)	3/4" -16NF	50 ft-lb	68 N-m
	Locknut - (Air Spring, Upper; Lower)	1/2" -13NC	25 ft-lb	35 N-m
	Flanged Lock Screw - (Lift Spring)	3/8" -16NC	25 ft-lb	35 N-m
	Flanged Locknut - (Crosschannel)	1/2" -13NC	80 ft-lb	108 N-m
	Locknut - (Axle-Seat)	1/2" -13NC	155 ft-lb	210 N-m

Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. All fasteners must be re-torqued after first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty.

### Vehicle Preparation

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving.

Exhaust all air from the air system. Disassemble the suspension to reach the pivot connections.

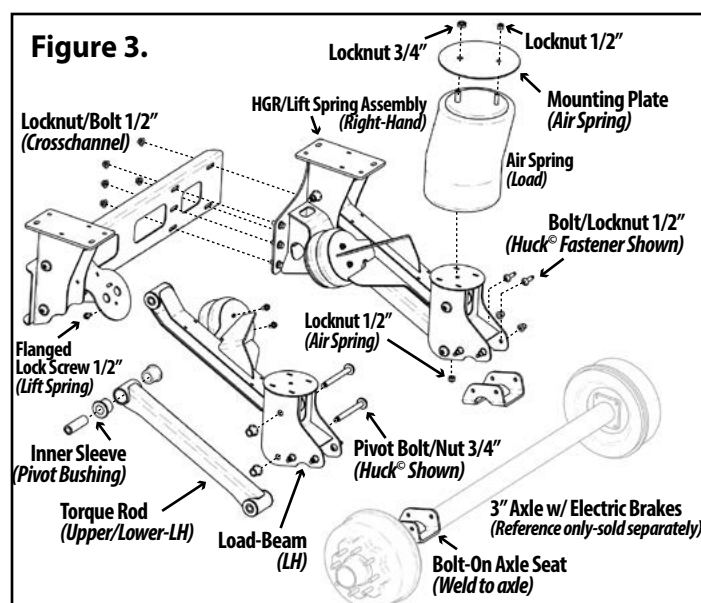
**CAUTION** Failure to properly chock the wheels and exhaust the air system could allow vehicle/suspension movement that could result in serious injury.

### Bushing Replacement Procedure

Replace all bushings in the eight pivot connections at the same time (Figure 3).

1. Remove pivot bolt by cutting and-or grinding away the Huck® Collar. Discard pivot hardware.
2. Remove bushings and inner sleeve assembly from the rod eye.
3. Clean the rod eye of any foreign debris/corrosion with a wire brush.
4. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of each bushing half.  
NOTE: Do not substitute - special urethane lubricant included with bushing replacement kit.
5. Press bushing halves into the pivot connection.  
NOTE: Rubber mallet may be needed.
6. Press bushing inner sleeve into center opening of the installed bushing.  
NOTE: Rubber mallet may be needed.
7. Check that internal sleeve is flush with both sides of bushing.
8. Reassemble suspension. Torque to specifications.
9. Install pivot hardware and torque to specs.

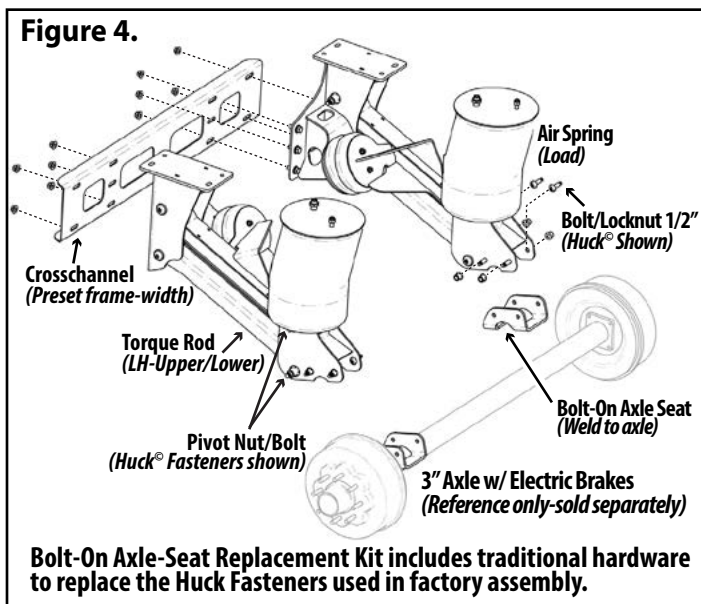
**CAUTION** Failure to torque pivot hardware can result in suspension failure and void the warranty.



Quantity per Axle	Part Number	Item Description	Torque Specifications	
			foot-pound	Newton-meter
<b>1</b>	<b>6030117</b>	<b>(2390101) Bolt-On Axle-Seat Replacement Kit</b>	80 ft-lb	108 N-m
<b>2</b>	8001589	Bolt-On Axle Seat (3" Round Axle)		
<b>8</b>	1140084	Hex Head Cap Screw (HHCS) 1/2" 13NC - 1.25" LG		
<b>8</b>	1150012	Locknut - 1/2" 13NC Grade 8		

*Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.*

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. All fasteners must be re-torqued after first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty.



## Vehicle Preparation

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 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.

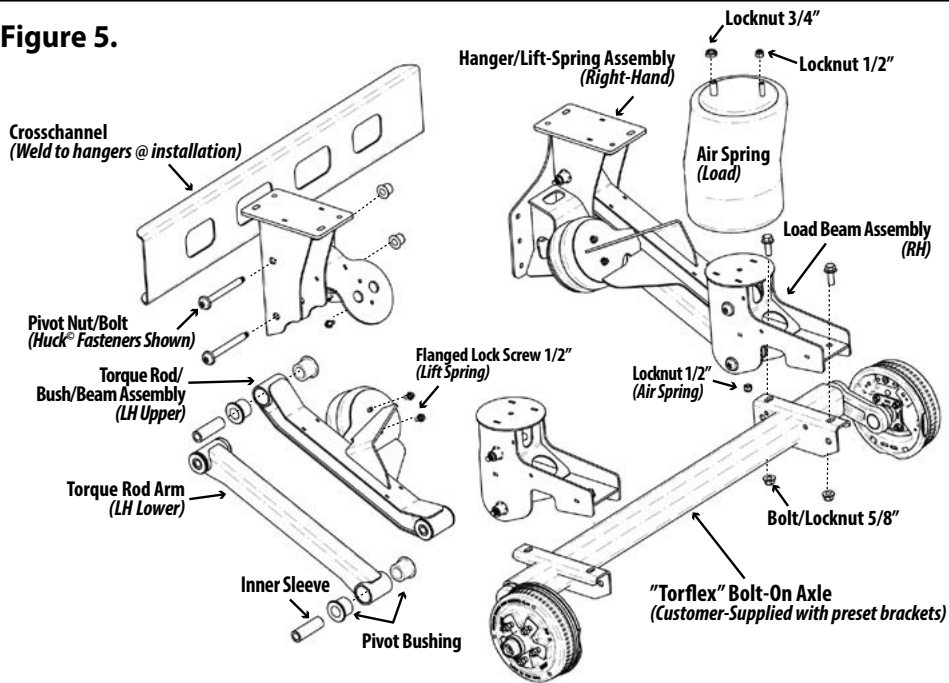
## Axle-Seat Replacement Procedure

The bolt-on axle seat replacement kit includes traditional hardware to replace the Huck® Fasteners used for initial assembly (Figure 4).

1. Remove wheels and tires from axle. Provide vehicle support for axle removal and replacement.
2. Cut/grind away Huck® Fasteners from the right- and left-hand load beam assembly and discard. Remove axle from the load beams.
3. Refer to the engineering drawing for the correct axle-seat orientation. Attach axle-seat. Torque to 80 ft-lb (108 N-m).
4. Center replacement axle between the load beam assemblies. Verify the electric brake wiring is positioned correctly. Place replacement axle on the axle-seats.
5. Weld axle to each axle-seat according to Ridewell Weld Process #2 (Page 5).
6. Remove axle support. Install wheels and tires.
7. 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.

**Figure 5.**



**239-3K Single-Axle Suspension  
Customer-Supplied #12 Torflex™ Axle  
(6" arm; 22.5° down start-angle)**

<i>(2390102) Beam/Frame Center</i>	<i>Outside-to-Outside Bracket Dimension</i>
40.00"	44.50"
40.25"	44.75"
40.50"	45.00"
40.75"	45.25"
41.00"	45.50"
41.25"	45.75"
41.50"	46.00"
41.75"	46.25"
42.00"	46.50"
42.25"	46.75"
42.50"	47.00"

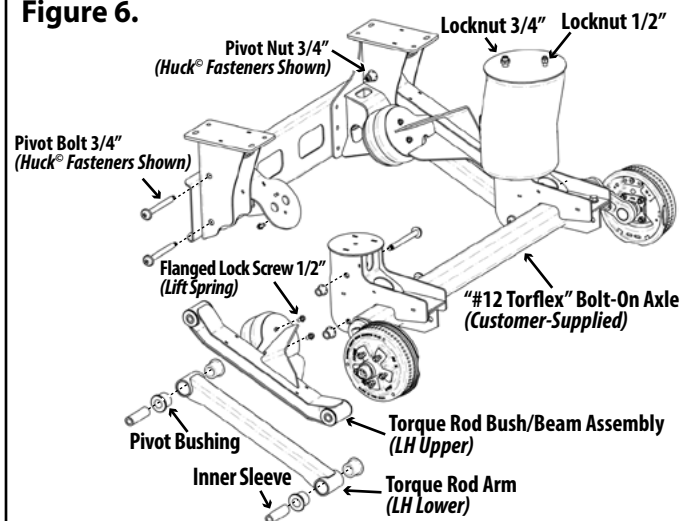
**(2390102) 239-3K SUSPENSION-CUSTOMER-SUPPLIED TORFLEX™ BOLT-ON AXLE – BUSHING REPLACEMENT**

Bushings Replacement Kit	Item Description	Size	Torque Specifications	
			foot-pound	Newton-meter
<b>6040134</b>	Pivot Bolt/Nut (HHCS/Locknut)	3/4"-16NF	310 ft-lb	420 N-m
<b>6040133</b>	No Pivot Hardware	—		
<b>6040078</b>	Pivot Bolt/Nut (Huck® Hardware)	3/4" GR 8	—	—
<b>Fasteners</b>	Locknut - (Air Spring, Upper)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut - (Air Spring, Upper, Lower)	1/2"-13NC	25 ft-lb	35 N-m
	Flanged Lock Screw - (Lift Spring)	3/8"-16NC	25 ft-lb	35 N-m
	Flanged Locknut - (Crosschannel)	1/2"-13NC	80 ft-lb	108 N-m
<b>Customer-Supplied</b> (Preset mounting bracket width)	#12 Torflex Bolt-On Axle (HHCS/Locknut)	5/8"-11NC	155 ft-lb	210 N-m

Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. All fasteners must be re-torqued after first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty.

**Figure 6.**



**Bushing Replacement Kit**  
includes traditional hardware and components for eight pivot connections.

### Vehicle Preparation

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 the pivot connections.

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

### Bushing Replacement Procedure

Replace bushing in the eight pivot connections at the same time (Figure 6).

1. Cut/grind away the Huck® Collar at the pivot connection. Remove and 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 included with all 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 bushing.
5. Press inner sleeve into the center opening of installed bushing.  
NOTE: Mallet/bushing press needed to insert sleeve.
6. Check that inner sleeve is flush with both sides of installed bushing.
7. Install pivot hardware. Torque to specifications.
8. Reassemble suspension. Torque to specifications.

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

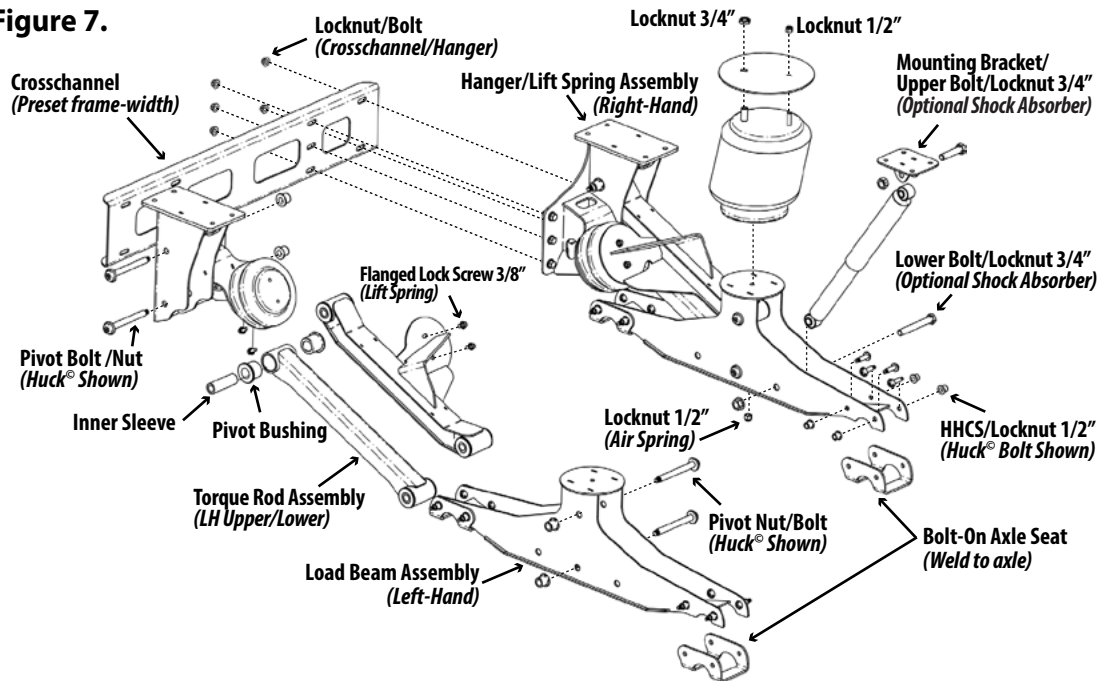


**2390003 - 6K Tandem  
(24" Ride Height)**

**Beam/Frame Center  
(Frame-Width)**

41.00"  
41.50"  
42.00"  
42.50"  
43.00"  
43.50"

**Figure 7.**

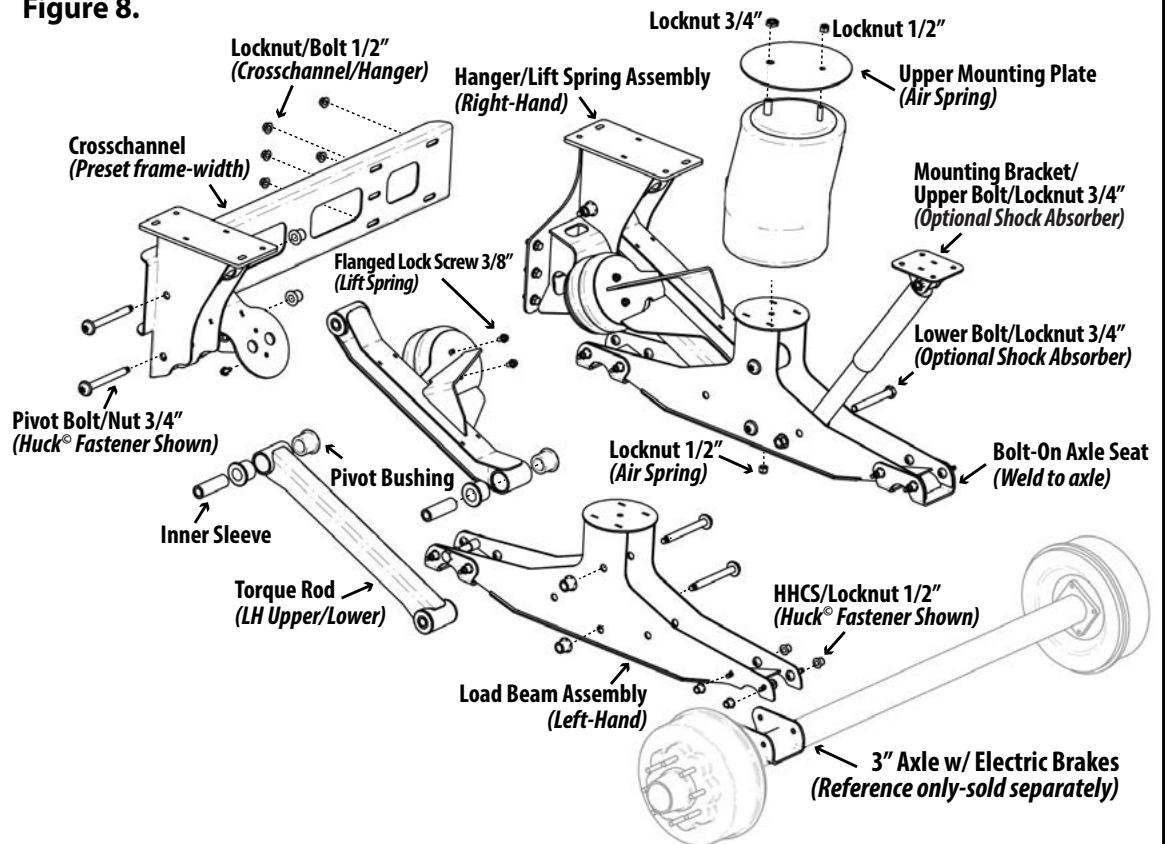


**2390005 - 6K Tandem  
(25.50" Ride Height)**

**Beam/Frame Center  
(Frame-Width)**

41.00"  
41.50"  
42.00"  
42.50"  
43.00"  
43.50"

**Figure 8.**

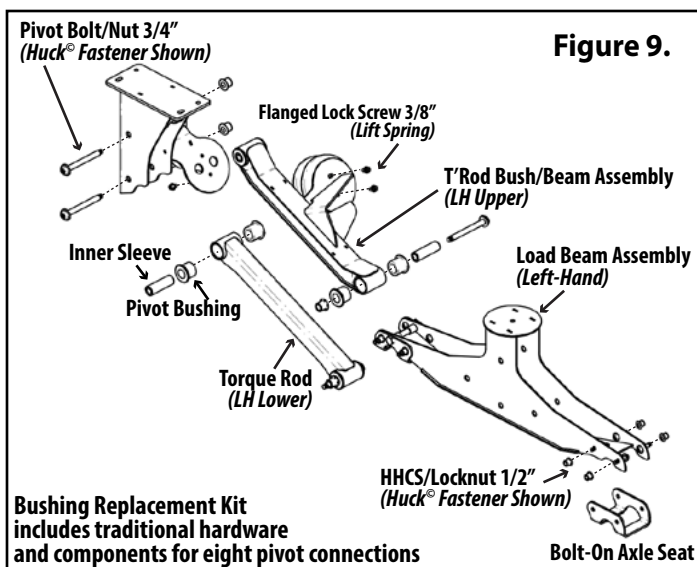


**(2390003; 2390005) 239-6K TANDEM AXLE SUSPENSION WITH BOLT-ON AXLE SEAT – BUSHING REPLACEMENT**

Bushings Replacement Kit	Item Description	Size	Torque Specifications	
			foot-pound	Newton-meter
<b>6040134</b>	Pivot Bolt/Nut (HHCS/Locknut)	3/4"-16NF	310 ft-lb	420 N-m
<b>6040133</b>	No Pivot Hardware	—		
<b>6040078</b>	Pivot Bolt/Nut (Huck® Hardware)	3/4"	—	—
<b>Fasteners</b>	Locknut - (Air Spring)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut - (Air Spring)	1/2"-13NC	25 ft-lb	35 N-m
	Flanged Lock Screw - (Lift Spring)	3/8"-16NC	25 ft-lb	35 N-m
	Locknut - (Optional Shock Absorber)	3/4"- 10NC	200 ft-lb	270 N-m
	Flanged Locknut - (Crosschannel)	1/2"-13NC	80 ft-lb	108 N-m
	Locknut - (Axle-Seat)	1/2"-13NC	80 ft-lb	108 N-m

Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. All fasteners must be re-torqued after first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty.



**Figure 9.**

### Vehicle Preparation

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 the pivot connections.

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

### Bushing Replacement Procedure

Replace bushing in the eight pivot connections at the same time (Figure 9).

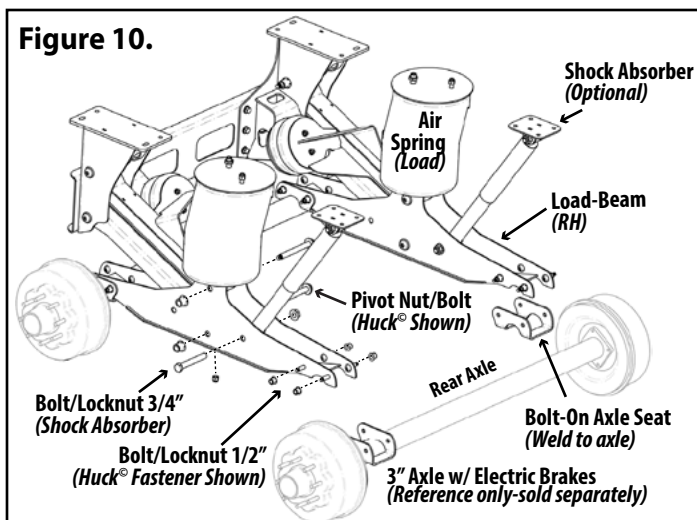
1. Remove the pivot hardware by cutting/grinding away the Huck® Collar. Discard pivot hardware.
2. Remove the bushing assembly from the rod eye. Clean the rod eye of foreign debris/corrosion.
3. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of each bushing half.  
NOTE: Do not substitute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

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

QTY per Axle	Part Number	239-6K Tandem-Axle Suspension Components	Torque Specifications	
<b>1</b>	<b>6030116</b>	<b>(Bolt-On Axle-Seat) Replacement Kit</b>	80 ft-lb      108 N-m	
	<b>2</b>	8004622 Bolt-On Axle Seat (3" Round Axle)		
	<b>8</b>	1140084 Hex Head Cap Screw (HHCS) 1/2" 13NC - 1.25" LG		
	<b>8</b>	1150012 Locknut - 1/2" 13NC Grade 8		
<b>1</b>	<b>6030118</b>	<b>Front Axle w/Axle-Seats Replacement Kit (Axle-Seats welded to axle-42" Beam Center)</b>	80 ft-lb      108 N-m	
	<b>1</b>	6270592 3" Axle w/ Electric Brakes		
	<b>8</b>	1140084 Hex Head Cap Screw (HHCS) 1/2" 13NC - 1.25" LG		
	<b>8</b>	1150012 Locknut - 1/2" 13NC Grade 8		
<b>1</b>	<b>6030119</b>	<b>Rear Axle w/Axle-Seats Replacement Kit (Axle-Seats welded to axle-42" Beam Center)</b>	80 ft-lb      108 N-m	
	<b>1</b>	6270466 3" Axle w/ Electric Brakes		
	<b>8</b>	1140084 Hex Head Cap Screw (HHCS) 1/2" 13NC - 1.25" LG		
	<b>8</b>	1150012 Locknut - 1/2" 13NC Grade 8		

Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.

**CAUTION** Retorque fasteners after first 6,000 miles of operation and every 36,000 miles thereafter. Refer to the suspension model engineering drawing for complete torque specifications. Failure to install and maintain fasteners at torque specifications could result in suspension failure and void the warranty.



**Bolt-On axle-seat replacement kit includes traditional hardware and components for one axle.**

### Vehicle Preparation

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving. Raise vehicle to a height that removes the load from the suspension. Support with jack stands.

Disconnect linkage from the height control valve(s), if equipped. Exhaust all air from air system.

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

### Bolt-On Axle-Seat Replacement Procedure

1. Remove wheels and tires from axle. Provide vehicle support for axle removal and replacement.
2. Cut/grind away Huck® Fasteners from the right- and left-hand load beam assembly and discard. Remove axle from the load-beams (Figure 10).
3. Refer to suspension model engineering drawing for the correct axle-seat orientation. Attach axle-seat. Torque to 80 ft-lb (108 N-m).  
NOTE: The front- and rear-axle replacement kits include traditional hardware to attach the axle-seats factory welded to the axle. Torque fasteners to 80 ft-lb (108 N-m). Go to step six (6) of the axle-seat replacement procedure.
4. Center replacement axle between the load beam assemblies. Verify the electric brake wiring is positioned correctly. Place replacement axle on the axle-seats.
5. Weld axle to each axle-seat according to Ridewell Weld Process #2 (pg 5).
6. Remove axle support. Install wheels and tires.
7. Connect height control valve linkage, if necessary. Inflate air springs.
8. 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.

**Terms and coverage in this warranty apply only to the United States and Canada.**

Ridewell Suspensions warrants the suspension systems manufactured by it to be free of defects in material and workmanship. Warranty coverage applies only to suspensions that have been properly installed, maintained and operated within the rated capacity and recommended application of the suspension. The responsibility for warranty coverage is limited to the repair/replacement of suspension parts. The liability for coverage of purchased components is limited to the original warranty coverage extended by the manufacturer of the purchased part.

All work under warranty must have prior written approval from the Ridewell warranty department. Ridewell has the sole discretion and authority to approve or deny a claim and authorize the repair or replacement of suspension parts. All parts must be held until the warranty claim is closed.

Parts that need to be returned for warranty evaluation will be issued a Returned Materials Authorization (RMA). Parts must be returned to Ridewell with the transportation charges prepaid. The transportation charges will be reimbursed if the warranty claim is approved.

This non-transferable warranty is in lieu of all other expressed or implied warranties or representations, including any implied warranties of merchantability or fitness or any obligations on the part of Ridewell. Ridewell will not be liable for any business interruptions, loss of profits, personal injury, any costs of travel delays or for any other special, indirect, incidental or consequential losses, costs or damages.

**Contact the Ridewell Warranty Dept. at 417.833.4565 - Ext. 135, for complete warranty information.**