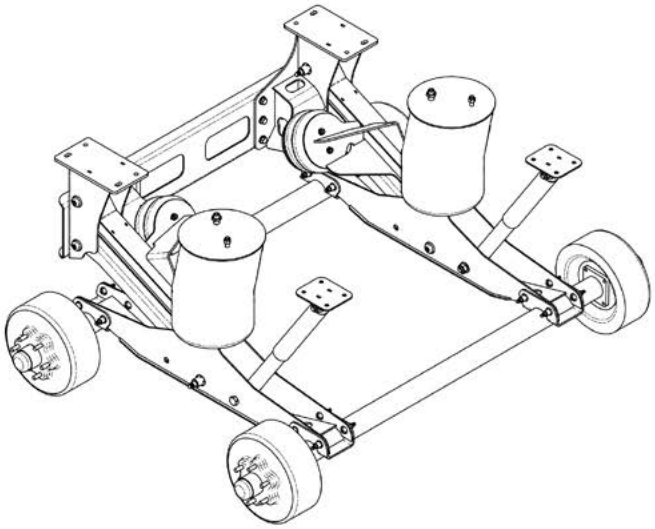
Ridewell Tandem Liftable (RTL) 239–3K/6K*

NonSteerable Auxiliary Axle Suspension



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Limited to on-highway use inside the United States

RIDEWELL SUSPENSIONS

RIDEWELL SUSPENSIONS
The Engineered Suspension Company

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 **(800) 641-4122**

Suspension Identification Tag

The **Part Number** is listed as a 606- 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 service, replacement parts and warranty information.

RTL-239 NonSteerable Auxiliary-Axle* Operation

**Limited to on-highway use inside the United States*

A nonsteerable axle that is not lifted when turning a corner, especially a tight corner, will scrub concrete and impose a high crosswise stress on wheel/chassis/vehicle components. Raising the lift-axle when turning corners decreases tire wear, reduces maintenance costs, and ensures proper suspension functioning.

The RTL-239 Suspension System is designed for on-highway use on even surfaces and must be lifted when traveling off-highway and in reverse travel.

Ridewell strongly recommends using automated systems that raise/lock the lift-axle during reverse travel.

Operators should be aware of all federal, state, and local regulations that apply to the lifting of axles.

Some states prefer lift-axles stay lowered when turning or that the lift controls must be installed outside the vehicle's cab. In some cases, it may be best to configure a steerable lift-axle.

Notes and Cautions

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

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

The ISM uses two types of service notes to provide important safety guidelines and information:

"NOTE": Provides additional instructions or work procedures to complete tasks and ensure suspension components function properly.

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

Prior to Installation

Refer to the Engineering Drawing for the dimensional requirements; available ride heights; and, 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 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 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 the 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. The Bolt-On Axle Seats are welded to the axle-body before factory integration.

The 239-3K Trailer Suspension can also be configured with a customer-supplied bolt-on axle.
NOTE: The suspension crosschannel is welded to the frame hangers after 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). Preheat the weld zone to the axle manufacturer's recommended preheat 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.

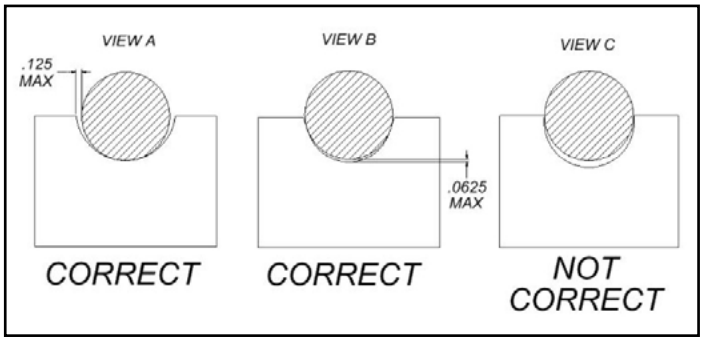
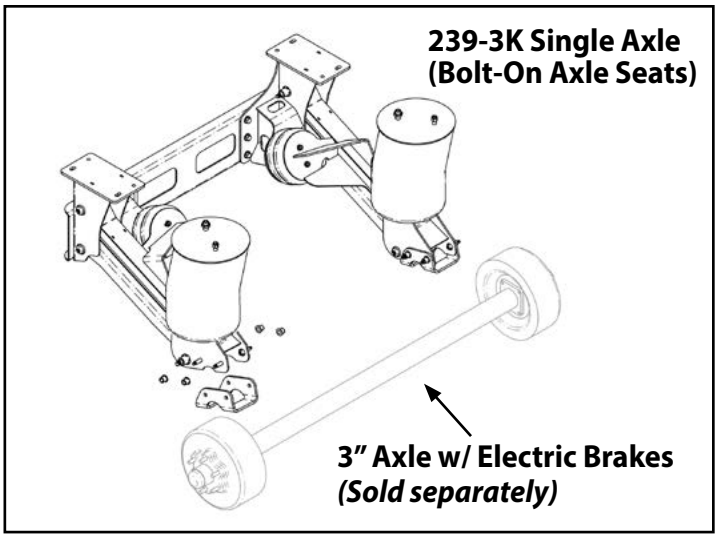
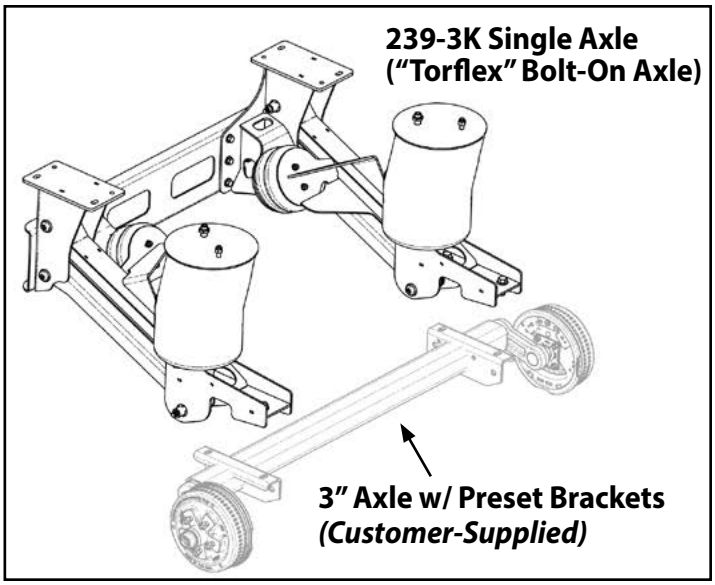
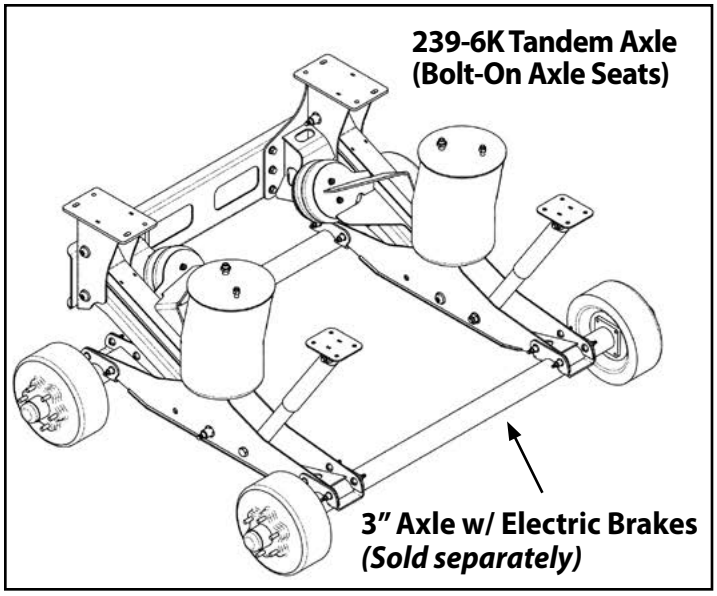
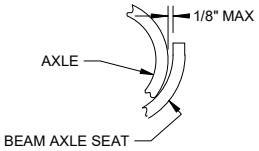


Figure 1.
Correct axle-seat position before welding.

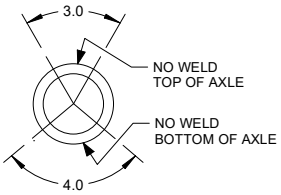




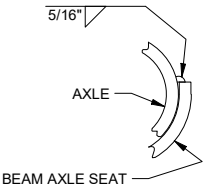




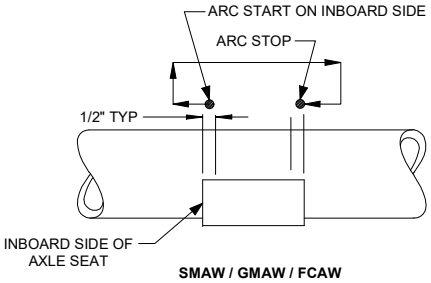
WELD JOINT PREPARATION



NO WELDING ZONE



SINGLE PASS



SMAW / GMAW / FCAW

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.

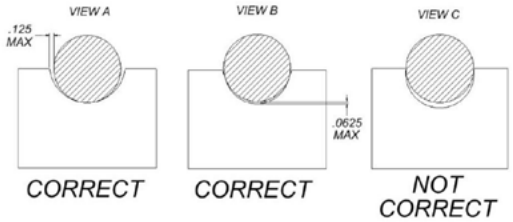
4 - Weld Joint Preparation: The joint to be welded should be positioned in the flat or horizontal position. All grease, dirt, paint, slag or other contaminants must be removed from the weld joint without gouging the axle tube. It is recommended that paint be removed a minimum of 2" away from the weld 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.



REV	PROJECT	DESCRIPTION	DATE	BY	CHK	APPD
C	23101	ADDED 9710040 TO DRAWING NUMBER	11/13/23	AAS	BB	CJB

DRAWN BY: GWH	11/13/2023	
CHECKED: AAS	3/27/2018	
APPROVED: MJK	3/27/2018	

RIDEWELL CORPORATION
PO BOX 4586 SPRINGFIELD, MISSOURI 65808

PROJECT NO: -	SCALE: A-SIZE: NTS
MATERIAL: -	WEIGHT: -

TITLE:
RIDEWELL WELD PROCESS #2
3" DIA. AXLE SINGLE PASS WELD

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

RTL-239 Suspensions are shipped fully assembled. The suspension must be reassembled with proper torque applied if any component is removed/taken apart for 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.

1. Refer to the engineering drawing for the hanger and air spring bolt-hole locations.
2. 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 (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 springs/axle assembly.

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.

Installation Procedure

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

1. Bolt shock absorber upper mounting brackets to vehicle frame crossmember.
2. Attach shock absorber to mounting bracket with the supplied bolt and locknut. Do not apply final torque.
3. Attach shock absorber to beam assembly with the supplied bolt and locknut. Torque shock absorber bolts to specifications (200 ft-lb; 270 N-m).
4. Raise and lower the suspension through the full range of travel to check clearance of vehicle components. Verify shock absorbers do not overextend.

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

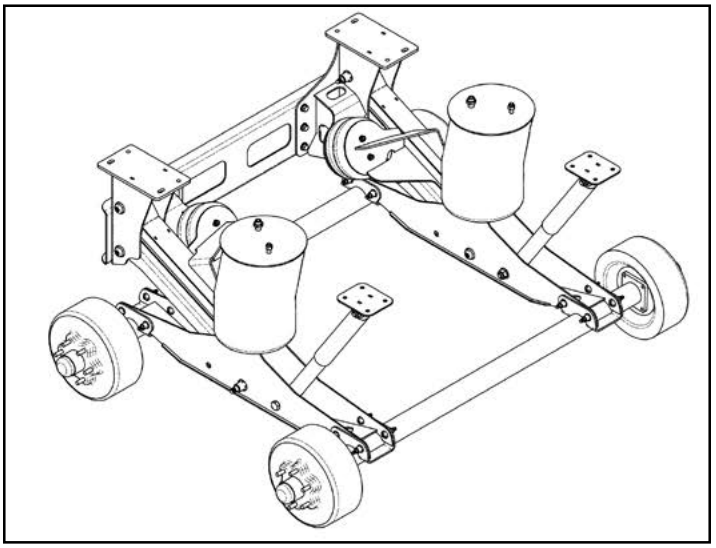


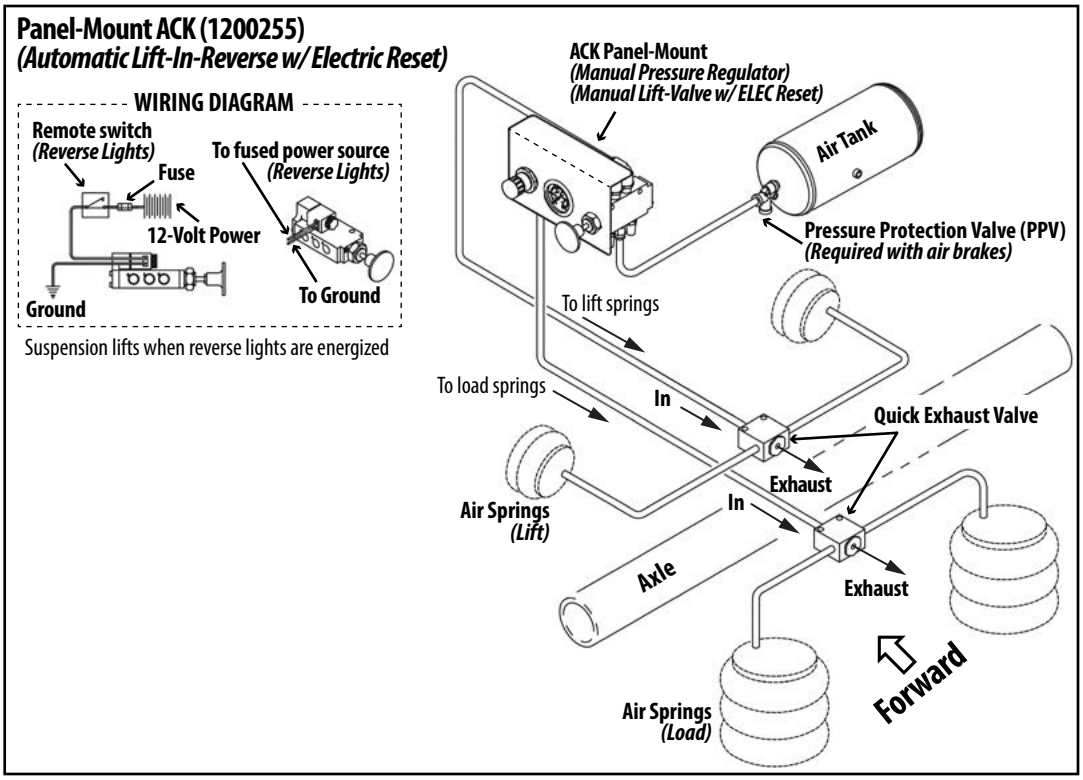
Figure 2.
Optional shock absorbers can be installed after the suspension is installed onto the vehicle.
Refer to the shock absorber kit engineering drawing (P/N 6030115) for correct mounting location.

The air control kit (ACK) consists of a pressure regulator with a gauge connected to an air valve controlled by a manual knob or an electric switch. The operator uses the air control kit to control the pressure to the air springs and provide support to carry different loads.

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

Figure 3.
ACK Example (1200255)- Panel-Mount Air Control Kit – Manual Controls w/ Electric Reset for Lift-In-Reverse

NOTE: A lift-in-reverse system is strongly recommended for the 239-6K Tandem Axle Suspension.



AIR CONTROL KIT – TROUBLESHOOTING

Problem	Possible Cause	Solution
Air springs fill but do not exhaust.	— Obstructed air line. — Faulty controls wiring. — Manual override pushed in.	— Check for pinched/blocked lines. — Check system wiring with voltmeter and correct the wiring/wiring installation. — Release manual override.
Air system leaks down after a short period of time.	— Leak in air system beyond accepted standards NOTE: Some valves will leak at an acceptable rate.	— Pressurize system. Spray soapy water solution onto tubing, valves and fittings. Check for bubbles (leaks). — Check that tubing cuts are straight and smooth. Re-cut and reassemble joints if necessary.
Auxiliary unit will not stay up	— Loose air fitting connection/Damaged air lines. — Air lines to lift and load air springs are reversed. — Damaged or worn air springs.	— Check and retighten fittings. Repair or replace component, as necessary. — Check installation. Air line from regulator goes to (load) air springs. — Replace air spring if worn or damaged.
Auxiliary unit not achieving correct lift	— Air lines to lift and load air springs are reversed. — Lift air springs do not have proper air pressure. — Auxiliary axle travel interference with driveline/ other chassis components. — Air control system not installed correctly.	— Check installation. NOTE: Air line from the pressure regulator goes to the (load) air springs. — Check for loose fittings or worn/damaged lines. Verify air tank pressure with gauge. — Visually inspect auxiliary unit operation for proper clearance. Retighten any loose fasteners. — Refer to OEM installation procedures to verify.

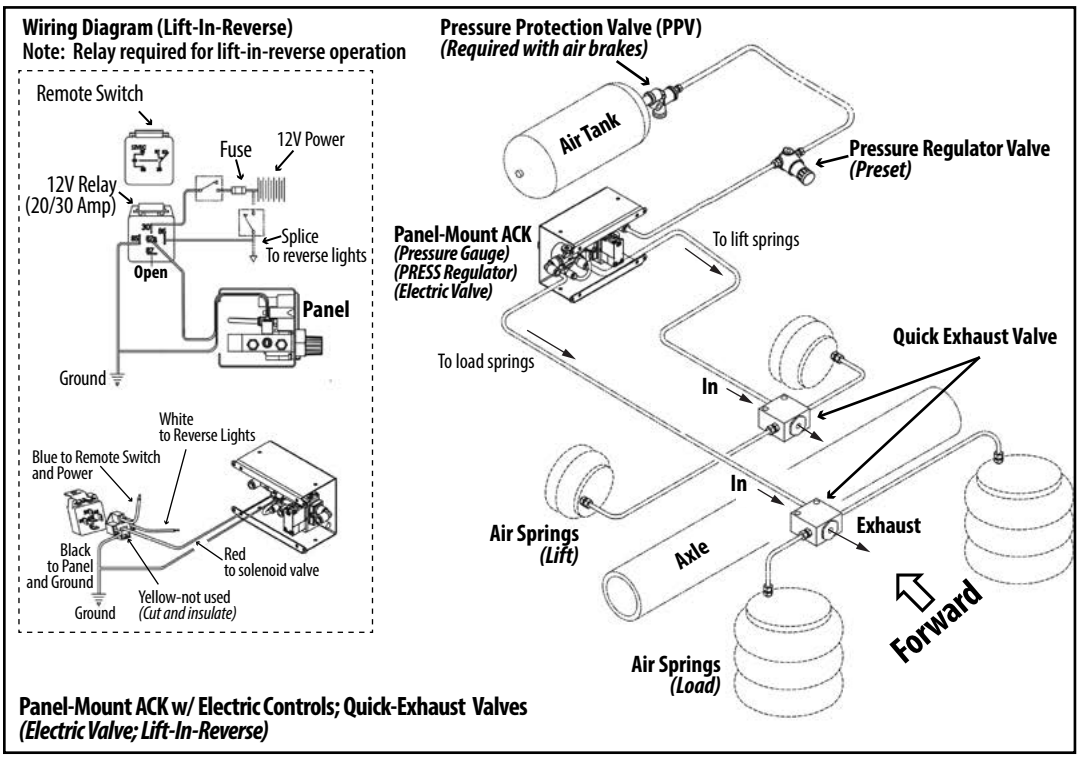


Figure 4.
Plumbing Example (1200039)
(Quick Exhaust (QE) Valves)
Panel-Mount ACK w/ Electric Controls for Lift-In-Reverse

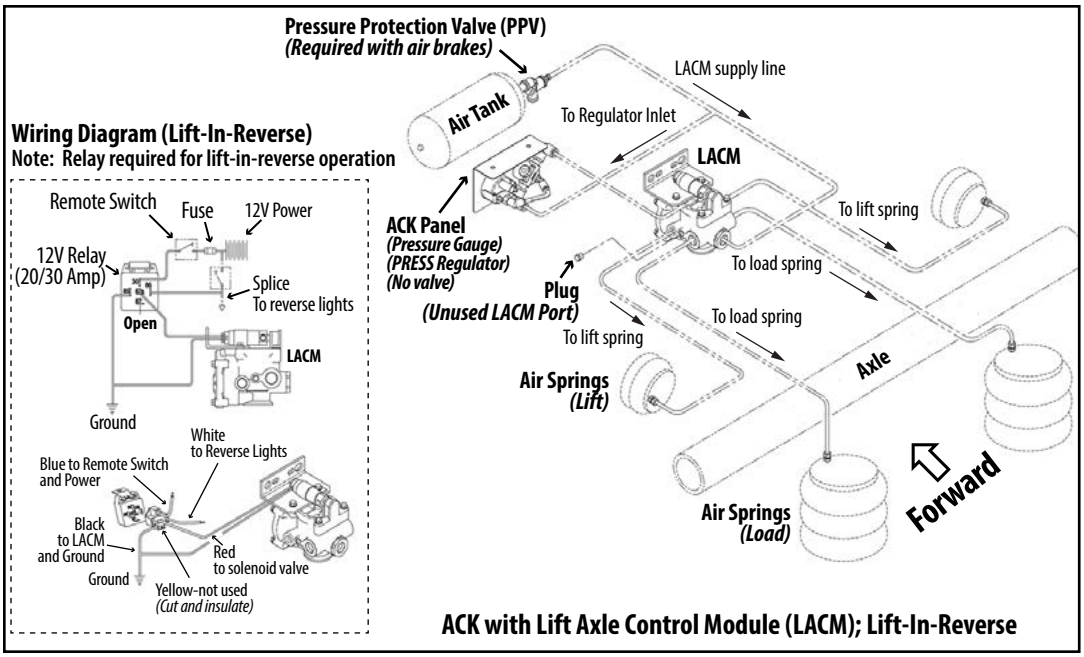


Figure 5.
Plumbing Example (1200115)
(Air Control Kit Panel)
Lift Axle Control Module (LACM) with Lift-In-Reverse

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, tire damage or excessive wear.

___ Check wheel-ends for excessive wear/damage. 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 (Pgs 11; 15/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 (Pgs 11; 15/Engineering Drawing).

___ Check air system for leaks.

First 50,000 miles of use

___ Torque suspension bolts/nuts to specifications (Pgs 11; 15/Engineering Drawing).

Annual/100,000 Miles Inspection

___ Inspect pivot connections for worn bushings/wear washers. Replace if necessary. Torque hardware to specifications (Pgs 11; 15/Engineering Drawing).

___ Check suspension hanger and air spring mounting plate connections to frame.

___ Check axle-to-axle seat connection 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 Practices for additional information

RP 619	Air System Inspection Procedure
RP 643	Air Ride Suspension Maintenance
RP 728	Trailer Axle Maintenance
RP 1515	Mainenance Guide - Auxiliary Axle

Scan/double-click QR-Code to visit Ridewell online support page: www.ridewellcorp.com

Bushing Replacement – 239-3K Single Axle Suspension (2390101)

Part Number	Item Description	Size	Torque Specifications foot-pound	Newton-meter
6040188	Traditional Hardware (HHCS/Locknut)	3/4″-16NF	310 ft-lb	420 N-m
6040187	No Pivot Hardware	—		
Fasteners	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 - (Bolt-On 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 suspension, if necessary, to reach pivot connections.

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

Bushing Replacement Procedure

Replace the eight pivot connection bushings and hardware at the same time (Figure 6).

1. Remove Huck® Collar by cutting/grinding. Take pivot connection apart. Discard pivot hardware. Discard wear washers.
2. Remove bushing assembly and discard.
3. Clean torque rod eye of debris/corrosion with a wire brush before installing bushing assembly.
4. Apply Energy Suspensions® Formula 5 Prelube to bore (inside) of the replacement bushing.
   NOTE: Do not substitute - urethane bushing lubricant included with all replacement kits.
5. Install (press) bushing into the torque rod eye.
   NOTE: Mallet/press needed to install bushing.
6. Press inner sleeve into the installed bushing. Center sleeve inside the bushing so that the sleeve ends extend slightly past the bushing sides.
7. Assemble pivot connection with one wear washer on each side of the bushing.
   The inner sleeve of the bushing must be flush with or extend slightly past the outside of the wear washers after assembly.
8. Torque pivot hardware to specifications (chart/engineering drawing).

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

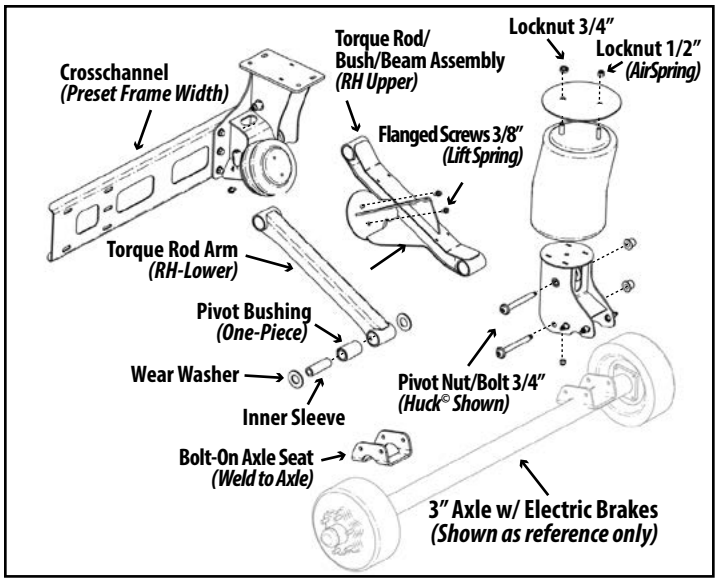


Figure 6.
239-3K Bushing Replacement Kit contains one-piece bushings, wear washers and hardware components for eight pivot connections.

2390101 Components – 3K Single Axle - 24″ Ride Height
Available Beam/Frame Centerline Dimensions
41.00″
41.50″
42.00″
42.50″
43.00″
43.50″

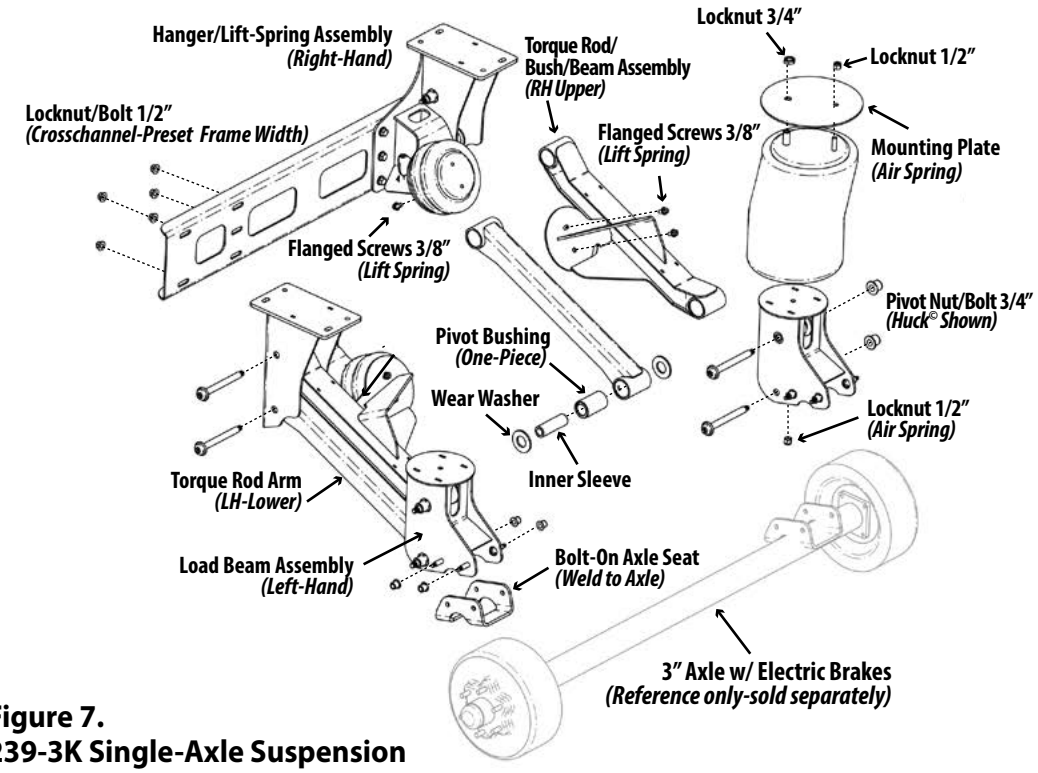


Figure 7.
239-3K Single-Axle Suspension

Axle-Seat Replacement – 239-3K Single-Axle Suspension

Quantity per Axle	Part Number	Item Description	Torque Specifications foot-pound	Torque Specifications Newton-meter
1	**6030117**	**Axle-Seat Replacement Kit (2390101-3K Suspension)**	80 ft-lb	108 N-m
2	**8001589**	Bolt-On Axle Seat (3″ Round Axle)		
8	**1140084**	Hex Head Cap Screw 1/2″ 13NC - 1.25″LG		
8	**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 8).

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.

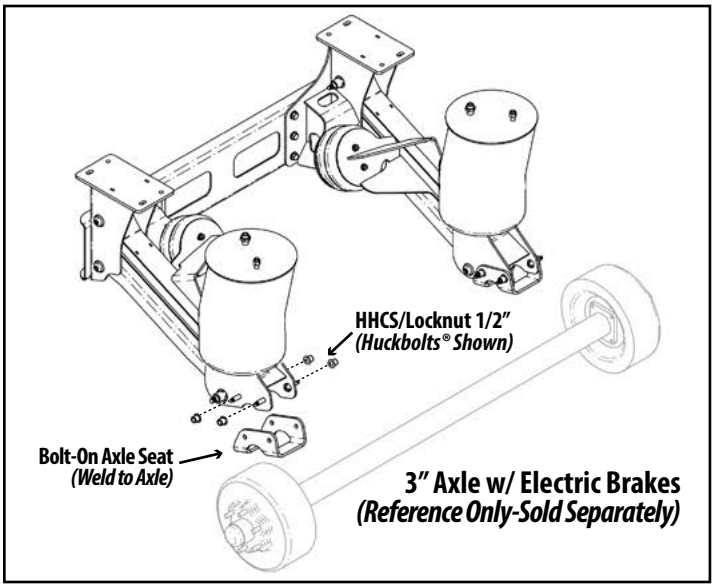


Figure 8.
239-3K Bolt-On Axle-Seat Replacement Kit includes traditional hardware components for one axle.

Bushing Replacement – 239-3K Suspension w/ Customer-Supplied Torflex™ Bolt-On Axle (2390102)

Part Number	Item Description	Size	TORQUE SPECIFICATIONS foot-pound	Newton-meter
6040188	Traditional Hardware (HHCS/Locknut)	3/4″-16NF	310 ft-lb	420 N-m
6040187	No Pivot Hardware	—		
Torflex Bolt-On Axle	Axle Hardware (HHCS/Locknut)	5/8″-11NC	155 ft-lb	210 N-m
Fasteners	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

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 vehicle on a level surface. Chock wheels to keep vehicle from moving. Exhaust all air from 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 the eight pivot bushings and hardware at the same time (Figure 9).

1. Remove Huck® Collar by cutting/grinding. Take pivot connection apart. Discard pivot hardware. Discard wear washers.
2. Remove bushing assembly and discard.
3. Clean torque rod eye of debris/corrosion with a wire brush before installing bushing.
4. Apply Energy Suspensions® Formula 5 Prelube to bore (inside) of replacement bushing.
   NOTE: Do not substitute - urethane lubricant is included with all bushing replacement kits.
5. Install (press) bushing into the torque rod eye.
   NOTE: Mallet/press needed to install bushing.
6. Press inner sleeve into the installed bushing. Center the sleeve inside the bushing so that sleeve-ends extend slightly past the bushing sides.
7. Assemble pivot connection with one wear washer on each side of the bushing. The inner sleeve of the bushing must be flush with or extend slightly past the outside of the wear washers after assembly.
8. Torque pivot hardware to specifications (chart/engineering drawing).
9. Reassemble suspension, if necessary. Torque to specifications (chart/engineering drawing).

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

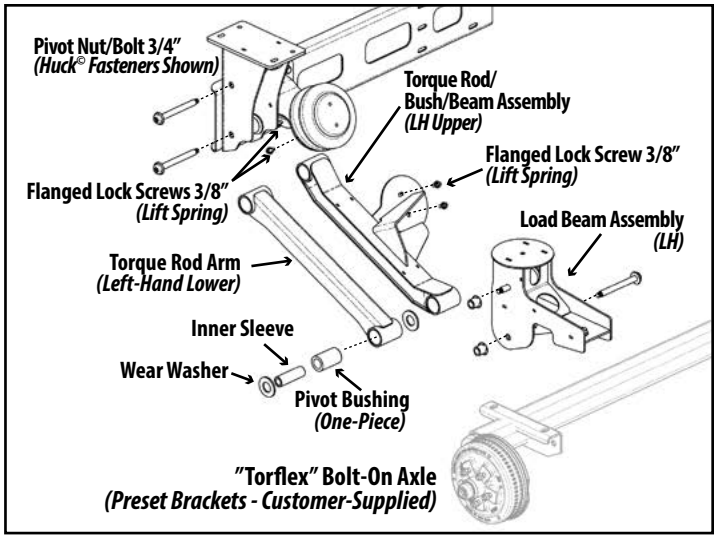
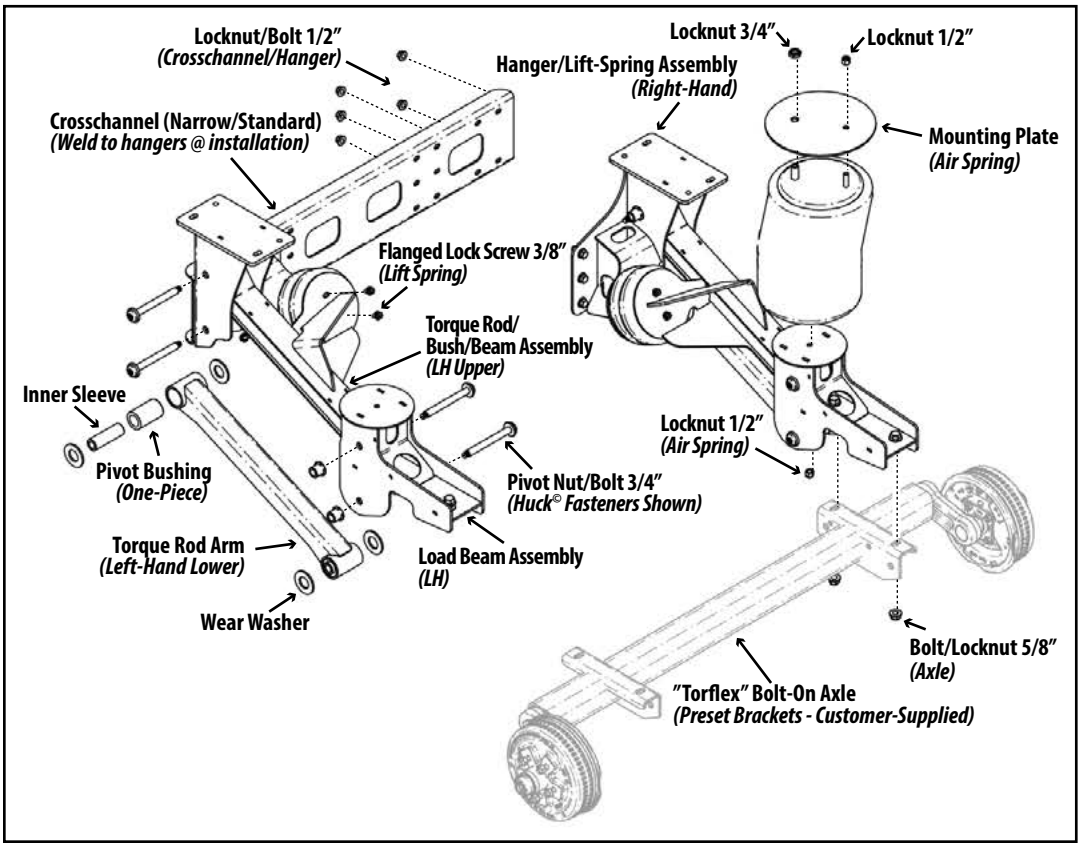


Figure 9.
239-3K Bushing Replacement Kit contains one-piece bushings, wear washers and hardware components for eight pivot connections.



2390102 COMPONENTS CUSTOMER-SUPPLIED TORFLEX™ AXLE (6″ ARM; 22.5° DOWN START-ANGLE)	
Bushing/Frame Centerline DIM	Axle-Bracket Centerline DIM
36.50″	37.50″
42.50″	43.50″

Figure 10.
239-3K Single-Axle Trailer Suspension (Customer-Supplied "Torflex" Bolt-On Axle)

Bushing Replacement – 239-6K Tandem Axle (2390003; 2390005; 2390006)

Part Number	Item Description	Size/Grade	TORQUE SPECIFICATIONS foot-pound	Newton-meter
6040188	Traditional Hardware (HHCS/Locknut)	3/4″-16NF	310 ft-lb	420 N-m
6040187	No Pivot Hardware	—		
Fasteners	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
	Locknut - 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.*

Vehicle Preparation

Park vehicle on a level surface. Chock wheels to keep vehicle from moving. Exhaust all air from 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 the eight pivot bushings and hardware at the same time (Figure 11).

1. Remove Huck® Collar by cutting/grinding. Take pivot connection apart. Discard pivot hardware. Discard wear washers.
2. Remove bushing assembly and discard.
3. Clean rod eye of debris/corrosion with wire brush.
4. Apply Energy Suspensions® Formula 5 Prelube to bore (inside) of replacement bushing.
   NOTE: Do not substitute - urethane lubricant is included with all bushing replacement kits.
5. Install (press) bushing into the torque rod eye.
   NOTE: Mallet/press needed to install bushing.
6. Press inner sleeve into the installed bushing. Center the sleeve inside the bushing so that sleeve-ends extend slightly past the bushing sides.
7. Assemble pivot connection with one wear washer on each side of the bushing. The inner sleeve of the bushing must be flush with or extend slightly past the outside of the wear washers after assembly.
8. Torque pivot hardware to specifications (chart/engineering drawing).
9. Reassemble suspension, if necessary. Torque to specifications (chart/engineering drawing).

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

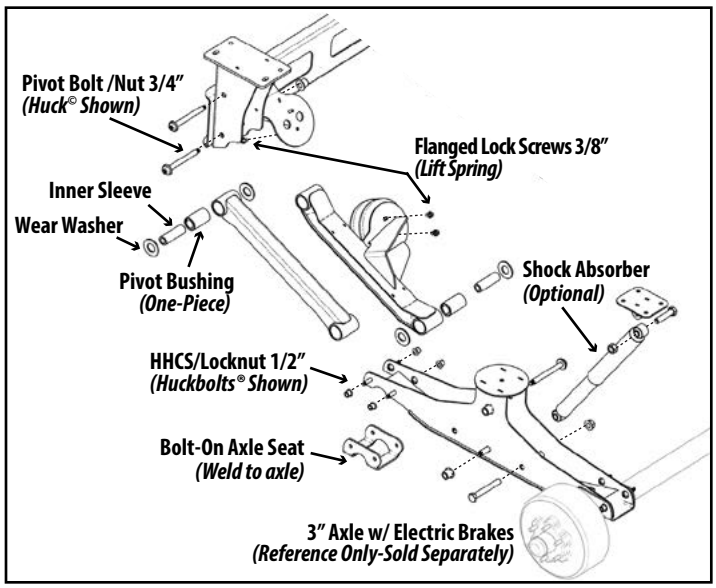


Figure 11.
Bushing Replacement Kit includes one-piece pivot bushing, wear washers and traditional hardware for eight pivot connections.

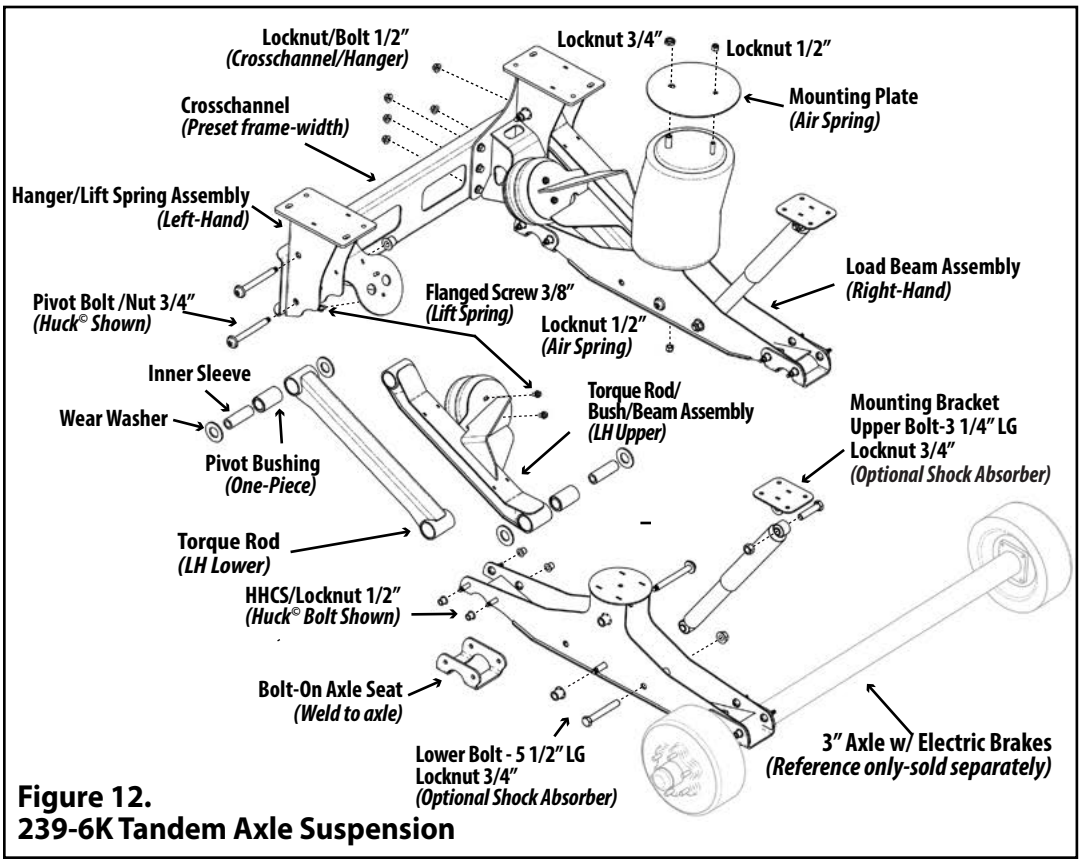


Figure 12.
239-6K Tandem Axle Suspension

2390003 Components – 6K Tandem Axle - 24″ Ride Height
Available Beam/Frame Centerline Dimensions
41.00″
41.50″
42.00″
42.50″
43.00″
43.50″

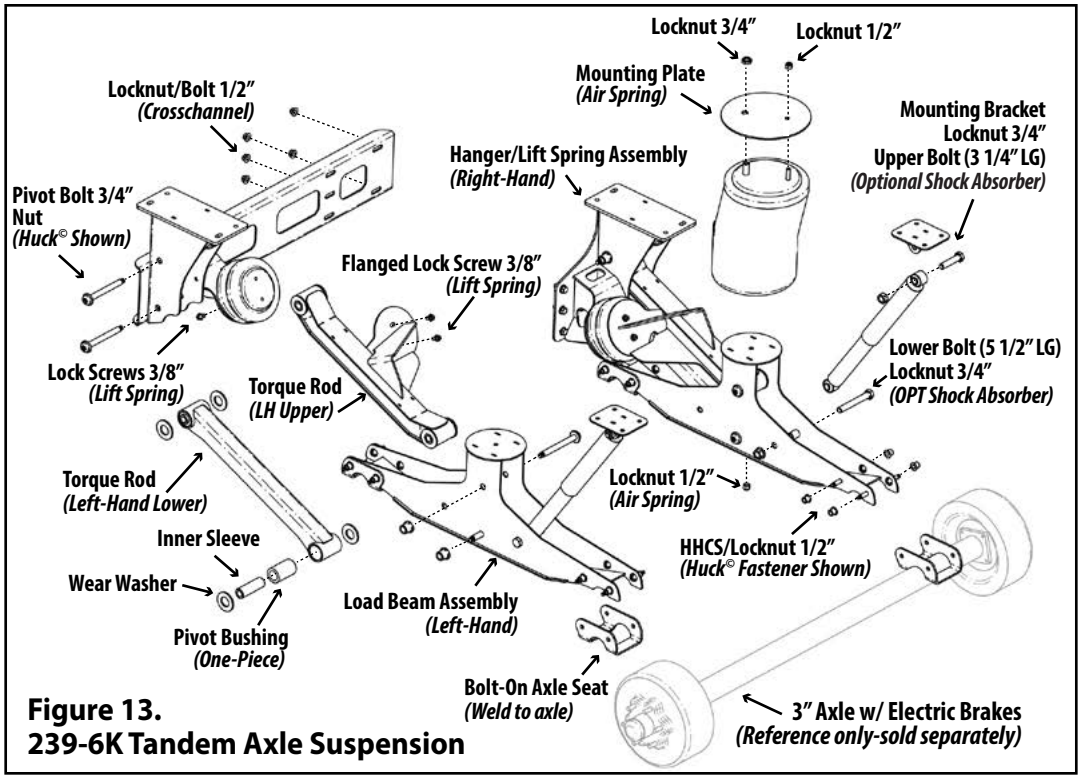


Figure 13.
239-6K Tandem Axle Suspension

2390005 Components – 6K Tandem Axle - 25.50″ Ride Height
Available Beam/Frame Centerline Dimensions
41.00″
41.50″
42.00″
42.50″
43.00″
43.50″

2390006 (Narrow) Components – 6K Tandem Axle - 25.50″ Ride Height
(Narrow) Beam/Frame Centerline Dimensions
36.00″
36.25″
36.50″
36.75″
37.00″

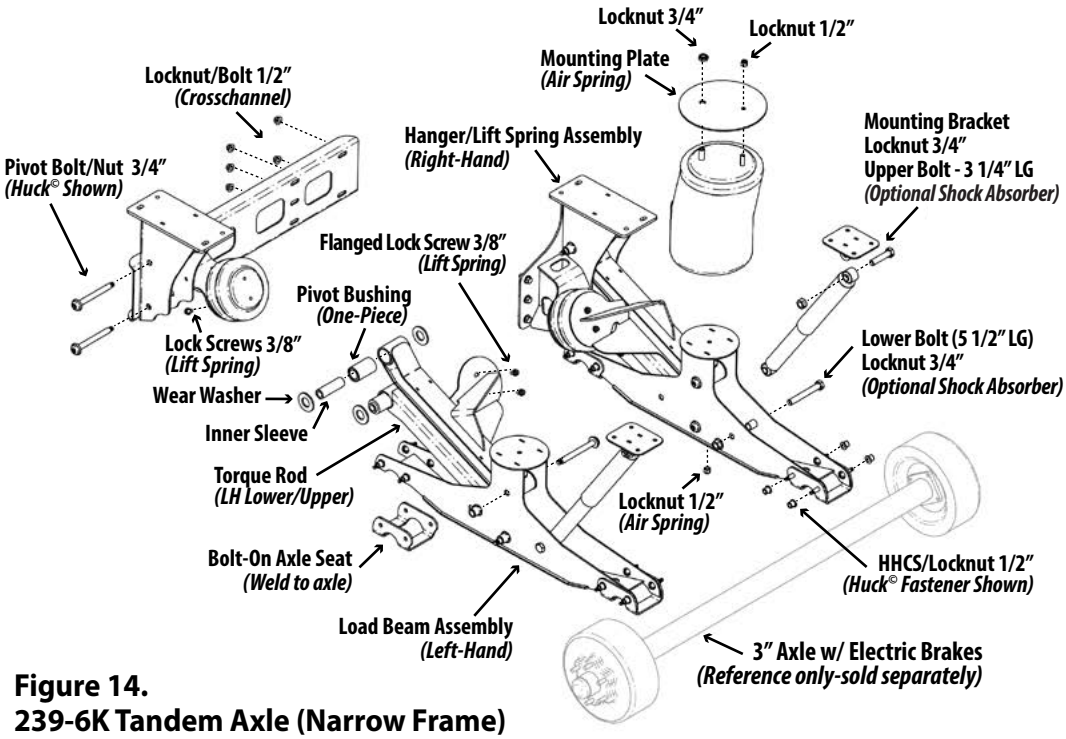


Figure 14.
239-6K Tandem Axle (Narrow Frame)

239-6K Tandem Axle – Axle/Axle-Seat Replacement Kit

Quantity Per Axle	Part Number	Item Description	TORQUE SPECIFICATIONS foot-pound	Newton-meter
1	**6030116**	**Axle-Seat Replacement Kit**	80 ft-lb	108 N-m
2	**8004622**	Bolt-On Axle Seat (3″ Round Axle)		
8	**1140084**	Hex Head Cap Screw (HHCS) 1/2″ 13NC - 1.25″LG		
8	**1150012**	Locknut - 1/2″ 13NC Grade 8		
1	**6030118**	**Front-Axle Replacement Kit**	80 ft-lb	108 N-m
1	**6270592**	3″ Round Axle (EL Brakes) – Axle-Seats welded @ 42″ Beam CTR		
8	**1140084**	Hex Head Cap Screw (HHCS) 1/2″ 13NC - 1.25″LG		
8	**1150012**	Locknut - 1/2″ 13NC Grade 8		
1	**6030119**	**Rear-Axle Replacement Kit**	80 ft-lb	108 N-m
1	**6270466**	3″ Round Axle (EL Brakes) – Axle-Seats welded @ 42″ Beam CTR		
8	**1140084**	Hex Head Cap Screw (HHCS) 1/2″ 13NC - 1.25″LG		
8	**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.*

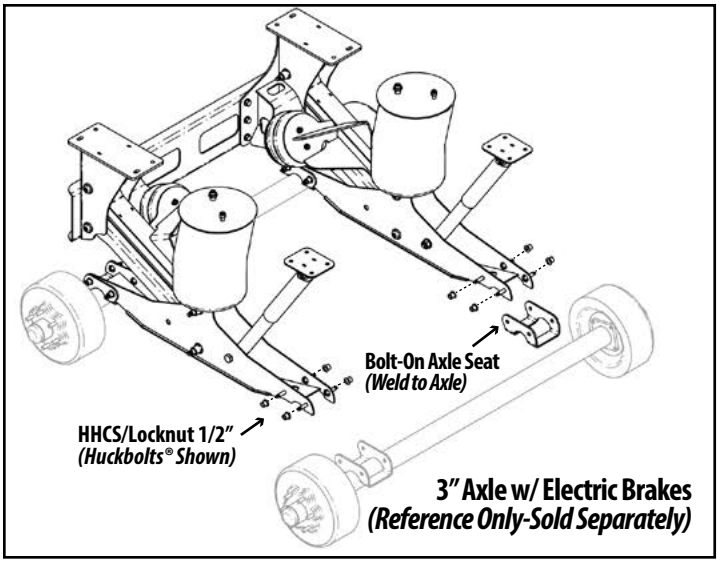


Figure 15.
Axle-Seat Replacement Kit includes traditional hardware components for one axle.

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.

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 15).
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 (page 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 the RTL-239 trailer suspension warranty limited to on-highway use inside the United States

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 for suspensions is limited to the original warranty coverage extended by the manufacturer of the purchased part.

All work performed 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 charges for parts transportation 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 Warranty Dept. (417.833.4565 - Ext. 135) for complete warranty information.