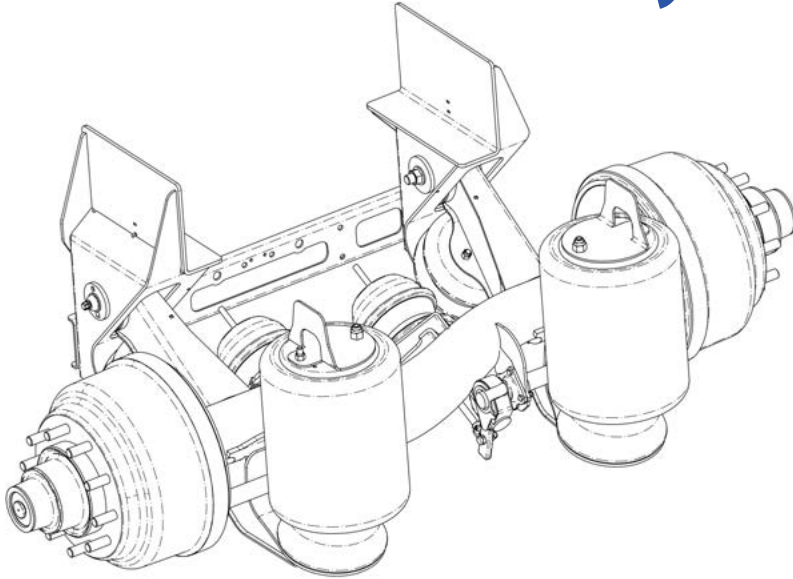


# RCA-215 - Truck

## *NonSteerable Auxiliary Axle Suspension*



## Installation and Service Manual

Suspension/Axle ID Tag -----	2
Prior to Installation -----	3
Axle Integration -----	4
Suspension Mounting-----	6
Optional Shock Absorber -----	7
Air Controls Kit -----	8
<b>Maintenance</b>	
Recommended Service Intervals -----	9
Air Spring Mounting Plate/Spacer Configuration-----	10
Drum Brake Suspension Components	
Disc Brake Suspension Components -----	11
Narrow Bushing Replacement-----	12
Integrated Air Tank Kit (Preplumbed Suspension) -----	14
Axle Alignment -----	15
Warranty -----	16



## SUSPENSION/AXLE ID TAG



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**



MODEL:

PART NO.

SERIAL NO.

CAPACITY

TON

### Axle-Body Identification Tag

The **Base-Axle Part Number** (165-) and the **Serial Number** of the axle tube are listed on the Axle-Body ID Tag of Ridewell-branded round axles.

The **Base-Axle Part Number** refers to Ridewell-branded round axles in various axle wall thicknesses and widths.

### Suspension ID Tag

The (606-) **Installation/Assembly Number** is listed as the Ridewell **Part Number** when other system components are factory installed onto the suspension.

The **Suspension Number** and **Serial Number** listed on the Suspension ID Tag refer to the model and manufacturing date of an individual suspension system.


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

### Notes and Cautions

Read through entire Installation and Service Manual (ISM) before performing any installation/maintenance. All work should be completed by a trained technician using the proper tools and safe work procedures.

The ISM uses two service note types to provide important safety guidelines. The service notes are defined as:

“NOTE:” Provides additional instructions or procedures to complete tasks and ensure the suspension and its 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 to view available ride heights and confirm dimensional requirements.

Operating the suspension outside of design parameters can result in improper performance, damaged equipment, and void the warranty.

The methods and procedures listed in this manual are considered to be general practices. Installations can vary and procedures should be adapted, as needed.

- The Gross Axle Weight Rating (GAWR) is determined by the system component with the lowest load rating. Please consult with 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 suspension installer has sole responsibility for proper attachment of the system to the vehicle chassis.

- The installer is responsible for locating the suspension on the vehicle to provide proper load distribution.
- The installer must verify that vehicle crossmembers are positioned to support the suspension.
- It is the installer's responsibility to determine that axle spacing conforms to the applicable federal and local bridge laws.
- The installer must verify air reservoir volume requirements are met after suspension installation. Consult the vehicle manufacturer or Federal Motor Vehicle Safety Standards (FMVSS) 121.
- The installer must verify there is sufficient clearance for proper functioning of the auxiliary suspension as well as the air springs, brake chambers, steering components, axle (including axle to driveline clearance) and tires.

## AXLE INTEGRATION

Suspension systems are available with and without a factory integrated straight- or drop-axle.

Customer-supplied axle assemblies must be positioned and oriented (rotated) properly before welding the axle. The axle assembly should be installed so that the camshafts, when activated, rotate in the same direction as the wheels.

Use the top-center mark on straight-axles, if available, to identify the center of the axle and orient the axle assembly on the suspension.

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

### Weld Preparation

The joint to be welded should be positioned in the flat or horizontal position. All grease, dirt, paint, slag/other contaminants must be removed from the weld joint.

Both 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 temperature, if required.

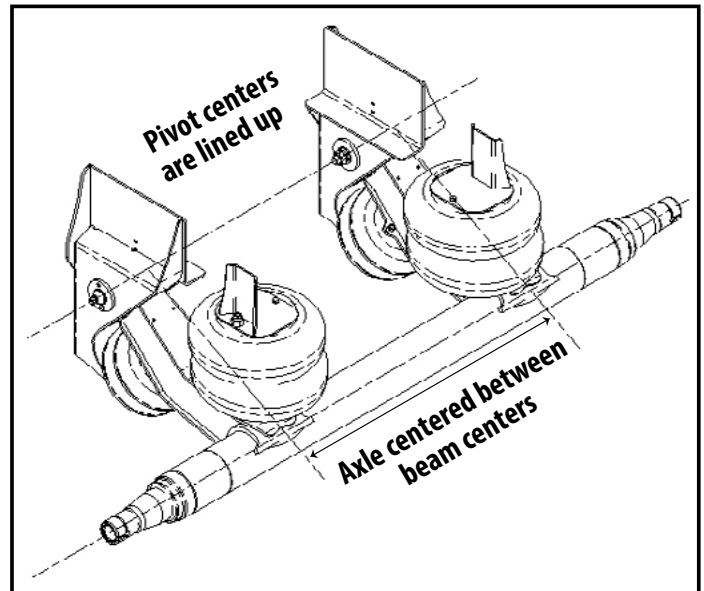
### Weld Procedure

- Center the axle assembly on the beams (Figure 1).
- Check the engineering drawing for correct brake component orientation (rotation) before clamping into place and making the final welds.
  - Drum brake camshafts are spaced off the tail of the trailing arm beam. Make sure the brake chamber brackets are oriented properly before clamping the axle assembly into place.
  - Disc brake assemblies have a right- and left-hand caliper assembly. Make sure callipers are located on the correct side and rotated to proper position before clamping the axle assembly into place.
- Check gap between the axle and the axle seats before welding (Figure 2).

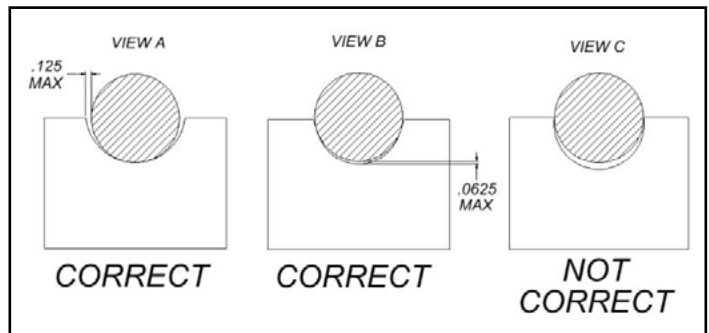
Side gaps should be no greater than 1/8".

The gap at the bottom of the axle seat should be no greater than 1/16".
- Weld the axle to the seat according to Ridewell Weld Process #1 (Page 5).

NOTE: Mounted air springs should be covered for protection from welding spatter.



**Figure 1.**  
Axle should be centered between beams.

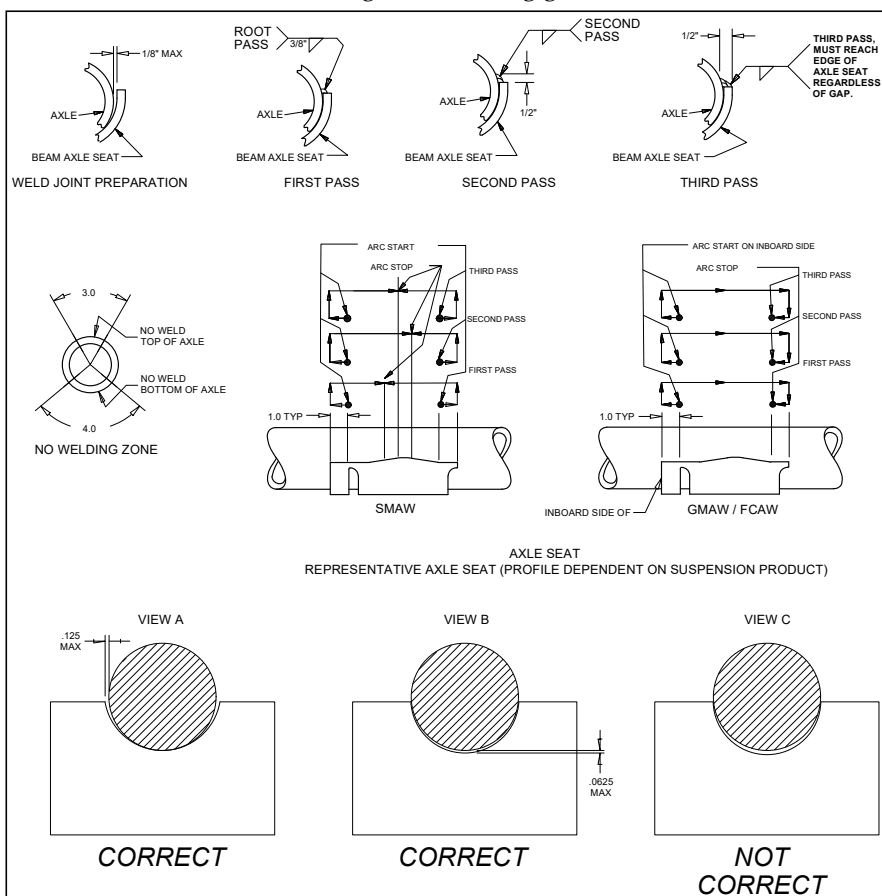


**Figure 2.**  
Positioning axle for welding to axle seat.

## Ridewell Weld Process #1 – 5”-6” Diameter Axle, 3-Pass Weld (ENG DWG 9710039-K)

- All welds must be kept away from the top and bottom of the axle where maximum stresses occur (see “NO WELDING ZONE” illustration). Do not test-weld the arc on any part of the axle tube.
- 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.
- 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.
- 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 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.
- The axle should fit into the beam axle seat with a maximum root gap of 1/8-inch between the axle and the beam axle seat (see “WELD JOINT PREPARATION” illustration). 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.
- 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 - View A or B). When installing a drop-center axle, a gap of up to 1/4” is allowed on one side of each seat, while the other side of seat has a max gap of .0625”.
- 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.
- Multiple pass welding should be used on the beam/axle connection using the following guidelines:

- Total fillet weld size should be 1/2-inch total weld. Weld size increases with gap size proportionally.
- Weld pass starts and stops should be performed as illustrated.
- Never start or stop welds at the end of the weld joint.
- Each pass must be accomplished in one or two segments.
- Start welds at least 1-inch from the end and back-weld over the start. Backstep fill all craters.
- If process is not GMAW, all slag must be removed between passes.
- Welds must go within 1/8-inch +/- 1/16-inch of the ends of the axle-seat and must not go beyond or around the ends of the axle-seat.
- Post-weld peening of the weld is recommended, but not required: Needle peen the entire toe of the second pass, including around the ends of the axle-seat. Hold the needles perpendicular to the axle. A uniform dimpled pattern will appear when properly peened.





## Optional Shock Absorber – Installation

Refer to the shock absorber kit engineering drawing for mounting locations and the upper and lower mounting bracket installation angles.

**CAUTION** The welding method must use a minimum weld tensile strength of 70,000 PSI, per AWS specifications.

### Shock Absorber Installation Procedure

1. Disconnect and remove the (load) air springs from the installed suspension.  
NOTE: Cover lift springs to protect from welding spatter.
2. Upper mounting bracket – Locate and drill three holes in the chassis above the air spring mounting plate. Bolt the upper mounting bracket to the chassis with customer-supplied 5/8" Grade 8 bolts and locknuts.  
NOTE: The upper brackets' installation height will need adjustment if the hanger/air spring spacers are installed. Rotate the mounting brackets to allow shock absorbers to clear the air spring mounting plates.
3. Measure the shock absorber location to the axle (lower) mounting bracket from the edge of the axle seat, not from the axle weld. Clamp the mounting bracket into place. Use 5/16" fillet weld to weld the lower mounting bracket to the axle at the forward and rear edge only. Do not weld perpendicular to the axle centerline.
4. Attach the shock absorber to mounting brackets:
  - 4.1. Attach shock to upper mounting bracket with Hex Head Cap Screw (HHCS) and flat washer. Torque HHCS to 160-200 ft-lb (217-271 N-m).
  - 4.2. Attach shock to lower mounting bracket with HHCS and locknut. Torque locknut to 160-200 ft-lb (217-271 N-m).
5. Install air springs. Torque to specifications shown on Page 12/Engineering Drawing. Connect the air springs to the vehicle's air system.
6. Raise and lower the suspension to confirm that shock absorbers clear the air spring mounting plates and do not overextend during travel.

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

## Regulate load with air spring pressure

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

The axle takes on a greater percentage of the load's weight as more air pressure is applied. The load capacity is decreased as the air springs air pressure decreases.

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

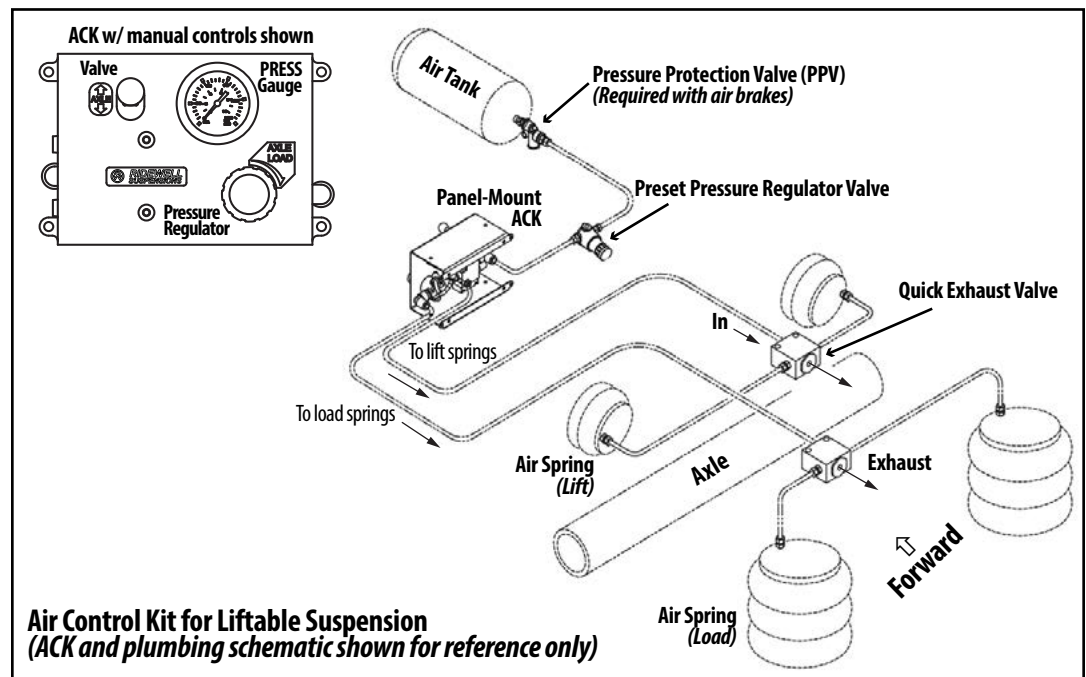
**CAUTION** Do not exceed rated load capacity of suspension system/other components. Exceeding the load capacity may cause component failure and void the warranty.

## Lift-Axle Air Controls Kit—Plumbing Example

The air control kit is installed into the vehicle's air brake system. The ACK consists of an inline preset air pressure regulator connected to an air valve that an operator controls with a manual knob or electric switch.

An operator uses air controls to increase/decrease the air pressure to the air springs to support different loads.

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



### 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 controls wiring with voltmeter. 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 leak at an acceptable rate.</li> </ul>	<ul style="list-style-type: none"> <li>— Pressurize system. 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 fitting connection/Damaged air lines.</li> <li>— Air lines to lift and load 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 the pressure regulator goes to the (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 springs are reversed.</li> <li>— Lift springs do not have proper air pressure.</li> <li>— Interference with the driveline and/or 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 the pressure regulator goes to the (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>

**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**

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

**First 6,000 miles of use**

- Torque components to specifications. (Page 11, Engineering Drawing).  
NOTE: Do not re-torque shear-type pivot bolt.
- Verify suspension is operating at designed ride height.

**Every 12,000 miles of use**

- Inspect air springs for damage/excessive wear. Torque to specifications (Page 11, Engineering Drawing).
- Check air lines and connections for leaks.
- Lubricate Brake Cams and Slack Adjusters.

<b>Refer to these Technology &amp; Maintenance Council (TMC) publications for maintenance information</b>	
RP 609	Brake Adjuster Installation/Maintenance
RP 618	Wheel Bearing Adjustment Procedure
RP 619	Air System Inspection Procedure
RP 622	Wheel Seal and Bearing Removal, Installation, and Maintenance
RP 631	Recommendations-Wheel End Lubrication
RP 643	Air Ride Suspension Maintenance Guidelines
RP 728	Trailer Axle Maintenance

**Pivot Bushing Inspection Procedure**

The pivot bushing can be checked without disassembling the suspension. Park the unloaded trailer on a level surface. Set the brakes and chock the tires so vehicle cannot move during inspection.

Insert the flat end of a pry-bar between one side of the hanger sidewall and the wear washers. Move the pry-bar back-and-forth and look for excessive movement of the

**First 50,000 miles of use**

- Torque suspension components to specifications. (Page 11, Engineering Drawing)  
NOTE: Do not re-torque shear-type pivot bolt.
- Check wheel ends for excessive play.


**Annually/100,000 miles of use**

- Inspect pivot connections for worn bushings. Replace if necessary. Torque pivot hardware and other component fasteners to specifications (Page 11, ENG Drawing).
- Check suspension hanger and air spring mounting plate connections to vehicle frame.

**Check lubrication level in wheel ends:**

- 1) Oil-Filled: Refill/Replace lubricant as needed. (TMC RP 631 “100K/Annual Inspection”).
- 2) Semi-Fluid Grease: Pull outer bearing and visually inspect lubrication level. Refill/Replace as needed. (TMC RP 631 “Level 3 Lubrication Level Inspection”) (TMC RP 618 “Wheel Bearing Adjustment”)
- Check air system for leaks.
- Test air system pressure protection valve (if equipped).
- Check brake chambers and brakes for damage/proper function.

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



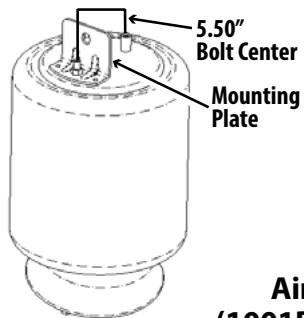
**Scan/double-click QR-Code to visit online support page: [www.ridewellcorp.com](http://www.ridewellcorp.com)**

beam (NOTE: A small amount of beam movement because of the rubber flexing is normal). Inspect the wear washers for excessive wear/damage.

Repeat the pry-bar process and wear washer inspection on the other side of the hanger. If any large/easy movement or damaged wear washers is observed, drop the beams for further inspection. Replace components as necessary.

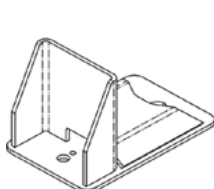
**AIR SPRING MOUNTING PLATE/SPACER CONFIGURATION (Varies by Date of Manufacture)**

**Suspension manufactured before OCT 2014**

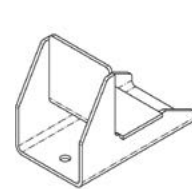
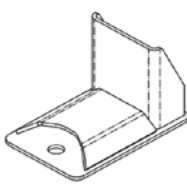


**Air Spring (1001R12444)**

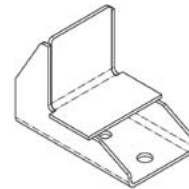
**Mounting Plate (5.50" Bolt Center)**  
*Included with Air Spring*



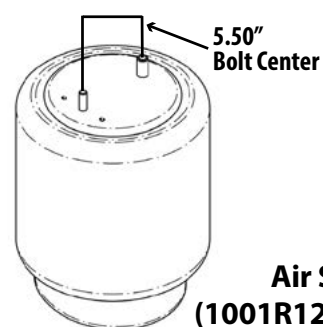
**1" Air Spring Spacer (3450126)**



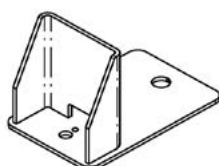
**2" Air Spring Spacer (3450155)**



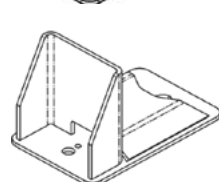
**Suspension manufactured OCT 2014 - FEB 2017**



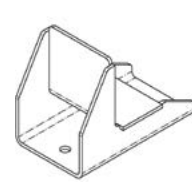
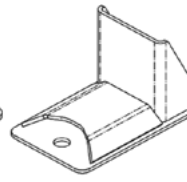
**Air Spring (1001R12653G)**



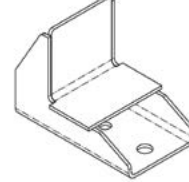
**Mounting Plate (5.50" Bolt Center) (3450154)**



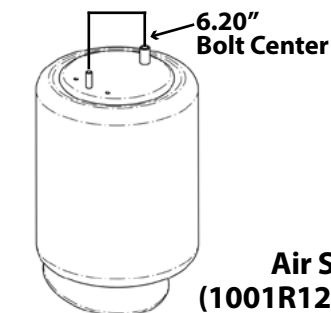
**1" Air Spring Spacer (3450126)**



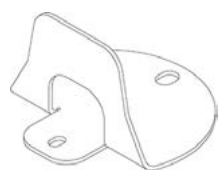
**2" Air Spring Spacer (3450155)**



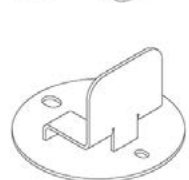
**Suspension manufactured after FEB 2017**



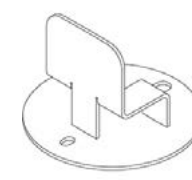
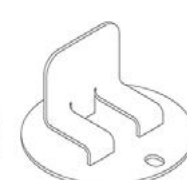
**Air Spring (1001R121202)**



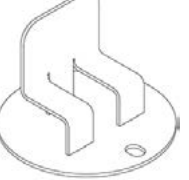
**Mounting Plate (6.20" Bolt Center) (8003809)**



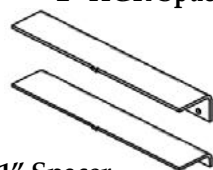
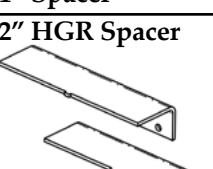
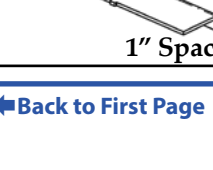

**1" Air Spring Spacer (3450266)**

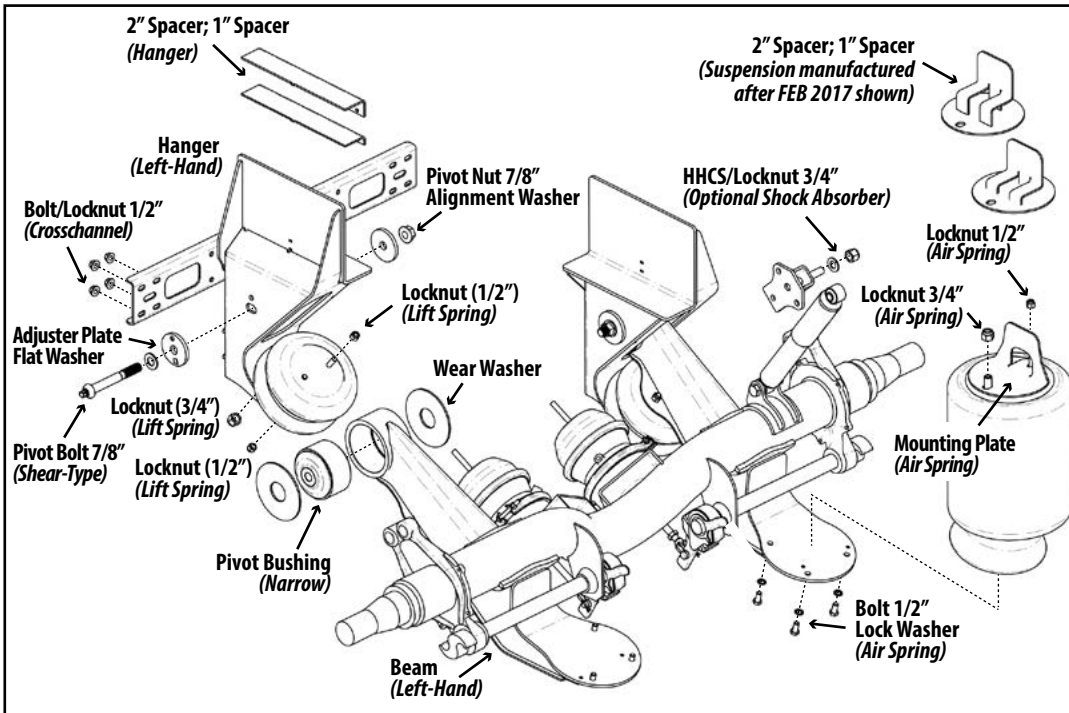


**2" Air Spring Spacer (3450267)**

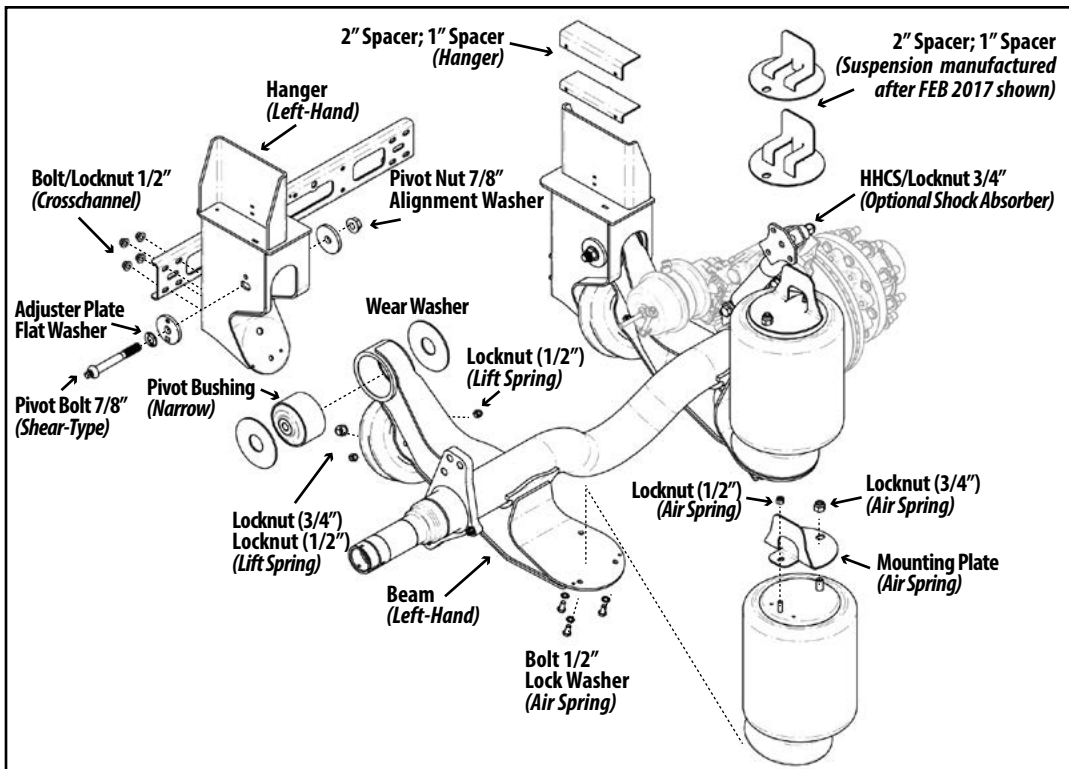


**Hanger spacers are a separate purchase and must be installed at the same time as the air spring spacers.**

Component	QTY	Part Number	Item Description
 2" HGR Spacer	1	6040167	SPCR KIT 1" (215)
	2	3450266	UP A/SPG BRKT ASY 1"SPCR (6.20" Bolt Center)
	2	8001811	SPCR 1" HGR 215 PAINTED
 1" Spacer	1	6040168	SPCR KIT 2" (215)
	2	3450267	UP A/SPG BRKT ASY 2"SPCR (6.20" Bolt Center)
	2	8001812	SPCR 2" HGR 215
 2" HGR Spacer	1	6040169	SPCR KIT 1" (215 DB)
	2	3450266	UP A/SPG BRKT ASY 1"SPCR (6.20" Bolt Center)
	2	8003434	SPCR 1" 215DB
 1" Spacer	1	6040170	SPCR KIT 2" (215 DB)
	2	3450267	UP A/SPG BRKT ASY 2"SPCR (6.20" Bolt Center)
	2	8003435	SPCR 2" 215DB



**Figure 4.**  
**Drum Brake Suspension Components**  
 215 Truck Suspension with integrated drop-center drum brake axle and optional shock absorber shown for reference only. Refer to the engineering drawings for the individual component part numbers.



**Figure 5.**  
**Disc Brake Suspension Components**  
 215 Truck Suspension with integrated drop-center air disc brake axle and optional shock absorber shown for reference only. Refer to the engineering drawings for the individual component part numbers.

## RCA 215 Truck – Narrow Bushing Replacement (Bushing Tool 6100044)

Part Number	Item Description	Size	Torque Values (foot-pound Newton-meter)	
6040128-Bushing Kit Bushing Tool-6100044	Pivot Bolt (Shear-Type) Requires E-20 Torx® socket (RW #6100054)	7/8"-9NC	Do not lubricate bolt/nut threads. Use 1"-drive impact wrench to tighten bolt until Torx® head shears off.	
6040078-Bushing Kit Bushing Tool-6100044	Pivot - Hex Head Cap Screw; (Locknut)	7/8"-9NC	500 ft-lb	678 N-m
Fasteners	Locknut - (Air Spring; Lift Spring)	1/2"-13NC	25 ft-lb	35 N-m
	Locknut - (Air Spring; Lift Spring)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut - (Crosschannel)	1/2"-13NC	45-50 ft-lb	61-68 N-m
	HHCS/Locknut - (Optional Shock Absorber)	3/4"-10NC	160-200 ft-lb	217-271 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 retorqued 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.

Raise vehicle to a height that removes the load on the suspension. Support with jack stands.

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

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

### Disassemble the suspension

Remove wheels and tires, if necessary.

Remove shock absorbers.

Take the pivot connections apart. Remove and discard pivot bolt, flat washer and pivot nut.

Inspect the adjuster plate and alignment washer for wear/damage. Replace components as necessary.

**CAUTION** Do not reuse pivot hardware.

Rotate beams down and away from frame. Inspect pivot-bolt holes and wear washers for unusual wear/damage. Repair or replace components as needed.

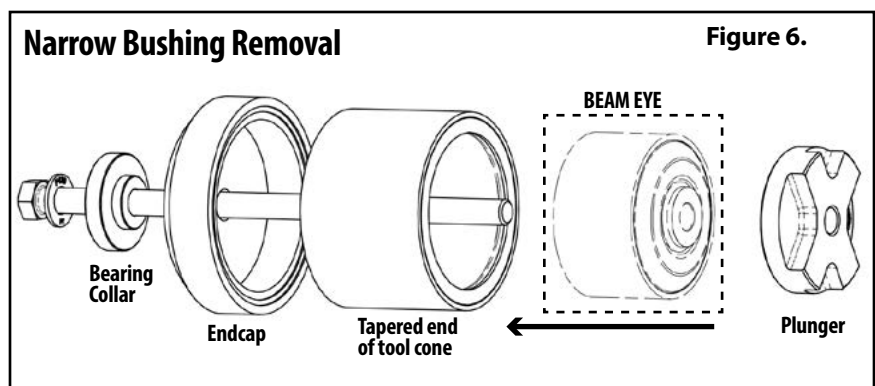
### Tool Assembly for Bushing Removal

Verify thrust bearing is installed in the flat, outside edge of endcap. Inspect the tool cone, the tapered insert, and endcap for damage. Repair or replace components as needed.

Apply Lubricant (P/N 1980014) to HHCS and bearing threads.

Thread the flat washer, the bearing collar and the endcap onto the HHCS until the bearing collar and endcap rest against the HHCS head. Place the open end of the bushing tool cone onto the endcap (Figure 6).

NOTE: Failure to apply lubricant to the threads could result in decreased tool performance and reduce the life of the bushing tool.



### Bushing Removal

1. Push hex-head cap screw through the bushing inner sleeve until tool cone is against the beam eye. Thread plunger onto HHCS until tool cone is held firmly against the beam (Figure 6).  
NOTE: The tapered end of the tool cone is placed against the beam eye for bushing removal and installation.
2. Verify that tool cone is centered on the beam eye. Use a 1 5/16" socket on a 3/4"-drive impact wrench (1"-drive impact wrench recommended) to rotate the Hex Head Cap Screw and pull the bushing into the cone.  
NOTE: A small amount of heat may be needed to break the bond between the bushing and the beam eye. Do not overheat. Allow beam to cool before installing new bushing.
3. Remove bushing tool from the beam. Detach tool cone from endcap, remove bushing and discard.

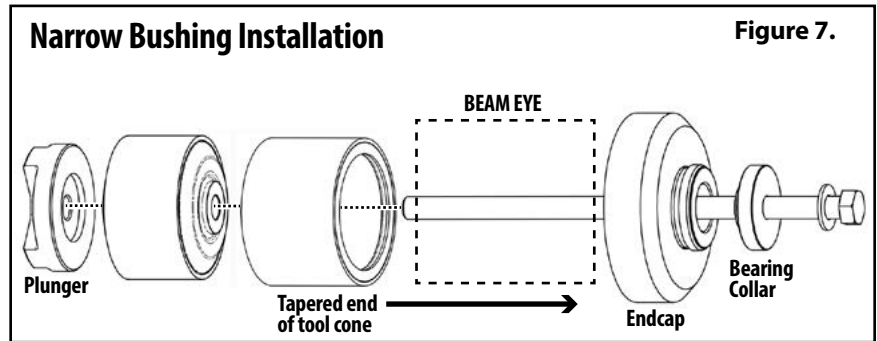
*Continued on next page*

### Bushing Tool Assembly

Thread the flat washer, the bearing collar and the endcap onto the hex-head cap screw (HHCS) until the bearing collar and endcap rest against the head of the HHCS.

### Bushing Installation

1. Use wire brush to clean debris/corrosion from the beam eye.
2. Liberally apply P80<sup>®</sup> lubricant or a soap solution to the inside of the beam eye, the outside of the new bushing and inside the tool cone. Insert new bushing into the larger opening of the tool cone (Figure 7).
3. Center the smaller opening of the tool cone against the beam eye. Push the hex-head cap screw through the bushing inner sleeve from the opposite side of the beam until the endcap rests against the beam eye.
4. Thread the plunger onto the hex-head cap screw until tool cone is held firmly against the beam.  
NOTE: The smaller opening of the tool cone is placed against the beam eye for both removal and installation of the bushing.
5. Verify bushing tool cone is centered on the beam eye. Use a 1 5/16" socket and 3/4-drive impact wrench (1"-drive impact wrench recommended) to rotate hex-head cap screw to press bushing into the beam eye.
6. Remove bushing tool from the beam. Check that bushing is centered inside the beam. Realign bushing installation to center if necessary.



### Reassemble suspension

Rotate beams into the hangers. Assemble pivot connection – alignment washer, adjuster plate, wear washers, shear-type pivot bolt, flat washer and flanged locknut.

NOTE: Do not lubricate pivot bolt/nut.

Tighten locknut until adjuster plate pin is engaged and pivot connection hardware is snug against the hanger. Do not apply final torque until axle alignment is checked.

Connect the height control valve linkage (if linkage has been disconnected). Inflate air springs.

Install wheels and tires (if removed). Raise vehicle and remove support stands. Lower vehicle to ground.

Verify suspension ride height. Check axle alignment. Realign if necessary (Page 15).

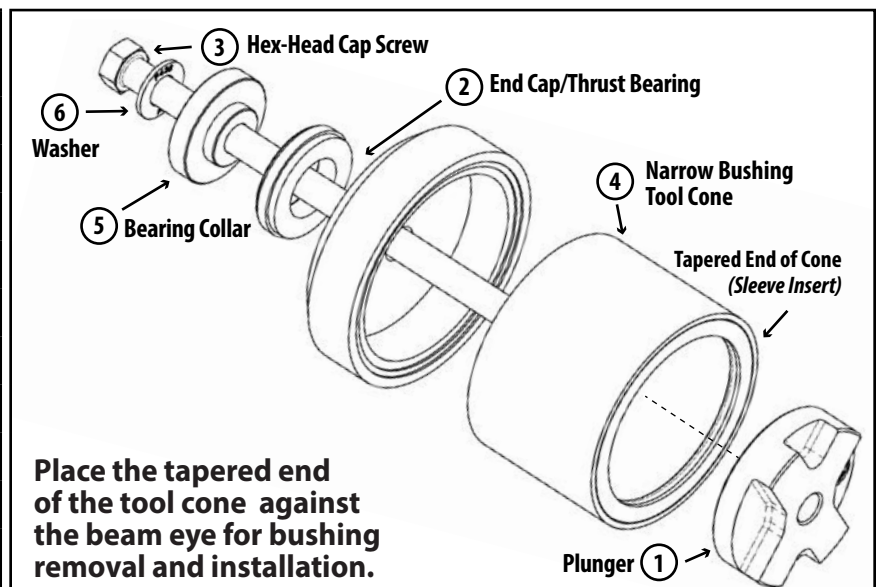
Tighten pivot bolt with a 1" drive impact wrench and E-20 Torx<sup>®</sup> socket (Ridewell tool #6100054) until Torx<sup>®</sup> head is sheared off.

Install shock absorbers.

**CAUTION** Failure to torque hardware to specifications can result in suspension failure and voided warranty.

### 6100044 – Narrow Bushing Installation Tool Use with 4 1/8" narrow rubber bushing

No.	Part No.	Item Description
1	6100091	PLUNGER BUSH TOOL NAR MACH'D
2	6100089	END CAP BUSH TOOL ASY NARROW (DWG)
	1660009	BRNG ASY T1822S 12/16K THRUST
	6100090	END CAP BUSH TOOL NARROW MCH'D
3	1130088	HHCS 7/8-6 ACME x 18.0 LG 12" THRD
4	6100092	CONE AND SLV ASY NARROW
5	1120051	BRNG COLLAR BUSH TOOL
6	1160036	WASHER 7/8" F436 ZINC/COATED
—	1980014	EXTREME PRESSURE LUBE

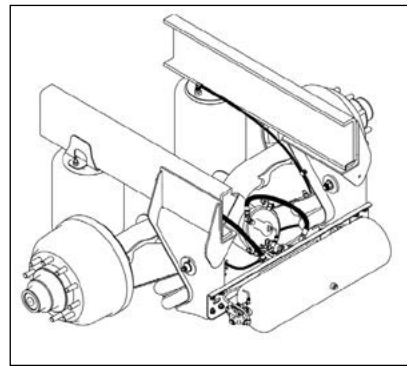
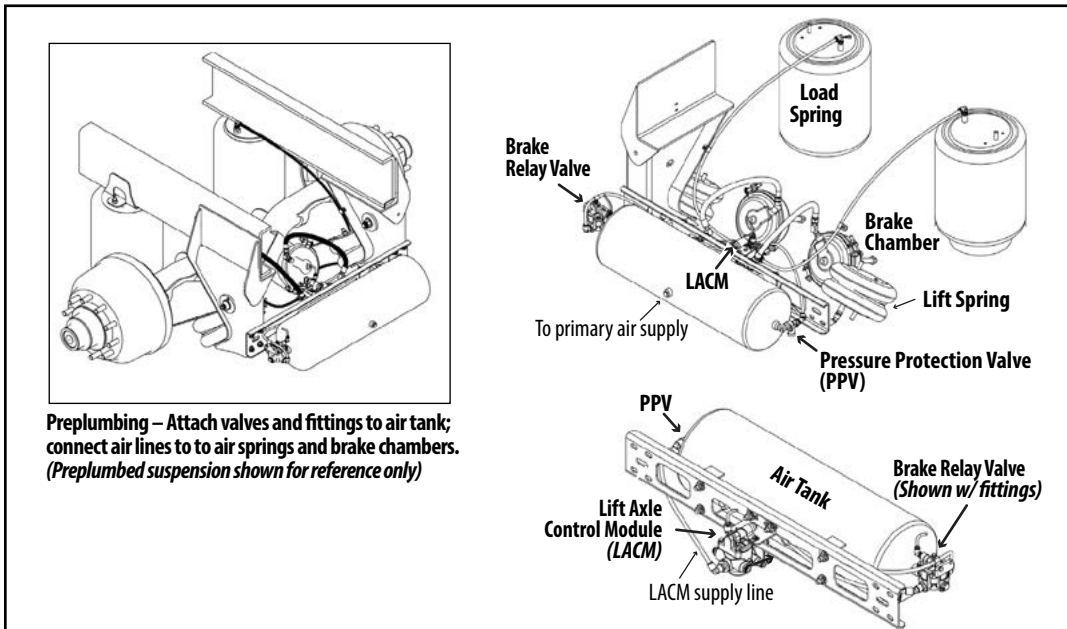


## 215 Truck – Integrated Air Tank Kit (\*Factory Preplumbing Available)

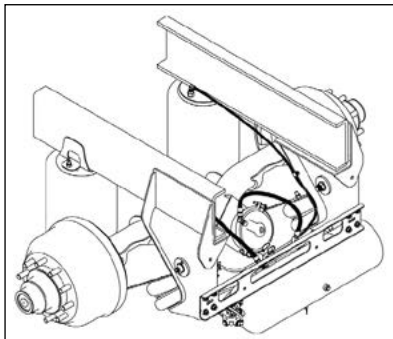
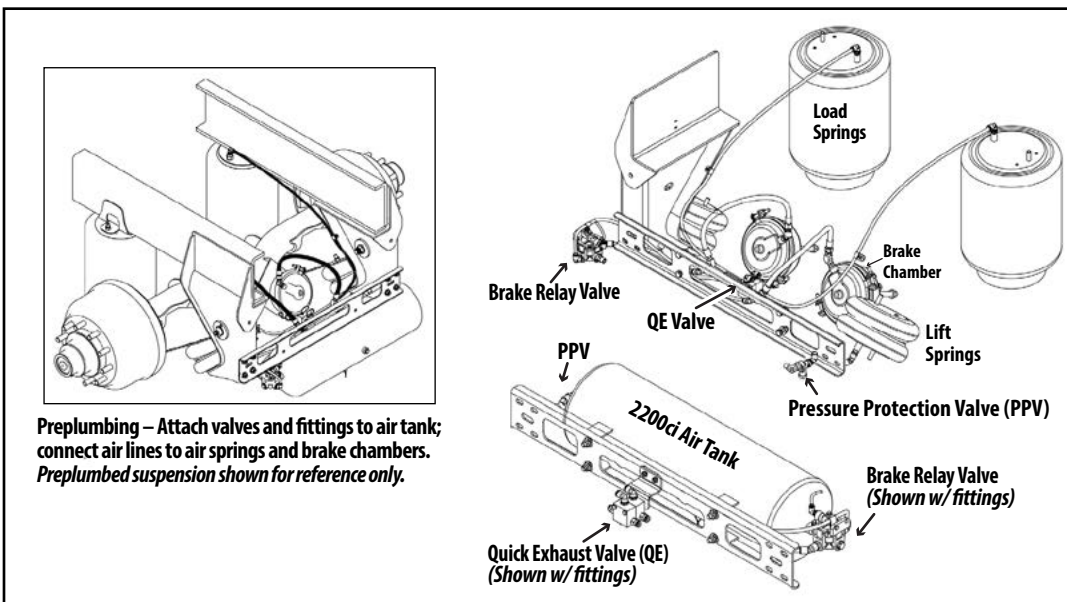
*PrePlumbed SUSP (Ships fully assembled)	INTEG A/Tank KIT Part No.	Item Description	Air Tank– 2200-Cu In	Brake Relay Valve	PPV-PRESS PRTCTN VLV	LACM Lift AX CNTRL Module	QE-Quick Exhaust VLV
1200251	1200250	INTEG 215 ACK LACM 2200ci LACM Kit – Drop-Axle Drum Brake Suspension	1230254	1230081	1230060	1230195	
1200265	1200264	INTEG 215 ACK LACM 2200ci LACM Kit – Straight-Axle Drum Brake Suspension					
1200291	1200290	INTEG 215 ACK LACM 2200ci LACM Kit – Straight-; Drop-Axle ADB Suspension					
1200282	1200281	INTEG 215 ACK, QE, 2200CI, NO LACM QE Valve Kit (2) – Drop-Axle Drum Brake Suspension					1230078

\*Factory preplumbing requires a fully assembled suspension with an integrated axle.

**CAUTION** Verify that vehicle is compliant with vehicle manufacturer standards and Federal Motor Vehicle Safety Standards (FMVSS) 121.



Preplumbing – Attach valves and fittings to air tank; connect air lines to air springs and brake chambers. (Preplumbed suspension shown for reference only)



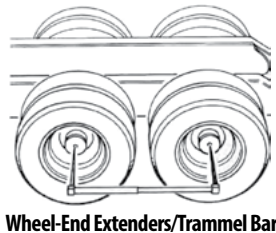
Preplumbing – Attach valves and fittings to air tank; connect air lines to air springs and brake chambers. (Preplumbed suspension shown for reference only)

Refer to the engineering drawing for the designed ride heights of the suspension model. Align the suspension per TMC- or SAE- recommended standards.

On a multiple-axle vehicle, the forward (lead) axle is moved into proper alignment, then the following (rear) axles are positioned to be parallel to the lead axle (Figure 10).

### Position trailer for alignment

- The suspension must be in a “relaxed” state without any preloading applied to the bushings.
- Disengage the trailer parking brakes. Pull the trailer forward in a straight line at least three feet.
- Adjust the landing legs to place the trailer at the designed kingpin height. Place the kingpin adapter/kingpin extender onto the kingpin.
- Install wheel-end extender or trammel bar onto each end of the lead and rear axle.



**CAUTION** An axle alignment performed with a pre-loaded (compressed) bushing can provide incorrect measurements and may cause tracking problems/premature tire wear.

### Recommended Equipment

- 50-ft 1/32”-ruled steel tape measure.
- 12-ft 1/32”-ruled tape measure.
- A device to keep tension on the tape measures.
- A kingpin adapter/kingpin extender (pogo stick).
- Wheel-end (spindle) extenders/Trammel bar.

### Axle Alignment Measurements

Use extreme care; as measurement errors can take up most, if not all, of the alignment tolerances (Figure 10).

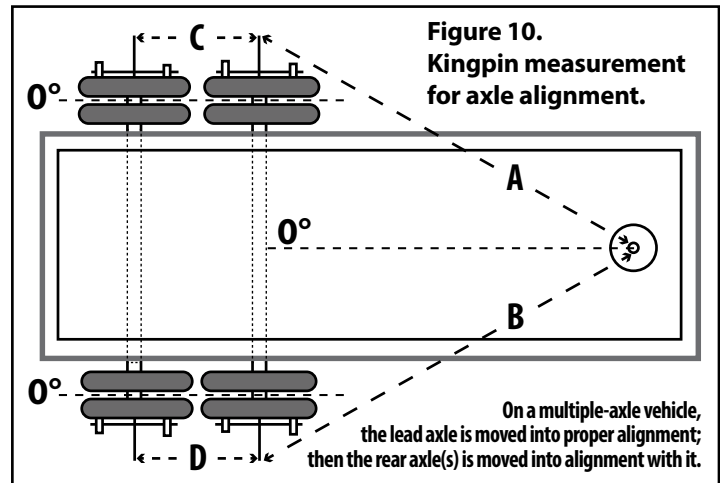
1. Attach the 50-ft tape measure to the kingpin. Measure Distance “A” and Distance “B” from the kingpin to the centers of the lead axle. The difference between the “A” and “B” measurements must not exceed 1/8-inch.
2. Measure Distance “C” and Distance “D” from the lead axle to the next axle with the 12-ft measuring tape or trammel bar. The difference between the “C” and “D” measurements must not exceed 1/16-inch.

### Axle Alignment Procedure

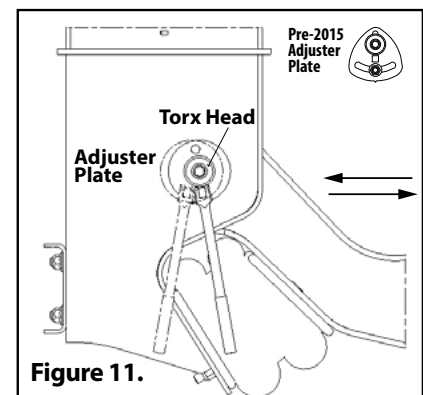
Select either the left-hand or right-hand beam of the lead axle to begin the alignment procedure.

1. Tighten the pivot nut on the selected side until snug.
2. Move to the opposite side of the selected beam. Tighten the pivot nut on this side until snug.

**CAUTION** Do not reuse the pivot hardware if the Torx® head is damaged or missing after tightening the pivot connection. A new shear-type pivot bolt, washer, and locknut must be installed and the Torx head sheared off at final torque to complete the alignment.



3. Return to starting location. Insert a 1/2”-shank breaker bar into the square hole of the adjuster plate at the pivot connection (Fig 11).



4. Push/pull on the breaker bar to adjust the beam forward or backward into lead axle alignment (Figure 10).

NOTE: Verify that pivot bushing is not wedged side-ways during beam movement. The adjuster plate and the alignment washer should both rotate as the beam moves.

5. Move to the opposite beam. Re-check the alignment measurements. Use breaker bar procedure if necessary to move axle into the correct alignment location.

6. Re-check alignment measurements on both sides. Adjust if necessary, then tighten pivot nut on each side so that the axle can no longer move.

NOTE: Confirm the adjuster plate and alignment washer are flat against hanger before applying final torque.

7. Tighten pivot bolt on both sides with a 1”-drive impact wrench and E-20 Torx® socket (Ridewell tool #6100054) until the Torx head is sheared off.

8. Repeat measurements “A” and “B” to verify alignment is within tolerances. Redo alignment if necessary.

### Align the rear axle to the lead axle.

Check “C” and “D” axle alignment measurements to verify the difference does not exceed 1/16-inch tolerance (Fig 10).

Repeat Axle Alignment Procedure Steps 1-8, if necessary, to bring the rear axle into alignment with the lead axle.

**CAUTION** Failure to properly torque pivot hardware could result in suspension failure/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. 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.

All work under warranty must have prior written approval from the Ridewell warranty department. All warranty claim submissions must have the owner's name; the In-Service Date; the VIN and Ridewell serial number for each suspension submitted; and, clear photos of the failure as well as a description of the failure, for the submission to be considered.

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 nontransferable 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.**