RAR-254 Air Ride Single Point Suspension

Installation and Service Manual

Suspension Identification ........................................ 2
Suspension System/Axle Serial Tag

Installation .......................................................... 3
Prior to Installation
Suspension Mounting
Troubleshooting - HCV Installation

Maintenance ......................................................... 6
Recommended Service Intervals
Parts Illustration
  RAR-254 (Narrow Bushing) Suspension
  RAR-254 - (Narrow) Compensator/Trunnion Assembly
  RAR-254 - (Wide Bushing) Suspension
  RAR-254 - (Wide) Compensator/Trunnion Assembly
Bushiong Replacement Kit
Bushiong Replacement Procedure
Trunnion Center Bushing – Replacement Procedure

Appendix .............................................................. 14
Torque Specifications (Narrow Bushing)
Torque Specifications (Wide Bushing)
Axle Alignment

Warranty .............................................................. 16
**SUSPENSION IDENTIFICATION**

**Introduction**

The RAR-254 Single Point Suspension is available for on-highway and vocational applications. The suspension ships with an integrated 5” drum-brake axle.

Refer to the engineering drawing for detailed information on the suspension system components and operating parameters.

**Suspension Identification Tag**

A (606-) Installation/Assembly Number will be listed as the **Part Number** when other system components are factory installed with the suspension (Figure 1).

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

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

**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 (Figure 2).

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

More information on Ridewell-branded axles can be found in the “Trailer Axle Parts Guide” (9710029).

**Notes and Cautions**

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

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

The ISM uses two types of service notes to provide important safety guidelines, prevent equipment damage and make sure that the suspension system operates correctly. 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.

---

**Figure 1.**
The Suspension Model (Suspension Number) and date of manufacture (Serial Number) are listed on the Suspension Identification Tag.

**Figure 2.**
The Base-Axle Part Number (165-) and the Serial Number assigned to the axle tube are listed on the Axle-Body Serial Identification Tag.

---

**RIDEWELL SUSPENSIONS**
The Engineered Suspension Company

<table>
<thead>
<tr>
<th>MODEL:</th>
<th>PART NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL NO.</td>
<td>CAPACITY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART NO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUSP. NO:</td>
</tr>
<tr>
<td>SERIAL NO:</td>
</tr>
</tbody>
</table>

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
Prior to Installation
Refer to the engineering drawing to confirm dimensional requirements and the range of ride heights available.

Installations can vary and 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 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 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.

- It is the installer’s responsibility to determine that axle spacing conforms to any 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.

- The installer must verify there is sufficient clearance for proper functioning of the suspension, air springs, brake chambers, axle and tires.
Mounting the suspension to the frame

Refer to the engineering drawing for the range of available ride heights, torque values, spacing and clearance requirements of the suspension.

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

Main pivot fasteners are shipped with minimal torque applied. It is the installer's responsibility to properly torque fasteners after the axle(s) is aligned.

Installation Procedure

Before installation, check to make sure that wires, hoses or other components will not be affected by drilling into the frame rail. Check the location for necessary clearances.

Bolts/nuts for attaching the suspension to the vehicle are supplied by the installer. Grade 8 bolts and flanged locknuts or locknuts with hardened washers are recommended.

1. Bolt the trunnion hangers to the mounting brackets or trailer frame. Tighten bolts until hanger plate is resting on mounting bracket/trailer frame, but suspension location can still be adjusted. Do not apply final torque.

2. Align the trunnion tube with the kingpin. Trunnion alignment dimensions “T1” and “T2” shown on the illustration must be equal (Figure 3).

3. Tighten the trunnion hanger fasteners to specification. Check trunnion alignment and realign trunnion tube, if necessary.

4. Using 1/2”-drive breaker bar, rotate the front axle beam alignment plate in the opposite direction of desired axle movement. Make sure that the alignment plate and alignment washer have moved in unison. It is important that the pivot bushing is not skewed in the hanger prior to tightening.

5. Check that axle alignment dimensions “A” and “B” are equal to +/- 1/8”. Snug the four pivot fasteners and recheck alignment (Figure 3).

6. Repeat alignment process on rear axle, ensuring that rear axle alignment dimensions “C” and “D” are equal to +/- 1/16”.

7. Check dimension “E”, the lateral centerline relationship of the trailer body and axles. Dimension “E” must not exceed 1/4 of an inch.

8. Recheck the alignment of the front axle with the kingpin. Recheck alignment of the rear axle with the front axle.

9. After trunnion and axle alignments have been completed, torque the four pivot bolts using a 1” drive impact wrench and #6100054 E-20 Torx socket (or equivalent) until the Torx head shears off from the bolt.

   NOTE: Check shear-off. Remove any rough or jagged fragments so the round pivot bolt head is completely smooth.

10. Weld the trunnion hanger to the mounting bracket or trailer frame and frame member with a 5/16” fillet weld.

   NOTE: Welding the adjuster plates or the alignment washers to the hanger sidewalls is not required or recommended.

Install/connect the height control kits on the compensator/trunnion assembly. Check the air system tubing and fittings after installation for leaks (Page 5).

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

⚠️ CAUTION Welding method must use a minimum weld tensile strength of 70,000 psi, per AWS specifications.

Figure 3.
Measurements for trunnion and axle alignment.
Install the height control valves

The Ridewell Extreme Air® Height Control Kit (HCK) assembly drawing 6300AAA00 shows various configurations of the lever arm, height control valve (HCV) and vertical rod arm/linkage (Figure 4).

RAR-254 Single Point suspensions HCKs are configured by starting with kit 63xxBBAJ00 and replacing the two “X’s” with the height control and pressure protection valve configurations from the HCK assembly drawing. Be sure to check the air system after installation for leaks (Figure 5).

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

---

### Troubleshooting – Height Control Valve Installation

<table>
<thead>
<tr>
<th>Problem</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCV is not receiving air/ HCV is not delivering air to the air springs.</td>
<td>- Blocked air supply line.</td>
<td>- Verify air lines are pressurized by removing supply line at HCV. Check for pinched lines.</td>
</tr>
<tr>
<td></td>
<td>- Air tank is not filling/reaching set pressure.</td>
<td>- Verify air tank pressure with manual/in-line pressure gauge.</td>
</tr>
<tr>
<td></td>
<td>- Pressure Protection Valve (PPV) not working correctly.</td>
<td>- Check PPV operation by making sure that valve opens when system reaches the desired pressure setpoint (usually greater than 70 psi).</td>
</tr>
<tr>
<td></td>
<td>- Pilot port is not plumbed or is plumbed incorrectly.</td>
<td>- Check HCV configuration – Non-Dump; Pressure-Dump (Normally Open); Zero-Pressure Dump (Normally Closed). Reinstall, if necessary.</td>
</tr>
<tr>
<td>Air springs fill but do not exhaust.</td>
<td>- Obstructed air line.</td>
<td>- Disconnect linkage and rotate actuating lever to down position (exhaust). If springs remain inflated, check for pinched/blocked lines.</td>
</tr>
<tr>
<td></td>
<td>- HCV installed backwards.</td>
<td>- Check installation. Reinstall, if necessary.</td>
</tr>
<tr>
<td></td>
<td>- Supply line installed in suspension port</td>
<td>- Move air supply line to HCV supply port.</td>
</tr>
<tr>
<td>Air system leaks down in a short period of time.</td>
<td>- HCV installed backwards.</td>
<td>- Disconnect HCV linkage and rotate actuating lever to the up position (fill). If air springs do not inflate, reinstall HCV.</td>
</tr>
</tbody>
</table>
|                                              | - Leak in air system beyond accepted standards.   | - To find leak in the HCV area, pressurize system and spray soapy water solution onto the valve and lines. Check for bubbles (leaks):  
  No leak found – Do not remove valve, check the rest of the system for leaks.  
  Check that tubing cuts are straight and smooth. Re-cut and reassemble if necessary. |

---

Figure 4. HCK installation example

Figure 5. RAR-254 Air Ride Single Point plumbing installation
MAINTENANCE

A visual inspection of the suspension structure should be performed during each pre-trip/safety inspection. Ridewell Suspensions recommends the following minimum service intervals for standard duty, on-highway usage applications. More frequent intervals are recommended for heavier duty applications.

<table>
<thead>
<tr>
<th>Refer to the following Technology &amp; Maintenance Council (TMC) publications for additional maintenance information:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMC RP 609</td>
</tr>
<tr>
<td>TMC RP 618</td>
</tr>
<tr>
<td>TMC RP 619</td>
</tr>
<tr>
<td>TMC RP 622</td>
</tr>
<tr>
<td>TMC RP 631</td>
</tr>
<tr>
<td>TMC RP 643</td>
</tr>
<tr>
<td>TMC RP 728</td>
</tr>
</tbody>
</table>

### Daily/Pre-Trip Inspections

- Check tires for proper inflation, damage or excessive wear.
- Check wheel-ends for obvious signs of lubricant leakage. Check for missing components.
- Check axle assemblies for damage or 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 all suspension component bolts/nuts to specifications (Appendix/Engineering drawing).
- Verify suspension is operating at the installed ride height.

### Every 12,000 miles of use

- Inspect air springs for any damage or excessive wear. Torque air spring bolts/nuts to specifications (Appendix/Engineering drawing).
- Check air lines and connections for leaks.

### Every 50,000 miles of use

- Torque all suspension component bolts/nuts to specifications (Appendix/Engineering drawing).

### Annually/100,000 miles of use

- Inspect pivot connection for worn pivot bushing and wear washers. Replace components, if necessary. Torque suspension component bolts/nuts to specifications (Appendix/Engineering drawing).
- Check beam-to-axle connection welds.
- Check lubrication level in wheel ends:
  1) Oil-Filled Wheel Ends:
     Refill/Replace lubricant as needed (Refer to TMC RP 631 “100K/Annual Inspection”).
  2) Semi-Fluid Grease:
     Pull outer bearing and visually inspect lubrication level. Refill/Replace as needed (Refer to TMC RP 631 “Level 3 Lubrication Level Inspection” and TMC RP 618 “Wheel Bearing Adjustment Procedure”).
- Check air lines and connections for leaks.
- Test air control system pressure protection valve (PPV), if equipped.
- Check height control valve (HCV) adjustment.
- Verify that the suspension is operating at the installed ride height.

**CAUTION** Failure to torque the bolts/nuts of suspension components to specifications can result in failure of the suspension and voiding of the warranty.
Figure 6. RAR-254 Air Ride Single Point Suspension – Narrow Bushing
Refer to the engineering drawing for the component part number.

Figure 7. RAR-254 (Narrow) Compensator/Trunnion Assembly
Refer to the engineering drawing for the component part number.
Figure 8. RAR-254 Air Ride Single Point Suspension – Wide Bushing
Refer to the engineering drawing for the component part number

Figure 9. RAR-254 (Wide)
Compensator/Trunnion Assembly
Refer to the engineering drawing for the component part number
Disassemble suspension

Remove wheels and tires. Remove pivot hardware and alignment plate. Inspect the alignment plate and repair/replace, as needed. Discard pivot hardware (new hardware and wear washers are included in the bushing replacement kit).

Rotate axle beam pedestal assembly down and out of the trunnion assembly. Inspect the pivot boss for unusual wear or damage. Repair or replace components, as needed.

Narrow Bushing Removal (Tool 6100044)

1. Lubricate the threads of the hex nut-threaded rod assembly, the inside threads of the plunger, and the end cap bearing with grease.

2. Assemble the bushing replacement tool and place on the eye of the beam (Figure 10). NOTE: Cone is tapered inside to a smaller opening on one end.

   2.1 Place the end cap on the hex nut-threaded rod assembly. The end cap should be seated on the flange of the hex nut. Place the larger opening of the cone against the end cap.

   2.2 Insert the threaded rod through the bushing sleeve and center the tapered end of the cone on the beam eye.

   2.3 Thread the plunger onto the threaded rod. Rotate the plunger until the plate is seated snugly against the bushing.

3. Use a 3/4” drive impact wrench on the hex nut to rotate the rod and press bushing out of the beam eye into the cone. NOTE: A small amount of heat may be required to break the bond between the bushing and the beam eye. Do not overheat. Allow beam to cool before installing the new bushing.

4. Disassemble the bushing replacement tool. Remove old bushing from the cone and discard.

New Bushing Installation

1. Use a wire brush to clean any foreign debris and any corrosion out of the beam eye.

2. Liberally apply P80® lubricant or soap solution to the inside of the beam eye, the outside of the replacement bushing and the inside of the cone.

3. The cone is tapered inside to a smaller opening on one end. Insert the new bushing into the larger opening of the cone.

   Continued on next page
Narrow Bushing Replacement Procedure - continued

4. Assemble the bushing replacement tool and place on the eye of the beam (Figure 10).

4.1 Place the end cap on the hex nut-threaded rod assembly. The end cap should rest on the flange of the hex nut.

4.2 Insert the threaded rod/end cap assembly through the beam eye. Place the tapered end of the cone onto the threaded rod and center the cone on the beam eye.

4.3 Thread the plunger onto the threaded rod. Rotate the plunger until the plate is seated snugly against the bushing.

5. Use a 3/4” drive impact wrench on the hex nut to rotate the threaded rod and press bushing into the beam eye. NOTE: Hold the plunger with an open end wrench to prevent the cone from rotating.

6. Disassemble and remove the bushing replacement tool. Check the placement of the bushing to make sure it is centered in the beam eye.

Wide Bushing Replacement Procedure (Tool 6100051)

Disassemble suspension
Remove wheels and tires. Remove pivot hardware and alignment plate.

Inspect the alignment plate and repair/replace components, as needed.

Discard pivot hardware (new hardware and wear washers are included in the bushing replacement kit).

Rotate the axle beam pedestal assembly down and out of the trunnion assembly. Inspect the pivot boss for unusual wear or damage. Repair or replace components, as needed.

Bushing Removal
1. Using locator mark on old bushing as a reference, draw a line on the beam (Figure 12). The line is used to orient the new bushing during installation.

2. Lubricate threads of threaded rod assembly, inside the plunger, and the end cap bearing with grease.

Continued on next page
Wide Bushing Replacement Procedure - continued

3. Assemble the bushing replacement tool and place on the eye of the beam (Figure 11). NOTE: Cone is tapered inside to smaller opening on one end.
3.1 Place the end cap on the hex nut-threaded rod assembly. The end cap should be seated on the flange of the hex nut. Place the larger opening of the cone against the end cap.
3.2 Insert threaded rod through bushing sleeve and center tapered end on the beam eye.
3.3 Thread the plunger onto the threaded rod. Rotate the plunger until the plate is seated snugly against the bushing.

4. Use a 3/4” drive impact wrench on the hex nut to rotate the assembly and press the bushing out of the beam eye into the cone. NOTE: A small amount of heat may be needed to break the bond between bushing and beam eye. Do not overheat. Allow beam to cool before installing new bushing.

5. Disassemble the bushing replacement tool. Remove old bushing from the cone and discard.

New Bushing Installation
1. Use a wire brush to clean any foreign debris and any corrosion out of the beam eye.
2. Coat the inside of the beam eye, the outside of the bushing and the inside of the cone with S.G. Type “M” Rubber Assembly Oil. NOTE: Do not substitute (S.G. Type “M” Rubber Assembly Oil included in bushing replacement kit).

(Wide) Bushing Orientation

Draw Reference Line on Beam
Before Removing Bushing

Locator Mark on Bushing

3. The cone is tapered inside to a smaller opening on one end. Insert the new bushing into the larger end of the cone with the locator mark of the new bushing on the outside.
4. Assemble the bushing replacement tool and place on the eye of the beam (Figure 11).
4.1 Place the end cap on the hex nut-threaded rod assembly. The end cap should rest on the flange of the hex nut.
4.2 Insert the threaded rod/end cap assembly through the beam eye. Place the tapered end of the cone onto the threaded rod and center the cone on the beam eye. Line up locator mark on new bushing with line drawn on beam during bushing removal (Figure 11).
4.3 Thread the plunger onto the threaded rod. Rotate the plunger until the plate is seated snugly against the bushing.

5. Use a 3/4” drive impact wrench on the hex nut to rotate the threaded rod and press the bushing into the beam eye. NOTE: Hold plunger with an open end wrench to prevent the cone from rotating.
6. Disassemble and remove the bushing replacement tool. Check the placement of the bushing to make sure it is centered in the beam eye.

Reassemble suspension
Rotate arm beams into trunnion assembly. Install pivot connection hardware – alignment washers, adjuster plates, wear washers, shear-type pivot bolt, flat washer and flanged locknut.
NOTE: Do not lubricate pivot bolt/nut. Tighten flanged locknut until adjuster plate pin is engaged and hardware is snug against hanger. Do not apply final torque until axle alignment has been checked.
Install shock absorbers. Connect height control valve linkage (if disconnected) and inflate air springs.
Install wheels and tires (if removed). Raise vehicle and remove support stands. Lower vehicle to ground.
Check axle alignment and realign (Appendix).
Tighten pivot bolt with a 1” drive impact wrench and E-20 Torx® socket (Ridewell tool 6100054) until the Torx head is sheared off.

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

Figure 12.
The locator mark on the bushing provides the correct bushing orientation during installation.
Trunnion Center Bushing – Replacement Procedure

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. Exhaust all the air from the air system before disassembling the suspension. Failure to properly chock wheels and exhaust the air system could allow vehicle movement that could result in serious injury.

The front and rear axle beam pedestal assemblies must be removed from the suspension before the compensator assembly can be removed from the trunnion hanger/shaft assembly (Fig. 13).

1. Disconnect and remove the air springs. Remove the shock absorber assemblies.

2. Disconnect and remove the height control valve. Loosen clamp on P-Connector and remove HCV and linkage. NOTE: Do not loosen or remove the axle band clamp.

3. Remove pivot bolts and lower the beam assembly from the compensator/trunnion assembly. Do not reuse shear-type pivot bolts.

4. Grind off the weld on the locking plate over the trunnion shaft bolt. Remove the locking plate, dowel pin, trunnion shaft bolt, end cap and thrust washer (Fig. 14-15). NOTE: Dowel pin required for reassembly.

5. Support compensator/trunnion assembly by wrapping chains around the assembly as close to the trunnion shaft as possible. Place a portable hydraulic power unit between the end of the trunnion hanger shaft and the chains wrapped around the compensator assembly. NOTE: Portable power unit should not press against internal threaded area of trunnion shaft.

6. Remove compensator/trunnion assembly from the trunnion hanger/shaft assembly. Press the center bushing out of the trunnion assembly.

7. Lubricate the trunnion assembly opening with silicon spray. Do not use solvent-based lubricants. Place new bushing so that the end number (RW60000-narrow; 1120048-wide) faces the center of the trailer. Press bushing into place, making sure it is centered in trunnion opening.

Figure 13. Axle beam pedestal assembly removal

Continued on next page
8. Manually dress the outside of the shaft of the trunnion hanger/shaft assembly with emery cloth. Lubricate the outside of the shaft and inside the center bushing with silicon spray.

9. Place thrust washer on trunnion hanger/shaft assembly. Install the trunnion assembly.

10. Install thrust washer, end cap, dowel pin and trunnion shaft bolt on installed trunnion assembly. Torque the shaft bolt to 500 ft-lb.

11. Place locking plate on the shaft bolt head to cover the dowel pin and weld in place.

Reassemble suspension.
Install axle beam assemblies with one wear washer on each side of pivot bushing. Torque pivot bolt to specifications (see chart).
Install and reconnect the height control valve and linkage assemblies.
Install air springs. Install shock absorber assemblies. NOTE: Check the air system tubing and fittings after installation for leaks.
Replace wheels and tires. Remove jack stands and lower suspension to ground. Check installed ride height; adjust if necessary.
### RAR-254 Single Point (Narrow) - Torque Specifications

<table>
<thead>
<tr>
<th>Fastener Type</th>
<th>Size</th>
<th>Torque Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pivot Bolt (Shear-Type)</td>
<td>7/8”- 9NC</td>
<td>Use a 1” drive impact wrench to tighten pivot bolt until Torx head is sheared off.</td>
</tr>
<tr>
<td>Pivot Nut (LockNut)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Bolt/Nut</td>
<td>3/4”- 10NC</td>
<td>200-230 ft-lb</td>
</tr>
<tr>
<td>Air Spring Nut, Upper</td>
<td>3/4”- 16NF</td>
<td>45-50 ft-lb</td>
</tr>
<tr>
<td>Air Spring Nut, Lower</td>
<td>1/2”- 13NC</td>
<td>45-50 ft-lb</td>
</tr>
<tr>
<td>Trunnion Bushing Bolt</td>
<td>1 1/8”- 12NC</td>
<td>500 ft-lb</td>
</tr>
</tbody>
</table>

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

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. It is the installer’s responsibility to apply the proper torque values. All fasteners MUST be re-torqued after the first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and voiding of the warranty. Refer to the engineering drawing for torque specifications.

### RAR-254 Single Point (Wide) - Torque Specifications

<table>
<thead>
<tr>
<th>Fastener Type</th>
<th>Size</th>
<th>Torque Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pivot Bolt (Shear-Type)</td>
<td>7/8”- 9NC</td>
<td>Use a 1” drive impact wrench to tighten pivot bolt until Torx head is sheared off.</td>
</tr>
<tr>
<td>Pivot Nut (LockNut)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock Bolt/Nut</td>
<td>3/4”- 10NC</td>
<td>200-230 ft-lb</td>
</tr>
<tr>
<td>Air Spring Bolt/Nut, Upper</td>
<td>3/8”- 16NF</td>
<td>20-25 ft-lb</td>
</tr>
<tr>
<td>Trunnion Bushing Bolt</td>
<td>1 1/8”- 12NC</td>
<td>500 ft-lb</td>
</tr>
</tbody>
</table>

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

**CAUTION** Suspension is shipped with minimal torque applied to fasteners. It is the installer’s responsibility to apply the proper torque values. All fasteners MUST be re-torqued after the first 6,000 miles of operation. Failure to install and maintain fasteners at torque specifications could result in suspension failure and voiding of the warranty. Refer to the engineering drawing for torque specifications.
Axle Alignment

Alignment should be performed on a level surface with the suspension at the desired ride height. Front axle alignment shall be in accordance with SAE or TMC recommended standards.

1. Loosen pivot nut (Figure 16).
2. Using 1/2” drive breaker bar, rotate front axle beam alignment plate opposite the direction of desired axle movement. It is important that the pivot bushing is not skewed in the hanger prior to tightening.
3. Measure from the kingpin center point (Figure 17). Check that dimension “A” and “B” are equal within +/- 1/8”. Snug pivot fasteners and recheck alignment.
4. Repeat alignment process on rear axle ensuring that “C” and “D” dimensions are equal within +/- 1/16”.
5. Check dimension “E”, the lateral centerline relationship of the trailer body and axles. Dimension “E” must not exceed 1/4 of an inch.
6. Recheck the alignment of the front axle with the kingpin. Check alignment of the rear axle with the front axle.
7. Torque all four pivot bolts using a 1” drive impact wrench and #6100054 E-20 Torx socket (or equivalent) until the Torx head shears off from the bolt. Welding of the alignment plates/washers to the hanger sidewalls is not required or recommended.

Figure 16. Trunnion and pivot connections hardware (254-wide bushing version shown)

Figure 17. Kingpin measurements for single point suspension trunnion and axle alignment.
**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.