

## RAR-254 Air Ride Single Point Suspension – Bushing Replacement Kits

Suspension Type	Bushing REPL Kit	Bushing Install Tool	Pivot Hardware	Torque Specification	
				foot-pound	Newton-meter
2540001; 2540003 Narrow Bushing	6040128	6100044	Shear-Type	Do not lubricate bolt/nut threads. Use a 1" drive impact wrench to tighten pivot bolt until Torx® head is sheared off.	
2540004 Wide Bushing	6040098	6100051	Shear-Type		

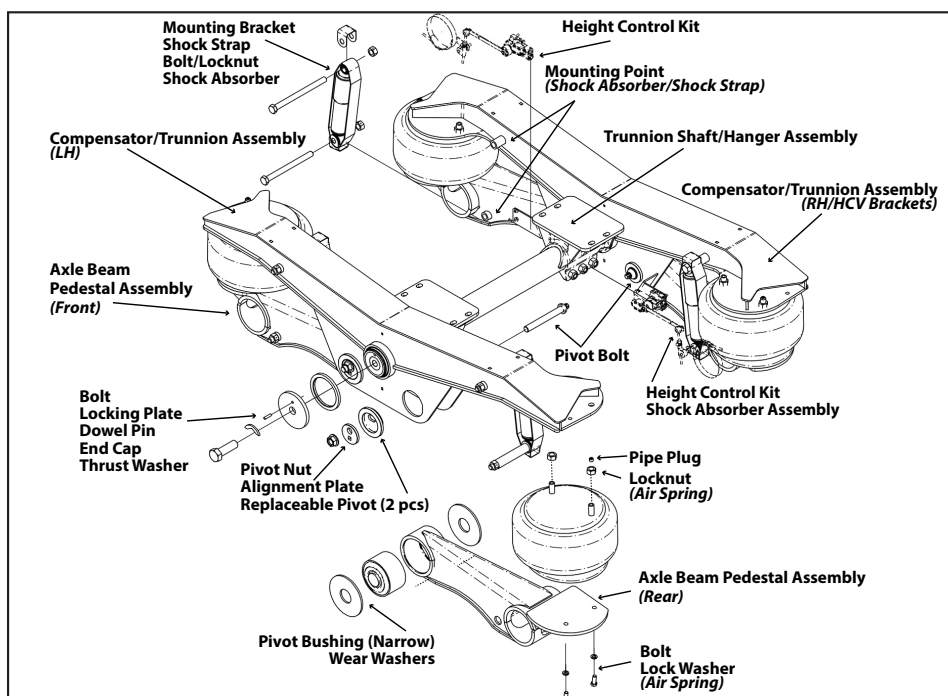
**CAUTION** Failure to install and maintain suspension component fasteners at torque specifications could result in suspension failure and void the warranty. Refer to the engineering drawing for torque values.

### Notes and Cautions

The tool instructions uses two types of service notes, 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.**  
**RAR-254 Single Point Suspension – Narrow Bushing (shown)**

### Prepare the Vehicle

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

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

### Disassemble suspension

Remove wheels and tires. Remove pivot hardware and alignment plate (Figure 1). 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.



*Continued on next page*

## 2540001/2540003 (Narrow) Bushing - Bushing Replacement Tool #6100044 Procedure

### Bushing Removal

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 2).  
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 threaded rod and press the bushing out of the beam eye into the cone.  
NOTE: A small amount of heat applied to the beam 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 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.

4. Assemble the bushing replacement tool and place on the eye of the beam (Figure 2).
  - 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 the 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.

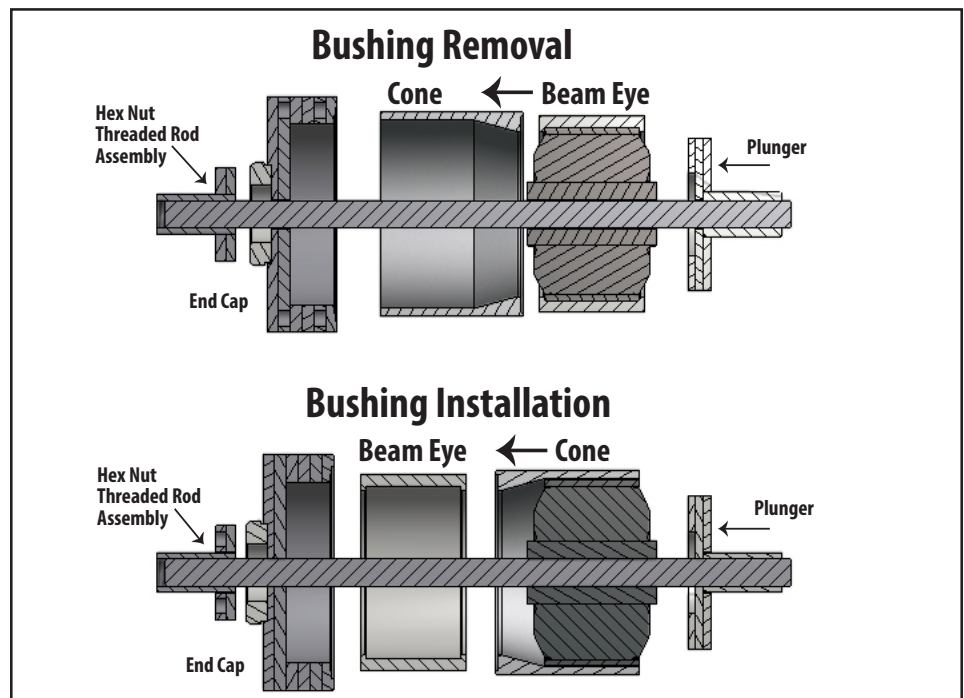
### Reassemble suspension

Rotate beam assembly into trunnion assembly. Install pivot connection hardware – alignment washers, adjuster plates, wear washers, shear-type pivot bolt, flat washer and flanged lock nut. NOTE: Do not lubricate pivot bolt/nut. Tighten flanged lock nut until adjuster plate pin is engaged and hardware is snug against hanger. Do not apply final torque until axle alignment has been checked (Page 4).

Connect air system (if disconnected). Install wheels and tires (if removed). Inflate air springs. Raise vehicle and remove support stands. Lower vehicle to ground.

Check axle alignment and realign. 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 properly torque pivot hardware can result in suspension failure and void warranty.

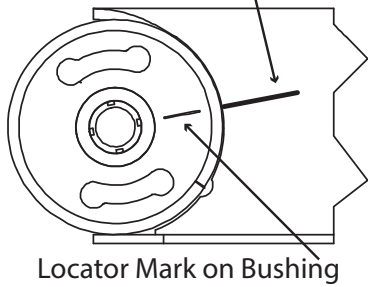


**Figure 2. Bushing Tool 6100044 is for RAR-254 with narrow bushing. The tapered cone allows the rubber bushing to expand during removal and compresses the bushing for installation into the beam eye.**

## 2540004 (Wide) Bushing - Bushing Replacement Tool #6100051 Procedure

### (Wide) Bushing Orientation

Draw Reference Line on Beam Before Removing Bushing



**Figure 3.**  
The locator mark on the bushing provides the correct bushing orientation during installation.

### Bushing Removal

1. Using locator mark on old bushing as a reference, draw a line on the beam (Figure 3). The line will be 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.
3. Assemble the bushing replacement tool and place on the eye of the beam (Figure 4).  
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).
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 4).
  - 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 before bushing removal (Figure 3).
  - 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.

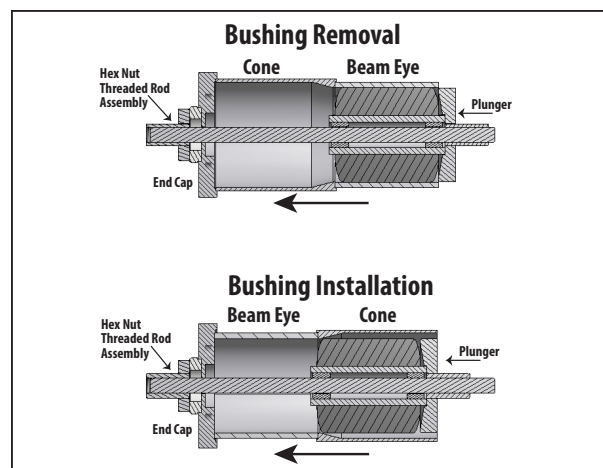
### Reassemble suspension

Rotate beam assembly into trunnion assembly. Install pivot connection hardware – alignment washers, adjuster plates, wear washers, shear-type pivot bolt, flat washer and flanged lock nut. NOTE: Do not lubricate pivot bolt/nut. Tighten flanged lock nut until adjuster plate pin is engaged and hardware is snug against hanger. Do not apply final torque until axle alignment has been checked (Page 4).

Connect air system (if disconnected). Install wheels and tires (if removed). Inflate air springs. Raise vehicle and remove support stands. Lower vehicle to ground.

Check axle alignment and realign. 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 properly torque pivot hardware can result in suspension failure and void warranty.



**Figure 4.**  
Bushing Replacement Tool #6100051 is for RAR-254 suspensions that use a wide (6 3/4") pivot bushing.

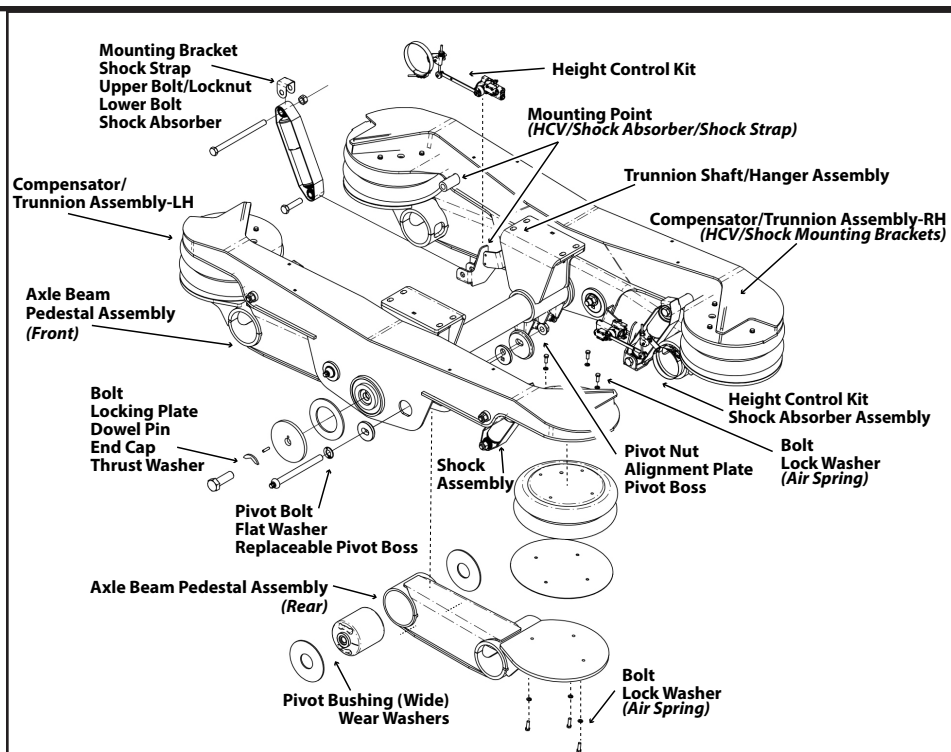


## RAR-254 Axle Alignment

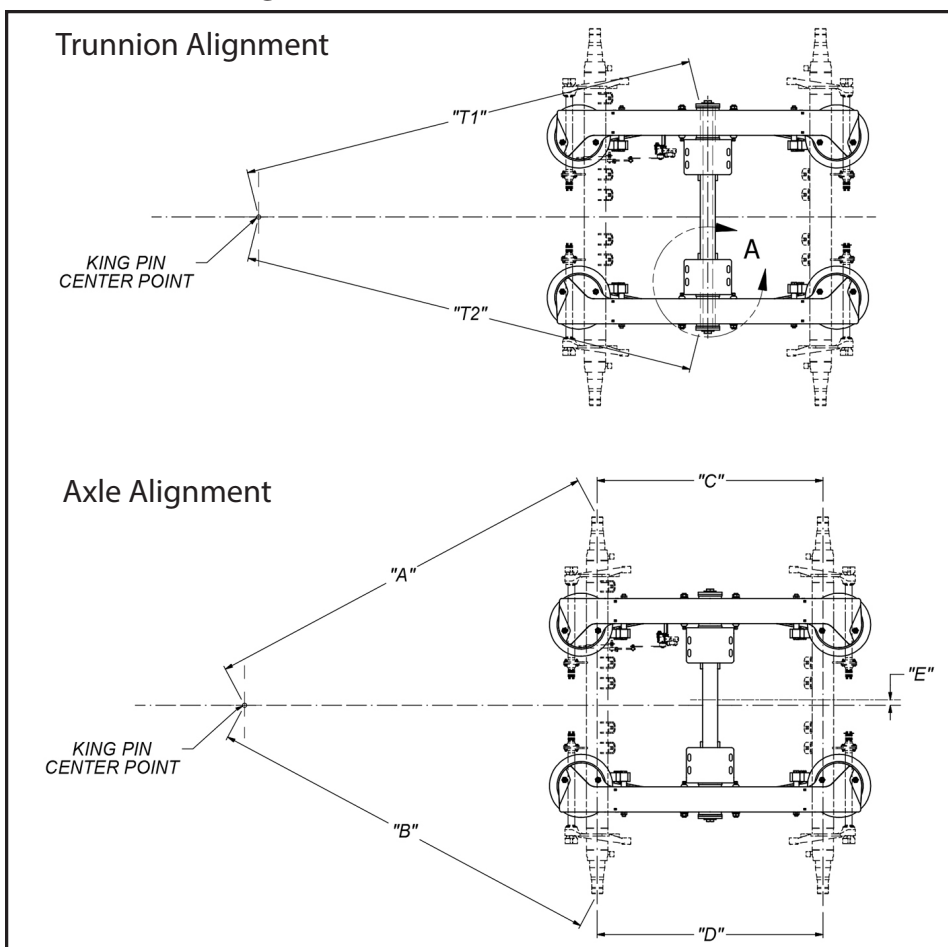
Alignment should be performed on a level surface with the suspension at the desired ride height.

Front axle alignment shall be in accordance with SAE or TMC recommended standards.

1. Loosen pivot nut (Figure 5).
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 6). 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 5. Trunnion and pivot connections hardware (254 (wide) bushing version shown)**



**Figure 6. Kingpin measurements for air ride single point suspension trunnion and axle alignment.**