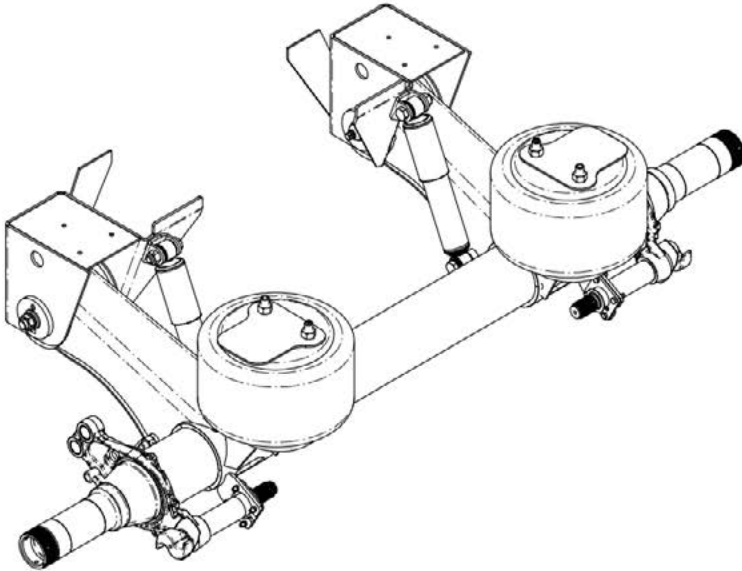


RAR-266

Large Diameter Axle (LDA) – Air-Ride Suspension



Installation and Service Manual


Suspension/Axle ID Tag

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 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

A (606-) Installation Number is the listed Part Number when other system components are factory installed.

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

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

 RIDEWELL SUSPENSIONS			
MODEL:		PART NO.	
SERIAL NO.		CAPACITY	TON

Axle-Body Identification Tag

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

The (165xxxx) Base-Axle Number refers to Ridewell-branded round axles manufactured in various wall thicknesses and axle track widths.

Notes and Cautions

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

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

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

“NOTE”: Provides additional instructions and-or procedures to complete tasks and make sure system 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 system component details; the available ride heights; dimensional requirements; and, the suspension operating parameters.

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. Consult with tire, wheel, axle and brake manufacturers before installation to determine GAWR.
- If vehicle chassis modifications are required, consult with the vehicle manufacturer to verify such changes are permitted.
- Welding or altering of the suspension components is not permitted without the express written permission of Ridewell Suspensions.

Installer Responsibilities

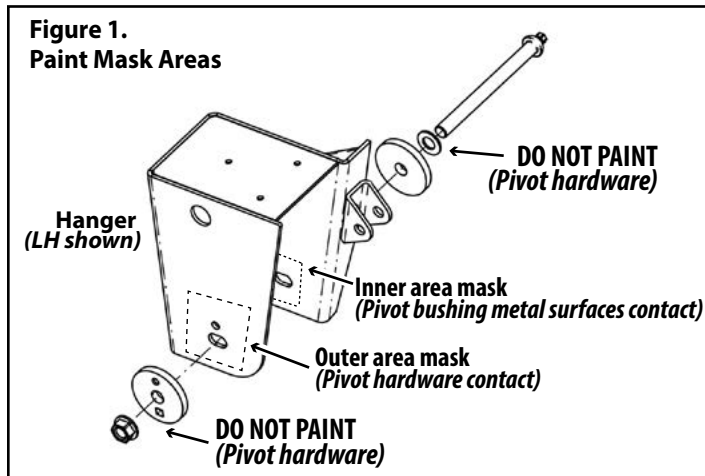
The installer of the suspension system has sole responsibility for proper attachment to the vehicle chassis.

- The installer is responsible for locating the suspension system components on the vehicle to provide proper load distribution.
- The installer must verify that the vehicle crossmembers are positioned to support the suspension system at the installing location.
- It is the installer’s responsibility to determine that the vehicle axle spacing conforms to applicable federal and local bridge laws.
- The installer must verify that the air reservoir volume requirements are met after 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.

Refer to the engineering drawing for available ride heights; the recommended locations of customer-furnished filler plates/supporting crossmembers; the torque values; and, the spacing and clearance requirements of suspension components.

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

NOTE: Areas where metal surfaces of alignment plates; washers; pivot bolts/nuts or pivot bushing (bushing sleeve) contact the frame hanger must be masked if applying under- or top coating prior to suspension assembly (Figure 1).



Weld-On Installation Procedure

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

1. Mark the desired location of the hangers and filler plates on the vehicle frame. The hangers must be installed parallel to each other for proper axle alignment.
2. Mark the desired location of the air spring mounting plates and filler plates on the frame.
3. Install any filler plates for the hangers and air spring mounting plates onto the frame. Weld filler plates to the crossmembers with $\frac{1}{4}$ " fillet welds down the length of the crossmember.
4. Weld the hangers to the frame/filler plates with $\frac{1}{4}$ " fillet welds completely around the hangers. Stop the welds $\frac{1}{2}$ " from the corners and edges.
 - 4.1. If the frame hangers are configured with wing gussets, the wing gussets must be welded to a crossmember or other supporting structure.
 - 4.2. A length of $1\frac{1}{2}$ "-diameter pipe can be placed through the holes in the two hangers to help with stabilization and alignment.
5. Weld the air spring mounting plates to the frame/filler plates with $\frac{3}{16}$ " fillet welds.
6. Attach a crossmember or diagonal brace to the front of the hangers with $\frac{1}{4}$ " fillet welds.

Bolt-On Installation

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

- Bolts/nuts for attaching the suspension system to the vehicle are supplied by the installer. Grade 8 bolts and flanged lock nuts or locknuts with hardened washers are recommended.
- Bolt-holes are not provided in the air spring mounting plates. Clamp the mounting plates and filler plates (if necessary) in place before drilling.

Final Assembly and Inspection

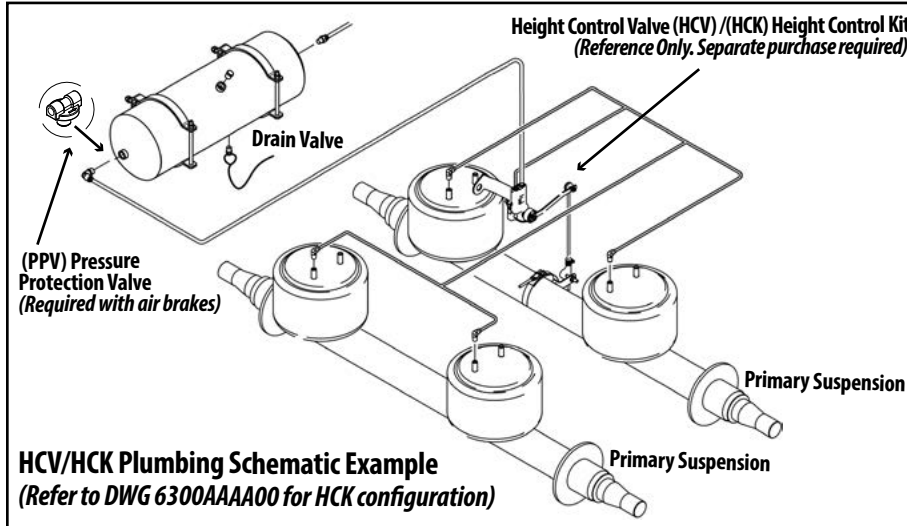
- Verify the hangers and air spring mounting plates welds.
 - Check the installed location for sufficient clearances of suspension components.
 - Attach beam and axle assemblies to hangers.
NOTE: Do not fully torque pivot hardware until axle alignment is completed (Page 15).
CAUTION Do not apply undercoating; paint or other top coat to suspension; frame hangers; or pivot connection hardware until axle alignment procedure is completed.
 - Complete assembly and installation of air springs as shown on the engineering drawing. Torque to specifications (pg 9; 13; ENG DWG).
 - Install/connect height control valve (HCV) if applicable. Check the air system tubing and fittings after installation for leaks (Page 4).
 - Verify suspension ride height is adjusted within range shown on engineering drawing. Complete axle alignment procedure (Page 15).
 - Install shock absorbers.
NOTE: Take care that paint overspray does not get under the shock absorber dust covers if the suspension is painted after shocks are installed, .
- CAUTION** Failure to torque suspension components to specifications can result in suspension failure/void the warranty.

Height Control Kit maintains vehicle ride height

The Ridewell Extreme Air Height Control Kit (HCK) adds pressure to/ exhausts air from the air springs to maintain the vehicle ride height.

A height control kit consists of a horizontal lever arm connected to the height control valve (HCV); with a rod arm (vertical link) connected to the lever and the lower HCK mounting bracket.

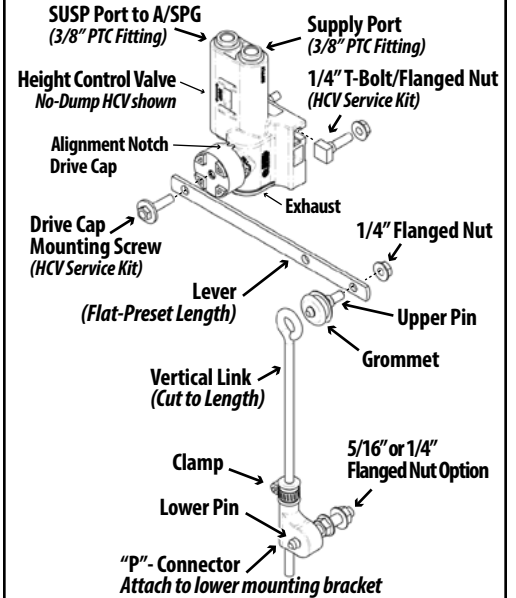
CAUTION The installer is responsible for ensuring vehicle's air system requirements comply with all Federal Motor Vehicle Safety Standards.



Scan or click QR-Code
HCK Installation Guide
(P/N 9710008)

630- Height Control Kit Example

(6255004 - HCV Service Kit; No mounting brackets shown)



HCV/HEIGHT CONTROL KIT – TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
HCV is not receiving air. HCV is not delivering air to the air springs.	<ul style="list-style-type: none"> Blocked air supply line. Air tank not filling or reaching set pressure. Pressure Protection Valve (PPV) is not working correctly. Pilot port is not plumbed or the port is plumbed incorrectly. 	<ul style="list-style-type: none"> Verify air lines are pressurized by removing supply line at HCV. Check for pinched lines. Verify tank pressure with manual/in-line pressure gauge. Confirm PPV opens when system reaches desired pressure setpoint (<i>usually greater than 70 psi</i>). Check HCV configuration and reinstall if necessary – Non-Dump; Pressure-Dump (Normally Open); Zero-Pressure Dump (Normally Closed).
Air springs fill but do not exhaust.	<ul style="list-style-type: none"> Obstructed air line. HCV installed backwards. The height control valve supply line is connected to the suspension port 	<ul style="list-style-type: none"> Disconnect linkage. Rotate lever to down position (exhaust). Check for pinched/blocked lines. If springs remain inflated, . Check installation. Reinstall if necessary. Move air supply line to HCV supply port.
Air system leaks down in a short period of time.	<ul style="list-style-type: none"> The HCV is installed backwards. Leak in air system beyond accepted standards. 	<ul style="list-style-type: none"> Disconnect linkage to the height control valve. Turn lever to the up position (fill). Reinstall HCV if air springs do not inflate. Check entire air system for leaks. To find leak in the HCV area, pressurize system and spray soapy water solution onto the valve and lines. Check for bubbles (leaks): <ul style="list-style-type: none"> No leak found – Do not remove valve, check rest of system for leaks. Check that tubing cuts are straight and smooth. Re-cut and reassemble if necessary.

Recommended Service Intervals

Ridewell Suspensions recommends the following 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 or loose components.
- ___ Visually inspect suspension structure for any 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 suspension components to specifications (pg 9;13 or Engineering Drawing).
NOTE: Do not re-torque shear-type pivot bolt.
- ___ Verify suspension is operating at installed ride height.

Every 12,000 miles of use

- ___ Inspect air springs for damage/excessive wear. Torque air spring bolts/nuts to specifications (pg 9;13 or Engineering Drawing).
- ___ Check air lines and connections for leaks.

Refer to these Technology & Maintenance Council (TMC) publications for additional information

- RP 609 Self-Adjusting/Manual Brake Adjuster Removal, Installation and 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 Wheel End Lubrication Recommendations
- RP 643 Air Ride Suspension Maintenance
- RP 728 Trailer Axle Maintenance

Every 50,000 miles of use

- ___ Torque suspension components to specifications (pg 9;13 or Engineering Drawing).
NOTE: Do not re-torque shear-type pivot bolt.

Annually/100,000 miles of use

- ___ Inspect pivot connection for worn pivot bushing and wear washers. Replace if necessary.
- ___ Torque component bolts/nuts to specifications (pg 9;13 or Engineering Drawing).
- ___ Check arm beam-to-axle connection welds.

Check lubrication level in wheel ends:

- ___ 1) Oil-Filled Wheel Ends:
Refill/Replace lubricant as needed (TMC RP 631-“100K/Annual Inspection”).
- ___ 2) Semi-Fluid Grease:
Pull outer bearing and visually inspect the lubrication level. Refill/Replace as needed (TMC RP 631-“Level 3 - Lubrication Level Inspection”) (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 suspension is operating at installed ride height.

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



Scan/double-click QR-Code or visit online support page at www.ridewellcorp.com

Pivot Bushing Inspection Procedure

Park the unloaded trailer on a level surface. Set the parking brake and chock the tires so that the 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 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 damage to wear washers is observed, drop the beams for further inspection. Replace components as necessary.

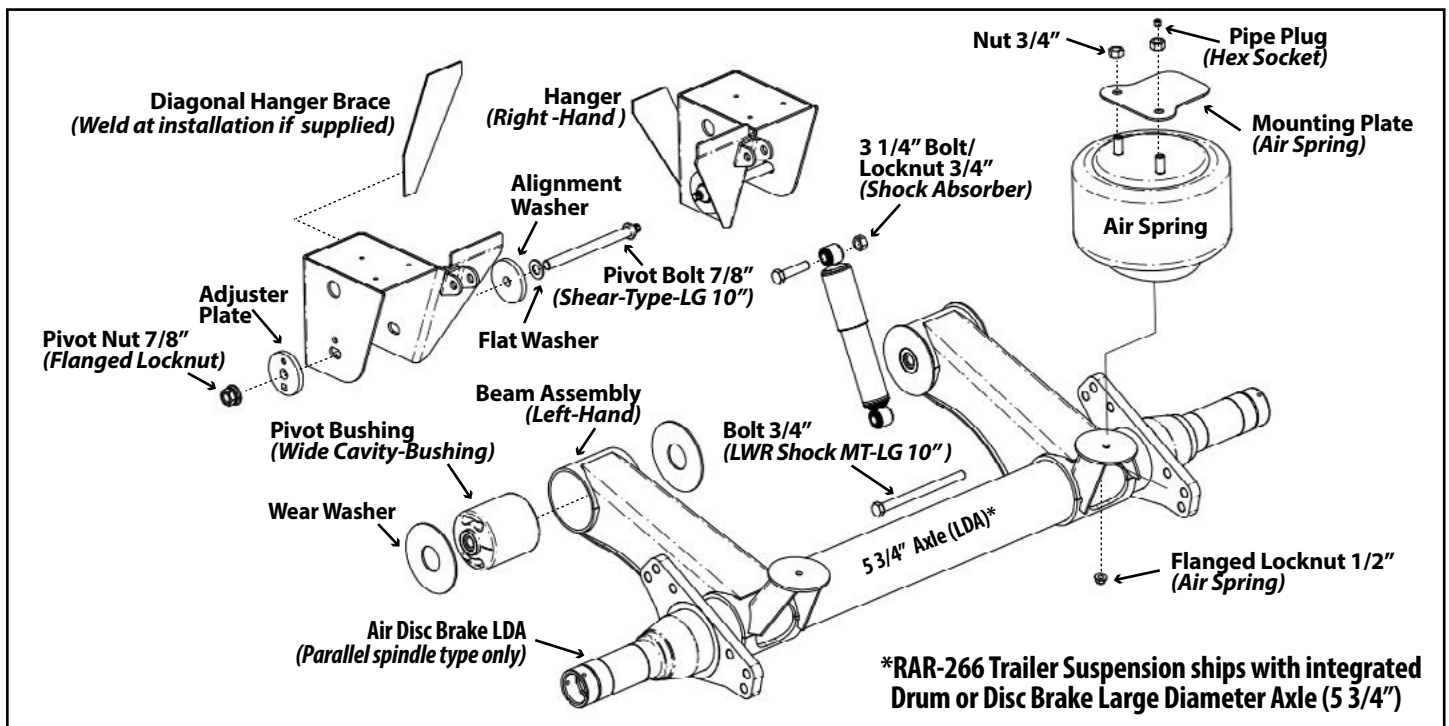


Figure 2.
23K-Overslung wide bushing suspension
 Disc brake LDA with parallel spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

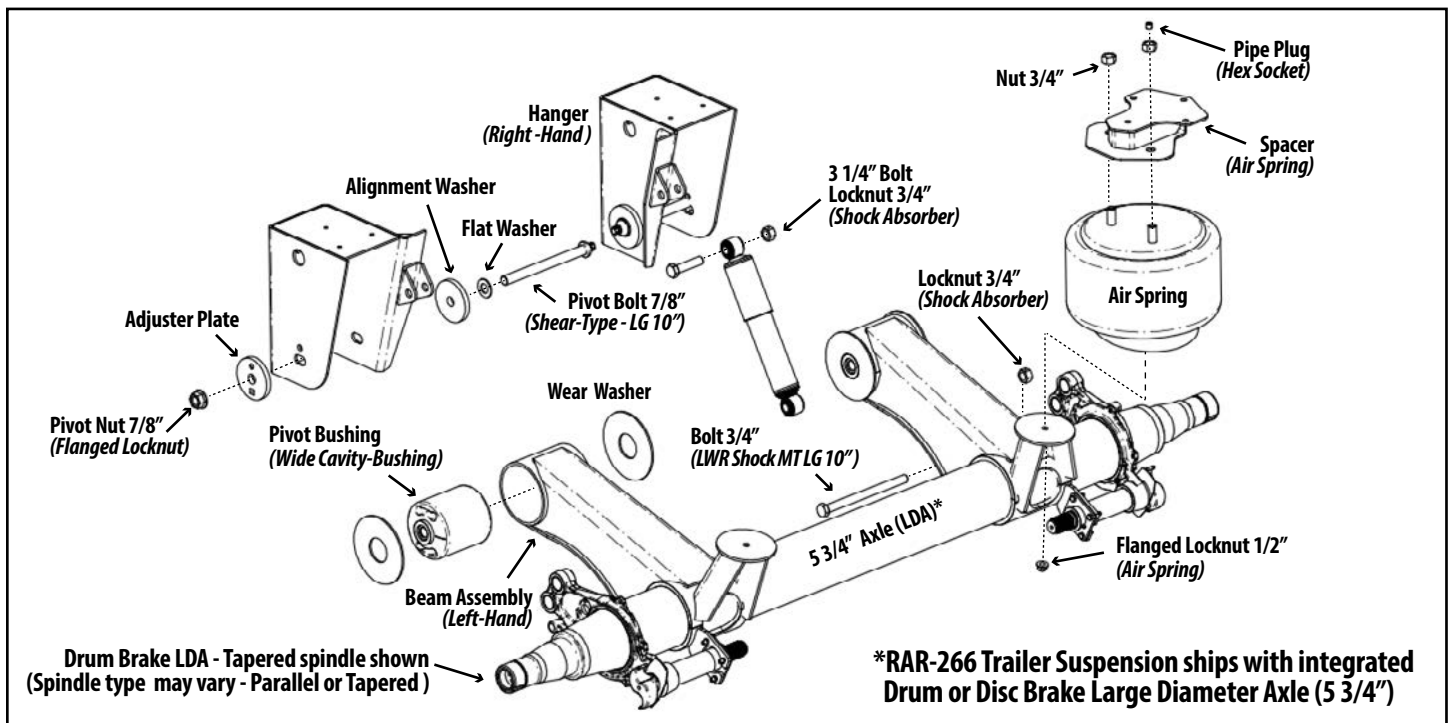


Figure 3.
25K-Overslung (Air Spring Spacer) wide bushing suspension.
 Drum brake LDA with tapered spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

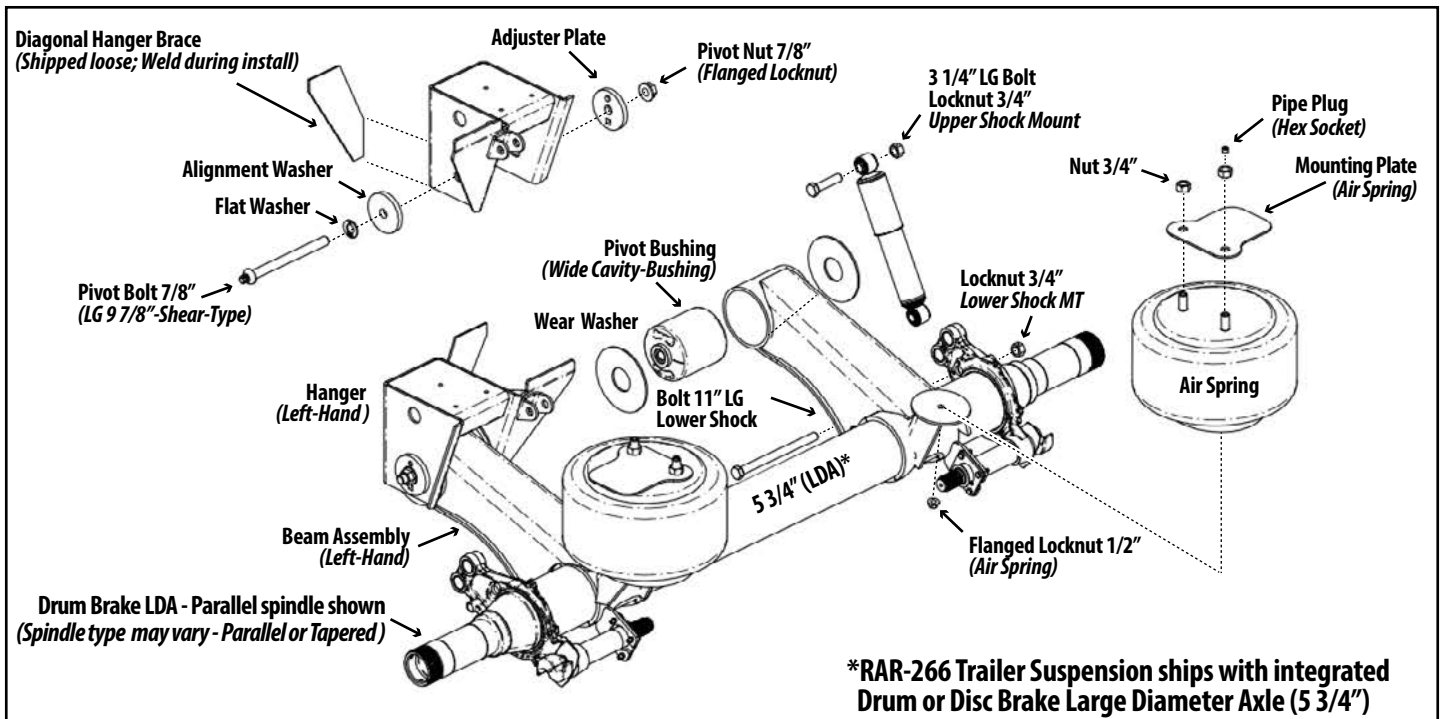


Figure 4.

30K-Overslung wide bushing suspension.

Drum brake LDA with parallel spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

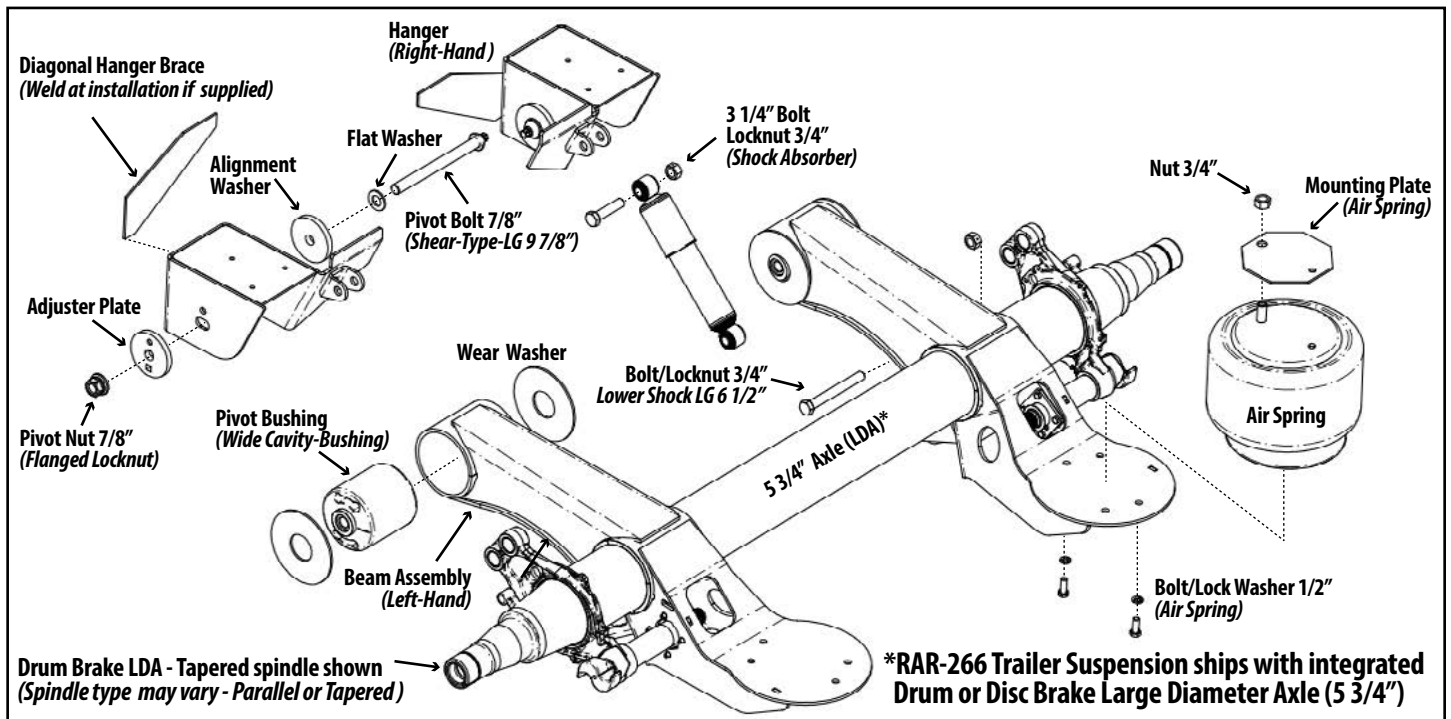


Figure 5.

25K-Underslung (Low Mount) wide cavity bushing suspension.

Drum brake LDA with tapered spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

Wide-Cavity Bushing Replacement – 266-23K/25K/30K Overslung; 266-25K Underslung (Low Mount)

Part Number	Item Description	Size	Torque Values (foot-pound Newton-meter)	
6040098 - Bushing Kit BUSH Tool #6100051	Pivot Bolt/Nut - (Shear-Type Bolt/Locknut) Requires E-20 Torx® socket (RW #6100054)	7/8"-9NC	Do not lubricate bolt/nut threads. Use 1"-drive impact wrench to tighten until Torx® head shears.	
Fasteners	Locknut – Upper Air Spring	3/4"-16NF	45-50 ft-lb	61-68 N-m
	Locknut – Lower Air Spring (23K/25K/30K OSW)	1/2"-13NC	45-50 ft-lb	61-68 N-m
	Lock Washer – Lower A/SPG (25K Low-Mount)	1/2"-13NC	20-25 ft-lb	27-34 N-m
	Locknut – Shock Absorber	3/4"-10NC	200-230 ft-lb	271-312 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 the wheels to keep vehicle from moving.

Raise the 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 the 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 the suspension

Remove wheels and tires if necessary. Remove shock absorbers.

Take the pivot connection(s) apart. Discard the pivot bolt, flat washer and pivot nut. Inspect adjuster plate and alignment washer for wear/damage. Replace if necessary.

CAUTION Do not reuse pivot hardware.

Rotate beam(s) out of the hangers. Inspect the pivot-bolt holes and hanger surfaces for unusual wear/damage. Repair or replace the suspension components as needed.

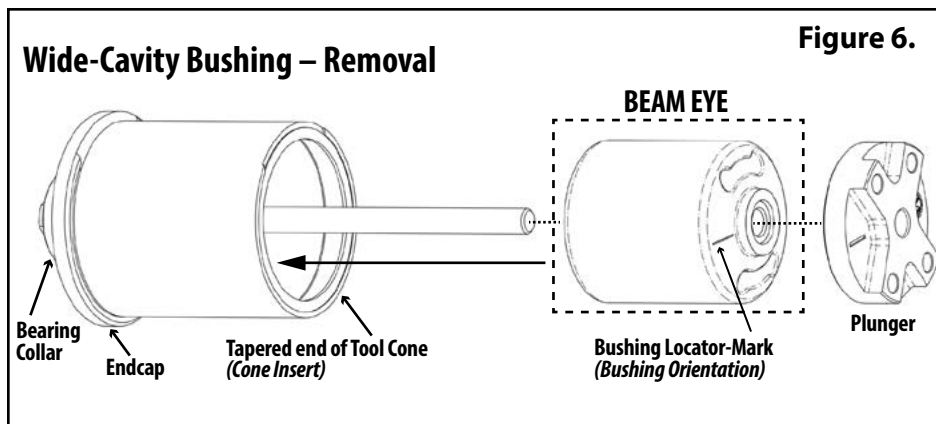
Tool assembly for removal

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

Lubricate Hex-Head Cap Screw (HHCS) and Thrust Bearing threads with supplied Pressure Lubricant (P/N 1980014)

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

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



Bushing Removal

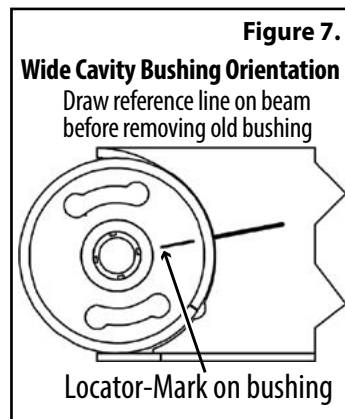
Draw/scribe a line on the beam using the raised locator mark on the installed bushing as reference (Figure 7).

Insert HHCS-end through the bushing sleeve into the center opening of plunger. Center the tool cone on the beam eye. Tighten the HHCS until the plunger is firmly held against the bushing.

Use a 1 5/16" socket on a 3/4"-drive impact wrench (1"-drive wrench recommended) to rotate the screw and pull the old bushing out of the beam eye into the cone.

NOTE: In some cases, a small amount of heat may be required to break the bond between the bushing and the beam eye. Do not overheat. Allow the beam and beam eye to cool before installing bushing.

Disassemble the bushing tool. Remove bushing from the tool cone and discard.



Continued on next page

Tool assembly for installation

Insert smooth end of Socket Head Cap Screw(s) into holes on the end of tool plunger. Tighten SHCS until socket head(s) is flush with the plunger edge. NOTE: Smooth end(s) should extend beyond inside edge of plunger.

Thread the flat washer, bearing collar and endcap onto the HHCS until the bearing collar and endcap rest against the washer on the HHCS head (Figure 8).

Bushing Installation

Use a wire brush to clean foreign debris/corrosion out of the beam eye.

Coat the inside of the beam eye, the outside of new bushing, and the inside of tool cone with S.G. Type "M" Rubber Oil (P/N 1980008).

NOTE: Do not substitute. Special lubricant included in all bushing replacement kits.

Insert a new bushing into the large end of tool cone. Confirm the locator-mark on the end of bushing is visible.

Line up the bushing alignment mark on the plunger with the bushing locator-mark. Insert the four screws into the bushing cavity holes. Press the plunger firmly against the end of the bushing inside the tool cone.

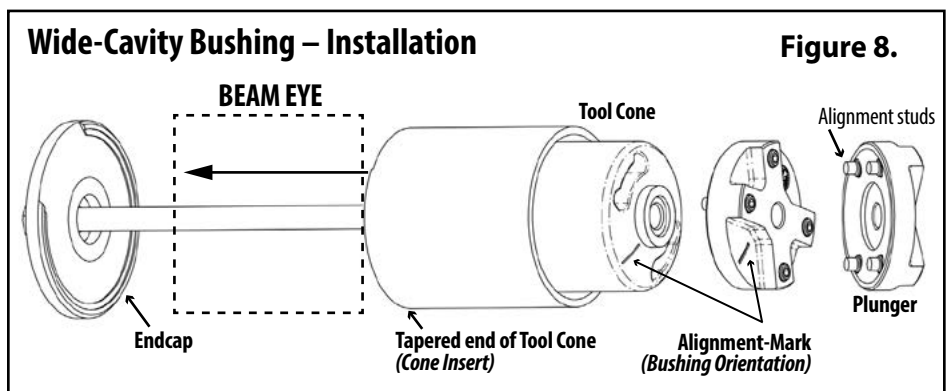
NOTE: SHCS threads should not touch the bushing (Fig 8).

Align plunger's bushing locator-mark with the line marked on the beam. Place the plunger/cone/bushing assembly onto the beam eye.

Insert the hex-head cap screw through the beam eye into the center hole of plunger. Rotate the screw until endcap rests against the beam.

Verify the cone is centered on the beam eye. Use a 1 5/16" socket and 3/4"-drive impact wrench (1"-drive wrench is recommended) to rotate the hex-head cap screw and press the new bushing into the beam eye.

Disassemble and remove bushing tool. Check placement to



ensure bushing is centered in beam. Verify the new bushing locator-mark is aligned with the marked line on the beam. Reinstall bushing if necessary.

Reassemble the suspension

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

NOTE: Do not lubricate pivot bolt/nut. Tighten pivot nut until the adjuster plate pin is engaged and pivot connection is snug against the hanger.

Do not apply final torque until the axle alignment has been checked (Page 15).

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

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

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

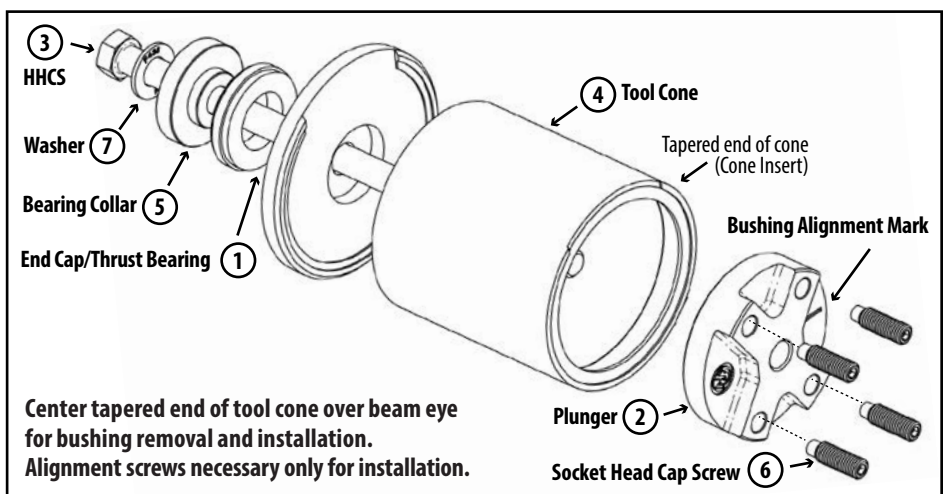
Tighten pivot bolt with a 1"-drive impact wrench and E-20 Torx® socket (P/N 6100054) until Torx head is sheared off.

Install shock absorbers.

CAUTION Failure to torque hardware to specifications can result in suspension failure/void the warranty.

6100051–Wide Cavity Bushing Tool Use with 6 3/4" wide-cavity rubber bushing

No.	Part No.	Item Description
1	6100088	(DWG) END CAP BUSH TOOL ASY
	6100086	END CAP,BUSH TOOL 260 MCH'D
	1660009	BRNG ASY T1822S 12/16K THRUST
2	6100087	PLUNGER, BUSH TOOL 260 MCH'D
3	1130088	HHCS 7/8-6 ACMEx18.0LG 12"THRD
4	6100083	CONE AND SLV ASY
5	1120051	BRNG COLLAR BUSH TOOL
6	1130087	SHCS 5/8-11x2"LG FULL DOG SET
7	1160036	WASH 7/8" F436 ZN/COATED
—	1980014	EXTREME PRESSURE LUBE



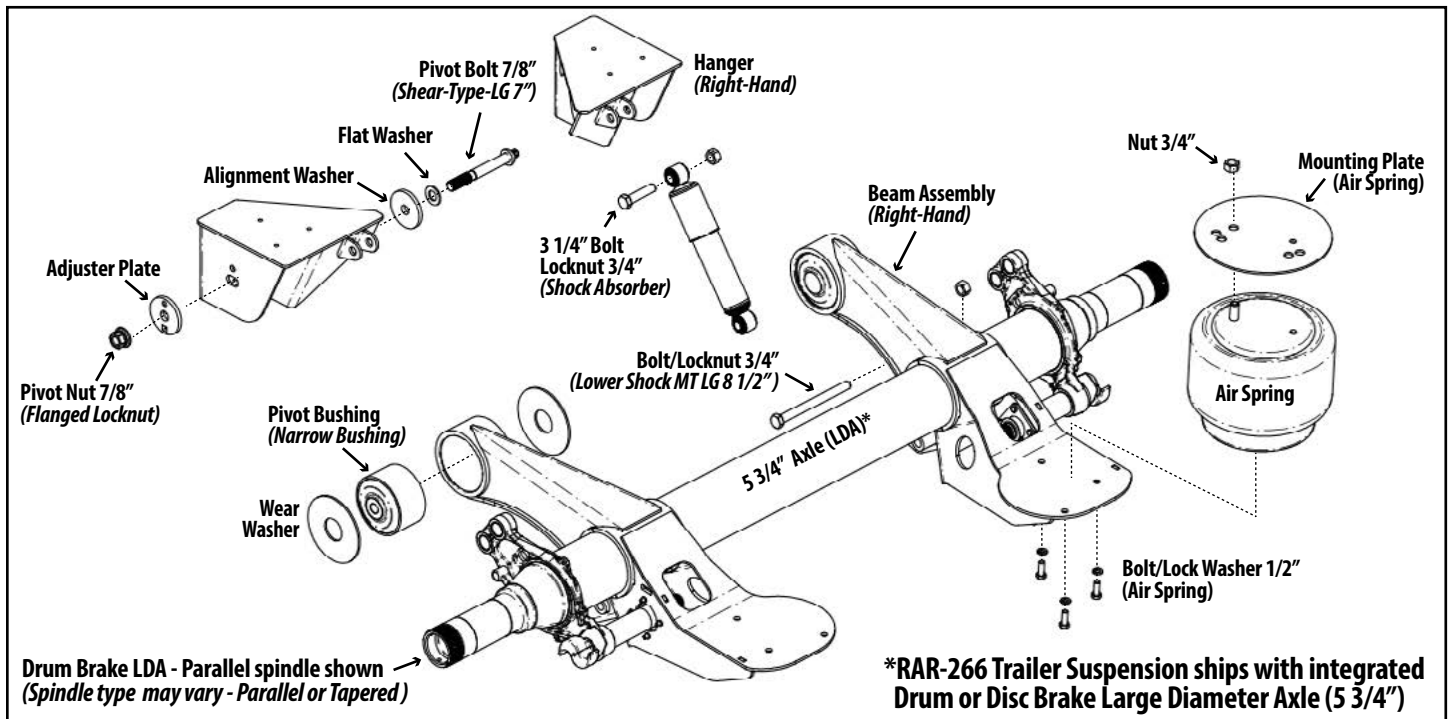


Figure 9.

20K-Underslung (Low Mount) narrow bushing suspension.

Drum brake LDA with parallel spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

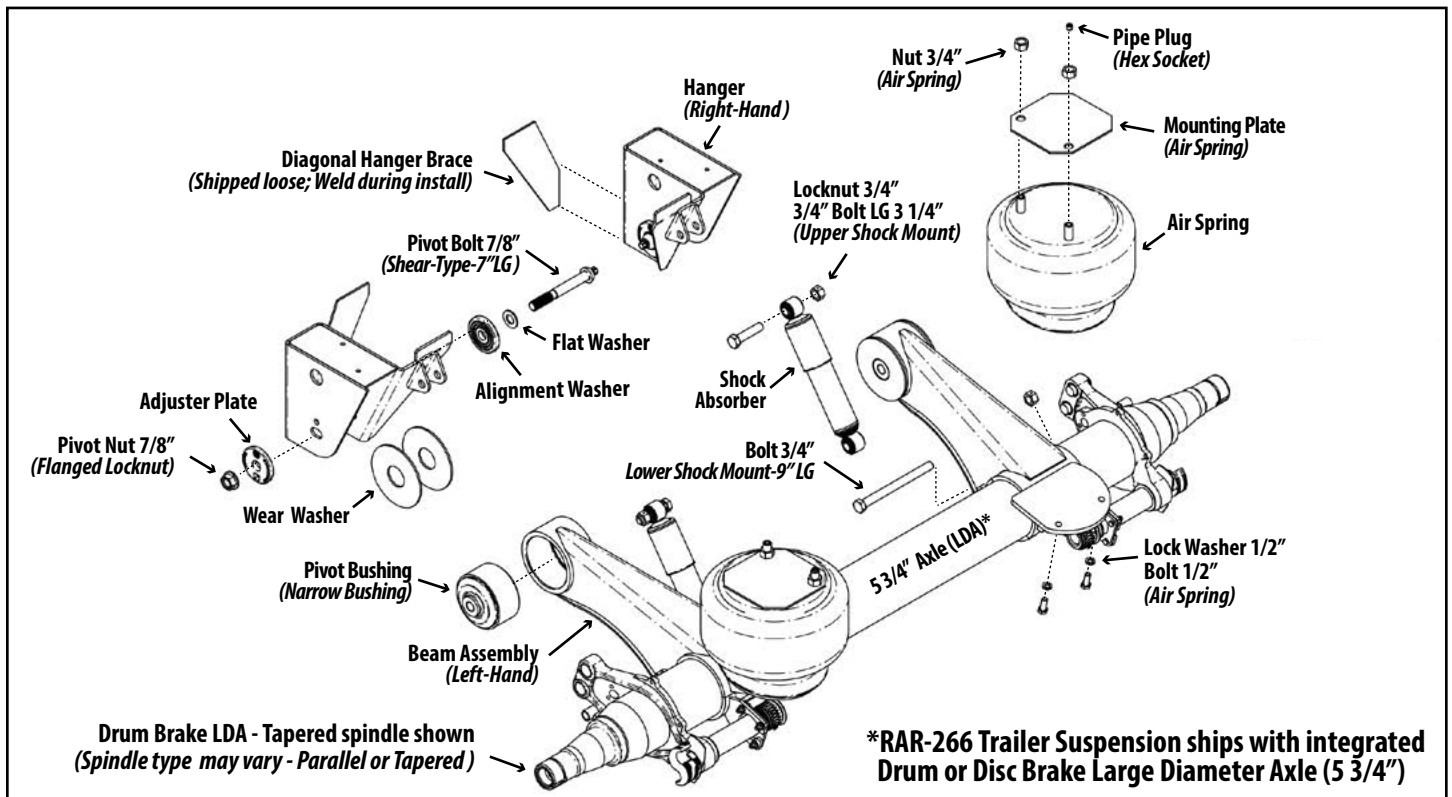


Figure 10.

23K-Overslung narrow bushing suspension.

Drum brake LDA with tapered spindle shown for reference only. Refer to the engineering drawing for the component part numbers.

Narrow Bushing Replacement – 266-23K Overslung; 266-20K Underslung (Low Mount)

Part Number	Item Description	Size	Torque Values (foot-pound Newton-meter)	
6040128-Bushing Kit BUSH Tool-6100044	Pivot Bolt/Nut - (Shear-Type Bolt/Locknut) <i>Requires E-20 Torx® socket (RW #6100054)</i>	7/8"-9NC	<i>Do not lubricate bolt/nut threads. Use 1"-drive impact wrench to tighten until Torx® head shears.</i>	
Fasteners	Locknut – Upper Air Spring	3/4"-16NF	45-50 ft-lb	61-68 N-m
	Locknut – Lower Air Spring (23K Overslung)	1/2"-13NC	45-50 ft-lb	61-68 N-m
	Lock Washer – Lower A/SPG (20K Low Mount)	1/2"-13NC	20-25 ft-lb	27-34 N-m
	Locknut – Shock Absorber	3/4"-10NC	200-230 ft-lb	271-312 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.

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 of the air from the air system.

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

Disassemble the suspension

Remove wheels and tires if necessary. Remove the shock absorbers. Take the pivot connections apart.

Remove and discard pivot bolt, flat washer and pivot nut. Inspect adjuster plate and alignment 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 tapered insert and the endcap for damage. Repair or replace components as needed.

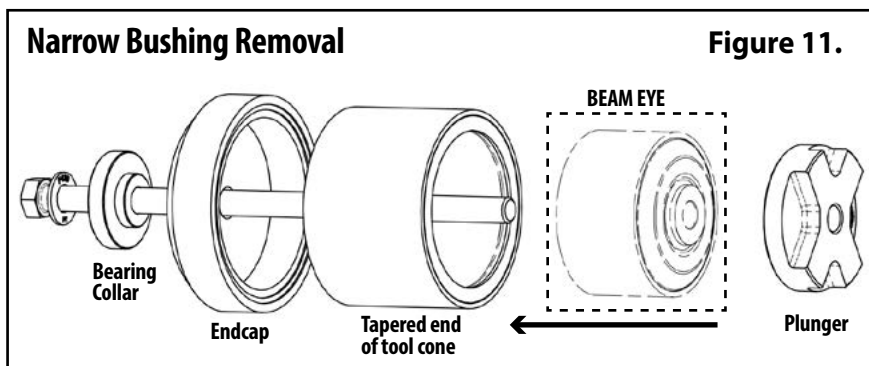
Lubricate Hex-Head Cap Screw and Thrust Bearing threads with Pressure Lubricant (P/N 1980014).

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 11).

NOTE: Failure to apply lubricant could result in decreased tool performance and reduced service life.

Bushing Removal

1. Push hex-head cap screw through the bushing inner sleeve until the tool cone is against the beam eye.
Thread plunger onto HHCS until the tool cone is held firmly against the beam (Figure 11).
NOTE: The tapered end of the cone is placed against the beam eye for both removal and installation of the bushing.



2. Confirm that the 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 Hex Head Cap Screw and pull the old bushing into the cone. NOTE: In some cases, a small amount of heat may be needed to break the bond between the bushing and the beam eye. Do not overheat. Allow the beam and the beam eye to cool before installing the new bushing.
3. Remove the bushing tool from the beam. Detach tool cone from endcap, remove old bushing and discard.

continued on next page

Tool Assembly for Bushing Installation

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 (Figure 12).

Bushing Installation

1. Use a wire brush to clean debris/corrosion from the beam eye.
2. Liberally apply P80® lubricant or a soap solution to the inside of the beam eye, the outside of the new bushing and the inside of the tool cone.

Insert new bushing into open end of tool cone (Fig 12).

3. Center the tapered end 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 tapered opening of the cone is placed against the beam eye for both bushing removal and installation.

5. Verify the 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 the hex-head cap screw to press new bushing into the beam eye.

6. Remove tool from the beam. Check that new bushing is centered inside the beam. Realign if necessary.

Reassemble suspension

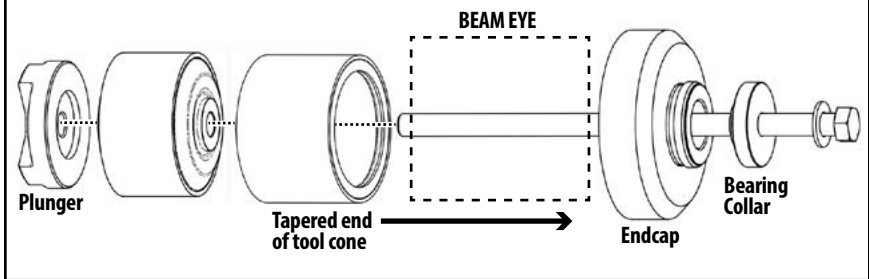
Rotate beams into the hangers.

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

NOTE: Do not lubricate pivot bolt/nut.

Narrow Bushing Installation

Figure 12.



Tighten locknut until adjuster plate pin is engaged and pivot connection hardware is snug against the hanger.

Do not apply final torque until the axle alignment has been checked (Page 15).

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

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

Verify suspension ride height. Check axle alignment. Realign if necessary

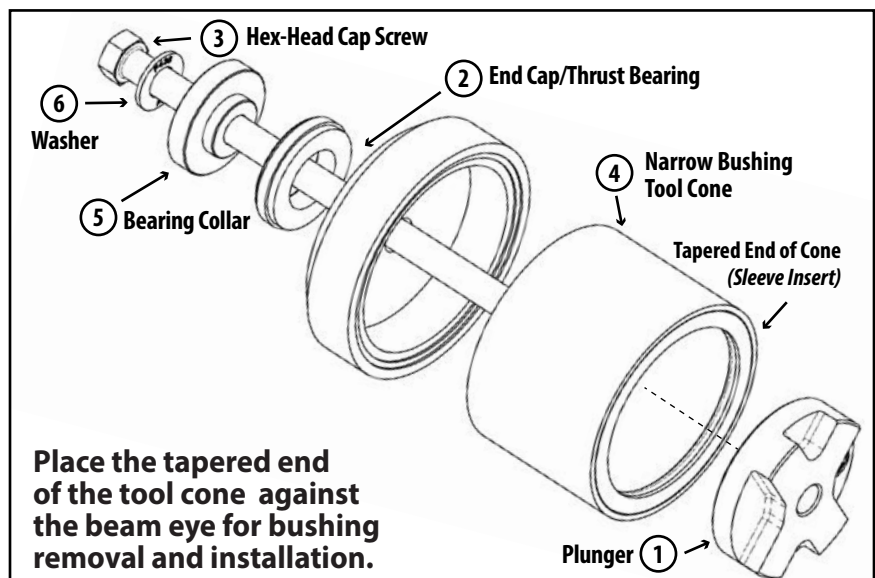
Tighten pivot bolt with a 1" drive impact wrench and an E-20 Torx® socket (Ridewell tool #6100054) until the Torx® head is sheared off.

Install the shock absorbers.

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

6100044 – Narrow Bushing Installation Tool

No.	Part No.	Item Description
1	6100091	PLUNGER BUSH TOOL NARROW MACH'D
2	6100089	END CAP BUSHING TOOL ASY (DWG)
	1660009	BEARING, THRUST, 12-16K WESPORT
	6100090	END CAP BUSH TOOL 260 MACHINED
3	1130088	HHCS 7/8-6 ACMEx18.0LG 12" THRD
4	6100092	CONE ASSY,BUSH INSTALL, NARROW
5	1120051	BRNG COLLAR BUSH TOOL
6	1160036	WASHER 7/8" F436 ZINC/COATED
—	1980014	EXTREME PRESSURE LUBE

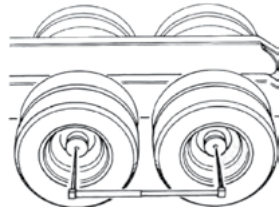


Refer to the engineering drawing for the designed ride heights of the suspension model. Align the suspension per TMC- or SAE- recommended standards.

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 13).

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.



Wheel-End Extenders/Trammel Bar

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 13).

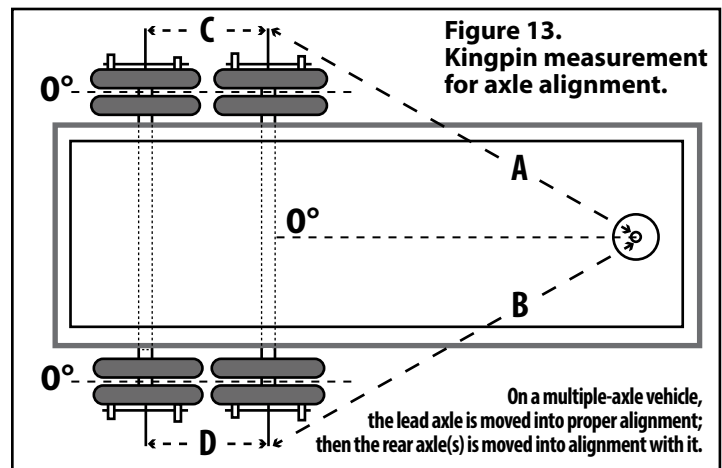
1. Attach the 50-ft tape measure to the kingpin. Measure Distance “A” and Distance “B” from the kingpin to the centers of the lead axle. The difference between the “A” and “B” measurements must not exceed 1/8-inch.
2. Measure Distance “C” and Distance “D” from the lead axle to the next axle with the 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 beam until snug, then back off one-turn. The beam should easily move forward and backward using the breaker bar (Figure 14).
2. Move to the opposite side of selected beam. Tighten the pivot nut until snug, then back off one turn.

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



3. Locate the adjuster plate at the pivot connection. Insert a 1/2”-shank breaker bar into the square hole. Push on breaker bar to adjust the beam(s) forward or backward into alignment. Tighten the nut and readjust beam position if beam moves after removing the breaker bar (Fig 13). NOTE: Verify that the pivot bushing is not wedged sideways during movement. The adjuster plate and the alignment washer should both rotate as the beam moves.

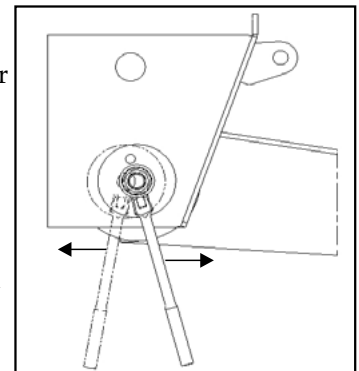


Figure 14. Move beam back-and-forth with breaker bar until the axle reaches desired location.

4. Tighten pivot nut on each side so that the axle can no longer move. Re-check alignment measurements. Adjust the axle to measurement tolerances if necessary. NOTE: Confirm the adjuster plate and alignment washer are flat against hanger before applying final torque.
5. 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.
6. 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 13).

Repeat Axle Alignment Procedure Steps 1-6, 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 the 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.