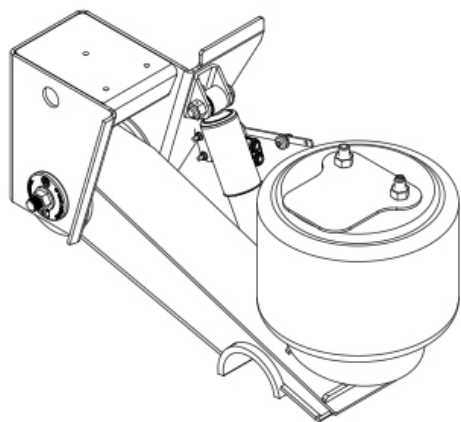


RAR-260

Trailer Air-Ride Suspension



Installation and Service Manual

Suspension/Axle ID Tag	2
Prior to Installation	3
Axle Integration	4
Suspension Mounting	6
Height Control Valve/Height Control Kit	7
Maintenance	8
25K Overslung Components	9
30K Overslung Components	10
15K Underslung Components	11
25/30K Underslung Components	12
25K Underslung with integrated lift kit	13
Bushing Replacement – Hanger-Mount Suspension	14
Bushing Replacement – Yoke-Mount Suspension	17
Axle Alignment	19
Warranty	20



SUSPENSION/AXLE ID TAG



RIDEWELL SUSPENSIONS

The Engineered Suspension Company

PART NO:

SUSP. NO:

SERIAL NO:

GROSS AXLE WEIGHT RATING CERTIFICATION IS PER THE FINAL STAGE MANUFACTURER OR ALTERER.

THIS PRODUCT MAY BE COVERED UNDER ONE OR MORE PATENTS, ADDITIONAL PATENTS MAY BE PENDING.

www.ridewellcorp.com

(800) 641-4122

Suspension Identification Tag

The **Part Number** is listed as a (606-) Installation/ Assembly Number when an axle and other system components are factory installed onto the suspension. The **Suspension Number** and **Serial Number** lists the suspension model and date of manufacture.

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.



**RIDEWELL
SUSPENSIONS**

MODEL:		PART NO.	
SERIAL NO.		CAPACITY	TON

Axle-Body ID Tag

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

The **165XXXX Base-Axle Part Number** refers to Ridewell-branded 5" and 5 3/4"-round axles manufactured in various axle-wall thicknesses and axle track-widths.

Notes and Cautions

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

The ISM uses two types of service notes to provide important safety guidelines and ensure the suspension system operates correctly. The notes are defined as:

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

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

Standard Trailer Dimensions

Trailer	Track Width	Frame Center	Beam Center	Air Spring Center
96"	71.5"	38"	35"	31"
102"	77.5"	44"	41"	37"

Prior to Installation

Refer to the suspension model engineering drawing for system components details; available ride heights; dimensional requirements; and, operating parameters. The suspension fits onto I-beam trailer frames on beam centers at standard axle track widths (Chart).

Installation at wider beam centers will reduce suspension clearances. Installation at narrower beam centers will de-rate the axle beam capacity.

The installer is responsible for verifying clearances, axle capacity, proper fit-up, and additional required support structure for non-standard beam centers, frames, frame centers, axle track widths and wheel-end equipment.

Installations can vary and should be adapted as needed.

- The Gross Axle Weight Rating (GAWR) is determined by the system component with the lowest load rating. Consult tire, wheel, axle and brake manufacturers 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 the 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.
- 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 the axle spacing conforms to any applicable federal and local bridge laws.
- The installer must verify 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.

Axle Integration

Suspension systems are available with and without a factory integrated axle. Customer-supplied axle assemblies must be positioned and oriented (rotated) properly before welding the axle to the axle seats.

Use the top-center mark on the axle, if available, to identify the center of the axle and orient the axle assembly on the suspension. The axle assembly should be installed so that the camshafts, when activated, rotate in the same direction as the wheels.

CAUTION Failure to follow procedures and design specifications could result in injury, damage to the axle and-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 or other contaminants must be removed from the weld joint.

The axle as well as the suspension components should be at a minimum temperature of 60°F (15.5°C). Preheat the weld zone to the axle manufacturer's recommended preheat temperature if required.

Weld Procedure

Ridewell suggests supporting the axle and suspension with a weld fixture during axle integration. Contact Ridewell Customer Service for the correct weld fixture for the individual suspension model.

1. Center the axle assembly on the beam centers (Figure 1).
2. Check the brake component orientation (rotation) on the engineering drawing before clamping into place and making the final welds.
 - 2.1. Drum brake camshafts are spaced off the tail of the trailing arm beam. Make sure the brake chamber brackets are oriented properly and clamp the axle assembly into place.
 - 2.2. Disc brake assemblies have a right- and left-hand caliper assembly. Confirm the callipers are located on the correct side and rotated to the proper position before clamping the axle assembly into place.
3. Check gap between the axle and the axle seats before final welding.
 - 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" (Figure 2).
4. Weld the axle to the axle seat according to Ridewell Weld Process #1 (Page 5).

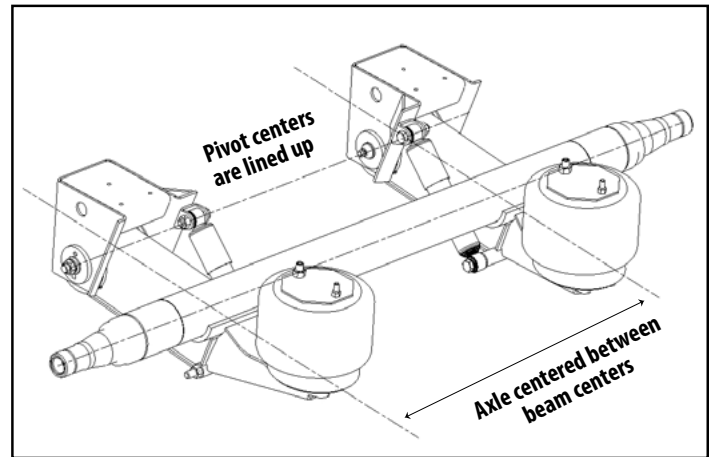


Figure 1.
Axle should be centered between beams with beams and axle perpendicular to each other. Refer to the engineering drawing for measurements.

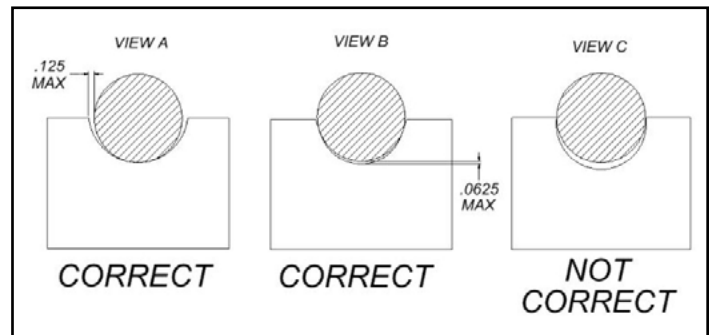
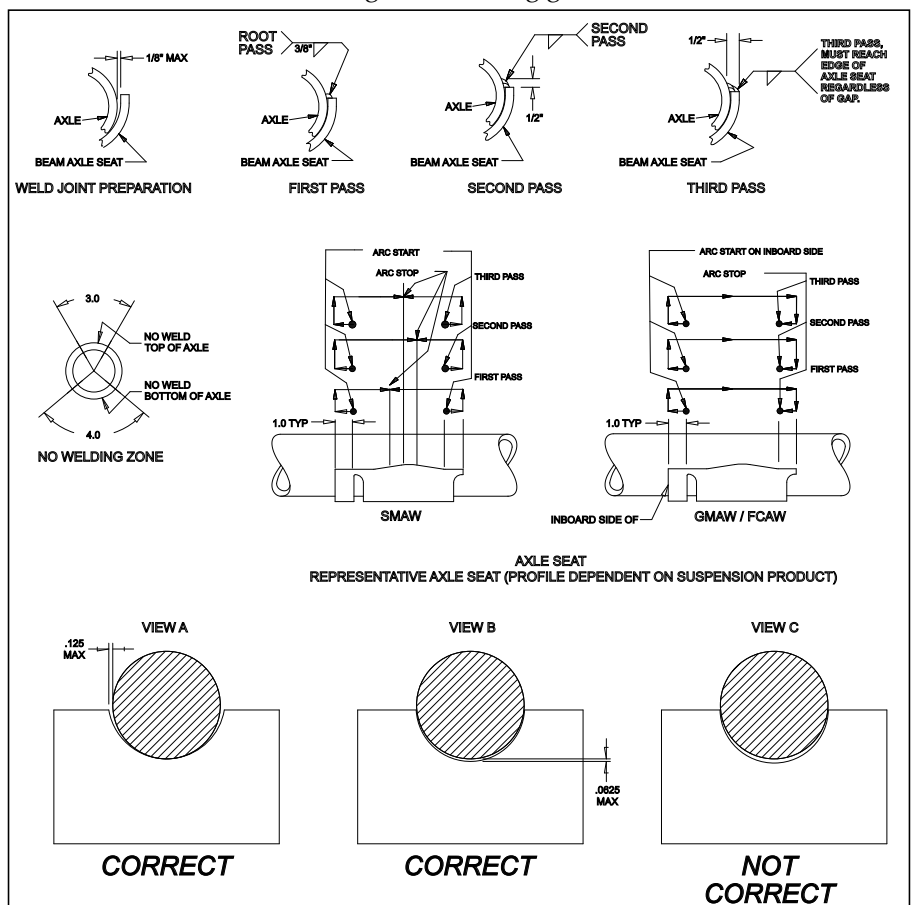


Figure 2.
Correct axle-tube seating for welding.

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 assembly 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 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.



Suspension Mounting

Refer to the engineering drawing for available ride heights; the recommended locations of any customer-furnished filler plates and 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.

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.
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 filler plates for the hangers and air spring mounting plates on the frame. Weld filler plates to crossmembers with 1/4" fillet welds down the length of the crossmember.
4. Weld the hangers to the frame/filler plates with 1/4" fillet welds completely around the hangers. Stop the welds 1/2" from the corners and edges.
 - 4.1. For hangers with wing gussets, the wing gussets must be welded to a crossmember or other supporting structure.
 - 4.2. A length of 1 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 3/16" fillet welds.
6. Attach a crossmember or diagonal brace to the front of the hangers with 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 are supplied by the installer. Grade 8 bolts and flanged locknuts 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.

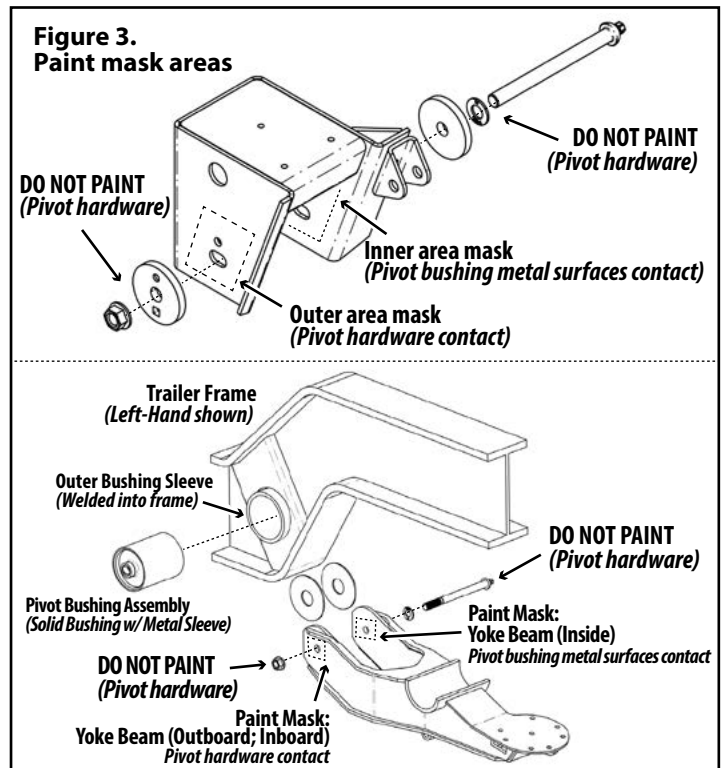
Final Assembly and Inspection

- Verify hanger and air spring mounting plate welds.
- Check the installed location for sufficient clearances of suspension components.

- Attach the beam- and axle-assemblies to hangers.
NOTE: Do not fully torque pivot hardware until axle alignment is completed (Page 19).

CAUTION Do not apply undercoating; paint or other top coat to suspension; frame hangers; or pivot connection hardware until axle alignment procedure is completed.

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 3).



- Refer to engineering drawing to complete air spring installation. Torque to specifications.
- Install/connect the height control valve (HCV), if applicable. Check the air system tubing and fittings after installation for leaks (Page 7).
- Verify suspension ride height is adjusted within the range shown on the engineering drawing. Complete the axle alignment procedure (Page 19).
- Install the shock absorbers.
NOTE: Make sure paint overspray does not get underneath the shock absorber dust covers if the suspension is painted after the shocks are installed, .

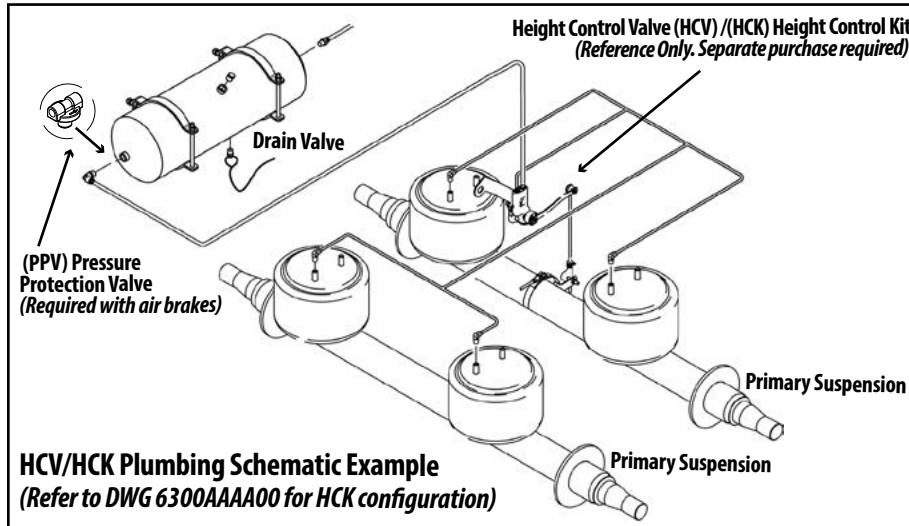
CAUTION Failure to torque components to specifications can result in suspension failure and void the warranty.

Height Control Kit maintains the vehicle's ride height

The 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 height control valve (HCV) connected to a horizontal lever arm, with a rod arm (vertical link) connected to the lever and the lower HCK mounting bracket.

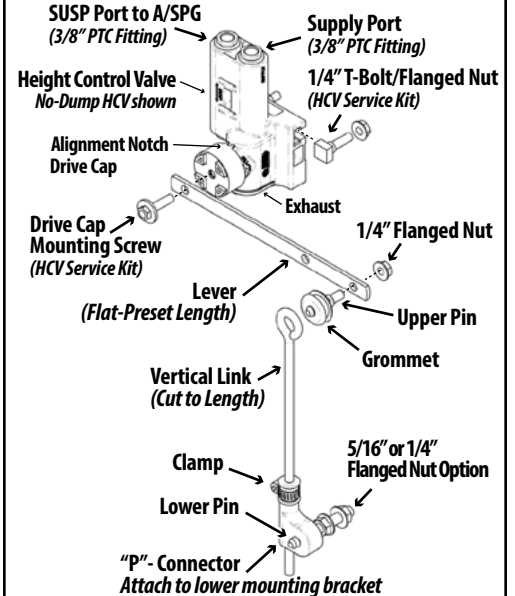
CAUTION The installer is responsible for ensuring the vehicle's air system requirements comply with all Federal Motor Vehicle Safety Standards.



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

630– Height Control Kit Example

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



HEIGHT CONTROL VALVE/HEIGHT CONTROL KIT – TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
HCV is not receiving air. HCV is not delivering air to the air springs.	- 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.	- Verify air lines are pressurized by removing the supply line from the height control valve. 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.	- Obstructed air line. - HCV installed backwards. - The height control valve supply line is connected to the suspension port	- 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.	- The HCV is installed backwards. - Leak in air system beyond accepted standards.	- 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): - 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 suspension 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 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 (Engineering Drawing).
NOTE: Do not re-torque shear-type pivot bolt.
- Verify suspension is operating at the installed ride height.

Every 12,000 miles of use

- Inspect air springs for damage/excessive wear. Torque air spring bolts/nuts to specifications (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 (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 (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 the 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 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 the suspension is operating at installed ride height.

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

Pivot Bushing Inspection Procedure

Park the unloaded trailer on a level surface. Set the brakes and securely chock the tires so vehicle cannot move.

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 levering process and wear washer inspection on the other side of the hanger.

If any large or easy movements of the beam or any damage to the wear washers is observed, drop the suspension beams for further inspection.

Replace components as necessary.

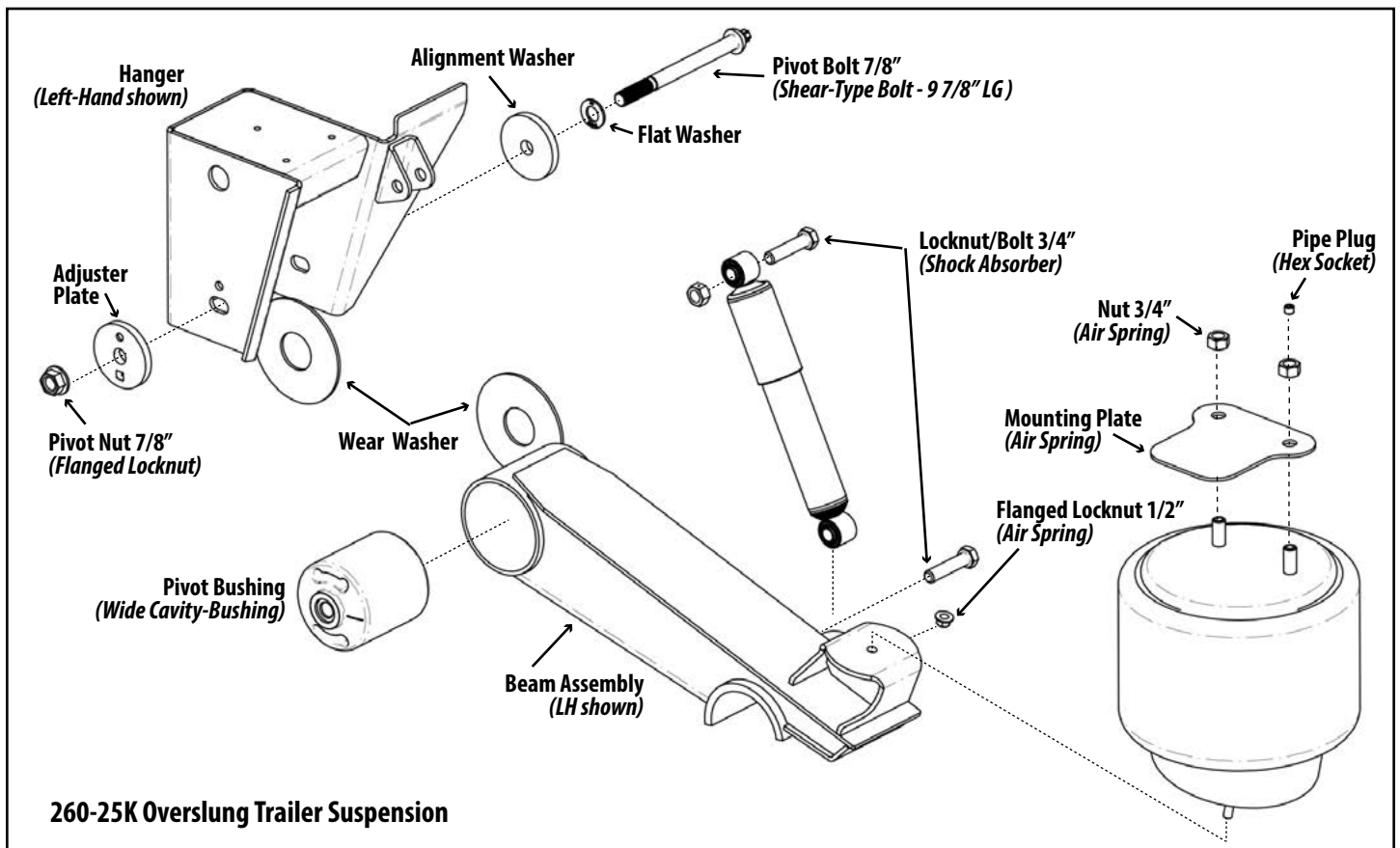


Figure 4.
260-25K Overslung Suspension Components
 Refer to the suspension engineering drawing for the individual component part number.

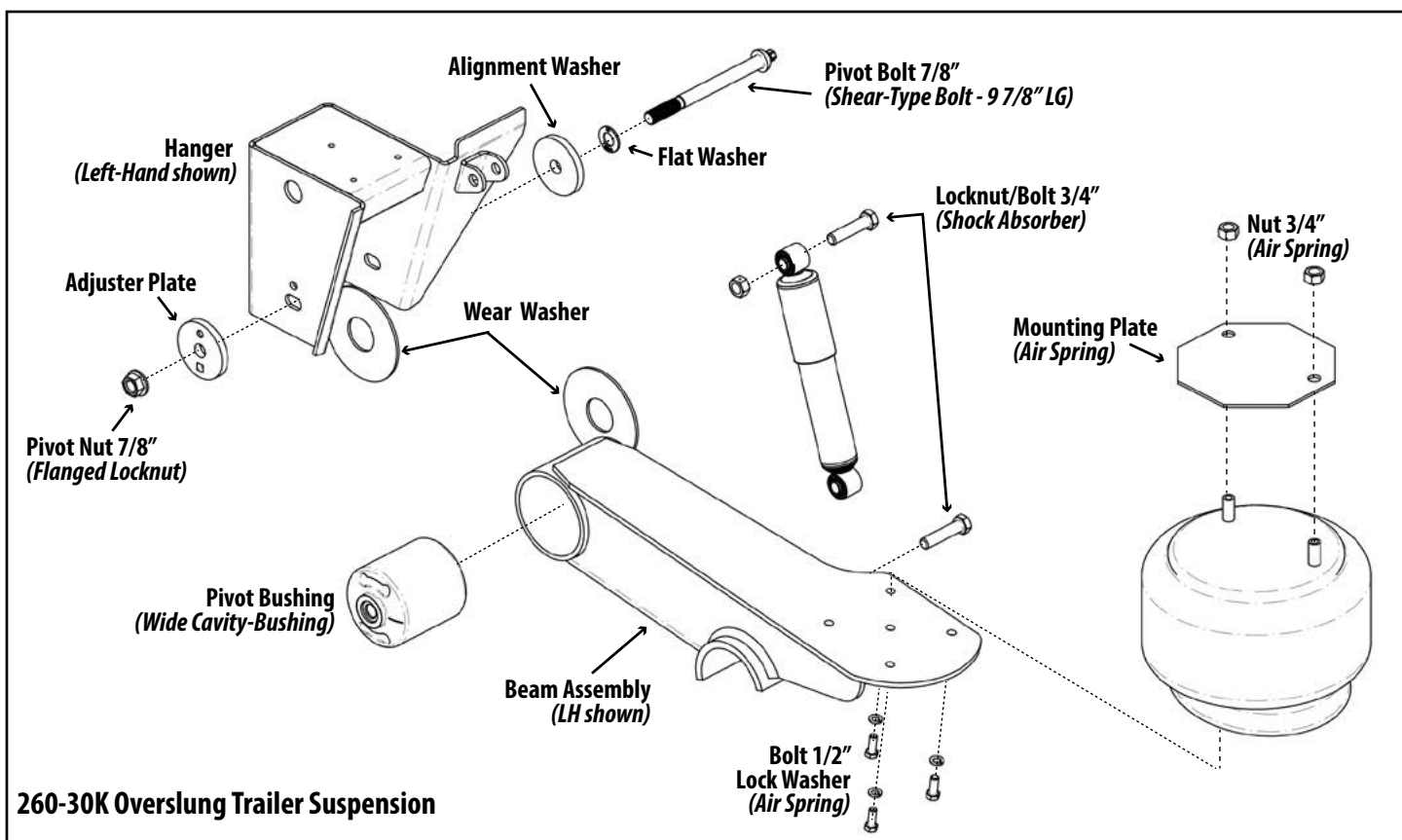


Figure 5.
260-30K Overslung Suspension Components
 Refer to suspension engineering drawing for component part number.

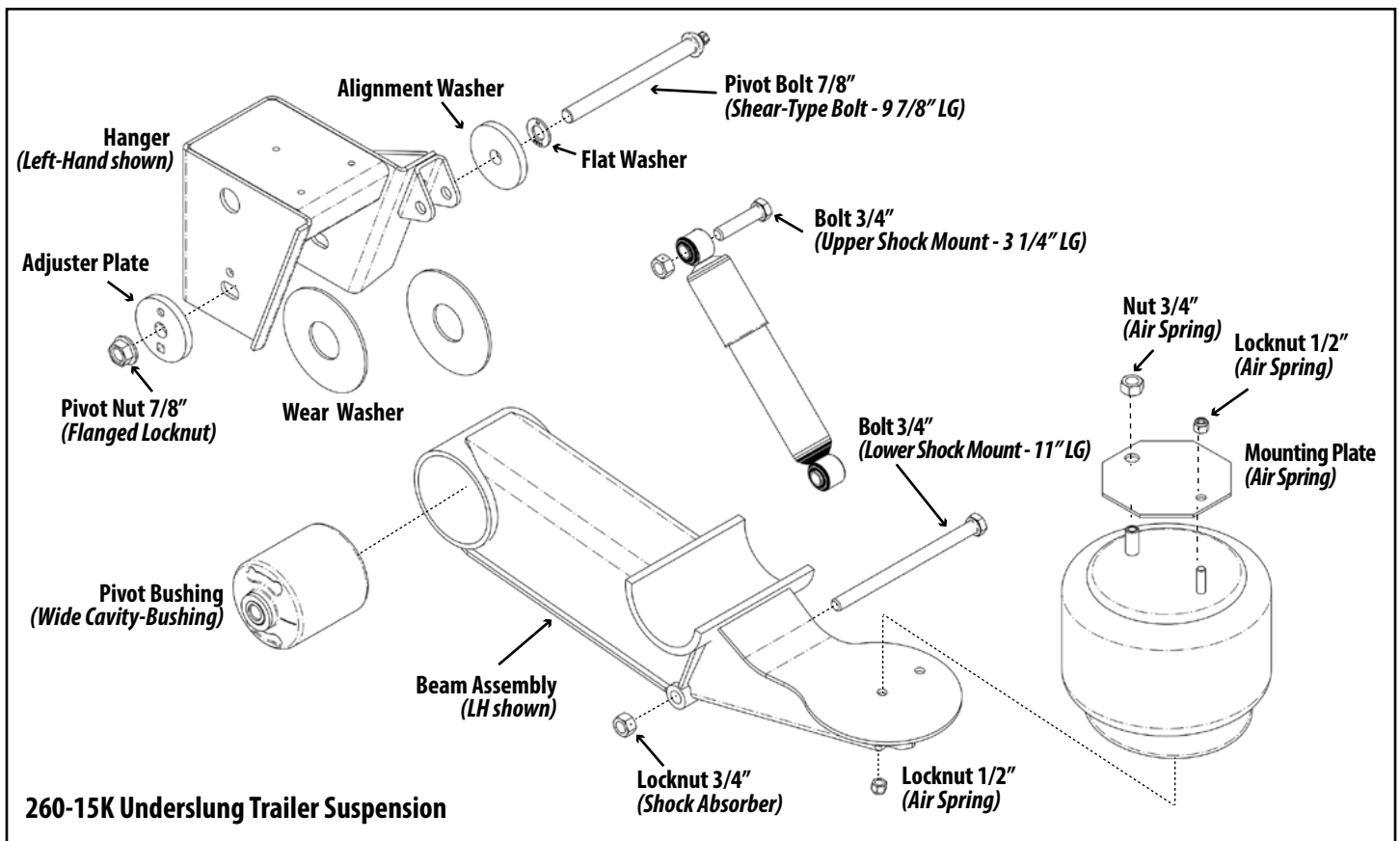


Figure 6.
260-15K Underslung Suspension Components
 Refer to suspension engineering drawing for component part numbers.

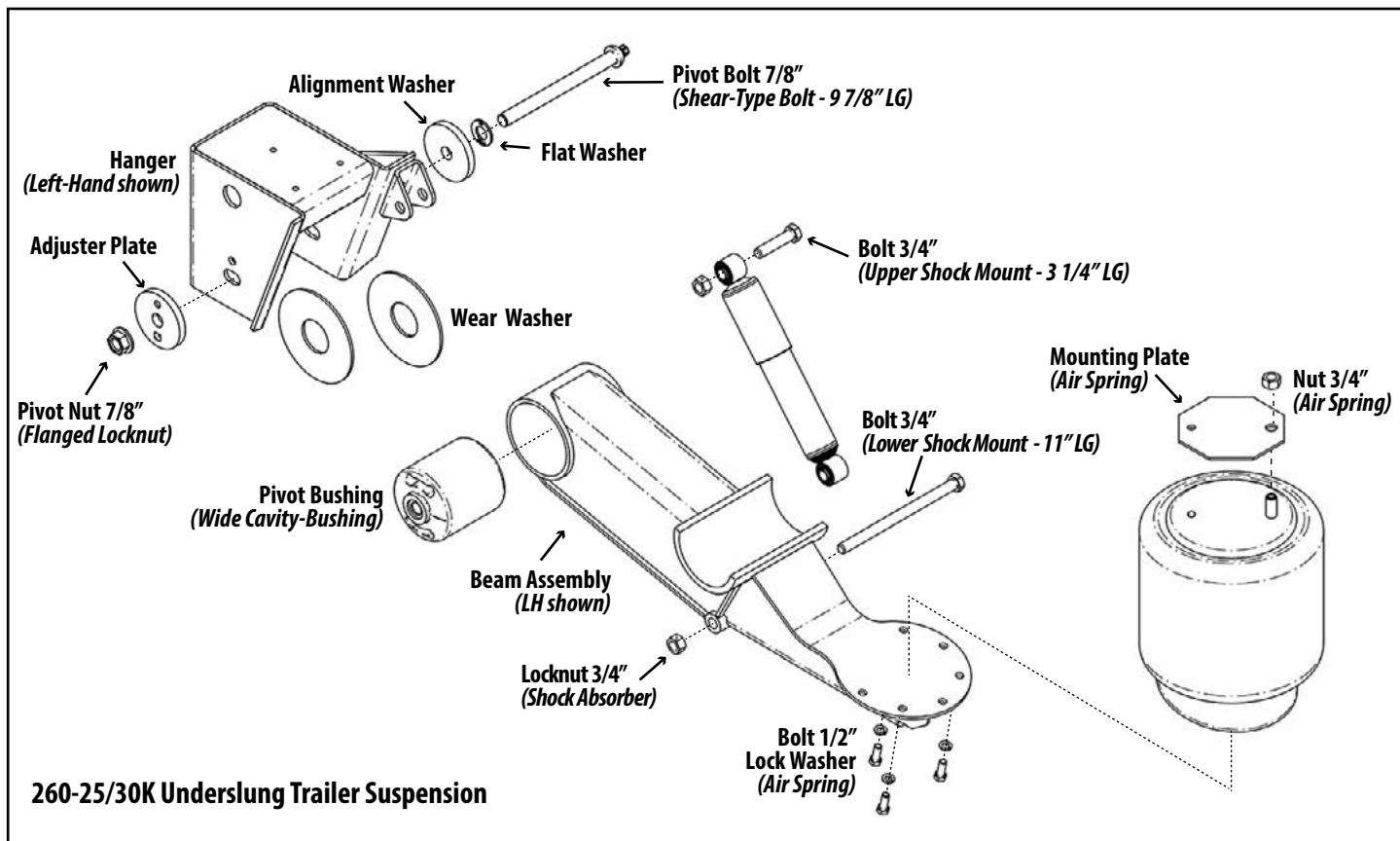


Figure 7.
260-25/30K Underslung Suspension Components
 Refer to suspension engineering drawing for component part numbers.

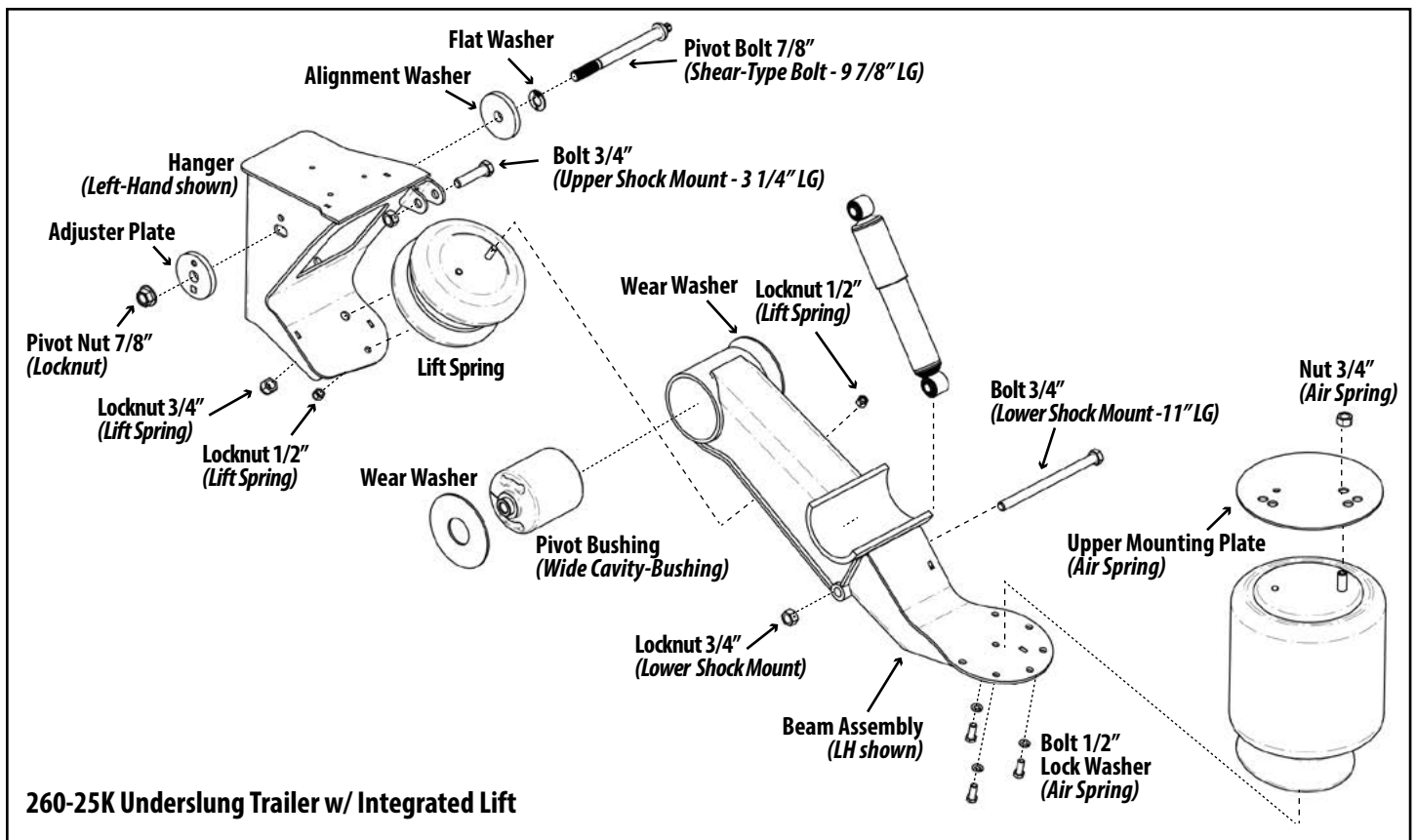


Figure 8.
Components – 260-25K Underslung Suspension with integrated lift kit.
 Refer to suspension engineering drawing for component part numbers.

Bushing Replacement – RAR-260 Hanger-Mount Suspension

Part Number	Item Description	Size	Torque Values	
			foot-pound	Newton-meter
6040098 (Kit) 6100051 (Tool)	Shear-Type Pivot Bolt/Flat Washer/Locknut <i>Requires E-20 Torx® socket (P/N 6100054)</i>	7/8"-9NC	<i>Do not lubricate bolt/nut threads. Use 1"-drive impact wrench to tighten until Torx® head shears off.</i>	
Fasteners	Nut (Upper Air Spring)	3/4"-16NF	45-50 ft-lb	61-68 N-m
	Locknut (Lower Air Spring - 25K O/S)	1/2"-13NC	45-50 ft-lb	61-68 N-m
	Bolt (Lower Air Spring - 30K O/S; 25K/30K U/S; 25K U/S w/ lift)	1/2"-13NC	20-25 ft-lb	27-34 N-m
	Locknut (Upper Air Spring - 15K U/S); (Upper Air Spring, Lower Lift Spring - 25K U/S)	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.

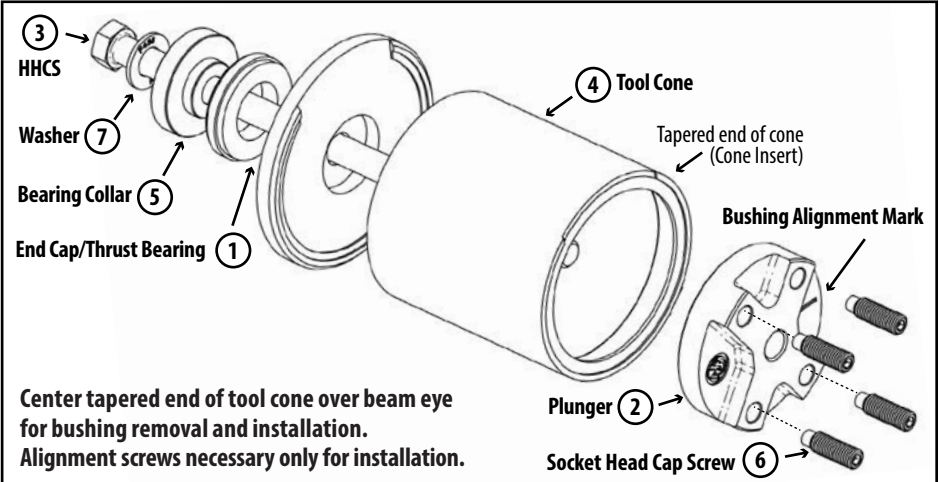
Rotate beam(s) out of the hangers. Inspect the pivot-bolt holes and hanger surfaces for unusual wear/damage. Repair or replace the suspension components as needed.

Continued on next page

Bushing Replacement Procedure – Wide Cavity-Bushing Tool (6100051)

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



Tool assembly for removal

Verify thrust bearing is installed in the flat, outside edge of endcap. Inspect the 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 tool cone onto the endcap (Fig 9).

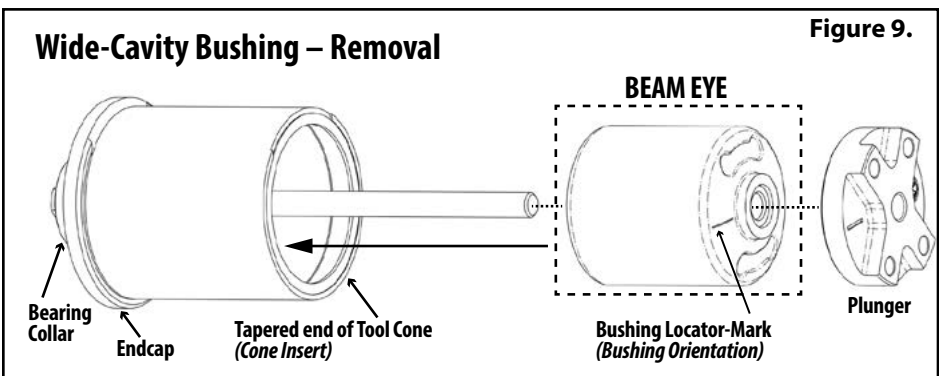
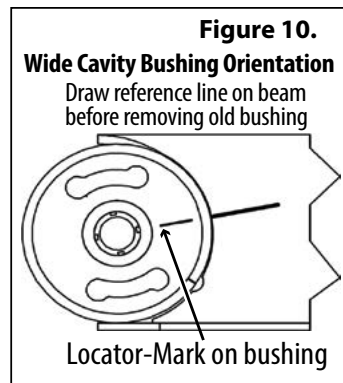


Figure 9.

Bushing Removal

1. Draw/scribe a line on the beam using the raised locator mark on the installed bushing as a reference (Figure 10).
2. Insert HHCS-end through bushing sleeve into the plunger center opening. Center tool cone on beam eye. Tighten the HHCS until the plunger is firmly held against the bushing.
3. 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.
4. Disassemble the bushing tool. Remove bushing from the tool cone and discard.



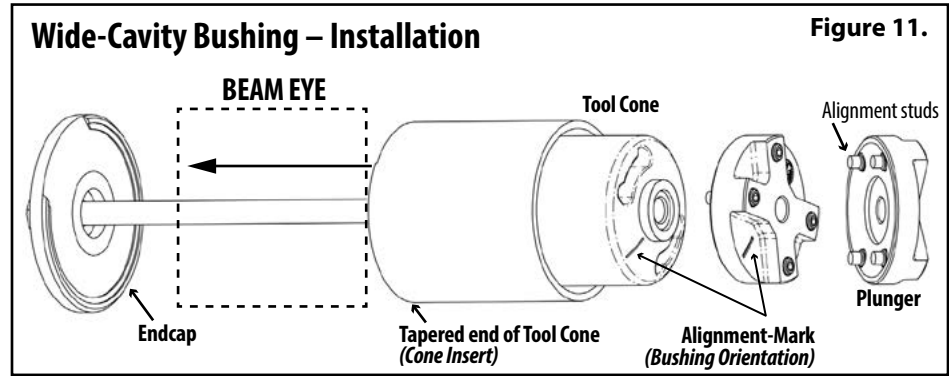
Continued on next page

Bushing Replacement Procedure – Wide Cavity-Bushing Tool (6100051)

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 the 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 11).



Bushing Installation

1. Use a wire brush to clean foreign debris/corrosion out of the beam eye.
2. Coat the inside of the beam eye, the outside of the 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.
3. Insert a new bushing into the large end of tool cone. Confirm the locator-mark on the bushing end is visible.
4. 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 bushing (Fig 11).
5. Align plunger's bushing locator-mark with the line marked on the beam. Place the plunger/cone/bushing assembly onto the beam eye.
6. 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.
7. 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.
8. 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 19).

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 19).

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.

Bushing Replacement – RAR-260 Yoke-Mount Suspension

Part Number (SUSP-Date of Manufacture)	Item Description	Size	Torque Values	
			foot-pound	Newton-meter
6040099 (MFG before SEP 30, 2024)	Bolt (9 7/8")/Flat Washer/Locknut	7/8"-9NC	Do not lubricate bolt/nut threads. Use 1"-drive impact wrench w/ E-20 Torx® socket to tighten until Torx® head shears off.	
6040239 (MFG after OCT 1, 2024)	Long Bolt (10 1/2")/Flat Washer/Locknut	7/8"-9NC		
Fasteners	Nut (Upper Air Spring)	3/4"-16NF	45-50 ft-lb	61-68 N-m
	Bolt (Lower Air Spring)	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 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.

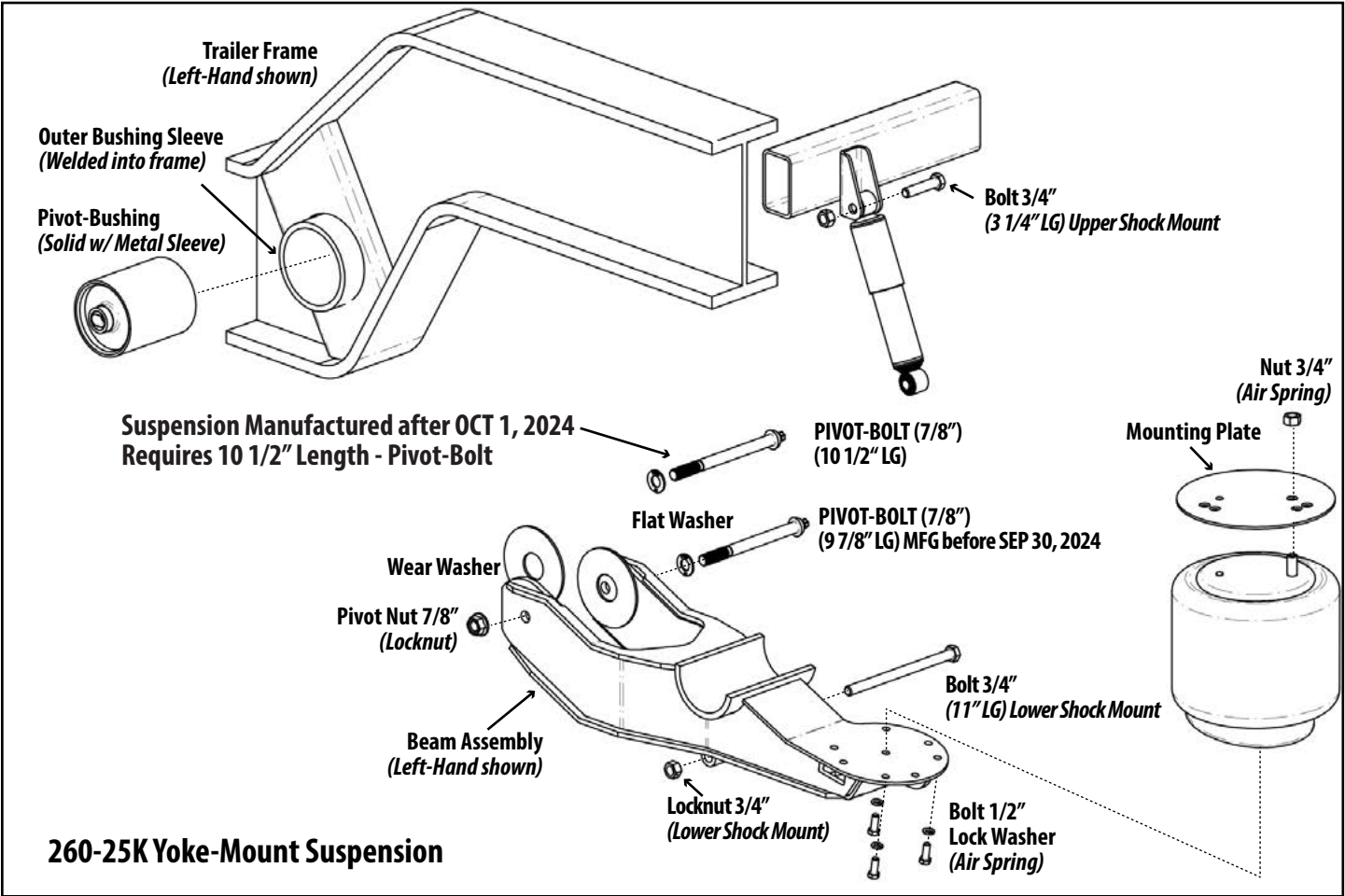


Figure 12.
260-25K Yoke-Mount Trailer Suspension. Refer to engineering drawing for component part numbers.

Bushing Replacement Procedure – RAR-260 Yoke-Mount Suspension

Vehicle Preparation

Chock wheels. Raise vehicle to height that removes load from suspension. Support with jack stands.

Disconnect height control valve(s) linkage, if necessary. Exhaust all air from the air springs.

CAUTION Failure to properly chock wheels, exhaust air system, raise and safely support vehicle 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. Discard the pivot bolt, flat washer and pivot nut. Inspect alignment washer, adjuster plate and wear washers for wear/damage. Repair/Replace components as necessary.

Rotate beam down and away from frame.

CAUTION Do not reuse pivot hardware.

Bushing Removal and Installation

1. Grind away the four (4) welds on each side of the outer bushing sleeve. Remove pivot bushing from frame. Inspect outer bushing sleeve for wear/damage. Repair or replace sleeve as needed.
2. Position (center) replacement bushing assembly in the outer bushing sleeve. Align the bushing assembly center slot horizontally (Figure 13).
3. Attach bushing to frame with four one-inch welds. Weld the top of the bushing sleeve at the outboard side of frame. Weld the bottom of sleeve at the inboard side of frame. Move welds around the sleeve in 90° increments. NOTE: Excessive heat and distortion can damage the bond between the rubber bushing and steel sleeve. Stagger the welds; allow the steel to cool between welds.

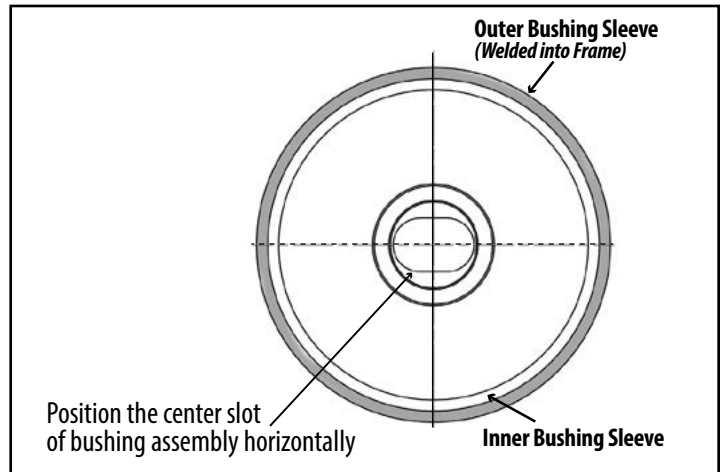


Figure 13.
260-25K Yoke Mount – Bushing Orientation
Reassemble suspension

Rotate beam(s) up onto frame. Install new pivot hardware and wear washers. Do not apply final torque until axle alignment has been checked.

Connect 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 19).

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

Install shock absorbers.

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

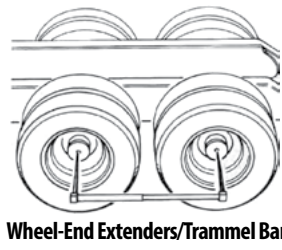
Axle Alignment

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 14).

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 preloaded (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 14).

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.

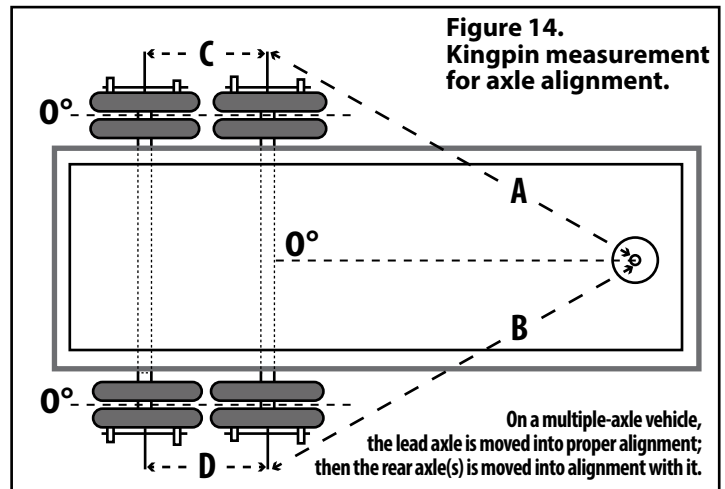


Figure 14.
Kingpin measurement
for axle alignment.

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 15).
4. Push/pull on breaker bar to adjust the beam forward or backward into lead axle alignment (Figure 14). NOTE: Verify that pivot bushing is not wedged sideways during beam movement. The adjuster plate and the alignment washer should both rotate as the beam moves.

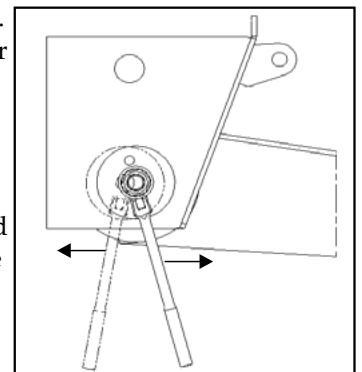


Figure 15.
Move beam(s) back-and-forth
with breaker bar until the axle
reaches desired location.

5. Move to the opposite beam. Check alignment measurements. Use breaker bar procedure if necessary to move axle into 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 13).

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.

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.