



Ridewell Self-Steering Auxiliary Axle Suspensions: RSS-233T - 20K Trailer RSS-233 - 20K Truck

Notes and Cautions

This instruction provides two types of service note definitions:

“NOTE” - Additional instructions/ procedures to complete tasks and make sure component functions properly.

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

233T-20K TRAILER SUSPENSION – BUSHING REPLACEMENT KITS/TORQUE SPECIFICATIONS

REPL Kit Part No.	Item Description	Size	Torque Values foot-pound Newton-meter	
6040161	Pivot Hardware (HHCS/Locknut)	7/8" -14NC	500 ft-lb	678 N-m
6040160	No Pivot Hardware			
Fasteners	Locknut (Air Spring, Upper)	3/4" -16NF	50 ft-lb	68 N-m
	Bolt/Lock Washer (A/SPG, Lower)	1/2" -13NC	50 ft-lb	68 N-m
	Locknut (Lift Spring, Inner)	3/4" -16NF	50 ft-lb	68 N-m
	Locknut (Lift Spring, Outer)	1/2" -20NF	25 ft-lb	34 N-m
	Flanged Lock Screw (Lift Spring)	3/8" -16NC	25 ft-lb	34 N-m
	Locknut (Tie Rod/Steer Damper)	3/4" -10NC	160 ft-lb	217 N-m
	Locknut (Crosschannel)	5/8" -11NC	160 ft-lb	217 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. Re-torque all fasteners after first 6,000 miles of operation. Failure to install/maintain fasteners at torque specifications could result in suspension failure/voiding the warranty.

Bushing Replacement Procedure

Park the vehicle on a level surface. Chock wheels. Exhaust all the air from the air system. Disassemble suspension, if needed, to reach the pivot connections.

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

1. Remove Huck® Collar by cutting/grinding. Take pivot connection apart. Discard pivot hardware. Discard wear washers.
NOTE: Wear washers included in all bushing replacement kits.
2. Remove bushing assembly from the torque rod and discard. Clean the rod eye of any foreign debris or corrosion.
3. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of new bushings. NOTE: Do not substitute - special urethane bushing lubricant included with all bushing kits.
4. Install bushing in the eye of the torque rod.
NOTE: Mallet/press may be needed to install new bushing and sleeve.
5. Press inner sleeve into the installed bushing. Center the sleeve inside the bushing so that both ends extend slightly past the sides of the bushing.
6. Assemble the pivot connection with one wear washer on each side of the bushing (Figure 1). The inner sleeve of the bushing must be flush with or extend slightly past outside of the wear washers after assembly.
7. Torque pivot nut to specifications (500 ft-lb-678 N-m).
8. Reassemble suspension, if necessary. Tighten components to specifications
9. Check wheel toe-in setting (between 1/32" and 3/32"). Adjust if necessary (p 4).

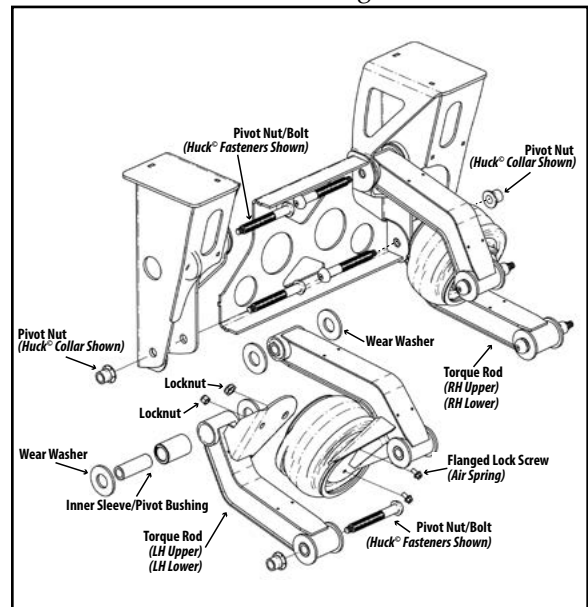


Figure 1.
Bushing kit with/without hardware includes components for eight (8) pivot connections.



Scan/Click the QR-Code to find
additional maintenance information
in Technical Publication 9710033
"233_232-Kingpin/Bushing-Parts Guide"

233-20K TRUCK SUSPENSION (BUSHING REPLACEMENT KIT/TORQUE SPECIFICATIONS)

Part Number (Component)	Item Description	Size	Torque Values	
			foot-pound	Newton-meter
6040145 - Bushing Kit	Traditional Hardware (HHCS/Locknut)	7/8"-14NF	500 ft-lb	678 N-m
6040142 - Bushing Kit	No Pivot Hardware			
Fasteners	Locknut - (Air Spring; Upper)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut - (Air Spring; Lower)	1/2"-13NC	25 ft-lb	34 N-m
	Locknut - (Lift Spring; Outer)	1/2"-20NF	25 ft-lb	34 N-m
	Locknut - (Lift Spring; Inner)	3/4"-16NF	50 ft-lb	68 N-m
	Flanged Lock Screw - (Lift Spring)	3/8"-16NC	25 ft-lb	35 N-m
	Locknut - (Tie Rod/Steering Damper)	3/4"-10NC	160 ft-lb	217 N-m
	Locknut - (Crosschannel)	5/8"-11NC	160 ft-lb	217 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 wheels to keep vehicle from moving.

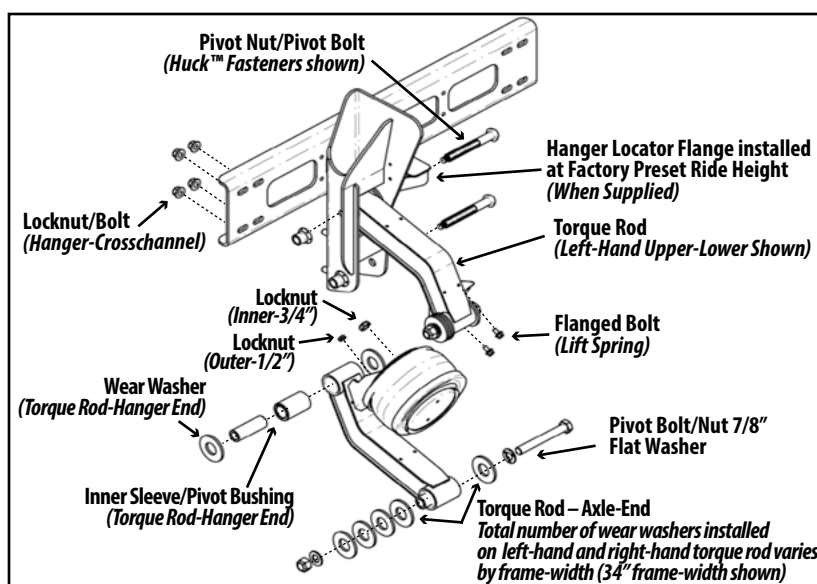
Exhaust all air from air system. Disassemble suspension, if necessary, to reach pivot connections.

CAUTION Failure to properly chock wheels and completely exhaust air system could allow vehicle movement that results in serious injury.

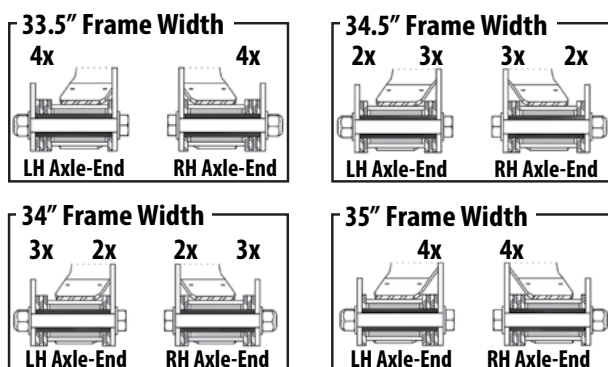
Bushing Replacement Procedure

- Count the number of wear washers on each side of the bushing on both the left-hand and right-hand Axle-End Torque Rod (Figure 2). The number of wear washers installed varies according to the suspension frame-width set by the hanger/crosschannel assembly.

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233-20K Truck - Standard Frame Axle-End Torque Rod - Wear Washer Installation



233-20K Truck - Wide Frame Axle-End Torque Rod - Wear Washer Installation

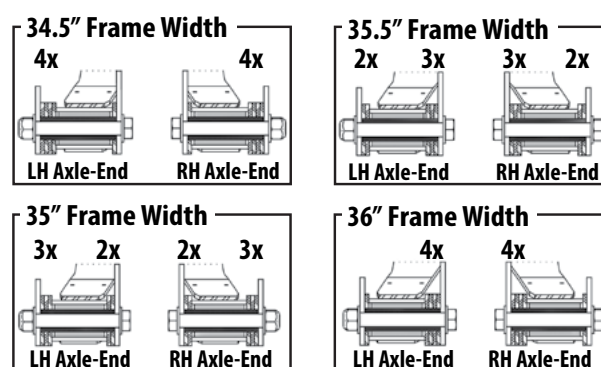


Figure 2.

Refer to engineering drawing for the wear washers installed at the LH- and RH- axle-end pivot connection.

2. Cut/grind away Huck® Collars at hanger-end pivot connection. Take pivot apart. Discard pivot hardware and wear washers.
3. Remove bushing assembly and discard. Clean rod eye.
4. Take the axle-end torque rod pivot connection apart. Discard pivot hardware. Discard wear washers.
5. Remove bushing assembly and discard. Clean rod eye.
6. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of replacement bushings. NOTE: Do not substitute - special urethane bushing lubricant included with bushing kit.
7. Install new bushing. NOTE: Mallet /press needed to install bushing.
8. Hanger-End-Wear Washers – (Bushing Sleeve - 4.1") Press the inner sleeve into the installed bushing. Center sleeve so that both ends extend slightly past the sides of the bushing. Assemble the pivot connection with one wear washer on each side of bushing (Figure 3). Inner sleeve must be flush with or extend slightly past the outside of wear washers on both sides.
9. Axle-End-Wear Washer – (Bushing Sleeve - 4.8") Press inner sleeve into installed bushing. Position inner sleeve so that one end extends further past the bushing than the other end. Assemble pivot connection with the appropriate number of wear washers installed on both sides of the inner sleeve (Figure 3). Inner sleeve must be flush with or slightly past the outside of the wear washers on both sides.
10. Torque pivot nut to specifications. (500 ft-lb - 678 N-m).
11. Reassemble suspension, if necessary. Torque all suspension components to specifications.
12. Verify wheel toe-in setting between 1/32" and 3/32." Adjust if necessary (Page 4).

Figure 3. 233-20K Truck Suspension Components - Drum Brake Axle
Refer to the engineering drawing for individual component part number.

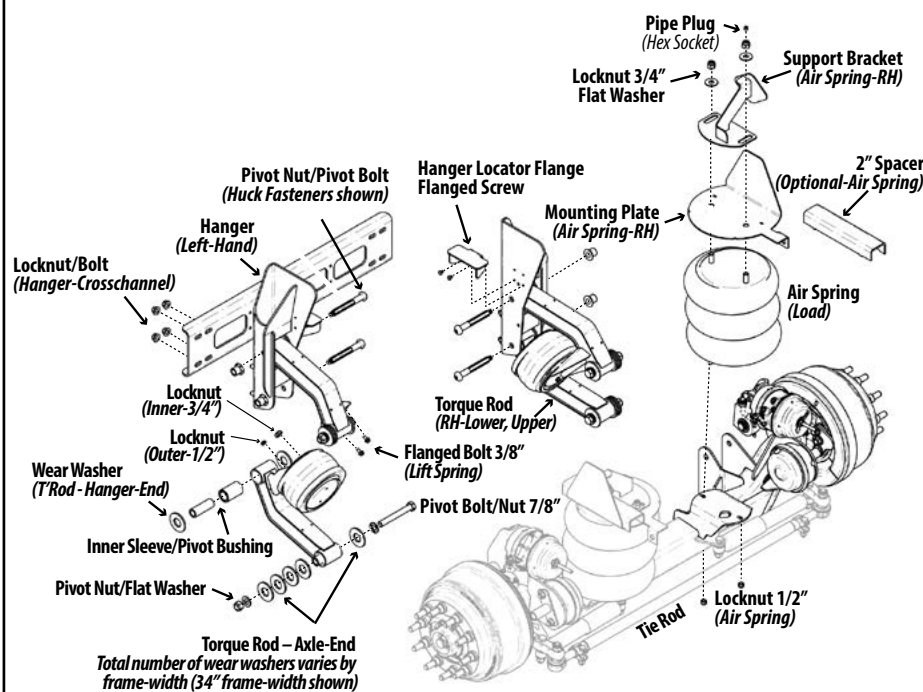


Figure 3.
233-20K Truck Suspension Components - Drum Brake Axle
Refer to the engineering drawing for individual component part number.

Regulate load with air spring pressure

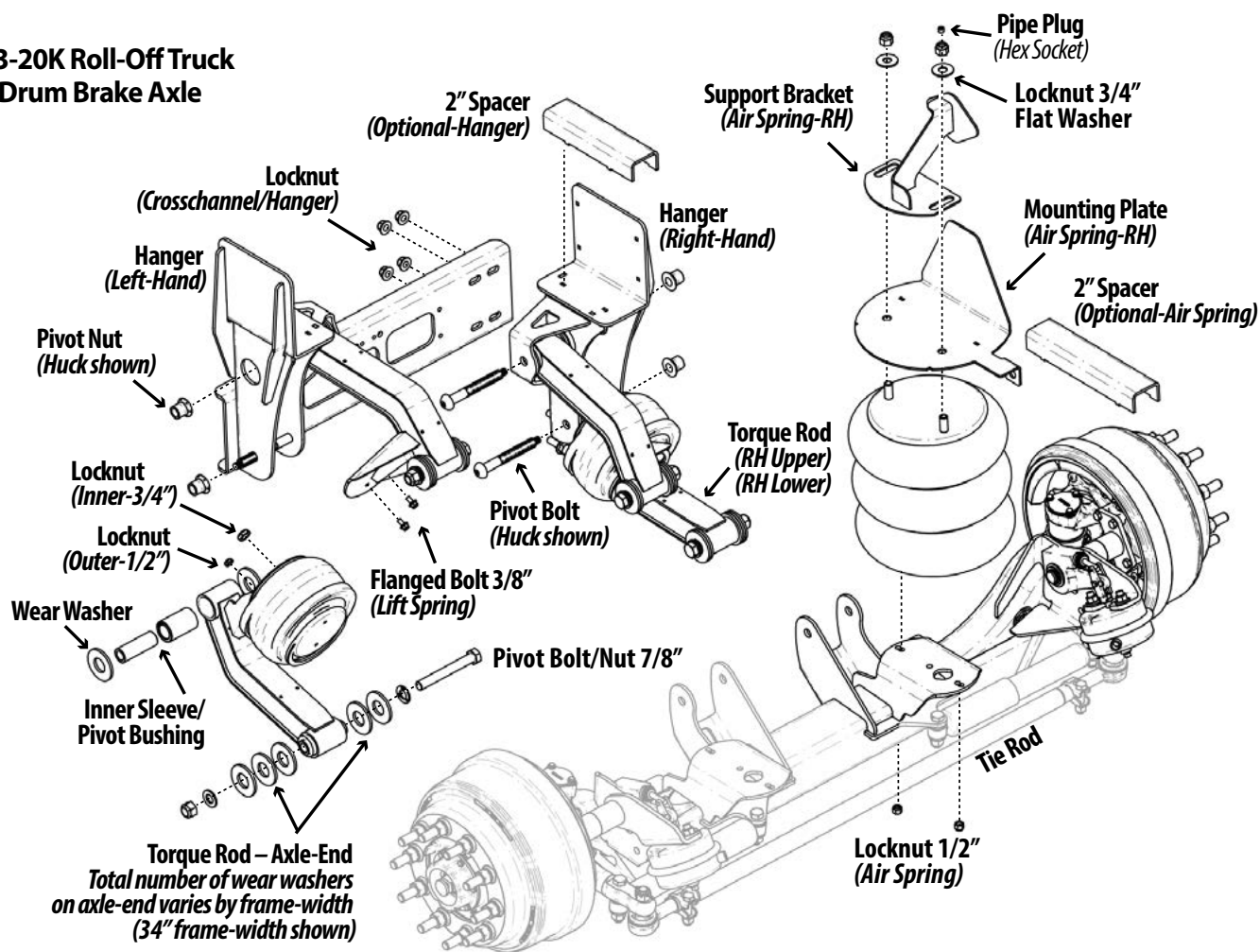
The load capacity of the auxiliary axle is adjusted by increasing or decreasing the pressure to the air springs. By applying more air, the lift axle takes on a greater percentage of the load's weight. The load capacity is decreased as the air pressure decreases.

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

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

Ride height is adjusted by installing hanger and air spring spacers

233-20K Roll-Off Truck w/ Drum Brake Axle



Wheel Toe Setting

Wheel toe is the relationship of the distance between the front of the tires and the distance between the rear of the tires on the same axle. When the front distance is less than the rear distance, the wheels are in a "toe-in" (positive toe) condition.

The correct setting for the RSS-233 suspension should be toe-in between 1/32" and 3/32".

Check Wheel Toe Setting

1. Deflate the air springs.
2. Lift the axle enough for tires to rotate freely. Support with jack stands to ensure axle is level.
3. Position tires to point straight ahead. Spin each tire. Use a piece of chalk to mark a line on the center tread all the way around the tire.
4. Use the centerline mark to measure the distance from the front of the tire to the frame. Measure the distance from the back of the tire to the frame.
5. Subtract the front of the tire distance from the rear distance to obtain the wheel toe setting.

Adjust Wheel Toe

1. Loosen clamps on both ends of the tie rod. Twist the tie rod forward/backward to move the front of the tire towards or away from the frame.
2. Continue rotating the tie rod until the proper toe-in setting is achieved.
3. Torque tie-rod clamps to 60-80 ft-lb (81-108 N-m).