

## Ridewell Self-Steering Auxiliary Axle Suspensions:

- RSS 233 - Truck–  
8K; 10K; 13K Capacity
- RSS 233 - Roll-Off Truck–  
13K Capacity
- RSS 233T - Trailer–  
10K; 13K Capacity

### Notes and Cautions

This instruction provides two types of service notes definitions: “NOTE” Provides additional instructions or 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.

## 233 8K; 10K; 13K TRUCK (EXCLUDES 13K ROLL-OFF) – BUSHING REPLACEMENT/TORQUE SPECIFICATIONS

REPL Kit Part No.	Item Description	Size	Torque Values foot-pound Newton-meter	
6040134	Traditional Hardware (HHCS/L Nut)	3/4"-16NF	310 ft-lb 420 N-m	
6040133	No Pivot Hardware			
6040215	Pivot Bolt/Nut (Huck® Hardware)			
Fasteners	Locknut (A/SPG Upper)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut (A/SPG Upper)	1/2"-13NC	25 ft-lb	35 N-m
	Lock Screw (LWR A/SPG; Lift Spring)	3/8"-16NC	25 ft-lb	35 N-m
	Locknut (Steer Damper)	3/4"-10NC	160 ft-lb	217 N-m

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

### Vehicle Preparation

Park the vehicle on a level surface. Chock wheels to keep vehicle from moving.

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

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

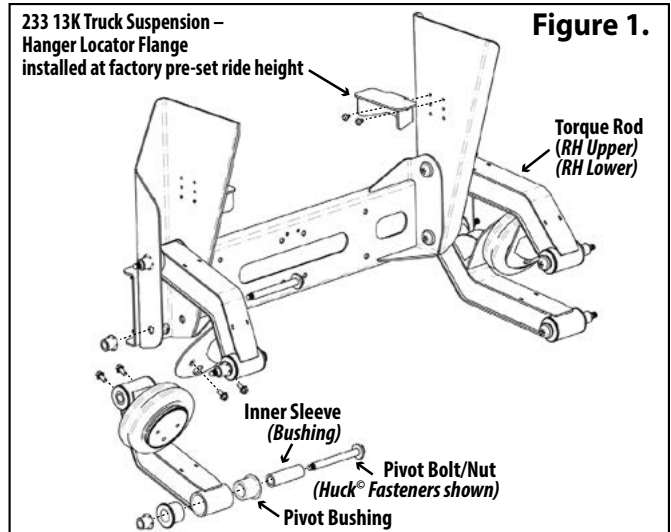
### Bushing Replacement Procedure

Replace bushing in eight pivot connections at the same time (Figure 1).

1. Remove the pivot hardware by cutting/grinding away the Huck® Collar. Discard pivot hardware.
2. Remove bushing assembly from the rod eye. Clean the rod eye of foreign debris/corrosion.
3. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of each replacement bushing half.  
NOTE: Do not substitute - urethane bushing lubricant is included with bushing replacement kit.
4. Press bushing halves into the torque rod eye until halves are snug against the eye.  
NOTE: Rubber mallet may be needed to install bushing half.
5. Press bushing inner sleeve into the center opening of the installed bushing. Check that sleeve is flush with both sides of the bushing.  
NOTE: Mallet or bushing press will be needed to insert sleeve.
6. Install pivot hardware and torque to specifications.
7. Reassemble suspension.  
Torque to spec. (Chart).

Verify wheel toe-in setting is between 1/32" and 3/32" (See page 8).

**CAUTION** Failure to torque hardware can result in suspension failure and void the warranty.



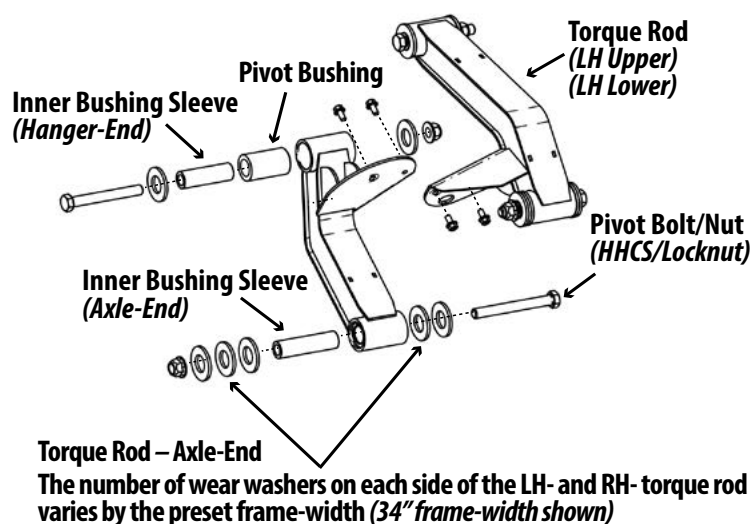
## 233 13K Roll-Off Truck – BUSHING REPLACEMENT/TORQUE SPECIFICATIONS

Part Number (Component)	Item Description	Size	Torque Values	
			foot-pound	Newton-meter
6040218-Bushing Kit	Traditional Hardware (HHCS/Locknut)	3/4"-16NF	310 ft-lb	420 N-m
6040217-Bushing Kit	No Pivot Hardware	—		
<b>Fasteners</b>	Flanged Lock Screw - (Air Spring; Lower)	3/8"-16NC	25 ft-lb	35 N-m
	Locknut - (Air Spring; Upper)	3/4"-16NF	50 ft-lb	68 N-m
	Locknut - (Crosschannel)	1/2"-13NC	25 ft-lb	35 N-m
	Locknut - (Steering Damper)	3/4"-10NC	160 ft-lb	217 N-m

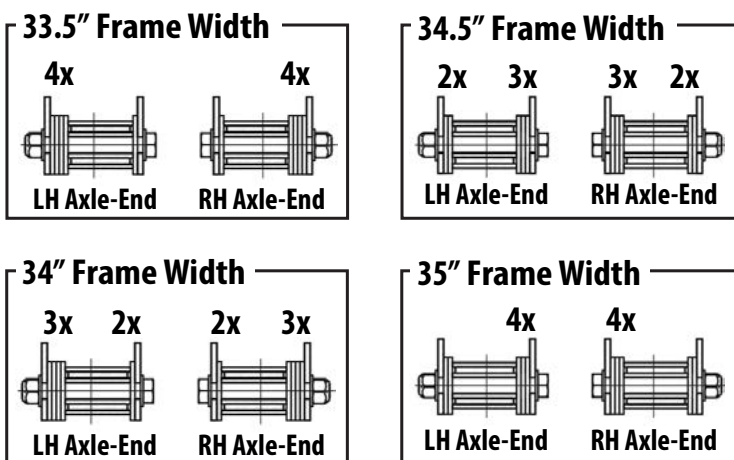
Torque values reflect a lubricated thread condition (Nuts are pre-lubed). Do not overtorque.

**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.

### 233 13K Roll-Off Truck – Bushing Replacement



### 233-13K Roll-Off - Wear Washer Torque Rod Install



**Figure 2.** Refer to engineering drawing for the correct number of wear washers installed on the axle-end of the left-hand and right-hand torque rod. The number of washers will vary according to the pre-set frame width.

### Vehicle Preparation

Park the vehicle on a level surface. Chock wheels.

Exhaust all air from the air system. Disassemble the suspension to reach pivot connections if needed.

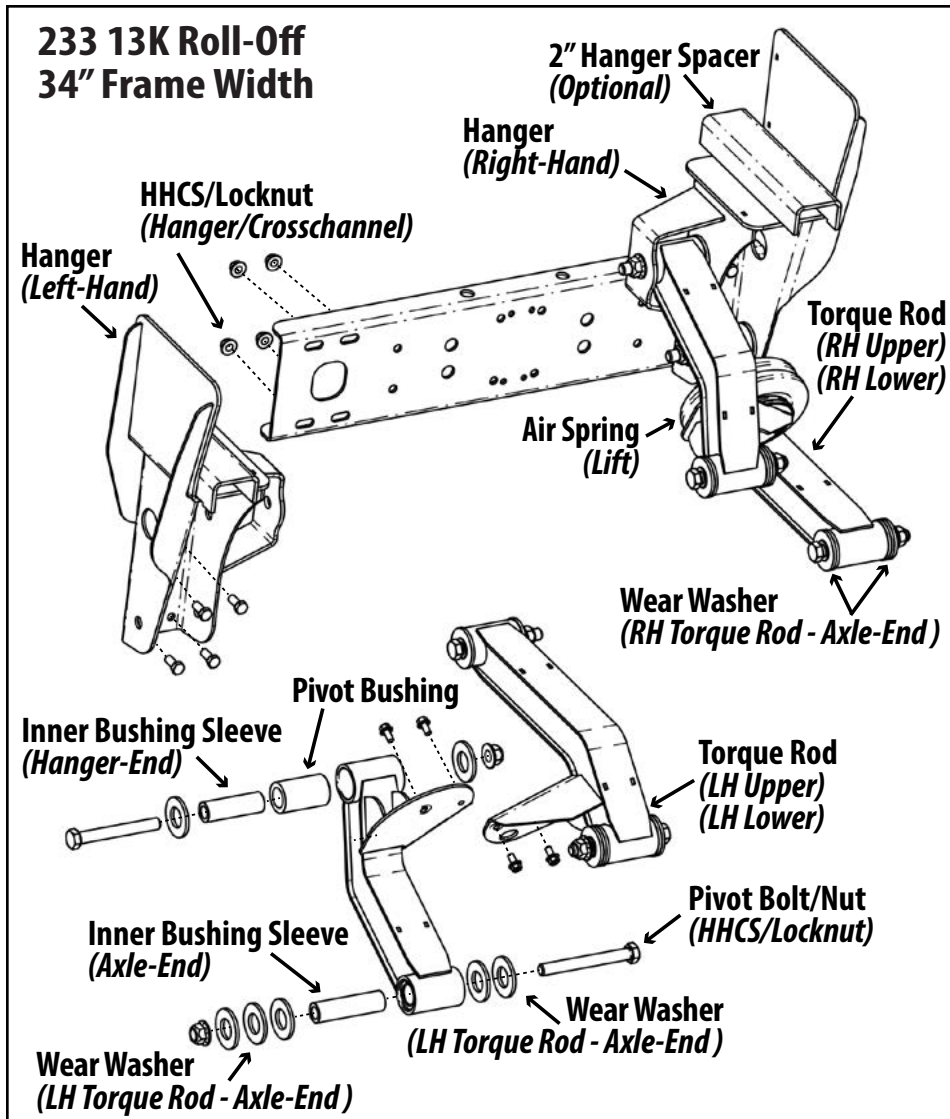
**CAUTION** Failure to properly chock the vehicle wheels and exhaust the air system could allow vehicle/suspension movement that could result in serious injury.

### Replacement Procedure

- Count the number of wear washers on each side of the bushing on the Axle-End Torque Rod Assembly. The wear washer number varies according to the pre-set frame width (Figure 2).
- Remove pivot hardware and discard. Inspect wear washers for extreme wear/damage. Replace if necessary.  
NOTE: Pivot hardware/wear washers included with kit.
- Remove bushing from torque rod and discard. Clean rod eye of foreign debris/corrosion.
- 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.

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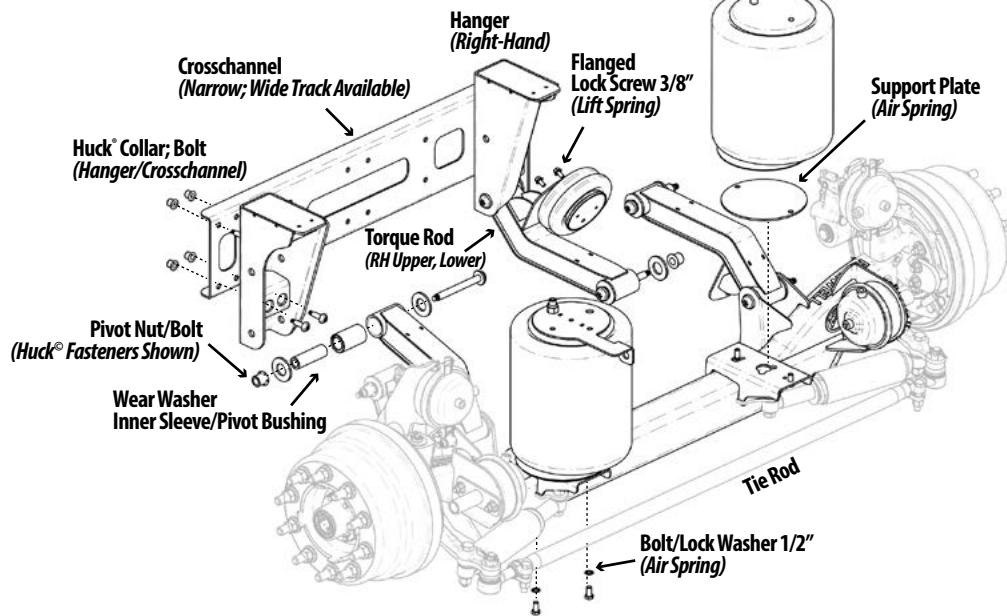
## 233-13K Roll-Off Truck – Bushing Replacement Procedure (continued)



**Figure 3.**  
The number of wear washers on the axle-end of the left-hand and right-hand torque rod varies by the frame width.

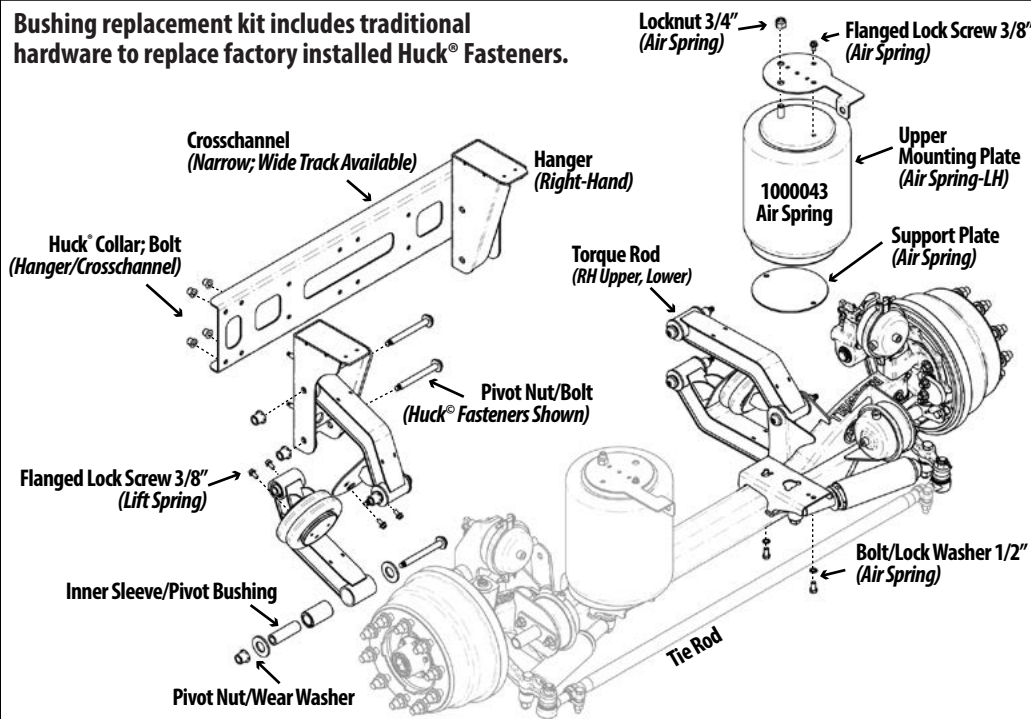
5. Install new bushing into the eye of the torque rod.  
NOTE: Mallet /press needed to install bushing.
  6. Torque Rod Hanger-End (Bushing Sleeve - 4.1")  
Press inner sleeve into the installed bushing. Center sleeve so that both ends extend slightly past the sides of the bushing. Assemble pivot connection with one wear washer on each side of the bushing.  
NOTE: Inner sleeve must be flush with or extend slightly past the outside of the wear washers on both ends.
  7. Torque Rod Axle-End (Bushing Sleeve - 4.8")  
Press inner sleeve into the installed bushing. Position inner sleeve so that one end extends further past the bushing on appropriate side as determined by the frame width.  
Assemble pivot connection with appropriate number of wear washers on either end of the inner sleeve on the axle-end of the torque rod (Figure 3).  
NOTE: Inner sleeve must be flush with or slightly past the outside of installed wear washers on both sides of torque rods. Adjust sleeve if necessary.
  8. Torque pivot nut to specifications (500 ft-lb - 678 N-m).
  9. Reassemble suspension, if necessary. Torque components to specifications.
- Check wheel toe-in setting (between 1/32" and 3/32").  
Adjust if necessary (See page 8).

Bushing replacement kit includes traditional hardware to replace factory installed Huck® Fasteners.



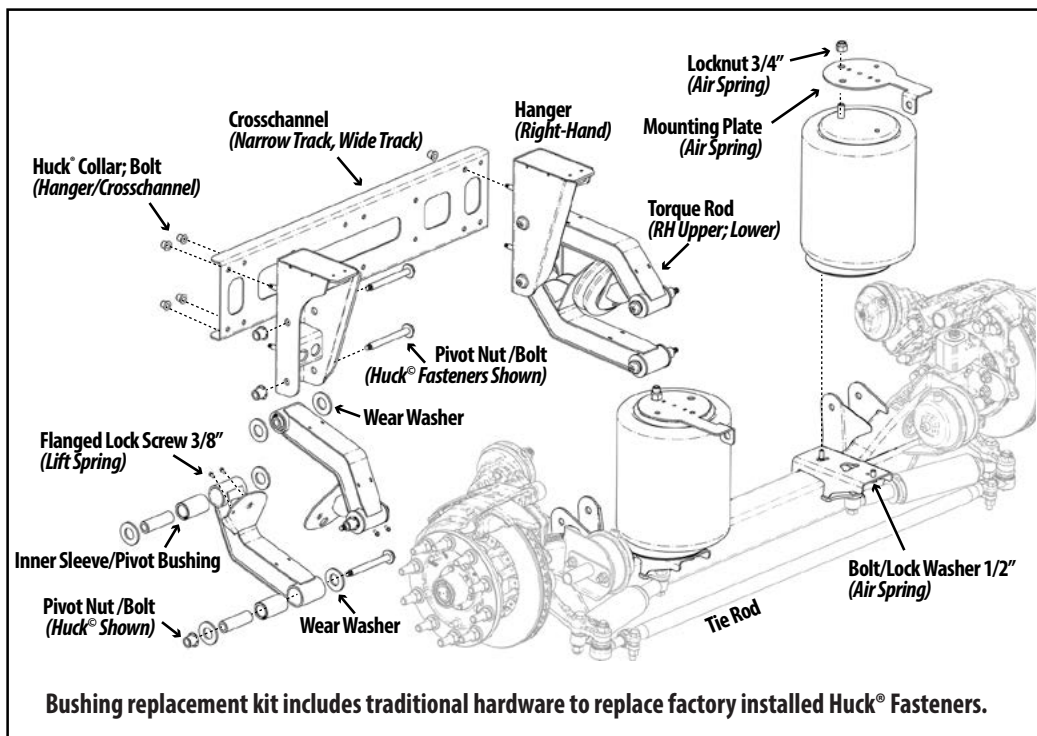
**Figure 4.**  
13K Trailer Suspension-  
Drum Brake FAXL Components –  
Single-fastener-mounted air spring

Bushing replacement kit includes traditional hardware to replace factory installed Huck® Fasteners.

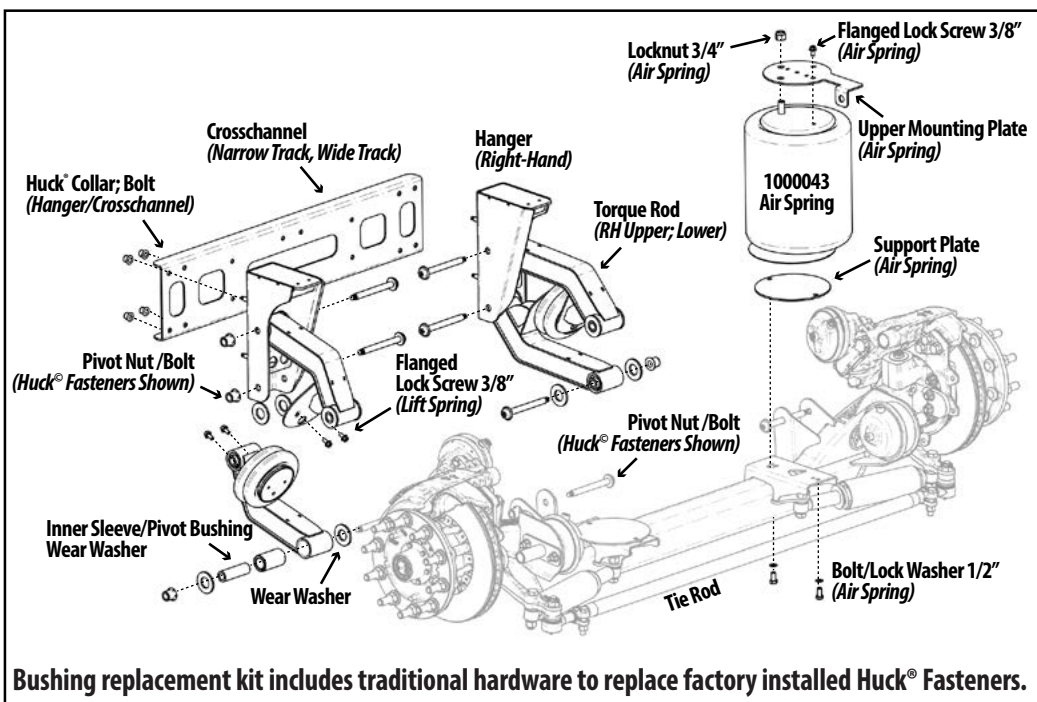


**Figure 5.**  
13K Trailer Suspension-  
Drum Brake FAXL Components –  
Dual-fastener-mounted air spring  
*Requires dual-fastener air spring  
(P/N 1000043)*

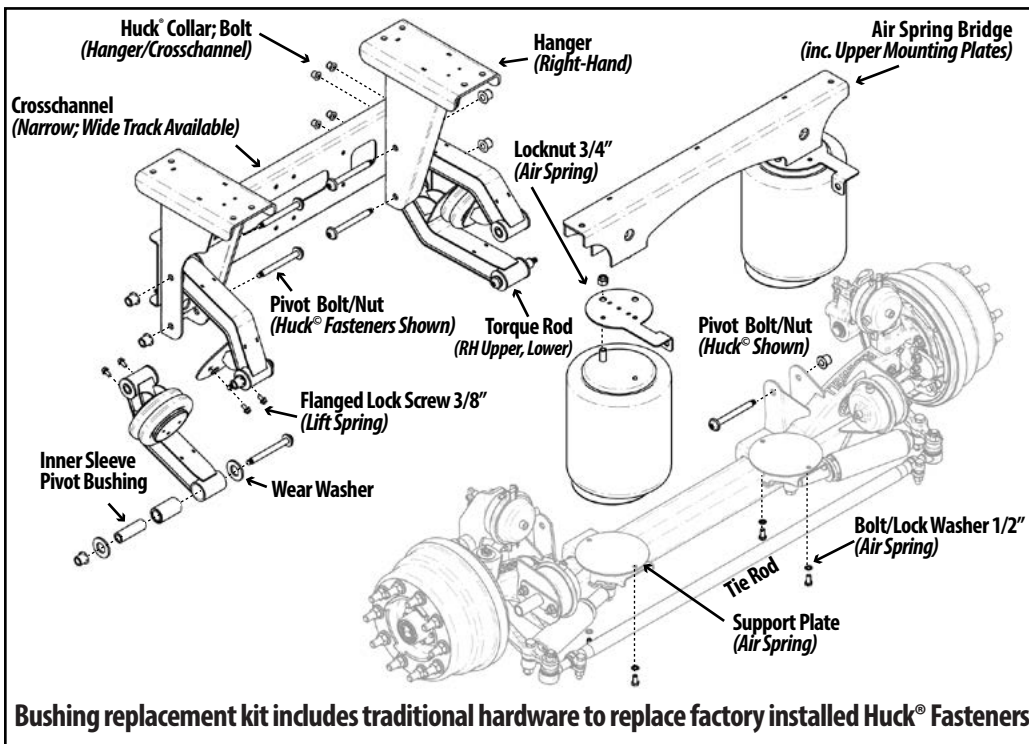




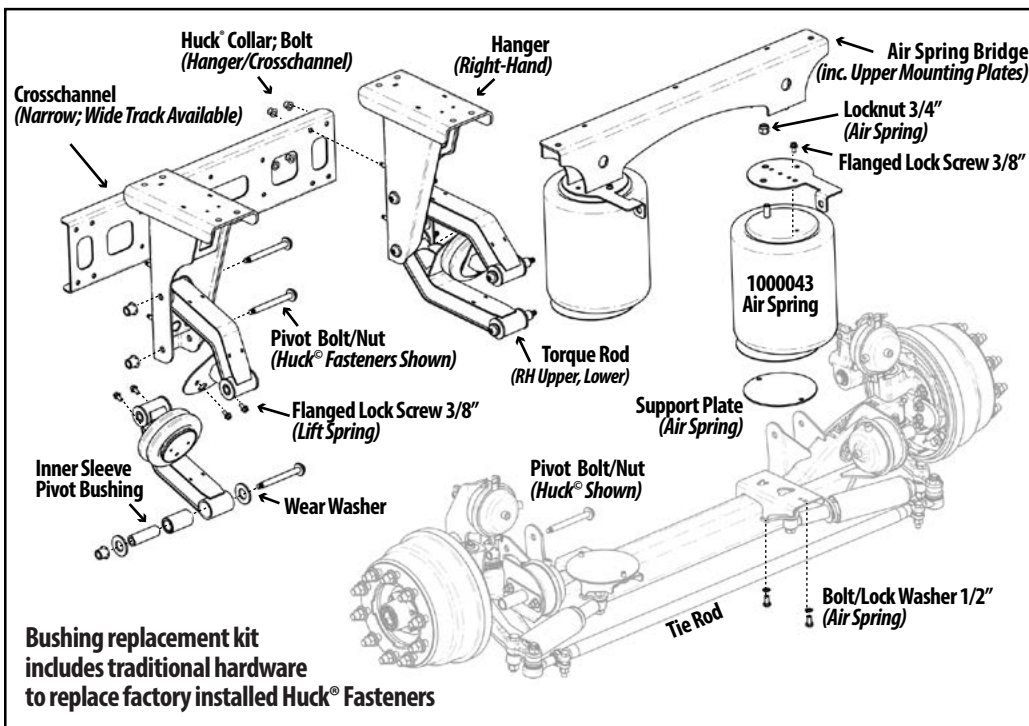
**Figure 6.**  
**13K Trailer Suspension-**  
**Disc Brake FAXL Components –**  
**Single-fastener-mounted air spring**



**Figure 7.**  
**13K Trailer Suspension-**  
**Disc Brake FAXL Components –**  
**Dual-fastener-mounted air spring**  
*Requires dual-fastener air spring*  
*(P/N 1000043)*



**Figure 8.**  
**13K Trailer Suspension**  
**Drum Brake FAXL Components**  
**including Air Spring Bridge –**  
**Single-fastener-mounted air spring**



**Figure 9.**  
**13K Trailer Suspension**  
**Drum Brake FAXL Components**  
**including Air Spring Bridge –**  
**Dual-fastener-mounted air spring**  
**Requires dual-fastener air spring**  
**(P/N 1000043)**

## RSS-233T 10K; 13K TRAILER – BUSHING REPLACEMENT/TORQUE SPECIFICATIONS

Replacement Kit			Torque Values	
Part Number	Item Description	Size	foot-pound	Newton-meter
6040188	Traditional Pivot Hardware (HHCS/Locknut)	3/4"-16NF	310 ft-lb	420 N-m
6040187	No Pivot Hardware			
<b>Fasteners</b>	Locknut (Single-Fastener-Mounted Air Spring)	3/4"-16NF	50 ft-lb	68 N-m
	Flanged Lock Screw (Dual-Fastener-Mounted Air Spring)	3/8"-16NC	25 ft-lb	35 N-m
	Bolt-Hex Head Cap Screw (Air Spring, Lower)	1/2"-10NC	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

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

### Vehicle Preparation

Park the vehicle on a level surface.  
Chock wheels.

Exhaust all air from the air system.

Disassemble suspension to reach pivot connections if necessary.

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

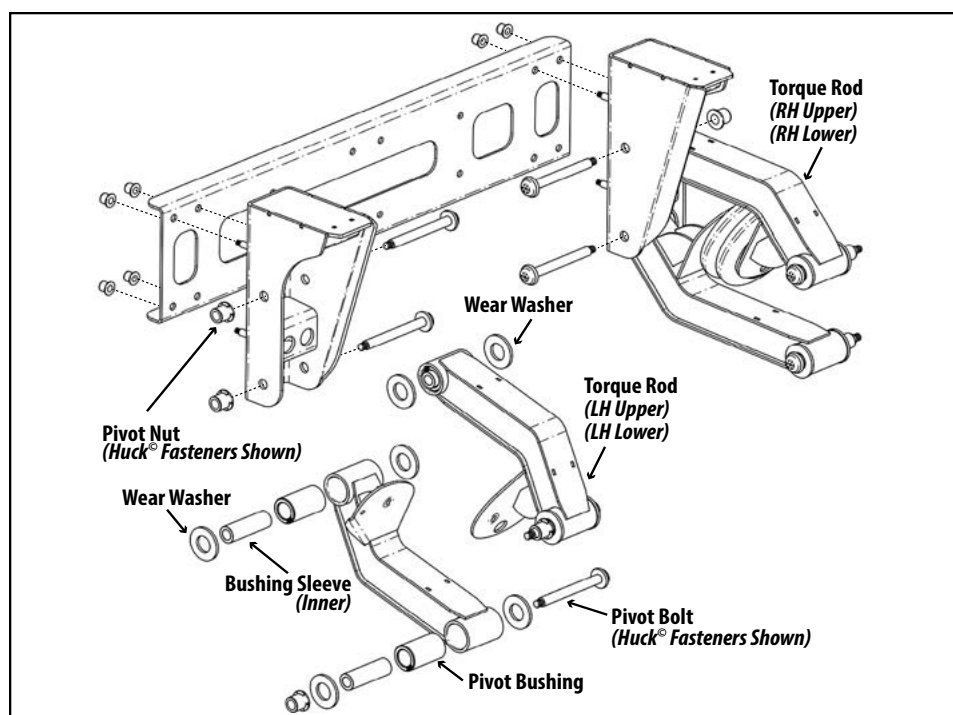
### Replacement Procedure

Replace the eight pivot connection bushings at the same time (Fig. 10).  
NOTE: RSS-233T-13K Auxiliary Axle Trailer Suspensions manufactured before October 2018 do not use wear washers at the pivot connection.

1. Remove Huck® Fastener by cutting/grinding away the collar. Take pivot connection apart. Discard pivot hardware. Discard the wear washers.  
NOTE: Wear washers included in all bushing replacement kits.
2. Remove bushing assembly from the rod eye and discard.  
NOTE: The bushing assemblies of 233T-13K Trailer Suspensions manufactured before October 2018 consist of two urethane bushing halves and the bushing inner sleeve.
3. Clean the torque rod eye of foreign debris/corrosion with a wire brush before installing replacement bushing.
4. Apply Energy Suspensions® Formula 5 Prelube to the bore (inside) of replacement bushing.  
NOTE: Do not substitute - urethane bushing lubricant is included with all 233-13K Suspension bushing replacement kits.

5. Install (press) bushing into the eye of the torque rod.  
NOTE: Mallet/press needed to install bushing.
6. Press inner sleeve into bushing. Center sleeve inside bushing so that sleeve ends extend slightly past the bushing sides.
7. Assemble connection with one wear washer on each side of bushing.  
NOTE: The inner sleeve of the bushing must be flush with or extend slightly past the outside of the pivot connection wear washers after assembly.
8. Torque pivot hardware to specifications (Chart/ENG DWG).
9. Reassemble suspension if necessary. Torque to specifications (Chart/Engineering Drawing).
10. Check wheel toe-in setting (between 1/32" and 3/32"). Adjust if needed (See page 8).

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



**Figure 10.** Bushing replacement kit includes traditional hardware components to replace Huck™ fasteners at eight pivot connections.

### 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 component failure and void the warranty.

### 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.

### Check Wheel Toe Setting

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

1. Deflate the air springs.
2. Lift 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 each tire.
4. Use a tape measure to measure the distance between the center mark at the front and the rear of the tires.
5. Subtract the distance measured at the front of the tires from the distance measured at the rear of the tires to obtain the wheel toe setting (between 1/32" and 3/32").

### Adjust Wheel Toe

1. Loosen the clamps on both ends of the tie rod.  
Twist the tie rod forward/backward to move the front of the tires towards or away from each other (increase/decrease toe-in setting).
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).

