



**IK001718**  
 Date:

Axle Replacement Kit			
Model	Serial Numbers		Kit # Version
	Including	Excluding	
R9X12T	101 – 114	102	IK01
Mandatory <input checked="" type="checkbox"/>		Recommended <input type="checkbox"/>	Optional <input type="checkbox"/>
Dealer Reference: Service Bulletin No. SVC2012066			



**PRODUCT  
SAFETY  
ALERT**

**FIRST NOTICE**

**PURPOSE:**

**BRAKE SLACK ADJUSTER FAILURE MAY OCCUR**

The design of the R9X12T axle did not provide adequate clearance for the automatic brake slack adjuster mechanism. Under certain driving conditions, the brake slack adjuster may become damaged by axle travel. If the brake slack adjuster mechanism is damaged, the brake slack adjusters will not work properly. A partial or complete loss of trailer braking capability may occur.

**DEATH OR SERIOUS INJURY POSSIBLE**

If trailer braking capacity is reduced or lost, loss of vehicle control may result while towing on public highway. **Death or serious injury is possible.** Property or equipment damage is also possible.

**SPECIAL TOOLS AND CONDITIONS:**

- Bushing removal/installation tool
- Disc grinder
- Commercial alignment gauge or trammel bar
- Floor jacks
- Blocking
- Welder
- Adjustable torque wrench
- Vermeer touchup paint



**WARNING: Use the following shutdown procedure before attempting to do any work described in this Kit.**

1. Shut off Discharge Pump.

2. If optional Pit Pump is connected, shut off pump.
3. Shut off Desilter Pump and Desander Pump.
4. After all spoils have been discharged from shaker screens, shut off all shakers: Desander Shaker, Desilter Shaker, and Primary Shakers.
5. Shut off Agitators.
6. Shut off main circuit breaker.
7. Close manual fluid valves.
8. Press Genset Off button, and Controller Power Switch.
9. Wait 10 seconds, then turn battery disconnect switch to the disconnect position.

Recommended Steel Welding Procedures:



**WARNING: If these procedures and specifications are not followed, damage to the axle or suspension could result. The resulting axle or suspension damage could cause an accident, property damage, and/or serious injury.**

**NOTICE:** A welder qualified in 2G position per ANSI/AWS D1. 1-94 Section 5 Part C "Welder Qualification" must perform the welding.

The specification shown below is for horizontal (2F) positioning.

1. Suspension components and their mating parts must be at a minimum temperature of 60°F (15.5°C) and free from moisture, dirt, scale, paint, grease, and other contaminants. (Preheat as per axle manufacturer)
2. All welds must be performed in a flat or horizontal position. Clean welds between each pass.

Standard Wire: AWS ER-70S-6, 0.045" DIA

Volts: 26-30 DCRP

Current: 275–325 Amps

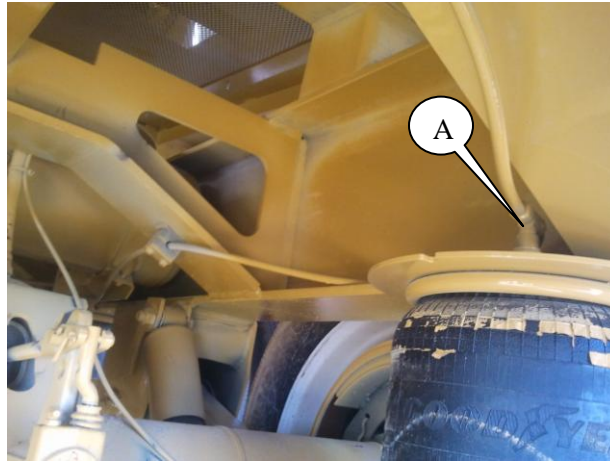
Gas: 90%AR 10%CO2 at 30 to 35CFH

**REMOVAL PROCEDURE:**

1. The procedure describes removal of one axle. The forward most axle should be removed first, followed by the second and the third. The new axles should be installed in the same order as removal.
2. On a level surface, chock the tires and apply trailer park brakes.
3. Support trailer main frame, in a safe manner with suitable blocking, at a working height that will allow clearance for axle removal.
4. Disconnect unit from tractor.
5. Exhaust all air from the air suspension system and air brake system.

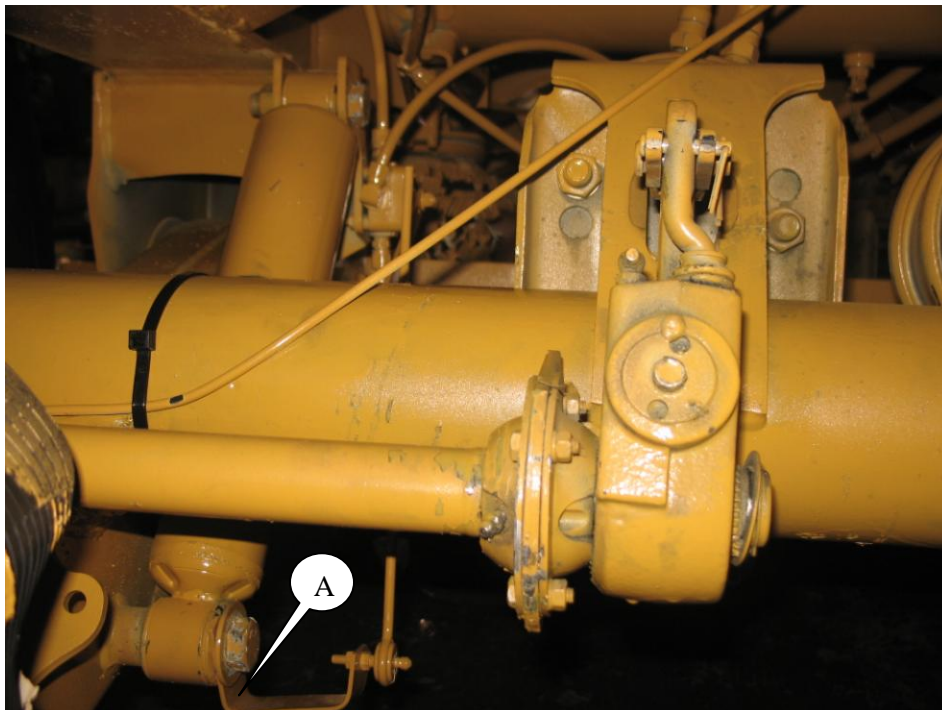
Disconnect air bag lines (Ref. A, Fig. A) from the air suspension bag.

**Figure A**



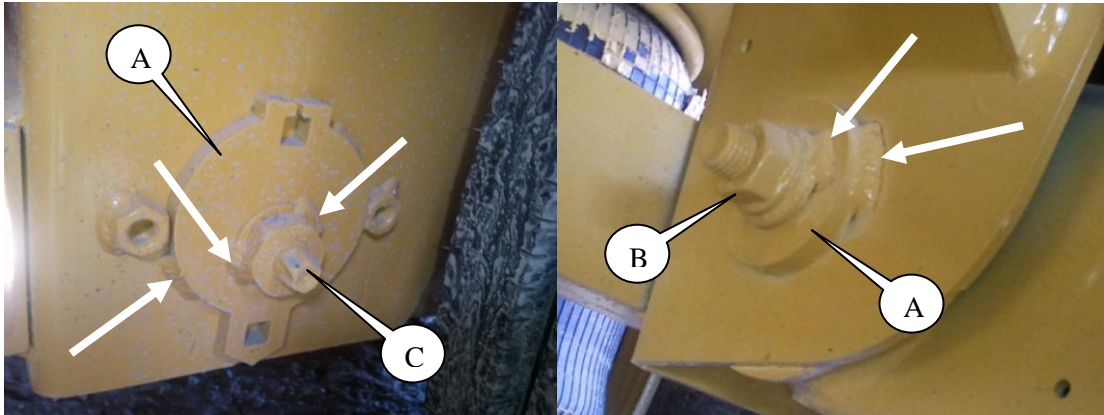
6. Disconnect height control valve bracket (Ref. A, Fig. B) to the H-beam. Refer to Figure B.

**Figure B**



7. Use a grinder to remove welds allowing the removal of the alignment gears (A), nut (B), and bolt (C) for each hanger. Refer to Figure C.

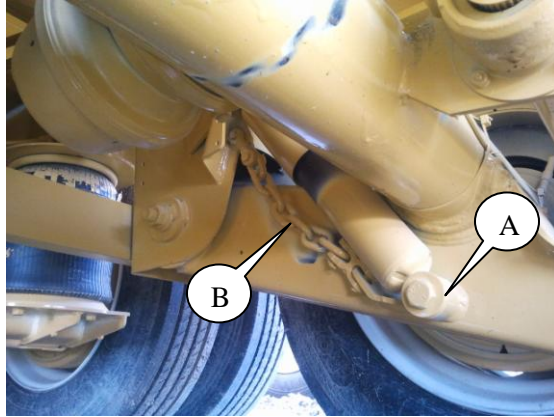
**Figure C**



8. Support axle on both sides with hoist or jacks. Ensure supports will prevent axle from rolling or sliding off after hardware securing axle to frame is removed. Do not remove support from frame.

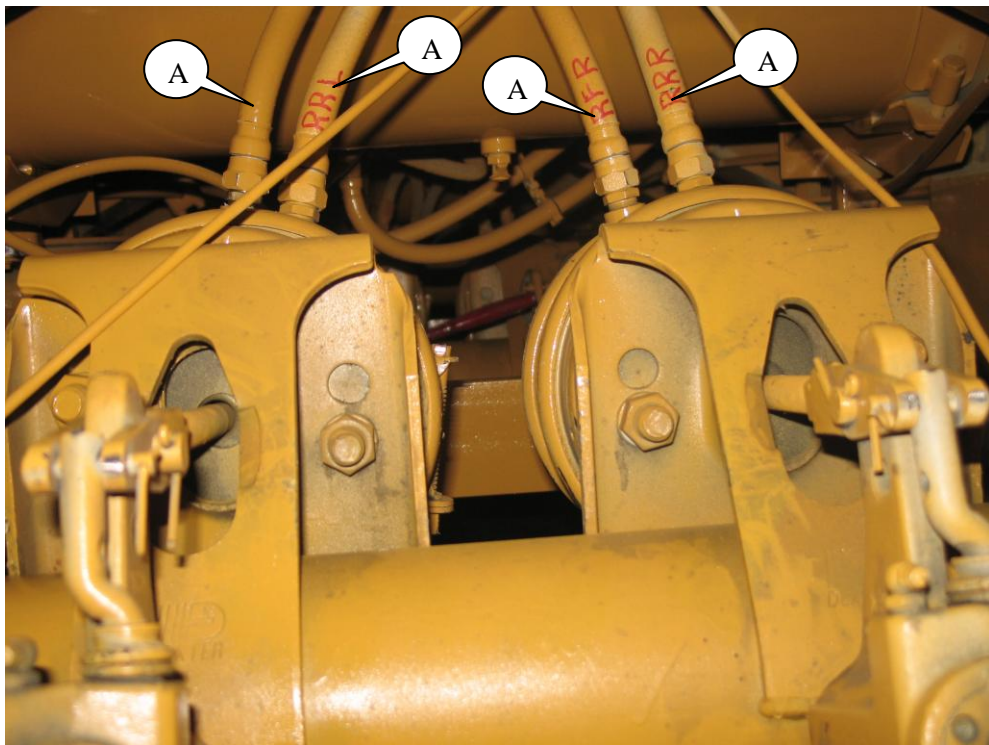
- Loosen and remove shock connection (Ref. A, Fig. D) and chain restraint (Ref. B, Fig. D).

**Figure D**



- Remove brake lines (Ref. A, Fig. E).

**Figure E**



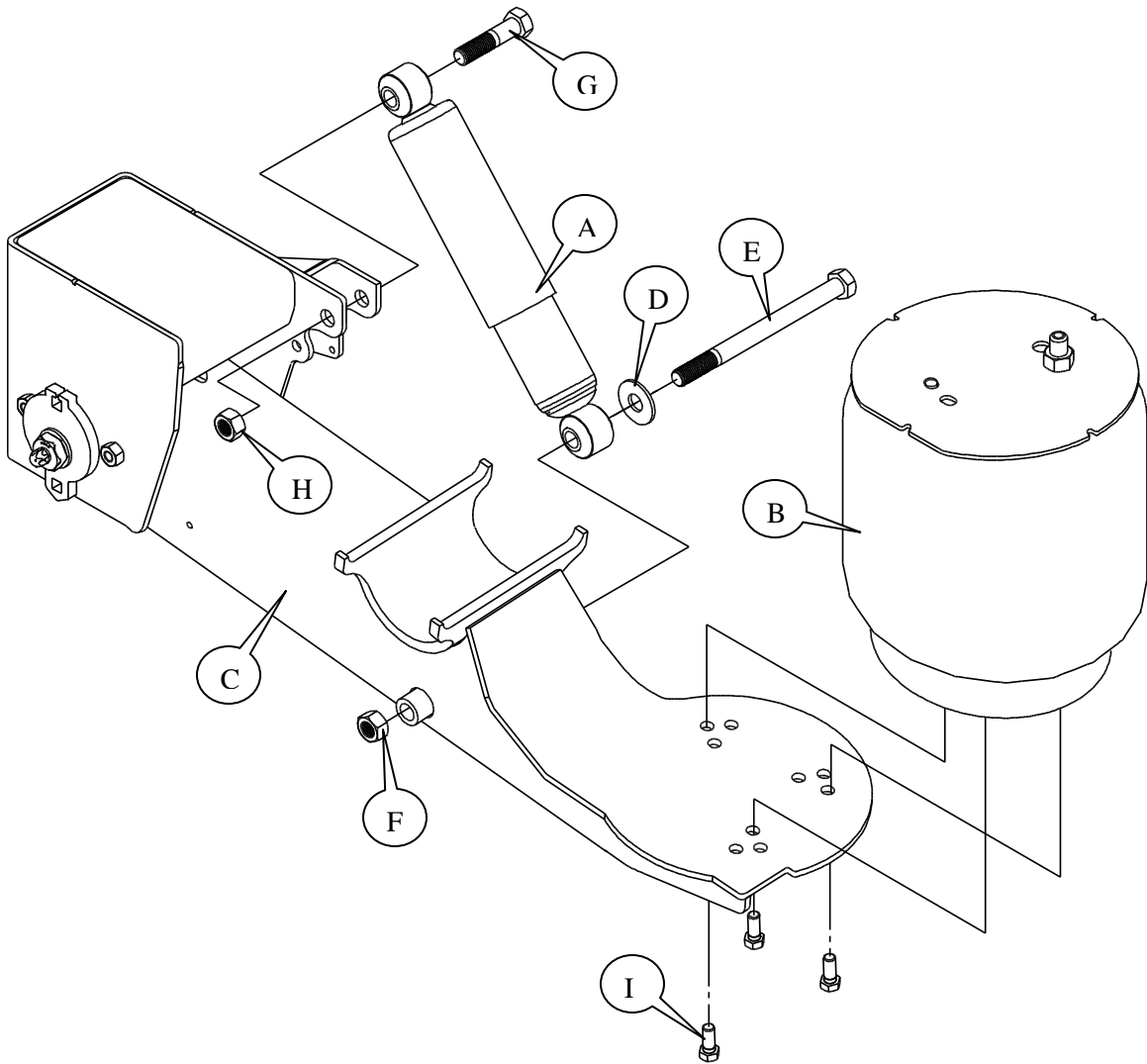
11. Disconnect ABS sensor wiring (Ref. A, Fig. F).

**Figure F**



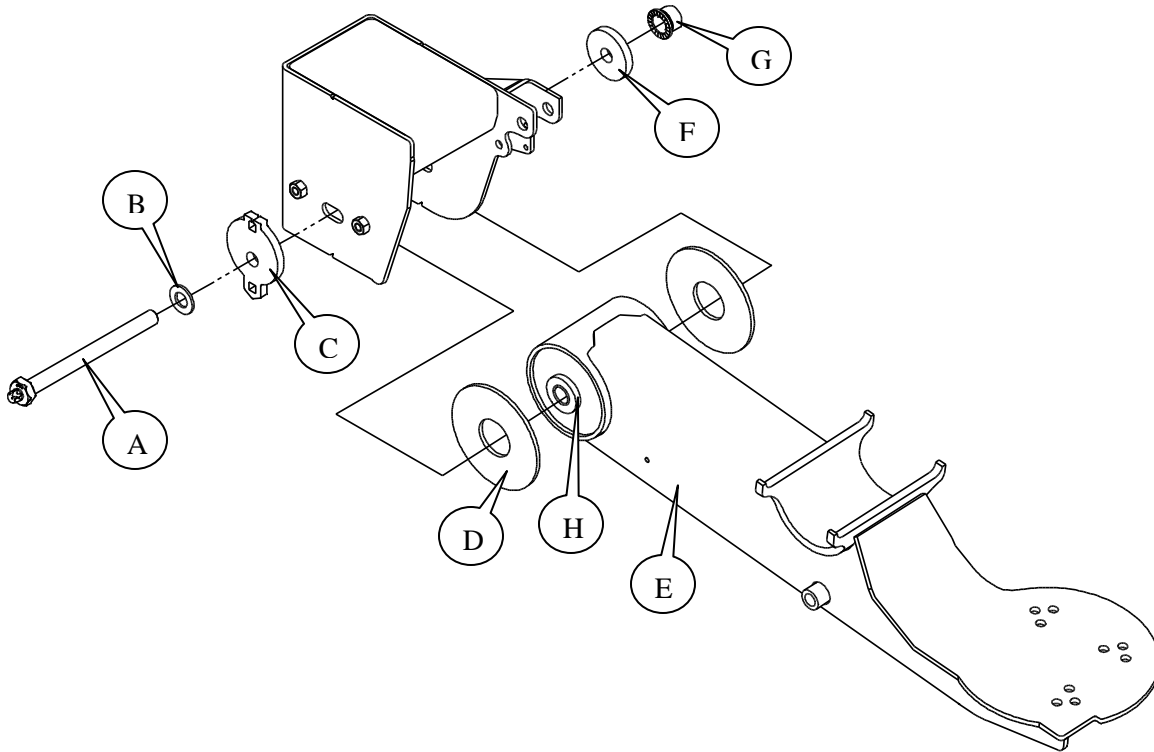
12. Disassemble shock (Ref. A, Fig. G) and air bag (Ref. B, Fig. G) from beam (Ref. C, Fig. G). Retain shock (Ref. A, Fig. G), washer (Ref. D, Fig. G), bolt (Ref. E, Fig. G), nut (Ref. F, Fig. G), bolt (Ref. G, Fig. G), nut (Ref. H, Fig. G), air bag (Ref. B, Fig. G), and bolts (Ref. I, Fig. G). Left side shown.

**Figure G**



13. Disassemble auditorx bolt (Ref. A, Fig. H), washer (Ref. B, Fig. H), alignment gear (Ref. C, Fig. H), wear washers (Ref. D, Fig. H), rubber bushing (Ref. H, Fig. H), beam (Ref. E, Fig. H), round alignment gear (Ref. F, Fig. H), and nut (Ref. G, Fig. H). Retain wear washers (Ref. D, Fig. H). Left side shown.

**Figure H**



14. Repeat Steps 4 through 15 on right side of suspension assembly.

15. Lower axle beam assembly or lift the trailer to drop the H-Beam.

16. Remove axle assembly from under trailer by rolling it on the wheels.

17. Check for any damaged hanger wear.

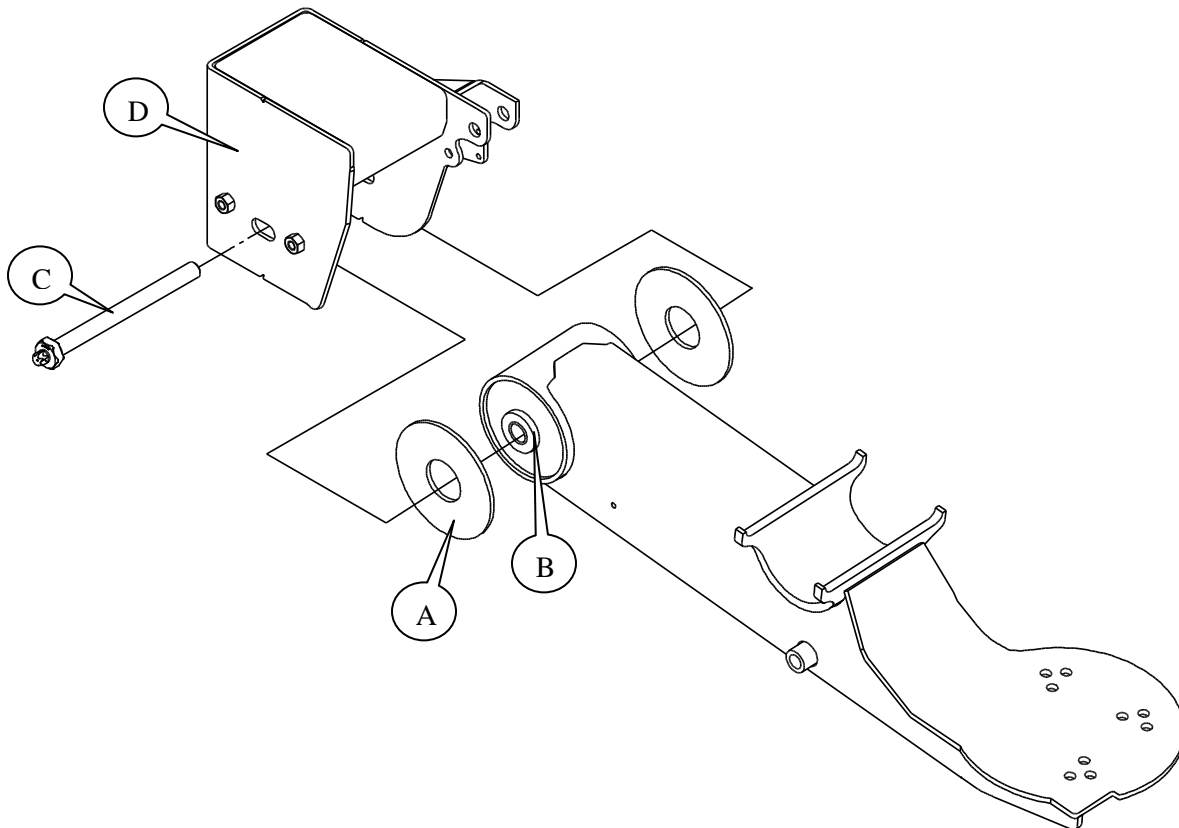
18. Remove tires and wheels.

## INSTALLATION PROCEDURE:

**NOTICE: Components consist of right hand and left hand beams.**

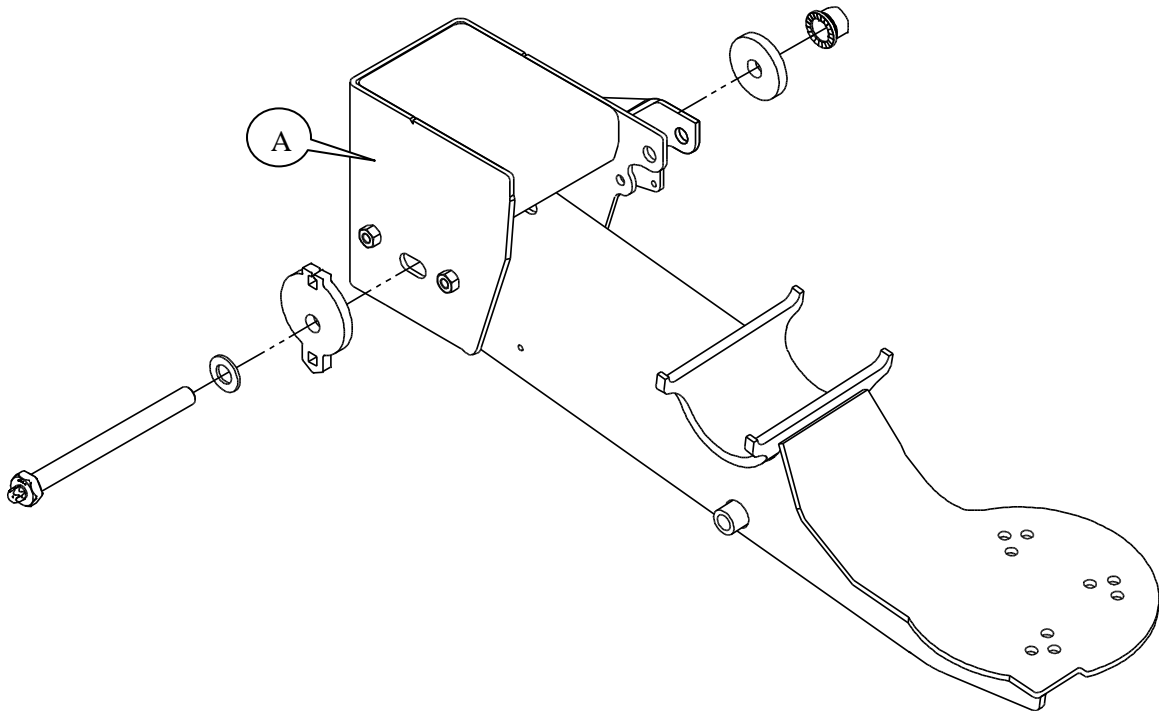
1. Position wear washers (Ref. A, Fig. 1) over the outside diameter of rubber bushing (Ref. B, Fig. 1). (Left side shown).
2. Place auditorx bolt (Ref. 3, Fig. 12) through wear washers (Ref. A, Fig. 1), rubber bushing (Ref. B, Fig. 1), and pre-installed bushing inserts (Ref. 5, Fig. 12). (Left side shown).
3. Hand-tighten a .875" non-locking nut on auditorx bolt (Ref. 3, Fig. 12) to hold all loose items in position. (Left side shown).
4. Using a hydraulic jack or other lifting device, raise pivot end of beam (Ref. 1, Fig. 12) until flanges of pre-installed bushing inserts (Ref. 5, Fig. 12) enter the inside of the hanger (Ref. D, Fig. 1). (Left side shown).

**Figure 1**



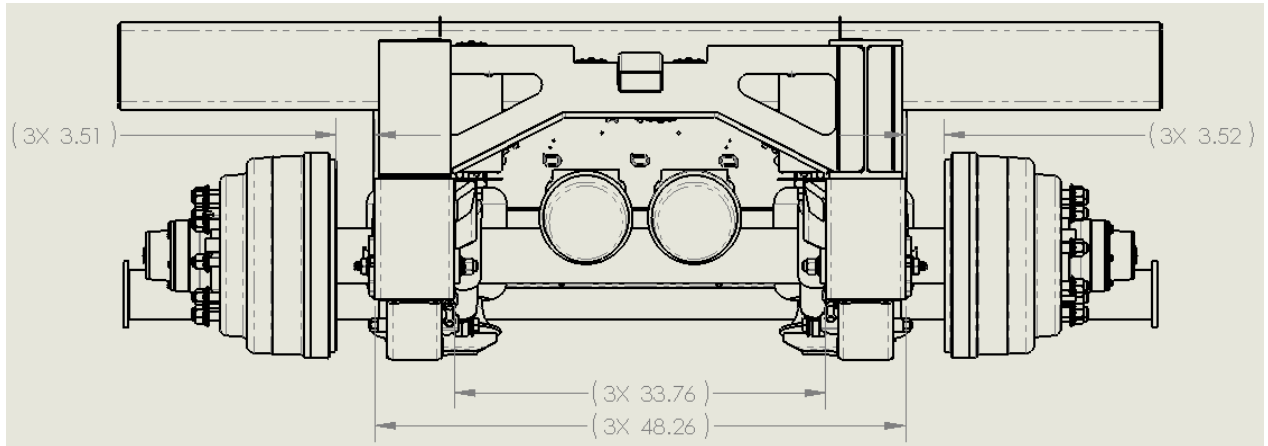
5. Holding this raised position, remove auditorx bolt (Ref. 3, Fig. 12) and .875" non-locking nut, continue to raise pivot end of beam (Ref. 1, Fig. 12) until hole in pre-installed bushing inserts (Ref. 5, Fig. 12) line up with slots in hanger (Ref. A, Fig. 2). (Left side shown).
6. Place hardened washer (Ref. 2, Fig. 12) and alignment gear (Ref. 6, Fig. 12) on auditorx bolt (Ref. 3, Fig. 12). (Left side shown).
7. Reinstall auditorx bolt (Ref. 3, Fig. 12) through hanger (Ref. A, Fig. 2), rubber bushings, pre-installed bushing inserts (Ref. 5, Fig. 12) and beam (Ref. 1, Fig. 12). (Left side shown).
8. Place round alignment gear (Ref. 7, Fig. 12) and nut (Ref. 4, Fig. 12) on auditorx bolt (Ref. 3, Fig. 12), tighten until snug. (Left side shown).
9. Repeat Steps 1 through 8 on right side of suspension assembly. (Left side shown).

**Figure 2**



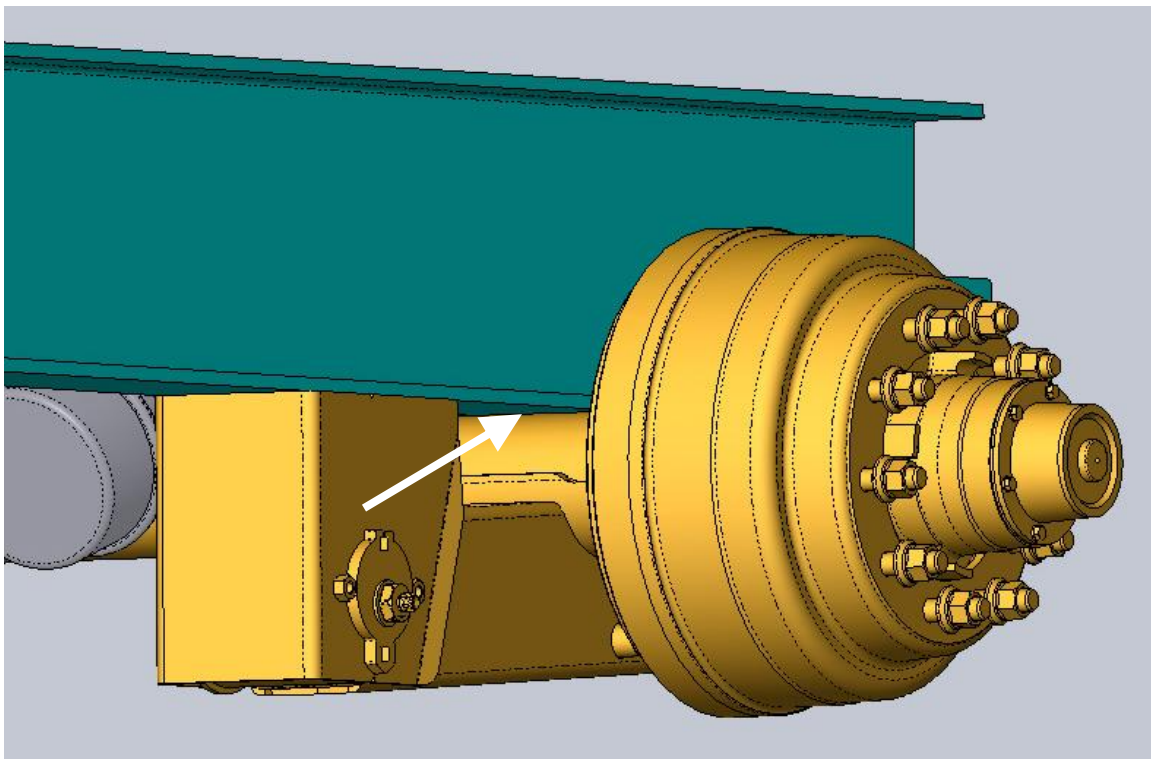
10. Using a hydraulic jack or other lifting device, place and center axle (Ref. 8, Fig. 12) on beams (Ref. 1, Fig. 12) with brake canisters on front side of axle assembly, and slack adjuster arms on rear. Refer to Figure 3.

**Figure 3**



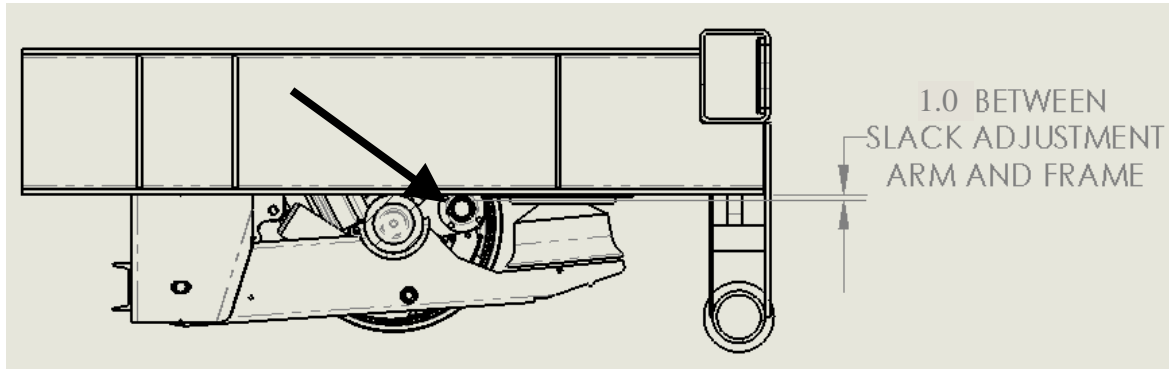
11. Lift axle (Ref. 8, Fig. 12) until axle tube makes contact with bottom of main frame. Refer to Figure 4.

**Figure 4**



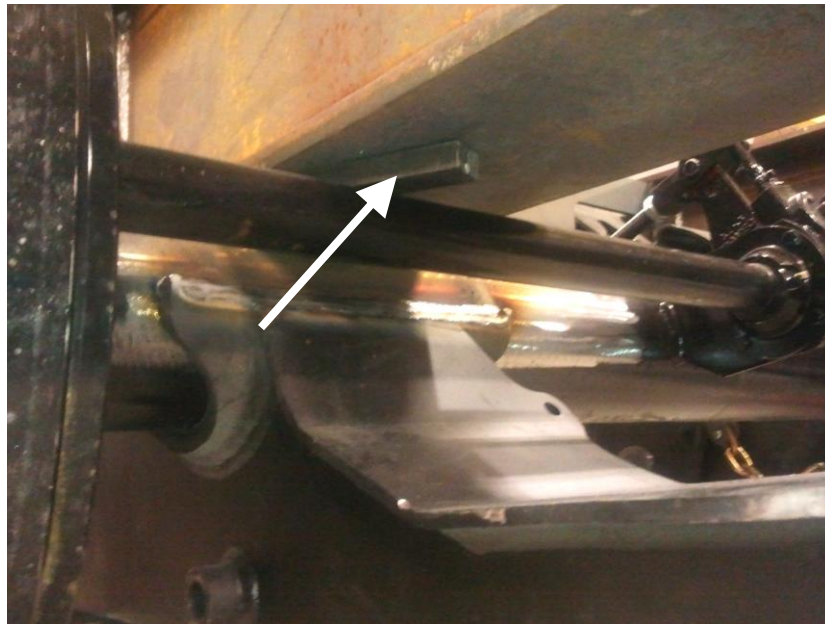
12. While maintaining axle tube contact with the frame, rotate axle (Ref. 8, Fig. 12) so slack adjustment arm is 1.0" (2.54 cm) from frame. Refer to Figure 5.

**Figure 5**



13. To maintain proper clearance, add 1.0" (2.54 cm) spacer between slack adjustment arm and frame. Refer to Figure 6.

**Figure 6**

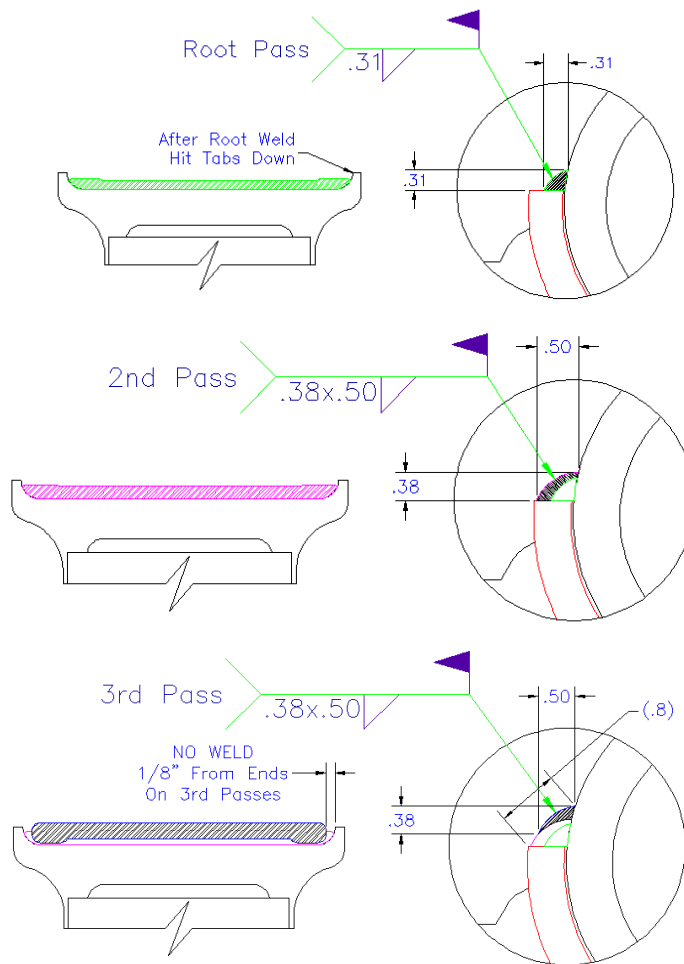
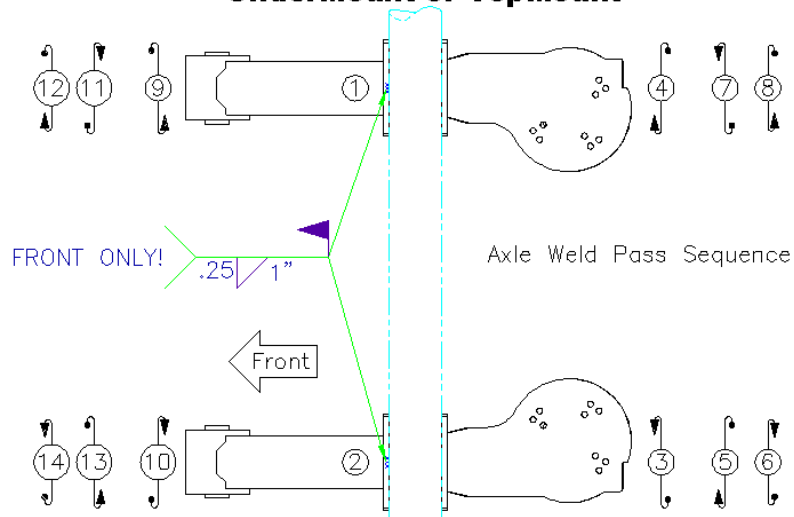


14. Before performing any welding procedure, refer to "Recommended Steel Welding Procedures" on pages 1-2 of kit.

15. Use locating fixture or flat surface to space beams (Ref. 1, Fig. 12) and center axle (Ref. 8, Fig. 12). Check that beams (Ref. 1, Fig. 12) are: parallel and square to axle (Ref. 8, Fig. 12). The suspension axle seat must be tight against the axle with no more than a .063" (2 mm) gap at bottom. Beam auditorx bolts (Ref. 3, Fig. 12) may need to be loosened and adjusted as necessary. If possible, keep auditorx bolts (Ref. 3, Fig. 12) centered in slots to allow adequate clearance for axle alignment.
16. Place 1" tack welds in center forward of both beams (Ref. 1, Fig. 7) and (Ref. 2, Fig. 7).
17. Position and weld rear root pass (Ref. 3, Fig. 7) and (Ref. 4, Fig. 7).
18. After root weld, hit tabs down for better 2<sup>nd</sup> pass. Refer to Figure 7.
19. Do not wrap welds over axle seat tabs; no weld .13" (3 mm) from ends on 3<sup>rd</sup> pass. Refer to Figure 7.
20. Weld rear 2<sup>nd</sup> and 3<sup>rd</sup> cover pass (Ref. 5, Fig. 7), (Ref. 6, Fig. 7), (Ref. 7, Fig. 7) and (Ref. 8, Fig. 7).
21. Position and weld front root pass (Ref. 9, Fig. 7) and (Ref. 10, Fig. 7).
22. Weld front 2<sup>nd</sup> and 3<sup>rd</sup> cover pass (Ref. 11, Fig. 7), (Ref. 12, Fig. 7), (Ref. 13, Fig. 7) and (Ref. 14, Fig. 7).
23. Extra durability can be achieved after welding by using a 1/8" hardened ball peen hammer on weld and area.

Figure 7

**Suspension to Axle  
3 Pass Weld Sequence  
UnderMount or TopMount**

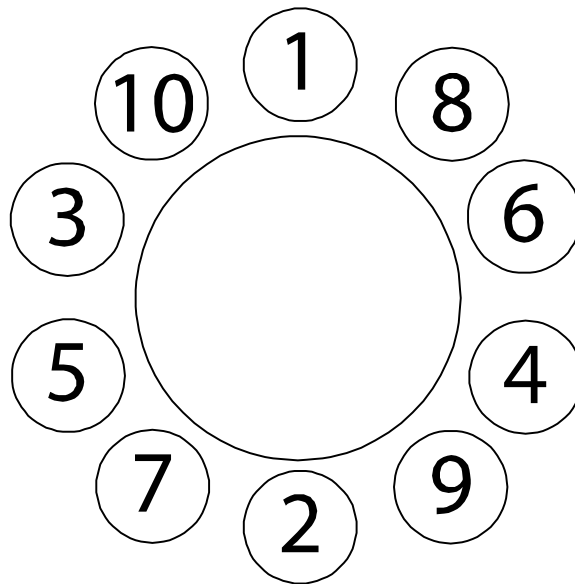


**ALIGNMENT PROCEDURE:**

**CAUTION: DO NOT APPLY** undercoating to the “Align” area until after alignment and torque of the suspension auditorx bolts.

24. Attach tires and wheels, torque lug nuts to 475 ft-lbs (215 Nm). Refer to Figure 8 for torque sequence.

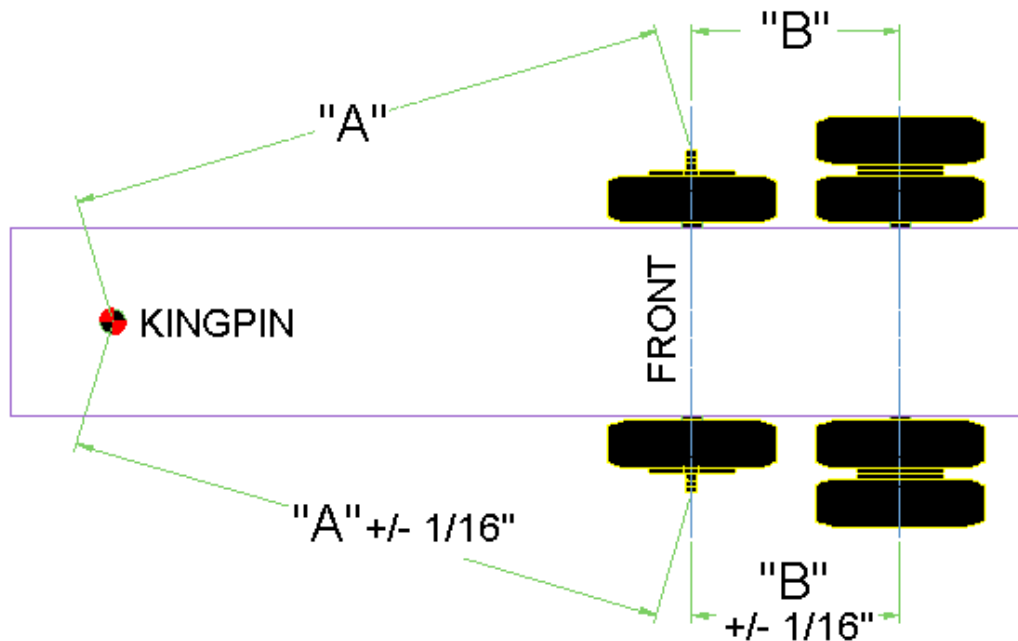
**Figure 8**



25. Check tire inflation pressure is correct on all tires.

26. Align axle with relation to the kingpin. Refer to Figure 9.

Figure 9



**NOTE: Failure to follow the procedure for your axle alignment application and/or properly torque the pivot fasteners can result in a failed pivot connection and a loss of warranty coverage.**

27. Lower the trailer. Connect trailer to tractor and remove blocking, release brake by pulling brake release lever located in cab of tractor.

28. Alignment should be performed with the vehicle empty.

29. On a level surface move the vehicle forward and back to straighten, making sure last movement is forward, vehicle should move at least one tire revolution.

30. Measuring from the trailer's kingpin, determine alignment of the forward axle. Refer to Figure 9.

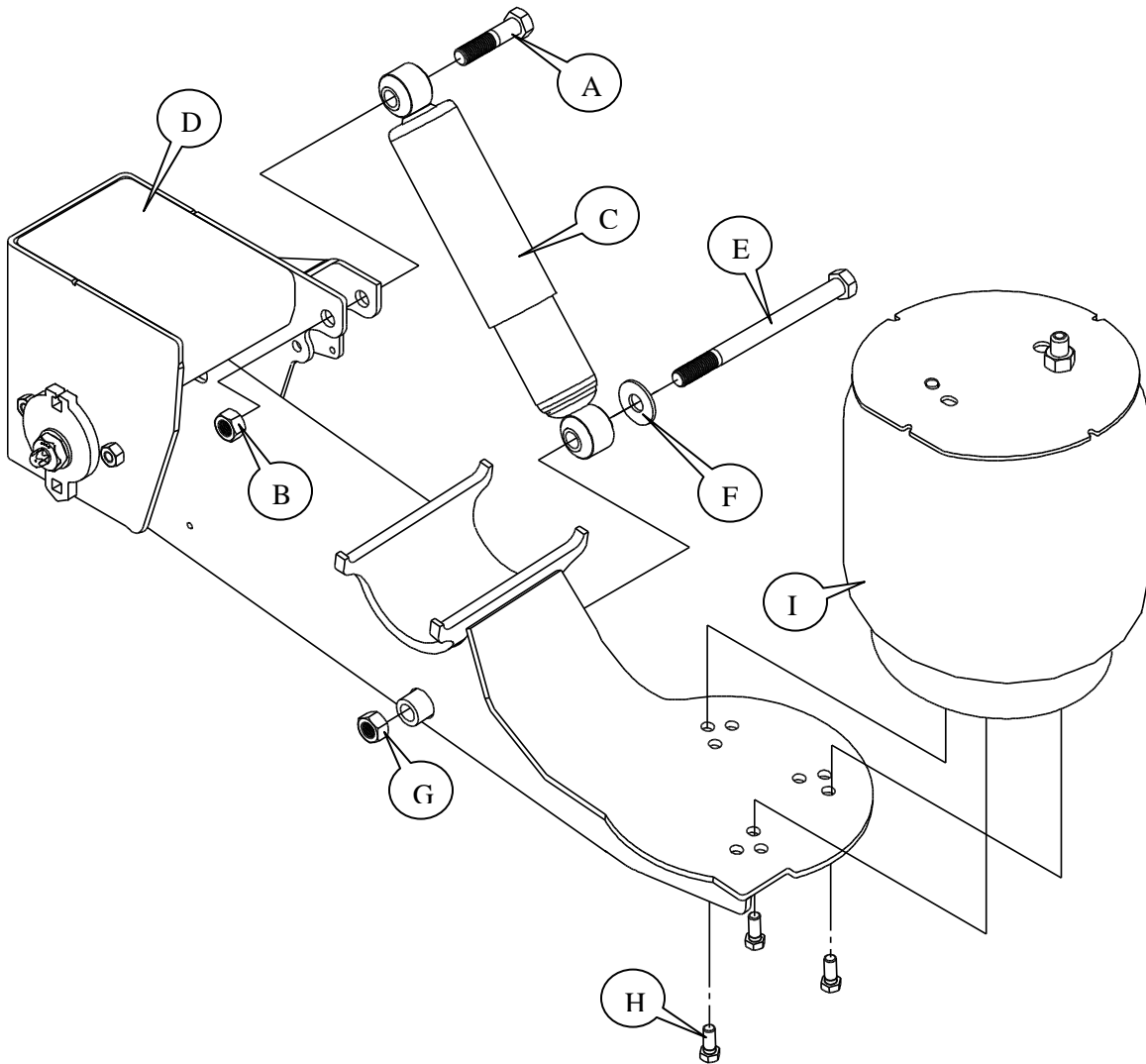
31. Using a wrench, move alignment gear pointers to nominal position.

32. After achieving proper alignment of the forward axle, torque nut (Ref. 4, Fig. 12) between 550–600 ft-lb (746–813 Nm).

33. Weld the alignment gear (Ref. 6, Fig. 12) to the hanger (Ref. D, Fig. 10) side with  $\frac{1}{2}$ " welds to prevent tampering and for off-road applications.

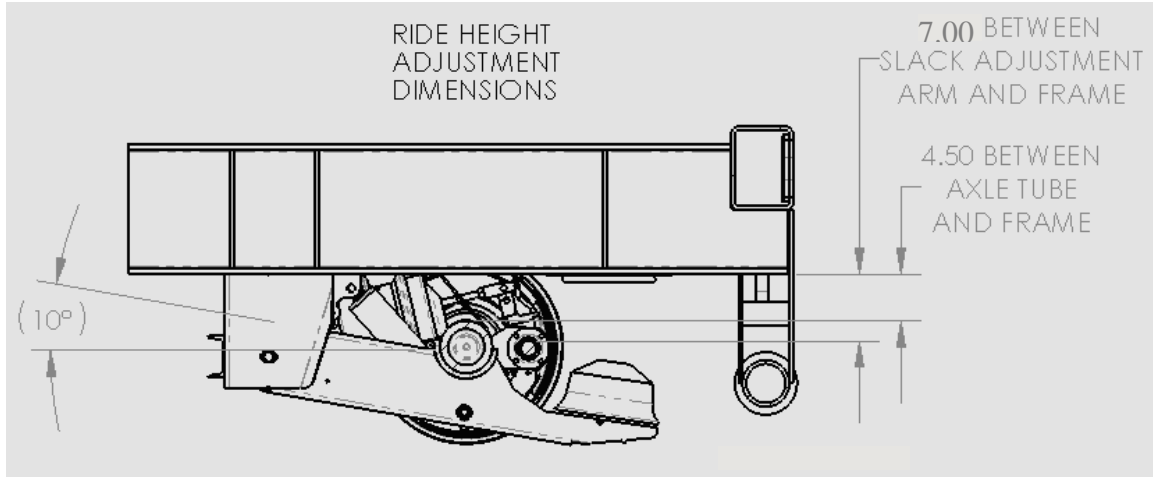
34. Align any additional axles to the forward axle per the “align” method to within a 0.063” (2 mm) tolerance. Use a commercially available alignment gauge or trammel bar.
35. Using bolt (Ref. A, Fig. 10) and nut (Ref. B, Fig. 10) attach shock (Ref. C, Fig. 10) to hanger (Ref. D, Fig. 10).
36. Using bolt (Ref. E, Fig. 10), washer (Ref. F, Fig. 10) and nut (Ref. G, Fig. 10) attach shock (Ref. C, Fig. 10) to beam with chain lug (Ref. 1, Fig. 12).
37. Using bolts (Ref. H, Fig. 10), attach air bag (Ref. I, Fig. 10) to beam with chain lug (Ref. 1, Fig. 12).
38. Torque nut (Ref. B, Fig. 10) and bolt (Ref. A, Fig. 10) between 210–235 ft-lb (285–319 Nm).
39. Torque nut (Ref. G, Fig. 10) and bolt (Ref. E, Fig. 10) between 210–235 ft-lb (285–319 Nm).
40. Torque bolt (Ref. H, Fig. 10) between 40–50 ft-lb (54–68 Nm).

**Figure 10**



41. Reconnect air fittings and air lines to air bag (Ref. I, Fig. 10).
42. Reconnect ABS sensor wiring, brake lines, and height control valve bracket.
43. Repeat on remaining axles.
44. Check for air leaks.
45. Supply air to the suspension system and set air valve to the appropriate ride height. Refer to Figure 11.

**Figure 11**

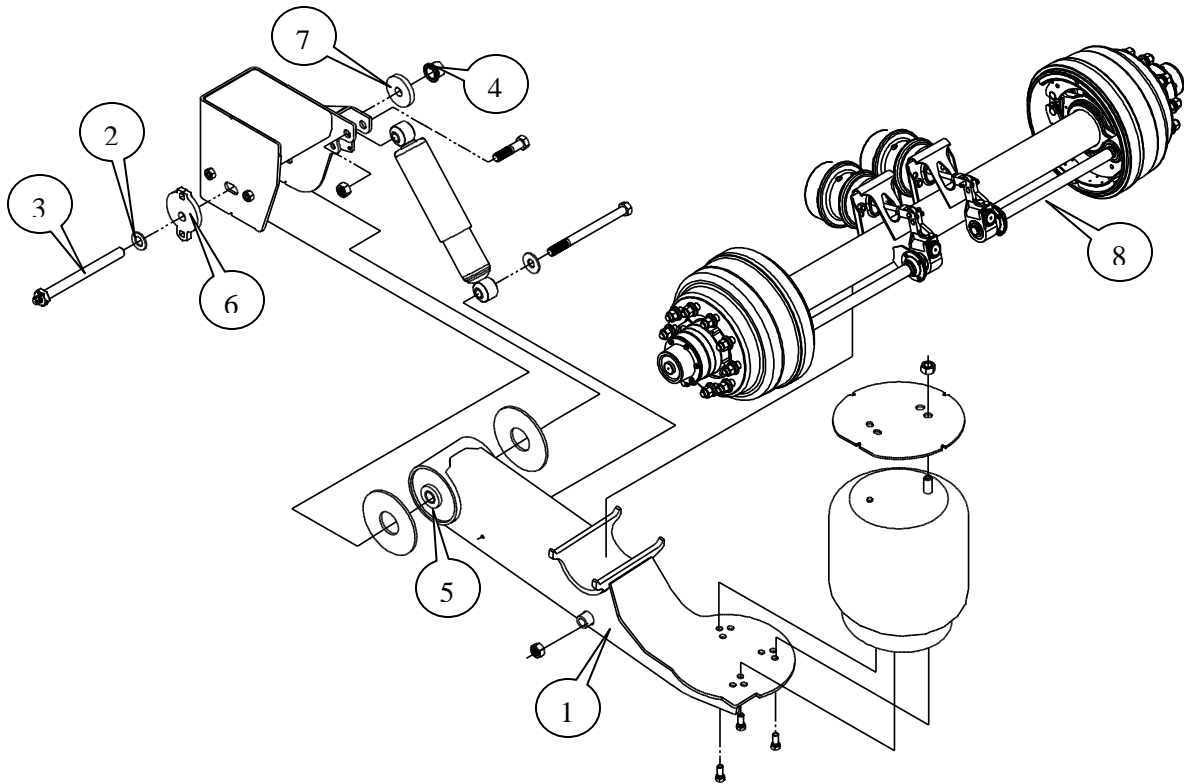


46. Touch up paint as needed.

47. Please complete and submit work completion card (Ref. 1, Figure 13).

48. Remove Figure 12 and provide to unit owner to place with existing Parts Manual. The delivery of these pages to the unit owner can be accomplished by attaching the pages to the customer's copy of the Invoice or placing the pages in the unit's manual storage box.

**FIGURE 12**



UNIT OWNER COPY: Insert in Parts Manual for future reference.

<b>FIGURE 12</b>			
<b>REF. NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	296338775	ROADSIDE (LH) BEAM W/CHAIN LUG	3
1	296338776	OUTSIDE (RH) BEAM W/CHAIN LUG	3
2	296338780	WASHER 0.875" SAE THRU-HARD	6
3	296338781	AUDITORX HHCS 0.875"-9UNC	6
4	296338782	NUT, SECURELOK NUT 0.875"-9 UNC	12
5	296338783	BUSHING INSERT, REDUCER	12
6	296338785	1/2"THK ALIGNMENT GEAR, ECCENTRIC W/SQUARE (OUTER)	6
7	296338786	ROUND ALIGNMENT GEAR, FUTURE/BEARING PLATE (INNER)	6
8	296505012	AXLE - D-2H16 25000LBS	3

**FIGURE 13**



UNIT OWNER COPY: Insert in Parts Manual for future reference.

<b>FIGURE 11</b>			
<b>REF. NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	296287039	WORK COMPLETION CERTIFICATE - SAFETY KIT	1
	<b>IK011718</b>	<b>Axle Replacement Kit (Incl. All Items in Figure)</b>	