



*Doing Our Best to Provide You the Best*

8C010264, Rev. AC

7-10-2018

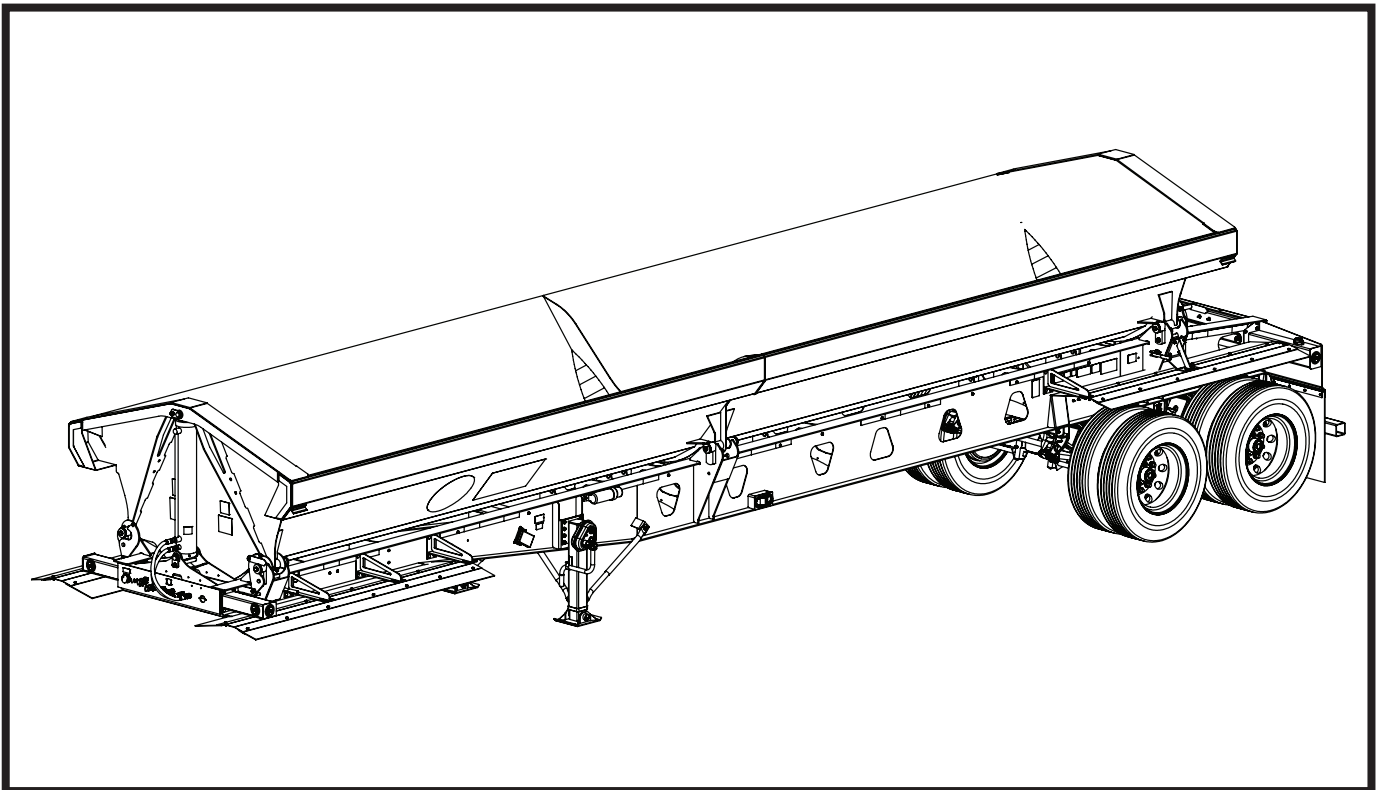
---

## SIDE DUMP

---

**9CSS3524LS**, 35' Chassis, 30' Tub, Leaf Spring Suspension

**9CSS4024LS**, 40' Chassis, 34' Tub, Leaf Spring Suspension



**OPERATOR MANUAL**

Product Disclaimer.....	3
Introduction.....	4
Trailer Information.....	6
Dealer Checklist.....	7
To The Owner.....	8
Safety.....	9
Torque Requirements.....	13
Decals/Reflectors.....	15
Coupling and Uncoupling.....	17
Operating Instructions.....	23
Maintenance Safety.....	27
Pre-Trip Checklist.....	29
Maintenance Check List.....	30
Hydraulic Parts.....	33
Truck-Tractor Hydraulic Systems.....	37
Parking Brakes.....	38
Full Function Anti-lock Brake System.....	39
Haldex Brake System Troubleshooting Guide.....	41
Adjustment and Operation of Brakes.....	48
Tires.....	50
Wheels Installation.....	51
Wheel Maintenance During Tire Inspection.....	52
Axle Inspection.....	53
Suspensions.....	54
Suspension Torque Specification.....	55
Landing Gear Operation Guidelines.....	56
Electrical System.....	57
Troubleshooting Electrical System.....	58
Troubleshooting General.....	59
<b>Parts</b>	
Cylinders And Bottom Cylinder Pins.....	64
Jack Parts (PKG00112) All Models.....	65
Pivot Latch Parts (PKG00113).....	66
34' Tub Parts.....	67
Replacement Decal Kits, Chassis (FK2009), Tub, (FK2008).....	67
30' Tub Parts.....	69
Replacement Decal Kits, Chassis (FK2009), Tub, (FK2008).....	69
Front Fender Parts.....	71
Rear Fender Panel Parts.....	72
Rear Fenders 35', 40'.....	75
Air Supply Parts (Leaf Spring).....	77
Trailer Pro, Electric Over Hydraulic Kit (FK2018).....	79
Trailer Pro Control Box Kit For Second Tractor, (FK2017).....	79
Document Box, Manual Holder, Side Lights, Parts.....	83
Landing Gear Operating and Maintenance.....	84
Wiring Harness Parts.....	89
ABS Brake Parts.....	92
Hutch Suspension Kit.....	93
7700/9700 Series 4 Spring Suspension Maintenance Procedures.....	96
Hub Pilot Axles (Assembly, Disassembly and Adjustment).....	102
Roll Rite Electric Tarp.....	123
Roll Rite Second Tractor Control Kit, (FK2014).....	124
Aero Electric Tarp.....	128
Pushblock.....	139
Specifications and Features.....	140
Tarp Tips.....	141
Warranty.....	142

In this document you will find information based on available knowledge at the time of its publication. To be accurate with the information, every effort was made but may not cover all details or variations of a trailer or provide every possibility in connection with its production, operation and maintenance. A Feature and Option may be presented in the manual that is not relevant to this trailer. Demco assumes no obligation of notice, to holders of this document, with changes made to a product.

***SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE.***

Demco is often making improvements and developing new designs. In doing so, we reserve the right to make changes and/or improvements without obligation for equipment sold beforehand. Self-modification to our trailers may affect the operation, function, and safety, so this is not advised. If a replacement part is necessary, Demco should supply it, please contact your nearest dealer or Demco

***DEMCO STATEMENT OF PRODUCT SAFETY:***

As a producer of agricultural and transportation equipment, Demco is fully aware of its responsibility of providing its customers products that perform their expected use, in a truly safe manner. Safety considerations shall be a fundamental and high precedence part of all engineering/design analysis and judgments involving Demco products. It is our stated policy that our products will be manufactured to coincide with the safety standards specified by the National Association of Trailer Manufacturers and/or any other officially recognized standards at the time manufactured. However, this statement should not be translated to mean that our product will uphold against a customer's own carelessness or disregard for common safety practices specified in each product's manual, nor will we be accountable for any such occurrence.

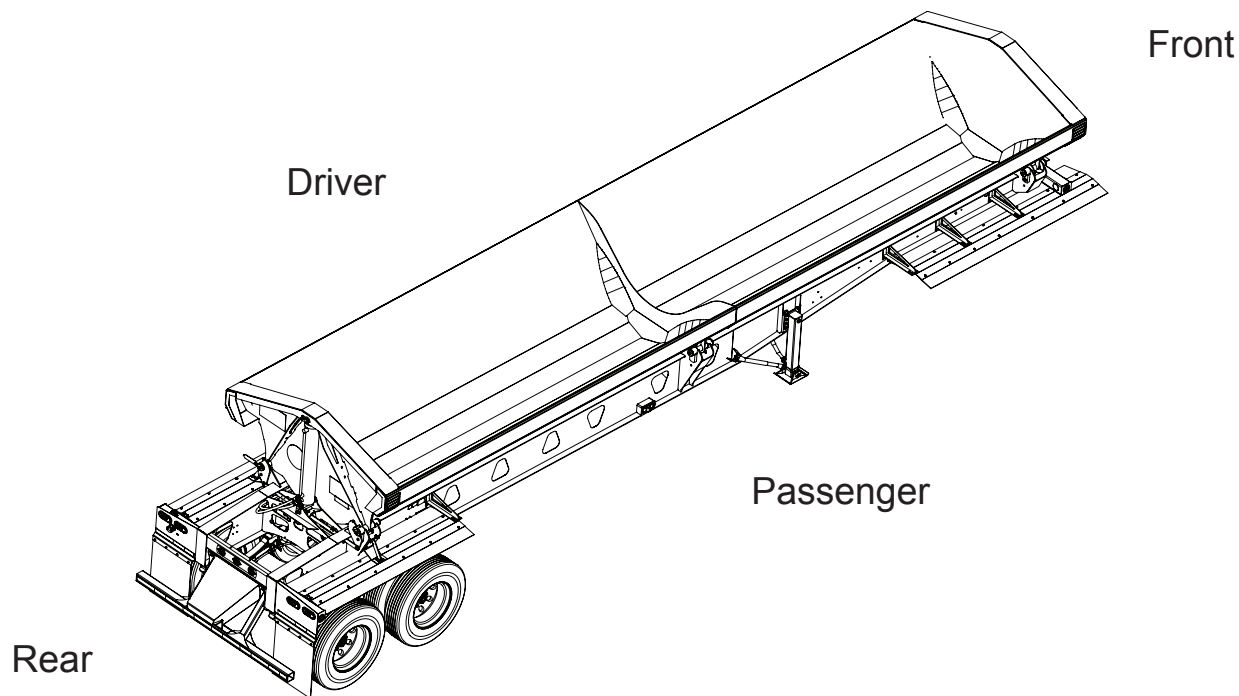
At Demco we strive to design, produce and deliver the highest quality trailer on the market. Our employees have a strong background of knowledge and combined experience in manufacturing to put quality workmanship into our products. In this manual you will find information covering all models of the Demco Side Dump Trailer line. Use the table of contents to locate specific areas of interest.

### **GENERAL INFORMATION:**

Demco requires that you and anyone else who will be operating and maintaining the trailer read and understand the guidelines in the manual for safe, efficient, and trouble free operations. Proper maintenance, adjustments and use will result in many years of service. Keep this manual handy for frequent reference and to pass on to new operators or owners. If assistance, information, or additional copies of the manual are needed, contact the nearest dealer, a distributor, or Demco.

### **PLEASE NOTE:**

- All documents within the manual referring to products not manufactured by Demco have been printed with the permission of the manufacturer specified.
- All references to driver, passenger, front and rear of the trailer are determined from a position behind the trailer and facing forward.





For your convenience we have four easy ways to register your warranty.

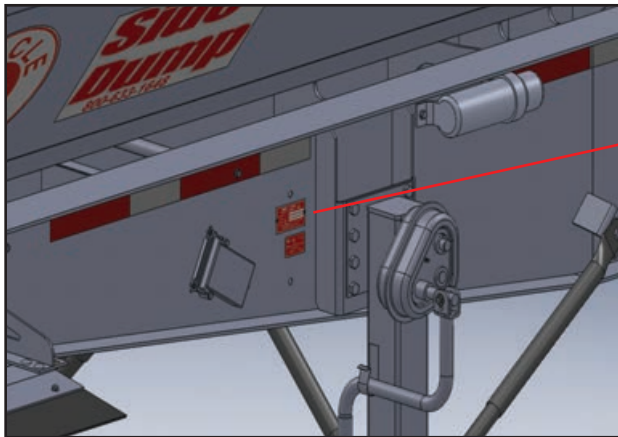
- **Call our toll free number and ask for warranty registration. 1-888-274-6010**
- **Fax completed warranty registration form. Fax: 712-262-1022**
- **Register on-line in warranty page at [www.demco-products.com](http://www.demco-products.com)**
- **Complete and return registration form.**

Demco Warranty does not cover the following:

- 1) Cleaning, transporting, mailing and service call charges.
- 2) Depreciation or damage caused by normal wear, accidents, improper protection or improper use.

**See complete Warranty for details.**

## Serial Number



Example: VIN Number Description

**57CKS4029CT627045**

Demco Side Dump 40' Length No. of Axles Check Digit Model Year Demco Trailer Sequence Identifier Number

**In addition to the VIN number Demco has placed a coded unit number on the chassis and the tub. Call Demco for location.**

Record your trailer model and serial number in the space provided below. Your dealer needs this information to give you prompt, efficient service when you order parts.

MODEL NO. \_\_\_\_\_

SERIAL NO. \_\_\_\_\_

DATE PURCHASED \_\_\_\_\_

**GAWR (Gross Axle Weight Rating):** The maximum gross weight that an axle can support. It is the lowest of axle, wheel, or tire rating. Usually the tire or wheel rating is lower than the axle rating and determines the GAWR. The GAWR is listed on the VIN plate.

**GVWR (Gross Vehicle Weight Rating):** The maximum allowable gross weight of the trailer and its contents. The gross weight of the trailer includes the weight of the trailer and all of the items with it. GVWR is sometimes referred to as GTWR (Gross Trailer Weight Rating) or MGTW (Maximum Gross Trailer Weight). GVWR, GTWR and MGTW are all the same rating.

The sum total of the GAWR for all trailer axles may be less than the GVWR for the trailer, because some of the trailer load is to be carried by the tow vehicle, rather than by the trailer axle(s). The total weight of the cargo and trailer must not exceed the GVWR, and the load on an axle must not exceed its GAWR. The GVWR is listed on the VIN Plate.

**VIN (Vehicle Identification Number):** Identifies the trailer in four sections. The first section of three characters identifies the manufacturer. The second section consists of five characters (VIN positions 4-8), these are the attributes of the vehicle. The third section is one character which is the check digit. The fourth section consists of eight characters (VIN positions 10-17). The first character represents the vehicle model year, the second character represents the plant of manufacture. The third through eighth characters are a sequential production number. The VIN Plate is located on the passenger side of the bulkhead at the front of the trailer.

**PSI (Pounds Per Square Inch):** The tire pressure measurement. The PSI is listed on the VIN Plate.

**Empty Weight:** Some information that comes with the trailer is not a reliable source for 'empty' weight. The shipping documents list average or standard weights and your trailer may be equipped with options. To determine the 'empty' or weight of your trailer, have trailer weighed at a commercial scale.

**Kingpin:** The coupler on the front of the trailer that connects to the fifth wheel plate of the tow vehicle.

**Fifth Wheel Plate:** A device on the tow vehicle that pulls and supports the weight of the trailer.

**Trailer Lighting and Braking Connectors:** A device that connects electrical power from the tow vehicle to the trailer. If your trailer has electric brakes, the connector will also supply power to the brakes from the tow vehicle.

**Landing Gear:** A device on the trailer that is often referred to as the 'jack', used to raise and lower the trailer and for storage of the trailer. To operate the landing gear, pull the crank shaft outward for high gear and push in for low gear speed. Demco uses the Holland - Model Atlas 55 as standard equipment.

**Registration Holder:** Located on the driver side, under the front deck. Use this to keep the registration with the trailer at all times. The registration holder is often referred to as the "manifest" holder.

To The Dealer:

Inspect the trailer thoroughly after shipment to be certain it is functioning properly before delivering it to the customer. The following checklist is a reminder of points to cover. Check off each item as it is found satisfactory or after proper adjustment is made.

### **PRE-DELIVERY CHECKLIST**

- ☐ 1. All hardware properly tightened
- ☐ 2. Proper 5th wheel fit
- ☐ 3. Lubrication of grease fittings
- ☐ 4. Lug nuts are tight
- ☐ 5. All decals properly located and readable
- ☐ 6. Lights function properly
- ☐ 7. Air lines tight and no pinched lines
- ☐ 8. Brakes functioning properly
- ☐ 9. Overall condition (touch up any scratches, clean and polish)
- ☐ 10. Operator's manual

Date Delivered: \_\_\_\_\_

Signature of Salesman or Technician: \_\_\_\_\_

### **DELIVERY**

Review the operator's manual with the customer. Explain the following:

- ☐ 1. Safe operation and service
- ☐ 2. Correct trailer operation
- ☐ 3. Daily and periodic lubrication and maintenance
- ☐ 4. Daily and periodic inspections
- ☐ 5. Trouble shooting
- ☐ 6. Storing trailer
- ☐ 7. Demco parts and service policies
- ☐ 8. Have the customer write the trailer model and serial number in space provided in manual introduction.
- ☐ 9. Give customer the operator's manual and encourage the customer to read the manual carefully.
- ☐ 10. Completion and mailing of warranty registration form.

Date Delivered: \_\_\_\_\_

Signature: \_\_\_\_\_

Model No: \_\_\_\_\_

Serial No: \_\_\_\_\_

Thank you for your recent purchase of a new Demco Side Dump Trailer. The primary objective of Demco is to build and provide you with a quality product. However, in the event that a problem does occur, it is imperative that your warranty registration is on file in order to accurately respond to your specific service circumstances. For your convenience we have four easy ways to register your warranty:

**Register  
Warranty  
One of  
Four Ways**

- Call our toll free number and ask for warranty registration.  
1-888-274-6010
- Fax your completed warranty registration form.  
1-712-262-1022
- Register on-line at:  
[www.demco-products.com](http://www.demco-products.com)
- Complete and mail the warranty registration form.

This manual has been prepared to assist you in the operation of your new trailer and contains information pertaining to safety, operations and all of its parts. Our personnel in sales and service are always available to assist you when questions arise concerning the maintenance or operations of your trailer.

When ordering parts, please refer to part numbers and descriptions as listed throughout this book. All parts and whole goods will be shipped FOB Spencer, IA. Or FOB your regional distributor. Always check merchandise immediately upon receipt for damage or shortage. Note any discrepancy on carrier's bill of lading and notify Sender within 10 days. Returned goods will be subject to a 15% restocking charge. Demco reserves the right to make improvements and modifications on equipment without obligation to change previously built equipment. All prices are subject to change without notice.



## RECOGNIZE SAFETY INFORMATION

- This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury. Follow recommended precautions and safe operating practices.



## FOLLOW SAFETY INSTRUCTIONS

- Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety sign.
- Learn how to operate the machine and how to use controls properly.
- Do not let anyone operate without instruction.
- Keep your machine in proper working condition.
- Unauthorized modification to the machine may impair the function and/or safety and affect machine life



## PROTECT CHILDREN AND BYSTANDERS

- Before you back, LOOK CAREFULLY behind for children.
- Clear area of children, pets and bystanders.



## HIGHWAY AND TRANSPORT OPERATIONS

Adopt safe driving practices:

- Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
- Reduce speed prior to turns to avoid the risk of overturning.
- Avoid sudden uphill turns on steep slopes.
- Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
- Do not drink and drive.
- Comply with state and local laws governing highway safety and movement of equipment on public roads.
- Use approved accessory lighting and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport.





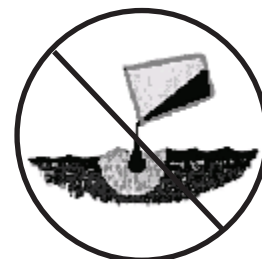
## HIGHWAY AND TRANSPORT OPERATIONS

- Plan your route to avoid heavy traffic.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersection, etc.
- Be observant of bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- Always operate the tractor trailer in a position to provide maximum visibility at all times. Make allowances for increased length and weight of the equipment when making turns, stopping the unit, etc.



## AVOID HIGH PRESSURE FLUIDS

- Escaping fluid under pressure can penetrate the skin causing serious injury.
- Avoid the hazard by relieving pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard.
- Protect hands and body from high pressure fluids.
- If an accident occurs, see a doctor immediately.



## DISPOSE OF FLUIDS PROPERLY

- Improperly disposing of fluids can harm the environment and ecology. Before draining any fluids, contact your local environmental agency for the proper waste disposal methods.
- Use proper container when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them.
- DO NOT pour oil into the ground, down a drain, or into a stream, pond, or lake. Observe relevant environmental protection regulations when disposing of oil and other harmful waste.

**TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH!**



**THIS SYMBOL MEANS:**  
**ATTENTION!**  
**BECOME ALERT!**  
**YOUR SAFETY IS INVOLVED!**

### **SIGNAL WORDS**

Note use of following signal words **DANGER**, **WARNING**, and **CAUTION** with safety messages. The appropriate signal word for each has been selected using the following guidelines:

**DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



### **EQUIPMENT SAFETY GUIDELINES**

Every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or you yourself, follow them.

Operator should be a responsible adult. **DO NOT ALLOW PERSONS TO OPERATE THIS UNIT UNTIL THEY HAVE DEVELOPED A THOROUGH UNDERSTANDING OF SAFETY PRECAUTIONS AND HOW IT WORKS.**

**DO NOT** modify the trailer in anyway. Doing so may impair the function and/or safety and could affect the life of the trailer.

Never exceed the maximum capacity of the trailer. By doing so you risk damage to your Demco trailer. If it's ability to do a job, or to do so safely is in question **DON'T TRY IT.**

Review safety instructions with all users annually.

Replace any caution, warning, danger or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.

Do not paint over, remove, or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice instructions on them.



**LOAD DISTRIBUTION SAFETY**

The total weight of the load you put on the trailer, plus the empty weight of the trailer itself, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR). You must distribute the load on the trailer such that the load on any tire or axle does not exceed the tire load rating or the Gross Axle Weight Rating (GAWR). If you do not know the weight of your trailer you must weigh it at a commercial scale. See your VIN Plate for proper ratings. Not following these guidelines could cause serious injury or even death.

**TIRE AND LUG NUT SAFETY**

It is essential to inspect the trailer tires and wheels before each tow. Trailer tires are more likely to fail compared to car tires due to the heavier load the trailer carries. Please follow the list of guidelines and/or possibilities below that could cause serious injury or even death.

- ◆ Replace the tire before towing if the tire has a bald spot, cut, bulge, is showing any cords, or is cracked.
- ◆ If uneven tread is noticed, take the trailer to a dealer service center for an inspection. Tire imbalance, axle misalignment, or incorrect inflation could cause the uneven tread.
- ◆ Too little of tread will not be adequate enough for traction and can cause loss of control on wet highways.
- ◆ Tire pressure that is improper causes an unstable trailer and could blowout the tire causing loss of control.
- ◆ Check the tire pressure before towing, while the tire is cold. For the recommended PSI, see the VIN Plate or the side wall of the tire.
- ◆ Always order and install tires and wheels with appropriate type and load capacity to meet or exceed gross weight of unit.

The inspection of the tire and wheel lug nuts is necessary since they are prone to loosen after first being assembled. Please follow the list of guidelines and/or possibilities below that could cause serious injury or even death.

- ◆ When towing a new trailer, check the lug nuts after the first 50 to 100 miles of driving.
- ◆ Metal creep between the wheel and the lug nuts will cause wheel to loosen and could come off. Check to make sure the lug nuts are tight before each tow.
- ◆ Improper torque could cause the wheel to separate from trailer. A torque wrench should be used to tighten the lug nuts. If one is not available use a lug wrench then take to a trailer dealer or service garage to tighten them to the required torque.



# **BOLT TORQUE, TORQUE DATA FOR STANDARD NUTS, BOLTS, AND CAPSCREWS.**

Tighten all bolts to torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt chart as guide. Replace hardware with same grade bolt.

**NOTE:** Unless otherwise specified, high-strength Grade 5 hex bolts are used throughout assembly of equipment.

## **Bolt Torque for Standard bolts \***



## **Torque Specifications**

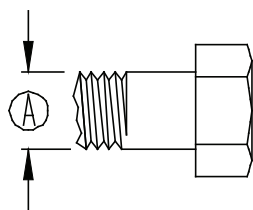
"A"	GRADE 2		GRADE 5		GRADE 8	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
1/4"	6	(8)	9	(12)	12	(16)
5/16"	10	(13)	18	(25)	25	(35)
3/8"	20	(27)	30	(40)	45	(60)
7/16"	30	(40)	50	(70)	80	(110)
1/2"	45	(60)	75	(100)	115	(155)
9/16"	70	(95)	115	(155)	165	(220)
5/8"	95	(130)	150	(200)	225	(300)
3/4"	165	(225)	290	(390)	400	(540)
7/8"	170	(230)	420	(570)	650	(880)
1"	225	(300)	630	(850)	970	(1310)

## **Bolt Torque for Metric bolts \***

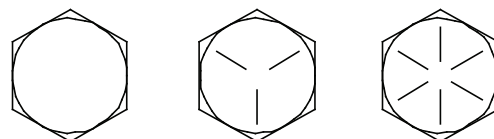
Torque figures indicated are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

\* GRADE or CLASS value for bolts and capscrews are identified by their head markings.

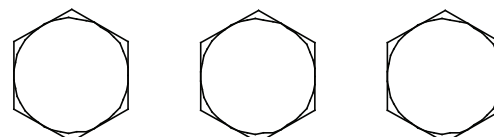
"A"	CLASS 8.8		CLASS 9.8		CLASS 10.9	
	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
6	9	(13)	10	(14)	13	(17)
7	15	(21)	18	(24)	21	(29)
8	23	(31)	25	(34)	31	(42)
10	45	(61)	50	(68)	61	(83)
12	78	(106)	88	(118)	106	(144)
14	125	(169)	140	(189)	170	(230)
16	194	(263)	216	(293)	263	(357)
18	268	(363)	--	--	364	(493)
20	378	(513)	--	--	515	(689)
22	516	(699)	--	--	702	(952)
24	654	(886)	--	--	890	(1206)



GRADE-2      GRADE-5      GRADE-8



CLASS 8.8      CLASS 9.8      CLASS 10.9



**8.8**

**9.8**

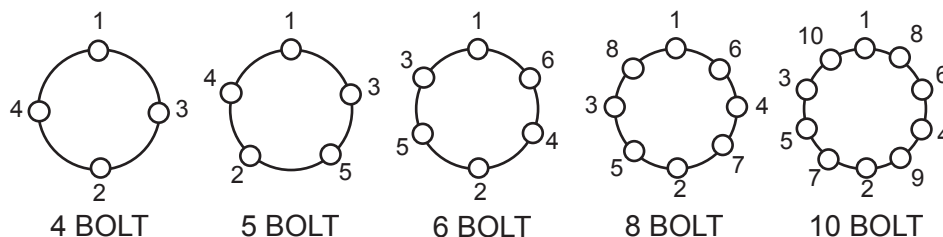
**10.9**

It is extremely important to apply and maintain proper wheel mounting torque on your trailer axle. Torque is a measure of the amount of tightening applied to a fastener (nut or bolt) and is expressed as length times force. For example, a force of 90 pounds applied at the end of a wrench one foot long will yield 90 lbs-ft of torque. Torque wrenches are the best method to assure the proper amount of torque is being applied to a fastener.

**NOTE:** Wheel nuts or bolts must be applied and maintained at the proper torque levels to prevent loose wheels, broken studs, and possible dangerous separation of wheel from your axle.

Be sure to use only the fasteners matched to the cone angle of your wheel (usually 60 degrees or 90 degrees). The proper procedure for attaching your wheels is as follows:

1. Start all bolts or nuts by hand to prevent cross threading.
2. Tighten bolts or nuts in the following sequence.
3. The tightening of the fasteners should be done in stages. Following the recommended sequence, tighten fasteners per wheel torque requirements diagram:



4. Wheel nuts or bolts should be torqued before first road use and after each wheel removal. Check and re-torque after the first 50 miles and again at 100 miles. Check periodically thereafter.

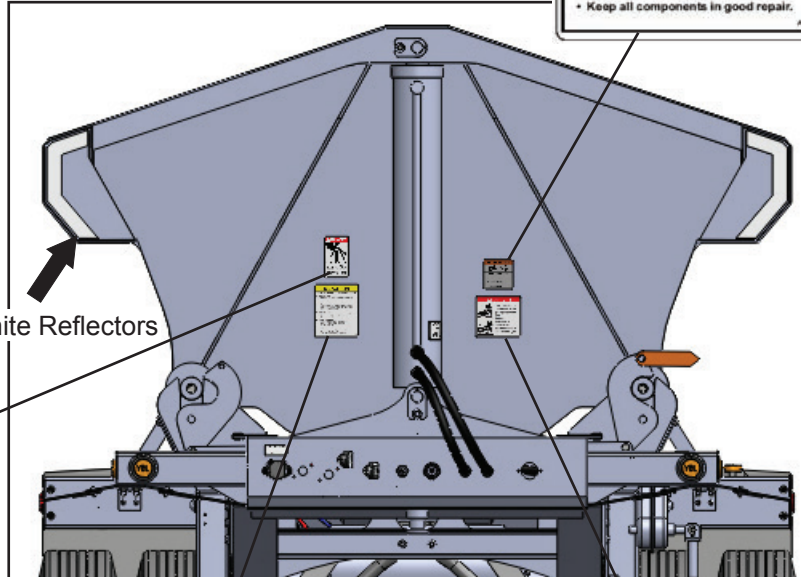
## WHEEL AND RIM TORQUE REQUIREMENTS

Description	Application	Minimum Torque (lbs-ft)	Maximum Torque (lbs-ft)
1/2" Cone Nut	12" – 13" Wheel	50	65
	14" – 15" Wheel	90	120
5/8" Cone Nut	Flat Disc Wheel	175	225
3/4" Hex Nut	Demountable Ring Clamp	210	260
3/4" Spherical Nut	Single Wheel	450	500
	Inner Dual	450	500
1-1/2" Spherical Nut	Outer Dual	450	500
5/8" Flange Nut	Wheels	275	325

**Important:** Install new safety decals and reflectors if the old decals and reflectors are destroyed, lost, painted over or cannot be read. When parts are replaced that have decals or reflectors, make sure you install a new decal with each new part.

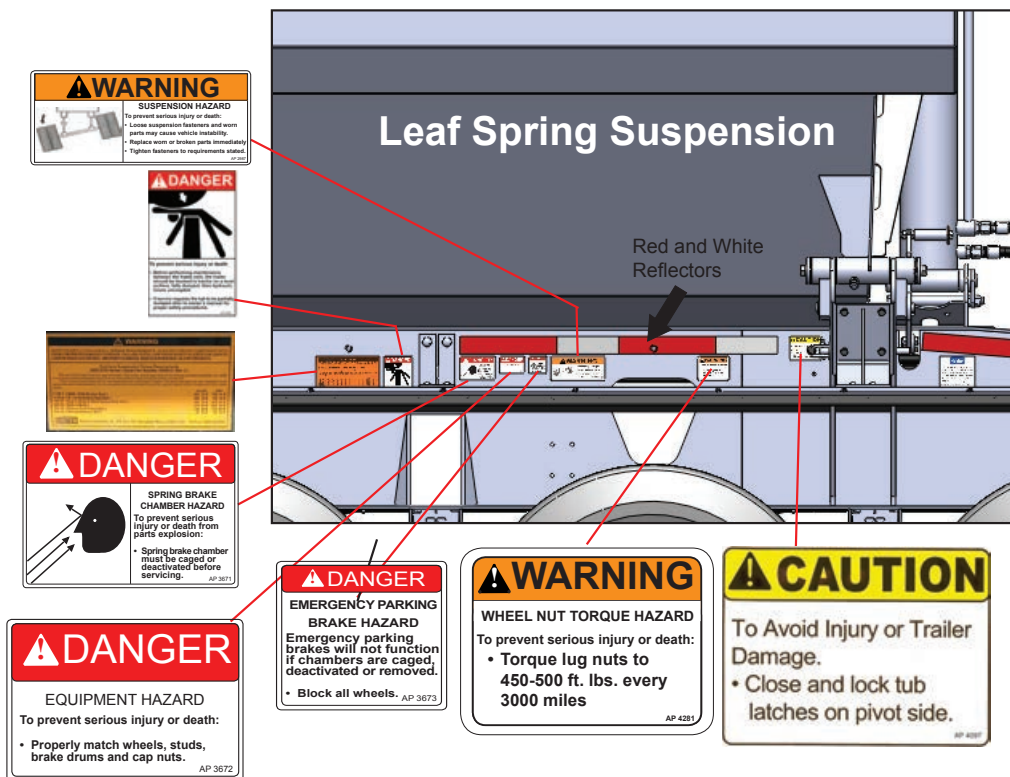


White Reflectors



- 1AQAP3669 (1) DANGER (LoadDumping Safety) 8"W x 5-1/2"L  
 1AQAP3670 (1) CAUTION (Side Dump Checklist and Operating Instructions) 6"W x 7"L  
 1AQAP2914 (1) Decal, WARNING, High Pressure Fluid  
 1AQAP4361 (2) Decal, Frame Area Maintenance, Trailer

**NOTE:** New decals and reflectors are available from your dealer.



**Important:** Install new safety decals and reflectors if the old decals and reflectors are destroyed, lost, painted over or cannot be read. When parts are replaced that have decals or reflectors, make sure you install a new decal with each new part.

- 1AQAP2987 (1) Decal, WARNING, Suspension Hazard 2-3/4" x 6-1/4"
- \* 1AQAP3673 (2) DANGER Emergency Parking Brake Hazard 2"W x 2" L
- \* 1AQAP3672 (2) DANGER Equipment Hazard 2"W x 3"L
- \* 1AQAP3671 (2) DANGER Spring Brake Chamber Hazard 2-3/4"W x 4"L
- 1AQAP4097 (4) Decal, CAUTION, lock tub latches
- 1AQAP4281 (1) Decal, WARNING, Wheel Nut Torque, 2-3/4" x 3-1/4"
- 1AQAP4361 (2) Decal, Frame Area Maintenance, Trailer

\* Safety decals are located at the rear of the trailer on both sides.

## HOW TO APPLY SAFETY DECALS:

1. Be sure that the installation area is clean and dry.
2. Be sure temperature is above 50°F(10°C).
3. Decide on exact position before removing the backing paper.
4. Remove smallest portion of split backing paper.
5. Align decal over specified area and carefully press the small portion with the exposed sticky backing in place.
6. Slowly peel back remaining paper and carefully smooth remaining portions of decal into place.
7. Small air pockets can be pierced with a pin and smoothed out using a piece of decal backing paper.

Knowing how to couple and uncouple correctly is basic to safe operation of combination vehicles. General coupling and uncoupling steps are listed below. There are differences between different trucks, so learn the details of coupling and uncoupling the truck (s) you will operate.

**WARNING:**

**INCORRECT COUPLING AND UNCOUPLING CAN RESULT IN SERIOUS INJURY OR DEATH.**

**Coupling Tractor-Semitrailers****Step 1.** Inspect Fifth Wheel

- Check for damaged/missing parts.
- Check to see that mounting to tractor is secure, no cracks in frame, etc.
- Be sure that the fifth wheel plate is greased as required. Failure to keep the fifth wheel plate lubricated could cause steering problems because of friction between the tractor and the trailer.
- Check if fifth wheel is in proper position for coupling.
  - Wheel tilted down towards rear of tractor.
  - Jaws open.
  - Safety unlocking handle in the automatic lock position.
- If you have a sliding fifth wheel, make sure it is locked.
- Make sure the trailer kingpin is not bent or broken.

**Step 2.** Inspect Area and Chock Wheels

- Make sure area around the vehicle is clear.
- Be sure the trailer spring brakes are on.

**Step 3.** Position Tractor

- Pull the tractor directly in front of the trailer. (Never back under the trailer at an angle, because you might push the trailer sideways and break the landing gear.)
- Check position, using outside mirrors, by looking down both sides of the trailer.

**Step 4.** Back Slowly

- Back until fifth wheel just touches the trailer.
- Don't hit the trailer.

**Step 5.** Secure Tractor

- Put on the parking brake.
- Put transmission in neutral.

**Step 6.** Check Trailer Height

- The trailer should be low enough that it is raised slightly by the tractor when the tractor is backed under it. Raise or lower the trailer as needed. (If trailer is too low, tractor may strike and damage nose of trailer; if trailer is too high, it may not couple correctly.)
- Check that the kingpin and fifth wheel are aligned.

**Step 7.** Connect Air Lines to Trailer

- Check glad hand seals and connect tractor supply (emergency) air line to trailer supply (emergency) glad hand.
- Check glad hand seals and connect tractor control (service) air line to trailer control (service) glad hand.
- Make sure air lines are safely supported where they won't be crushed or caught while tractor is backing under the trailer.

**Step 8.** Supply Air to Trailer

- From cab, push in "air supply" knob or move tractor protection valve control from the "emergency" to the "normal" position to supply air to the trailer brake system.
- Wait until the air pressure is normal.
- Check brake system for crossed air lines.
  - Shut engine off so you can hear the brakes.
  - Apply and release trailer brakes, listen for sound of trailer brakes being applied and released. You should hear the brakes move when applied and air escape when the brakes are released.
  - Check air brake system pressure gauge for signs of major air loss.
- When you are sure trailer brakes are working, start engine.
- Make sure air pressure is up to normal.

**Step 9.** Lock Trailer Brakes

- Pull out the "air supply" knob, or move the tractor protection valve control from "normal" to "emergency."

**Step 10.** Back Under Trailer

- Use lowest reverse gear.
- Back tractor slowly under trailer to avoid hitting the kingpin too hard.
- Stop when the kingpin is locked into the fifth wheel.



**Step 11.** Check Connection for Security

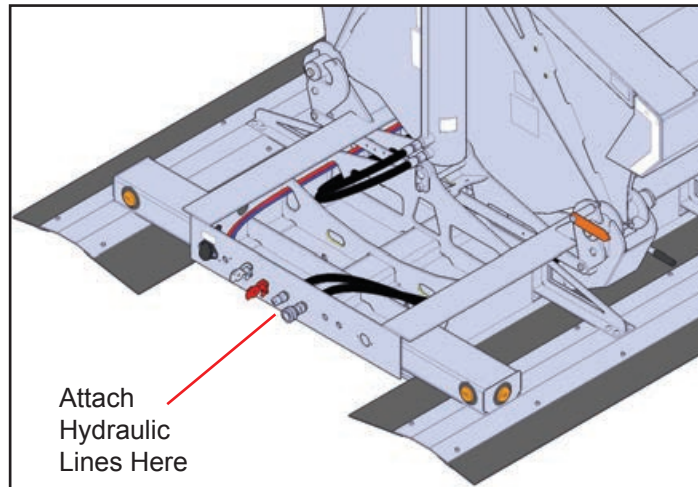
- Raise trailer landing gear slightly off ground.
- Pull tractor gently forward while the trailer brakes are still locked onto the tractor.

**Step 12.** Connect Hydraulic Couplers to Trailer

- Connect hydraulic hoses to trailer remotes.



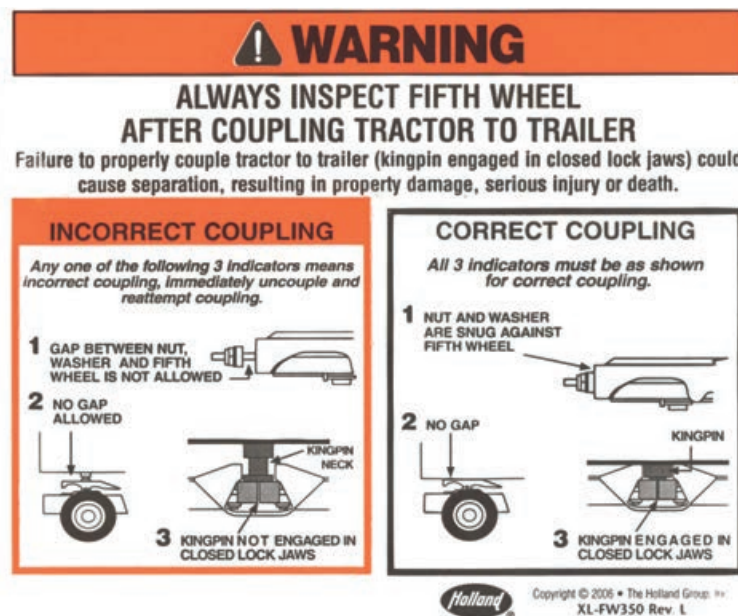
**WARNING:** Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Relieve all pressure before disconnecting the lines or performing other work on the hydraulic systems.

**Step 13.** Secure Vehicle

- Put transmission in neutral.
- Put parking brakes on.
- Shut off engine and take key with you so someone else won't move truck while you are under it.
- Make sure air and electrical lines will not hit any moving parts of the vehicle.

**Step 14.** Inspection Coupling

- Use a flashlight if necessary.
- Make sure there is no space between upper and lower fifth wheel. If there is space, something is wrong (kingpin may be on top of closed fifth wheel jaws; trailer would come loose very easily).
- Go under trailer and look into the back of the fifth wheel. Make sure the fifth wheel jaws have closed around the shank of the kingpin.
- Check that the locking lever is in the “lock” position.
- Check that the safety catch is in position over locking lever. (On some fifth wheels, the catch must be put in place by hand.)
- If the coupling isn’t right, don’t drive the coupled unit; get it fixed.

**Step 15.** Connect the Electrical Cord and Check Air Lines

- Plug the electrical cord into the trailer and fasten the safety catch.
- Check both air lines and electrical line for signs of damage.
- Make sure air and electrical lines will not hit any moving parts of the vehicle.



**Step 16. Raise Front Trailer Supports (Landing Gear)**

- Use low gear range (if so equipped) to begin raising the landing gear. Once free of weight, switch to the high gear range.
- Raise the landing gear all the way up. (Never drive with landing gear only part way up as it may catch on railroad tracks or other things.)
- After raising the landing gear, secure the crank handle safely.
- When full weight of trailer is resting on tractor:

Check for enough clearance between rear of tractor frame and landing gear. (When tractor turns sharply, it must not hit landing gear.)

Check that there is enough clearance between the top of the tractor tires and the nose of the trailer.

## **Uncoupling Tractor-Semitrailers**

The following steps will help you to uncouple safely.

**Step 1. Position Rig**

- Make sure surface of parking area can support weight of trailer.
- Have tractor lined up with the trailer. (Pulling out at an angle can damage landing gear.)

**Step 2. Ease Pressure on Locking Jaws**

- Shut off trailer air supply to lock trailer brakes.
- Ease pressure on fifth wheel locking jaws by backing up gently (this will help you release the fifth wheel locking lever).
- Put parking brakes on while tractor is pushing against the kingpin. This will hold rig with pressure off the locking jaws.

**Step 3. Lower the Landing Gear**

- If trailer is empty – lower the landing gear until it makes firm contact with the ground, turn crank in low gear a few extra turns; this will lift some weight off the tractor. (Do not lift trailer off the fifth wheel.) This will:
  - Make it easier to unlatch fifth wheel;
  - Make it easier to couple next time.

**Step 4.** Disconnect Air Lines, Electrical Cable and Hydraulic Lines

- Disconnect air lines from trailer. Connect air line glad hands to dummy couplers at back of cab, or couple them together.
- Hang electrical cable with plug down to prevent moisture from entering it.
- Hang hydraulic lines so dirt and moisture will not enter the couplers.
- Make sure lines are supported so they won't be damaged while driving the tractor.

**Step 5.** Unlock Fifth Wheel

- Raise release handle lock.
- Pull the release handle to "open" position.
- Keep legs and feet clear of the rear tractor wheels to avoid serious injury in case the vehicle moves.

**Step 6.** Pull Tractor Partially Clear of Trailer

- Pull tractor forward until fifth wheel comes out from under the trailer.
- Stop with tractor frame under trailer (prevents trailer from falling to ground if landing gear should collapse or sink).

**Step 7.** Secure Tractor

- Apply parking brake.
- Place transmission in neutral.

**Step 8.** Inspect Trailer Supports

- Make sure ground is supporting trailer.
- Make sure landing gear is not damaged.

**Step 9.** Pull Tractor Clear of Trailer

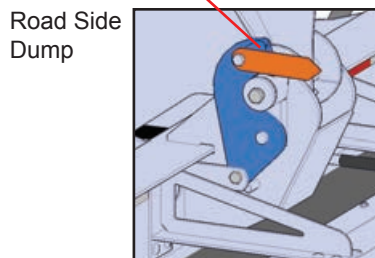
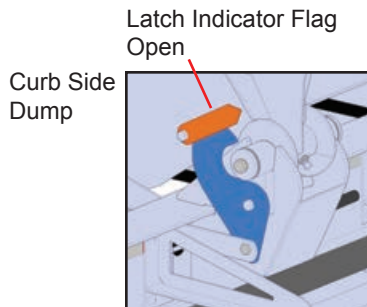
- Release parking brakes.
- Check the area and drive tractor clear.

## Setting the tub to dump curb side or roadside.



### CAUTION:

Make sure the latches on each end of the tub are locked in the same direction. Failure to do so will result in damage to the trailer, and/or tractor.



Before dumping the tub determine which direction the tub is going to dump when raised.

**All steps are performed on the driver's side only.**

### NOTE:

The following steps must be performed on both the front and the rear pivots.

#### Step two

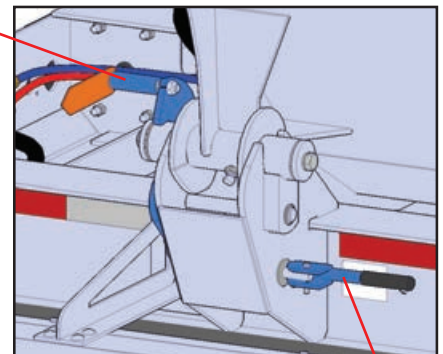
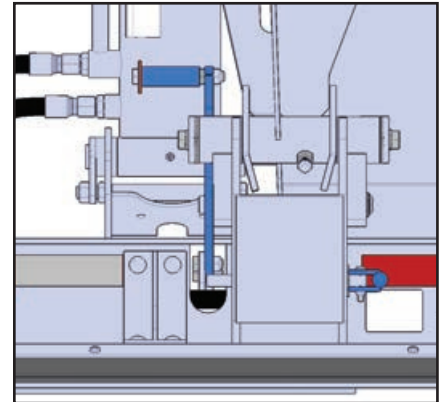
**Step one:** (Driver side only)  
Pull latch out to release pivot lock handle.

#### Step two:

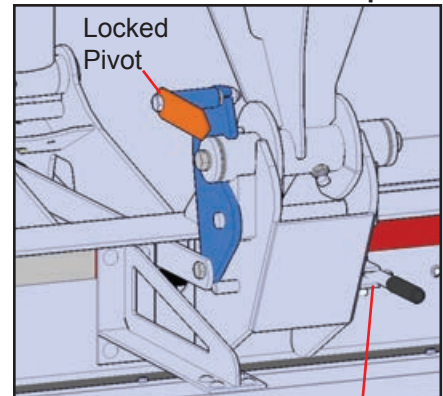
Pull bolt handle towards pivot pin to lock the tub in the left-hand (roadside) dump position.

Push bolt handle away from pivot pin to lock tub in the right-hand (curb side) dump position.

Return latch to the locked position.

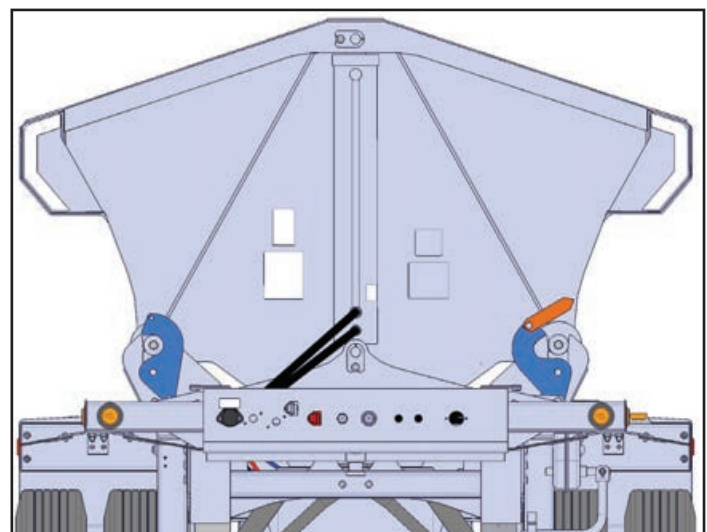


Step one



Locked Position

**Locked Position for right-hand dumping**



## First time hookup charging cylinders



### **DANGER:**

Clear area around trailer of bystanders before charging system.



Tilt tub part way several times to fill hydraulic cylinders before extending cylinders completely. Extend and retract cylinders completely. Check for proper operation.

## Filling and dumping trailer



### **DANGER:**

Clear area around trailer of bystanders before filling and dumping trailer.



### **Filling:**

- The 34' tub holds 24 cubic yards when level full 31 cubic yards when heaped.
- Stand clear of trailer during filling.

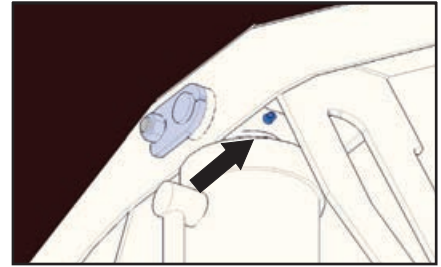
### **Dumping:**

- Stand clear of load during dumping operation.
- Operator must remain at controls during dumping.
- Tub should dump in 20 seconds or less.
- Do not stop cylinder extension in middle of cycle, equipment may upset.
- Do not attempt to dump load on uneven or unstable ground.

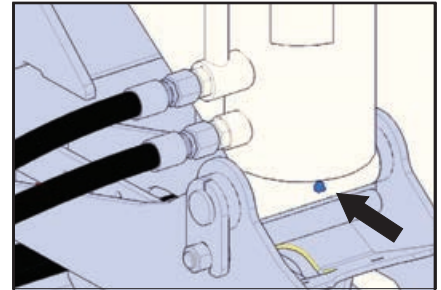


## Lubrication Maintenance

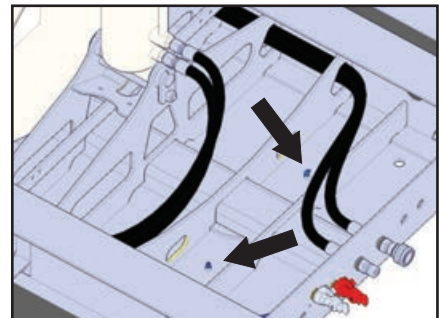
- Grease pivot point at top of lift cylinders front and rear weekly.



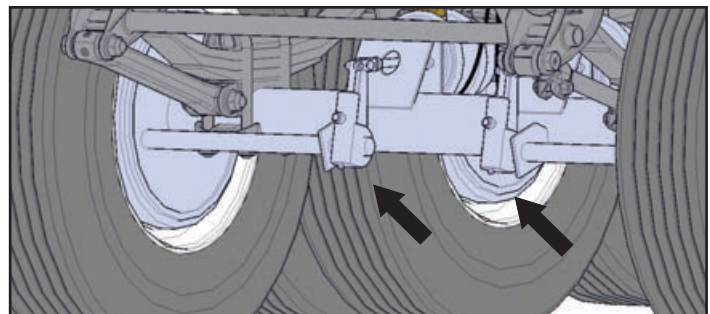
- Grease pivot point at bottom of lift cylinders front and rear weekly.



- Grease fifth wheel zerks under tub weekly.



- Grease slack adjuster pivot on all wheels monthly.

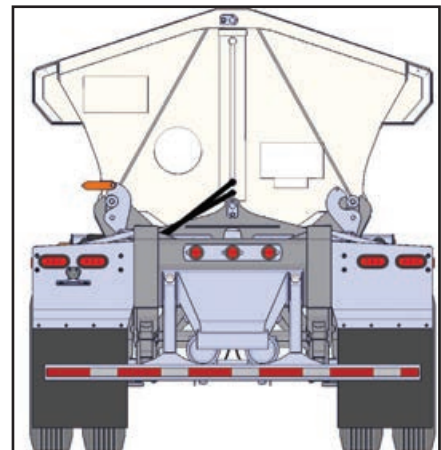


### CAUTION:

Follow maintenance safety procedures on page 23 before greasing fifth wheel zerks.

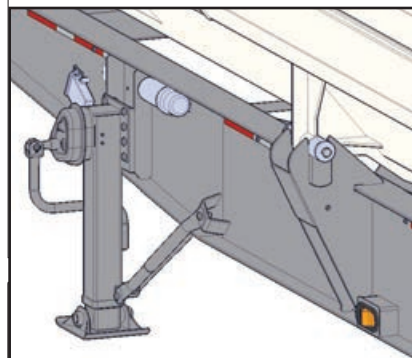
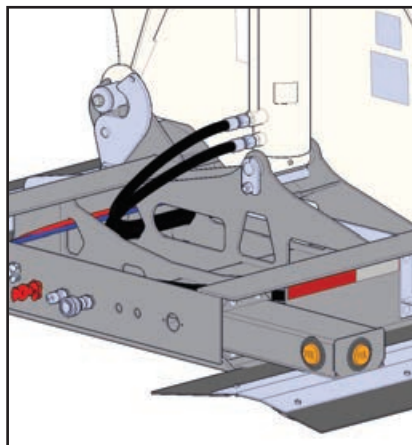
## Inspect lights daily

- Turn on truck lights and 4 way flashers. Walk around tractor and trailer to inspect that all lights are operating.



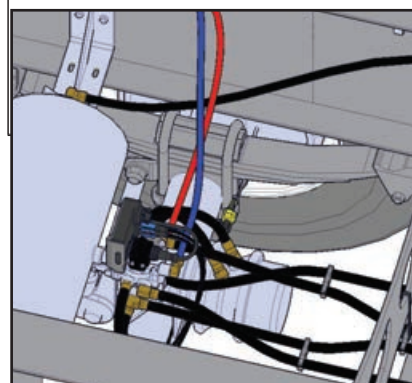
## Maintenance

### Inspection of lights



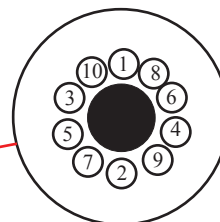
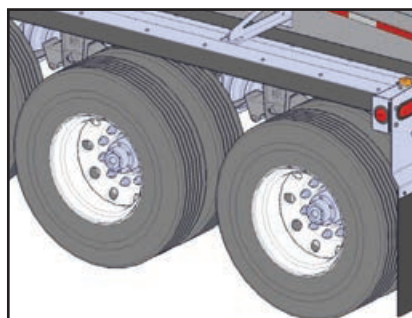
### Inspect hydraulic and air lines daily

- Inspect hydraulic air lines and valves for leaks, rubbing or crimped lines.



### Inspect tires and lug nuts daily

- Check Tire pressure. Inflate tires to pressure recommended by the tire manufacturer. Maximum tire pressures are molded into the tire sidewall
- Check all hubs for loose lug nuts.
- Re-torque all wheel lugs nuts. Recommended torque dry: 450-500 ft. lbs. See sequence below.
- Check all hubs for proper oil level.
- Check all valve stems for proper mounting.
- Check that tires and rims do not rub.
- Tighten flange nuts to recommended torque using sequence shown.



## Working on hydraulic systems.

**! DANGER:** Clear area around trailer of bystanders before raising tub.

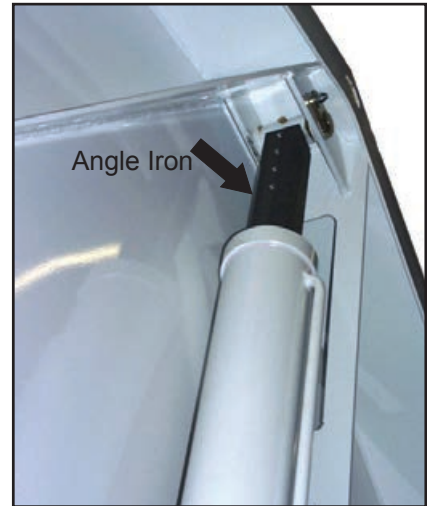
**! DANGER:** Do not preform maintenance on tub body without physically blocking body and cylinders to prevent lowering.



Before performing maintenance between the frame rails, the trailer should be hooked to tractor on a level surface, fully dumped, then hydraulic hoses uncoupled.

If service requires the tub to be partially dumped follow the proper safety procedures.

1. Make two tub braces using 1/4" x 3" x 3" angle iron.
2. Raise tub and insert angle iron over cylinder rod on each end. (See Photo)
3. After tub is secured in raised position:
  - a. Disengage the PTO; relieve the pressure from the hydraulic system by jogging control valve both directions to relieve pressure from the system.
  - b. When working on hydraulic systems, EXTREME caution must be used to avoid injuries from high pressure or hot oil.
  - c. Never attempt to work on loaded trailer.



1/4" x 3" x 3" Angle Iron  
(20" Min. Length)



**WARNING:** Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system. Relieve all pressure before disconnecting the lines or performing other work on the hydraulic systems.

## Tub and frame inspections

An important phase of trailer upkeep and maintenance is the inspection and repair, if any, of all structural steel members of the trailer frame and tub. It is readily apparent that the frame and tub must be one solid unit to carry the load safely and quickly without danger of accident or further damage to the trailer. This also prevents subsequent major repair, cost and trailer down time.

The need for a complete frame and tub inspection stems from various reasons:

- Trailer loaded to maximum rated capacity, or greater.
- Rough handling may also cause structural failures of varying degrees. The failures are the results of metal fatigue due to flexing, twisting, distortion.

Frame and tub failure will show up in the steel frame members as weld cracks, cracked and loosened steel sections.

To detect any fractures before they become major failures:

- Once a month thoroughly inspect the trailer for any sign of failure and correct any defects.
- It is desirable to have the trailer completely washed down so all the joints and welds may be closely viewed.

**Break-in procedure**

After the first twenty-four (24) hours of use, perform the following maintenance procedures:

1. Re-torque all suspension bolts and axle u-bolts. Torque specifications (as shown on the following page) are also on a decal located on the trailer sub-frame above the suspension.
2. Re-torque all wheel lug nuts.
3. Check all clearance lights, turn signal indicators, and stop lights.
4. Inspect all brake hoses and airlines for kinks and leaks.
5. Check hub oilers for leaks or low levels.
6. Check pintle hitch and/or push block mounting bolts for proper torque. (380 ft. lbs. Dry)
7. Inspect hydraulic lines and valves for leaks, chaffing or crimped lines.



## **Pre-Trip Checklist**

**Perform the Pre-Trip checklist whenever the tractor-trailer has been left unattended.**

1. Check that 5th wheel is properly coupled and locked.
2. Check that air hoses are securely attached to the trailer gladhands.
3. Check that electrical cord is properly connected to the trailer plug.
4. Walk around trailer to check conditions of tires, lights, and landing gear.
5. Check tub dump latches to ensure they are both set for dumping to the same side.

## **Daily Inspection Checklist**

**Perform the Daily Inspection Checklist each day before operating your side dump trailer.**

1. Perform the Pre-Trip Checklist.
2. Inspect air and hydraulic lines for leaks, crimps, and abrasions.
3. Visually inspect tires for damage. Check tire air pressure. Check hubs for loose lug nuts. Check hub caps for damage.
4. Check hub oil level and refill as needed.
5. Check trailer chassis and tub for loose fasteners of damaged parts.
6. Turn on lights and flashers. Walk around trailer to check that all lights are working. Replace any lights that are not working.

**Perform the Weekly Inspection Checklist at the beginning of each week or if the trailer has not been used for more than a week.**

1. Perform the Pre-Trip and Daily Inspection Checklists.
2. Grease the top and bottom cylinder pins on the front and rear cylinders.
3. Grease the fifth wheel using the two grease zerks located on top of the fifth wheel plate either side of the king pin. (If zerks are located under the tub, fully dump the tub to gain access to the zerks. See Maintenance Safety, page 23)

*Every 2,000 miles or 30 Days, perform the following checks on the unit:*

**AIR BRAKE SYSTEM**

- A. Check air brake hose and Synflex lines for chaffing and crimping.

**TIRES**

- A. Check for signs of uneven tire wear.
- B. Check tires for cuts, side wall breaks, tread cracking, or separation or feathered wear.
- C. Check duals for uneven wear, and rotate if necessary.

**BRAKE DRUMS AND WHEELS**

- A. Check and determine how much brake lining has worn.
- B. Inspect closely for worn stud holes, loose cap nuts and/or clamp nuts.
- C. Inspect wheel, rims, and hubs for cracks, breaks or other damage.
- D. Grease slack adjusters

**SUSPENSION ASSEMBLIES**

- A. Inspect rubber bushings.
- B. Inspect mounting brackets for damage or broken parts.
- C. Make certain lock nuts on alignment adjusting screws are tight.
- D. Check and re-torque all suspension bolts and pushblock bolts.

**HYDRAULIC SYSTEM**

- A. Check hydraulic hoses for chaffing, crimping and fasten securely.
- B. Check for hydraulic leaks.
- C. Make sure valves are not leaking and are operating properly.
- D. Hydraulic system is entirely dependent upon towing vehicle for its supply and control. Therefore, you must maintain hydraulic system on tow vehicle. Tow vehicle should maintain 30 GPM, oil flow at 2500 PSI.

***Every 25,000 miles or yearly, whichever comes first, perform the following checks:***

### **AIR BRAKE SYSTEM**

- A. Inspect the brake linings and reline if necessary.
- B. Check the brake drum for distortion, heat checking, out of roundness and/or scoring.
- C. Remove the brake shoes to examine bushings and anchor pins.
- D. Examine the brake cam, brake cam rollers and/or brake shoe wear plate for wear.

***Every 50,000 miles or yearly, perform the following checks:***

### **AIR BRAKE SYSTEM**

- A. Inspect the brake chambers. Replace if damaged.



**CAUTION:** WE DO NOT RECOMMEND DISASSEMBLING SPRING BRAKE CHAMBERS. REPLACE THE ENTIRE SPRING BRAKE.

- B. Check slack adjuster bushing and brake chamber yoke pin for wear.

**NOTE:** PERFORM THE ABOVE MAINTENANCE ON THE MINIMUM SCHEDULE, WHETHER ON THE MILE OR CALENDAR BASIS, WHICHEVER COMES FIRST.



**CAUTION:** BE CERTAIN THE PRECEDING CHECKLIST INSPECTIONS HAVE BEEN PERFORMED.

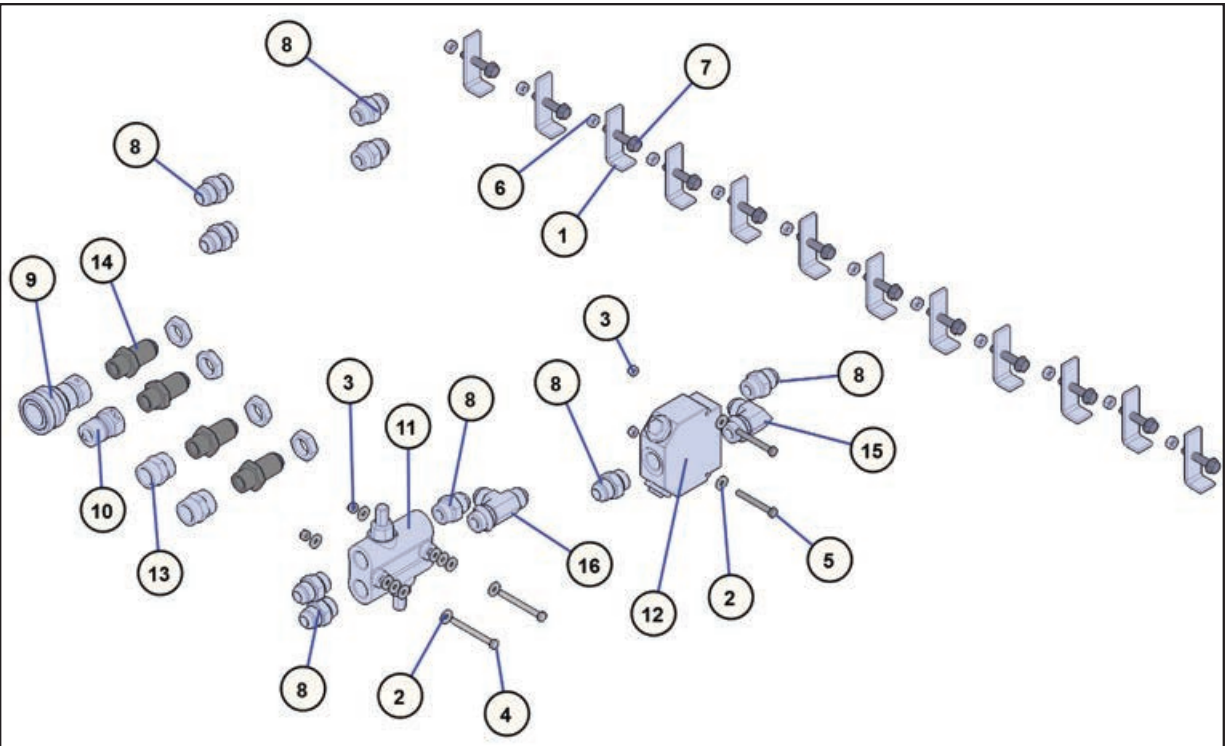
### **AIR PRESSURE BRAKE SYSTEM**

The air system of a trailer is entirely dependent upon the air brake system of the towing vehicle for its air supply and control. Therefore, the air brake system of the towing vehicle must be in good condition, or it will be impossible to obtain good brake performance on the trailer.

### **HYDRAULIC PRESSURE SYSTEM**

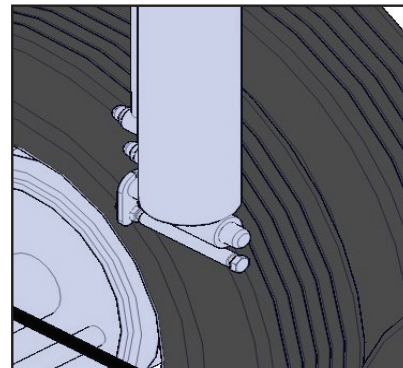
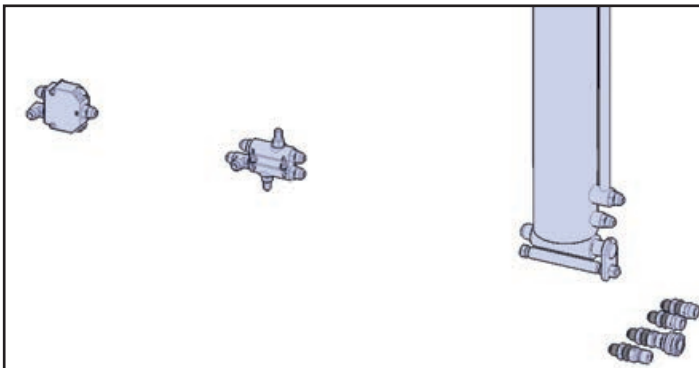
The hydraulic systems of these trailers are entirely dependent upon the hydraulic system of the towing vehicle for its oil supply, pressure and control. Therefore, the hydraulic pressure system of the towing vehicle must be in good condition, with steady clean oil supply for proper dumping performance on the trailer.

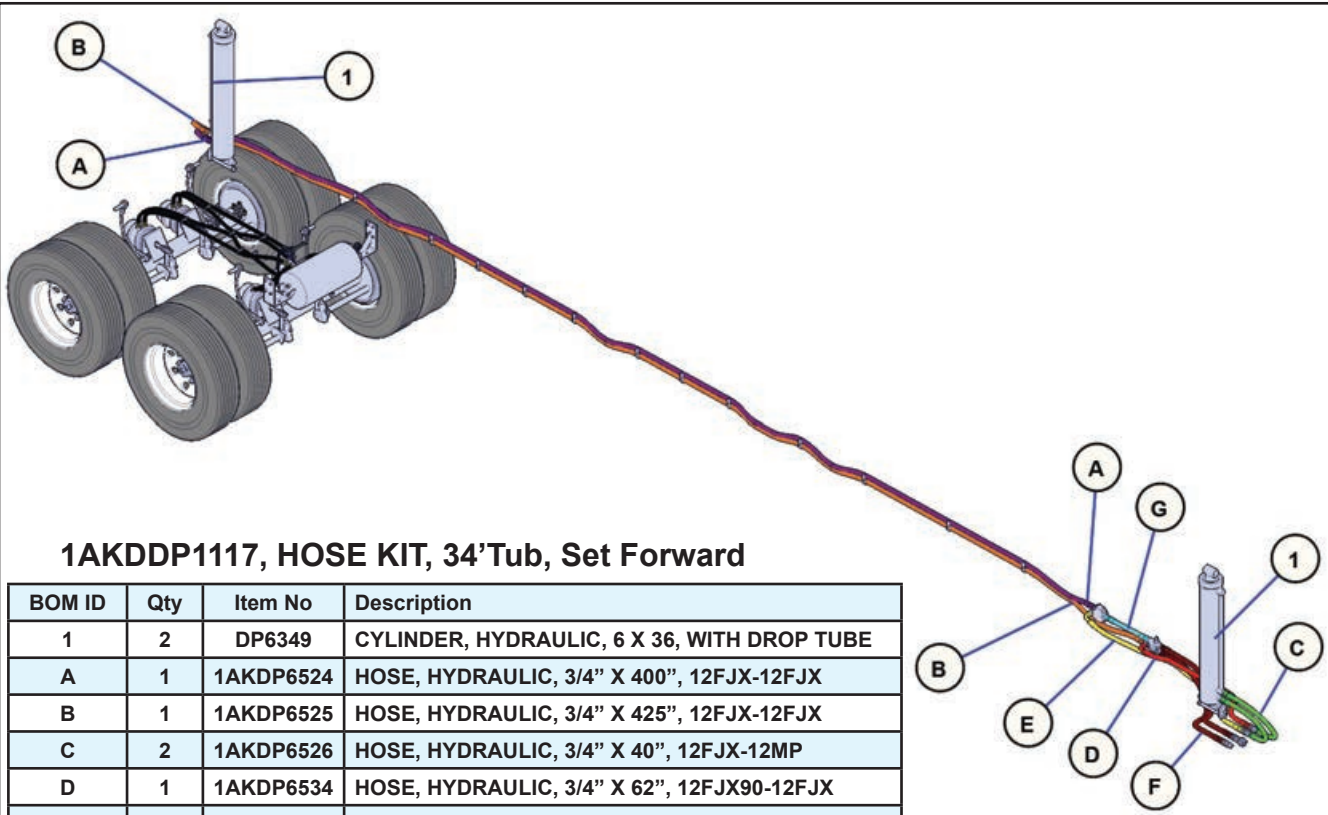
**NOTE:** CLEAN HYDRAULIC SYSTEM AT LEAST ONCE PER YEAR.



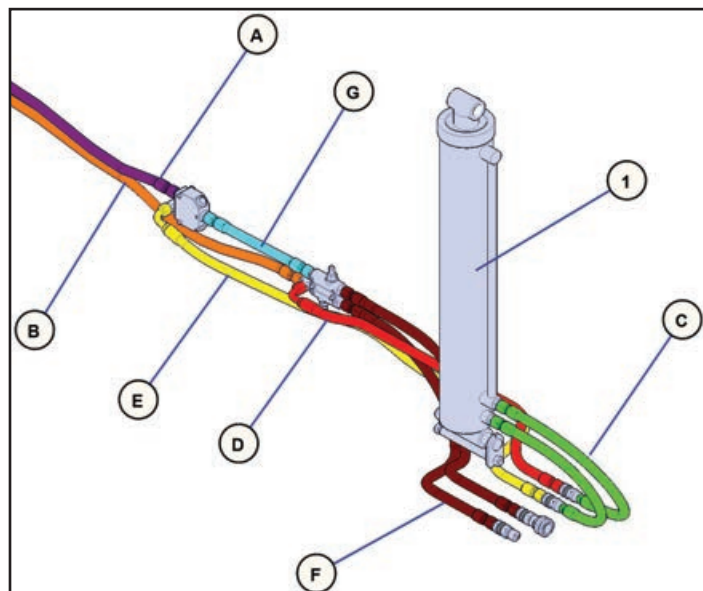
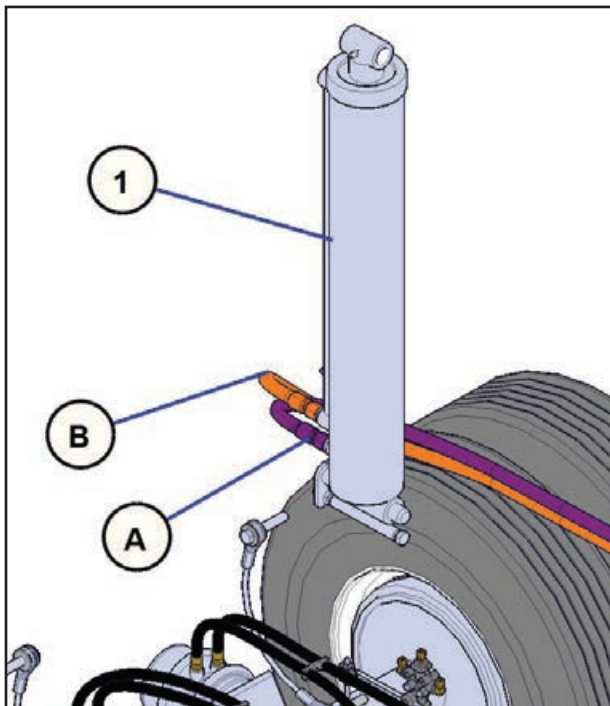
## 5C090019, STANDARD HYDRAULIC PACKAGE, 40' CHASSIS 34' TUB

BOM ID	Qty	Item No	Description
1	12	3CAM8053	HOSE RETAINER, SINGLE
2	12	1AFBP3055	WASHER, FLAT, 1/4", PLATED
3	4	1AFBP3587	NUT, HEX, 1/4" NYLOCK
4	2	1AFBP3588	HEX CAP SCREW, 1/4"-20 X 3", GRADE 8, PLATED
5	2	1AFBP3589	HEX CAP SCREW, 1/4"-20 x 2-1/2" GRADE 8
6	12	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
7	12	1AFBP3685	BOLT, FLANGE HEAD, 3/8"-16 X 2", GRADE 8, PLATED
8	9	1AKDP4368	ADAPTER, 12MJIC-12MSAE, STRAIGHT, 6400-12
9	1	1ACDP6300	COUPLER, QUICK, FEMALE, 3/4" NPT
10	1	1ACDP6301	COUPLER, QUICK, MALE, 3/4" NPT
11	1	1AKDP6302	VALVE, DOUBLE RELIEF, PRINCE, H-L
12	1	1AKDP6303	VALVE, PROPORTIONAL DIVIDER, PRINCE
13	2	1ACDP6307	COUPLING, 12FP-12FP, 5000-12
14	4	1AKDP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
15	1	1AKDP6538	ADAPTER, 12MJ-12MSAE 90 DEGREE, 6801-12
16	1	1AKDP6557	TEE, 12MJ-12MSAE-12MJ, 6804-12

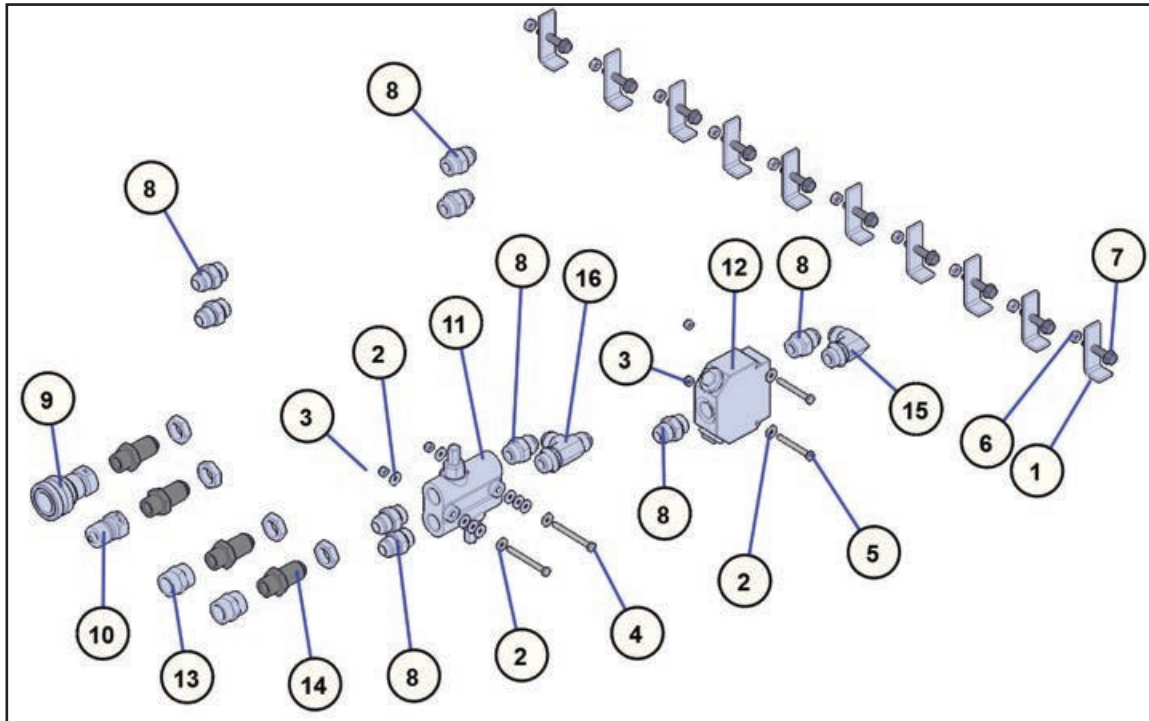




BOM ID	Qty	Item No	Description
1	2	DP6349	CYLINDER, HYDRAULIC, 6 X 36, WITH DROP TUBE
A	1	1AKDP6524	HOSE, HYDRAULIC, 3/4" X 400", 12FJX-12FJX
B	1	1AKDP6525	HOSE, HYDRAULIC, 3/4" X 425", 12FJX-12FJX
C	2	1AKDP6526	HOSE, HYDRAULIC, 3/4" X 40", 12FJX-12MP
D	1	1AKDP6534	HOSE, HYDRAULIC, 3/4" X 62", 12FJX90-12FJX
E	1	1AKDP6535	HOSE, HYDRAULIC, 3/4" X 87", 12FJX90-12FJX
F	2	1AKDP6546	HOSE, HYDRAULIC, 3/4" X 57", 12FJX-12FJX
G	1	1AKDP6558	HOSE, HYDRAULIC, 3/4" X 18-1/2", 12FJX-12FJX





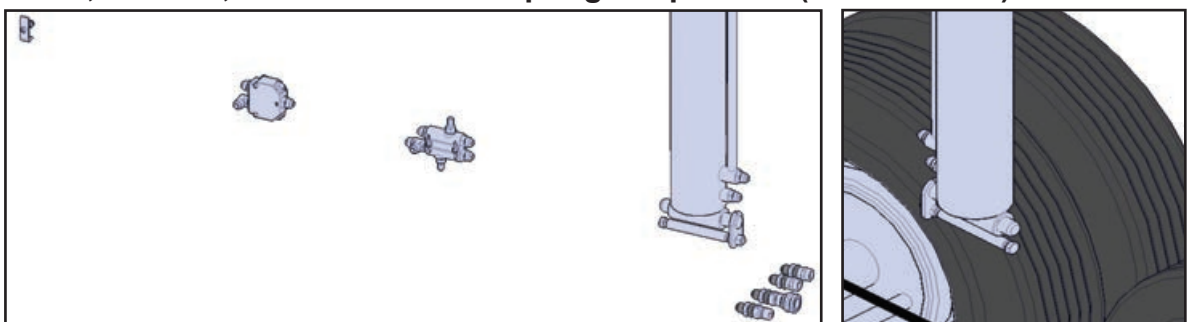


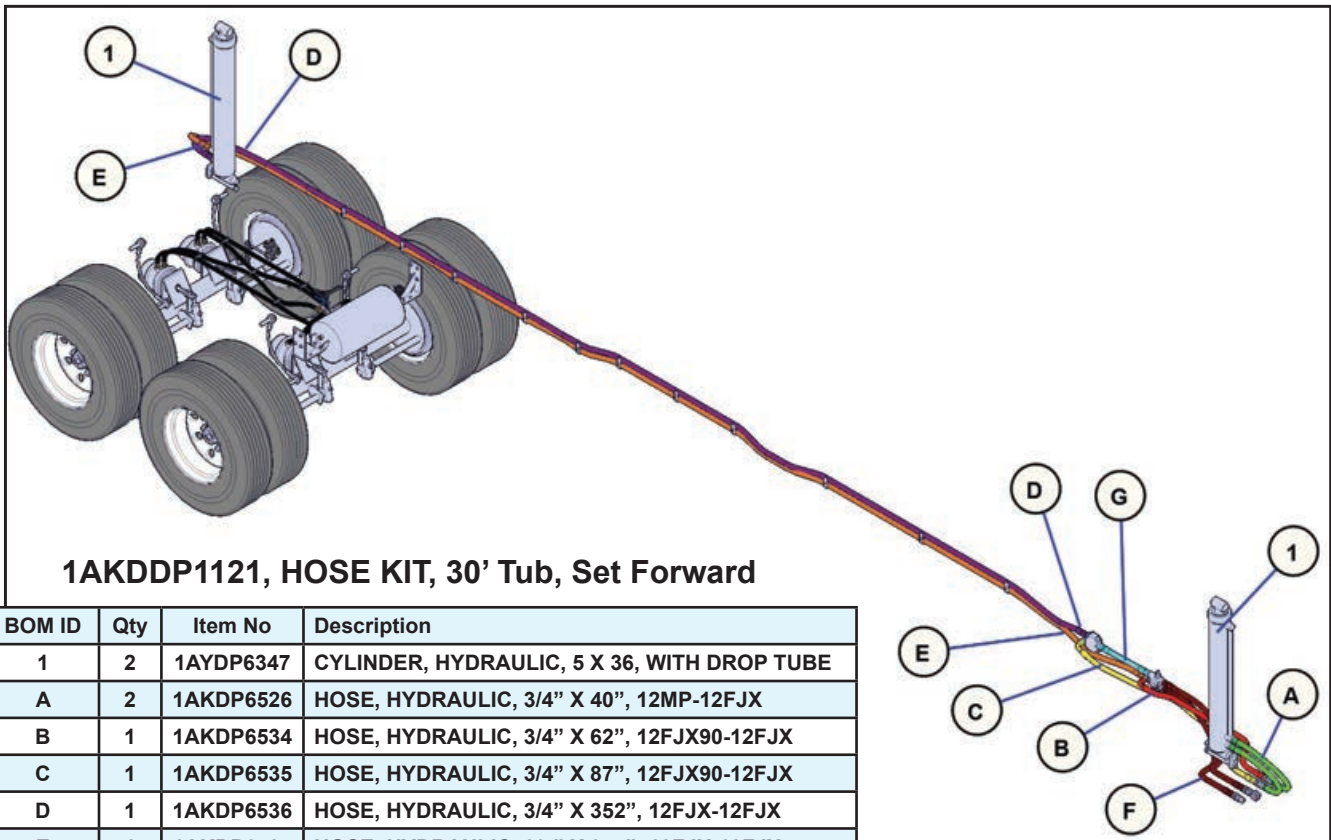
**5C090021, STANDARD HYDRAULIC PACKAGE, 35'**

BOM ID	Qty	Item No	Description
1	10	3CAM8053	HOSE RETAINER, SINGLE
2	12	1AFBP3055	WASHER, FLAT, 1/4", PLATED
3	4	1AFBP3587	NUT, HEX, 1/4" NYLOCK
4	2	1AFBP3588	HEX CAP SCREW, 1/4"-20 X 3", GRADE 8, PLATED
5	2	1AFBP3589	HEX CAP SCREW, 1/4"-20 x 2-1/2", GRADE 8
6	10	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
7	10	1AFBP3685	BOLT, FLANGE HEAD, 3/8"-16 X 2", GRADE 8, PLATED
8	9	1AKDP4368	ADAPTER, 12MJIC-12MSAE, STRAIGHT, 6400-12
9	1	1ACDP6300	COUPLER, QUICK, FEMALE, 3/4" NPT
10	1	1ACDP6301	COUPLER, QUICK, MALE, 3/4" NPT
11	1	1AKDP6302	VALVE, DOUBLE RELIEF, PRINCE, H-L
12	1	1AKDP6303	VALVE, PROPORTIONAL DIVIDER, PRINCE
13	2	1ACDP6307	COUPLING, 12FP-12FP, 5000-12
14	4	1AKDP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
15	1	1AKDP6538	ADAPTER, 12MJ-12MSAE 90, 6801-12
16	1	1AKDP6557	TEE, 12MJ-12MSAE-12MJ, 6804-12

## Standard Hydraulic Package Used On:

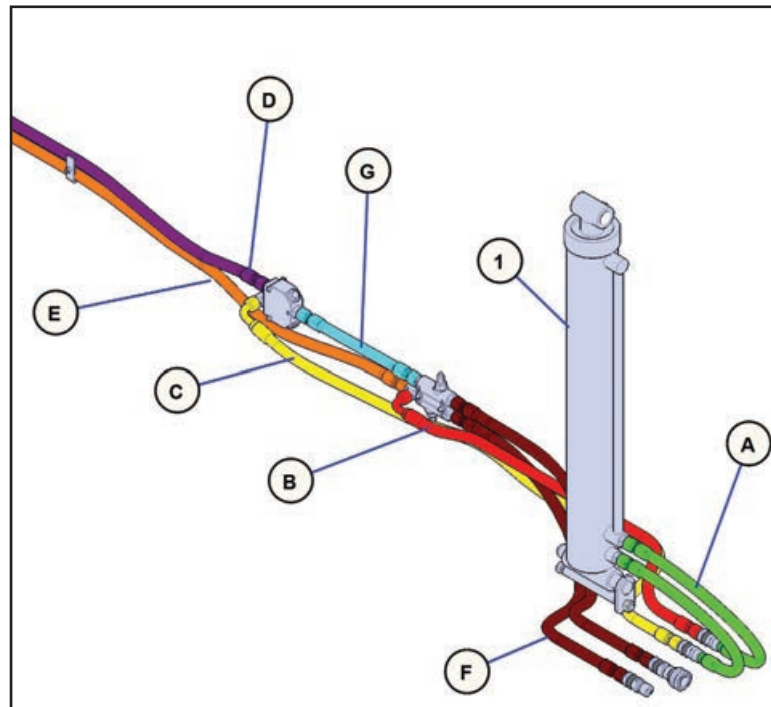
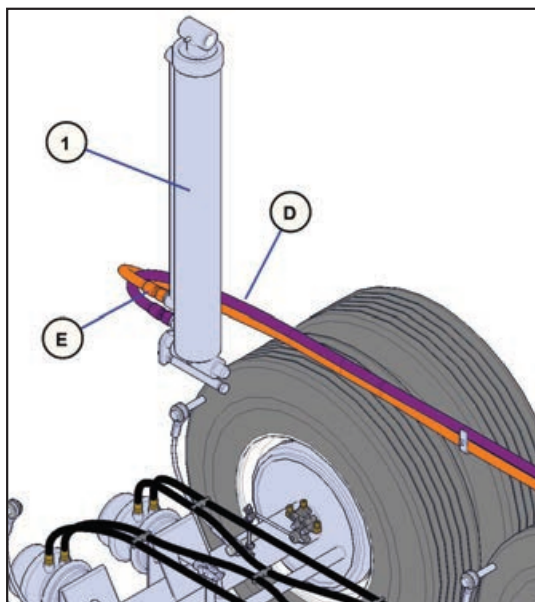
- 35', Tandem, 30' Tub With Leaf Spring Suspension (9CSS3524LS)





**1AKDDP1121, HOSE KIT, 30' Tub, Set Forward**

BOM ID	Qty	Item No	Description
1	2	1AYDP6347	CYLINDER, HYDRAULIC, 5 X 36, WITH DROP TUBE
A	2	1AKDP6526	HOSE, HYDRAULIC, 3/4" X 40", 12MP-12FJX
B	1	1AKDP6534	HOSE, HYDRAULIC, 3/4" X 62", 12FJX90-12FJX
C	1	1AKDP6535	HOSE, HYDRAULIC, 3/4" X 87", 12FJX90-12FJX
D	1	1AKDP6536	HOSE, HYDRAULIC, 3/4" X 352", 12FJX-12FJX
E	1	1AKDP6537	HOSE, HYDRAULIC, 3/4" X 377", 12FJX-12FJX
F	2	1AKDP6546	HOSE, HYDRAULIC, 3/4" X 57", 12FJX-12FJX
G	1	1AKDP6558	HOSE, HYDRAULIC, 3/4" X 18-1/2", 12FJX-12FJX

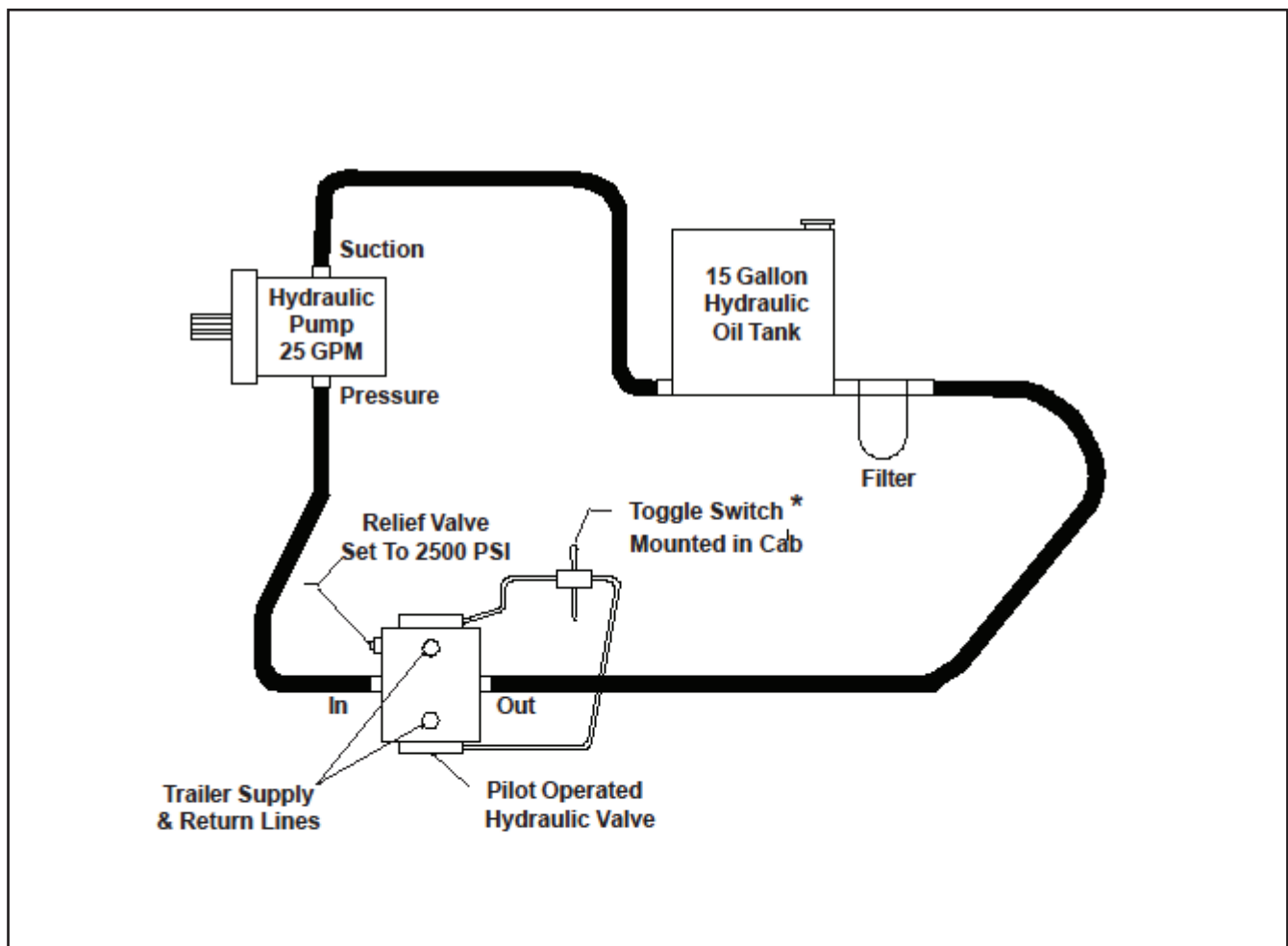




Efficient, safe operation of side dump trailers require that the tractor hydraulic system provide a clean, high pressure, high volume oil supply. The hydraulic pump pressure should be set at 2500 PSI with a minimum output of 25 GPM supply and a minimum 15 gallon filtered and strained reservoir.

**NOTE:**

Hydraulic Oil Filter should be Changed every 25,000 miles or yearly, which ever comes first and hydraulic system flushed every 50,000 miles with pressure and flow rates checked.

**Generic Tractor Hydraulic System**

All axles, except converter dolly axles, are equipped with spring brake chambers. Each spring brake chamber is separated into two units. The front unit operates the service brakes. The rear unit contains a high loading capability spring that must be pressurized by air within the chamber to compress the spring to release the spring brake portion of the chamber. Loss of air pressure to the brake chamber will automatically apply the spring brake portion of the chamber for parking and/or emergency braking.

**CAUTION:**

Spring brake chamber plug must remain in place when not being serviced. Chamber plugs prevent contaminants from entering brake chambers.

In the case of a service brake system air failure, when the spring brakes are applied in an emergency stop, a spring brake air reservoir retains enough stored air to release the spring brakes at least once by means of the tractor parking brake control.

In the absence of air pressure, a manual release is provided to allow release of the spring brake. Here's how to release spring brakes, which are standard on most Demco Side Dump trailers.

1. Always install wheel chocks at both front and rear of tires before manually releasing spring brakes.
2. An emergency parking brake release tool is stored in a pocket on the side of the brake chamber. See illustration.
3. Insert the detachable release bolt through hole in head and through the piston. Turn the release bolt clockwise until it stops and locks, then pull the release bolt out as far as possible, and run the nut down, holding the bolt in place.  
Using a hand wrench, turn the release bolt nut clockwise until the bolt extends about three inches. Make sure the release bolt is locked properly in the piston.
4. The parking brake is now caged.

**NOTE:**

For instructions on how to release makes of spring brakes refer, to the specific manufacturer's instructions.

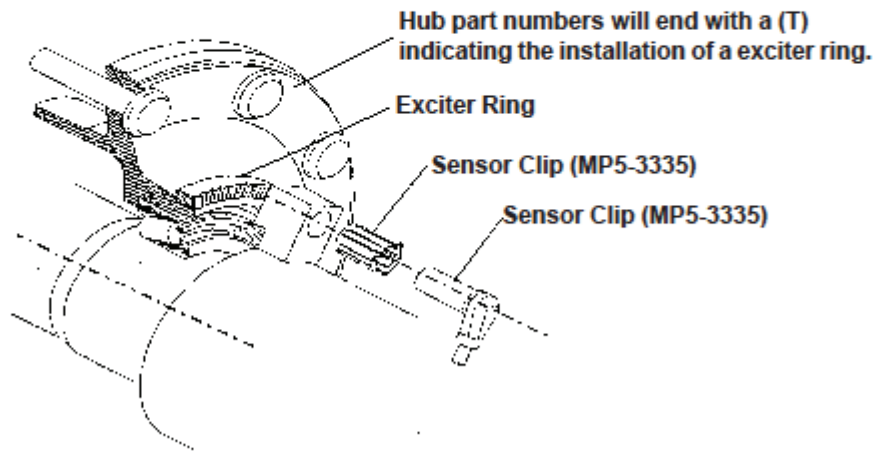
**WARNING:**

DO NOT operate your trailer with parking brakes caged or in any other way disabled. Never attempt to open a spring brake chamber. The internal spring is very dangerous.

## **GENERAL OPERATION OF THE ABS SYSTEM**

The Full Function Anti-lock Brake System (FFABS) maintains stability and control during braking by preventing wheel lock-up. FFABS consists of Sensors and Exciters, Modulating Relay Valve, and an Electronic Control Unit (ECU) to maximize the braking ability of the trailer. The ECU monitors wheel speeds, and thus vehicle speed, through the use of sensors and exciters that are mounted on the hubs of the trailer. When the ECU detects the speed of a wheel or wheels decreasing rapidly during a braking application, it releases the air pressure in the brake chamber of the affected wheel (s) via the modulator. This allows the wheel(s) to begin rotating again, thus avoiding lock-up. As soon as the wheels begin to rotate again, the ECU reapplies pressure in the affected brake chambers to maximize braking effectiveness. If the condition that caused the lock up remains, the cycle is repeated until either the brake application or vehicle is stopped. Operation is totally automatic and can occur up to six times per second.

FFABS can be installed on a variety of trailer configurations capable of controlling 2, 4 or 6 service/spring brake chambers. When the system is installed on a multi-axle trailer, it is important the proper axle is selected for positioning of the ABS wheel end sensors. Several factors are involved in making this decision, but basically, the axle selected should be the one that carries the least load or is most likely to lock first in a hard brake application.



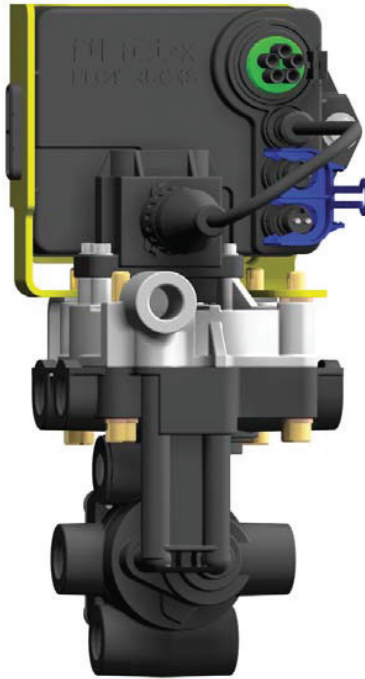
The Full Function ABS Valve was designed as a method of providing a complete trailer braking system combined with skid control in a single package. This valve combines the functions of several separate valves while providing all the valve needs for trailer service and spring brakes.

The FFABS valve has three control sections:

- Skid control unit that modulates signal pressure to prevent wheel lock up.
- Relay valve to provide the high flow of air from reservoir to brake chambers required for good brake response.
- Spring brake control module which incorporates pressure protection, one way check, double check for anti-compounding, and quick release.

The electronic control unit of the FFABS valve receives operating power from the seven-way connector. In the event of a power failure, the system will revert to a typical relay valve system; spring brake control is unaffected by a power failure.

# Haldex



***PLC Select ABS (1M)***

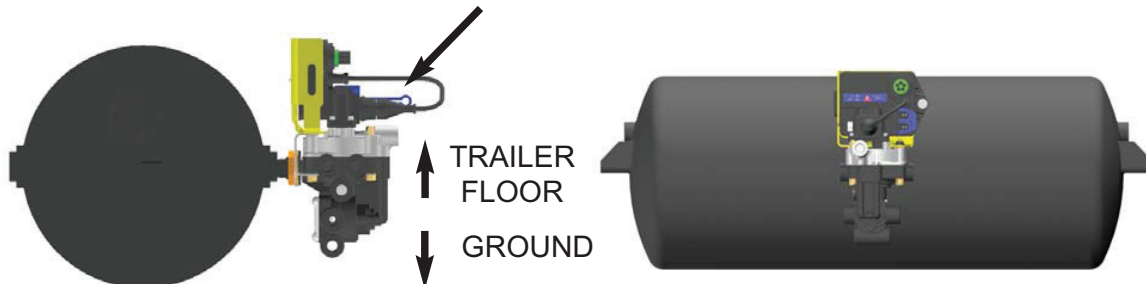
***Installation/Service Manual  
for  
2S/1M Systems***

**PLC Select 1M**

## PLC Select 1M & 2M Valve Orientation



*The ABS Valve Solenoid must be installed as shown below*

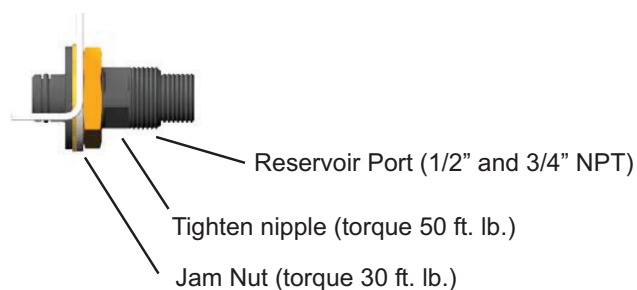


*Typical tank mount valve orientation*

1. Install fittings into valve. Sealant is not required on plastic threads or on fittings that go into plastic. **DO NOT** use teflon tape on fittings. It can break off and contaminate the air system. Liquid pipe sealant is approved for use if required.
2. For plastic ports, hand tighten fittings then rotate 1 to 1-1/2 additional turns. The maximum torque valve allowed is 210 in-lb.
3. Install valve nipple into reservoir port. Use 7/8" wrench to tighten the nipple.
4. Using a 1-1/2" wrench tighten the jam nut to 30 ft. lb, while holding the nipple with a 7/8" wrench.(see detail below).
5. Attach hoses to appropriate brake chambers. Use liquid thread sealant sparingly on all fittings (Loctite PST565 or equivalent).

**Note:** *If frame mounted follow same procedure for valve orientation.*

**Valve solenoid on a 2-port relay, 6-port relay or FFABS must be facing up when the trailer is in normal operation or service/ABS performance could be effected.**



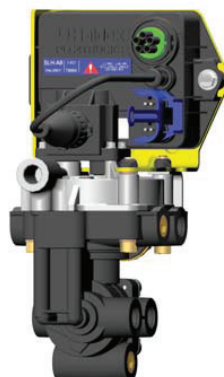
**Warning:** *Proper installation orientation shown above; otherwise, warranty is void.  
Installation behind the tank is recommended, facing the back of the trailer.*





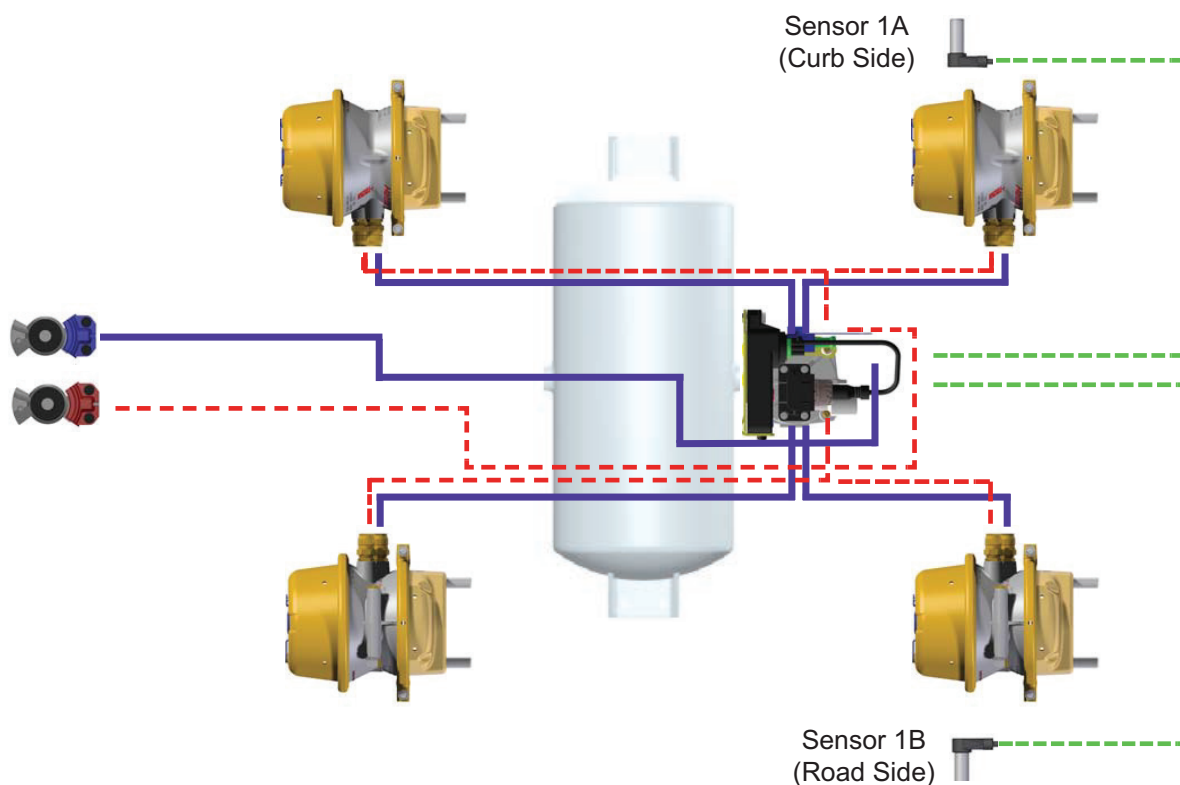
## PLC Select FFABS 2S/1M (4 Service Delivery Ports/ 4 Spring Brake Ports)

- Air suspension typically have the sensors on the rear axle
- Spring suspension typically have the sensors on the front axle



**PLC Select 1M (FFABS)**

### Plumbing Schematic (2S/1M) Top View



#### Legend:

Service/Control Line	
Emergency/Supply Line	
Sensor Line	

AIR BRAKE COMPONENTS AND SYSTEM SCHEMATIC ARE DESIGNED TO ALLOW COMPLIANCE WITH FMVSS 121.

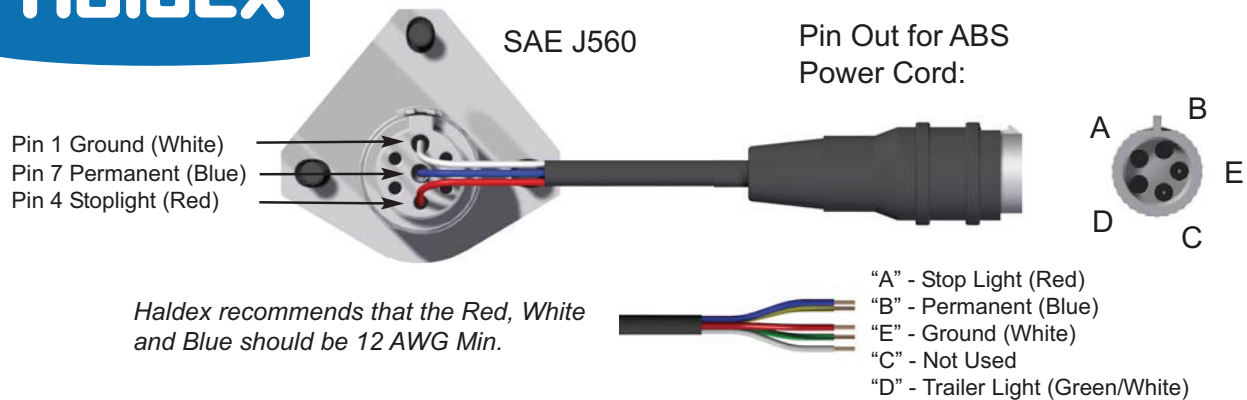
THIS SCHEMATIC IS FOR INFORMATION PURPOSE ONLY. IT IS THE VEHICLE MANUFACTURERS ULTIMATE RESPONSIBILITY TO CERTIFY THEIR SYSTEM MEETS ALL APPLICABLE REGULATIONS.

PIPE NIPPLES USED TO MOUNT BRAKE VALVES MUST BE HEAVY WALL TYPE PER SAE J514.

**PLC Select 1M**



## ABS Power Cord - Pin Out

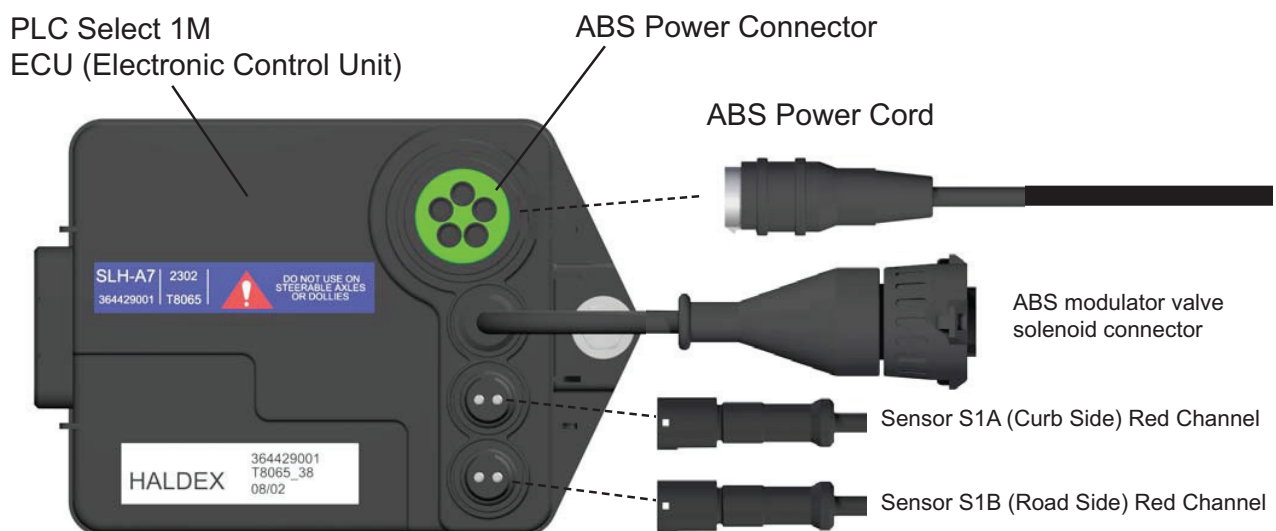


**Note:** Federal regulations mandate that new trailers, built after 3/1/2001, have the capability to provide an ABS fault signal from the trailer ABS into the tractor for an In-Cab trailer ABS Lamp. Option (1) is through Industry standard "PLC4Trucks" multiplexing (the signal is carried on Pin 7)

## PLC Select 1M ECU Overview

Correct location of the speed sensors at the wheel ends is critical for proper ABS operation and troubleshooting. The PLC Select 1M will adjust the braking air pressure in response to the input from the speed sensors. Incorrect installation or location of speed sensors, sensor block clips and exciter rings will result in poor ABS performance or sensors crossed leading to incorrect diagnostics troubleshooting.

The figure below shows the correct power and speed sensor connections on the PLC Select 1M ECU (Electronic Control Unit).



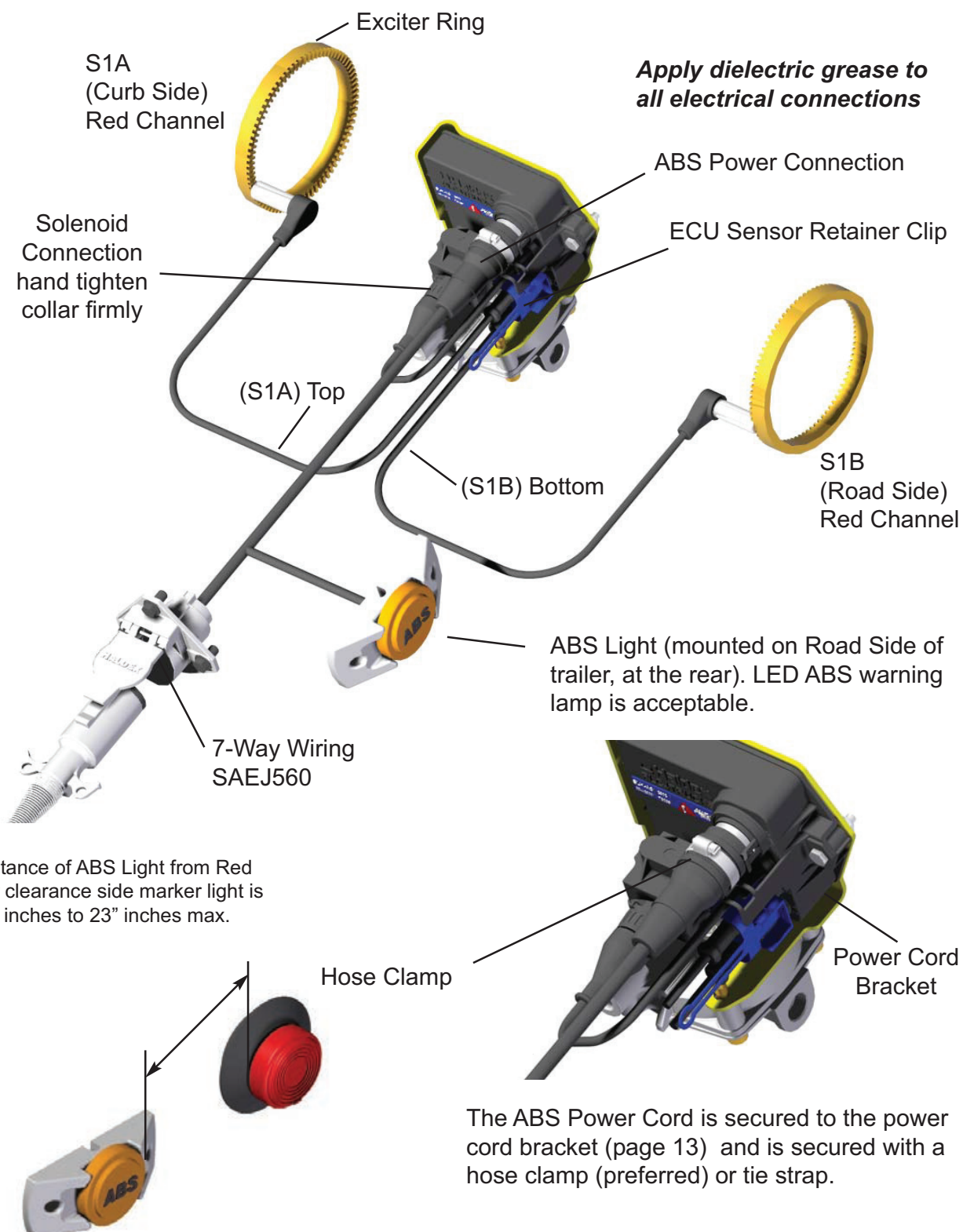
**Note:** When installing and servicing always apply small amount of dielectric grease to all electrical connections.

**PLC Select 1M**

## 2S/1M System Wiring - PLC Select



**Note:** Cover all exposed electrical connections before painting



**PLC Select 1M**

## Simplified Troubleshooting Procedures 2S/1M Anti-Lock System

After completion of a PLC FFABS or Modular installation, the following troubleshooting test procedures should be performed to ensure the ABS System is functioning properly. If any portion of these tests fail, consult with the Haldex Technical Department at 800-643-2374.

### Test Equipment

- 12VDC/30 AMP Power Supply (**DO NOT** use a Battery Charger).
- Jumper Cable from Power Supply to the 7-Way Receptacle.
- Shop Air.

### Step One

Charge the trailer brake system with supply and service air. Connect power supply to the 7-way receptacle and follow the checklist below to ensure the ABS System is functioning properly.

- **Modulator Blow-Down:** The ABS modulator should exhaust a brief shot of air, **do not rotate wheels during this test.**
- **ABS Light Sequence:** The ABS light should come on for 2.5 seconds, then go off, if no faults are detected. If faults are detected, the light will remain on.

### Step Two

Lift the ABS equipped axle on the trailer, release the service brakes and follow the checklist below.

- **Connect** constant power to the stop light circuit. (#4 conductor at 7-way receptacle)
- **Cycle** power to the trailer auxiliary circuit (#7 conductor at 7-way receptacle) ON, OFF, then ON to activate the system's simple diagnostic mode. (See chart for code interpretation.)
- **Rotate** the "curb" side wheel; the ABS lamp should flash 1 time. The lamp will remain on after the wheel is stopped, until the next wheel is rotated.
- **Rotate** the "road" side wheel; the ABS lamp should flash 2 times.

### Blink Code Diagnostics

#### Mode 1 - Simple Mode Diagnostic Fault Table (ON,OFF,ON)

Item	Flash Count	Actual Fault
System OK	Lamp Stays On	07
Sensor 1A	1 Flash	01, 11, 21
Sensor 1B	2 Flashes	02, 12, 22
Sensor 2A	3 Flashes	03, 13, 23
Sensor 2B	4 Flashes	04, 14, 24
Sensor 3A	5 Flashes	05, 15, 25
Sensor 3B	6 Flashes	06, 16, 26
Red Valve	7 Flashes	41, 61, 67, 71, 77, 81, 87
Blue Valve	8 Flashes	42, 62, 68, 72, 78, 82, 88
Yellow Valve	9 Flashes	43, 63, 69, 73, 79, 83, 89
Low Voltage	10 Flashes	90
ECU Failure	11 Flashes	93, 99, E-Codes

### Wheel Speed Mode

Wheel Speed Mode is accessible only when in Simple Mode. This mode is not activated until the ECU has received a signal from the wheel speed sensor of a spinning wheel. The hold solenoid of the modulator associated with the particular sensed spinning wheel will be cycled. The blink codes for the sensed wheels are:

<b>S1A:</b> 1 Flash	<b>S1B:</b> 2 Flashes	<b>S2A:</b> 3 Flashes
<b>S2B:</b> 4 Flashes	<b>S3A:</b> 5 Flashes	<b>S3B:</b> 6 Flashes

### Troubleshooting Notes

- **1** - Spin only one wheel at a time.
- **2** - Once a wheel is rotated, the ABS lamp will remain on after the wheel is stopped, until the next wheel is rotated.

### Haldex Commercial Vehicle Systems

Haldex Brake Products Corporation  
10930 N. Pomona Avenue  
Kansas City, MO 64153-1256  
Phone: 816-891-2470  
Fax: 816-891-9447

Haldex Limited  
525 Southgate Drive, Unit 1  
Guelph, Ontario Canada N1G 3W6  
Phone: 519-826-7723  
Fax: 519-826-9497

[www.haldex.com](http://www.haldex.com)

L55031W US 9/09 WEB ONLY



## **Welding on Trailers Equipped with Haldex ABS Products**

Haldex Commercial Vehicle Systems specifies very few requirements when welding on a trailer equipped with a Haldex ABS System:

- ✓ Weld only when the trailer is not attached to the towing vehicle.
- ✓ Take precautionary measures to protect against extreme heat, flying slag and/or molten metal.
- ✓ Never connect power to the 7-pin connector or to the ABS System when welding on the trailer.

Haldex does not require the disconnection of any ABS wire harnesses when welding on the trailer due to the fact that the ECU circuits have been specially designed to protect against transient voltages which can occur during welding.

For additional information or assistance, contact your local Haldex Sales Professional or a member of the Haldex ABS Engineering Team at (816) 891-2470.

---

**Innovative Vehicle Technology**

---

[www.hbsna.com](http://www.hbsna.com)

2/03 5M CM L55134

**L55134**  
SERVICE  
BULLETIN

**CARE AND ADJUSTMENT OF BRAKES**

The trailer brake system will perform safely and efficiently only as long as you maintain it properly and do not abuse it. Trailer brakes should be inspected and adjusted frequently in connection with a Trailer Preventative Maintenance program. Out-of-adjustment brakes can cause increased stopping distance, shorter brake component life, and a greater tendency for the trailer to jackknife.

**AIR SYSTEM AND BRAKE OPERATION**

- Proper operation of the brake system requires a firm seal between the air brake glad hands. Inspect the glad hands for rubber washer damage and cracked housing. Inspect the air hoses for cracking and for frayed connections.
- Keep the air system clean. Primary and emergency air tanks should be drained daily to remove moisture and other contaminants, especially during cold weather operations.
- Some air valve manufacturers discourage the use of any kind of air line antifreeze. It may result in deterioration of seals in these valves.
- If you use Teflon tape or other thread sealers to seal threaded connections in your air lines, be careful not to allow pieces of the sealer to enter the air system. They can clog passages into the valves.
- Keep the air system tight. The air system cannot be charged properly if there are leaks in reservoirs, lines, hoses or valves. Always check the tractor pressure gauge for unusual drops or extended buildup times.
- Run the tractor engine until the air brake system pressure gauge shows at least 70 psi. Listen for air leaks. With the engine off, check the gauge reading with no brakes applied. The gauge reading loss should not exceed three pounds in one minute.
- With the engine still off, apply the brakes fully for two minutes. The gauge reading loss should not exceed four pounds per minute.
- With engine still off, slowly open a drain cock in an emergency or supply line and allow the pressure to drop gradually.
- In a system that does not employ spring brake control valves, the relay emergency valve should function and apply the brakes.

**AIR SYSTEM AND BRAKE OPERATION**

- In a system employing spring brake control valves, spring brakes should function and apply the brakes. Remember that serious air losses are extremely hazardous conditions that are likely to cause accidents or breakdowns.



**WARNING:**

Do not operate this vehicle with any brake defects or with brakes out of adjustment.

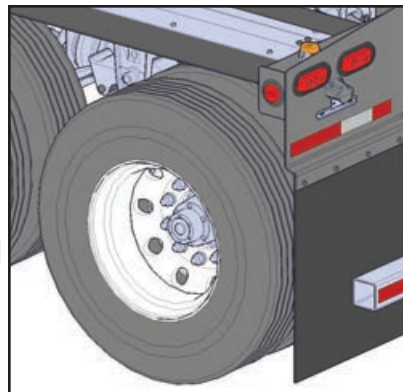
**CHECK BRAKE OPERATION**

Before entering traffic, check the operation of the trailer brakes to be sure they are in good working order. Try foot pedal, emergency dash control valve (push, pull or flip), and trailer brake lines to assure brake application and release in each instance. Listen for air leaks under each condition.



## TIRES

Do not over inflate. Check for proper inflation with an accurate gauge when the tires are cold. Inspect tires for nails and other objects embedded in the rubber, and for stones and other objects lodged between duals. Examine tires to see that they are free of breaks and other defects. Watch new and retread tires for signs of failure during break-in period. Dual tires on any axle end should have the same diameter.



### CAUTION:

The law requires that you inflate tires according to the inflation pressure molded on the tire by the tire manufacturer. Tires must be matched with proper compatible rims for safe operation.

Replace any tire that has fabric exposed through the tread or sidewall, or that has less than 2/32" tread depth.

## TIRE LOADS

Do not overload the trailer tires. Overloading tires creates a dangerous, unsafe condition that should be avoided.

The total load per tire must not exceed the tire manufacturer's specified load carrying capacity at stated inflation pressures for both tires and rims. Demco Side Dump trailers, as required by the certification regulations of the National Highway Traffic Safety Administration (CFR 49, Part 567), has a Gross Axle Weight Rating plate on each trailer for your information on the running gear capacity.

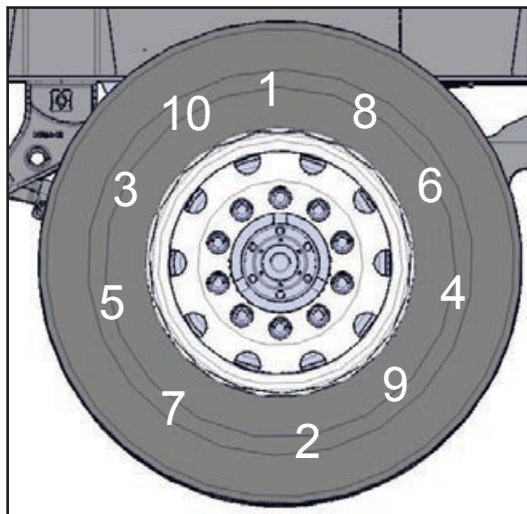
The GAWR and tire information shown on the vehicle identification plate was applicable at the time the trailer was manufactured. If the tires or other components of the running gear have been changed or altered since the trailer was manufactured, the GAWR may have changed. This should be checked with the Demco factory representative.

**NOTE:** GVW sticker is located on the drivers side near landing gear.

Check all parts for damage. Insure that studs, nuts, and mounting faces of hub and wheels are clean and free from grease. Replace any defective parts.

Mount single wheel or inner and outer dual wheels over studs, being careful not to damage stud threads. Draw up nuts alternately in the sequence shown below. Do not tighten them fully, however. This procedure will permit the uniform seating of nuts and insure the even face-to-face contact of wheels and hub.

Tighten nuts fully, using the same alternate sequence. Be sure to tighten wheel nuts only to the torque level recommended below and to maintain them at that level through planned, periodic checks.



**CAUTION:** Do not intermix wheel types. Insufficient mounting torque can cause wheel shimmy, resulting in damage to parts and extreme tire tread wear. Excessive mounting torque can cause studs to break and discs to crack in the stud hole area.

**NOTE:** Lug nuts should be rechecked for proper torque after vehicle has been operated for 50-100 miles, and every 3,000 miles thereafter, as well as during regular maintenance checks.

1. Check all metal surfaces thoroughly while making tire inspections, including areas between duals and on inboard side of wheel. Watch for:
  - a. Excessive rust or corrosion buildup
  - b. Cracks in metal
  - c. Bent flanges, resulting from road obstructions
  - d. Deep rim tool marks on rings or in gutter areas
  - e. Loose, missing or damaged nuts or clamps
  - f. Bent or stripped studs
  - g. Damaged or missing rim drive plates
  - h. Mismatched rim parts
2. Pull damaged rims or wheels.

**CAUTION:**

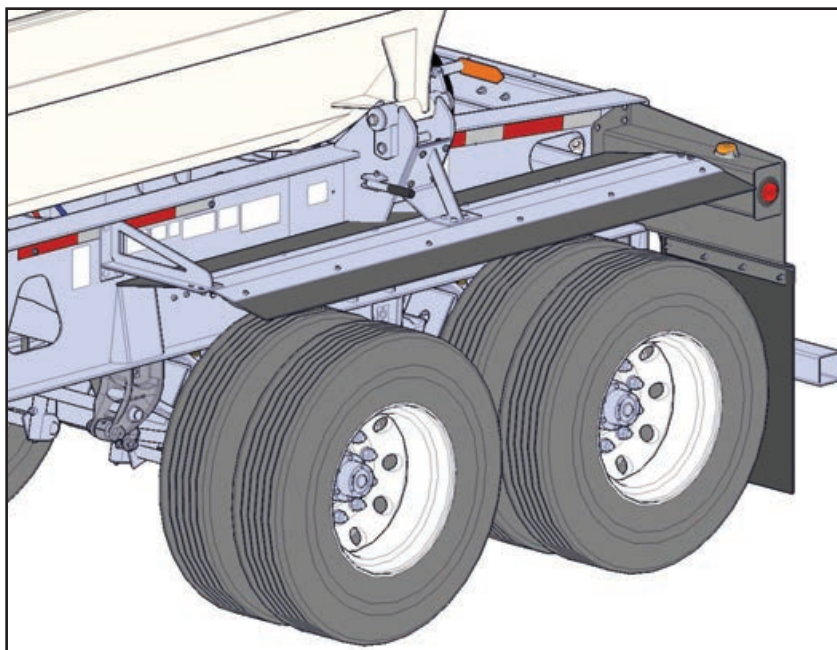
**Excessively corroded or cracked rims or rings can be dangerous. Deflate tires prior to the removal of rims or wheels from the vehicle.**

3. Mark damaged or hazardous areas with chalk so that part will be removed from service.
4. Replace damaged parts.

**CAUTION:**

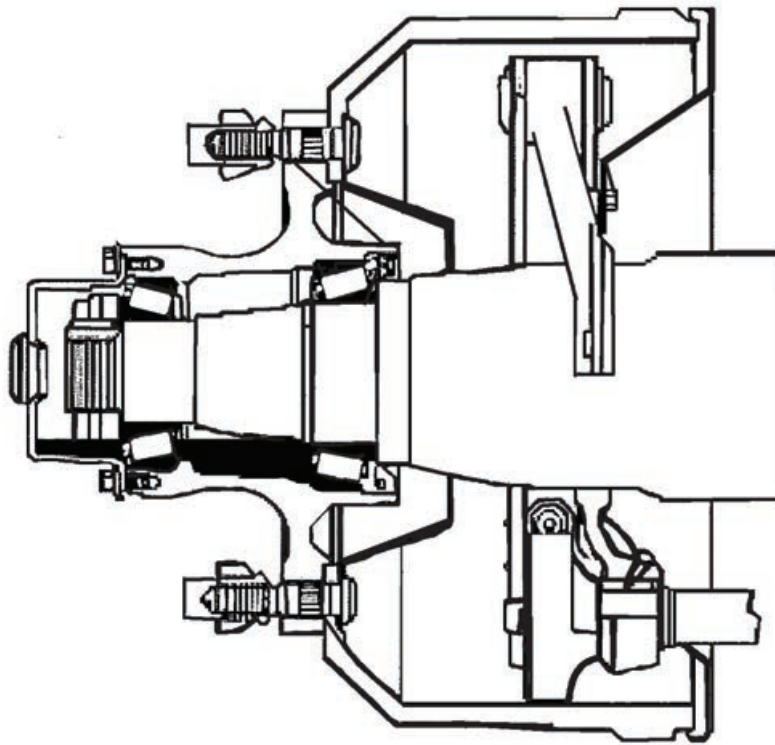
**Insure that replacements are made with the proper sizes and types of rims and rings.**

5. Inflate tires only to recommended air pressures.



Check hub gaskets and seals for oil leaks before each trip. Leaking seals can result in ruined wheel bearings and possible failure of the axle-wheel assembly.

Check oil level in hubs before every trip. Add oil when low, only to the level indicated by mark on the hub cap. **CAUTION! Too much oil can damage the wheel bearings.** Use a gear type oil: SAE 140 if temperature is above freezing, SAE 90 if temperature is below freezing, or a multipurpose oil with an SAE range of 85 to 140 for year round conditions.



## AXLE ALIGNMENT

Axle alignment must be checked at regular intervals. If the trailer is not following properly, this should be reported to the Maintenance Department.

### NOTE:

See Axle/Suspension manual pages for alignment procedures.

## LEAF SUSPENSION



### **WARNING:**

Broken spring leaves, missing or loose U bolts, or other defective conditions likely to cause axle shift are hazardous and likely to cause accidents or breakdowns.

Check the equalizer to see that there are not obstructions to movement during operation. If equalizer movement is restricted by an obstruction, the axle “walk” will not be sufficient and damage will result.

Check wear pads in hangers. If they are wearing thin, install new wear pads or the spring will cause permanent damage to the hanger itself. Do not operate with broken spring leaves.



## **WARNING**

**SAFETY ALERT! (1) FOLLOW ALL TORQUE REQUIREMENTS. (2) DO NOT USE ANY COMPONENT WITH VISIBLY WORN OR DAMAGED THREADS. FAILURE TO FOLLOW THESE SAFETY ALERTS CAN LEAD TO LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, SERIOUS PERSONAL INJURY OR DEATH.**

### **Hutchens Suspension Torque Requirements 900/440 Series ( Decal Part Number 16087-01 Rev. E )**

After an initial break in period, approximately 1000 miles, and at least every 4 months periodically thereafter, ALL bolts and nuts should be checked to insure that recommended torque values are being maintained.

Oiled torque values listed are for new fasteners with lubricated threads. It is recommended that new installations be performed with oiled fasteners. For dry threads which have been in service, use the higher torque values which are noted below.

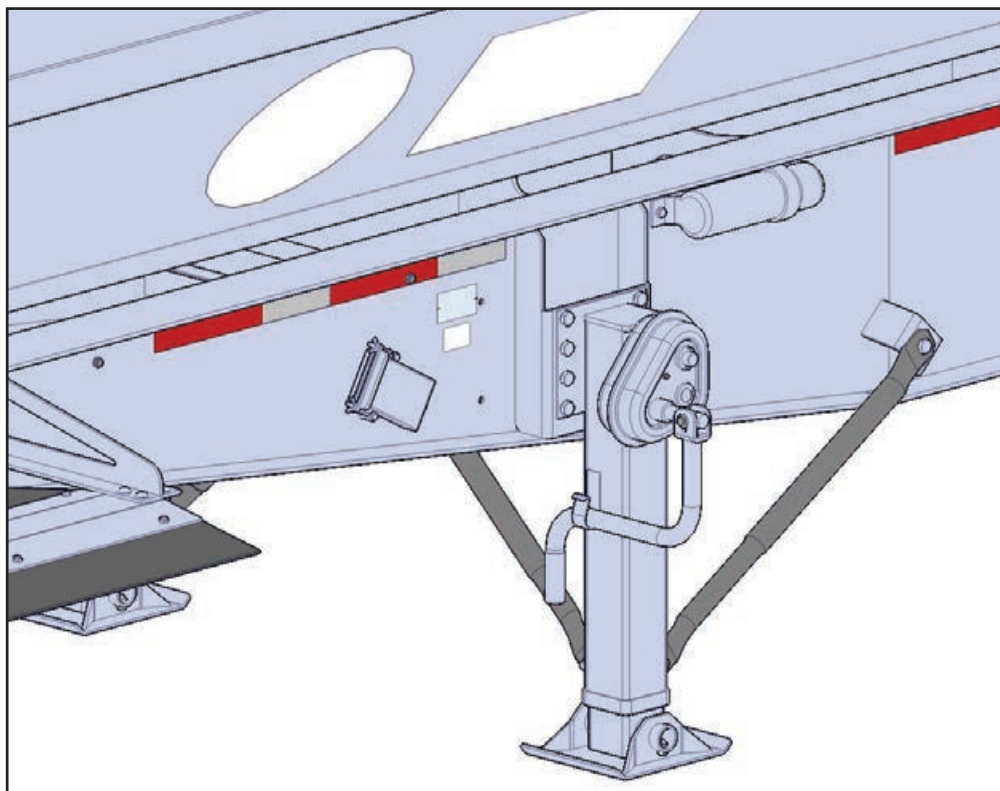
	OILED	DRY
1 1/8-12 UNF. ....	670 lb-ft	880 lb-ft
1-14 UNF. ....	540 lb-ft	730 lb-ft
7/8-14 UNF. ....	500 lb-ft	670 lb-ft
3/4-16 UNF. ....	220 lb-ft	300 lb-ft
5/8-18 UNF. ....	130 lb-ft	180 lb-ft



Hutchens Industries, Inc., P.O. Box 1427, Springfield, Missouri 65801-1427 Toll Free 1 (800) 654-8824

1. Always raise landing gear completely before moving the trailer.
2. Always use chock blocks or lock trailer brakes when uncoupling or coupling tractor and trailer on the road or in the terminal area. Chock as required for unusual conditions.
3. Always place sand shoes on a plank or smooth surface for flotation to prevent sinking into soil or soft asphalt when a loaded trailer is uncoupled from a tractor.
4. Always lower landing gear to the ground before disconnecting the tractor from the trailer.
5. Always store the crank in the crank holder.
6. Maintain landing gear as outlined in the owner's manual on page 87.

**NEVER** force landing gear supports beyond their normal raised or lowered positions.



See page 60 Demco Parts List.

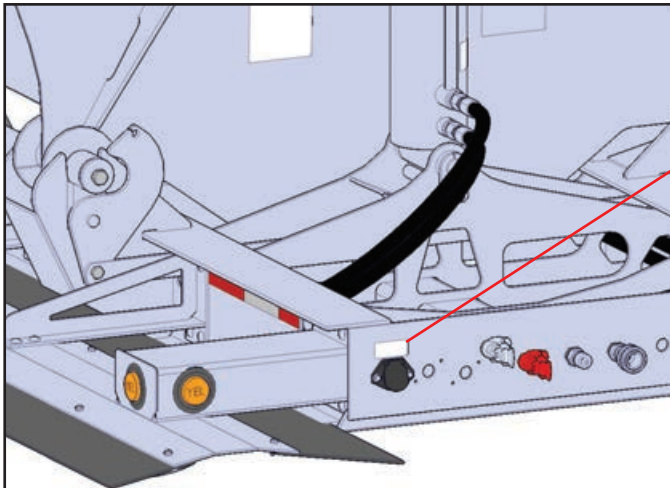
See page 79 Operating Instructions & Maintenance Procedures

## Electrical System

The lights and wiring system on every Demco Side Dump trailer meet or exceed all federal and state requirements in effect at the time of manufacture. Wherever required by law, lights and reflectors are marked by the manufacturer to indicate the appropriate specifications with which each complies.

For optimum performance and long life from the trailer's lights and wiring, follow this inspection procedure:

- Clean all reflectors and lights. See that all lights burn properly. Replace all burned out lights and broken reflectors. Factory approved replacement parts should be used, and replacement bulbs of equal candle power should be used for safety.
- **WARNING!** Use only a 12 volt DC battery for checking lights or anti-lock systems. Never use battery chargers or transformers.
- Inspect all wiring to see that it is not frayed, and that it is properly supported and protected, with all connections tight. See that the light cable is clean and long enough to permit jackknife parking. Be certain that the cable is supported so that it cannot be pinched or entangled by the lower and upper couplers. Keep the 7-way plug on the light cable and the 7-way connector on the trailer free of corrosion.
- Never replace fuses or breakers with metal foil or other devices.
- A decal is located on the front of each trailer. You may trace individual electrical circuits by the wire colors indicated. Refer to the schematic drawing and the decal for conductor number and wire colors.



### Wiring Harness Color Code

<b>WHITE - Ground</b>	<b>YELLOW - Lt Turn</b>
<b>BLACK - Marker</b>	<b>GREEN - Rt Turn</b>
<b>RED - Stop</b>	<b>BLUE - Auxiliary</b>
<b>BROWN - Tail</b>	

AP 3674

Malfunction	Probable Cause	Corrective Action
All lights fail to light.	A. Inter-vehicular cable not properly plugged into receptacles on semi-trailer and towing vehicle.	A. Pull plugs out and reinsert them. be sure plugs seat properly.
	B. Light switch on towing vehicle malfunctioning.	B. Check light switch.
	C. No current from towing vehicle.	C. Check circuit breaker and wiring on towing vehicle.
	D. Short circuit in wiring.	D. Check wiring for bare spots in insulation.
	E. Dirty or corroded contacts in receptacle or on plug of inter-vehicular cable.	E. Clean receptacle and plug.
	F. Dirty or corroded contacts in connectors of semi-trailer wiring.	F. Clean corroded contacts in connectors.
Lights burn dim or flicker.	A. Loose, dirty, or corroded terminals.	A. Clean and tighten terminals.
	B. Poor or loose ground.	B. Clean and tighten terminals on short (ground) cable in back of receptacle assembly on semi-trailer
	C. Defective lamps.	C. Replace defective lamps.
	D. Dirty or corroded lamp socket or contact in receptacle or on plug of inter-vehicular cable.	D. Clean or replace lamp socket, receptacle or plug.
Individual lamps do not light.	A. Burned out lamp.	A. Replace lamp.
	B. Broken or loose connection.	B. Check cables for brakes and poor connections. Tighten, repair or replace. Clean connections.
	C. Damaged light assembly.	C. Repair or replace light assembly.
	D. Dirty or corroded lamp socket.	D. Remove lamp and clean contacts.
	E. Dirty or corroded contact in receptacle or on plug of inter-vehicular cable.	E. Clean receptacle and plug.

Malfunction	Probable Cause	Corrective Action
Hard Pulling	A. Dragging brakes. B. Improper wheel bearing adjustment. C. Bent axle. D. Dragging axle, lost U-Bolt.	A. Adjust brakes. B. Adjust wheel bearings. C. Repair or replace axle. D. Align axles and secure.
Excessively worn scuffed or cupped tires.	A. Improper tire pressure. B. Loose wheels. C. Loose wheel bearings. D. Bent rim or wheel. E. Bent axle.	A. Inflate tires to proper pressure. B. Tighten cap nuts. C. Adjust wheel bearings. D. Replace wheel. E. Repair or replace bent axle.

## TUBULAR AXLE

Malfunction	Probable Cause	Corrective Action
Semi-trailer Swerves.	A. Accidental damage to axle from striking obstruction. B. Damage to axle from overloading. C. Loose nuts holding shackle box.	A. Replace axle. B. Replace axle. C. Tighten or replace shackle box or shackle box liners.

## WHEELS, HUBS, BEARINGS, AND TIRES

Malfunction	Probable Cause	Corrective Action
Noise	A. Brake shoes drag on drums. B. Brake drums out of round. C. Broken brake shoe return spring. D. Loose wheel stud nuts. E. Damaged wheel bearings. F. Wheel bearings not properly adjusted. G. Obstruction between dual wheels or in tire tread. H. Bent or damaged wheels or hubs.	A. Adjust brakes. B. Repair or replace brake drum. C. Replace broken return spring. D. Tighten loose wheel bearings. E. Replace damaged wheel bearings. F. Adjust wheel bearings. G. Remove obstruction. H. Replace damaged wheels or hubs.
Wobbly wheels.	A. Loose cap nuts. B. Improperly adjusted or damaged wheel. C. Bent axle spindle. D. Bent or damaged wheel.	A. Tighten or replace cap nuts. B. Adjust or replace wheel bearings. C. Replace axle. D. Replace damaged wheels.

Malfunction	Probable Cause	Corrective Action
Overheated hubs.	<ul style="list-style-type: none"> <li>A. Lack of wheel bearing lubricant.</li> <li>B. Wheel bearings improperly adjusted.</li> <li>C. Damaged bearing or cup.</li> <li>D. Damaged hub.</li> <li>E. Bent axle spindle.</li> <li>F. Overloading or unbalanced distribution of load.</li> </ul>	<ul style="list-style-type: none"> <li>A. Lubricate wheel bearings.</li> <li>B. Adjust wheel bearings.</li> <li>C. Replace damaged bearing or cup.</li> <li>D. Replace damaged hub.</li> <li>E. Check for bends and replace tubular axle.</li> <li>F. Check load weights hauled and keep within rated gross capacity. Arrange load evenly to distribute weight.</li> </ul>
Overheated brake drum.	<ul style="list-style-type: none"> <li>A. Dragging brake shoe assembly.</li> <li>B. Broken brake lining.</li> <li>C. Broken or weak brake shoe return spring.</li> <li>D. Bent axle spindle.</li> </ul>	<ul style="list-style-type: none"> <li>A. Adjust brake shoe assembly.</li> <li>B. Replace brake shoe assembly.</li> <li>C. Replace return spring.</li> <li>D. Replace axle.</li> </ul>
Brakes erratic or unequal.	<ul style="list-style-type: none"> <li>A. Improper lubricant or grease inside brake drum or outside of wheel.</li> <li>B. Loose hub cap.</li> <li>C. Defective oil seals.</li> </ul>	<ul style="list-style-type: none"> <li>A. Clean and lubricate.</li> <li>B. Tighten hub cap.</li> <li>C. Replace defective oil seals.</li> </ul>
Undue wear of any or all tires.	<ul style="list-style-type: none"> <li>A. Incorrect tire inflation.</li> <li>B. Overloading.</li> <li>C. Brake action too severe.</li> <li>D. Tires not properly matched.</li> </ul>	<ul style="list-style-type: none"> <li>A. Inflate tires to proper pressure. Tighten valve cap finger tight.</li> <li>B. Check load weights hauled and keep within rated gross capacity.</li> <li>C. Check and adjust brakes.</li> <li>D. WITH TIRE PROPERLY INFLATED, CHECK OVERALL CIRCUMFERENCE OF TIRES. The difference in overall circumference must not exceed the 3/4 inch limits. Remove wheel and tire assembly and match tires.</li> </ul>
Air leakage from tires.	<ul style="list-style-type: none"> <li>A. Valve core loose or damaged.</li> <li>B. Punctured tube.</li> </ul>	<ul style="list-style-type: none"> <li>A. Tighten or replace.</li> <li>B. Repair tube.</li> </ul>



## Troubleshooting Wheels, Hubs, Bearings, And Tires (Continued)

Malfunction	Probable Cause	Corrective Action
No brakes	A. Source of air supply shut off at towing vehicle.	A. Open air line valves at rear of towing vehicle.
	B. Air brake hose between semi-trailer and towing vehicle not properly coupled.	B. Examine air brake hose to make sure that hoses marked SERVICE and EMERGENCY are properly connected to the semi-trailer and towing vehicle.
	C. Air reservoir drain cock open.	C. Check air reservoir drain cocks on both semi-trailer and towing vehicle.
	D. To test for air leaks in the RE-6 valve. 1. Apply soap suds to cover plate, cover plate vent and exhaust port.	D. Replace with a new unit.
	E. Air leakage in brake system.	E. Examine all air hoses, lines, and connecting units in the brake system for air leaks. Replace units that are found defective.
	F. Low air pressure.	F. Check air pressure gauge on towing vehicle. Pressure must not be below 80 PSI.
	G. Defective relay-emergency valve.	G. Replace defective valve.
	H. Brake air chamber inoperative.	H. Check for punctured diaphragm.
	I. Brakes need adjustment.	I. Adjust brakes.
Insufficient Brakes.	A. Improper brake adjustment on worn brake linings.	A. Adjust brakes or replace brake shoe assemblies as necessary.
	B. Improper slack adjuster adjustment.	B. Adjust slack adjuster.
	C. Air leakage in brake system.	C. Examine for air leaks in brake system. replace units that are found defective.
	D. Low air pressure.	D. Check air pressure gauge in towing vehicle cab. Pressure must not be below 80 PSI.
	E. Restriction in air hose or lines.	E. Look for dented or kinked airlines. Examine air hose to make sure it is not pinched between other units on the same trailer.

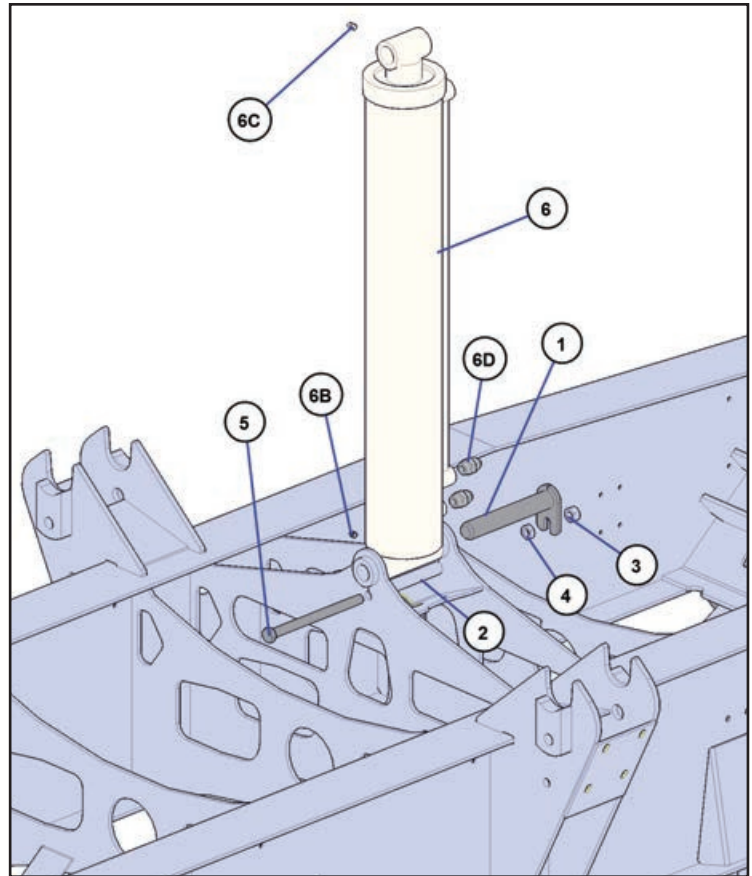
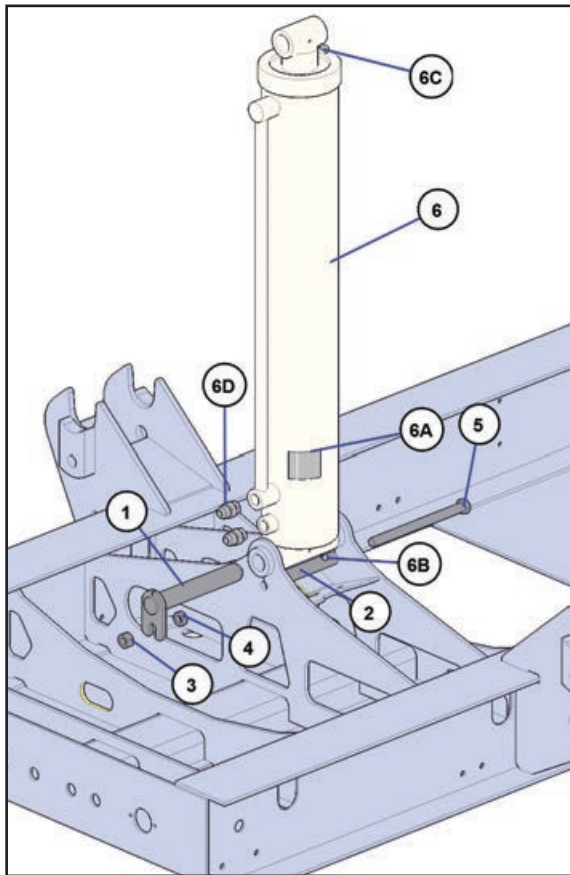
## Troubleshooting Wheels, Hubs, Bearings, And Tires (Continued)

Malfunction	Probable Cause	Corrective Action
Slow brake application or slow release.	A. Maximum brake chamber push-rod travel.	A. Adjust slack adjuster and adjust brakes as necessary.
	B. Weak brake shoe return spring.	B. Check brake shoe return spring and Replace if found to be weak.
Grabbing brakes or wheels.	A. Lubricant on brake lining.	A. Inspect for lubricant on brake lining. Replace brake shoe assembly if lubricant on lining is evident.
	B. Loose brake lining.	B. Inspect brake lining for sheared or worn rivets or bolts. Replace defective brake shoe assembly.
	C. Loose or worn wheel bearings.	C. Adjust wheel bearings. If adjustment of wheel bearings does not correct the condition of loose wheels, replace bearings.
	D. Distorted brake linings.	D. Replace brake shoe assembly.
Noisy brakes.	A. Lining or rivets loose.	A. Replace brake drum assembly.
	B. Road grit, rust, or metal particles in brake drum or lining.	B. Clean brake drum and lining. Replace Brake shoe assembly if grit or metal particles are embedded in the lining.
	C. Brake drum out of round or scored.	C. Repair or replace brake drum.

Malfunction	Probable Cause	Corrective Action
Not holding air Pressure.	A. Excessive leakage in relay-emergency valve, and exhausts port.	A. Replace relay – emergency valve.
	B. Air leakage at line connectors.	B. Tighten connectors until air leakage disappears. If air leakage persists, replace defective connectors or airlines.
	C. Leakage at service or emergency line couplings.	C. Couplings are improperly connected or packing ring gasket in hose coupling is defective. Connect couplings properly or replace packing ring gasket in hose couplings.
	D. Air leakage at service or emergency air hose coupling when towing vehicle service air hose is disconnected.	D. Replace relay – emergency valve.

**HYDRAULIC SYSTEM**

Malfunction	Probable Cause	Corrective Action
Tub will not dump	A. Hoses not connected to power unit.	A. Clean hydraulic coupler and connect to Trailer.
	B. Power unit malfunction.	B. Check power unit pressure and flow rate.
	C. Ruptured line or loose fitting.	C. Check for hydraulic leaks – replace hydraulic hose or fitting.
	D. Hydraulic cylinder	D. Replace cylinder packing
	E. Proportional Valve	E. Check pressure at both cylinders for equal pressure.
	F. Double Relief Valve	F. Adjust high-pressure relief cartridge
Tub Dumping Slowly	A. Dirt in relief valve	A. Disassemble valve. Clean with diesel fuel or kerosene, or replace cartridge.
	B. Chattering noise in relief valve	B. Dirty valve or pressure set too low and by-passing. Check pressure setting.
	C. Power unit hydraulic system	C. Check pressure and flow rate on power unit

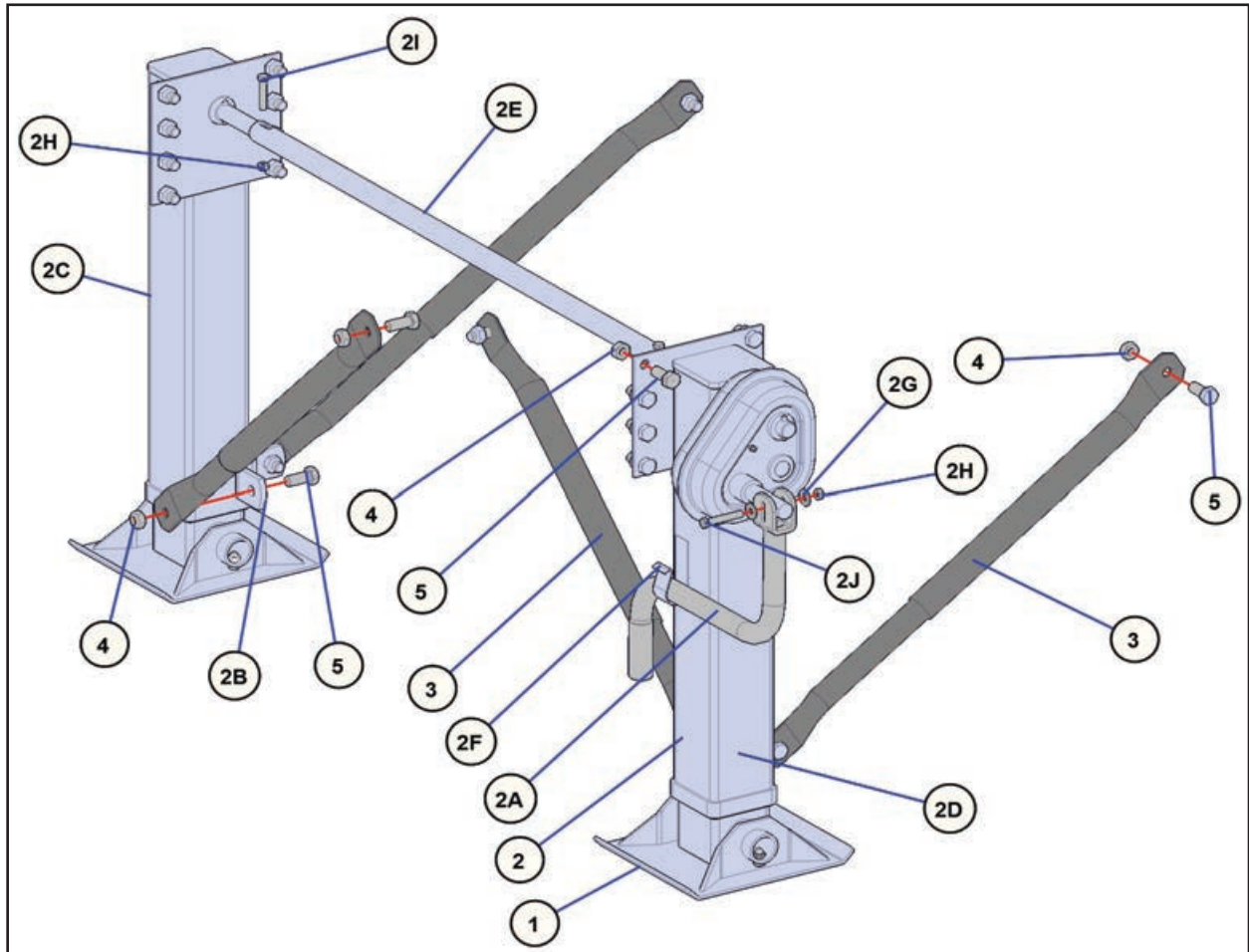


BOM ID	Qty	Item No	Description
1	2	5CAM9019	PIN, CYLINDER, 1-1/2" X 9-5/8"
2	2	3CAM9129	TUBE
3	2	1AFBP3027	NUT, HEX LOCK, 3/4"-10, GRADE 2, PLATED
4	2	1AFBP3107	NUT, HEX JAM, 3/4"-10, GRADE 2, PLATED
5	2	1AFBP3719	HEX CAP SCREW, 3/4"-10 X 10-1/2", GRADE 5, PLATED
6	2	DP6349	CYLINDER, HYDRAULIC, 6 X 36, WITH DROP TUBE
6A	1	AP2986	DECAL, GREASE TRAILER WEEKLY, 2-3/4"W X 3"T
6B	2	1AFBP3268	GREASE ZERK, 1/8" NPT
6C	2	1AFBP3654	GREASE ZERK, 1/8" MP X 45 DEGREE ELBOW
6D	4	1AKDP4368	ADAPTER, 12MJIC-12MSAE, STRAIGHT, 6400-12

1AYDP6347 (2) CYLINDER, HYDRAULIC, 5 X 36 WITH DROP TUBE

1AKDP6581 (1) SEAL KIT 5" PRINCE

1AKDP6447 (1) SEAL KIT 6" PRINCE

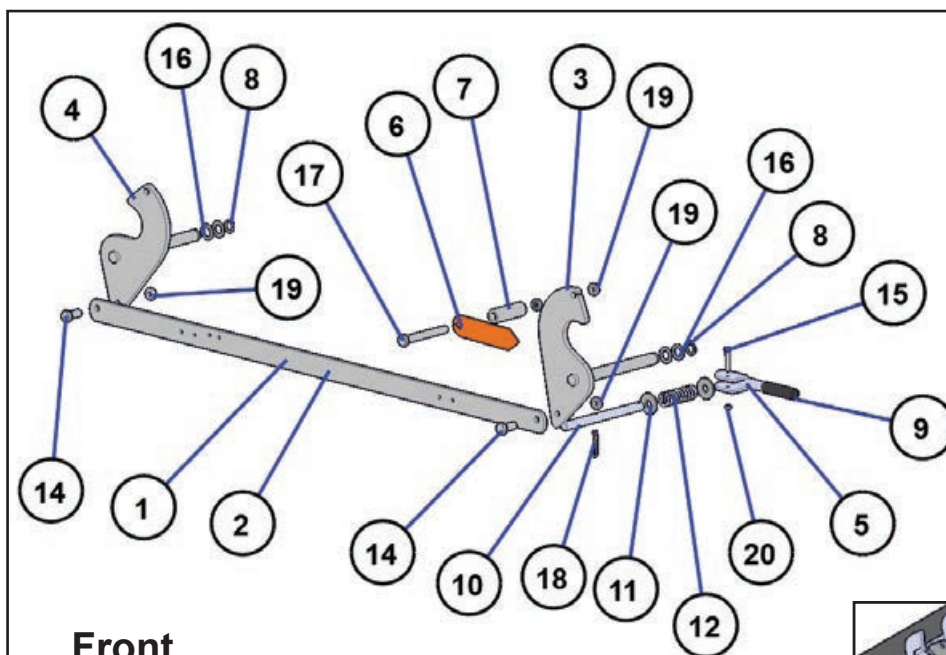


BOM ID	Qty	Item No	Description
1	1	4CPKG00112	PACKAGE, JACK, 2001 SIDE DUMP
2	1	1AJAP3503	JACK, LANDING LEG AND GEAR SET
2A	1	1AJAP3504	CRANK HANDLE
2B	2	1AJAP4061	BRACKET, LANDING GEAR, "W"
2C	1	1AJAP4098	JACK LEG, CURB SIDE
2D	1	1AJAP4099	JACK LEG, ROAD SIDE
2E	1	1AJAP4100	CROSS SHAFT
2F	1	1AJAP4101	CRANK HANDLE CLIP
2G	2	1AFBP3015	WASHER, FLAT, 3/8", PLATED
2H	3	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
2I	2	1AFBP3625	HEX CAP SCREW, 3/8"-16 X 2", GRADE 8, PLATED
2J	1	1AFBP3626	HEX CAP SCREW, 3/8"-16 X 2-1/2", GRADE 8, PLATED
3	4	1ASAP3505	ADJUSTABLE BRACE
4	24	1AFBP3615	NUT, HEX LOCK, 5/8"-11, GRADE 8, PLATED, UTC
5	24	1AFBP3617	HEX CAP SCREW, 5/8"-11 X 1-1/2", GRADE 8, PLATED

**NOTE:**

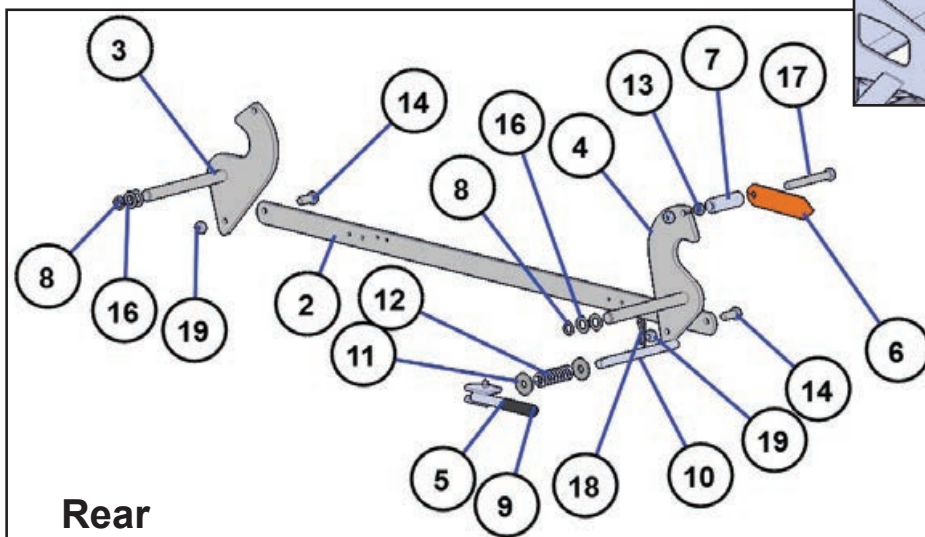
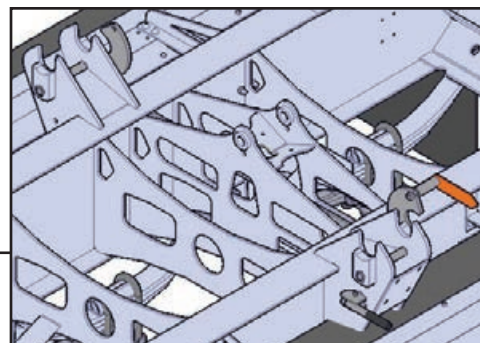
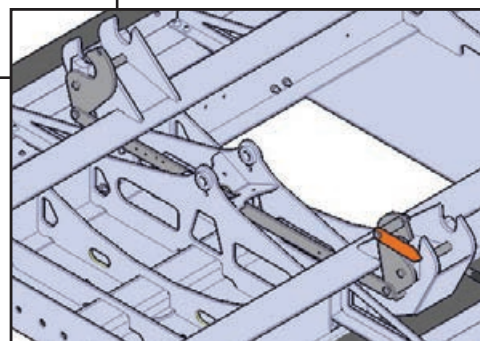
See Page 84 for Landing Gear Operating and Maintenance Manual.





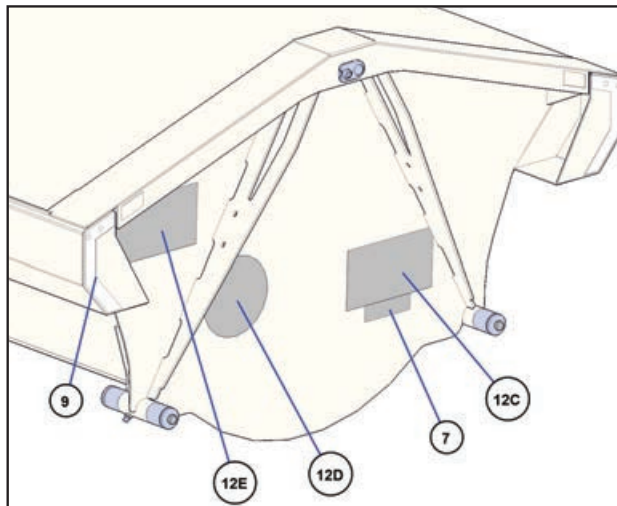
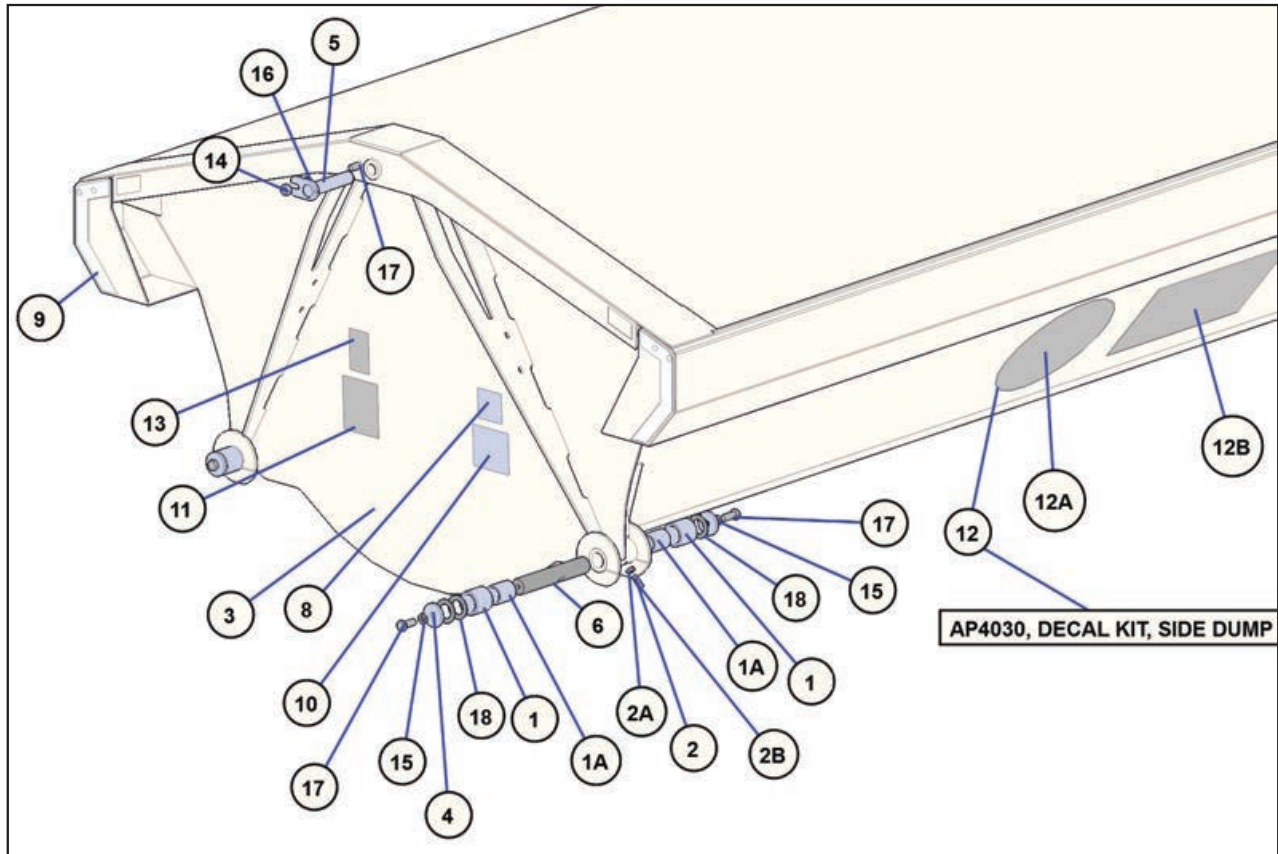
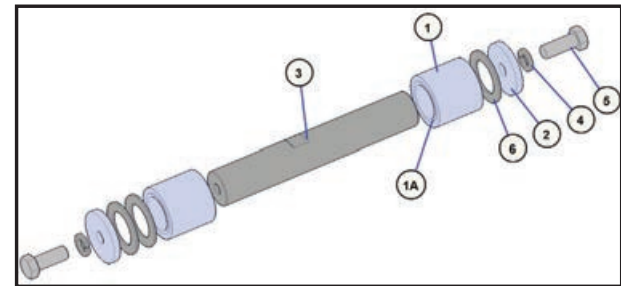
Front

BOM ID	Qty	Item No	Description
1	1	4CPKG00113	PACKAGE, PIVOT LATCH, 2001 SIDE DUMP
2	2	3CAM9078	LATCH CONNECTOR
3	2	5CAM9123	TUB PIVOT LOCK, LEFT HAND FRONT/RIGHT HAND REAR
4	2	5CAM9124	TUB PIVOT LOCK, RIGHT HAND FRONT/ LEFT HAND REAR
5	2	5CAM9125	LATCH LOCK HANDLE
6	2	3CAM9155	LATCH INDICATOR FLAG
7	2	3CAM9156	SPACER
8	4	1AFAP2407	SNAP RING, 1" EXTERNAL, HEAVY DUTY
9	2	1ABAP4208	GRIP, .843" ID X 4" OAL
10	2	1AFBM3727	PIN, LATCH LOCK, 3/4" X 10-3/8" OAL
11	4	1AFBP3033	WASHER, FLAT, 3/4", PLATED, STANDARD, TYPE A, SERIES W
12	2	1AFBP3066	COMPRESSION SPRING RIGID HITCH
13	2	1AFBP3080	NUT, HEX JAM, 5/8"-11, GRADE 2
14	4	1AFBP3097	HEX CAP SCREW, 5/8"-11 X 1-1/2", GRADE 5, PLATED
15	2	1AFBP3110	HEX CAP SCREW, 5/16"-18 X 2", GRADE 5, PLATED
16	8	1AFBP3215	MACHINERY BUSHING, 1-1/2" OD X 1" ID, 14 GAUGE, PLATED
17	2	1AFBP3298	HEX CAP SCREW, 5/8"-11 X 5-1/2", GRADE 5, PLATED
18	2	1AFBP3504	PIN, HAIRCLIP, 1/8"
19	6	1AFBP3615	NUT, HEX LOCK, 5/8"-11, GRADE 8, PLATED
20	2	1AFBP3644	NUT, HEX LOCK, 5/16"-18, TOP LOCK



Rear




**4CFK2005 PIVOT PIN & BUSHING KIT**


BOM ID	Qty	Item No	Description
1	2	4CAAM7990	ASSEMBLY, TUB PIVOT BEARING
1A	2	1ALAP3136	BUSHING, SELF-LUBRICATED, 2" ID X 2-3/4" LONG
2	2	3CAM9026	WASHER, PIVOT PIN
3	1	AM9136	PIVOT PIN, 2" X 12-1/8" OAL
4	2	1AFBP3035	WASHER, LOCK, 3/4", PLATED
5	2	1AFBP3139	HEX CAP SCREW, 3/4"-10 X 2", GRADE 5, PLATED
6	3	1AFBP3599	MACHINERY BUSHING, 3" OD X 2" ID X 10 GAUGE

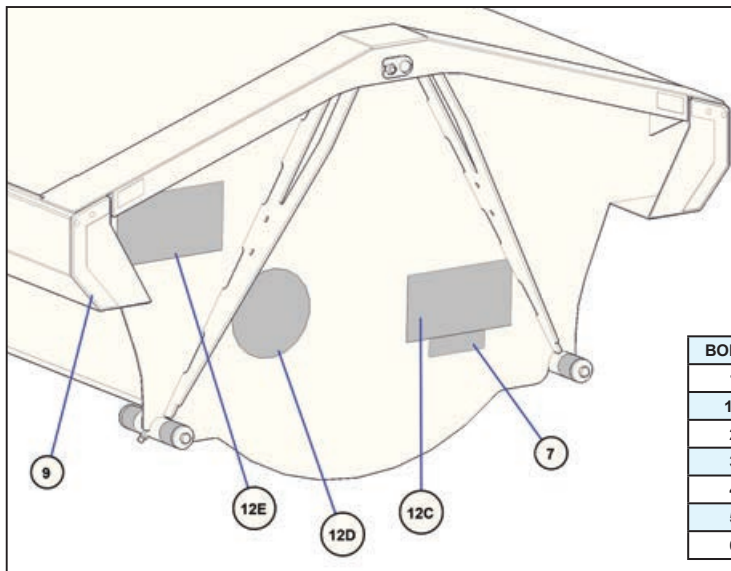
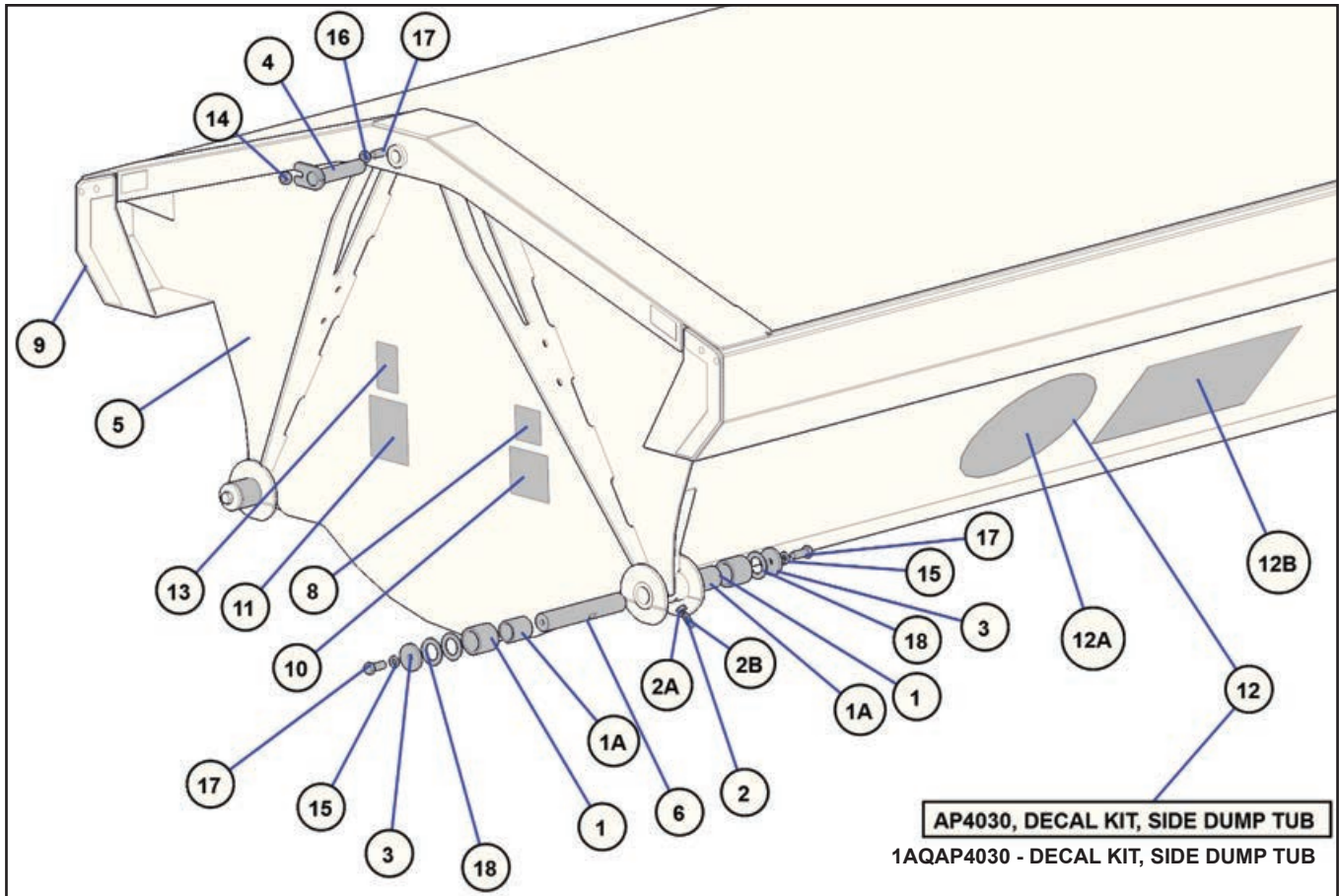
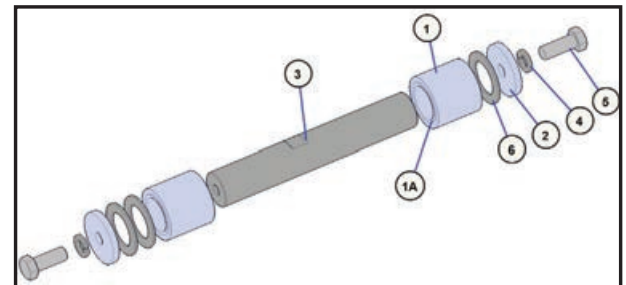
**4CFK2009 DECAL KIT DEMCO CHASSIS, 1995-PRESENT**

- 1AQAP3506 (60)ft. Reflective Tape, Red/Silver
- 1AQAP4269 (1) Decal Sheet, Chassis & Tub
- 1AQAP4361 (1) Decal, DANGER, Frame Area Maintenance

**4CFK2008 DECAL KIT DEMCO TUB, 1995-PRESENT**

- 1AQAP3507 (8)ft. Reflective Tape, White
- 1AQAP4030 (1) Decal Kit, Side Dump Tub
- 1AQAP4269 (1) Decal Sheet, Chassis & Tub
- 1AQAP4361 (1) Decal, DANGER, Frame Area Maintenance, Trailer




**4CFK2005 PIVOT PIN & BUSHING KIT**


BOM ID	Qty	Item No	Description
1	2	4CAAM7990	ASSEMBLY, TUB PIVOT BEARING
1A	2	1ALAP3136	BUSHING, SELF-LUBRICATED, 2" ID X 2-3/4" LONG
2	2	3CAM9026	WASHER, PIVOT PIN
3	1	AM9136	PIVOT PIN, 2" X 12-1/8" OAL
4	2	1AFBP3035	WASHER, LOCK, 3/4", PLATED
5	2	1AFBP3139	HEX CAP SCREW, 3/4"-10 X 2", GRADE 5, PLATED
6	3	1AFBP3599	MACHINERY BUSHING, 3" OD X 2" ID X 10 GAUGE

**4CFK2009 DECAL KIT DEMCO CHASSIS, 1995-PRESENT**

1. 1AQAP3506 (60)ft. Reflective Tape, Red/Silver
2. 1AQAP4269 (1) Decal Sheet, Chassis & Tub
3. 1AQAP4361 (1) Decal, DANGER, Frame Area Maintenance

**4CFK2008 DECAL KIT DEMCO TUB, 1995-PRESENT**

1. 1AQAP3507 (8)ft. Reflective Tape, White
2. 1AQAP4030 (1) Decal Kit, Side Dump Tub
3. 1AQAP4269 (1) Decal Sheet, Chassis & Tub
4. 1AQAP4361 (1) Decal, Danger, Frame Area Maintenance, Trailer



# 30' Tub Parts

BOM ID	Qty	Item No	Description
1	12	4CAAM7990	ASSEMBLY, TUB PIVOT BEARING
1A	12	1ALAP3136	BUSHING, SELF-LUBRICATED, 2" ID X 2-3/4" LONG
2	6	4CAAM7991	ASSEMBLY, SET SCREW & JAM NUT, 5/8"-11 X 1-1/4", PLATED
2A	6	1AFBP3080	NUT, HEX JAM, 5/8"-11, GRADE 2
2B	6	1AFBP3673	SET SCREW, SQ HEAD, 5/8"-11 X 1-1/4", PLATED
3	12	3CAM9026	WASHER, PIVOT PIN
4	2	5CAM9057	PIN, CYLINDER, 1-1/2" X 7-1/8"
5	1	5CAM9084	TUB, 30', 6MM AR400, ROUND BOTTOM
6	6	AM9136	PIVOT PIN, 2" X 12-1/8" OAL
7	1	AP2491	DECAL, PATENT PROTECTION
8	1	AP2914	DECAL, WARNING, HIGH-PRESSURE FLUID
9	4	1AQAP3507	REFLECTIVE TAPE USED ON TUB CORNER
10	1	1AQAP3669	DECAL, DANGER, LOAD DUMPING SAFETY
11	1	1AQAP3670	DECAL, CAUTION, SIDE DUMP CHECKLIST & INSTRUCTIONS
12	1	1AQAP4030	DECAL KIT, SIDE DUMP TUB
12A	2	1AQAP4031	DECAL
12B	2	1AQAP4032	DECAL, STACK SIDE DUMP, 14" X 24"
12C	1	1AQAP4039	DECAL, STACK SIDE DUMP WITH PATENT #, 9" X 16"
12D	1	1AQAP4040	DECAL
12E	1		
13	1	1AQAP4361	DECAL, DANGER, FRAME AREA MAINTENANCE
14	2	1AFBP3027	NUT, HEX LOCK, 3/4"-10, GRADE 2, PLATED
15	12	1AFBP3035	WASHER, LOCK, 3/4", PLATED
16	2	1AFBP3107	NUT, HEX JAM, 3/4"-10, GRADE 2, PLATED
17	14	1AFBP3139	HEX CAP SCREW, 3/4"-10 X 2", GRADE 5, PLATED
18	18	1AFBP3599	MACHINERY BUSHING, 3" OD X 2" ID X 10 GAUGE



13

1AQAP4361



11

1AQAP3670



8

AP2914



10

1AQAP3669



12A



12B

1AQAP4031 1AQAP3669



12E



12D

1AQAP4040



12C

1AQAP4039

AP2491

7



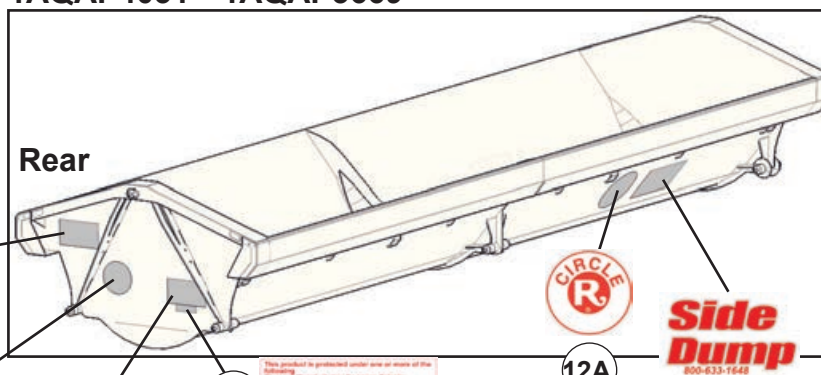
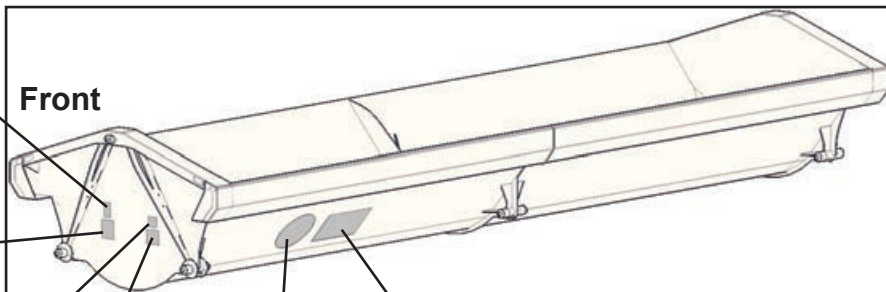
12A

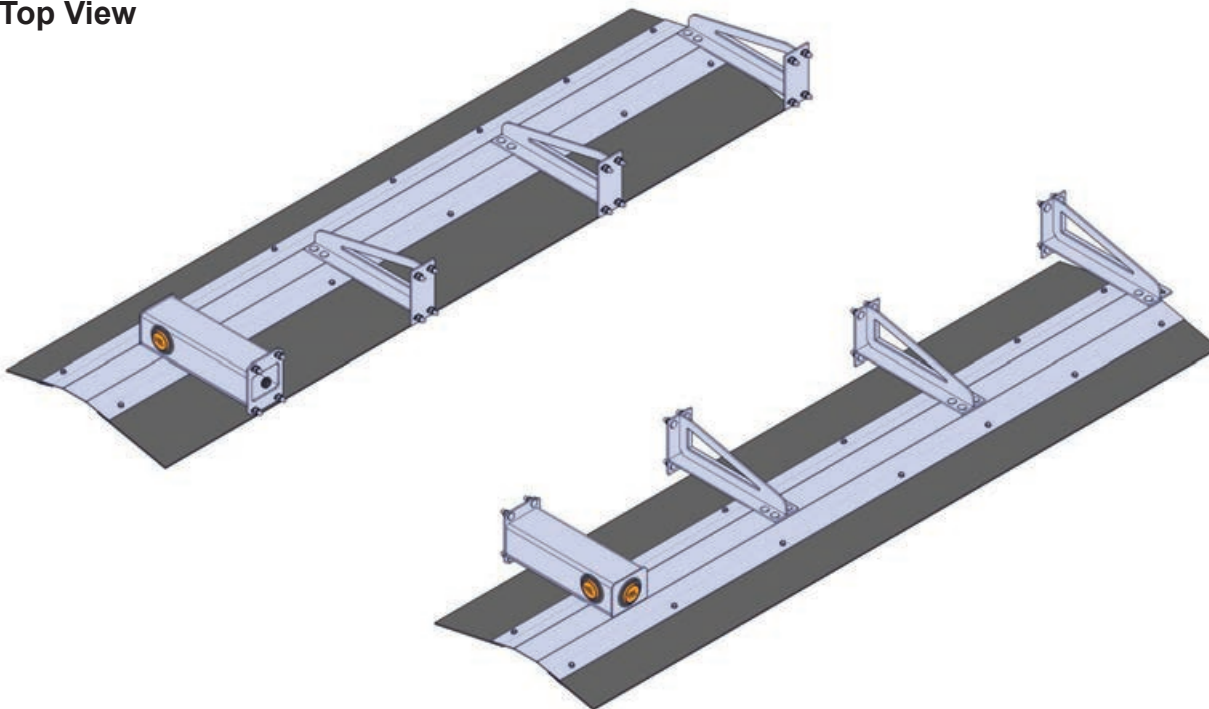
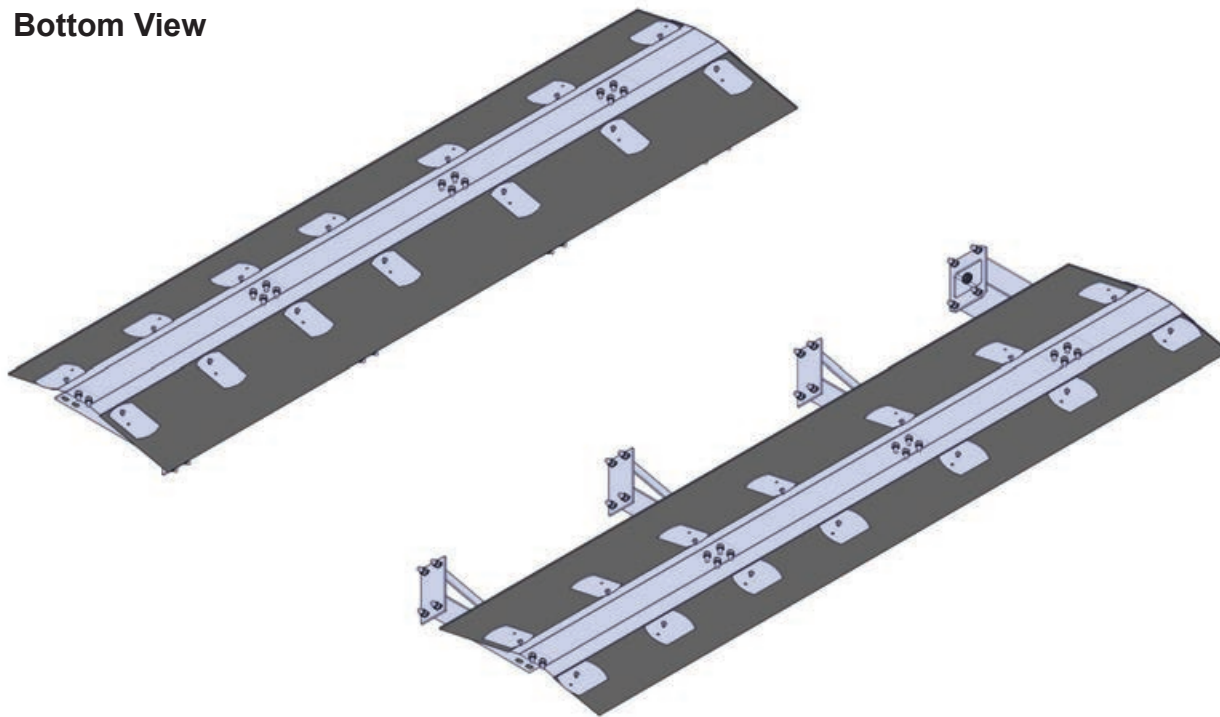
1AQAP4031



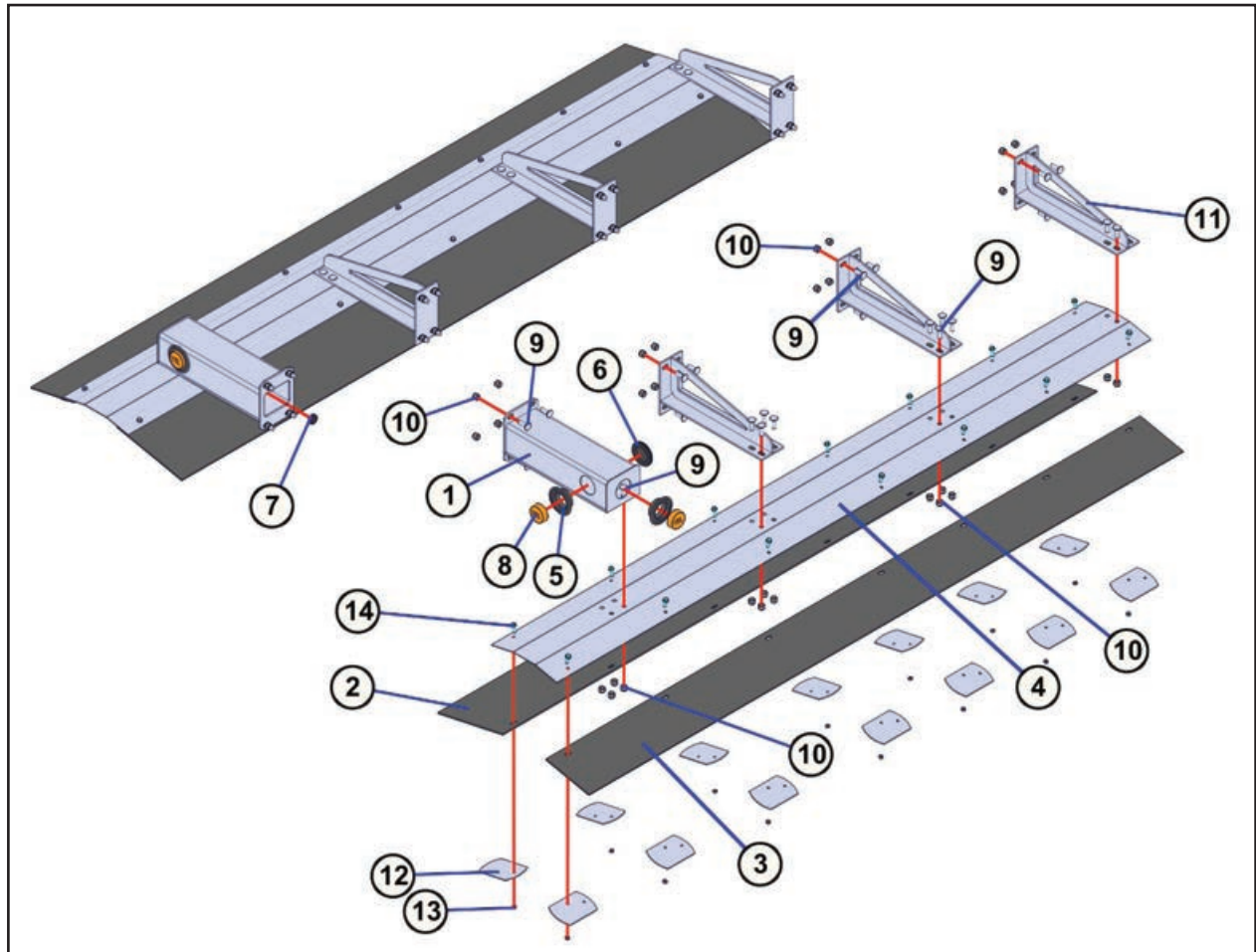
12B

1AQAP4032



**Top View****Bottom View**

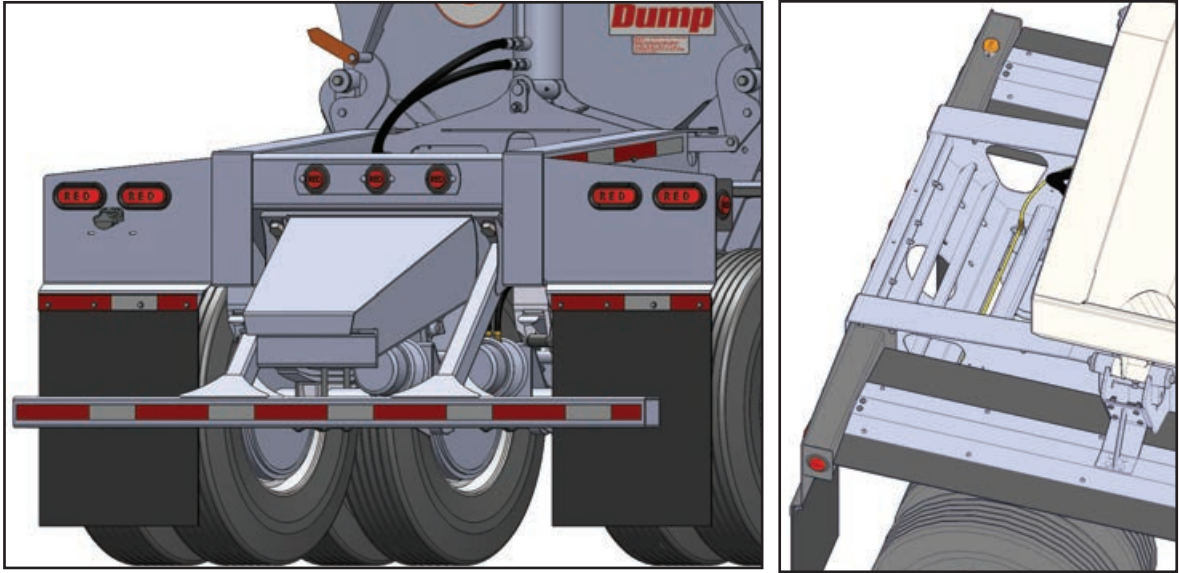
## Front Fender Parts (All Models)



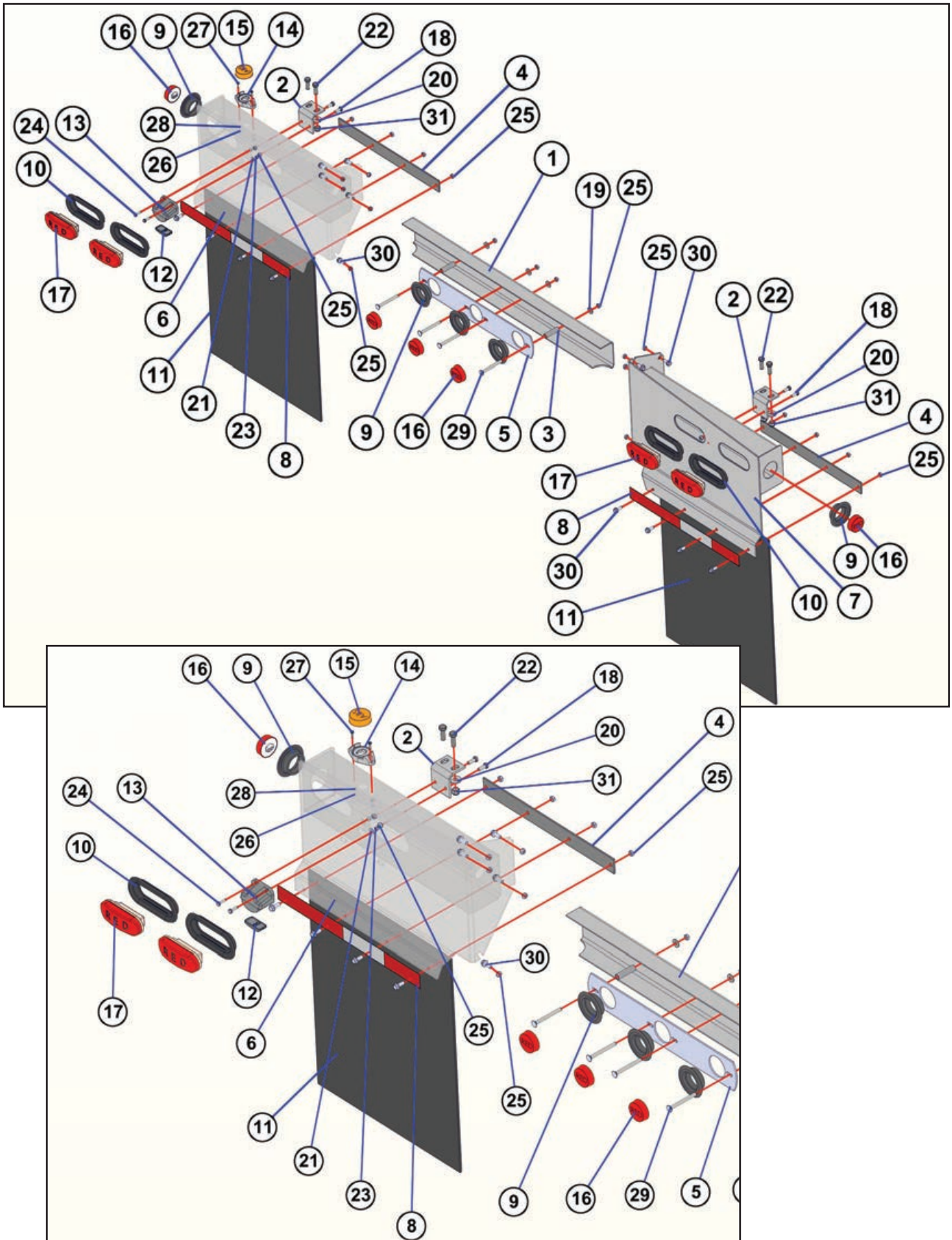
BOM ID	Qty	Item No	Description
1	2	5CAM9005	FRONT LIGHT/FENDER MOUNT
2	2	3CAM9091	FENDER RUBBER, 12" X 108", FRONT
3	2	3CAM9092	FENDER RUBBER, 8" X 108", FRONT
4	2	3CAM9386	FENDER SUPPORT, FRONT, 2013
5	4	1AEAP3548	LAMP, SUPER 10 GROMMET, 10700-3
6	2	1ARAP4010	GROMMET, PLUG, 2-3/4" HOLE, G8077-046000
7	2	1ARAP4045	GROMMET, 3/4" ID G3137-016
8	4	1AEAP4311	LAMP, LED, CLEAR/MARKER, YELLOW, 2-1/2"
9	60	1AFBP3232	BOLT, CARRIAGE, 1/2"-13 X 1-1/2", GRADE 5
10	60	1AFBP3704	NUT, LOCK, NYLON INSERT, 1/2"-13
11	6	5CAM9004	FRAME FENDER MOUNT
12	28	3CAM9089	FENDER WASHER
13	28	1AFBP3644	NUT, HEX LOCK, 5/16"-18, TOP LOCK
14	28	1AFBP3709	BOLT, FLANGE HEAD, 5/16"-18 X 1", GRADE 8, PLATED



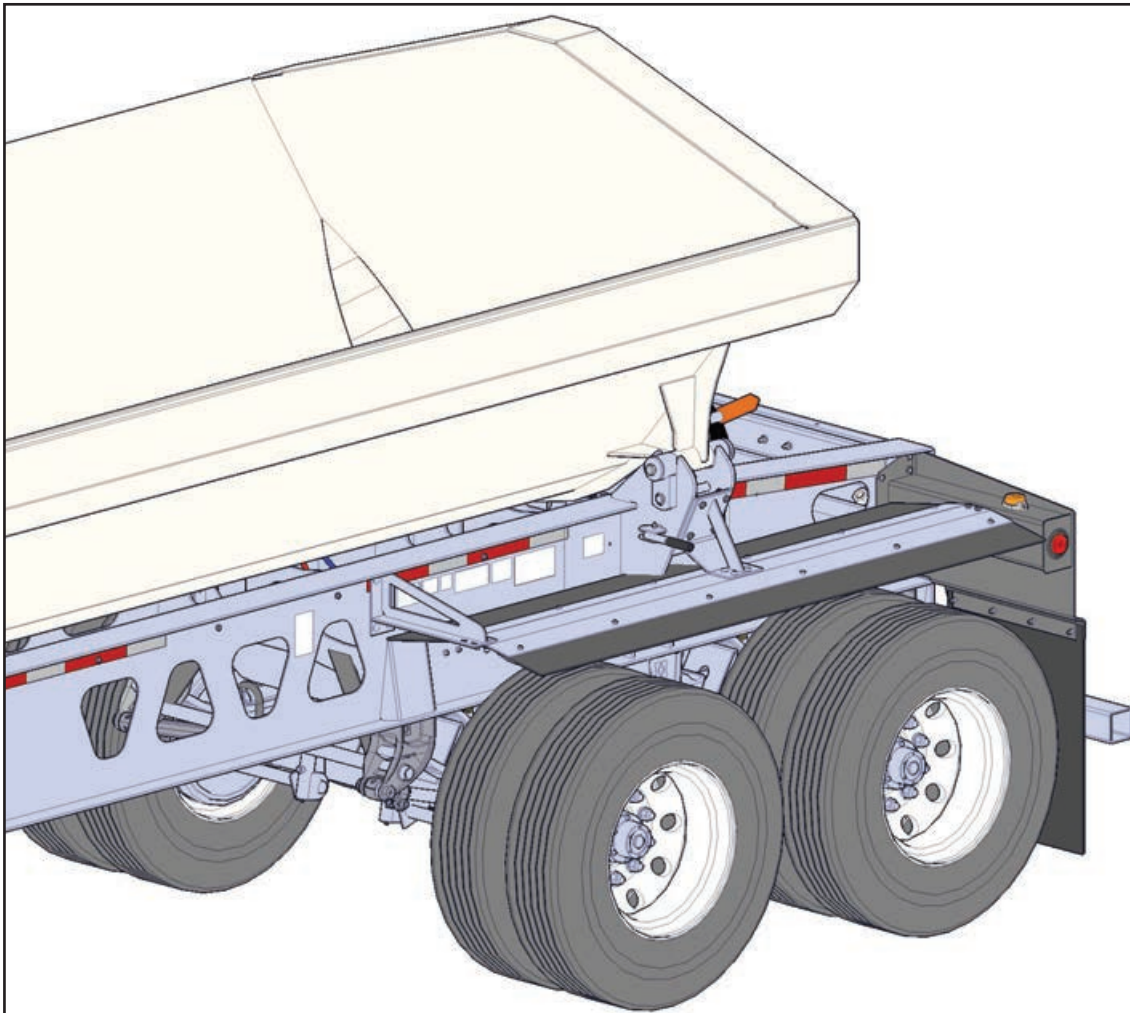
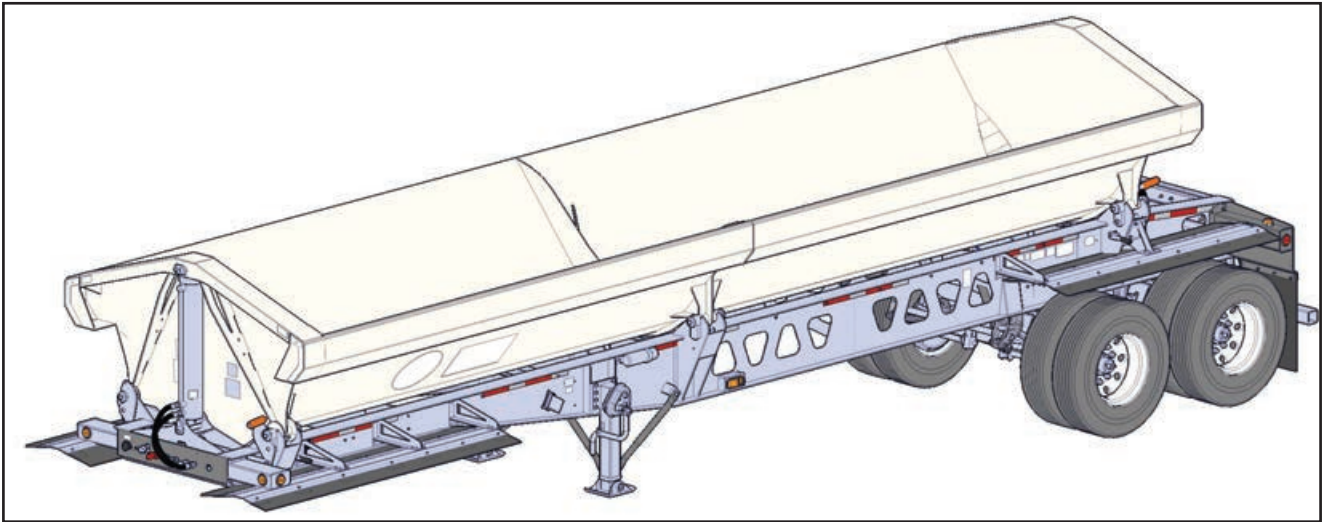
## Rear Fender Panel Parts (All Models)

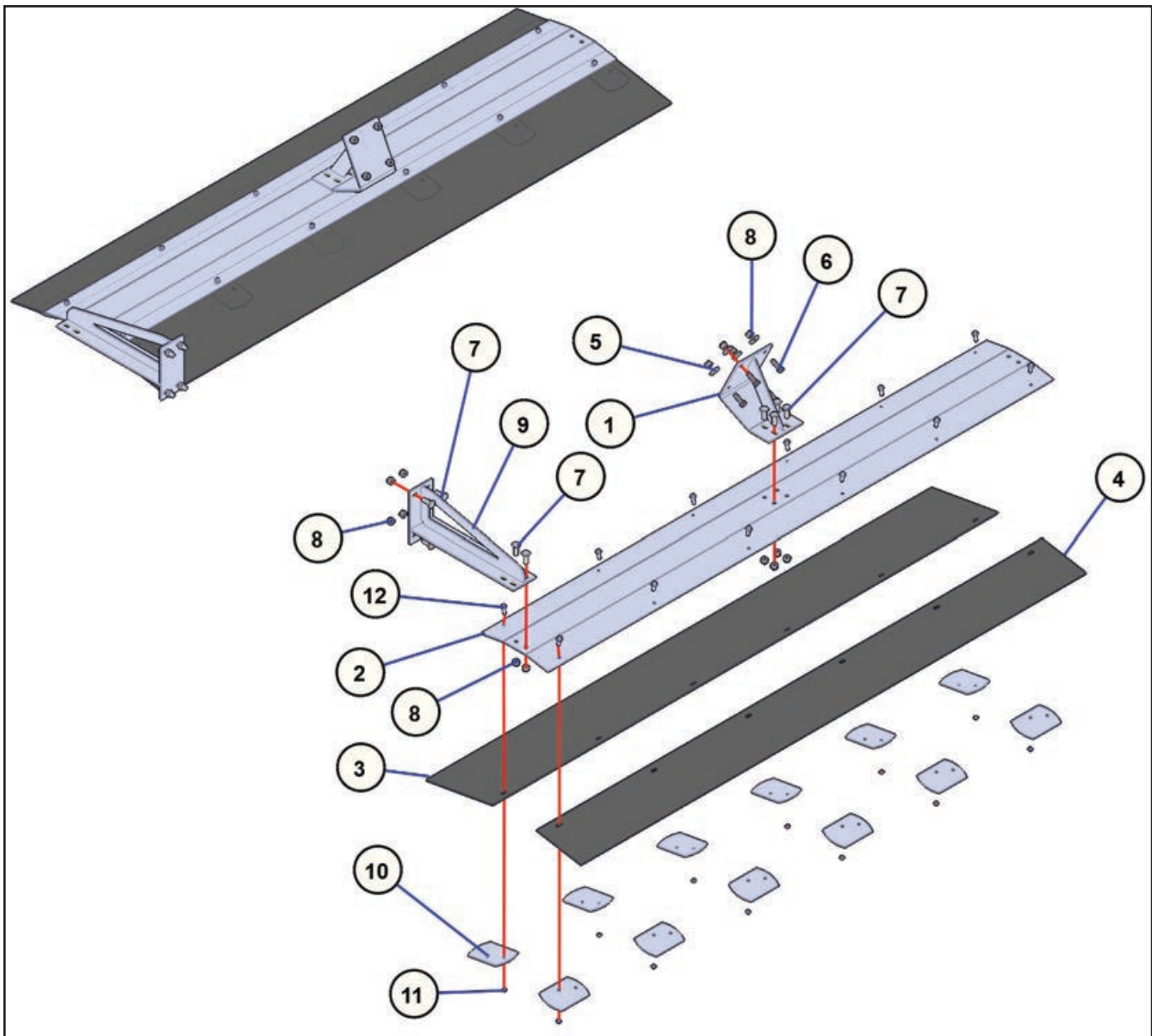


BOM ID	Qty	Item No	Description
1	1	3CAM9008	BACK COVER, ID LIGHTS
2	2	3CAM9010	BRACKET, FENDER MOUNT
3	2	3CAM9011	SPACER TUBE
4	2	3CAM9035	MUD FLAP BACKING STRAP
5	1	3CAM9058	ID LIGHT FACE PLATE
6	1	5CAM9341	FENDER/ MUD FLAP MOUNT, LEFT-HAND, (DRIVER'S SIDE)
7	1	5CAM9342	FENDER/ MUD FLAP MOUNT, RIGHT-HAND, (PASSENGER SIDE)
8	2	1AQAP3506	REFLECTIVE TAPE, RED/SILVER
9	5	1AEAP3548	LAMP, SUPER 10 GROMMET, 10700-3
10	4	1ARAP3551	GROMMET, OVAL, MODEL 60
11	2	1AUAP4027	MUD FLAP, BLACK, RUBBER
12	1	1AEAP4120	LICENSE PLATE LAMP, CLEAR, 12 VOLT
13	1	1AEAP4121	LICENSE PLATE LAMP MOUNTING BRACKET, GREY
14	1	1AEAP4301	ABS LIGHT BRACKET, 102008HP
15	1	1AEAP4302	ABS LIGHT, 101731F
16	5	1AEAP4310	LAMP, LED, CLEAR/MARKER, RED, 2-1/2"
17	4	1AEAP3549	LAMP, LED, OVAL, STOP TURN & TAIL, RED
18	4	1AFBP3006	HEX CAP SCREW, 3/8"-16 X 1", GRADE 5, PLATED
19	4	1AFBP3015	WASHER, FLAT, 3/8", PLATED
20	4	1AFBP3050	WASHER, FLAT, 1/2", PLATED
21	2	1AFBP3055	WASHER, FLAT, 1/4", PLATED
22	4	1AFBP3126	HEX CAP SCREW, 1/2"-13 X 1-1/2", GRADE 5, PLATED
23	2	1AFBP3587	NUT, HEX, 1/4" NYLOCK
24	2	1AFBP3600	HEX CAP SCREW, 1/4"-20 X 1" GRADE 5, PLATED
25	26	1AFBP3612	NUT, HEX LOCK, 3/8-16, TOP LOCK
26	2	1AFBP3641	NUT, HEX LOCK, #10-24, NYLOCK
27	2	1AFBP3642	PAN HEAD MACHINE SCREW, #10-24 X 3/4"
28	2	1AFBP3643	WASHER, #10 USS FLAT Z
29	4	1AFBP3687	BOLT, CARRIAGE, 3/8"-16 X 4, GRADE 5, PLATED
30	18	1AFBP3692	BOLT, FLANGE HEAD, 3/8"-16 X 1, GRADE 8, PLATED
31	4	1AFBP3704	NUT, LOCK, NYLON INSERT, 1/2"-13



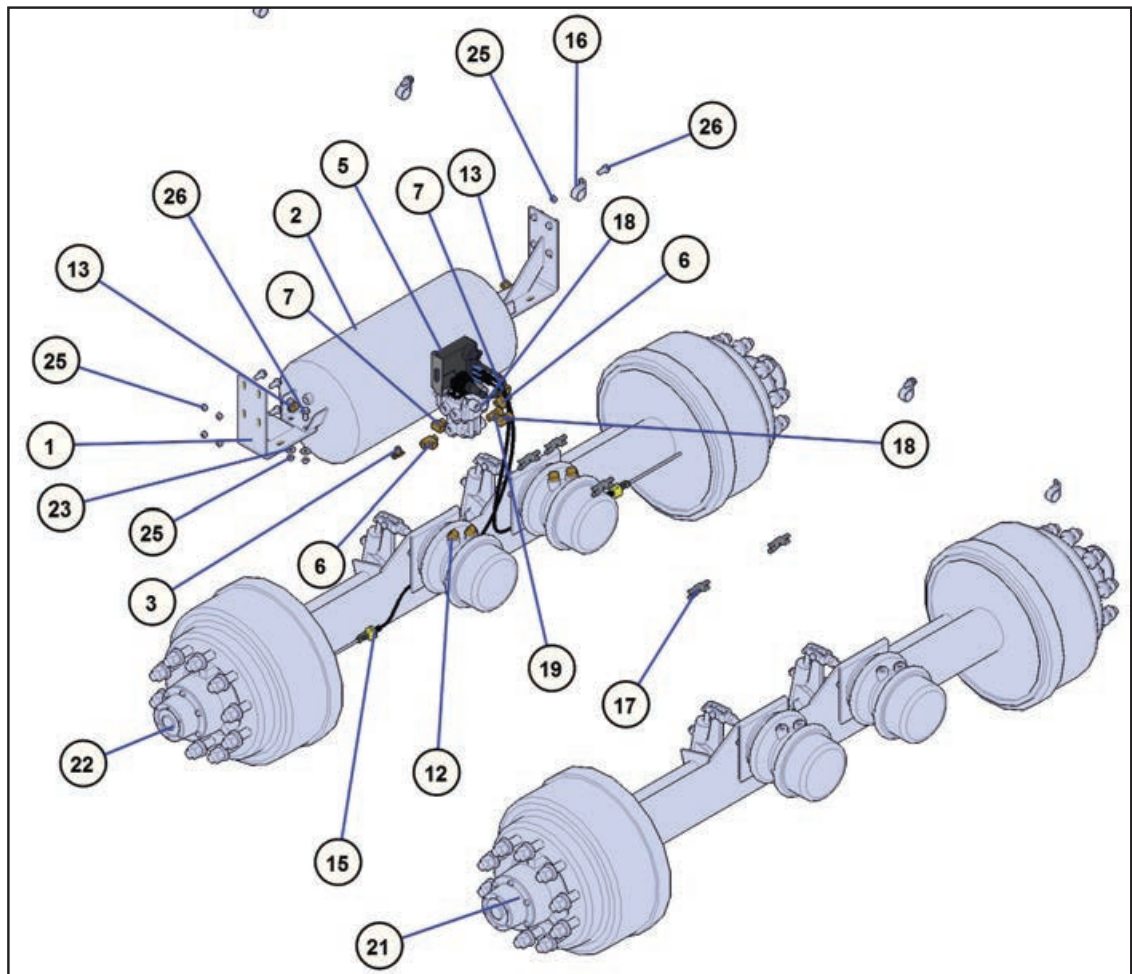






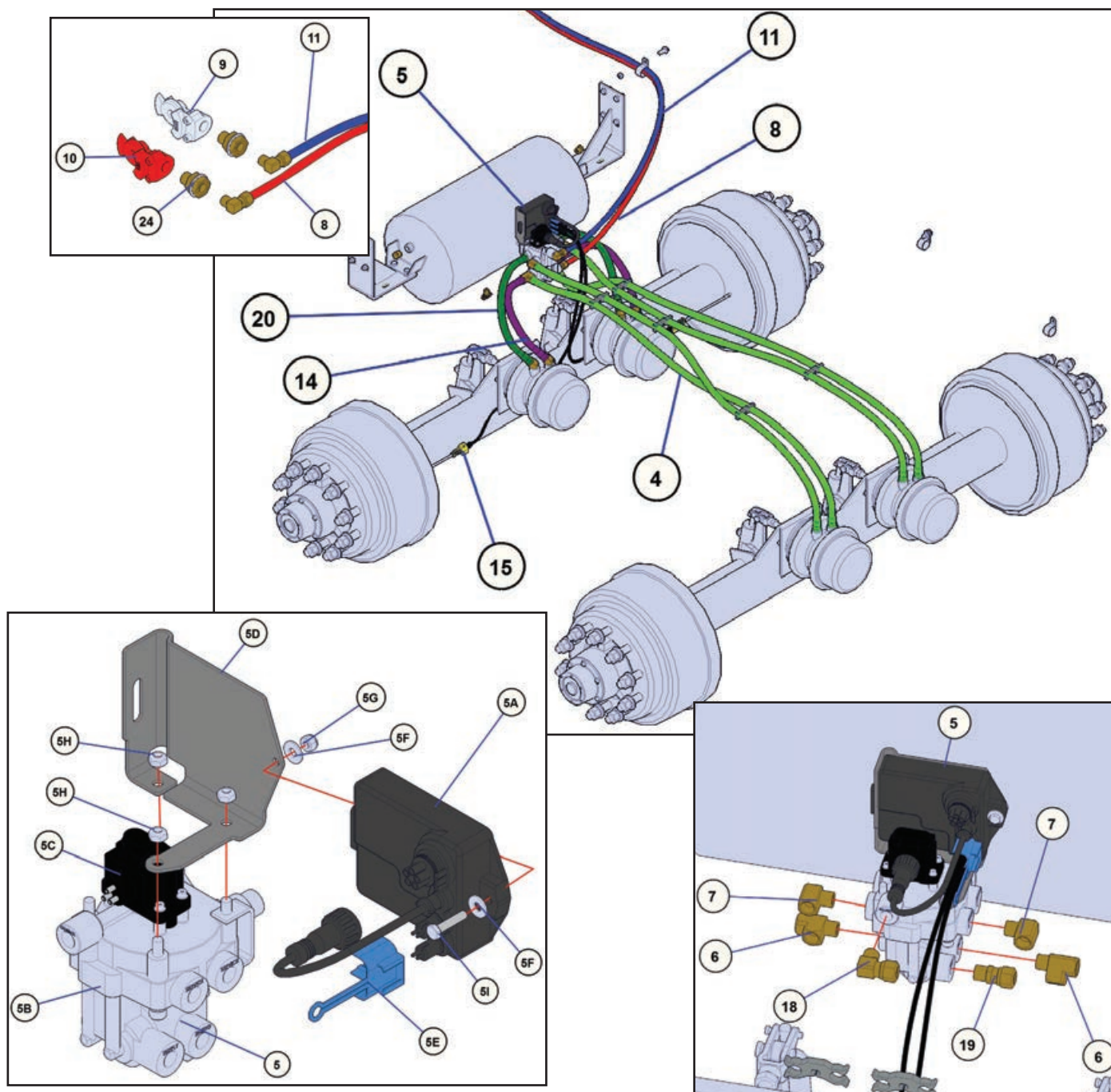
BOM ID	Qty	Item No	Description
1	2	5CAM9003	SADDLE FENDER MOUNT
2	2	3CAM9093	FENDER SUPPORT, REAR, TANDEM, 2002
3	2	3CAM9094	FENDER RUBBER, 12" X 90-3/16", REAR, TANDEM
4	2	3CAM9095	FENDER RUBBER, 8" X 90-3/16", REAR, TANDEM
5	4	1AFBP3050	WASHER, FLAT, 1/2", PLATED
6	4	1AFBP3126	HEX CAP SCREW, 1/2"-13 X 1-1/2", GRADE 5, PLATED
7	16	1AFBP3232	BOLT, CARRIAGE, 1/2"-13 X 1-1/2", GRADE 5
8	28	1AFBP3704	NUT, LOCK, NYLON INSERT, 1/2"-13
9	2	5CAM9004	FRAME FENDER MOUNT
10	24	3CAM9089	FENDER WASHER
11	24	1AFBP3644	NUT, HEX LOCK, 5/16"-18, TOP LOCK
12	24	1AFBP3709	BOLT, FLANGE HEAD, 5/16"-18 X 1", GRADE 8, PLATED

## Air Supply Parts (Leaf Spring)



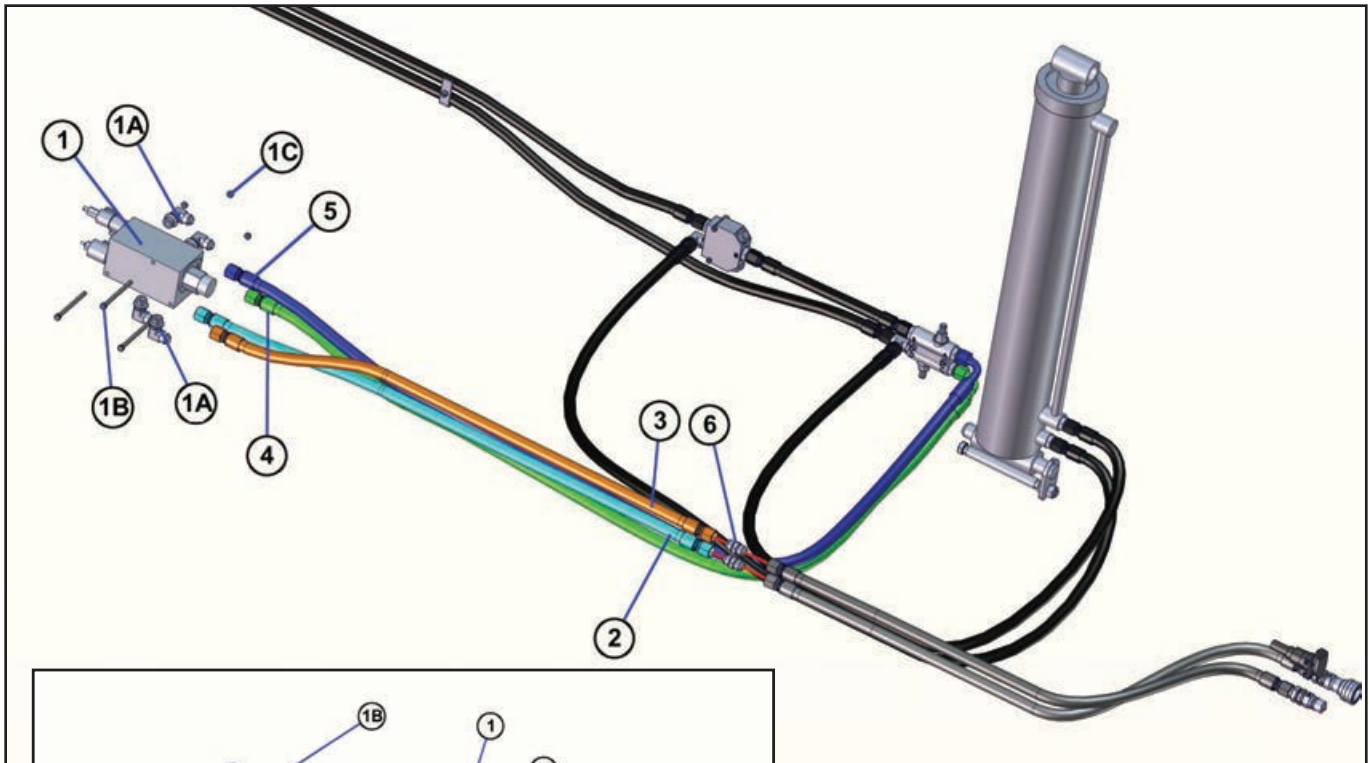
BOM ID	Qty	Item No	Description
1	2	5CAM9018	BRACKET, AIR TANK MOUNTING
2	1	1ABAP3524	AIR TANK, 2800 CU IN
3	1	AP3525	DRAIN COCK, 1/4" NPT
4	4	1ABAP3527	HOSE, 1/2" AIR BRAKE X 60", 3/8MP-3/8MPX
5	1	1ABAP3528	VALVE, ABS, HALDEX N9001BB
6	2	1AKAP3531	STREET TEE, 3/8", 90 DEGREE
7	2	1AKAP3532	STREET ELBOW, 3/8", 90 DEGREE
8	1	1ABAP3537	NYLON TUBING, RED, 1/2"
9	1	1ABAP3555	GLADHAND, SERVICE, BLUE
10	1	1ABAP3556	GLADHAND, EMERGENCY, RED
11	1	1ABAP3635	NYLON TUBING, BLUE, 1/2"
12	4	1ABAP3688	STREET ELBOW, 3/8", 45 DEGREE
13	2	1ABAP3692	HEX PLUG, 3/8", BRASS
14	2	1ABAP3745	HOSE, 1/2" AIR BRAKE X 20", 3/8"MP-3/8"MPX
15	2	1ABAP3754	ABS CORD, 1 meter
16	15	1AFAP3809	1-1/4" HOSE SUPPORT CLAMP, 3/8" BOLT
17	5	1ABAP3864	AIR BRAKE HOSE SEPARATOR, 3/8" HOSE
18	3	1ABAP4199	TUBE, 1/2" X 3/8" MP, 90 DEGREE, NUT & FERRULE, BRASS
19	1	1ABAP4200	TUBE, 1/2" X 3/8" MP, STRAIGHT, NUT & FERRULE, BRASS
20	2	1ABAP4206	HOSE, 1/2" AIR BRAKE X 22", 3/8"MP X 3/8"MPX
21	1	1AAAP4250	HUB PILOT, NON ABS, CAST DRUM, STEEL HUB. 25K WITH BRAKE CANNISTER
22	1	1AAAP4251	HUB PILOT, ABS, CAST DRUM, STEEL HUB. 25K WITH BRAKE CANNISTER
23	4	1AFBP3015	WASHER, FLAT, 3/8", PLATED
24	2	1AFBP3584	BOLT, TERMINAL, HB646
25	26	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
26	26	1AFBP3692	BOLT, FLANGE HEAD, 3/8"-16 X 1", GRADE 8, PLATED



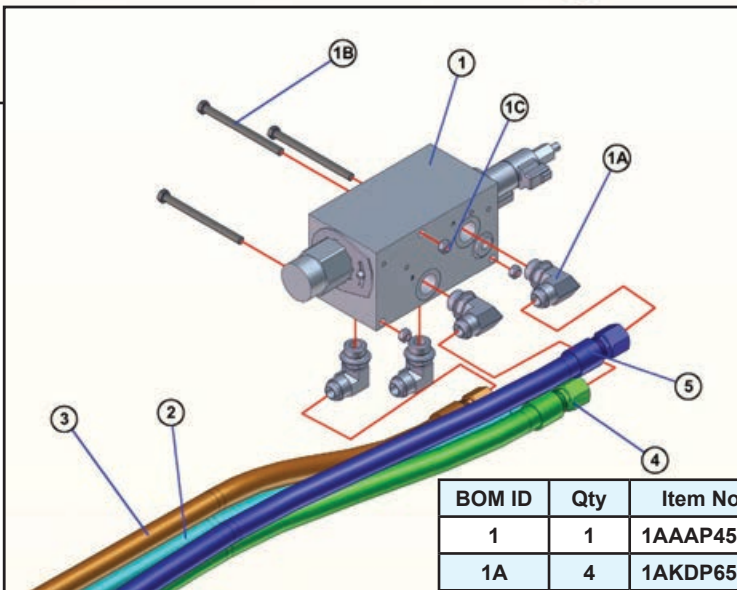


BOM ID	Qty	Item No	Description
5	1	1ABAP3528	VALVE, ABS, HALDEX N9001BB
5A	1	1AAAP4297	ABS ECU, HALDEX PLC SELECT, AL919323
5B	1	1AAAP4298	ABS VALVE, LESS ECU, HALDEX AL430624
5C	1	1AAAP4354	ABS VALVE SOLENOID, 12 VOLT, HALDEX AQ40525
5D	1	1AAAP4356	ABS VALVE ECU MOUNT, HALDEX 015505209
5E	1	1AAAP4357	ABS VALVE SENSOR CORD RETAINER, DOUBLE, HALDEX
5F	2	1AFBP3055	WASHER, FLAT, 1/4", PLATED
5G	1	1AFBP3587	NUT, HEX, 1/4" NYLOCK
5H	3	1AFBP3644	NUT, HEX LOCK, 5/16"-18, TOP LOCK
5I	1	1AFBP3648	BOLT, 1/4" X 1-1/4" GRADE 8





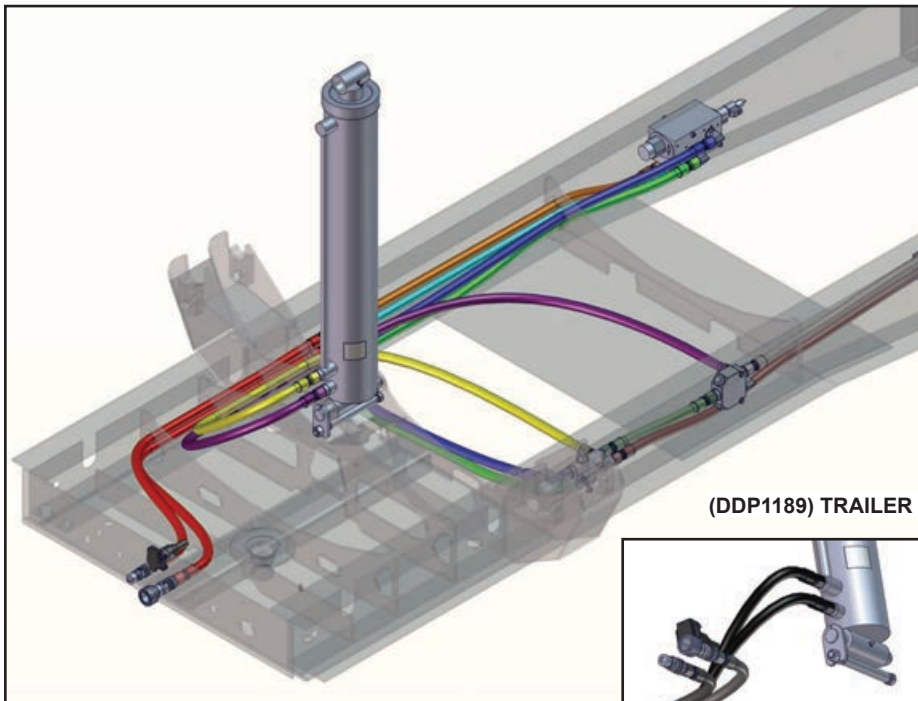
TO CONVERT YOUR DEMCO TRAILER TO **TRAILER PRO** ELECTRIC CONTROLS, SEE YOUR DEALER FOR COMPLETE KIT AND PRICING FOR 4CFK2018.



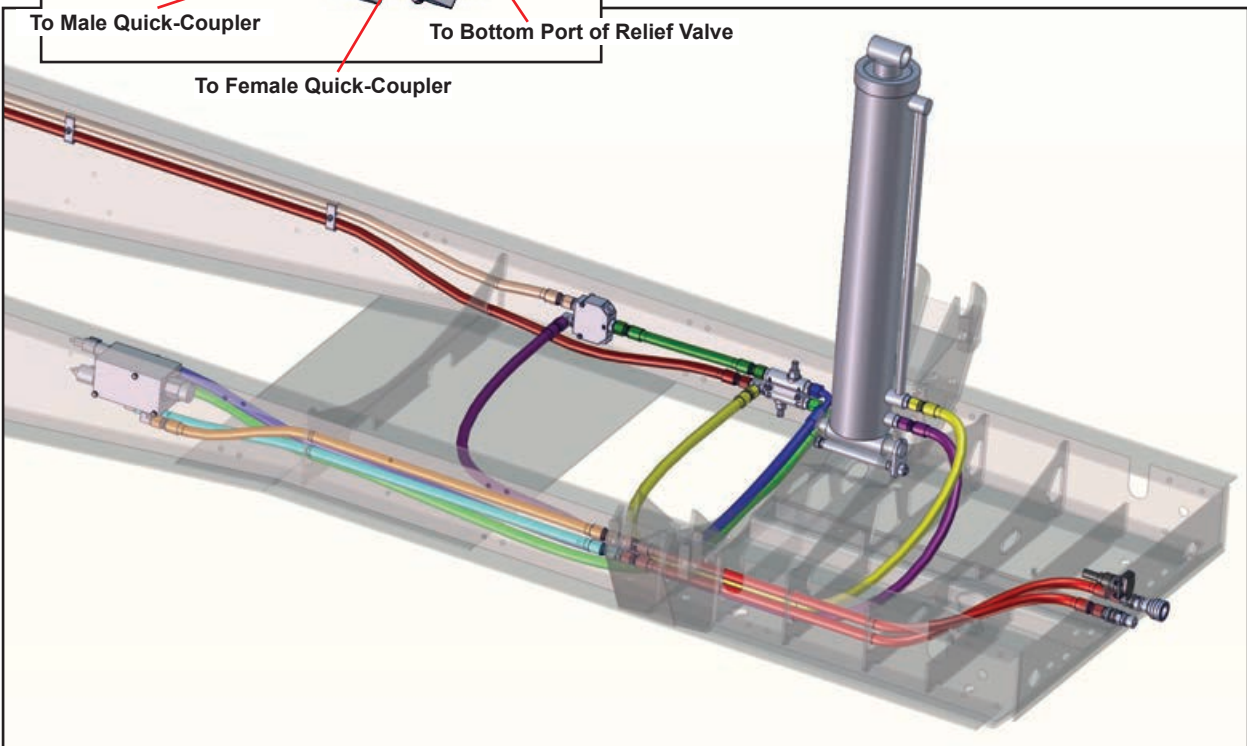
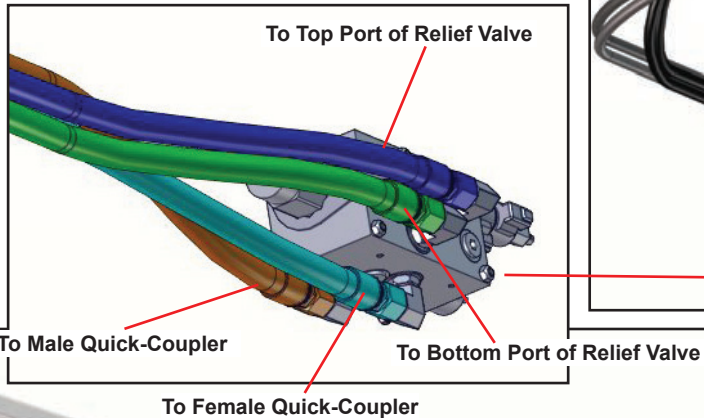
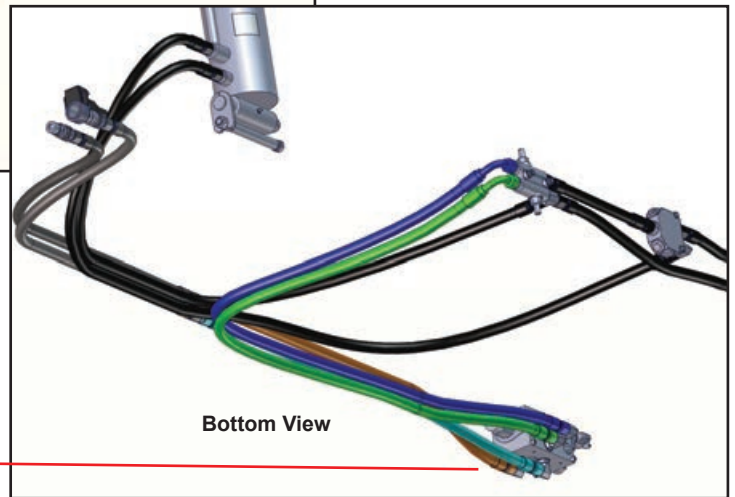
BOM ID	Qty	Item No	Description
1	1	1AAAP4543	VALVE, ELECTRIC/HYDRAULIC
1A	4	1AKDP6538	ADAPTER, 12MJ-12MSAE 90 DEGREE, 6801-12
1B	3	1AFBP3118	HEX CAP SCREW, 3/8"-16 X 5", GRADE 5, PLATED
1C	3	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
2	1	1AKDP6546	HOSE, HYDRAULIC, 3/4" X 57", 12FJX-12FJX
3	1	1AKDP6554	HOSE, HYDRAULIC, 3/4" X 53", 12FJX-12FJX
4	1	1AKDP6614	HOSE, HYDRAULIC, 3/4" X 105", 12FJX-12FJX90
5	1	1AKDP6615	HOSE, HYDRAULIC, 3/4" X 108", 12FJX-12FJX90
6	2	1AKDP4388	UNION, 12MJ-12MJ, 2403-12

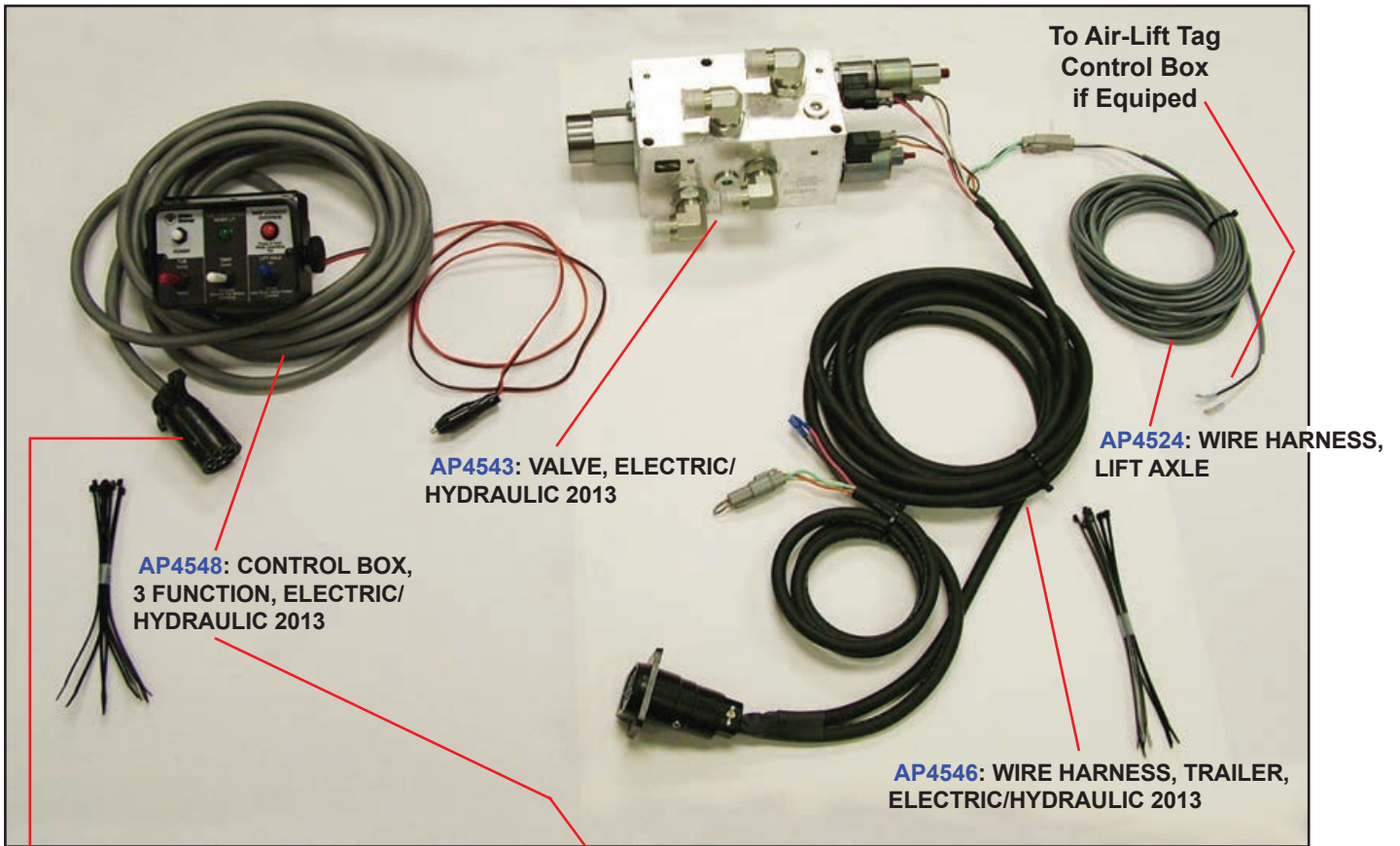
**4CFK2017 KIT, TRAILER PRO CONTROL BOX FOR 2ND TRACTOR, WITH ROLL RITE**

- |              |     |   |
|--------------|-----|---|
| 1. 1AZAP4235 | (1) | Plug, 2 Pin, Male, Cole Hersee, Tarp                      |
| 2. 1AZAP4296 | (1) | Tarp Motor Wire, Per Ft, Roll Rite 11330                  |
| 3. 1AEAP4533 | (2) | Ring Terminal, #6 Wire, 3/8" Ring, Aero 0755-626503       |
| 4. 1AEAP4534 | (2) | Ring Terminal, #6 Wire, 3/16" Ring, Aero                  |
| 5. 1AEAP4548 | (1) | Control Box, 3 Function, Electric/Hydraulic 2013, 304-060 |
| 6. 1AZAP4568 | (1) | Circuit Breaker, 35 Amp. Roll Rite 17918                  |
| 7. 8C010259  | (1) | Instructions, Tractor Wiring, Trailer Pro/Roll Rite       |



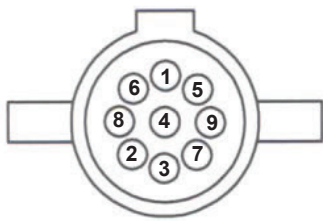
(DDP1189) TRAILER PRO HOSE KIT; **FK2018**





**PIN OUT DETAIL**

**MALE PLUG**

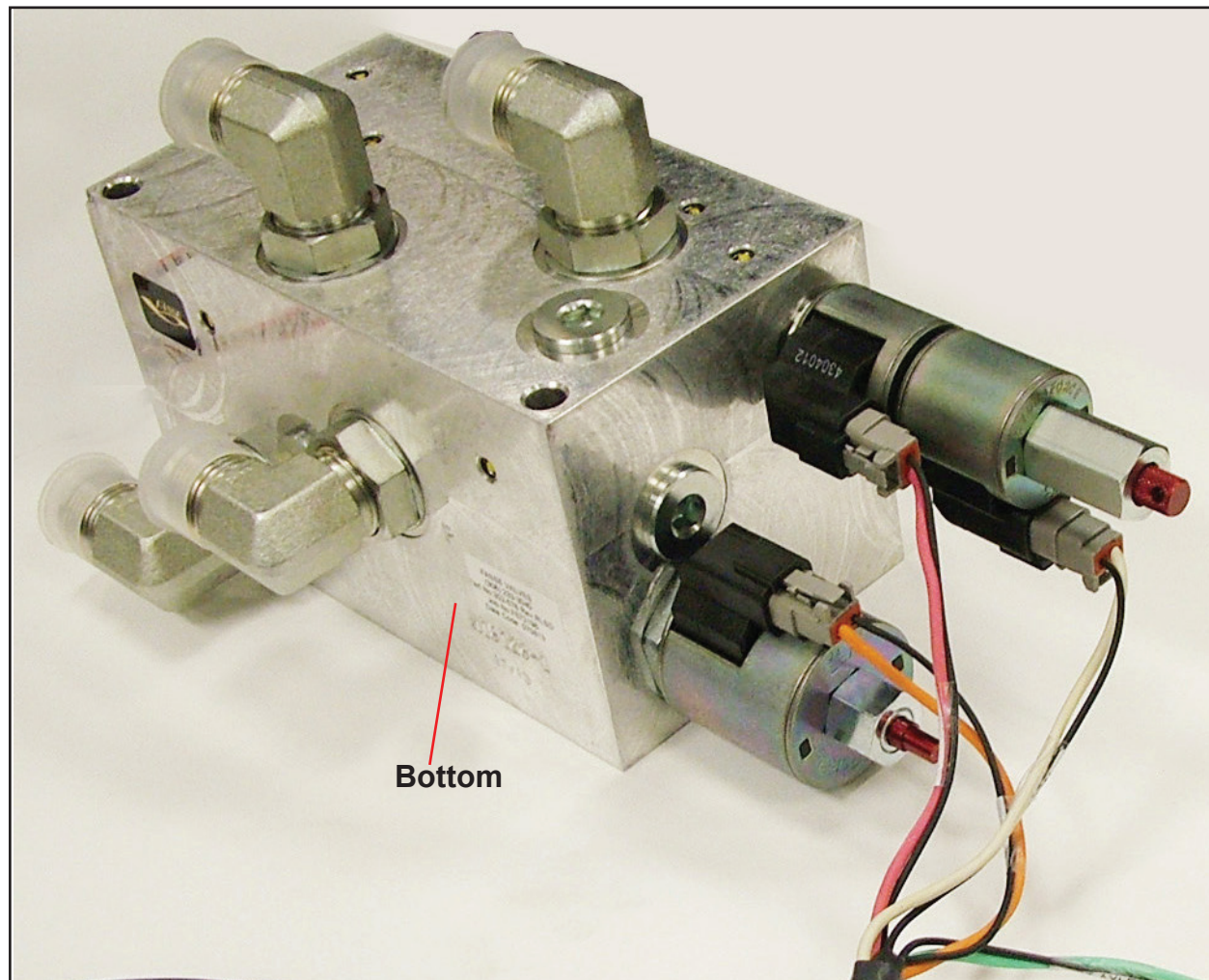
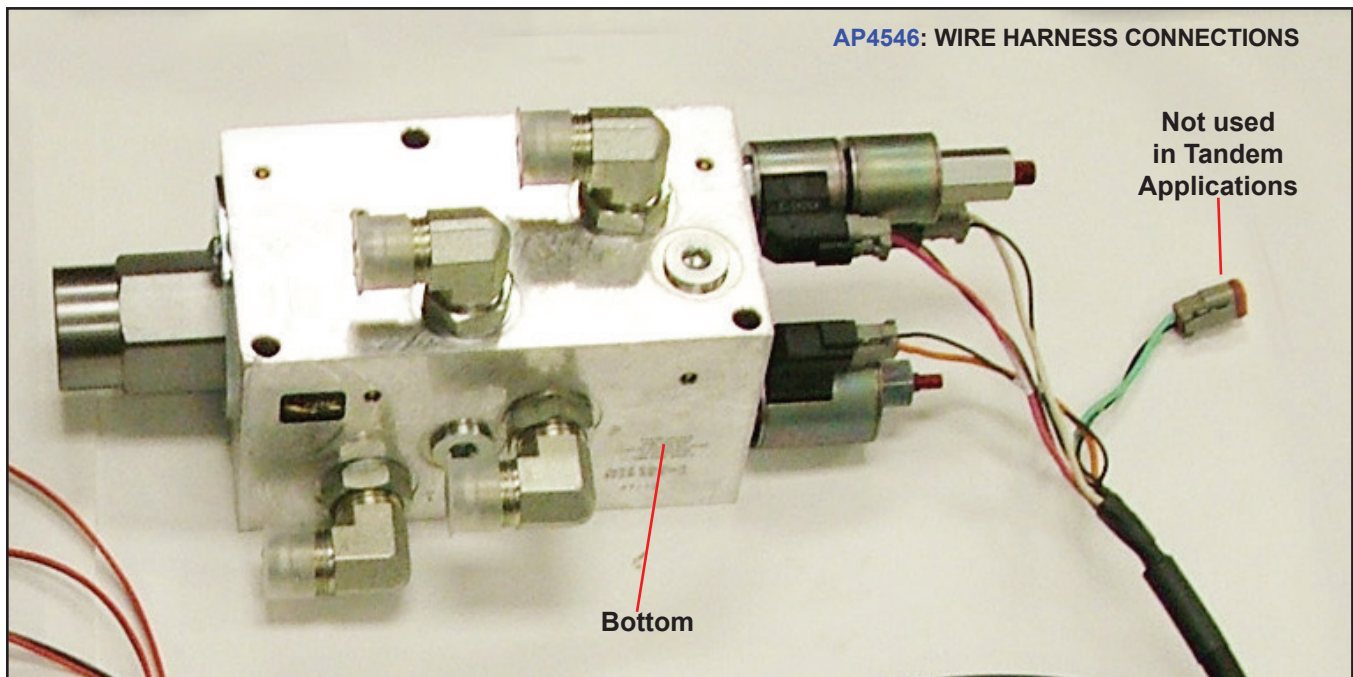


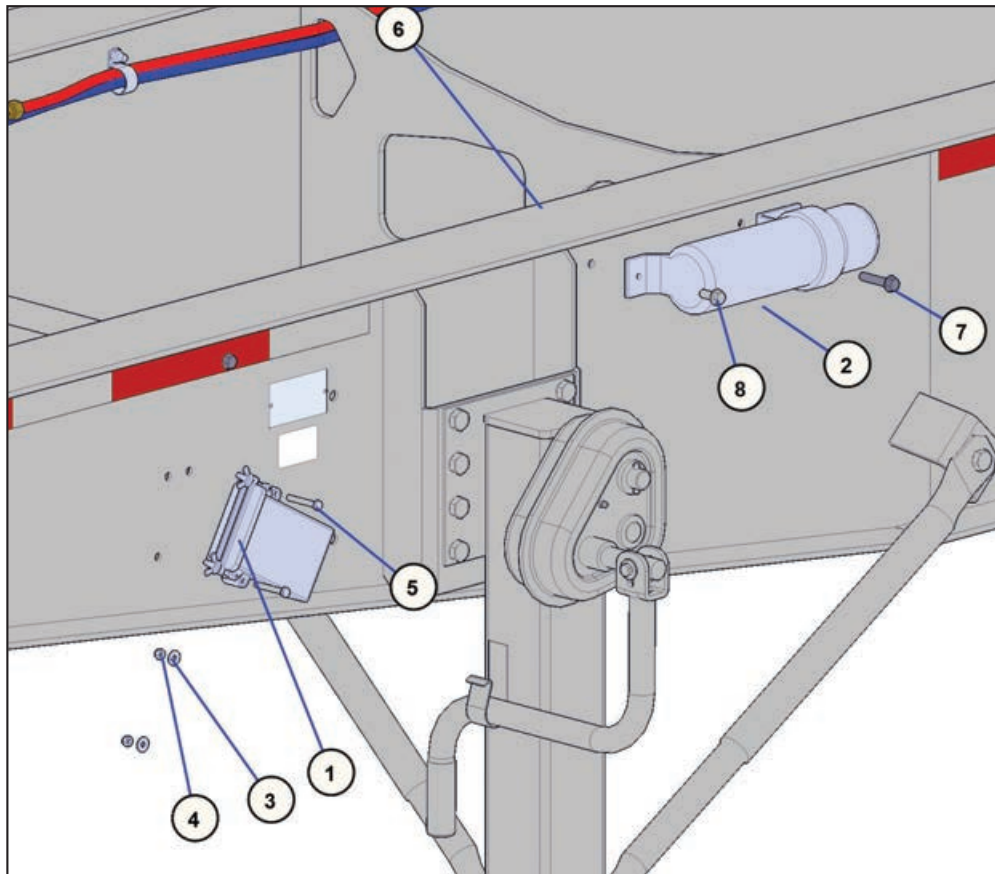
**REAR VIEW**

- 1-RED
- 2-WHT
- 3-GRN
- 4-BLK
- 5-ORG
- 6-BLU
- 7-WHT/BLK
- 8-RED/BLK
- 9-GRN/BLK

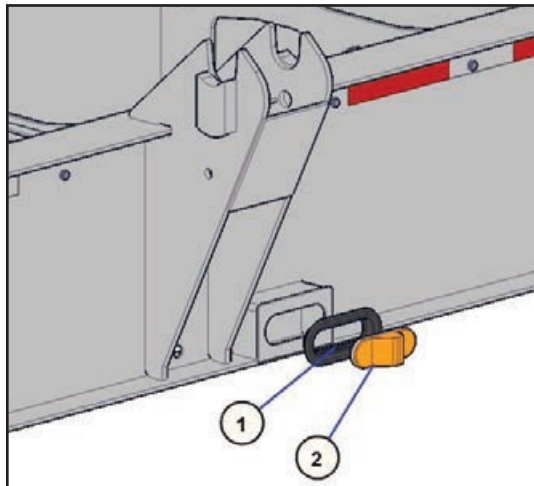








BOM ID	Qty	Item No	Description
1	1	1AUAP3811	JAMES KING DOCUMENT BOX, NO. 300
2	1	AP4254	MANUAL HOLDER, BLACK
3	2	1AFBP3055	WASHER, FLAT, 1/4", PLATED
4	2	1AFBP3587	NUT, HEX, 1/4" NYLOCK
5	2	1AFBP3601	HEX CAP SCREW, 1/4"-20 X 2", GRADE 8, PLATED
6	1	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
7	1	1AFBP3685	BOLT, FLANGE HEAD, 3/8"-16 X 2", GRADE 8, PLATED
8	1	1AFBP3692	BOLT, FLANGE HEAD, 3/8"-16 X 1", GRADE 8, PLATED



BOM ID	Qty	Item No	Description
1	2	1ARAP3551	GROMMET, OVAL, MODEL 60
2	2	1AEAP4313	LAMP, LED, TURN/SIDE, OVAL, YELLOW





# LANDING GEAR

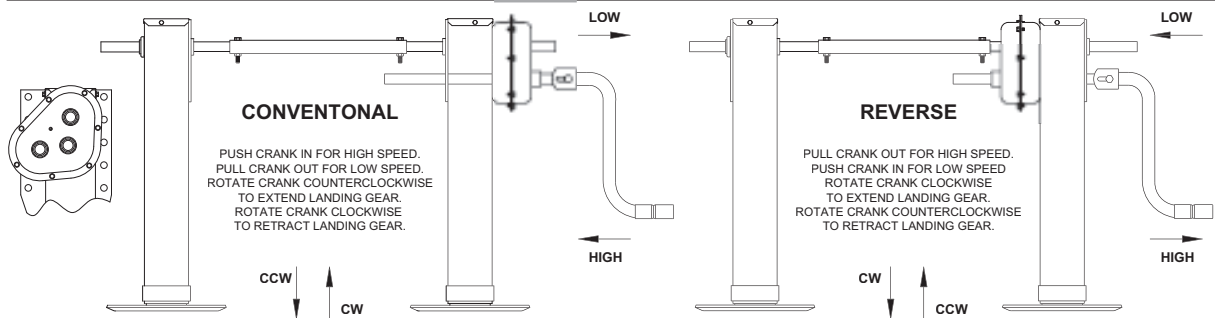
## **OPERATING INSTRUCTIONS & MAINTENANCE PROCEDURES**



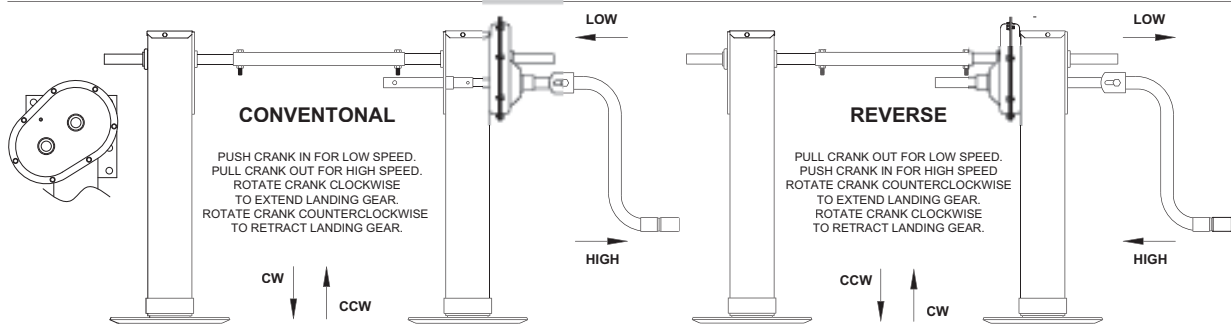
**Challenger Series - Model 50000**  
**Contender Series - Model 51000**  
**Fast Gear Series - FG4000**



## OPERATION Model 51,000 (8 Bolt) Model 50,000 (10 Bolt)



## OPERATION Fast Gear



### TO REMOVE TRACTOR FROM TRAILER:

1. Position the trailer so that the landing gear shoes will rest on a firm level surface when landing gear is extended.
2. Shift landing gear to high gear and extend landing gear until shoes contact ground.
3. Shift landing gear to low gear and lift trailer approximately (1) inch.
4. Unlock fifth wheel, uncouple air lines, and drive the tractor out from under the trailer.

### TO CONNECT TRACTOR TO TRAILER:

1. Ensure that the trailer is at a sufficient height to allow coupling of the tractor and trailer.
2. Connect air lines from tractor to trailer, then lock trailer brakes and back tractor under trailer, then lock fifth wheel.
3. Retract landing gears to fully retracted position.
4. Store crank on the crank holder.

### LUBRICATION – STANDARD:

When manufactured, the landing gears have been adequately greased with high quality lubricant. It will be necessary to periodically supplement this lubricant to maintain satisfactory performance. Use a molybdenum type grease with appropriate temperature range for your operating conditions. Gearbox leg has (3) grease fittings; leg without gearbox has (2) grease fittings.

1. Prior to lubrication, extend legs approximately (2) inches from maximum retracted position.
2. For optimum performance, every (6) months lube both legs at all grease fittings.
3. Add 1/4-lb grease at each grease fitting.

### LUBRICATION – NoLube:

No additional grease is required.

## TROUBLE SHOOTING:

In normal trailer operating service, certain components such as shafts, bushings, bearings, gears, and screw and nut assemblies are subject to wear and will require replacement.

However, under extreme usage condition exceeding AAR-931 Durability Requirements the same components may require replacement more frequently.

## Landing gears hard to crank—check the following:

### PROBLEM

1. Cross driveshaft in a bind or tight between shafts.
2. To determine which leg turns hard
3. Inadequate lubrication.
4. Alignment.
5. Upper housing or retracting tube may be bent.
6. Screw and nut assembly may have excessive wear and be hard to turn or inoperable.
7. Check for proper clearance between pinion and bevel gear.
8. Excessive wear or damage to pinion, bevel, input, idler and/or output gears.
9. Landing gear jack shafts and/or shift shaft binding.
10. Bent retracting screw.
11. Damaged thrust bearing.
12. Damaged collar.
13. Damaged shift lock boss and/or shaft bearing boss.
14. Weld blow through where strut bracket is welded to housing. (With no-load on landing gear, the retract tube should have free play inside housing.)
15. Impact to jack shaft end has pressed bearing boss into gearbox half.

### SOLUTION

Bolts must be loose and cross driveshaft free to move in slots provided.  
Remove cross driveshaft bolt and crank each leg on the jack shaft.  
(See Lubrication Instructions).  
Legs must be timed together, parallel to each other and perpendicular to the trailer crossmembers.  
Replace damaged part.  
Disassemble and inspect for wear. If screw and/or nut show considerable wear, then replace entire retracting tube assembly.  
Minimum end play 1/32".  
  
Replace damaged gears.  
  
Check to see if trailer mounting bracket has sufficient size clearance hole to miss landing gear boss or shift shaft.  
Replace entire retracting tube assembly.  
Replace.  
Replace.  
Replace.  
  
Grind weld as required and re-weld.  
  
Press boss back into position.

## Trouble Shooting/General:

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Right-hand leg (gearbox leg) operates but left-hand leg does not move.</li> <li>2. Legs will not operate when turning jack shaft.</li> <li>3. Right-hand leg will not operate, shift shaft will turn but jack shaft does not turn.</li> <li>4. Leg locked and will not turn.</li> <li>5. Right-hand leg will not stay fully shifted in low gear.</li> <li>6. Noisy gearbox.</li> </ol> | <p>Broken cross driveshaft bolt or damaged cross driveshaft. Replace damaged part.</p> <p>Damaged pinion or bevel gear. Replace damaged part.</p> <p>Damaged input, idler, and/or output gear. Replace damaged part.</p> <p>Bent retracting screw or damaged riser nut and screw. Replace entire retracting tube assembly.</p> <p>Shift lock ball and shift lock spring missing or damaged shift lock spring. Replace missing or damaged part.</p> <p>Check that shift shaft movement is 1" when shifted between gears.</p> |
|--|---|

**CAUTIONS:**

Landing gears are designed to meet T.T.M.A. recommended practice RP-4 and A.A.R.-931 requirements.

When operating the landing gears, it is necessary to observe some cautions. By doing so you will ensure long trouble free service.



1. Do not over extend or over retract landing gears.
2. Never drop trailer on landing gears. Always extend landing gears until sand shoes contact ground, then lift trailer approximately 1 inch before removing tractor from trailer.
3. Always ensure that landing gear shoes or foot pads will rest on a hard ground surface or concrete pad. If necessary, place shoes on a support plank to prevent the landing gears from sinking into the ground surface. (This is especially important with liquid cargo where a shift in the contents could overturn the trailer!).
4. Always retract landing gears fully before moving the trailer.
5. Always store the crank on the crank holder after extending or retracting the landing gear.
6. Replace all damaged or missing parts.
7. Failure to replace worn or damaged riser nut and retracting screw assembly could cause a failure.



**GO THE DISTANCE.**

HOLLAND USA, INC.

1950 Industrial Blvd. • P.O. Box 425 • Muskegon, MI 49443-0425 • Phone 888-396-6501 • Fax 800-356-3929  
www.thehollandgroupinc.com

Copyright © March 2005 • The Holland Group, Inc.

**Holland USA, Inc. Facilities:**

Dumas, AR Muskegon, MI  
Holland, MI Warrenton, MO  
Monroe, NC Wylie, TX

Ph: 888-396-6501 Fax: 800-356-3929

**Holland International, Inc.**

Holland, MI  
Phone: 616-396-6501  
Fax: 616-396-1511

**Holland Hitch of Canada, Ltd.**

Woodstock, Ontario • Canada  
Phone: 519-537-3494  
Fax: 800-565-7753

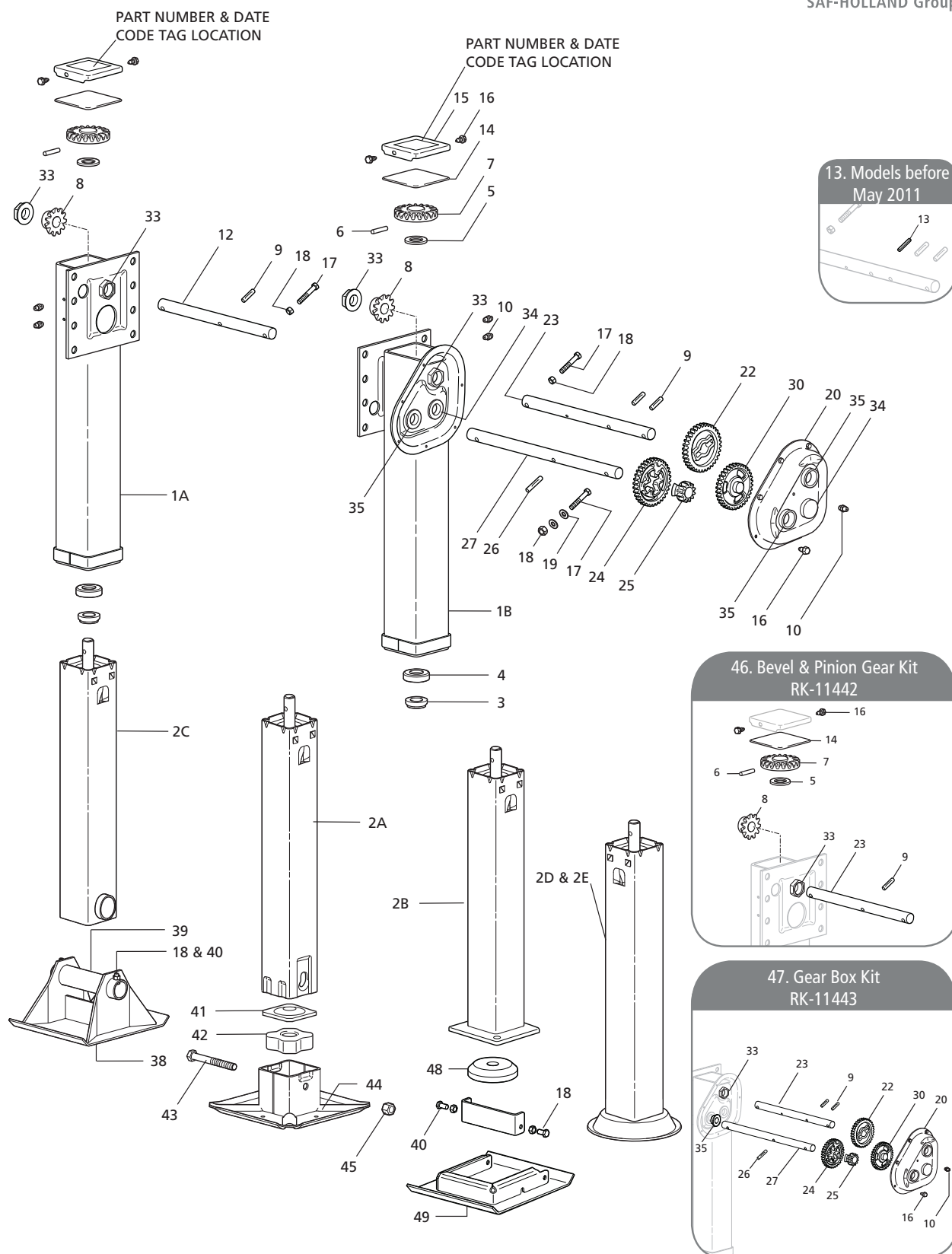
**Holland Equipment, Ltd.**

Norwich, Ontario • Canada  
Phone: 519-863-3414  
Fax: 519-863-2398

**Holland Hitch Western, Ltd.**

Surrey, British Columbia • Canada  
Phone: 604-574-7491  
Fax: 604-574-0244

## Atlas 55 Standard - Exploded View







SAF-HOLLAND Group

## Atlas 55 Standard - Parts List

NO.	DESCRIPTION	RETRACT TUBE CODE	TRAVEL				
			13.50"	15.50"	17"	17"*CAN.	19"
2A	Retract Tube - RCF	0 or 5 (MRL)	LG3053-01	LG3053-02	LG3053-03	LG3053-04	LG3053-05
2B	Retract Tube - Low Profile RCF	0	LG3097-01	LG3097-02	LG3097-03	N/A	NA
2C	Retract Tube - Axle	0	LG3012-01	LG3012-02	LG3012-03	N/A	LG3012-04
2D	Retract Tube - Shockfoot 10" DIA	0 or *6 (Can)	LG3061-02	LG3061-03	LG3061-04	LG3061-07	LG3061-13
2E	Retract Tube - Shockfoot 12" DIA	0 or *6 (Can)	LG3061-01	N/A	LG3061-05	LG3061-08	LG3061-14

NO.	DESCRIPTION	PART NO.	SPEED	
			ONE	TWO
1A	Upper Housing LH	N/A	-	-
1B	Upper Housing RH	N/A	-	-
3	Collar	XB-LG0544	1	1
4	Thrust Bearing	XB-BRG-013-77	1	1
5	Washer - FL 2" OD x 1.19" ID x .13" THK	XB-PW-016-62	1	1
6	Pin - DIA .38" x 2"	XA-CRP-V-06635	1	1
7	Bevel Gear	LG2884	1	1
8	Pinion Gear	LG1823-02	1	1
9	Groove Pin - DIA .38" x 1.50"	XB-GP-014-18	1	2
10	Ftg - Grease .25"-28 Self Tapping	XB-GRF-022-16	2	3
12	Jack Shaft LH - Universal Mount	LG2964-01	1	-
	- I-Beam Mount	LG2964-04	1	-
	- Conventional Mount	LG2964-02	1	-
	- Reverse Mount	LG2964-03	1	-
13	Pin - Spring DIA .25" x 1.5" (Not Required)	N/A	-	-
14	Cover Gasket	XB-LG0893	1	1
15	Top Cover	XA-LG0880	1	1
16	Self-Tapping Screw .25"-20 x .5" Lg	XB-ST5-008-11	2	9
17	Screw, Hex Cap .38"-16 x 2.25" Lg GR5	XB-HHC-050-42	1	2
18	Self-Locking Nut .38"-16 - Sandshoe	XB-SLN-012-04	2	3
	- Low Profile RCF	XB-SLN-012-04	4	5
19	Washer .38" Std Type A	XB-PW-016-03	-	2
20	Gearbox Half, Outside w/Hole for Grease Fitting	LG2996	-	1
22	Output Gear	LG2980	-	1
23	Jackshaft RH - Universal Mount	LG2963-01	-	1
	- I-Beam Mount	LG2963-04	-	1
	- Conventional Mount	LG2963-02	-	1
	- Reverse Mount	LG2963-03	-	1
24	Input Gear - High	LG2968	-	1
25	Input Gear - Low	LG2969	-	1
26	Groove Pin, Type E DIA .38" x 2.00" Lg	XB-GP-052-21	-	1
27	Shift Shaft - Universal	LG3011-01	-	1
	- I-Beam & Conventional	LG3011-02	-	1
	- Reverse	LG3011-03	-	1
30	Idler Gear	LG2975	-	1
33	Hex Lock Boss	LG2926	2	2
34	Output Shaft Bushing	LG3005	-	2
35	Boss Bearing - Sealed	LG0659-10	-	3

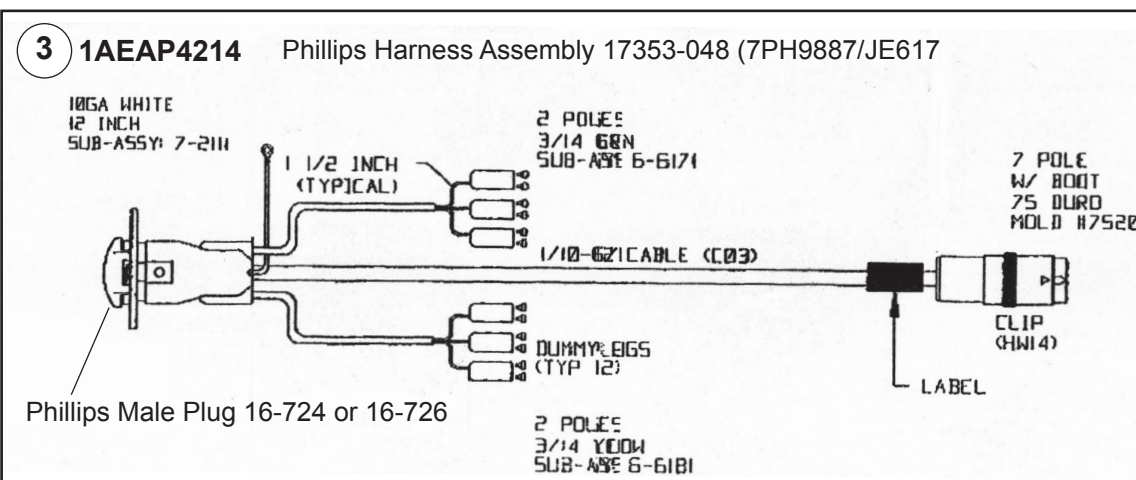
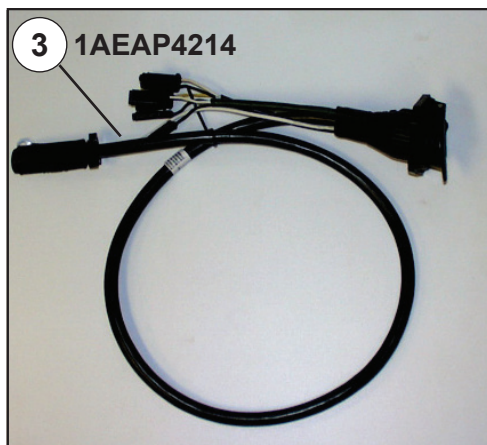
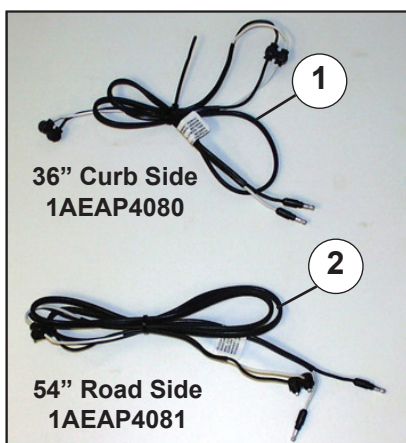
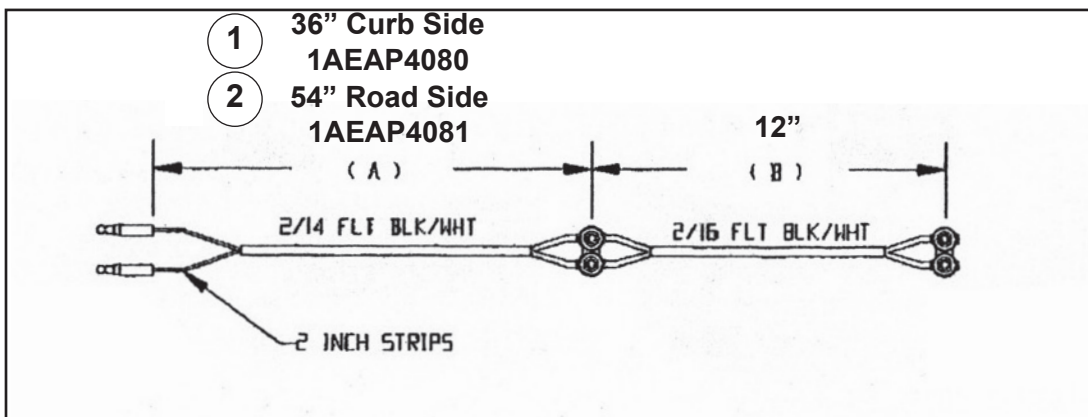
NO.	DESCRIPTION	PART NO.	SPEED	
			ONE	TWO
38	Sandshoe - 10" x 10" x 4.50"	50616001	1	1
	- 10" x 12" x 4.50"	50616000	1	1
	- 10" x 10" x 2.00"	50616008	1	1
	- 10" x 12" x 2.00"	50616007	1	1
39	Sandshoe Axle - Hollow Axle 8.50" Lg	LG0070-02	1	1
40	Screw, Hex Cap .38"-16 x .75" Lg GR5 - Sandshoe	XB-HHC-050-69	1	1
	Screw, Hex Cap .38"-16 x .75" Lg GR5 - Low Profile RCF	XB-HHC-050-69	2	2
41	Cushion Foot Plate	LG0725	1	1
42	Cushion Foot Rubber	XB-LG0726	1	1
43	Bolt - Hex Head .63" -11 x 5.50"	XB-HHB-050-70	1	1
44	R.C.F. - DIA 10"	LG0718-01	1	1
	- DIA 12"	LG0740-01	1	1
	- 10" x 10"	LG0732-01	1	1
45	Self-Locking Nut - .63"-11"	XB-SP0012-10	1	1
46	Bevel & Pinion Gear Repair Kit	RK-11442	1	1
47	Gear Box Repair Kit	RK-11443	-	1
48	Cushion Foot Pad - Low Profile RCF	728003	1	1
49	Interchangeable Collar - Low Profile RCF	730639	1	1
50	Black Armour™ Touchup Kit (not shown)	RK-10919	1	1

For technical assistance please go to  
[www.safholland.us](http://www.safholland.us) or call 800.876.3929

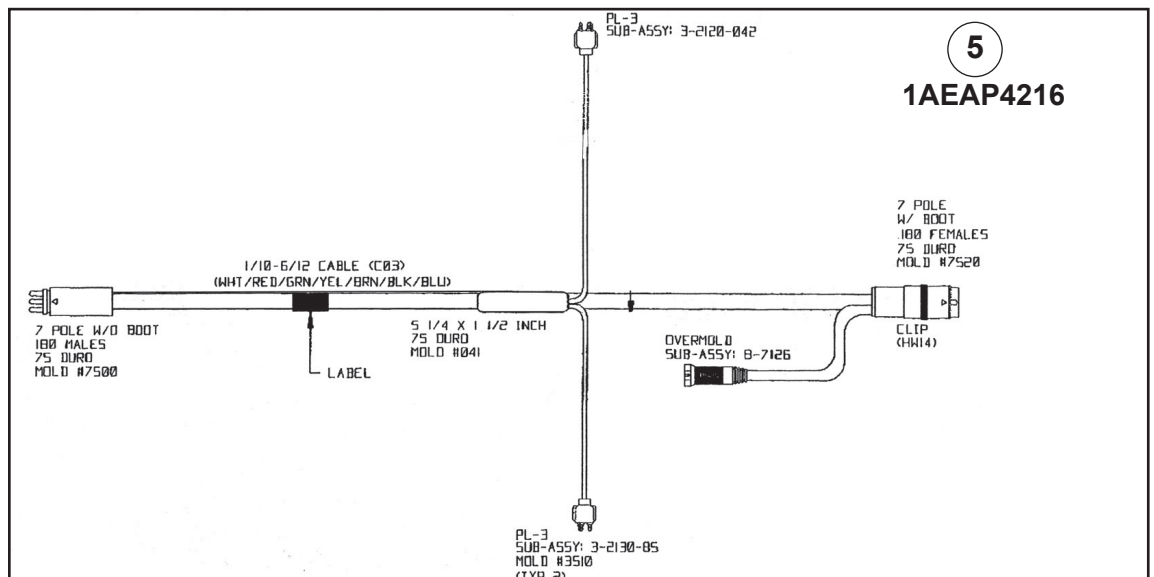
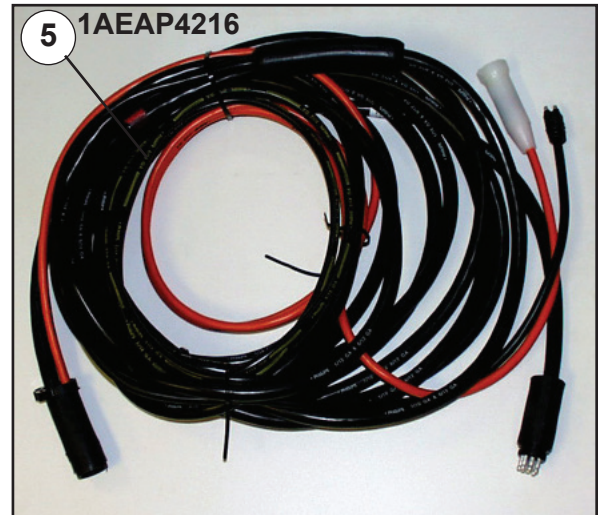
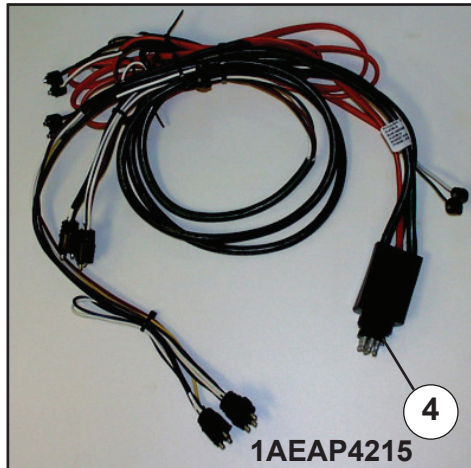
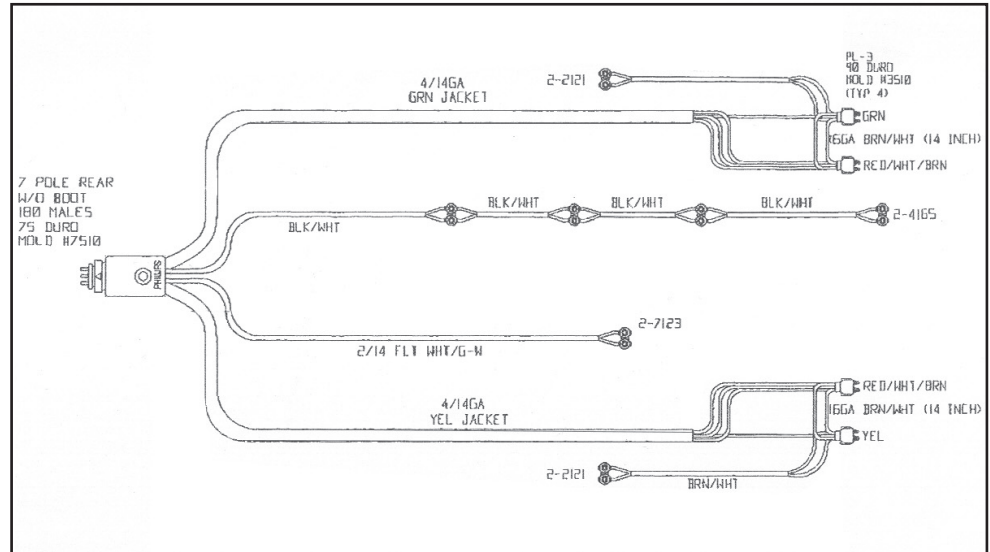
## Wiring Harness

**1AEAP4196 (1) Wiring harness, trailer, complete, 2003**

1. 1AEAP4080 (1) Harness, curb side front
2. 1AEAP4081 (1) Harness, road side front
3. 1AEAP4214 (1) Harness, main socket, 17353-048
4. 1AEAP4215 (1) Harness, rear, 20-4036-14
5. 1AEAP4216 (1) Harness, main with/splice, 11-7078-01
6. 1AEAP3641 (1) Wire harness extension



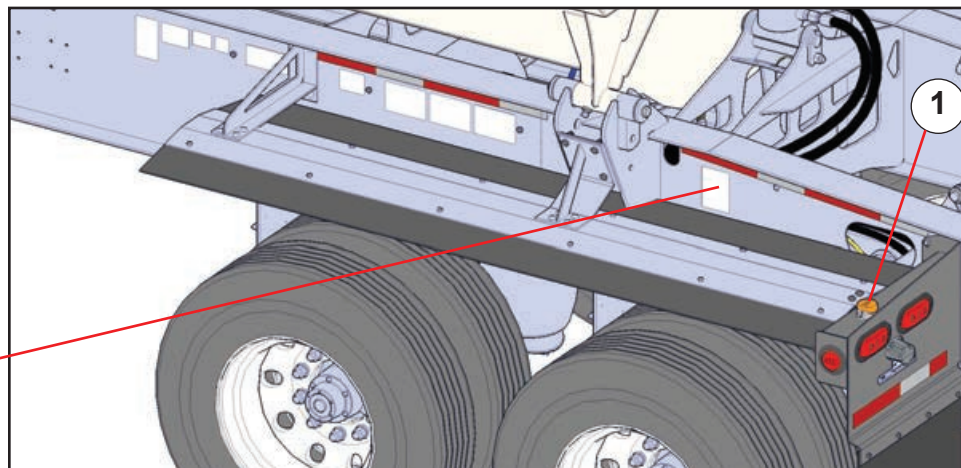
## Wiring Harness



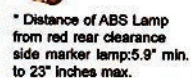


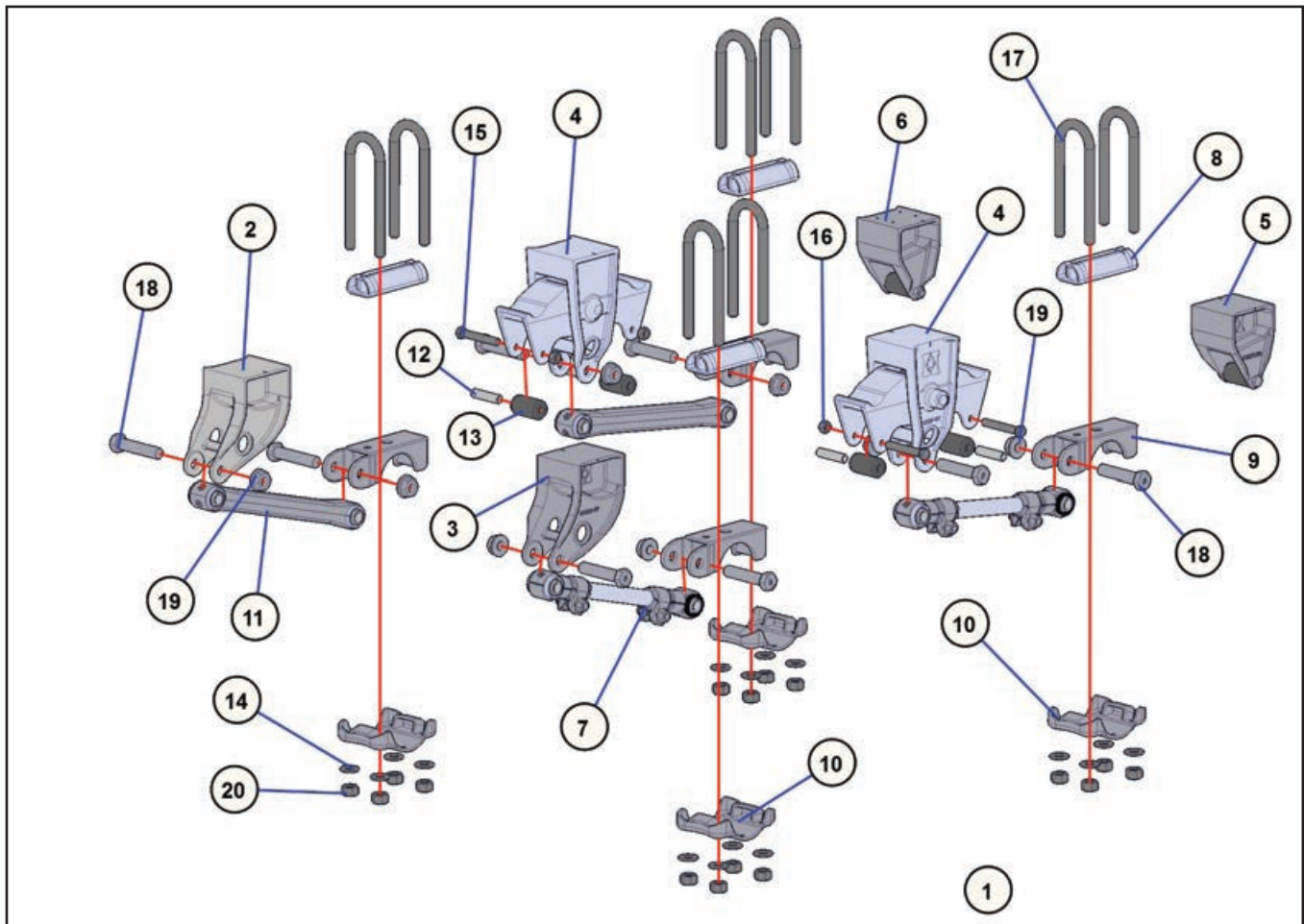
**1ABAP4180 (1) ABS Kit PLC Select**

- Haldex-Midland**  
**816-891-2470**  
**Valve-AL430624**  
**ECU-AL919323**  
**midland.com**



## Decal




**NOTE:**

3/4" Torque Specifications  
 310 ft. lb. oiled  
 420 ft. lb. dry

Hutchens Industries  
 800-654-8824  
 Model 9700 Cast Spring Suspensions  
 Model 900 Single Point  
[hutch-susp.com](http://hutch-susp.com)

BOM ID	Qty	Item No	Description
1	1	1ASAP4183	SUSPENSION, HUTCH CAST 9700, 3 LEAF SPRING
2	1	1ASAP3957	CAST FRONT HANGER, CURB SIDE, 16291-01
3	1	1ASAP3958	CAST FRONT HANGER, ROAD SIDE, 16291-02
4	2	1ASAP3960	HUTCH CAST CENTER EQUALIZER ASSEMBLY, 16197-01
5	1	1ASAP3962	CAST REAR HANGER, CURB SIDE, 16292-01
6	1	1ASAP3963	CAST REAR HANGER, ROAD SIDE, 16292-02
7	2	1ASAP3965	ADJUSTABLE TORQUE ROD, 19-1/4", 16398-04
8	4	1ASAP3967	TOP PLATE, 7029-00
9	4	1ASAP3968	SPRING SEAT, 3/4" HEIGHT
10	4	1ASAP3969	BOTTOM PLATE
11	2	1ASAP3970	RIGID TORQUE ROD, 19-1/4", 715-00
12	4	1ASAP4138	SPACER, 3/4" OD X 18 GAUGE X 3-1/4" OAL
13	6	1ASAP4291	BUSHING, RUBBER, HUTCH SUSPENSION, LSF-3.19
14	16	1AFBP3618	WASHER, 3/4" USS THRU-HARD FLAT
15	4	1AFBP3694	BOLT, 5/8"-18 X 4-1/2", 0001-04
16	4	1AFBP3696	NUT, LOCK, 5/8"-18, 0002-07
17	8	1AFBP3715	U-BOLT, 3/4"-16 X 3" X 10-1/2", HUTCH 16300-08
18	8	1AFBP3716	HEX CAP SCREW, 1"-14 X 5" HUTCH 719-02
19	8	1AFBP3717	NUT, HEX LOCK, 1"-14, FLANGE TOP LOCK, 10562-00
20	16	1AFBP3718	NUT, HEX, 3/4"-16, UN-PLATED



## 900 Tapered Leaf (shown) and Multi-Leaf - 36 thru 60,000

### Bill of Materials

Item	Part No.	Quantity				Description
		Overslung Trunnion		Underslung Trunnion		
		Overslung Axle	Underslung Axle	Overslung Axle	Underslung Axle	
1	See Chart A, Page 8	2	2	2	2	Trunnion Hanger
2	10376-00	4	4	4	4	Hex Bolt 3/4" - 16 UNF x 4 1/2" GR5
3	895-00	2	2	2	2	Washer, 7GA x 4 1/32 ID x 5 3/4 OD
4	See Chart B, Page 8	1	1	1	1	Trunnion Tube
5	See Chart C, Page 8	4	4	4	4	U-Bolt, Trunnion
6	9640-00	2	2	0	0	Top Plate - Cast, Square U-Bolt
7	See Chart D, Below	2	2	2	2	Spring
8	See Chart E, Page 8	4	4	4	4	Spring End Cap
9	841-00	20	4	20	4	Hex Nut, Self Locking 3/4" - 16 UNF
10	9293-00	16	8	16	8	Hex Bolt, 5/8" - 18 UNF x 2" GR5
11	817-00	32	0	32	0	Washer, 1/8" x 13/16 ID x 1 1/2 OD
12	814-00	8	8	8	8	Rubber Pad - Plain
13	10608-00	4	4	4	4	Adjustment Plate
14	See Chart F, Page 8	4	4	4	4	Spring Seat
15	10273-00	16	8	16	8	Washer, 1/8" x 21/32 ID x 1 15/16 OD
16	11513-03	16	8	16	8	Hex Locknut 5/8" - 18 UNF
17	See Chart G, Page 8	8	8	8	8	U-Bolt - Axle
18	12919-01 <sup>†</sup>	2	2	2	2	Galvanized Liner - .040 x 4.75 x 10.00
19	891-00	2	2	2	2	Trunnion Hub - Upper Half
20	890-00	2	2	2	2	Rubber Bushing, Trunnion Hub
	20248-01	2	2	2	2	Free Oscillating Trunnion Bushing*
21	898-00	2	2	—	—	Trunnion Hub - Lower Half
	892-00	—	—	2	2	Trunnion Hub - Lower Half
22	837-00	8	8	8	8	Washer, 1/8" x 1 1/4 ID x 2 1/4 OD
23	836-00	8	8	8	8	Hex Nut, 1 1/8" - 12 UNF x 1 1/2 HI
24	10562-00	0	16	0	16	Flange Nut - Self Locking 1-14 UNS
25	820-00	0	0	2	2	Spring Clamp Plate
26	10488-00	4	4	4	4	Pressure Plate, 5" x 5" Axle Only

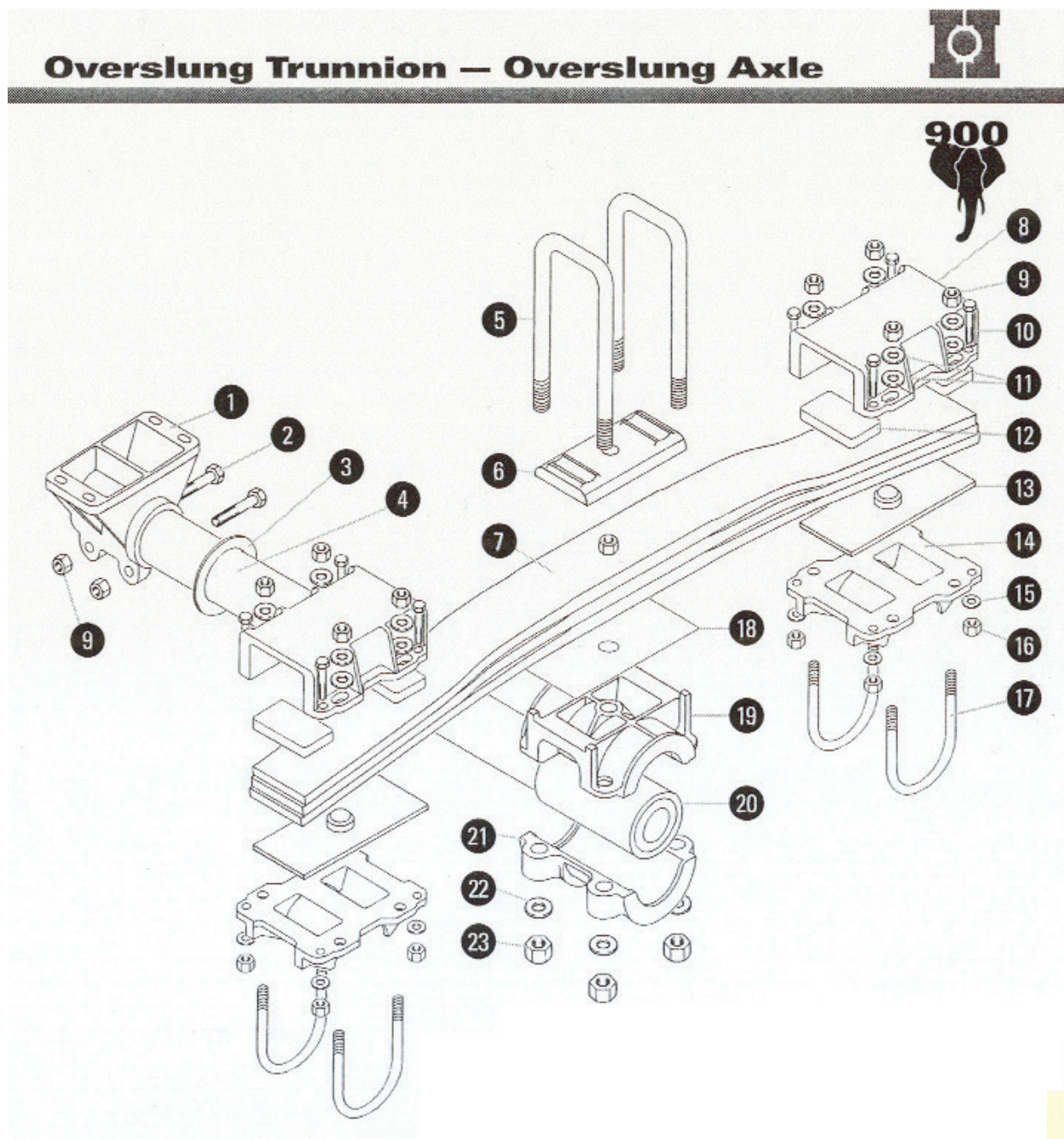
### Chart D - Spring Identification \*\* (Item #7)

Unit Weight Capacity (lbs.)	36,000	36,000	36,000	42,000	42,000	44/50,000	50,000	50,000	50,000	60,000
Number of Leaves	Tapered 2†	5	5	6	6	Tapered 3†	7	7	8	9
Spring Part No.	16258-01	10054-00	11151-00	9997-00	9998-00	12258-01	10055-00	9999-00	10000-00	10001-00

\* Available upon request, must be specified.

\*\* For a detailed description of axle spacings, mounting heights, etc. obtained when utilizing the above springs, see the Axle Specifications And Mounting Heights Charts on Page 4.

† A galvanized liner is required on the tension surface (bottom side) of the spring when taper leaf (2 and 3 leaf) springs are utilized. Liners are not required on flat plate (5, 6, 7, 8 and 9 leaf) springs.







**7700/9700**  
**4-Spring Suspension Series**

**Maintenance  
Procedures**



**Advancing the Practical Application of Suspension Technology**

Springfield, MO ■ (800) 654-8824 ■ (417) 862-5012  
Fax (417) 862-2317 ■ [www.hutchensindustries.com](http://www.hutchensindustries.com)

# 7700/9700 4-Spring Series Maintenance Procedures

## Warning

We strongly emphasize that each of the maintenance procedures that we will discuss have a significant safety purpose. Failure to maintain proper torque values on each of the suspension components can result in a failure of suspension components. Further, use of any visibly worn component can result in a failure. Any of these failures can result in loss of vehicle control and personal injury or death. Safety is the number one concern at Hutchens Industries. We urge you to follow the maintenance procedures set out in our video and in these written instructions.

The first maintenance check should be performed after an initial break-in period of about 1,000 miles. A visual inspection of all suspension components and attachment welds should be performed to reveal any obvious problems, such as cracks or unexpected wear.

During this "walk-around" it is essential to also check the torque on all suspension fasteners. In the course of the initial "shake down" period in which the components of the suspension "seat-in," as much as 25% of the original clamp load on the bolted joints can be lost. After the parts of the suspension have worked together for a very short period of time, re-torquing the bolts is necessary to ensure that undue movement - which results in excessive suspension wear - does not occur.

During the first maintenance check, the trailer's axle alignment should be examined and adjusted to comply with the Truck Trailer Manufacturers Association (TTMA) Recommended Practice #71-90. Alignment should also be checked following any maintenance or repair procedure performed on the suspension. Visual inspections and re-torquing are maintenance procedures that are performed every four months throughout the life of the trailer.

Begin each inspection with a review of the Hutchens torque decal (shown below) for the appropriate torque values for each suspension fastener. The oiled torque values in the first column are for new fasteners with lubricated threads. When you are installing new components, we recommend you lubricate the threads and use the torque values in this column. For maintenance checks on fasteners that have been in service, use the higher torque values in the dry thread column. It is important that you check all bolts and nuts to ensure that the recommended torque values are being maintained.

You cannot rely on your visual inspection to detect loose fasteners. **USE A TORQUE WRENCH!**

**⚠ WARNING**

**SAFETY ALERT!** (1) FOLLOW ALL TORQUE REQUIREMENTS. (2) DO NOT USE ANY COMPONENT WITH VISIBLY WORN OR DAMAGED THREADS. FAILURE TO FOLLOW THESE SAFETY ALERTS CAN LEAD TO LOSS OF VEHICLE CONTROL, PROPERTY DAMAGE, SERIOUS PERSONAL INJURY OR DEATH.

**Hutchens Suspension Torque Requirements**  
9600-9700 Series (Decal Part Number 16086-01 Rev. J)

After an initial break in period, approximately 1000 miles, and at least every 4 months periodically thereafter, ALL bolts and nuts should be checked to insure that recommended torque values are being maintained.

Oil torque values listed are for new fasteners with lubricated threads. It is recommended that new installations be performed with oiled fasteners. For dry threads which have been in service, use the higher torque values which are noted below.

	OILED	DRY
1 1/8-7 (9600/9700 Rocker Bolt)	590 lb-ft	790 lb-ft
1-14 or 1-8 (9700 Radius Rod Bolt)	540 lb-ft	720 lb-ft
7/8-14 (Axle U-Bolts & 9600 Radius Rod Bolt)	350 lb-ft	470 lb-ft
3/4-16 (Axle U-Bolts)	310 lb-ft	420 lb-ft
5/8-18 (Radius Rod Clamp Bolt)	130 lb-ft	170 lb-ft
5/8-18 (Spring Retainer Bolt)	35 lb-ft	50 lb-ft

Hutchens Industries, Inc., P.O. Box 1427, Springfield, Missouri 65801-1427

Toll Free 1 (800) 654-8824

### Hutchens Torque Decal Part No. 16086-01

This decal should be installed on the side of the trailer in a visible location.  
Decals can be obtained free of charge by contacting Hutchens Industries, Inc.



**Advancing the Practical Application of Suspension Technology**

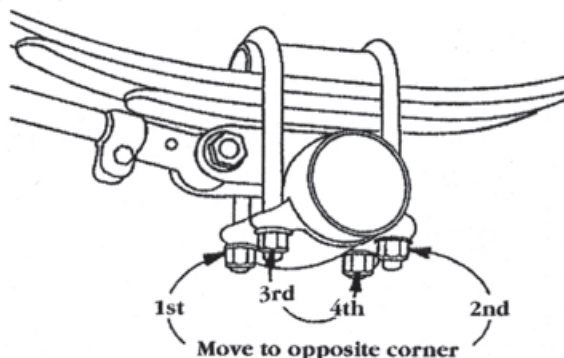
Springfield, MO ■ (800) 654-8824 ■ (417) 862-5012  
Fax (417) 862-2317 ■ [www.hutchensindustries.com](http://www.hutchensindustries.com)

Now let's look closely at the maintenance requirements for each of the suspension's main component groups.

## Axle Clamp Group and Springs

1. Check the torque on the U-bolt nuts by alternately tightening opposing corners of the clamp assembly. See **Figure 1**.
  - a. When using 7/8" - 14 U-bolts, the nuts should be torqued to a **dry** level of 470 lb-ft.
  - b. When using 3/4" - 16 U-bolts, the nuts should be torqued to a **dry** level of 420 lb-ft.

**Fig. 1**

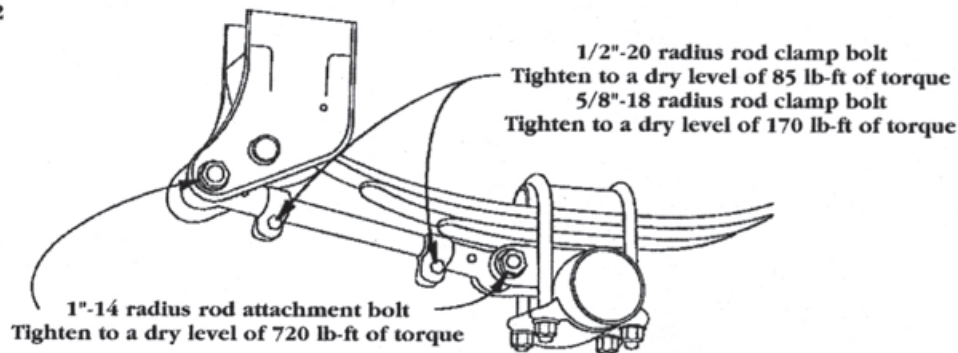


Always carefully inspect the spring and axle clamp components for any signs of wear or cracks, and replace if visible wear or cracks are present.

## Radius Rods

- 2a. The 1" - 14 radius rod attachment bolts at the hangers and spring seats should be tightened to a **dry** level of 720 lb-ft of torque on both the adjustable and non-adjustable radius rods. See **Figure 2**.

**Fig. 2**



Loose operation of this bolt can result in wear requiring that new components be installed to avoid structural damage. During your visual inspection, if you observe any visible wear or loosening in the bushing, it is imperative that you immediately replace the radius rod bushing and bolt. Failure to replace these components will result in damage to the hanger, spring seat, and/or radius rod.

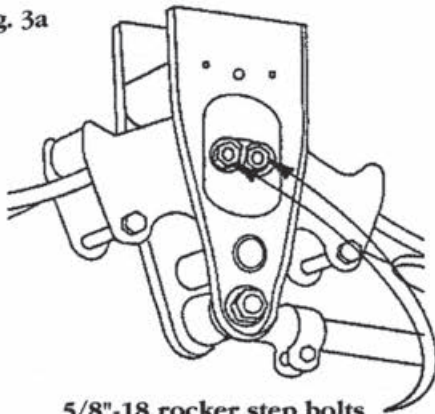
- 2b. Next check the 1/2" - 20 radius rod clamp bolt, which should be tightened to a **dry** level of 85 lb-ft of torque. The 5/8" - 18 radius rod clamp bolt should be tightened to a **dry** level of 170 lb-ft of torque. See **Figure 2**. If the clamp bolt has not been properly maintained, then wear between the radius rod screw and the eye end may be observed. If so, then the entire radius rod must be replaced. **Simply retightening or replacing the clamp bolt will not correct the problem.**



## Rocker Bushings

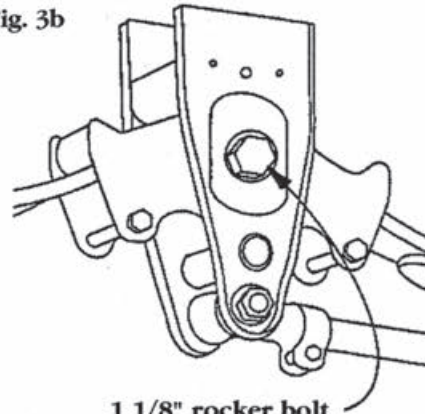
3. The recommended torque values for the rocker bushing clamp bolts are different for each model.
- If you are working on the 7700 model suspension, the 5/8" - 18 rocker step bolts should be tightened to a **dry** level of 170 lb-ft of torque. See Figure 3a.
  - If you are working on the 9700 model suspension, the single 1 1/8" - 7 rocker bolt should be tightened to a **dry** level of 790 lb-ft of torque. See Figure 3b.

Fig. 3a



**5/8"-18 rocker step bolts**  
Tighten to a dry level of 170 lb-ft of torque

Fig. 3b



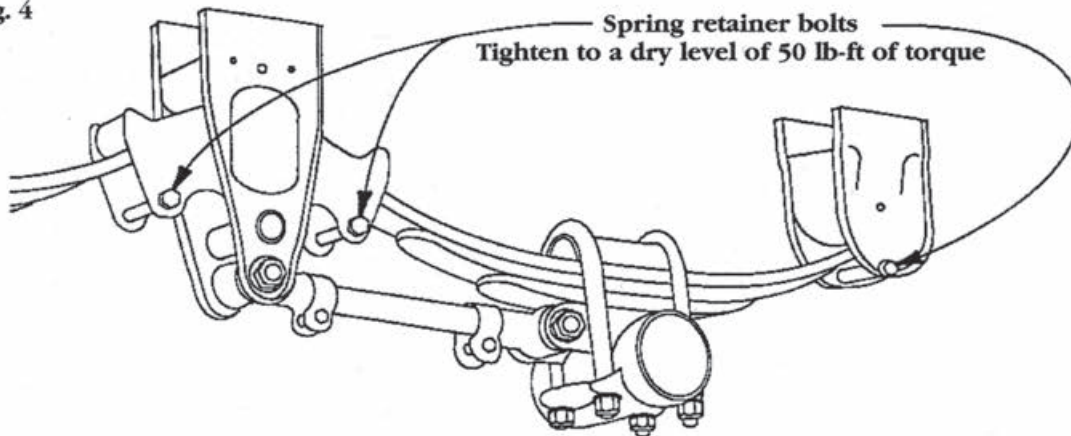
**1 1/8" rocker bolt**  
Tighten to a dry level of 790 lb-ft of torque

During your check, if the bolts are loose a detailed inspection of the rocker is important to ensure that no structural damage has occurred. One way this can be done is by raising the trailer until the trailer weight is taken off the springs. If the rocker is displaced or if the joint is loose, then the rocker should be removed and the rocker and/or rocker bushing be replaced. Again, visually inspect the condition of all rocker/rocker hanger assembly components and replace if visible wear is present.

## Hangers

4. Check all of the spring retainer bolts found in the rockers and rear hangers. A **dry** value of 50 lb-ft of torque should be maintained on all of these bolts. See Figure 4.

Fig. 4



Loose fasteners that are allowed to operate for any period of time will result in irreversible suspension damage and possible loss of vehicle control. **Retightening a worn fastener will not correct a situation created by loose operation!**



# Huckbolt® Removal

(with common shop tools)

The 1 1/8" Huckbolt® C50L® Fasteners used in truck/trailer suspension applications are designed as permanent fasteners. Once installed, they should be removed only by mechanical method. Use of a cutting torch may damage suspension components, and should be avoided. The mechanical removal process is rather simple in concept.

**NOTE:** The Huckbolt® fastener is clamped at a very high rate. Proper caution should be exercised when removing these bolts, as they may release their clamp suddenly. Wear proper eye protection and keep your face at least 2 feet away from the collar as you work on the removal process.

An installed fastener (as shown in Fig. 1) has a collar that is cold-worked or 'swaged' over the grooved C50L pin.

No amount of twisting or hammering will dislodge the pin from the collar.

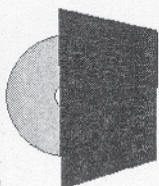
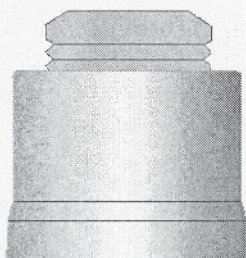


Fig. 2

The collar must be cut longitudinally to the extent of the swaged section. This may best be accomplished with a small wheel grinder, as shown in Fig. 2

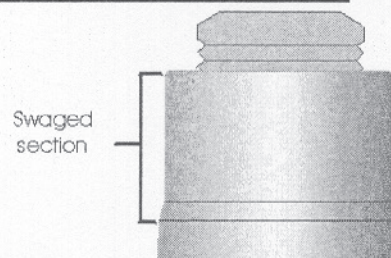


Fig. 1

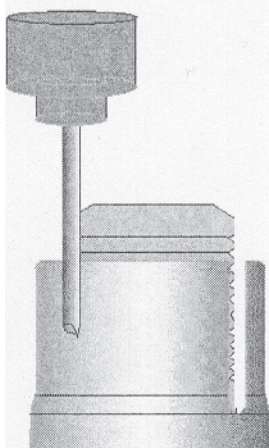


Fig. 3

Also, a drill may be used on opposing sides of the collar as seen in Fig. 3

An alternate method of opening the collar is to chisel the collar walls out to free up the pin as seen in Fig. 4

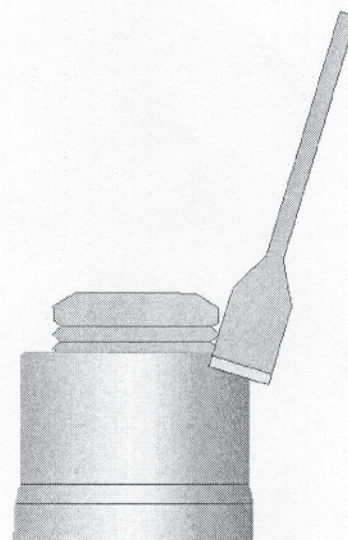


Fig. 4



Once the collar has been opened over the length of the swaged portion on two opposing sides, as shown in Fig. 5, the pin may become freed, or be may require additional force to hammer or punch the pin out of the collar

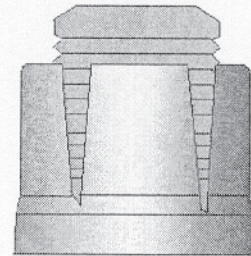


Fig. 5

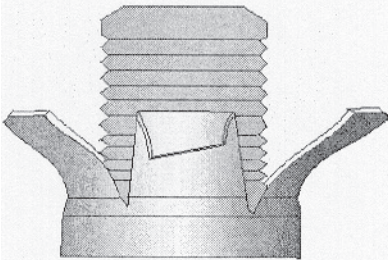
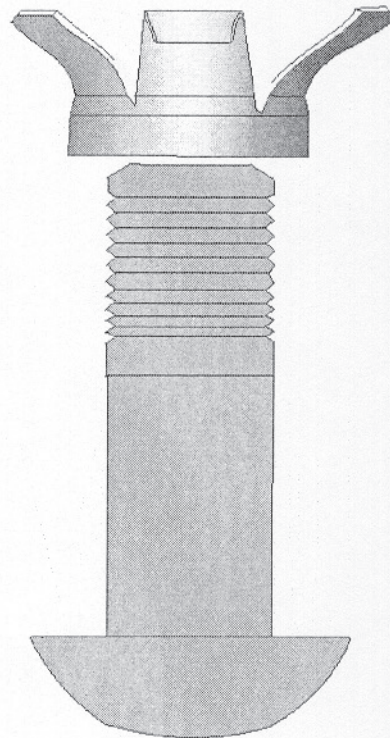


Fig 6.

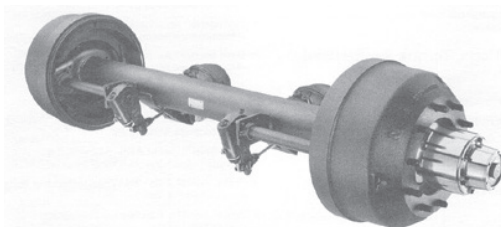
If the pin doesn't come loose, use a chisel, or vice-grip type pliers, to peel the collar sections back as seen in Fig. 6

The pin will come free when sufficient collar material has been pulled away from the swaged section of collar as seen in Fig. 7



## Hub Pilot Axles

1. 1AAAP3770 (1) Hub pilot, non-ABS, cast drum steel hub, 25,000#
2. 1AAAP3772 (1) Hub pilot, ABS, cast drum, steel hub, 25,000#
3. 1AAAP4179 (4) Brake spring canister, 30/30



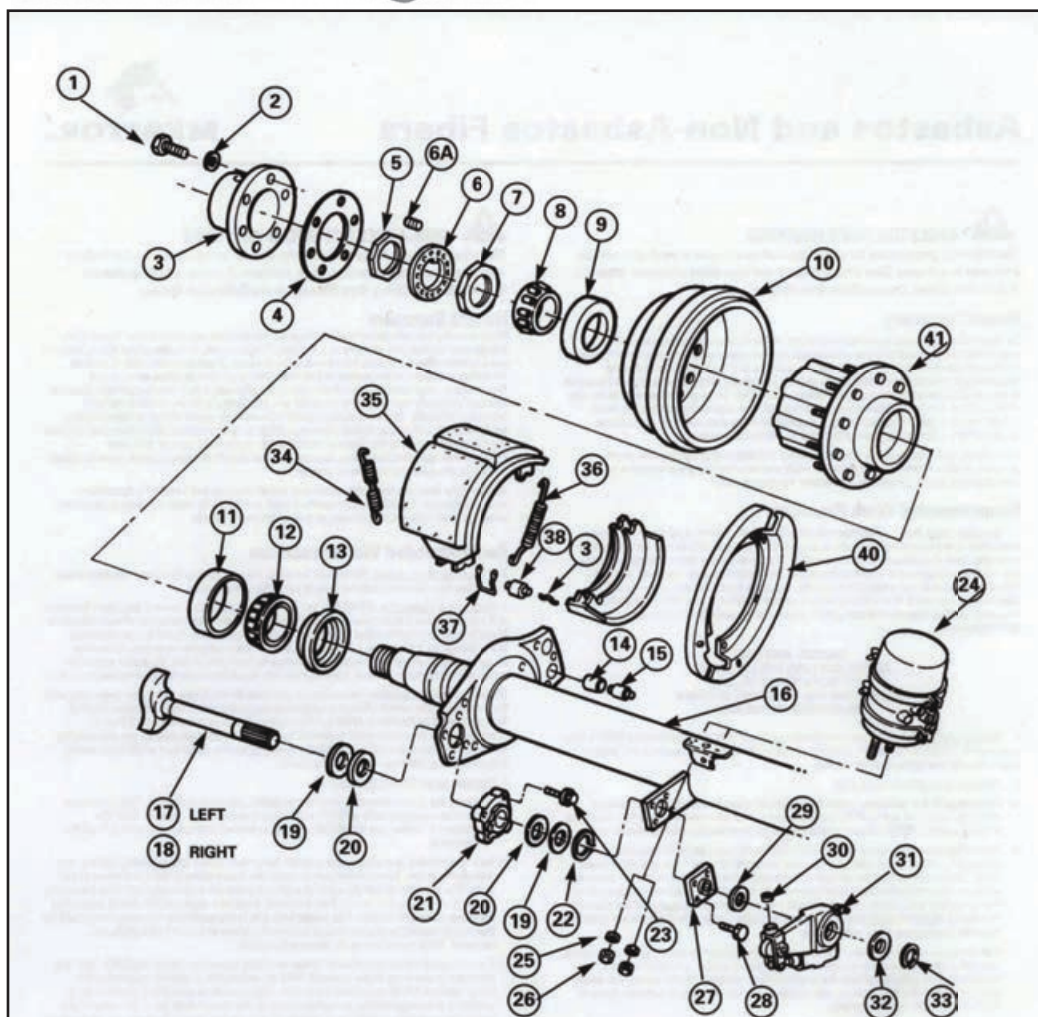
**Arvin Meritor**

**800-535-5560**

**TQ4670QH5106 25,000 lb. Non ABS**

**TQ4670QH5107 25,000 lb. ABS Axle**

**arvinmeritor.com**



**TYPICAL 16.5" x 7" Q SERIES BRAKE INSTALLATION**

Item	Description	Item	Description	Item	Description
1	Capscrew	14	Bushing anchor pin	28	Capscrew
2	Lockwasher	15	Pin anchor	29	Slack adjuster washer
3	Hubcap	16	Beam axle	30	Slack adjuster locknut
4	Gasket	17	Camshaft (left)	31	Automatic slack adjuster
5	Wheel bearing jam nut	18	Camshaft (right)	32	Slack adjuster washer
6	Lockwasher	19	Washer	33	Slack adjuster snap ring
6A	Setscrew	20	Seal	34	Brake shoe return spring
7	Wheel bearing adjusting nut	21	Bushing	35	Brake shoe and lining assy.
8	Outer wheel bearing cone	22	Snap ring	36	Brake shoe retaining spring
9	Outer bearing cup	23	Capscrew	37	Brake shoe roller retainer
10	Brake drum	24	Air chamber	38	Brake shoe roller
11	Inner bearing cup	25	Lockwasher	39	Shoe return spring pin
12	Inner bearing cone	26	Locknut	40	Dust shield
13	Wheel bearing seal	27	Camshaft bushing assembly	41	Hub



## Section 2 Disassembly



**NOTE:** The procedures in the "Disassembly" and "Assembly" sections of this manual are for current production Meritor trailer axles equipped with the following components:

- Disc wheel-end equipment
- Q Series cam brakes
- Meritor automatic slack adjusters
- TN/TQ axle spindles with standard retention hardware
- Oil lubricated wheel-ends

For axles equipped with different Meritor components, a reference will be made either to other procedures or other technical publications.

### Remove Wheel-Ends



#### WARNING

*To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.*

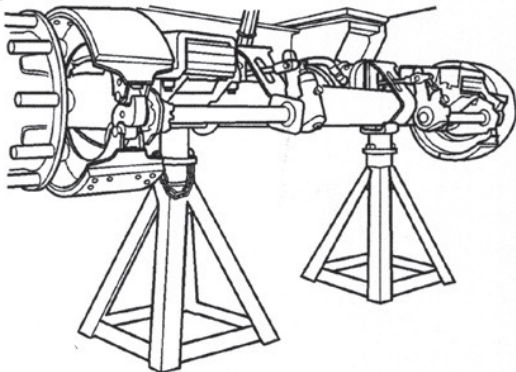


#### WARNING

*Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle supported only by jacks. Jacks can slip and fall over. Serious personal injury can result.*

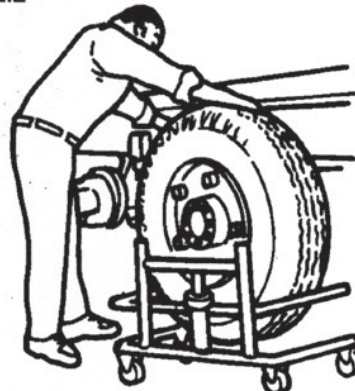
1. Raise the trailer until the tires are off floor.
2. Place jack stands under trailer frame or under each axle spring seat. **Figure 2.1.**

**Figure 2.1**



3. Remove the tire and wheel assembly, using procedures specified by wheel manufacturer. **Figure 2.2.**

**Figure 2.2**

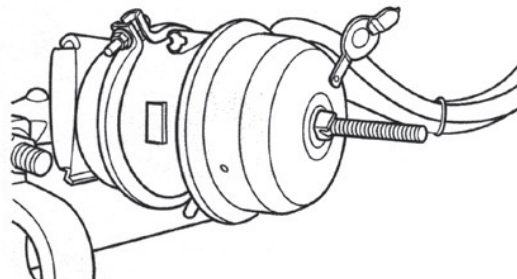


#### WARNING

*When you work on a brake that has spring chambers, carefully follow the service instructions of the chamber manufacturer. Sudden release of a compressed spring can cause serious personal injury.*

4. If the axle is equipped with spring brake chambers, carefully compress and lock the springs so that they cannot actuate. **Figure 2.3.**

**Figure 2.3**



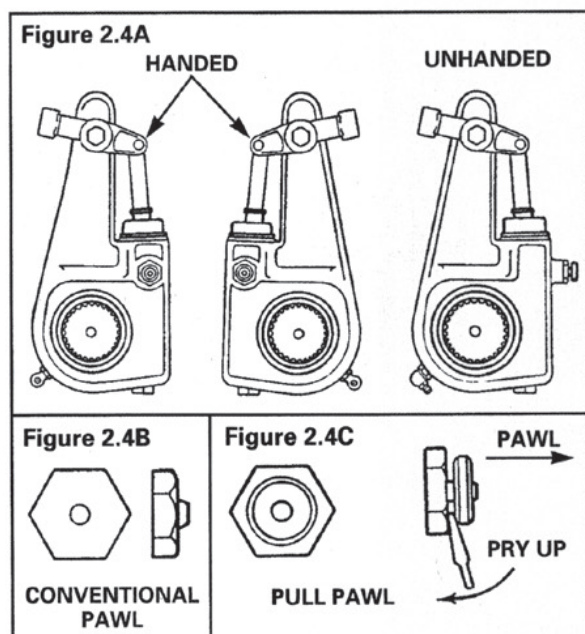




## Section 2 Disassembly

**NOTE:** For complete information on Meritor's automatic slack adjuster, refer to Maintenance Manual No. 4B, *Automatic Slack Adjuster*. Call Meritor's Customer Service Center at 800-535-5560 to obtain a copy of this publication.

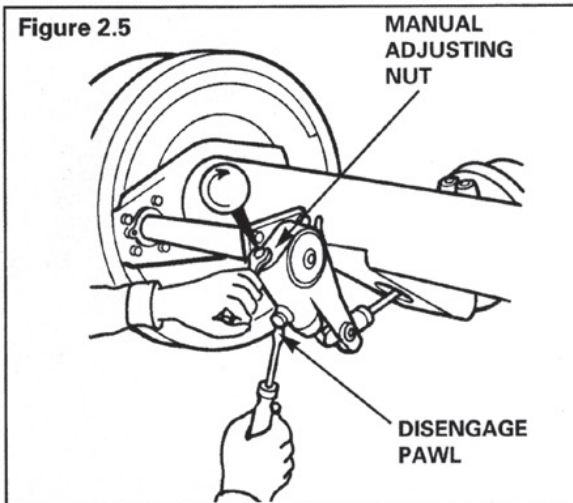
5. There are two automatic slack adjuster designs: handed and unhanded. For most applications, install a handed slack adjuster so that the pawl faces **INBOARD** on the vehicle. The pawl can be located on either side or on the **FRONT** of the slack adjuster. **Figures 2.4A, B, C.**



### CAUTION

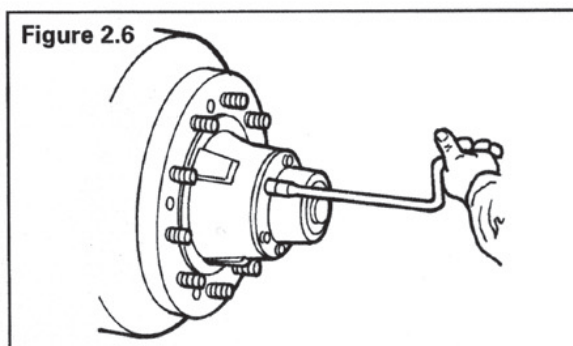
*You must disengage the pawl before rotating the manual adjusting nut, or you will damage the pawl teeth. A damaged pawl will not allow the slack adjuster to automatically adjust the brake clearance. Replace damaged pawls before returning the vehicle to service.*

6. Rotate the manual adjusting nut clockwise until the linings clear the drums. Disengage the pawl:
- **Conventional pawl:** Remove the pawl from the slack adjuster.
  - **Pull pawl:** Pry the pawl at least 1/32-inch to disengage the teeth. Replace a conventional pawl with a pull pawl. **Figure 2.5.**



**NOTE:** Do not reuse either the hubcap gasket or the oil.

7. Place a container under the hubcap to receive the draining oil, then remove the hubcap and hubcap gasket. **Figure 2.6.**



## Section 2 Disassembly



### ⚠ WARNING

*Do not loosen axle spindle nuts by either striking them directly with a hammer, or striking a drift or chisel placed against them. Damage to the parts will occur causing possible loss of axle wheel-end components and serious personal injury.*

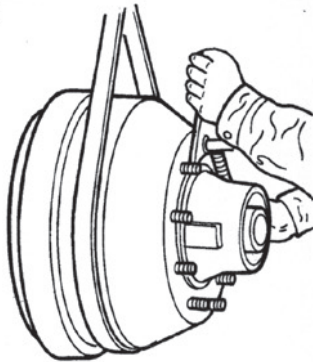
8. Remove setscrew from lockwasher. Then remove the jam nut, lockwasher and adjusting nut. **Figure 2.7.**

### ⚠ CAUTION

*Be careful when you remove the hub and drum assembly that you do not damage the outer bearing by dropping it on the floor.*

9. Remove outer bearing cone and then hub and drum assembly from axle spindle. Support hub and drum assembly during entire removal process, since failure to do so may result in damage to axle spindle threads. **Figure 2.8.**

Figure 2.8



10. Remove inner bearing cone and seal from either spindle or hub. Discard seal. **Figure 2.7.**

### ⚠ CAUTION

*Never remove seal wiper with a hammer and chisel or other sharp tool. Damage to axle oil seal collar will occur.*

11. If the seal incorporates a separate wiper on oil seal collar, loosen it by lightly striking with the round end of a ball-peen hammer, then remove it and discard. **Figure 2.9.**

Figure 2.9

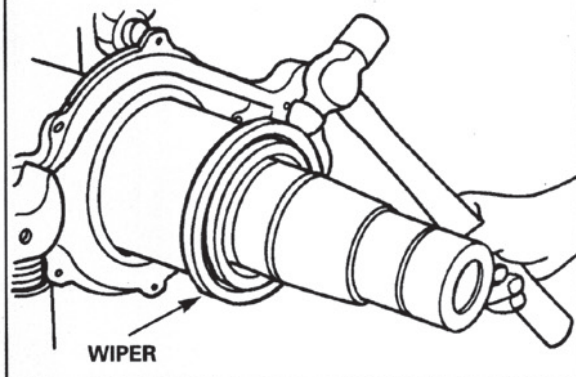
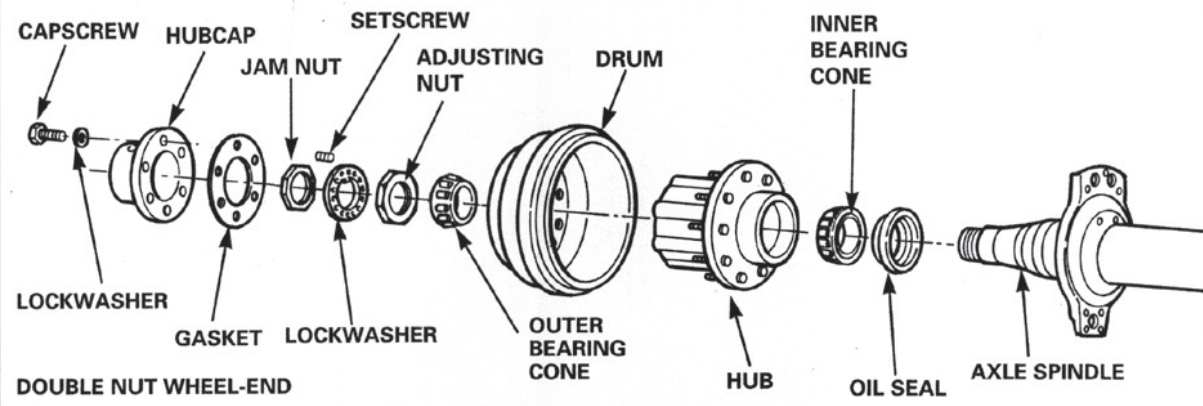


Figure 2.7



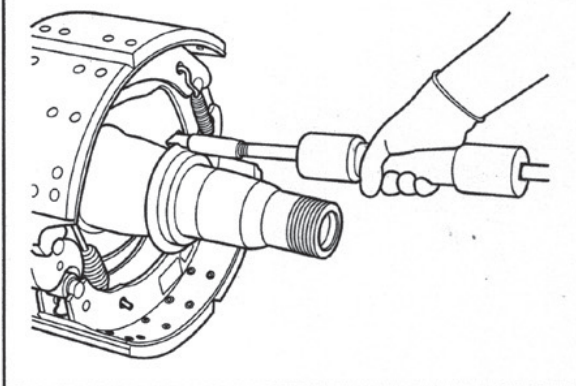




## Section 2 Disassembly

12. An alternate method is to use a slide hammer with a hook on the end of the tool. **Figure 2.10.**

**Figure 2.10**

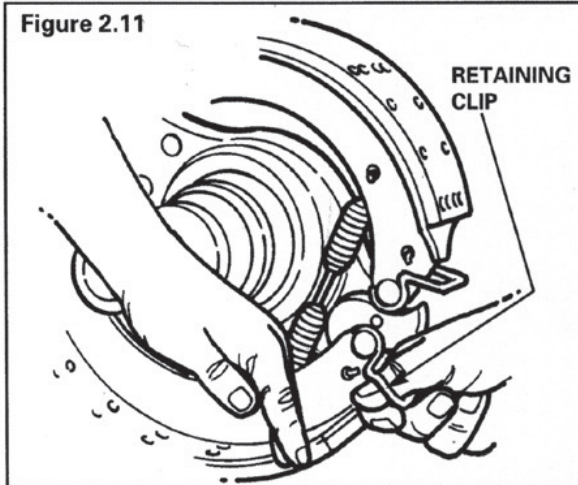


### Remove the Brakes

Refer to the "Service Notes" page in this publication for instructions on how to obtain the correct Meritor maintenance manual for the brake you are servicing. Follow the manufacturer's instructions for components that are not supplied by Meritor.

1. Push down on bottom brake shoe and pull on roller retaining clip to remove bottom cam roller. **Figure 2.11.**

**Figure 2.11**

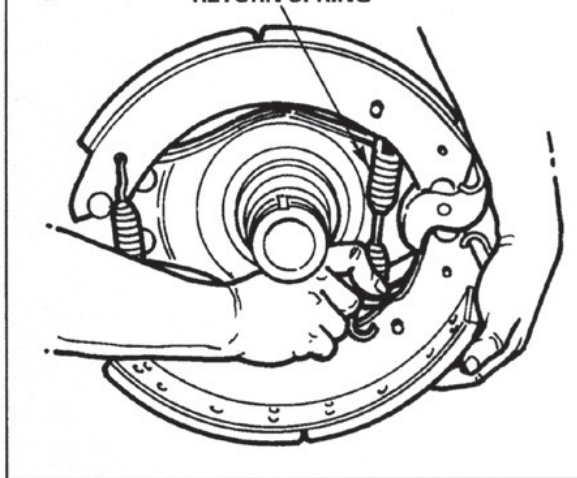


2. Lift the top brake shoe and pull on the roller retaining clip to remove top cam roller.

**NOTE:** You can remove a standard return spring by hand, if one is installed. If a heavy duty spring is installed, you will need a tool to remove the spring.

3. Lift the bottom shoe to release tension on the brake return spring. Remove the spring. **Figure 2.12.**

**Figure 2.12** RETURN SPRING

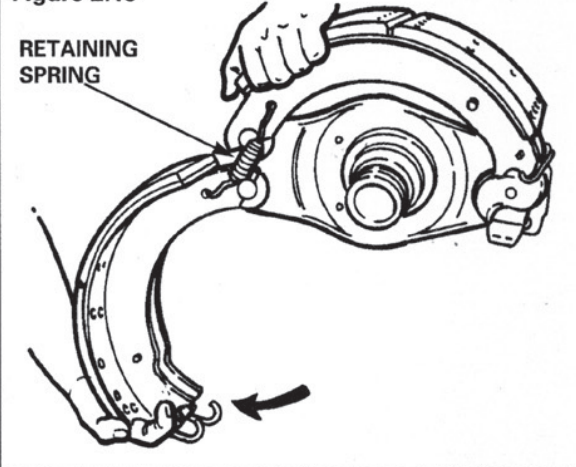


## Section 2 Disassembly



4. Rotate the bottom shoe to release tension on the two retaining springs. Remove springs and brake shoes. **Figure 2.13.**

**Figure 2.13**



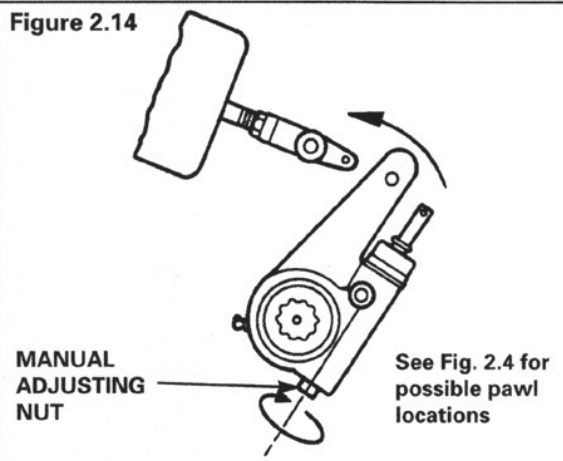
5. Disengage the slack adjuster from the air chamber push rod by removing the two slack adjuster clevis pins. Discard the two cotter pins that secure the clevis pins.

### **CAUTION**

*You must disengage the pawl before rotating the manual adjusting nut, or you will damage the pawl teeth. A damaged pawl will not allow the slack adjuster to automatically adjust the brake clearance. Replace damaged pawls before returning the vehicle to service.*

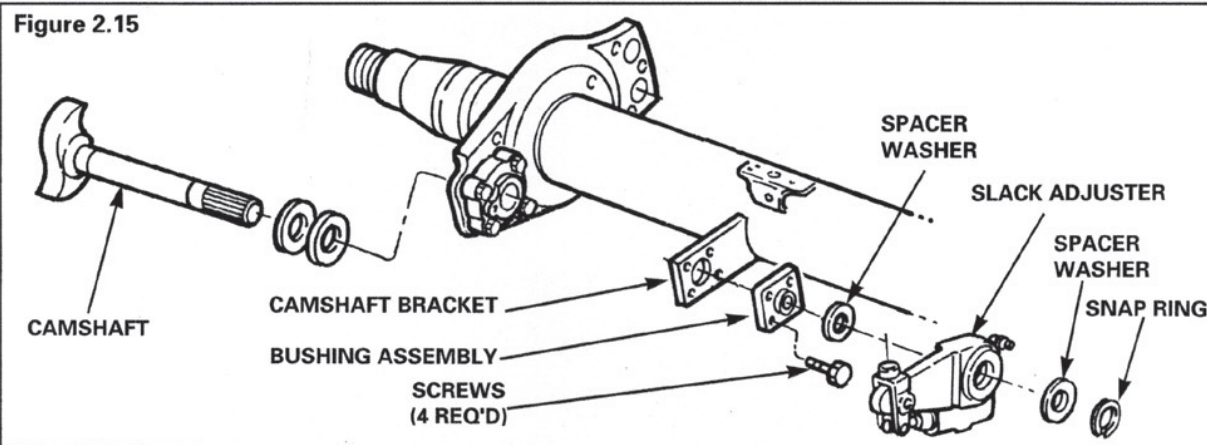
6. Remove a conventional pawl or pry a pull pawl at least 1/32-inch to disengage teeth. Rotate the manual adjusting nut clockwise to move the slack adjuster away from the clevis. **Figure 2.14.**

**Figure 2.14**



7. Remove the snap ring, slack adjuster and spacer washers from camshaft spline. **Figure 2.15.**
8. Remove the camshaft and camshaft bushings as detailed in "Cam Brakes" section of this manual.

**Figure 2.15**







## Section 3 Clean and Inspect Parts

### ⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform maintenance or service.

### ⚠ WARNING

Solvent cleaners can be flammable, poisonous and cause burns. Examples of solvent cleaners are carbon tetrachloride, emulsion-type cleaners and petroleum-base cleaners. To avoid serious personal injury when you use solvent cleaners, you must carefully follow the manufacturer's product instructions and these procedures:

- Wear safe eye protection.
- Wear clothing that protects your skin.
- Work in a well-ventilated area.
- Do not use gasoline or solvents that contain gasoline. Gasoline can explode.
- You must use hot solution tanks or alkaline solutions correctly. Carefully follow the manufacturer's instructions.

### Steam Clean Axle Assembly

Steam clean a complete axle assembly to remove heavy dirt.

- **Before steam cleaning the assembly:** Cover all axle assembly openings, such as vents in hubcaps and air chambers, to help keep water out of these openings during high-pressure steam cleaning.
- **After steam cleaning the assembly:** Grease camshaft bushings and automatic slack adjusters until new grease flows from these parts. The grease will help to remove water that may have entered the parts during steam cleaning.

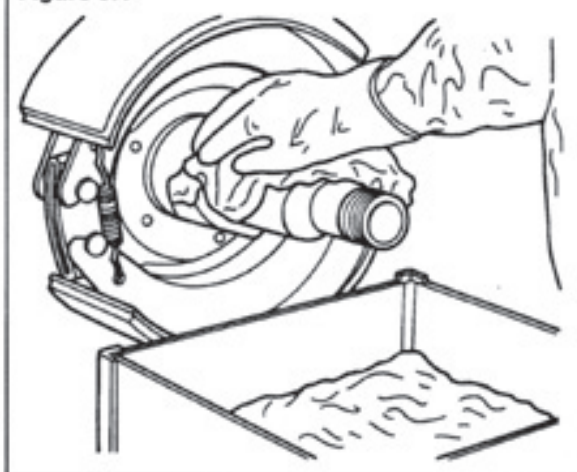
### Clean Smooth Parts

#### ⚠ CAUTION

Use only solvent cleaners on metal parts. Do not use hot solution tanks or water and alkaline solutions to clean ground or polished parts. Damage to parts will result.

1. Use a solvent cleaner to clean machined parts and surfaces, such as axle spindles and camshaft journals. Do not use a hot solution tank with water, steam or alkaline solutions. This will cause corrosion. **Figure 3.1.**

Figure 3.1



2. Remove gasket material from parts such as the hubcap gasket mounting face. Be careful not to damage machined surfaces.

### Clean Rough Parts

1. Rough parts can be cleaned with either solvents or in hot solution tanks with a weak alkaline solution.
2. Parts should remain in the tank until they are completely cleaned and heated. When the parts are clean, remove them from the tank, wash them with water until hot solution is removed.

## Section 3

### Clean and Inspect Parts



#### Dry Cleaned Parts

1. Dry parts immediately after cleaning using clean paper, rags or compressed air.
2. Do not use compressed air to dry bearings. This may cause small abrasive particles to contaminate the bearings and may result in reduced bearing life.

#### Prevent Corrosion

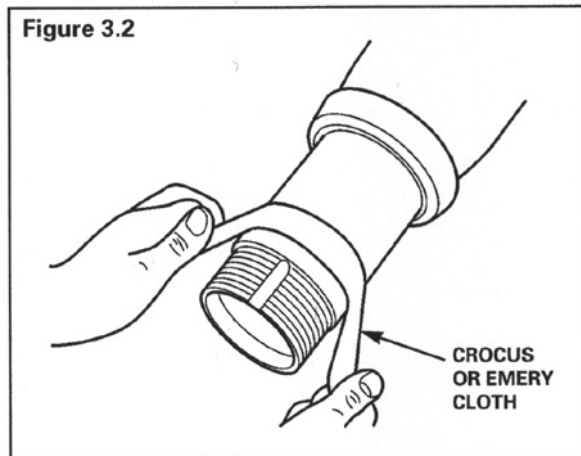
1. If parts are to be immediately assembled, apply lubricant to all machined surfaces.
2. If parts are to be stored, apply a coating that prevents corrosion to all machined surfaces.

#### Inspect Parts

It is important to inspect all axle components for damage or wear, and to repair or replace as required before assembly. Performing these procedures now can help prevent future problems.

1. Inspect all machined surfaces of the axle assembly. Repair any scratches, nicks or mars with a crocus or emery cloth. **Figure 3.2.**

**Figure 3.2**



2. Inspect axle spindle threads. Repair damaged threads with a correct sized die.
3. Inspect wheel-end retention hardware including nuts, washers and set screws. Replace if any of this equipment is worn or damaged.

4. Inspect all fasteners and tapped holes. Replace damaged fasteners and repair damaged tapped hole threads with a correct sized die.
5. Inspect entire axle assembly for cracks.
  - If a crack is found in the axle tube, brake spider or axle spindle, replace the axle.
  - If a crack is found in a weld attaching any component to the axle, and if this crack extends into axle tube, replace axle.
  - If a crack is found in a weld which attaches a vendor supplied component such as a spring seat to the axle, and if this crack is confined to the weld, it may be repaired using the guidance in the "Welding" section of this manual.
  - If a crack is found in a weld which attaches the brake spider, air chamber brackets or camshaft brackets to axle, and if the crack is confined to the weld, it may be repaired using guidance in the "Welding" section of this manual. Note that judgment must be used in this repair. These components are precisely located. If any question exists regarding whether these components can be properly located, replace axle.
6. Periodic removal of the wheel-end equipment either for maintenance or repair presents the opportunity for axle spindle inspection.

Visually inspect the spindle for cracks. If any crack is found in the spindle, immediate axle replacement is necessary. Neither in-house repair, nor repair by an outside contractor specializing in spindle welding repairs, is allowed.

Surface rust, scratches, or slight pitting on the wheel spindle bearing or seal journals may be polished or sanded out with emery or crocus cloth. Do not reduce the diameters of the journals beyond the axle manufacturer's specifications. Excessive pitting, scratches or fretting on the spindle bearing or seal journals covering more than 50 percent of the surface require axle replacement.

Spindle threads may be cleaned with a wire brush or chased with a die. Repair welding of the spindle threads is not permitted. Consult the trailer axle manufacturer if any wear is questionable.

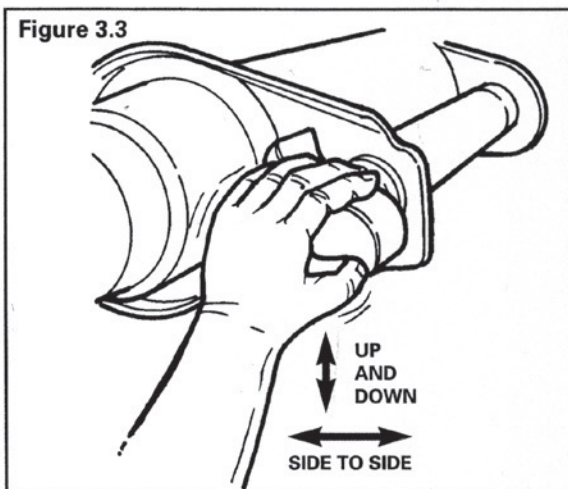




## Section 3 Clean and Inspect Parts

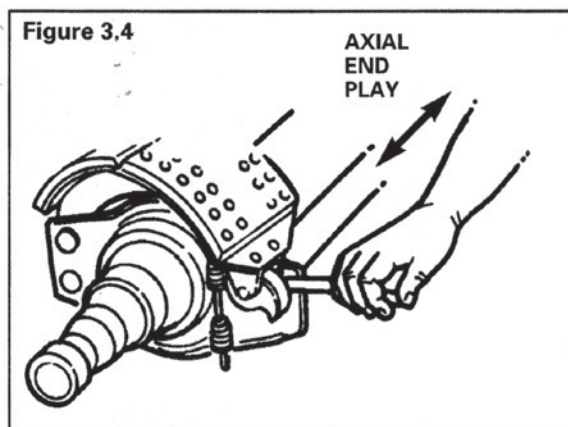
7. Inspect hub or spoke wheel. If damaged or worn, repair or replace as outlined in appropriate component manufacturer's maintenance manual.
8. Measure axle camber and toe as outlined in the "Alignment" section of this manual. If either of these parameters is out of specification, replace axle.
9. Inspect dust shields if installed. Repair or replace damaged shields as necessary.
10. Inspect brake equipment. Repair or replace damaged components. Refer to the "Service Notes" page in this publication for instructions on how to obtain the correct Meritor maintenance manual for the brake you are servicing. Follow the manufacturer's instructions for components that are not supplied by Meritor.
11. If the trailer axle is equipped with cam brakes.
  - Check the up-and-down and side-to-side end play of camshaft. If total movement is more than 0.030 inch (0.76 mm) in either direction replace bushings and/or camshaft as detailed in "Cam Brakes" section of this manual. **Figure 3.3.**

Figure 3.3



- Check the axial end play of the camshaft. If total movement is more than 0.060 inch (1.52 mm), replace the bushings or camshaft or both as specified in the "Cam Brakes" section of this manual. **Figure 3.4.**

Figure 3.4



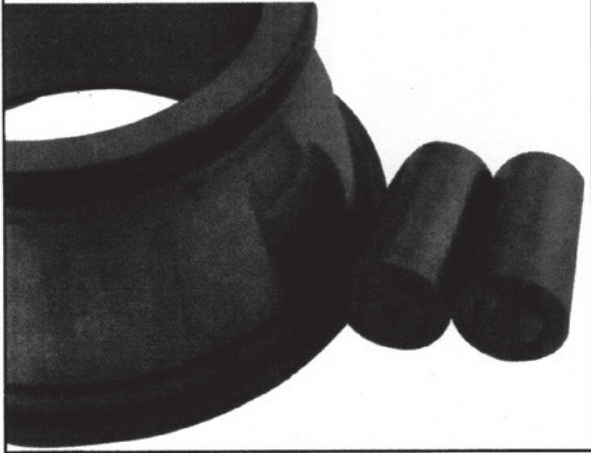
12. Inspect bearings using guidelines detailed below and/or literature published by bearing manufacturers.
  - If any of the conditions shown exist, replace bearings.
  - If there is a question as to whether any of these conditions exist, it makes sense to replace bearings, since bearing costs are small compared to the potential cost of a breakdown.
  - In many instances conditions shown are the result of problems such as debris or water contaminating lubricant, improper bearing adjustment, or inadequate lubricant. If causes of these problems are not eliminated, the problems will persist.

## Section 3 Clean and Inspect Parts



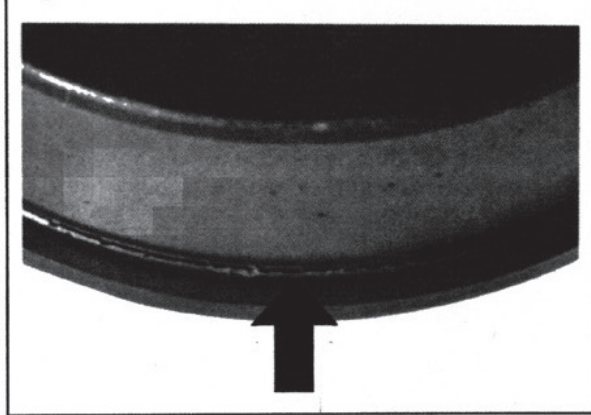
- a. The roller ends are worn. **Figure 3.5.**

**Figure 3.5**



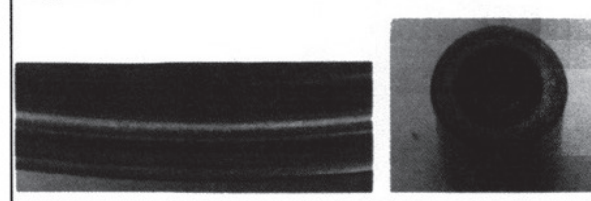
- b. The rib is worn. **Figure 3.6.**

**Figure 3.6**

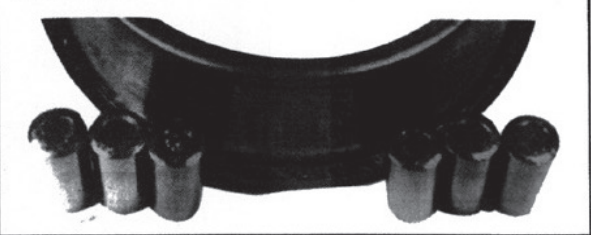


- c. The roller ends and the ribs are scored. **Figures 3.7 and 3.8.**

**Figure 3.7**



**Figure 3.8**



- d. The roller cage is damaged. **Figures 3.9 and 3.10.**

**Figure 3.9**



**Figure 3.10**



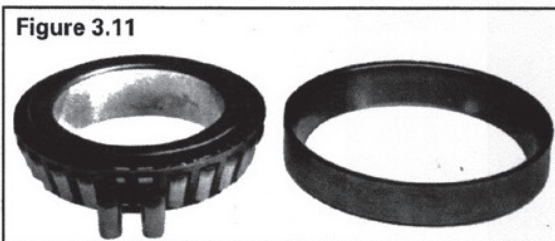




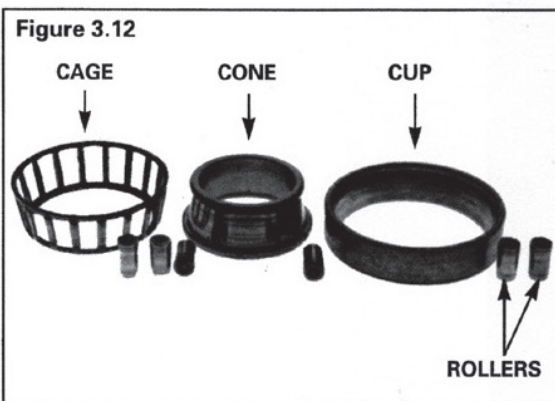
## Section 3 Clean and Inspect Parts

- e. The bearing is discolored. **Figure 3.11.**
- f. The cage, cup, cone or rollers are grooved. **Figure 3.12.**
- g. The races and/or rollers are bruised with deep indentations. **Figure 3.13.**

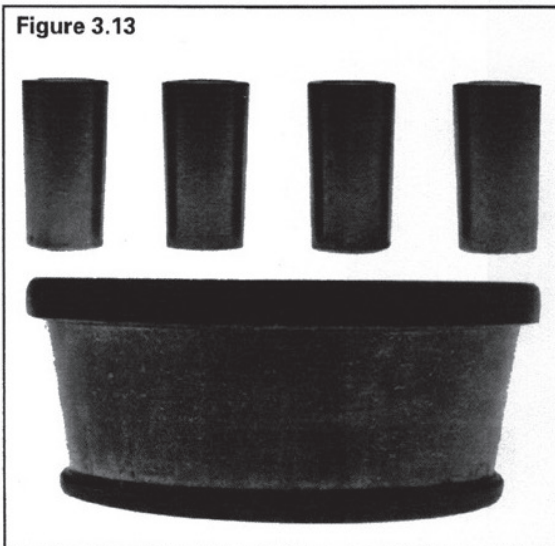
**Figure 3.11**



**Figure 3.12**

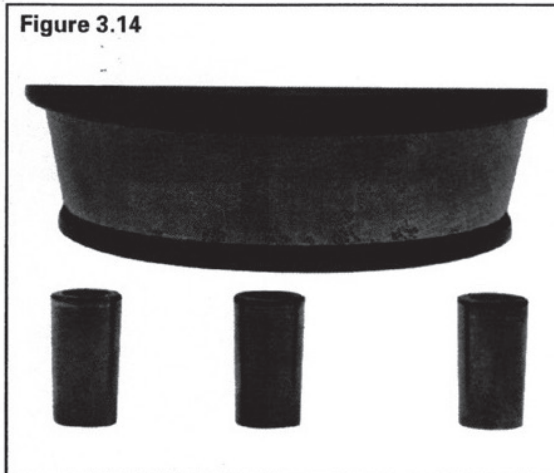


**Figure 3.13**

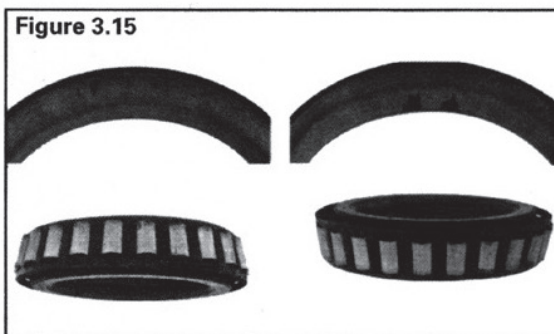


- h. The races or the rollers are etched. **Figure 3.14.**
- i. The races or the rollers are spalled. **Figures 3.15 and 3.16.**

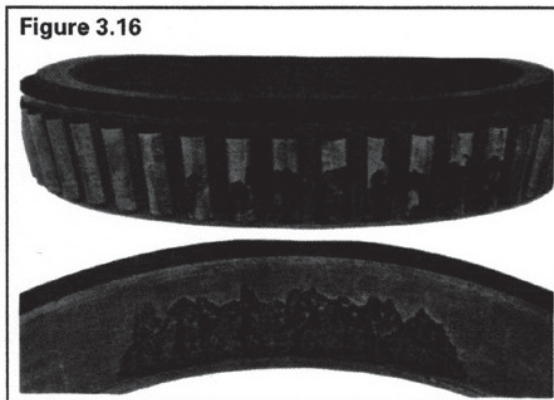
**Figure 3.14**



**Figure 3.15**



**Figure 3.16**





## Section 4 Assembly

### Install Brakes

#### ⚠ WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

#### ⚠ ASBESTOS AND NON-ASBESTOS FIBERS WARNING

Some brake linings contain asbestos fibers, a cancer and lung disease hazard. Some brake linings contain non-asbestos fibers, whose long-term effects to health are unknown. You must use caution when you handle both asbestos and non-asbestos materials.

For complete information on Meritor brakes, refer to the manuals listed on the Service Notes page in this publication.

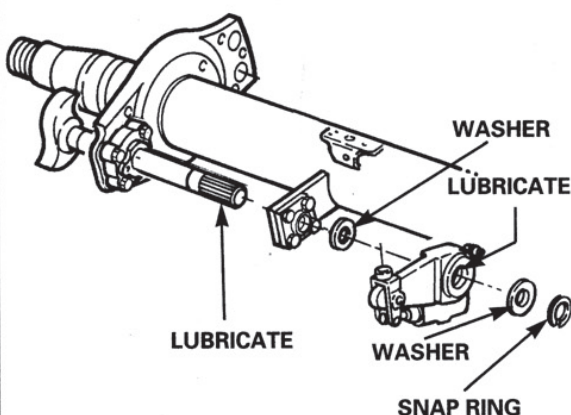
Most Meritor trailer axles are equipped with Q Series cam brakes. This section therefore details procedures for installing this brake. For information on lubricants specified, see the "Lubrication" section of this manual.

1. Install camshaft and camshaft bushings as detailed in the "Cam Brakes" section of this manual.

**NOTE:** Only one washer is needed on each side of slack adjuster.

2. Lubricate camshaft and slack adjuster splines with anti-seize compound. Install the slack adjuster, washers and snap ring. **Figure 4.1.**

Figure 4.1

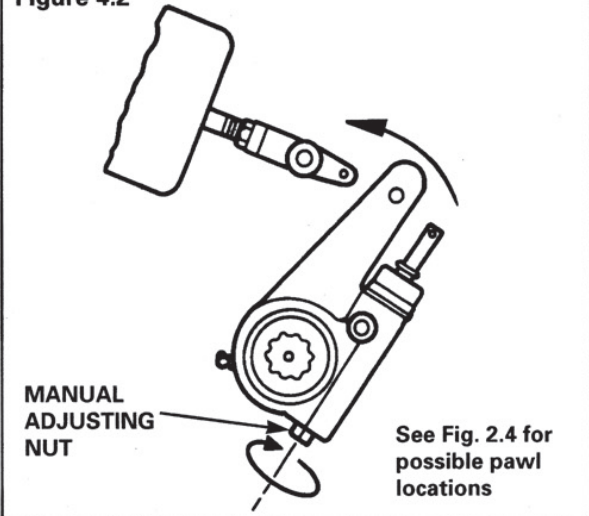


#### ⚠ CAUTION

You must disengage the pawl before rotating the manual adjusting nut, or you will damage the pawl teeth. A damaged pawl will not allow the slack adjuster to automatically adjust the brake clearance. Replace damaged pawls before returning the vehicle to service.

3. Rotate slack adjuster manual adjusting nut clockwise to align holes in slack with holes in push rod clevis. **Figure 4.2.**

Figure 4.2



**NOTE:** Do not reuse cotter pins. Replace used cotter pins with clevis pin retainer clips.

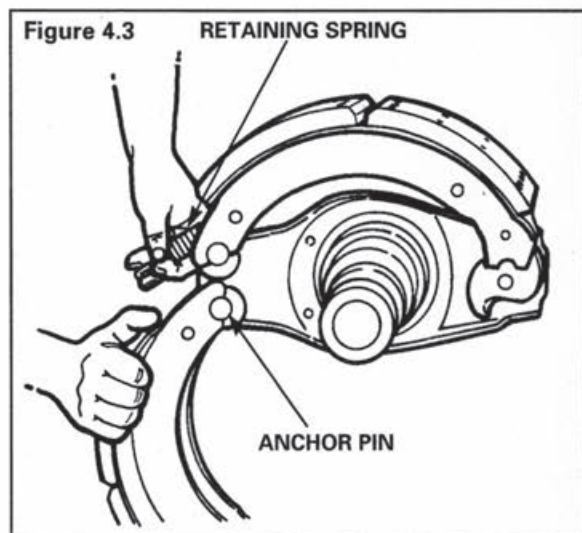
4. Lubricate both slack adjuster clevis pins with anti-seize compound, then install through holes in clevis and slack. Secure in place with clevis pin retainer clips.



## Section 4 Assembly

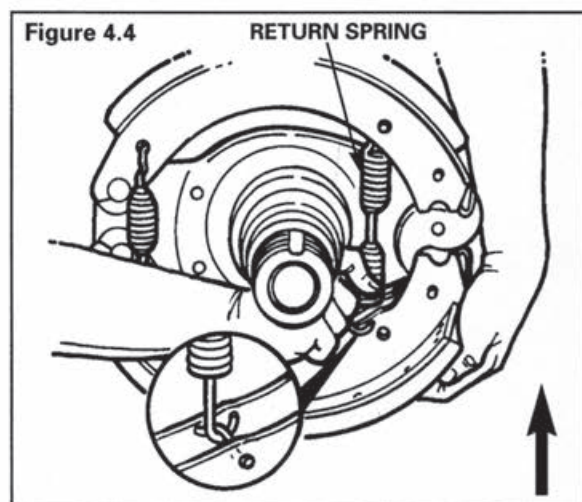


5. Lubricate anchor pins with Meritor specification O-616-A grease where brake shoes touch them. Put upper shoe in position on top anchor pin. Hold lower brake shoe on bottom anchor pin and install two new brake shoe retaining springs. **Figure 4.3.**



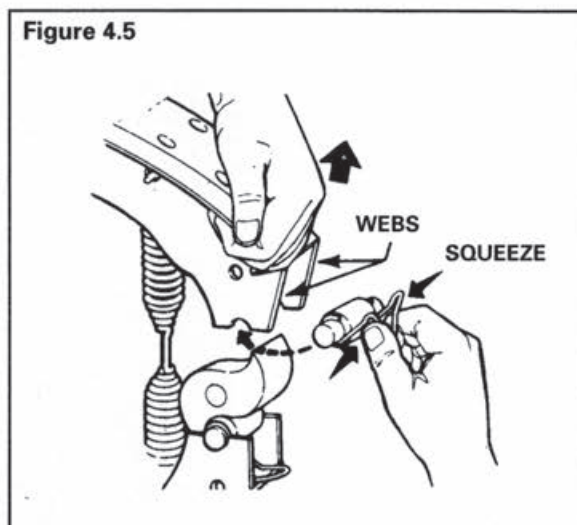
**NOTE:** You can remove a standard return spring by hand, if one is installed. If a heavy duty spring is installed, you will need a tool to remove the spring.

6. Rotate lower brake shoe forward to place retaining springs in tension and install a new return spring. **Figure 4.4.**

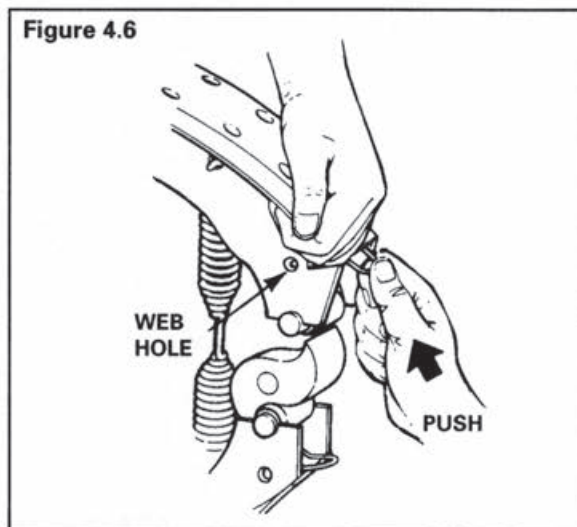


7. Lubricate cam rollers with grease where they touch brake shoe webs, making sure not to get lubricant on outer diameter of roller that touches camshaft head.
8. Pull each brake shoe away from cam permitting enough space to install cam rollers. Press ears of roller retainer clip together to fit retainer between brake shoe webs. **Figure 4.5.**
9. Push each roller retainer clip into brake shoe until its ears lock in holes in shoe webs. **Figure 4.6.**

**Figure 4.5**



**Figure 4.6**





## Section 4 Assembly

10. Lubricate camshaft bushings and slack adjusters as follows:

- Wipe off grease fittings to prevent contamination from being injected into the joints along with grease.
- Grease camshaft bushings until **new** grease flows from seals. If cam bushing seals at spider end of cam are installed correctly, grease will flow out toward slack adjuster.
- Grease slack adjuster until **new** grease flows from around inboard splines and from pawl assembly.
- Wipe away excess grease which purges from joints. This helps insure that road dirt is not attracted to the lube point and that grease does not drop onto either brake linings or road surface.

**NOTE:** Use grease on axle spindle bearing journals. Do not use oil.

2. Coat bearing cones with oil and apply a light film of **grease** to axle spindle bearing journals to help protect them from fretting corrosion.

**NOTE:** Seal design and installation procedures vary. Contact the seal manufacturer for specific installation instructions.

### **WARNING**

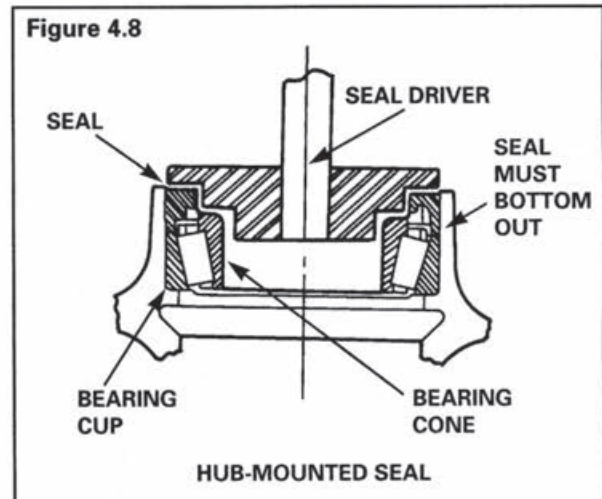
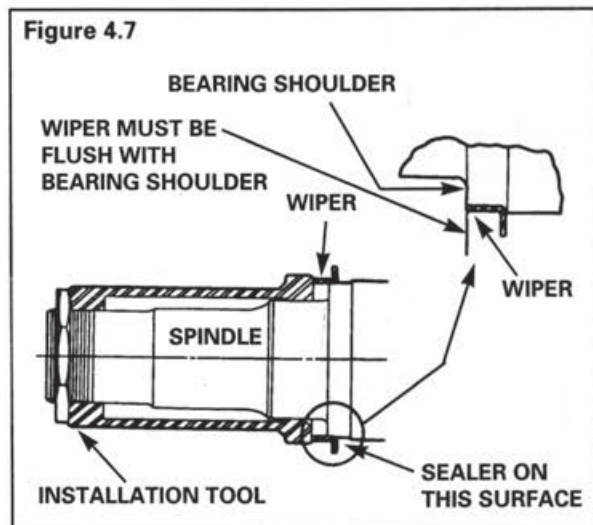
*Use a brass or leather mallet for assembly and disassembly procedures. Do not hit steel parts with a steel hammer. Pieces of a part can break off and cause serious personal injury.*

3. Install seal and inner bearing cone as follows.

- a. **Hub-Mounted Seal** – Install inner bearing cone inside hub. Lubricate seal per seal manufacturer's recommendations, then place it on the installation tool. Align tool with hub seal bore and drive seal until it bottoms out in hub seal bore. Rotate tool and apply several light blows to insure seal is properly seated. Check bearing to be sure it rotates freely. **Figure 4.8.**

## Install Wheel-Ends

1. If seal incorporates a separate wiper, apply a thin coat of sealant around the axle oil seal collar, then using an installation tool, drive wiper onto oil seal collar until its edge is flush with bearing shoulder. **Figure 4.7.**





## Section 4 Assembly



- b. **Spindle-Mounted Seal** – Lubricate seal per seal manufacturer's recommendations, then place it on axle oil seal collar. Place installation tool over spindle and drive seal until it is flush with bearing shoulder. Rotate tool and apply several light blows to insure seal is properly seated. **Figure 4.9.**
- c. Install inner bearing cone onto spindle. If it becomes misaligned, lightly tap the rough part of axle tube with a hammer to set up vibrations which will help realign it on spindle and ease installation. **Figure 4.10.**

Figure 4.9 Spindle-Mounted Seal

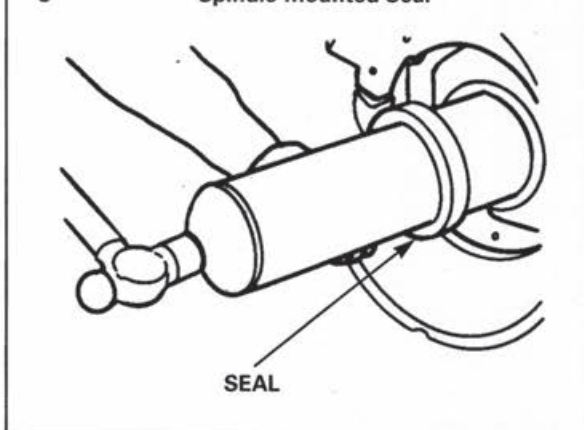
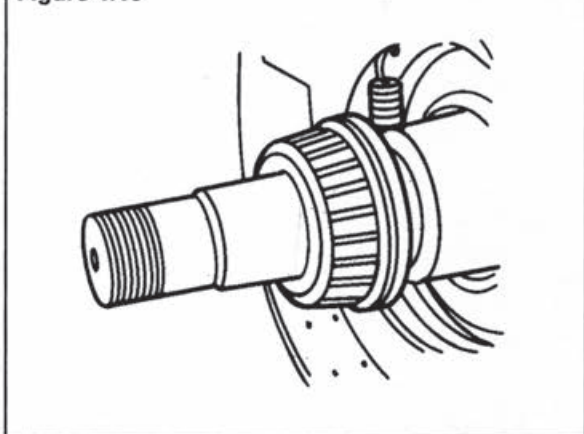
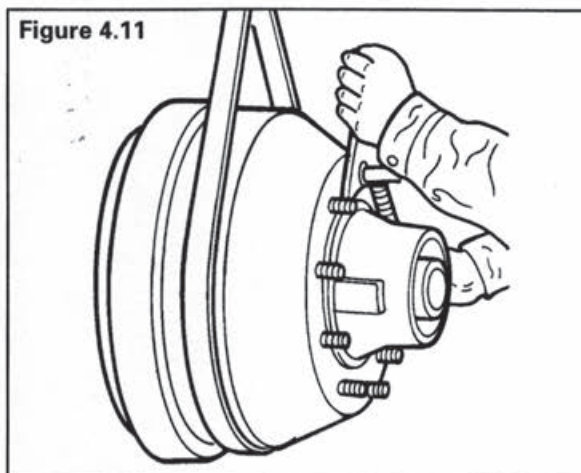


Figure 4.10



4. Support hub and drum assembly using a sling or other appropriate method. Failure to do so may result in damage to spindle threads and/or seal. **Figure 4.11.**

Figure 4.11



### **! CAUTION**

*When you tighten the spindle nuts, the hub and drum assembly will seat to the correct position. Do not try to completely seat the hub and drum assembly by hand. Damage to components can result.*

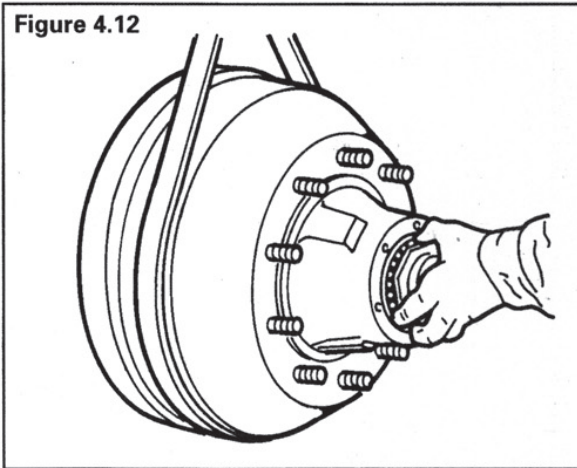
5. Install hub and drum assembly as follows.
  - a. **Spindle-Mounted Seal** – Align hub bore with spindle and push the assembly into position until bearing cone on spindle fits into bearing cup in hub. The brake drum will help maintain alignment of assembly during this operation.
  - b. **Hub-Mounted Seal** – Align hub bore with spindle and push assembly into position until bearing cone in hub bottoms out against oil seal collar. The bearing cone in hub will help maintain alignment of assembly during this operation.



## Section 4 Assembly

6. Install outer bearing cone then tighten adjusting nut until it is snug against outer bearing cone. Remove hub support so hub rests on bearings. **Figure 4.12.**

Figure 4.12




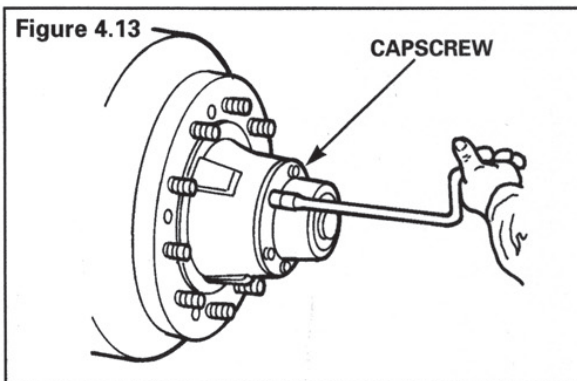
7. Adjust bearings as specified in "Manual Bearing Adjustment" section of this manual.
8. Install hubcap by tightening capscrews to 10-15 lb-ft (13-20 N•m) in a criss-cross pattern. Use a new hubcap gasket. **Figure 4.13.** 

Figure 4.13

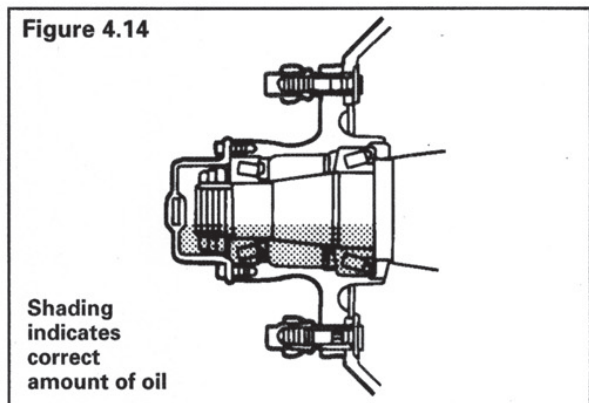


### CAUTION

*Add wheel-end lubricant only to the hubcap fill line. Do not overfill the hubcap. Wipe off excess lubricant, which can contaminate brake linings and cause reduced brake performance. Damage to components can result.*

9. Fill wheel end with oil to hubcap fill line. Note that the oil must be given sufficient time to settle prior to the final check of oil level. This is especially important in cold conditions. Install hubcap plug, making sure vent hole, if present, is not clogged with debris. **Figure 4.14.**

Figure 4.14



10. Install tire and wheel assembly using procedures specified by wheel manufacturer.
11. Remove jack stands and lower vehicle.
12. Adjust brakes using procedures detailed in Meritor Maintenance Manual No. 4, *Cam Brakes*.

### WARNING

*When you work on a brake that has spring chambers, carefully follow the service instructions of the chamber manufacturer. Sudden release of a compressed spring can cause serious personal injury.*

13. If axle is equipped with spring brake chambers, carefully release springs.



## Section 9 Manual Bearing Adjustment



### **WARNING**

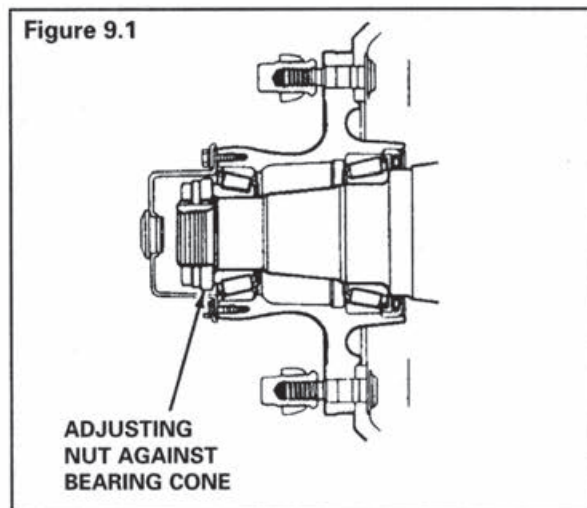
*To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.*

### Manual Bearing Adjustment

**NOTE:** An end play adjustment of 0.001-0.005 inch (0.025-0.127 mm) is preferable to an end play adjustment of 0.006-0.010 inch (0.152-0.25 mm).

1. **Manual bearing adjustment** is the current production standard. The goal of this procedure is to obtain a wheel bearing end play of between 0.001 and 0.010 inch. This is achieved by first tightening the adjusting nut against the bearing cone, then backing it off a prescribed amount. **Figure 9.1.**

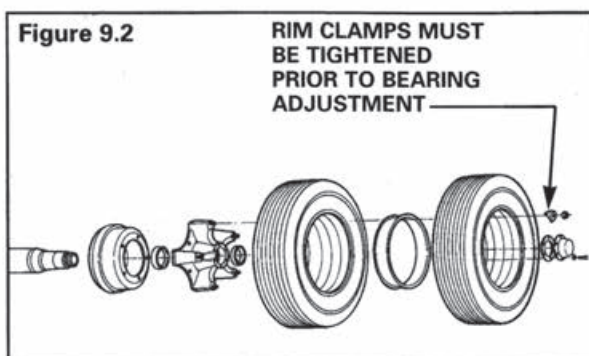
**Figure 9.1**



2. To help insure that a proper bearing adjustment can be achieved, be sure to do the following prior to performing this adjustment:
  - Release the brakes.
  - Inspect the wheel-end equipment, especially the axle and wheel retention hardware threads.
  - Repair or replace any damaged parts as detailed in the "Clean and Inspect Parts" section of this manual.
3. Wheel-end components can wear, causing correctly adjusted bearings to loosen. Wheel bearing end play should therefore be periodically checked and re-adjusted if necessary.

4. The procedures detailed in this section apply to both grease and oil lubricated wheel-ends.
5. When installing spoke wheels on Meritor trailer axles, Meritor requires that the wheel rim clamps be tightened prior to adjusting wheel bearings. This helps eliminate excessive bearing and spindle stresses resulting from wheel clamping pressures. **Figure 9.2.**

**Figure 9.2**



Note that this only applies when the entire wheel-end is disassembled. If only the rim clamps are removed as is necessary when replacing a flat tire, a new bearing adjustment is not necessary if rim clamp fasteners are retightened in the correct sequence and with the correct torque.

6. Meritor Video #89158 detailing wheel bearing adjustment procedures is available from Meritor publications. To order this publication, call Meritor's Customer Service Center at 800-535-5560.



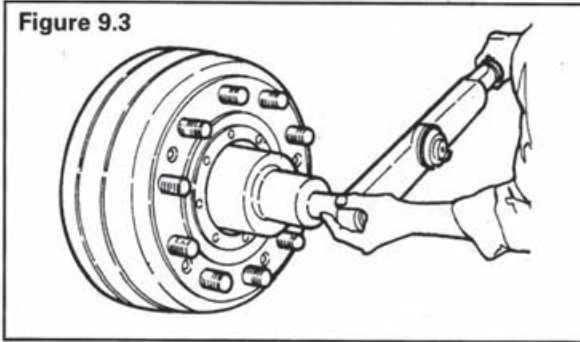
## Section 9 Manual Bearing Adjustment

### ⚠ WARNING

Use the correct sockets when you remove and install axle spindle nuts. Do not try to remove spindle nuts by striking them with a hammer or by striking a chisel or other tool that has been placed against the spindle nuts to loosen them. Loss of wheel-end components, serious personal injury and damage to components can result.

7. Use the correct size socket to remove or install spindle nuts. **Figure 9.3.**

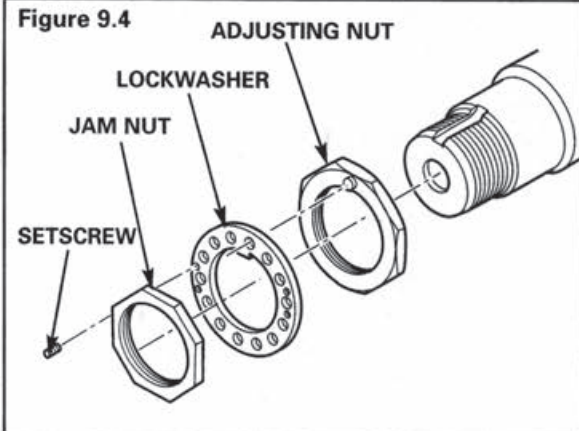
**Figure 9.3**



### Adjustment Procedure – Double Nut

The most common version of the double nut design consists of an adjusting nut, lockwasher, jam nut and setscrew. **Figure 9.4.**

**Figure 9.4**



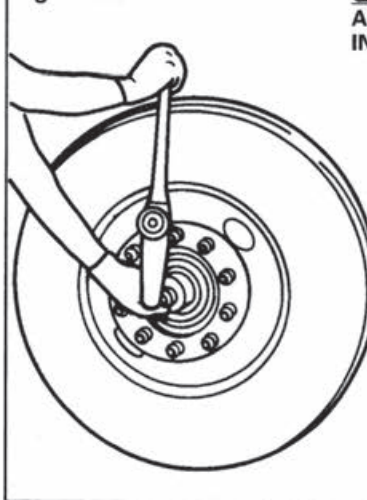
Other versions of the double nut design are either currently available or were available in the past.

- a. A washer was installed before the adjusting nut on an earlier version of the **manual adjust** TP axle model.
- b. A setscrew was not used on an earlier **manual adjust** TP axle model.
- c. A bendable tab lockwasher rather than a setscrew is used on the current production TR axle model.

Use the following procedure to adjust the wheel bearings.

1. Install adjusting nut so that pin on nut faces away from wheel-end equipment. Tighten nut to 100 lb-ft (136 N•m) torque while rotating wheel-end in both directions. **Figure 9.5.**

**Figure 9.5**



#### QUICK REFERENCE ADJUSTING NUT INSTALLATION

1. TIGHTEN NUT TO 100 LB-FT (136 N•m). ⚙
2. LOOSEN NUT COMPLETELY THEN TIGHTEN NUT TO 50 LB-FT (68 N•m). ⚙
3. LOOSEN NUT 1/4 TURN.

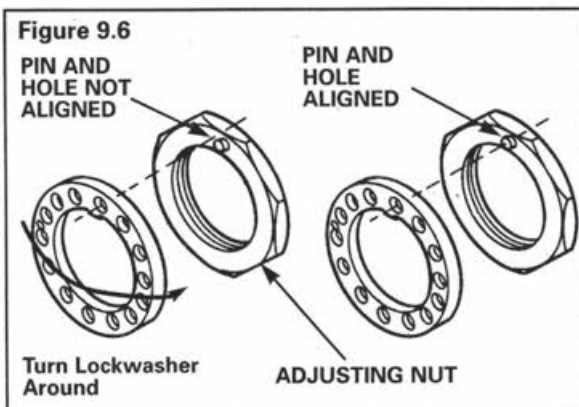
2. Completely loosen the nut, then tighten it to 50 lb-ft (68 N•m) while rotating the wheel end. ⚙
3. Loosen the nut 1/4 turn. Do not include socket backlash in the 1/4 turn.



## Section 9 Manual Bearing Adjustment



4. Install the lockwasher. If the hole in the washer is not aligned with the adjusting nut pin, remove the washer, turn it around and reinstall. The pin and hole should now be aligned. If not, slightly adjust the parts to align them. **Figure 9.6.**



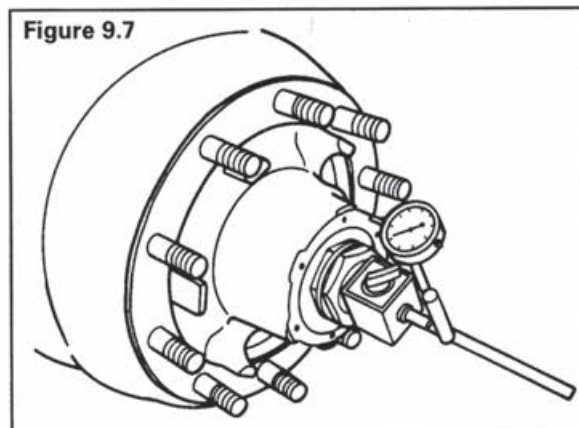
5. Install the jam nut and tighten the nut to 250-300 lb-ft (340-408 N•m). **T**



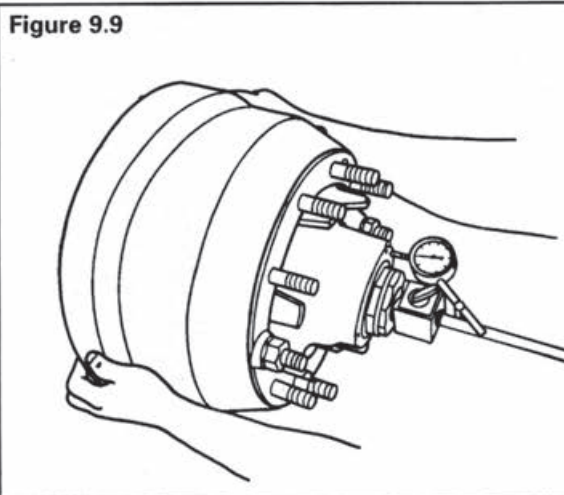
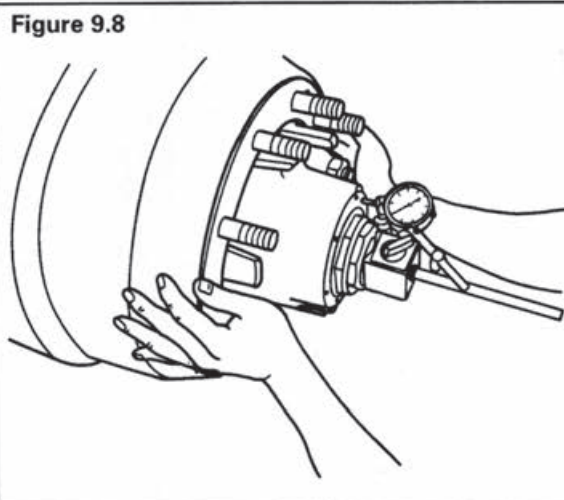
### CAUTION

*Too loose an adjustment will reduce bearing life, increase spindle wear and cause seal leaks. Too tight an adjustment will reduce bearing life and increase spindle wear. Extremely tight adjustments can cause complete bearing failure and possible loss of wheel-end equipment.*

6. Check the wheel bearing end play as follows:
  - a. Attach the magnetic base of a dial indicator to spindle. Touch dial indicator stem to hubcap gasket face. **Figure 9.7.**



- b. Slightly rotate wheel-end in both directions while pushing inward until dial indicator does not change. Set the dial indicator to zero. **Figure 9.8.**
- c. Slightly rotate wheel-end in both directions while pulling outward until dial indicator does not change. **Figure 9.9.**
- d. End play is the difference between the two readings.





## Section 9 Manual Bearing Adjustment

### **! WARNING**

*You must adjust wheel bearing end play to within a 0.001-0.010 inch (0.025-0.25 mm) specification. An adjustment that is too loose will reduce wheel-end bearing life, increase spindle wear and cause seal leakage. An adjustment that is too tight can affect wheel-end bearing performance. Loss of wheel-end components, serious personal injury and damage to components can result.*

**NOTE:** An end play adjustment of 0.001-0.005 inch (0.025-0.127 mm) is preferable to an end play adjustment of 0.006-0.010 inch (0.152-0.25 mm).

7. If end play falls between 0.001 and 0.010 inch go to step 8.

If end play does not meet this requirement:

- Remove jam nut and lockwasher.
  - Tighten or loosen adjusting nut as required to achieve proper end play.
  - Install lockwasher.
  - Tighten jam nut to 250-300 lb-ft (339-407 N•m). **1**
  - Check end play.
  - Continue to adjust until end play meets standard. Then go to step 8.
8. Using an Allen wrench, tighten setscrew into lockwasher until it is seated. (Figure 9.10) If the axle is fitted with the bendable tab lockwasher, bend two tabs over opposite flats of the jam nut. Figure 9.11.

Figure 9.10

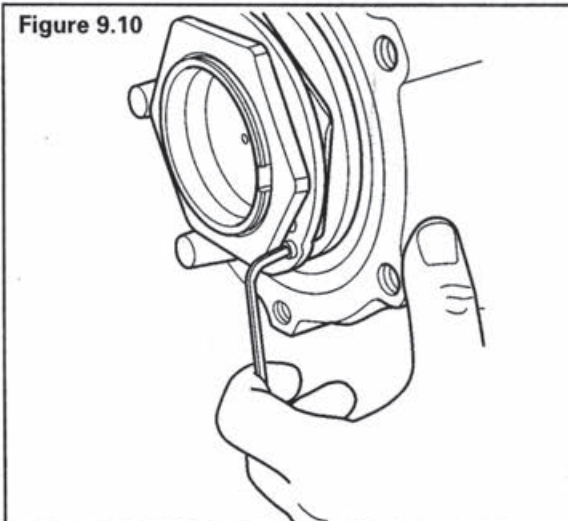
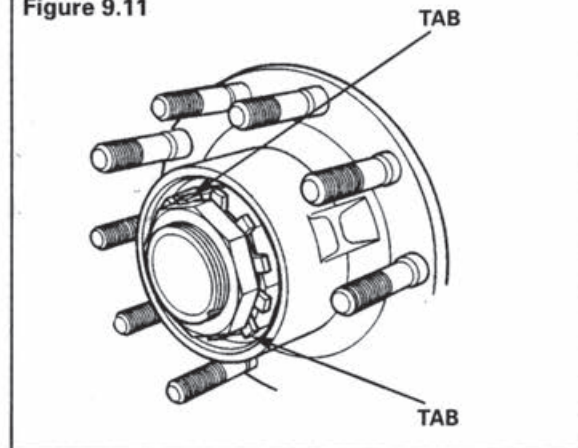


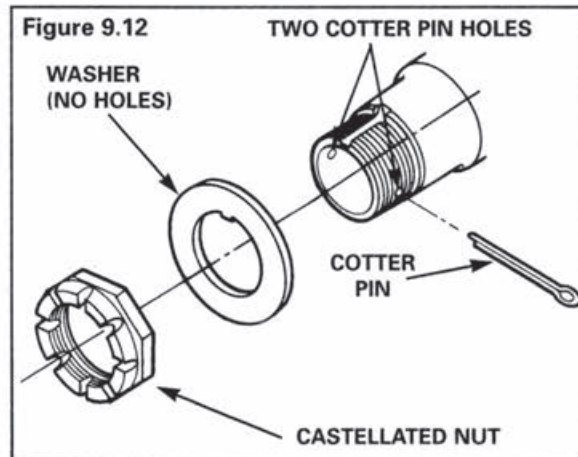
Figure 9.11



### Adjustment Procedure – Single Nut

The Meritor single nut model consisting of a washer, castellated nut and cotter pin is no longer in production. It was available on manual adjust TP model axles. Figure 9.12.

Figure 9.12





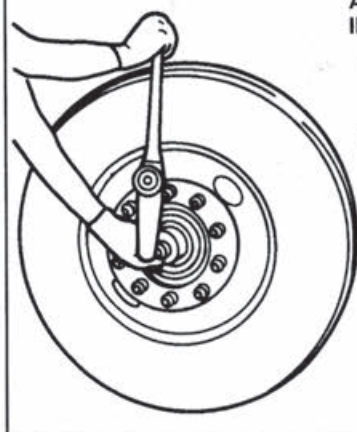
## Section 9 Manual Bearing Adjustment



Use the following procedure to adjust the wheel bearings.

1. Install washer and castellated nut. Tighten nut to 100 lb-ft (136 N•m) while rotating wheel-end in both directions. Figure 9.13.

Figure 9.13



### QUICK REFERENCE ADJUSTING NUT INSTALLATION

1. TIGHTEN NUT TO 100 LB-FT (136 N•m).
2. LOOSEN NUT COMPLETELY. THEN TIGHTEN NUT TO 50 LB-FT (68 N•m).
3. LOOSEN NUT 1/8 to 1/6 TURN.

2. Completely loosen nut, then tighten to 50 lb-ft (68 N•m) while rotating the wheel-end in both directions.
3. Loosen the nut 1/8 to 1/6 turn. Do not include socket backlash in the 1/8 to 1/6 turn.

### CAUTION

*Always replace used cotter pins with new ones when servicing the axle spindle. Do not reuse cotter pins after removing them. Discard used cotter pins. When removed for maintenance or service, cotter pins can be bent or "gapped apart" and can lose retention. Damage to components can result.*

4. Install a new cotter pin in axle spindle hole, but do not bend.

### WARNING

*You must adjust wheel bearing end play to within a 0.001-0.010 inch (0.025-0.25 mm) specification. An adjustment that is too loose will reduce wheel-end bearing life, increase spindle wear and cause seal leakage. An adjustment that is too tight can affect wheel-end bearing performance. Loss of wheel-end components, serious personal injury and damage to components can result.*

**NOTE:** An end play adjustment of 0.001-0.005 inch (0.025-0.127 mm) is preferable to an end play adjustment of 0.006-0.010 inch (0.152-0.25 mm).

5. Check end play using procedure detailed in this section. If end play falls between 0.001 and 0.010 inch go to step 6.

If end play does not meet this requirement:

- Remove cotter pin.
- Tighten or loosen castellated nut as required to achieve proper end play.
- Install cotter pin.
- Check end play.
- Continue to adjust until end play meets standard. Then go to step 6.

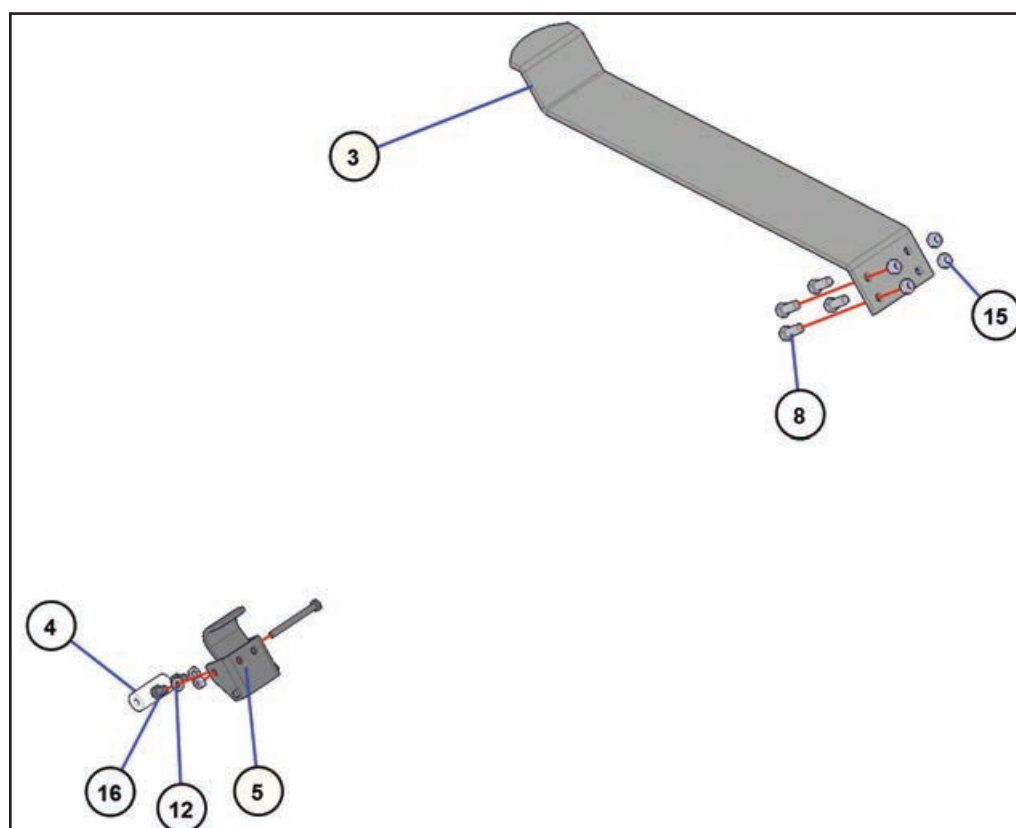
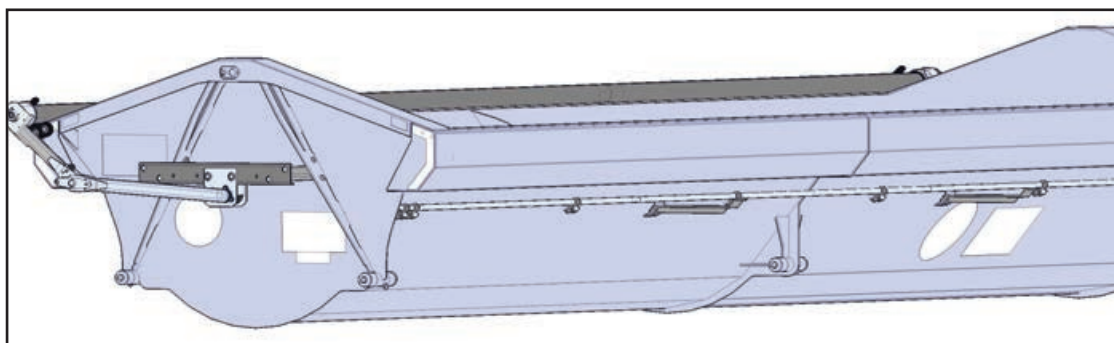
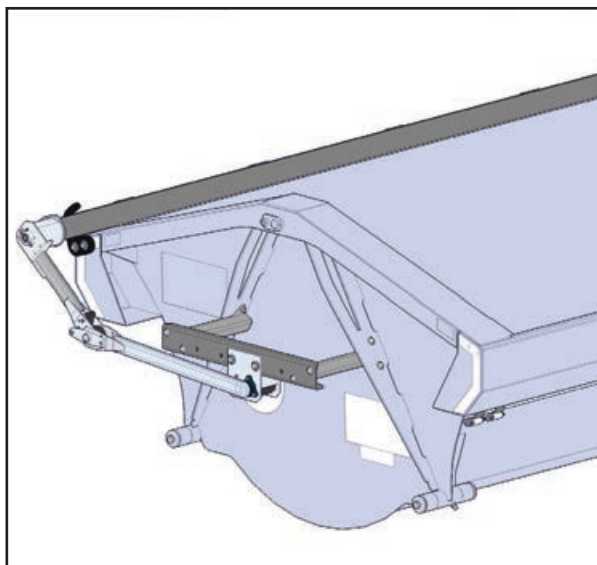
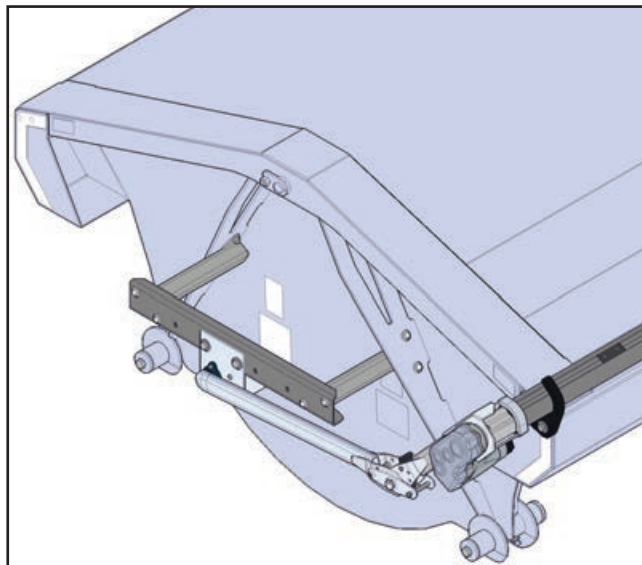
### CAUTION

*When you install a new cotter pin into the axle spindle hole, only bend one leg of the pin 90 degrees. If you bend both cotter pin legs in the same direction, the cotter pin can fall out of the spindle. Damage to components can result.*

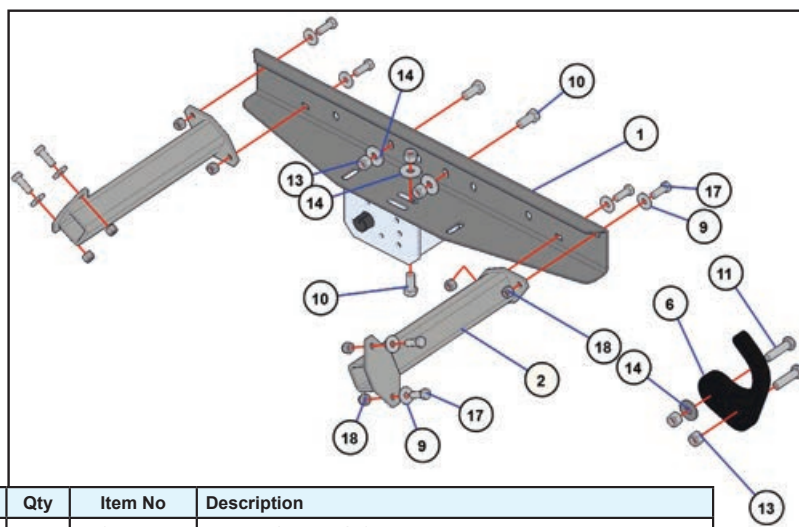
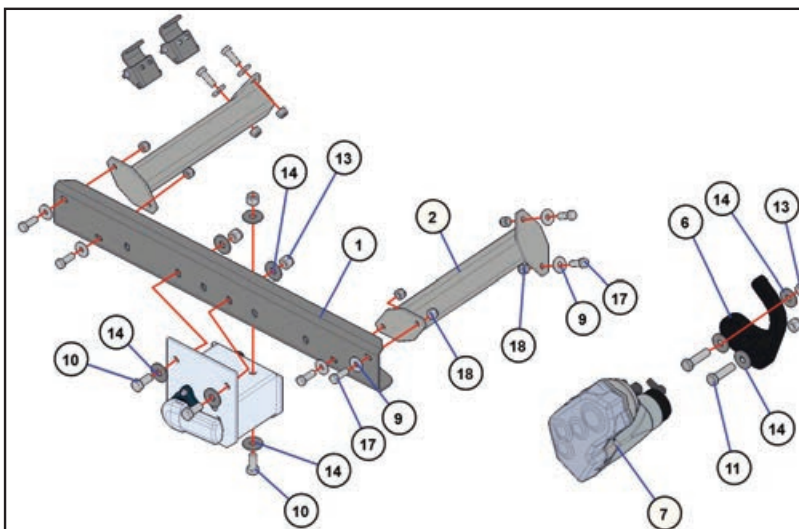
6. Bend one leg of the cotter pin 90 degrees. Do not bend both legs. If both legs are bent in the same direction the cotter pin could fall out.

## Conversion – Single to Double Nut

The single nut design can be converted to the double nut by simply removing the single nut equipment and replacing with the correct double nut equipment. Conversions in the other direction are not recommended since axle will not have a hole for the cotter pin.







BOM ID	Qty	Item No	Description
1	2	3CAM9037	TARP MOUNTING CHANNEL
2	4	5CAM9038	TARP CHANNEL MOUNT
3	2	5CAM9072	BRACKET, TARP SUPPORT
4	8	1AUAM9073	SPACER, TARP MOUNTING, 7/8" OD X 11/32" ID X 2" OAL
5	8	1AZAP4108	TARP ROD CLAMP
6	2	1AZAP4152	TARP SPOOL HOOK, PLASTIC, ROLL RITE AND AERO 36840
7	1	1AZAP4293	MOTOR, ROLL RITE TARP, 10200
8	8	1AFBP3006	HEX CAP SCREW, 3/8"-16 X 1", GRADE 5, PLATED
9	16	1AFBP3050	WASHER, FLAT, 1/2", PLATED
10	6	1AFBP3097	HEX CAP SCREW, 5/8"-11 X 1-1/2", GRADE 5, PLATED
11	4	BP3133	HEX CAP SCREW, 5/8"-11 X 2-1/2", GRADE 5, PLATED
12	16	1AFBP3158	WASHER, LOCK, 5/16", PLATED
13	10	1AFBP3375	NUT, HEX LOCK, 5/8"-11, NYLOCK
14	18	1AFBP3524	WASHER, FLAT, 5/8", PLATED
15	8	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
16	16	1AFBP3657	HEX CAP SCREW, 5/16"-18 X 1/2", GRADE 5, PLATED
17	16	1AFBP3674	HEX CAP SCREW, 1/2"-13 X 1-1/2" GRADE 8, PLATED
18	16	1AFBP3704	NUT, LOCK, NYLON INSERT, 1/2"-13

**FOR USE ON  
TRAILERS WITH  
STANDARD  
HYDRAULICS**

**4CFK2014 KIT, CR, ROLL RITE TARP, CONTROL BOX FOR 2ND TRACTOR**

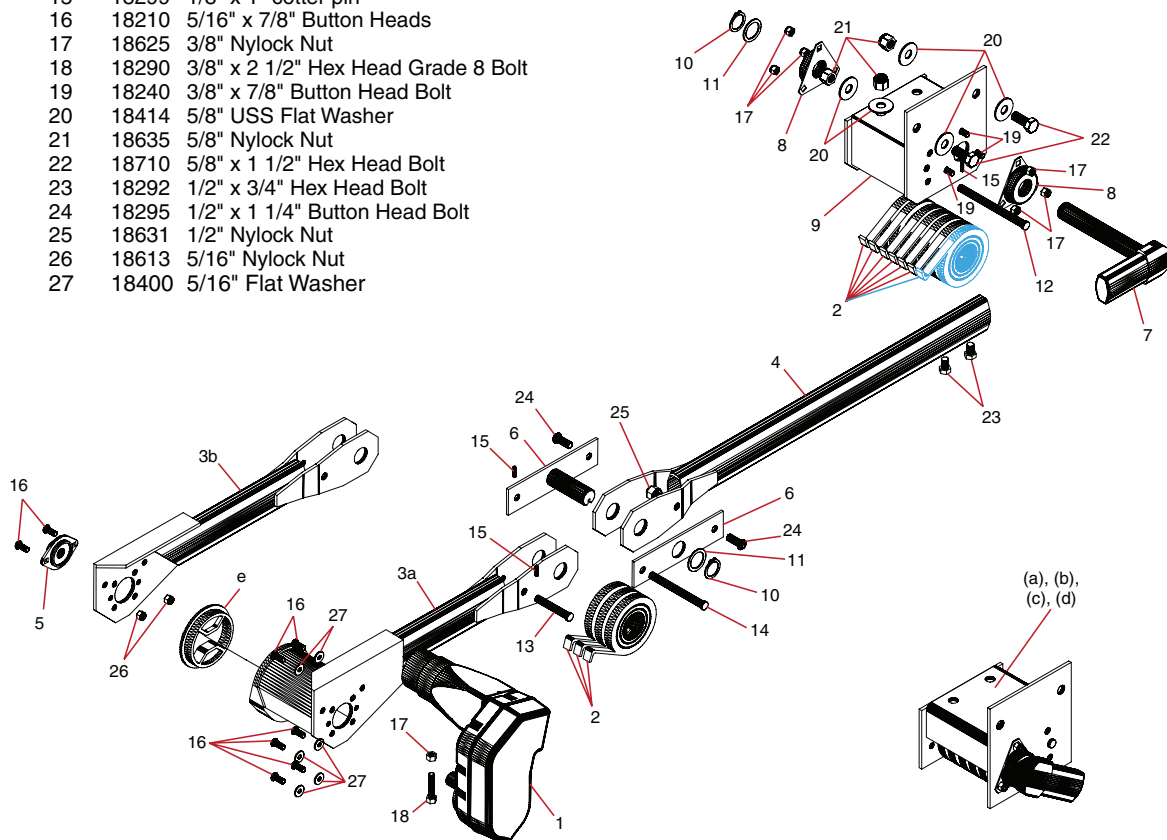
- |              |     |  |
|--------------|-----|--|
| 1. 1AZAP4235 | (1) | Plug, 2 Pin, Male, Cole Hersee, Tarp           |
| 2. 1AZAP4294 | (1) | Tarp Control Electric Kit, Roll Rite 10800     |
| 3. 1AZAP4295 | (1) | Tarp Control Wire, 14-3 x 20', Roll Rite 11411 |
| 4. 1AZAP4296 | (1) | Tarp Motor Wire, Per Ft, Roll Rite 11330       |

## Side Dump Power Kit Parts –

Includes: 37200 & 37220 Power Kit w/ Two Under Body Mount Pivots for Side Dump Trailer

### Ref# Part# Description

(a)	46070	Assembled 6-Spring Under-Body Pivot w/o Tube (Driver Side)
(b)	46080	Assembled 6-Spring Under-Body Pivot w/o Tube (Passenger Side)
(c)	48500	Assembled 7-Spring Under-Body Pivot w/o Tube (Driver Side)
(d)	48510	Assembled 7-Spring Under-Body Pivot w/o Tube (Passenger Side)
(e)	37580	Axle Stabilizer Bushing for 4" Axle
1	10200	Gear Motor, TarpStretcher
2	47230	Spiral Torsion Spring (Fits All Roll-Rite Pivots w/ 1 1/4" Pivot Pins)
3a	46890	Upper Pivot Tube w/ Side Plates & Spool Brkts for Side-to-Side Knuckle Pivot (3 Spring Front)
3b	47890	Upper Pivot Tube w/ Side Plates & Spool Brkts for Side-to-Side Knuckle Pivot (3 Spring Back)
4	46980	Base Pivot Tube w/ Side Plates and Set Screws for Side-to-Side Knuckle Pivot (3 Spring)
5	31050	3/4" Axle Bearing w/ Flanges (Includes Mounting Bolts)
6	47960	3 Spring Knuckle Pin w/ Stop Plate for Side-to-Side Knuckle Pivots (Motor End Front or Back)
7a	47400	Pivot Pin for 8-Spring Roller Bearing Pivot (Driver Side/Front)
7b	46370	Pivot Pin for 6-Spring Roller Bearing Pivot (PassSide/Rear)
7c	47410	Pivot Pin for 8-Spring Roller Bearing Pivot (Pass Side/Rear)
7d	46360	Pivot Pin for 6-Spring Roller Bearing Pivot (Driver Side/Front)
8	47800	1 1/4" Carrier Bearing w/ Triangular Flange for Roller-Bearing Pivots
9a	47520	Bracket for 8-Spring Under-Body Pivots (Driver Side/Front)
9b	46020	Bracket for 6-Spring Under-Body Pivots (Pass. Side/Rear)
9c	47530	Bracket for 8-Spring Under-Body Pivots (Pass Side/Rear)
9d	46010	Bracket for 6-Spring Under-Body Pivots (Driver Side/Front)
10	47000	Snap Ring for Pivot Pins
11	47010	Machinery Bushing for Pivot Pins
12a	18550	1/2" x 6-5/8" Clevis Pin for 8 spring box
12b	18540	1/2" x 5-1/4" Clevis Pin for 6 spring box
13	18520	1/2" x 3-1/2" Clevis Pin
14	18530	1/2" x 4-3/8" Clevis Pin
15	18299	1/8" x 1" cotter pin
16	18210	5/16" x 7/8" Button Heads
17	18625	3/8" Nylock Nut
18	18290	3/8" x 2 1/2" Hex Head Grade 8 Bolt
19	18240	3/8" x 7/8" Button Head Bolt
20	18414	5/8" USS Flat Washer
21	18635	5/8" Nylock Nut
22	18710	5/8" x 1 1/2" Hex Head Bolt
23	18292	1/2" x 3/4" Hex Head Bolt
24	18295	1/2" x 1 1/4" Button Head Bolt
25	18631	1/2" Nylock Nut
26	18613	5/16" Nylock Nut
27	18400	5/16" Flat Washer



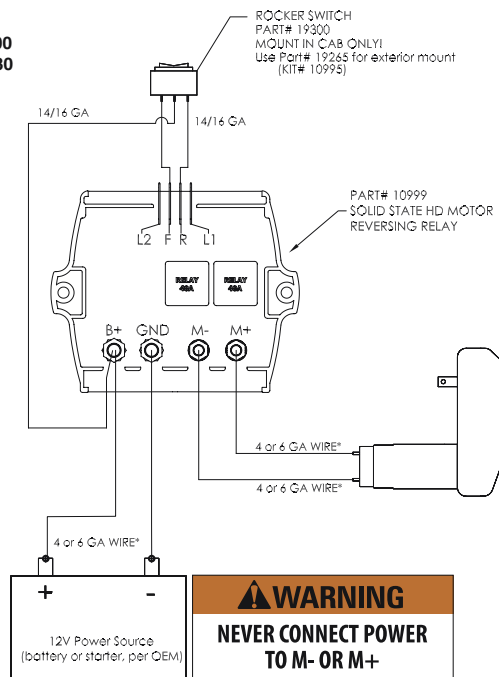
Prices are listed as each unless otherwise indicated.  
All prices subject to change without notice.

Roll-Rite® — Clearly the Best.

**1-800-297-9905**

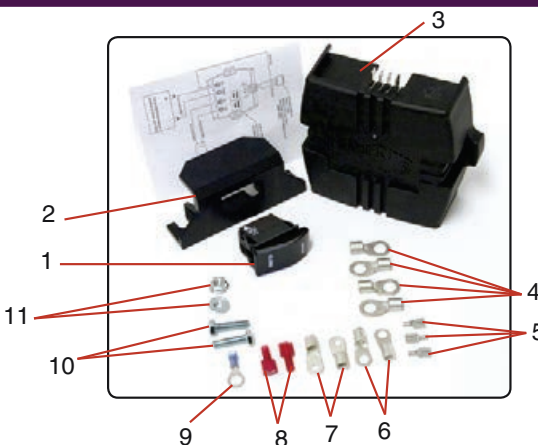
## Solid State Relay Wiring Specifications:

- Motor Reversing Relay #10999
- Momentary Rocker Switch #19300
- 6 Ga. Dual Conductor Wire #11330
- 14 Ga. 3-Conductor Wire #11410



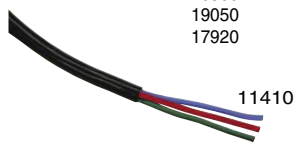
## 10990 Electric Kit & Replacement Parts:

Ref#	Part#	Description
1	10390	Bracket, Mounting for Rocker Switch
2	19300	Rocker Switch (OPEN-CLOSE)
3	10999	Relay, Solid State HD Motor Reversing (12 Volt)
4	16030	Terminal, E1R-38 6 ga. for Battery
5	16180	Terminal, B3FE-250 14 ga. Quick Disconnect
6	16021	6ga Terminal w/ 1/4" Ring
7	16020	E1R-10 Terminal for the Switch
8	16118	Terminal, 18 ga. insulated Quick Disconnect
9	16080	Terminal, B4R-38 14 ga. insulated w/ 3/8" ring
10	18700	1/4" x 1" Hex Head Bolt
11	16020	1/4" Wiz Nut



## Other Electrical Components

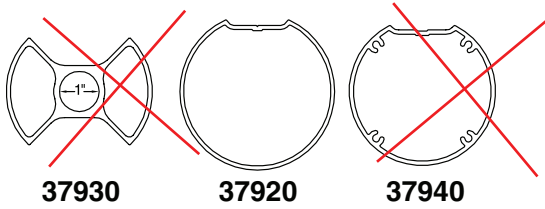
Part#	Description
11320	6 ga. Dual Conductor 12' Coil Cord
11330	6 ga. Dual Conductor 255 Strand Wire
11410	14 ga. 3-Conductor Wire
12760	SureFlex Dual Conductor Plug Set
12770	Socket Half of SureFlex Dual Conductor Plug
12780	Plug Half of SureFlex Dual Conductor Plug
10500	Electric Kit (Rotary Switch Kit)
19050	Heavy Duty Rotary Switch
17920	25 Amp. Manual Reset Circuit Breaker



Roll-Rite® — Clearly the Best.  
**1-800-297-9905**

## Side Dump Axle Kit Parts & Diagram

### Axle Profiles:

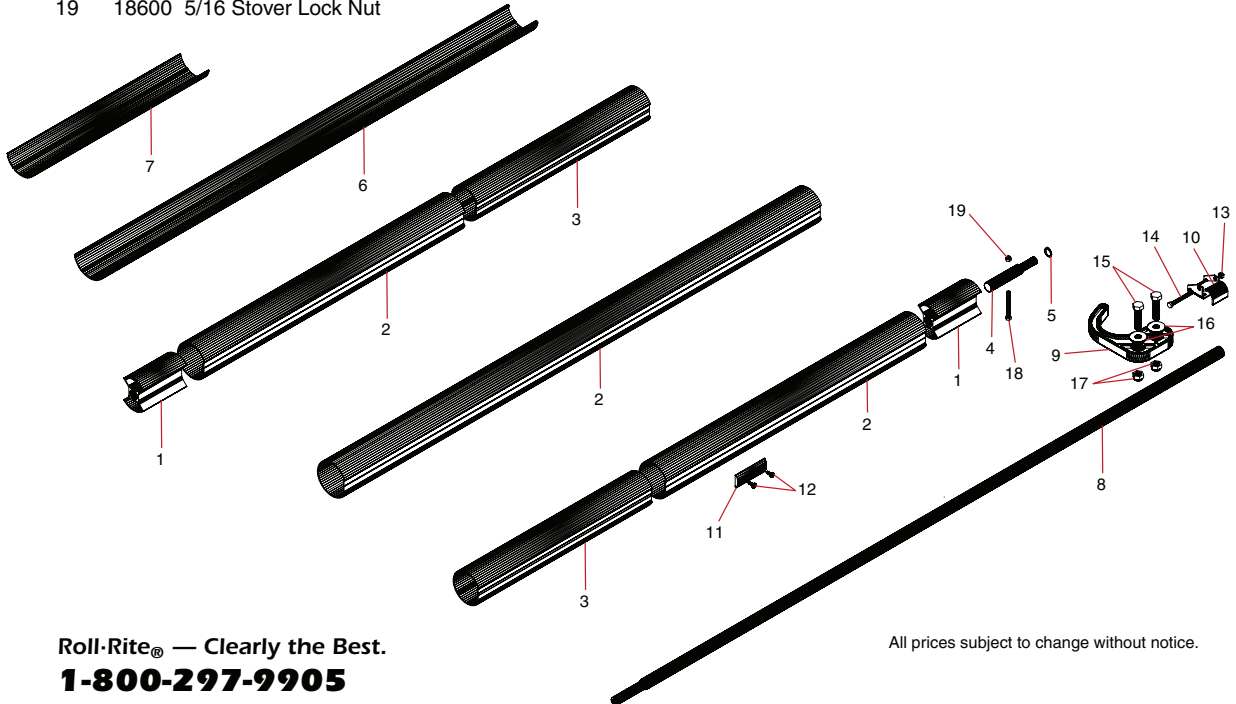


**NOTE:**  
Demco Uses 37920

## Side Dump Axle Kit Parts — From Axle Kits, p. 13

Includes: 37260 & 37270 Axle Kits for Side Dump Systems

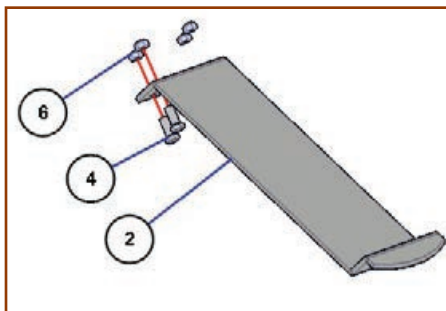
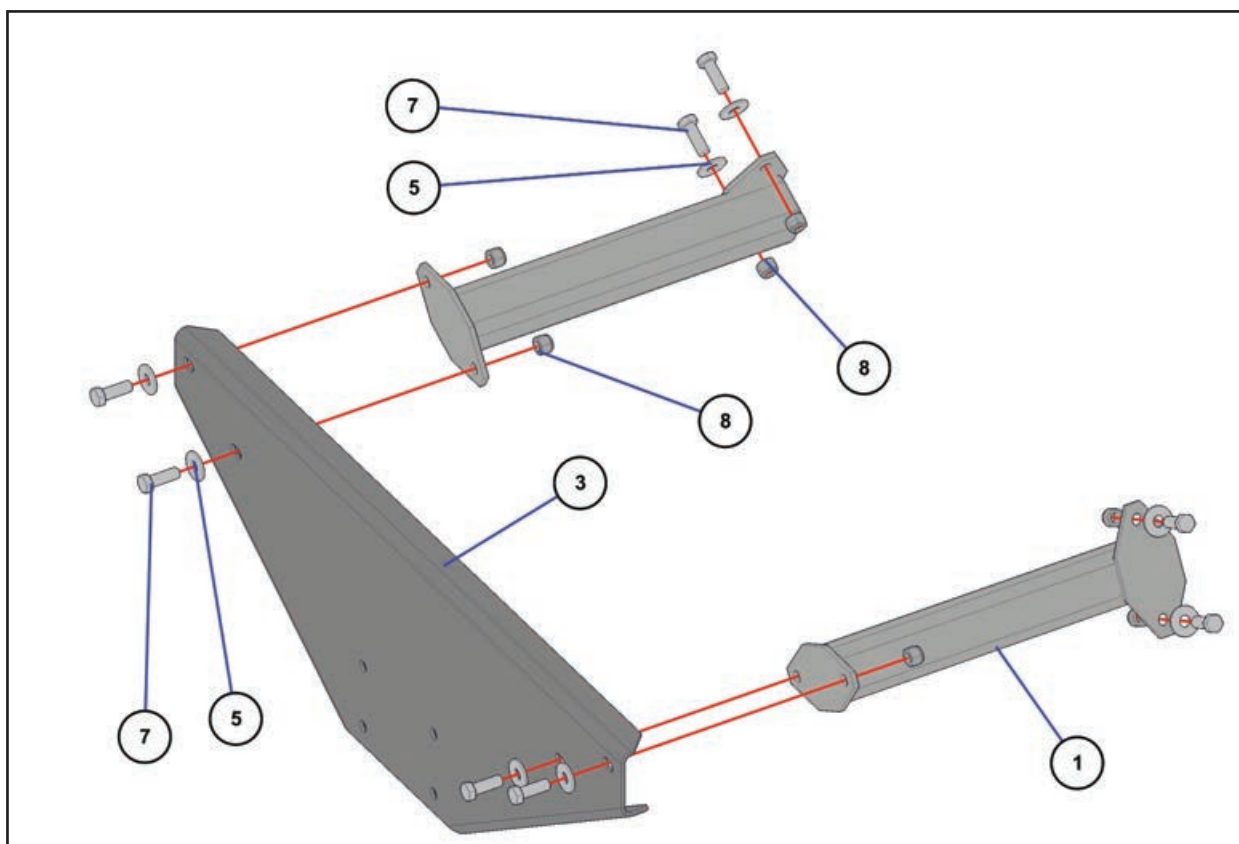
Ref#	Part#	Description
1	37930	4" Side-to-Side Axle Motor Adapter (profile shown above)
2	37920	4" Side-to-Side Axle (profile shown above, Specify Motor End, Bearing End, or Center Section)
3	37940	4" Side-to-Side Axle Splice (profile shown above)
4	10170	3/4" x 5 1/2" Axle Stub Shaft w/ Snap Ring Groove
5	47020	Snap Ring for Stub Shaft
6	37950	Ridge Pole for 4" Axle
7	37960	Ridge Pole Splice for 4" Ridge Pole
8	36820	Tarp Securing Rod for Side-to-Side System
9	36840	Tarp Spool Hook for Side Dump System
10	36830	Steel Clamp for Tarp Securing Rod
---	36870	Center Braces for Side Dump Tarp Spool (not shown)
11	37830	Tarp Clip for Side-to-Side Axle
---	36810	3" Ribbed Tarp Spool Axle for Side-to-Side Systems (Specify Motor End, Bearing End, or Center Section)
---	37820	3" Clip Style Tarp Spool Axle for Side-to-Side Systems (Specify Motor End, Bearing End, or Center Section)
---	36960	Side-to-Side Axle Splice w/ 3/4" Shaft Adapter
---	36970	Side-to-Side Axle Splice w/ 1" Shaft Adapter
12	18140	1/4" x 3/4" Pan Phillips Self Drilling
13	18613	5/16" Nylock Nut
14	18222	5/16" x 3" Bolt
15	18713	5/8" x 2 1/2" Bolt
16	18414	5/8" USS Flat Washer
17	18635	5/8" Nylock Nut
18	18270	5/16 x 2" Hex Head Grade 8 Bolt
19	18600	5/16 Stover Lock Nut



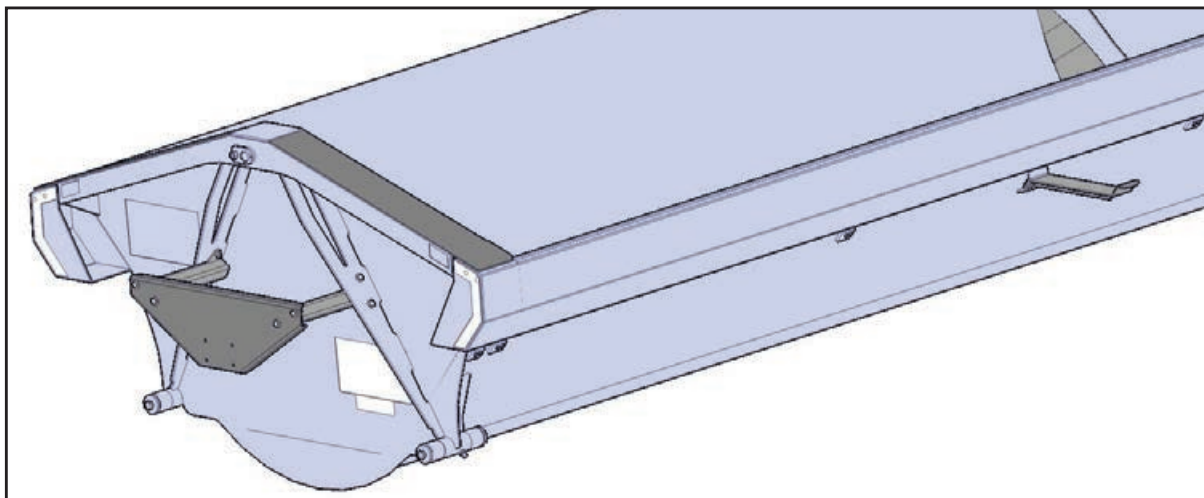
Roll-Rite® — Clearly the Best.  
**1-800-297-9905**

All prices subject to change without notice.





BOM ID	Qty	Item No	Description
1	4	5CAM9038	TARP CHANNEL MOUNT
2	2	5CAM9072	BRACKET, TARP SUPPORT
3	2	3CAM9340	MOUNTING, AERO TARP PIVOT BOX
4	8	1AFBP3006	HEX CAP SCREW, 3/8"-16 X 1", GRADE 5, PLATED
5	16	1AFBP3050	WASHER, FLAT, 1/2", PLATED
6	8	1AFBP3612	NUT, HEX LOCK, 3/8"-16, TOP LOCK
7	16	1AFBP3674	HEX CAP SCREW, 1/2"-13 X 1-1/2" GRADE 8, PLATED
8	16	1AFBP3704	NUT, LOCK, NYLON INSERT, 1/2"-13



## **Side Kick 2**

### **Operation & Maintenance**

#### How to operate the Tarp System

**NOTE:** Read all the safety considerations before operating the Side Kick 2 tarp system.

- 1)** Turn the rotary switch to the "UNCOVER" position. The tarp should wind onto the roll tube until it rests on the passenger-side supports, under the side-rail of the tub.
- 2)** To reverse the tarp operation, turn the switch to the "COVER" position. The tarp should deploy over the driver-side roll-up bar supports.

#### Safety Considerations

**⚠ WARNING:** Never operate the tarp system while under obstructions, such as trees or power lines.

**⚠ WARNING:** Always check to make sure that no one is in the immediate area of the tarp as it operates. Keep everyone clear of the area.

**⚠ WARNING:** Keep all clothing clear of moving parts.

#### How to Maintain the Side Kick 2 Cover

Minimal maintenance is required for the Side Kick 2 cover. Individual usage and operating conditions will determine when to check the Side Kick 2 Cover. Aero Industries recommends a weekly inspection of the following items:

**Bearings:** Pull the shafts from side to side and in and out. If there is excessive play, replace the bearings. Lubricate as often as necessary with penetrating oil. DO NOT use an excessive amount of lubricant.

**Springs:** Examine springs for breakage.

**Screws:** Make sure that all mounting bolts and screws are in place and tight and that no parts are worn or damaged.

**Electrical Connections:** Check all electrical connections and tighten any that have become loose.

**General:** replace all worn or broken parts immediately.

Replacement parts may be obtained from the dealer or by contacting Aero Industries.



## Side Kick 2

### Operation & Maintenance

## Power Loss Repair Bulletin

This repair bulletin describes a temporary field repair for the Side Kick 2 cover system in the event of a power loss or other failure while the cover is partially deployed and can **NOT** get to covered position.

**⚠ WARNING:** The Side Kick 2 cover system operates under extreme spring tension to drive the swing-arms. To reduce the possibility of personal injury, the swing-arms must be secured before servicing the system.

**NOTE:** This procedure requires the use of two come-a longs or power pull devices.

**NOTE:** This is a temporary field repair. Contact Aero Industries or your Side Kick dealer for standard repairs.

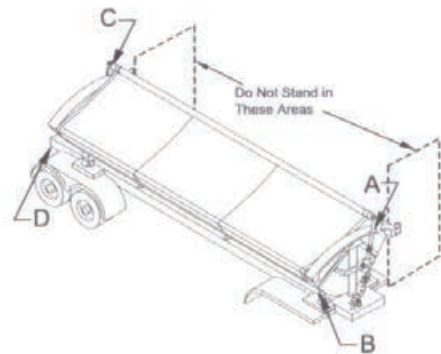
## STEP 1

### How to Secure the Swing-Arms

**⚠ WARNING:** Both the front and rear swing-arms must be secure.

**NOTE:** To safely secure the swing-arms, come-a longs must be attached to the swing-arms, NOT the roll bar.

- 1) **See Figure 1.** Attach one end of the come-along to the front swing-arm (A), near the motor housing. Attach the other end of the come-along to the trailer on the side the tarp is anchored (B).
- 2) **See Figure 1.** Attach another come-along between the rear swing-arm (C) and trailer (D).
- 3) Tighten the come-a longs equally until the tarp becomes slack and the swing-arms are secure.



**Figure 1**

## STEP 2

### How to Disengage the Motor

- 1) Once the swing-arms are secure, remove 3 hex head cap screws from front roll-up bar adaptor attached to front of roll tube and slide front swing arm (with front roll-up bar adaptor) out of front of roll-up bar and remove rear swing arm by removing outside 1 1/4" lock collar from rear roll-up bar adaptor and sliding arm off back of roll tube.

## STEP 3

### How to Complete the Covering Process

**⚠ WARNING:** The come-a longs are now retaining the force of the swing-arm spring tension. Use great care and make sure you understand how the come-along operates before adjusting.

- 1) To cover the trailer, slowly and equally adjust the come-a longs until the roll tube is resting in the supports on the driver-side of the trailer. Remove or secure the come-a longs before transport.

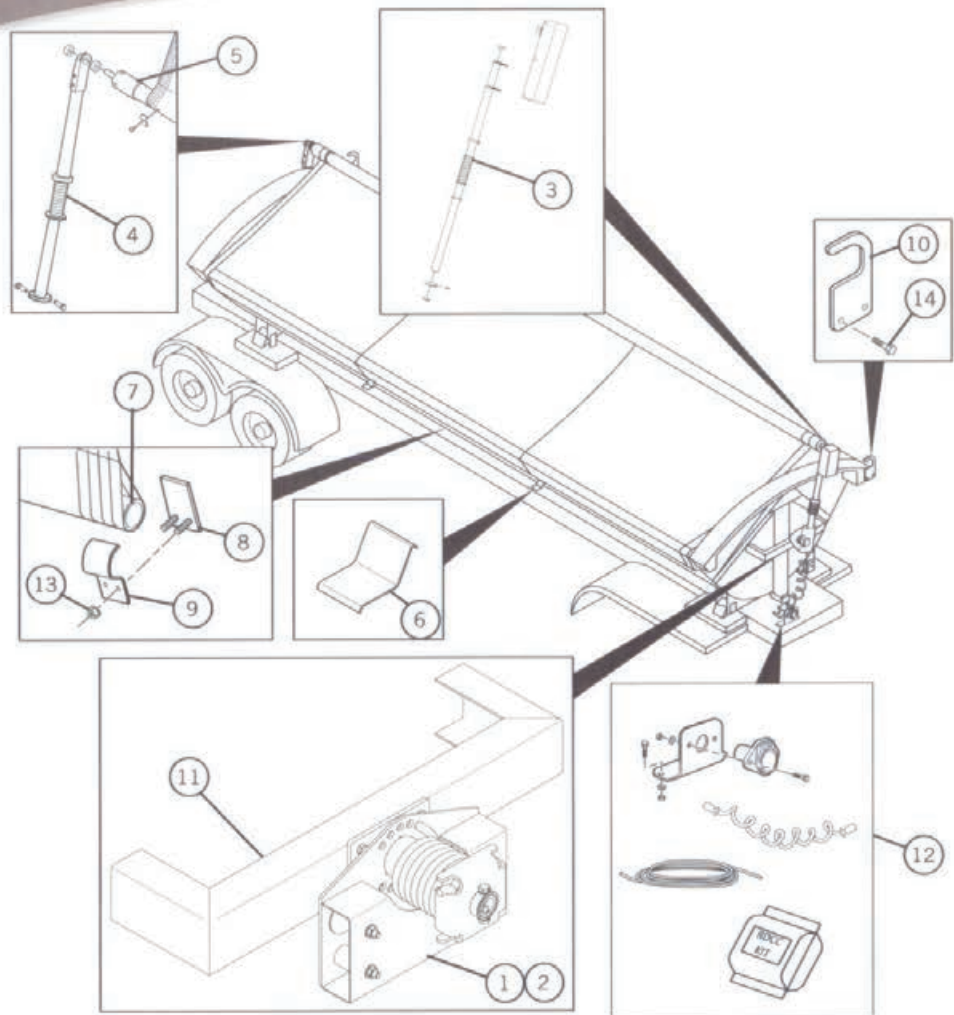
**⚠ WARNING:** The tarp must be in the fully unrolled position and not under the latch plate, before any service/repair work can be performed.





# Side Kick 2

## Parts List

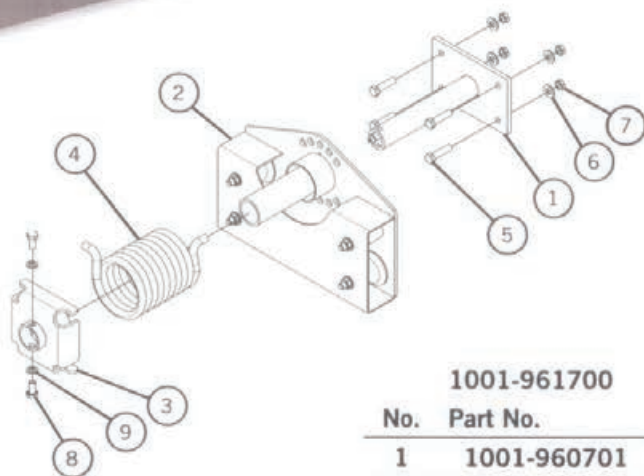


No.	Part No.	Description	Qty	Page
1	1001-961700	Spring Mount Assembly Front	1	19-20
2	1001-961701	Spring Mount Assembly Rear	1	19-20
3	1001-961703	Front Swing Arm Assembly	1	21-22
4	1001-961705	Rear Swing Arm Assembly	1	23
5	1001-961702	Roll Tube Assemble	1	
6	1001-860166	Tarp Cradle	2	
7	1440-281223	Fixed Tube	2	
8	1001-961304	Quick Release Clamp Weldment	7	
9	1040-960158	Quick Release Clamp	7	
10	1001-861320	Tarp Stop Hook	2	
11		Swing Arm Mounting Hardware		18
12		Electrical Hardware		24
13	0815-660210	5/16-18 Flange Nut	14	
14	0810-650510	5/16 Self-Tapping Screw	4	

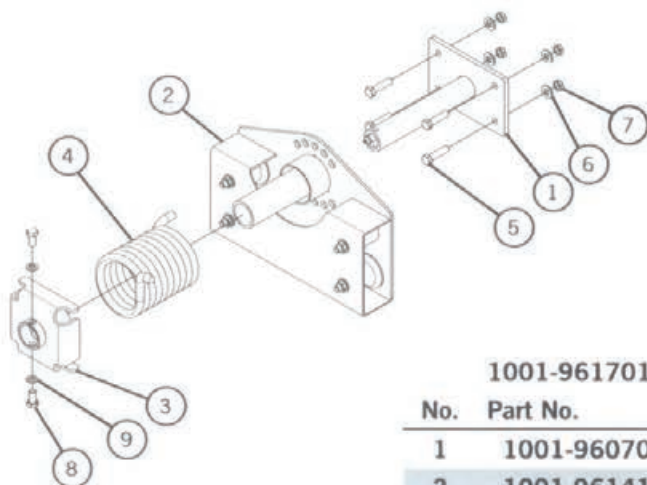


## Side Kick 2

### Parts List



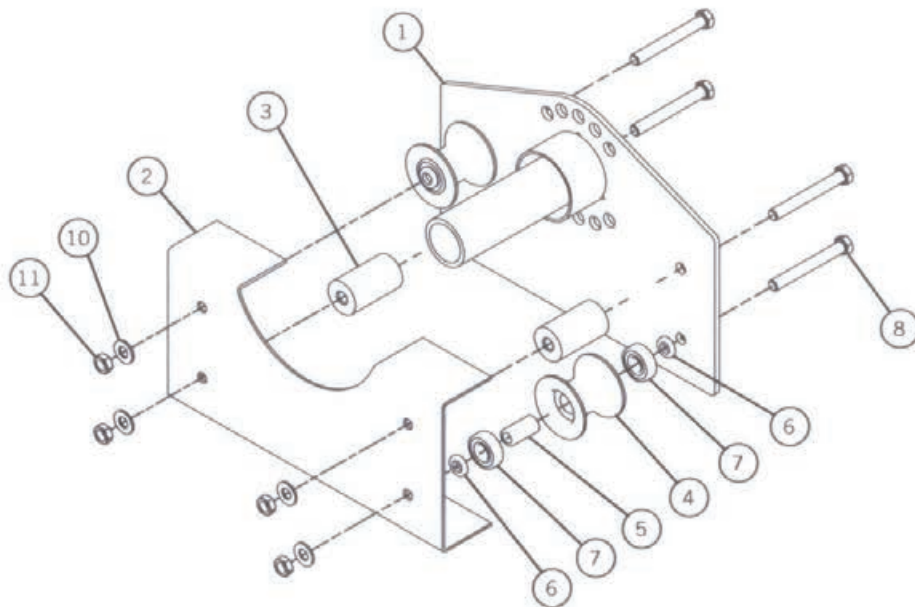
1001-961700 Spring Mount Assembly Front			
No.	Part No.	Description	Qty
1	1001-960701	Spring Mount Post	1
2	1001-961410	Roller Plate Assembly	1
3	1001-960703	Spring Stop Assy	1
4	1001-861408	SK2 Hub Spring LH	1
5	0810-600002	1/2-13 x 2 Hex Bolt	4
6	0820-680810	1/2 Flat Washer	4
7	0815-660127	1/2-13 NYLOCK Hex Jam Nut	4
8	0810-650553	1/2-13 x 3/4 SHCS	2
9	0820-680820	1/2 Lock Washer	2



1001-961701 Spring Mount Assembly Rear			
No.	Part No.	Description	Qty
1	1001-960701	Spring Mount Post	1
2	1001-961410	Roller Plate Assembly	1
3	1001-960703	Spring Stop Assy	1
4	1001-861400	SK2 Hub Spring RH	1
5	0810-600002	1/2-13 x 2 Hex Bolt	4
6	0820-680810	1/2 Flat Washer	4
7	0815-660127	1/2-13 NYLOCK Hex Jam Nut	4
8	0810-650553	1/2-13 x 3/4 SHCS	2
9	0820-680820	1/2 Lock Washer	2

## Side Kick 2

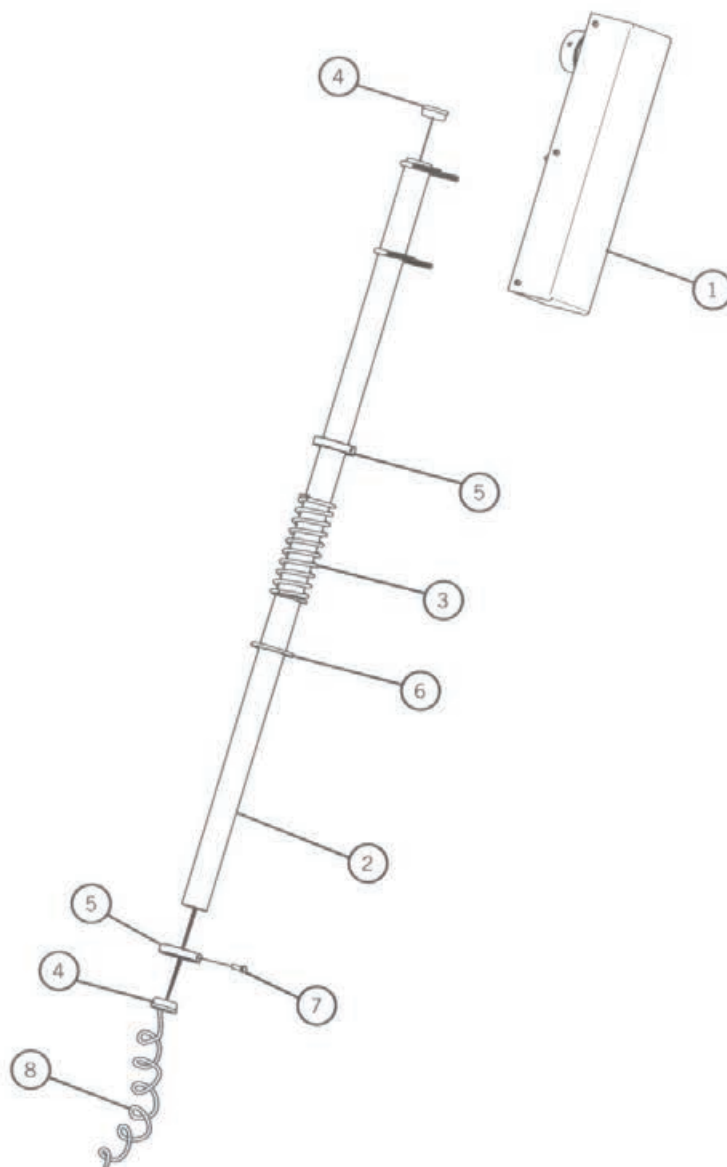
### Parts List



1001-961410		Roller Plate Assembly	
No.	Part No.	Description	Qty
1	1001-960702	Swivel Collar Assembly	1
2	1001-861411	Roller Plate	1
3	1001-861412	Roller Block	2
4	1001-861325	Roller Radius	2
5	1001-861304	Roller Spacer "V"	2
6	1001-861307	Steel Washer	4
7	0710-602144	Bearing .5" ID x 1.575" OD	4
8	0810-650839	1/2-13 x 4 Hex Bolt	4
9	0815-660127	1/2-13 NYLOCK Hex Nut	4
10	0820-680810	1/2 Flat Washer	4

## Side Kick 2

### Parts List

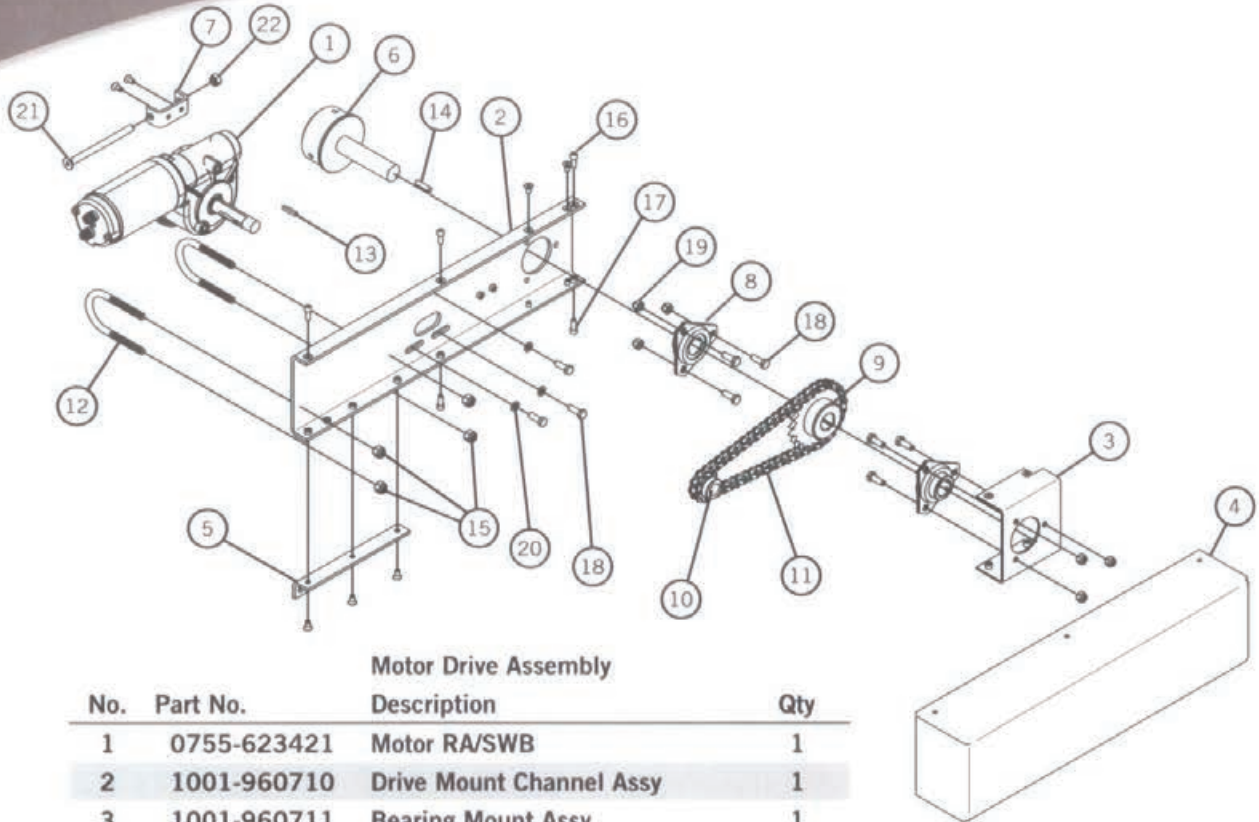


1001-961703		Front Swing Arm	
No.	Part No.	Description	Qty
1		Motor Drive Unit Assembly (See Page 22)	
2	1440-281635	Steel Tube 2" Rd x 5' Lg	1
3	0715-619405	Compression Spring Jumbo	1
4	1001-861309	Swing Arm Tube Plug	2
5	1001-861316	Collar Lock Swing Arm	2
6	0820-680401	Washer 1/4 x 2 1/4 x 3 1/4	1
7	0810-650170	5/16-18 x 1 Hex Bolt W/Patch	2
8	0755-626433	Flex Cord Motor to Plug	1



## Side Kick 2

### Parts List

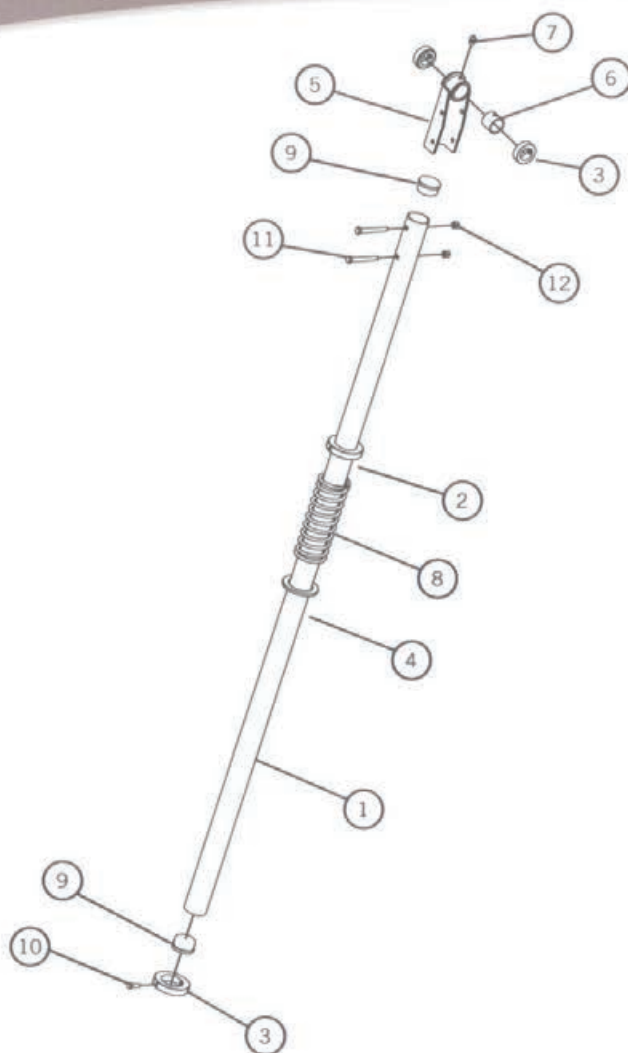


Motor Drive Assembly			
No.	Part No.	Description	Qty
1	0755-623421	Motor RA/SWB	1
2	1001-960710	Drive Mount Channel Assy	1
3	1001-960711	Bearing Mount Assy	1
4	1001-861722	Drive Unit Cover	1
5	1001-861716	Swing Arm Extension Bracket	1
6	1001-861717	Roll Pipe Adapter	1
7	1001-860704	Chain Tension Bracket	1
8	1001-861714	Bearing Set 1" Bore	2
9	1001-861719	Sprocket 40B24 1" Bore	1
10	1001-861720	Sprocket 40B10 3/4" Bore	1
11	1001-861721	#40 Roller Chain	1
12	1001-861718	U-Bolt 2" Swing Arm Mount	2
13	1001-861723	Key 1/4" x 1"	1
14	1001-861724	Key 3/16" x 1"	1
15	0815-660660	3/8-16 NYLOCK Hex Nut	4
16	0810-650497	1/4-20 x 1/2 FHCS	9
17	0825-617251	1/4-20 x 5/8 SHCS	6
18	0810-650552	5/16-18 x 7/8" Hex Bolt	9
19	0815-660550	5/16-18 NYLOCK Hex Nut	6
20	0820-680520	5/16 Lock Washer	3
21	0810-650496	3/8-16 x 5 FHCS	1
22	0815-661640	3/8-16 Hex Nut	1



## Side Kick 2

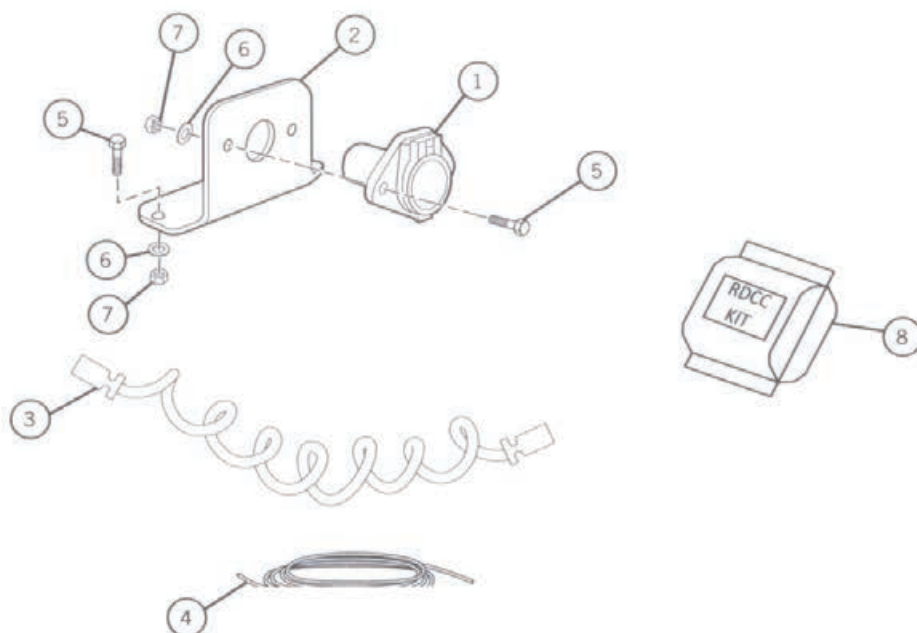
### Parts List



1001-961705		Rear Swing Arm	
No.	Part No.	Description	Qty
1	1440-281636	Steel Tube 2" Rd x 6' Lg	1
2	1001-861316	Collar Lock Swing Arm	2
3	0785-690335	Collar Shaft 1 1/4" ID	2
4	0820-680401	Washer 1/4 x 2 1/4 x 3 1/4	1
5	1001-962122	Motor Mount Bracket Assy	1
6	0845-691233	Bronze Bushing	1
7	0825-670394	Zerk 1/4-28 Straight	1
8	0715-619405	Compression Spring Jumbo	1
9	1001-861308	Swing Arm Tube Plug-Top	2
10	0810-650170	5/16-18 x 1 Hex Bolt W/Patch	2
11	0810-670657	3/8-16 x 3 Hex Bolt	2
12	0815-660660	3/8-16 NYLOCK Hex Nut	2

## Side Kick 2

### Parts List



Electrical Hardware			
No.	Part No.	Description	Qty
1	1041-860143	Female Electrical Socket	2
2	1001-860165	Socket Mounting Bracket	2
3	0755-626434	Flex Cord with Plugs	1
4	0755-626540	#6 Wire (20')	1
5	0810-650552	5/16-18 x 7/8 Hex Bolt	4
6	0820-680510	5/16 Flat Washer	4
7	0815-660461	5/16-18 NYLOCK Hex Nut	4
8	0755-962108	RDCC Kit	1

## Side Kick 2



**INDIANAPOLIS, IN**  
Indianapolis, IN 46241  
800-535-9545  
FAX: 317-244-1311

**OMAHA, NE**  
Omaha, NE 68137  
800-535-9545  
FAX: 402-895-6129

**STREETSBORO, OH**  
Streetsboro, OH 44241  
888-237-2262  
FAX: 330-626-3277

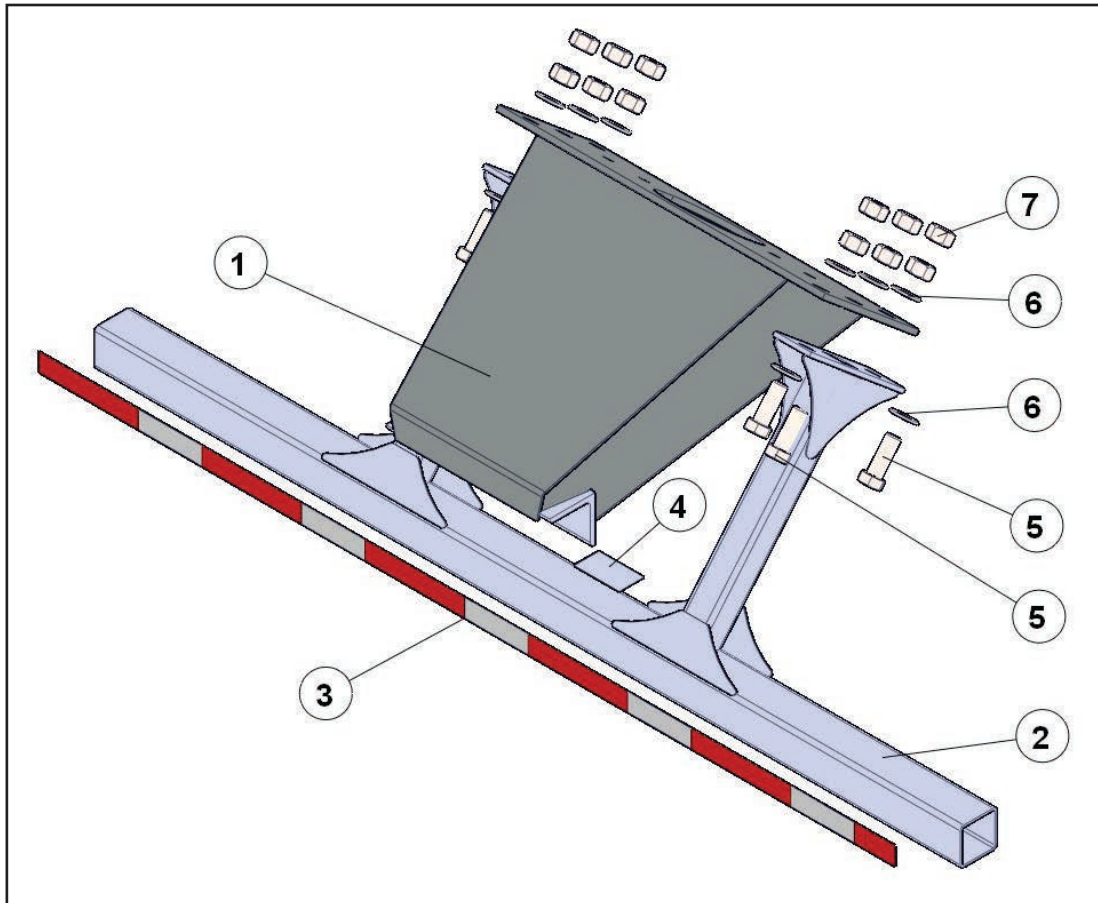
© 2010 Aero Industries, Inc. Easy Cover® and the Claw™ are trademarks of Aero Industries, Inc. The Claw Patent Pending.  
Covered by one or more of the following patents in the U.S.



Aero Industries, Inc. 0930-861676

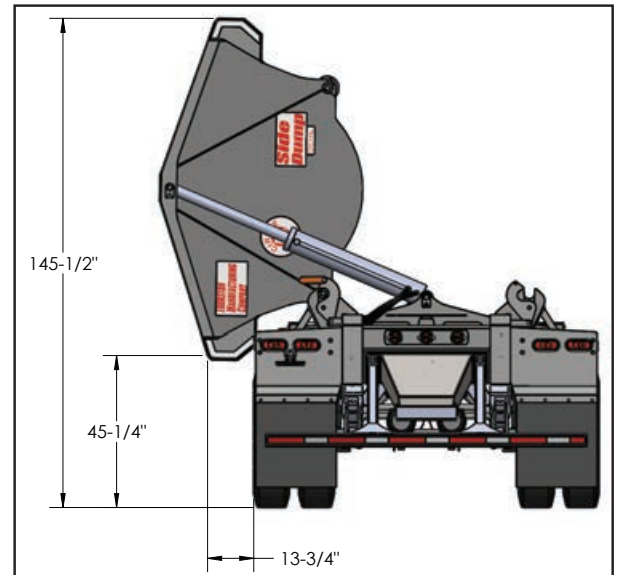
7/20/11 Rev. B

**Bundle Number**  
**5C080002**



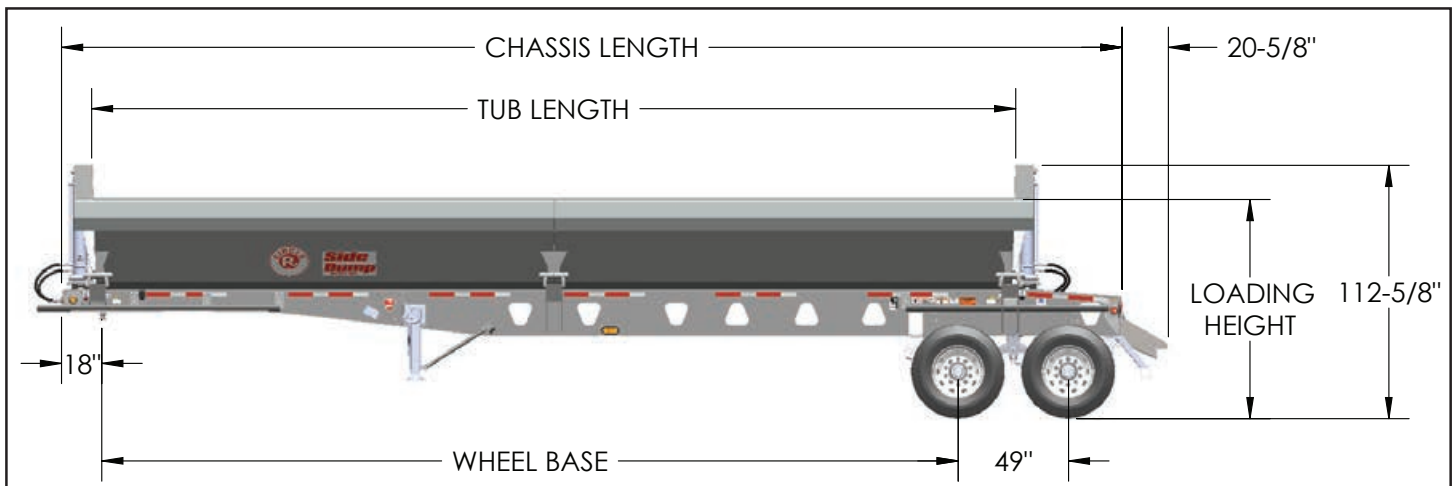
BOM ID	Qty	Item No	Description
1	1	5CAM8104	PUSHBLOCK, 2001
2	1	5CAM8105	UNDER-RIDE BUMPER GUARD
3	1	1AQAP3506	REFLECTIVE TAPE, RED/SILVER
4	1	1AQAP4058	DECAL, UNDER-RIDE CERTIFICATION
5	6	1AFBP3632	BOLT, 1-1/4"-7 X 3-1/2", GRADE 8, PLATED
6	10	1AFBP3634	WASHER, FLAT, 1-1/4", SAE, PLATED
7	12	1AFBP3720	NUT, HEX, 1-1/4"-7, GRADE 8, PLATED





### **Tandem Axle Trailer Specifications and Features**

- 20" Deep Twin "I" Beam Chassis with 3/8" Fifth Wheel Plate
- Tub dump direction indicators visible in truck mirrors
- Holland 51000 Landing Gear WITH 2 Speed Gear Box
- Meritor 25,000 lb Round Axles WITH 5/8" Wall Tubing
- Haldex 2S1M ABS System
- Six Integrated Tub Pivot Points with Greaseless Pivot Bearings.
- Tub dump direction controlled from two places on the left side. No need to walk all around the trailer to change dump direction.
- Rubber "EdgeFlex" fenders with bolt-on mounts. Easily replace damaged fender parts.
- 1/4" FLX-500 Tub with Exclusive "Flex Corner" Design. (1/4" AR400 Available)
- Large Single "G" Rail on Tub. Lighter and Stronger than two rail systems.
- Suspensions: Hutchens Cast 9700 Leaf Spring, Hutchens Single Point, or Neway RL-230 Air Ride.
- Wheel & Tire Options: 11R22.5 or 11R24.5 on Steel or Aluminum Rim, 385/65R22.5 on Aluminum Rim  
New or Recap Tires Available. Other sizes available upon request.
- Hydraulic System: 3000 psi rated 3/4" Hoses, Fittings, Flow Divider, and Relief Valve. Trailer Mounted Electric Over Hydraulic Control Valve Available.
- Twin 3000 psi rated 5" Cylinders (Optional 6" Cylinders Available)
- Standard LED lights in enclosed boxes with sealed plugs.
- Bolt-on Push/Lift block with Under Ride Bumper conform to Federal Motor Vehicle Safety Standards.
- Standard Colors: Black, White, Yellow, and Burgundy. Custom Colors Available.
- Optional Roll Rite, Aero and Shurco Electric Tarps.



Model	Suspension	Chassis Length	Wheel Base	Tub Length	Tub Volume	Loading Height
35' Tandem	Leaf Spring	35'-4"	333"	30'-3"	21.4 Cu Yd	97-1/2"
40' Tandem	Leaf Spring	39'-4"	381"	34'-3"	24.2 Cu Yd	97-1/2"
	Single Point	39'-4"	380"	34'-3"	24.2 Cu Yd	97-1/2"
	Air Ride	40'-5"	383"	34'-3"	24.2 Cu Yd	97-1/2"

**NOTE:** Heights measured with 11R22.5 tires.



# Tarp Tips...

This section will be occasionally featured in your TarpTalk™ to address frequently asked questions or to refresh you on various technical issues. As always, if you have a question or encounter frequent technical issues, please contact the Roll-Rite Customer Service Center at 1-800-297-9905 or check out our FAQs online at [www.RollRite.com](http://www.RollRite.com) under Customer Support.

**Q.** *My motor is not working. How do I tell if the problem is with the motor, the relay, or the switch?*

**A.** Follow steps 1-4 below to trouble-shoot your system:

- 1.** Disconnect both power wires from the motor. Using jumper cables and a fully charged spare battery, momentarily supply power to the motor terminals, first one direction, and then the other. If the motor does not run, please call our Customer Service department at 1-800-297-9905. If the motor runs when connected to the spare battery, then the motor is OK and you need to re-connect the original power wires to the motor and continue Step 2.
- 2.** Using a test light or a voltage meter, verify that the BATT+ and BATT- terminals on the relay are properly connected. If not, check the wiring and circuit breaker between the battery and the relay for problems such as loose terminals and/or worn, broken, or pinched spots on the wire. If power is reaching the relay, continue to Step 3.
- 3.** Using a small piece of jumper wire, momentarily connect first the T1 terminal and then the T2 terminal to BATT+. You should be able to hear the relay click each time and the motor should operate each time. If you do not hear the relay click, please call our Customer Service department. If you hear the relay click but the motor does not operate, then you need to check the wiring between the relay and the motor. If you hear the relay click **and** the motor operates, then the relay is OK and you need to continue to Step 4.
- 4.** The following procedure assumes that you are using a standard SPST switch similar to the one that was shipped with the relay. If you are using something else, such as a lighted switch, you may have to adjust the procedure accordingly. Using a small piece of jumper wire, momentarily connect the center terminal (common) first to one of the outer terminals, and then to the other outer terminal. If the motor does not operate during this test, then you need to check the wiring between the switch and the relay. If the motor operates during this test, then the problem is in the switch, please call our Customer Service department. ■

## **SIDE DUMP TRAILER LIMITED GENERAL WARRANTY**

This warranty applies to all side dump trailers manufactured by Demco. All goods manufactured by Demco shall be free from all defects in materials or workmanship under normal use and service, with loads not to exceed Manufacturer's rated capacity and speed. Applied only to the original owner, as evidenced by a completed warranty registration on file at Demco, for a period ending 12 months from the date of delivery.

**THE WARRANTY REGISTRATION MUST BE COMPLETED AND RETURNED TO DEMCO WITHIN 30 DAYS OF DELIVERY OF THE PRODUCT TO THE ORIGINAL OWNER OR ALL WARRANTIES WILL BE NULL AND VOID.**

All claims, for defective goods arising under this limited warranty, must be made in writing immediately upon discovery, but in no event, later than 12 months from the date of delivery to the original owner.

The limited warranty is the sole and exclusive warranty made or given by Demco in connection with the manufacture of sale of goods and is in lieu of all other warranties of any type or kind whatsoever, whether expressed or implied, written or oral. The provision hereof may not be modified, altered, or extended except in writing signed by an authorized representative of Demco.

- ◆ This warranty applies only to parts or components manufactured by Demco, which is defective in material or workmanship.
- ◆ This warranty does not cover normal maintenance, service or adjustments.
- ◆ This warranty does not cover depreciation or damage as a result of accident, negligent handling, inadequate maintenance, or improper operation.
- ◆ This warranty does not cover damage due to unauthorized modifications or repairs by purchaser prior to Demco inspection and approval.
- ◆ This warranty does not cover any purchased components such, as but not limited to; couplers, tires, axle assemblies, suspensions or any nonstandard feature or items specified by the purchaser.
- ◆ This warranty does not expand, enlarge upon, or alter in any way, the warranties provided by the manufacturers of purchased components.

In the event that a claim shall arise under this limited warranty, Demco may at its option repair the affected goods, replace the affected goods, or refund an equitable portion of the purchase price of the affected goods. The purchaser understands and agrees that, in the event of a defect in material or workmanship, the remedies are limited to repair or replacement, at Demco's option, such part or parts which examination shall disclose to manufacturer's satisfaction to have been defective.

All affected goods shall be held for inspection by Demco or its representatives and no claim hereunder shall be payable in connection with repairs made by purchaser prior to Demco's inspection or without Demco's prior consent.

No claim shall be payable under this limited warranty unless purchaser shall provide Demco with the following information in writing in a timely manner:

- ◆ VIN (Vehicle Identification Number) of affected goods.
- ◆ Number of days, weeks or months affected goods in service.
- ◆ Location of affected goods.
- ◆ Description and pictures of alleged defect.



## SIDE DUMP TRAILER LIMITED GENERAL WARRANTY (CONTINUED)

In no event shall company be liable to purchaser for indirect, incidental or consequential damages or injuries including, but not limited to downtime, cost of labor or materials, loss of profits to purchaser's business or goodwill, resulting from breach of warranty hereunder and all damages resulting from defective goods, whether arising in tort, contract, or warranty except as specifically herein provided are waived by purchaser.

With respect to all other parts not manufactured by Demco, the respective manufacturers warranty will be assigned to the purchaser.

Axles Limited	5 years or 500,000 miles
Spring Suspension	limited 3 years
Air Ride Suspension	limited 3 years
Landing Legs	limited 2 years
Anti-Lock Braking System	limited 3 years or 300,000 miles
Lights	limited 1 years
Valves	limited 6 months

Tire Warranty can be found in the manifest holder on the driver side, under the front deck.

There are no warranties for used products or products that have been repaired, altered, modified, overlooked, subjected to misuse, negligence, accident or ordinary wear and tear.

**Operator is required to check wheel nuts, U-Bolts, radius rod bolts, and all other fasteners. Axle alignment, tire wear, tarp wear, and oil level in hubs must be inspected.** If needed, operator should make proper adjustments to insure full life of equipment. **These item's need to be checked the first 100 miles and again at 500 miles and periodically thereafter.** These inspections and adjustments are very important and must be performed.

State and Federal Laws require a daily inspection of this vehicle by the operator.

Demco, products are sold without any express warranty except as set forth by this warranty.

This warranty is effective June 1, 2007 and supersedes all previous Demco, warranty policies.

### **Cold Climate Warranty Disclaimer**

Operation of Demco Side Dump trailers in arctic temperatures may result in catastrophic failure of frame or tub components due to low temperature brittleness of steel and other materials. Material failures resulting from low temperature brittleness is beyond the control of Demco, the manufacturer of Demco Side Dump Trailers. Therefore, any warranty claims beyond workmanship will be disallowed in all circumstances.

The engineering phenomenon related to cold climate service of materials is known as Nil Deformation Transition Temperature, which is the transition of material from ductile to brittle. Steels and other materials used in the production of Demco trailers may experience brittleness at arctic temperatures. Since Demco cannot control the forces applied to trailers or components of trailers in arctic climates, claims resulting from brittle fractures or failures will not be warranted and Demco will not be held liable for the results of such failures.



**THIS PAGE INTENTIONALLY LEFT BLANK**



Cut along dotted line

# DEMCO

## SIDE DUMP TRAILER LIMITED WARRANTY REGISTRATION

Your new Side Dump Trailer is covered by a limited warranty.  
To initiate the warranty this form **MUST** be completed and returned to  
Demco within **30 days** of delivery.

**PLEASE PRINT OR TYPE**

Owner's Name	Vehicle Identification Number
PO Box / Street Address	Trailer Description
City, State, Zip	Dealership Name
Telephone Number	City, State, Zip
Date of Purchase	Telephone Number
Intended Use: <input type="checkbox"/> Rental <input type="checkbox"/> Personal <input type="checkbox"/> Farm/Ranch <input type="checkbox"/> Commercial <input type="checkbox"/> Government	Dealer Representative
<p>The Operator's Manual has been given to me and explained. I have read and fully understand the safe operation and the proper servicing and maintenance of the above trailer and the terms of the limited warranty shown inside the manual.</p> <p>Purchaser's Signature: _____ Date: _____</p>	
<p>Pre-Delivery Service: This trailer was carefully prepared for delivery, inspected and adjusted according to factory recommendations before delivery to the retail purchaser.</p> <p>Delivery Service: The limited warranty was explained and a copy was presented to the retail purchaser along with the Operator's Manual.</p> <p>Dealer Representative Signature: _____</p>	

**Please mail to the following:**

**DEMCO**  
4010 320 street  
Boyden, IA 51234



Cut along dotted line

**THIS PAGE INTENTIONALLY LEFT BLANK**

[illegible]





4010 320th St., Boyden, IA. 51234

Phone: (712) 725-2311

Fax: (712) 725-2380

Toll Free: 1-800-54DEMCO (1-800-543-3626)

**Demco warranty policies, operator manuals, and product registration  
can be found online:**

**[www.demco-products.com](http://www.demco-products.com)**

