DEMCO

Doing Our Best to Provide You the Best

7-18-2018
8C010280, Rev. AB

CONVERTER DOLLY

CR 33.5 Converter Dolly Tongue
CR 78 Converter Dolly Tongue
CR 108 Converter Dolly Tongue
CR 120 Converter Dolly Tongue
CR 133 Converter Dolly Tongue
CR102AR Converter Dolly

OPERATOR MANUAL

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Product Disclaimer

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.

Introduction

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.

Introduction

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

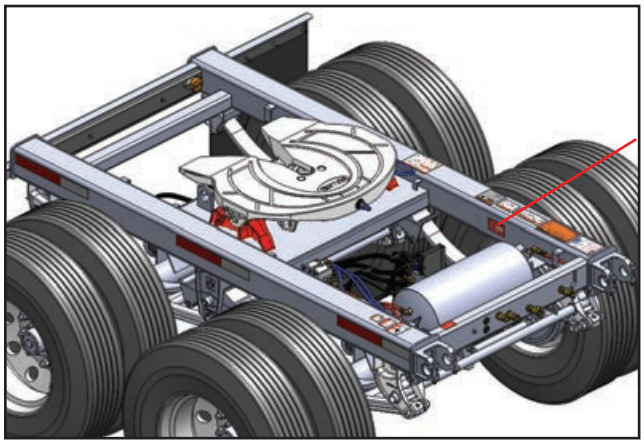
- **Call our toll free number and ask for warranty registration. 1-888-274-6010**
- **Fax completed warranty registration form. Fax: 712-262-1022**
- **Register on-line in warranty page at www.demco-products.com**
- **Complete and return registration form.**

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

57CKS40 2 9 CT 627 045

- 57C — Demco
- KS — Side Dump
- 40 — 40' Length
- 2 — No. of Axles
- 9 — Check Digit
- CT — Model Year Demco
- 627 — Demco Indentifier Number
- 045 — Trailer Sequence

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_____

Dealer Checklist

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:_____

To The Owner

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
- 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 his 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:

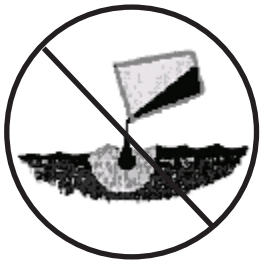
- Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for a emergency stop to be safe and secure. Keep speed to a minimum.
- Reduce speed prior to turns to avoid the risk of overturning.
- Avoid sudden uphill turns on steep slopes.
- Always keep the tractor 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 you 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.
- To 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 lugs 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.

Torque Specifications

Bolt Torque for Standard bolts *

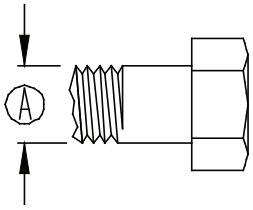
	GRADE 2		GRADE 5		GRADE 8	
"A"	lb-ft	(N.m)	lb-ft	(N.m)	lb-ft	(N.m)
1/4"	6	(8)	9	(12)	12	(16)
5/16"	10	(13)	18	(25)	25	(35)
3/8"	20	(27)	30	(40)	45	(60)
7/16"	30	(40)	50	(70)	80	(110)
1/2"	45	(60)	75	(100)	115	(155)
9/16"	70	(95)	115	(155)	165	(220)
5/8"	95	(130)	150	(200)	225	(300)
3/4"	165	(225)	290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

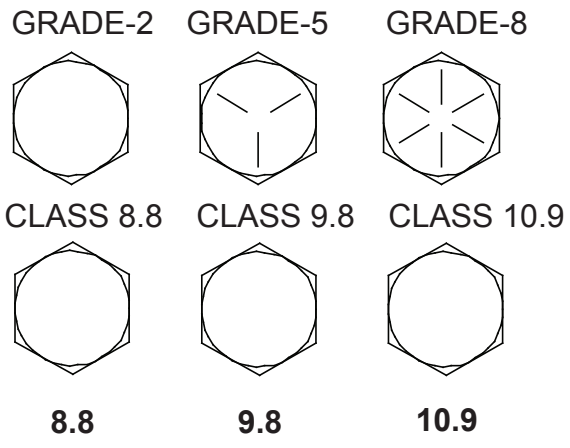
Bolt Torque for Metric bolts *

	CLASS 8.8		CLASS 9.8		CLASS 10.9	
"A"	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)

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.





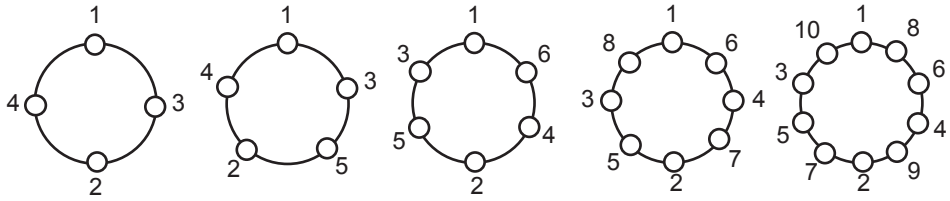
TORQUE REQUIREMENTS

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 is stages. Following the recommended sequence, tighten fasteners per wheel torque requirements diagram:

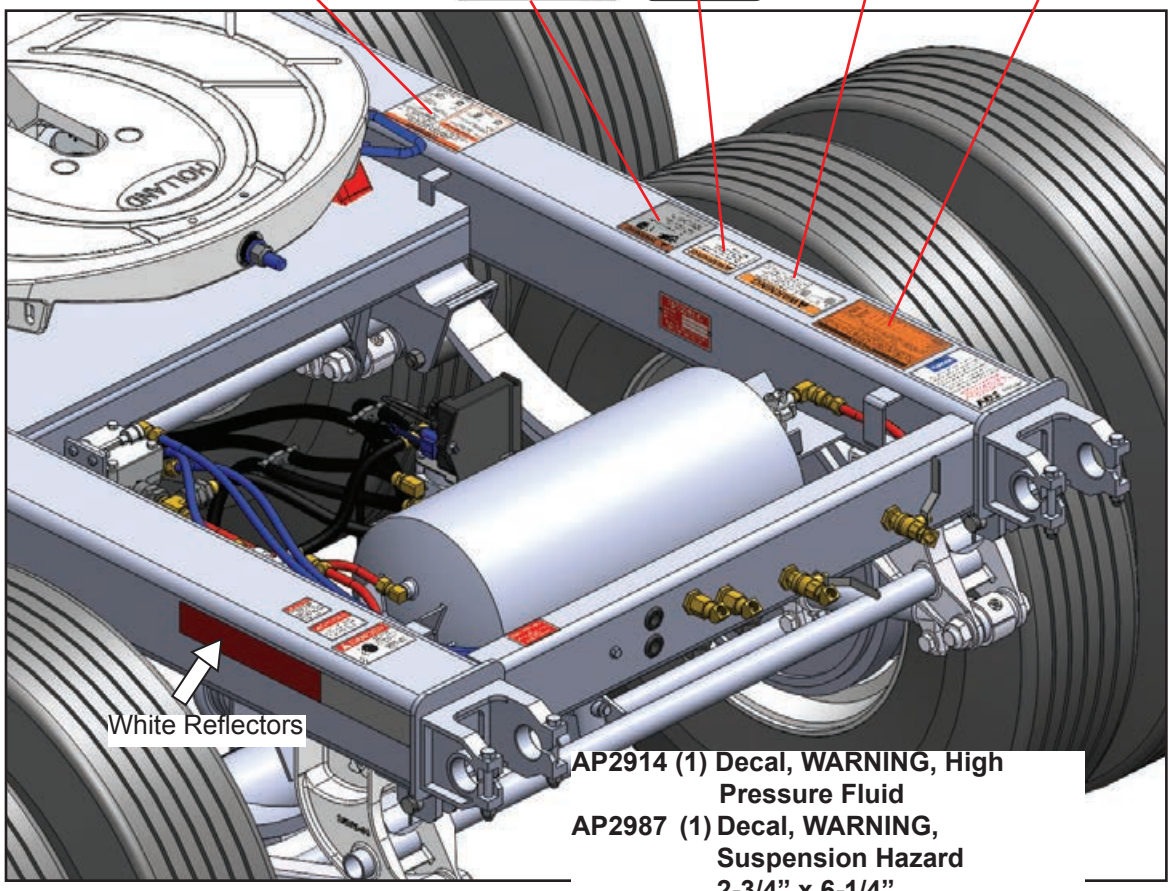


4. Wheel nuts or bolts should be torqued before first road use and after each wheel removal. Check and re-torque after the first 50 miles and again at 100 miles. Check periodically thereafter.

WHEEL AND RIM TORQUE REQUIREMENTS

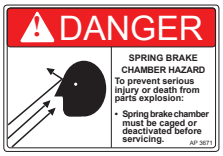
Description	Application	Minimum Torque (lbs-ft)	Maximum Torque (lbs-ft)
1/2” Cone Nut	12” – 13” Wheel	50	65
	14” – 15” Wheel	90	120
5/8” Cone Nut	Flat Disc Wheel	175	225
3/4” Hex Nut	Demountable Ring Clamp	210	260
3/4” Spherical Nut	Single Wheel	450	500
	Inner Dual	450	500
1-1/2” Spherical Nut	Outer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



AP3673

AP3672



AP3671

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

AP2914 (1) Decal, WARNING, High Pressure Fluid
AP2987 (1) Decal, WARNING, Suspension Hazard 2-3/4" x 6-1/4"
AP3506 (6) Reflective Tape Red/Silver
AP3671 (2) DANGER Spring Brake Chamber Hazard
AP3672 (2) DANGER Equipment Hazard
AP3673 (2) DANGER Emergency Parking Brake Hazard
AP4281 (1) Decal, WARNING, Wheel Nut Torque,
AP4292 (1) Decal, Hutch Suspension Torque Orange and Black
AP4495 (1) Decal, WARNING, Holland 5th Wheel Hook-up

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.

Coupling and Uncoupling

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.

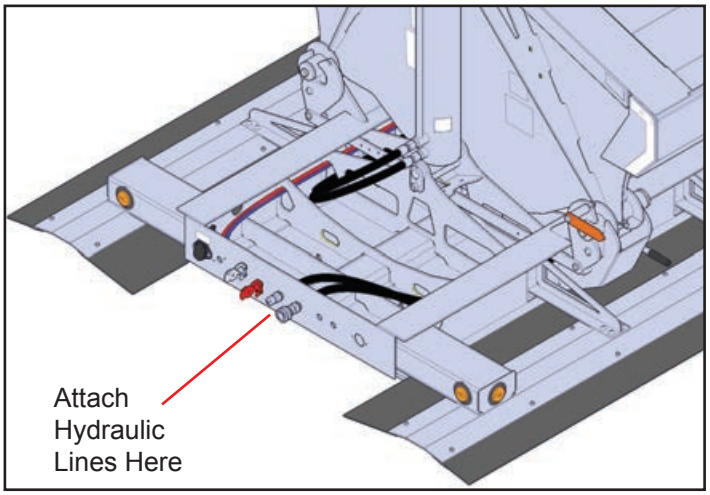
Step 11. Check Connection for Security

- 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.

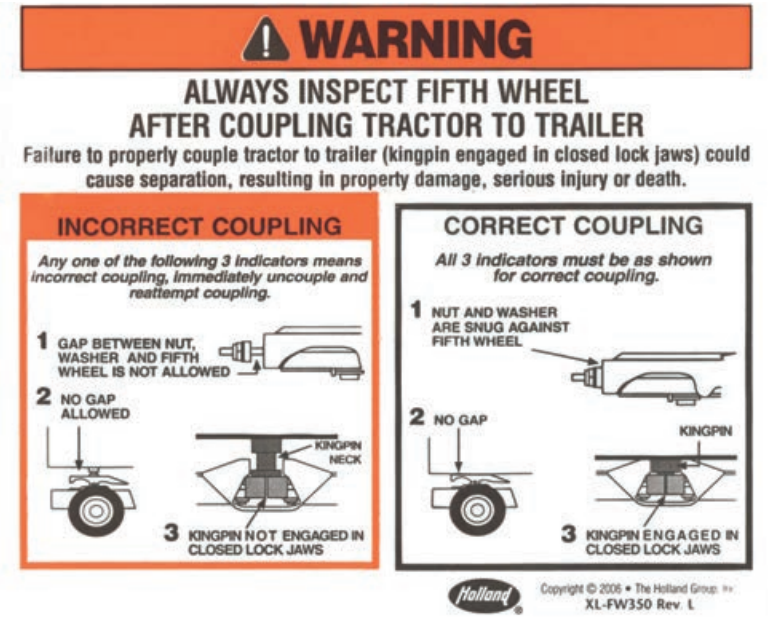


Step 13. Secure Vehicle

- 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.

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. 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. Preform 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.

Weekly Inspection and Maintenance Checklist

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 28)

2000 Miles or 30 Day Maintenance Check List

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.

DEMCO	25,000-50,000 Mile or Yearly Maintenance Checklist

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.

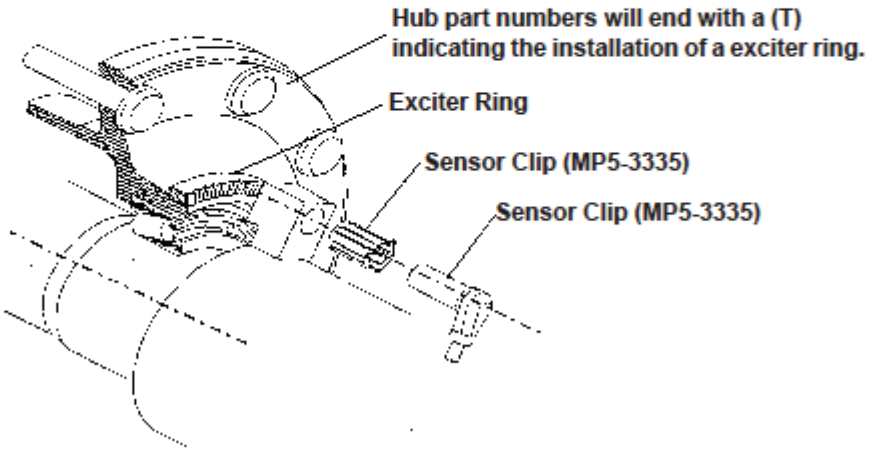
NOTE: CLEAN HYDRAULIC SYSTEM AT LEAST ONCE PER YEAR.

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 System



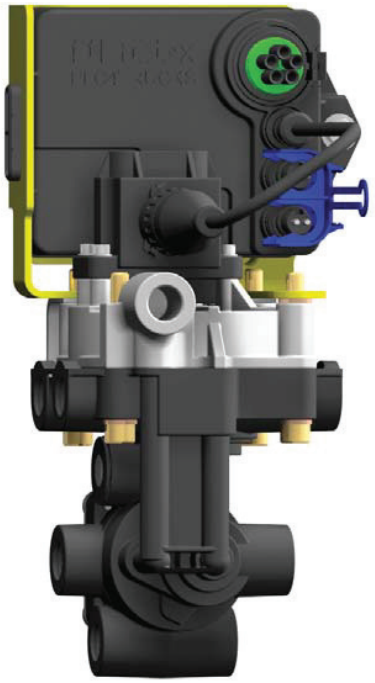
The Full Function ABS Valve was designed as a method of providing a complete trailer braking system combined with skid control in a single package. This valve combines the functions of several separate valves while providing all the valve needs for trailer service and spring brakes.

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.

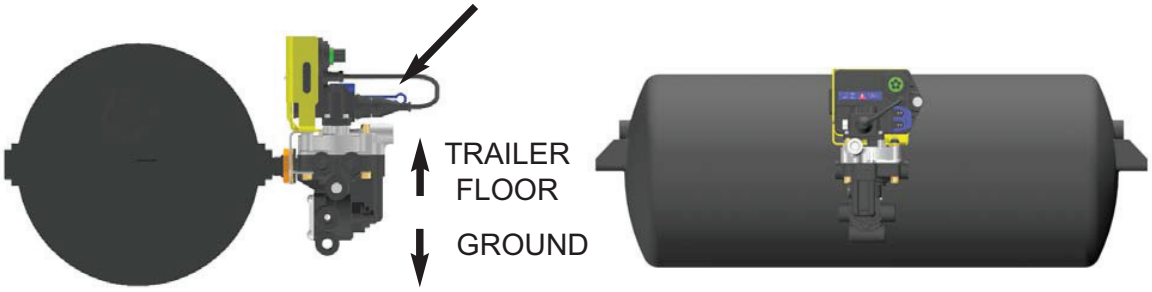
Haldex



PLC Select ABS (1M)

Installation/Service Manual
for
2S/1M Systems

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.

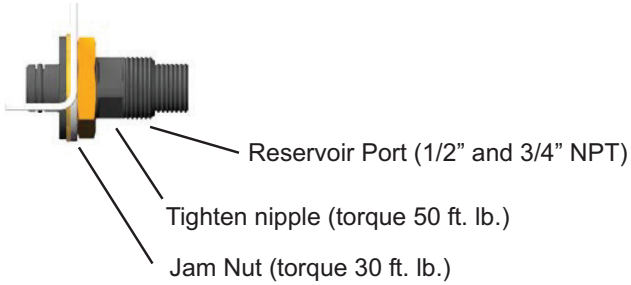
2. For plastic ports, hand tighten fittings then rotate 1 to 1-1/2 additional turns. The maximum torque valve allowed is 210 in-lb.

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).

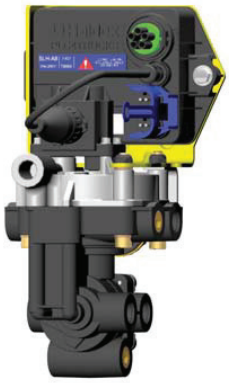
***Note**: If frame mounted follow same procedure for valve orientation.*
Valve solenoid on a 2-port relay, 6-port relay or FFABS must be facing up when the trailer is in normal operation or service/ABS performance could be effected.



***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)

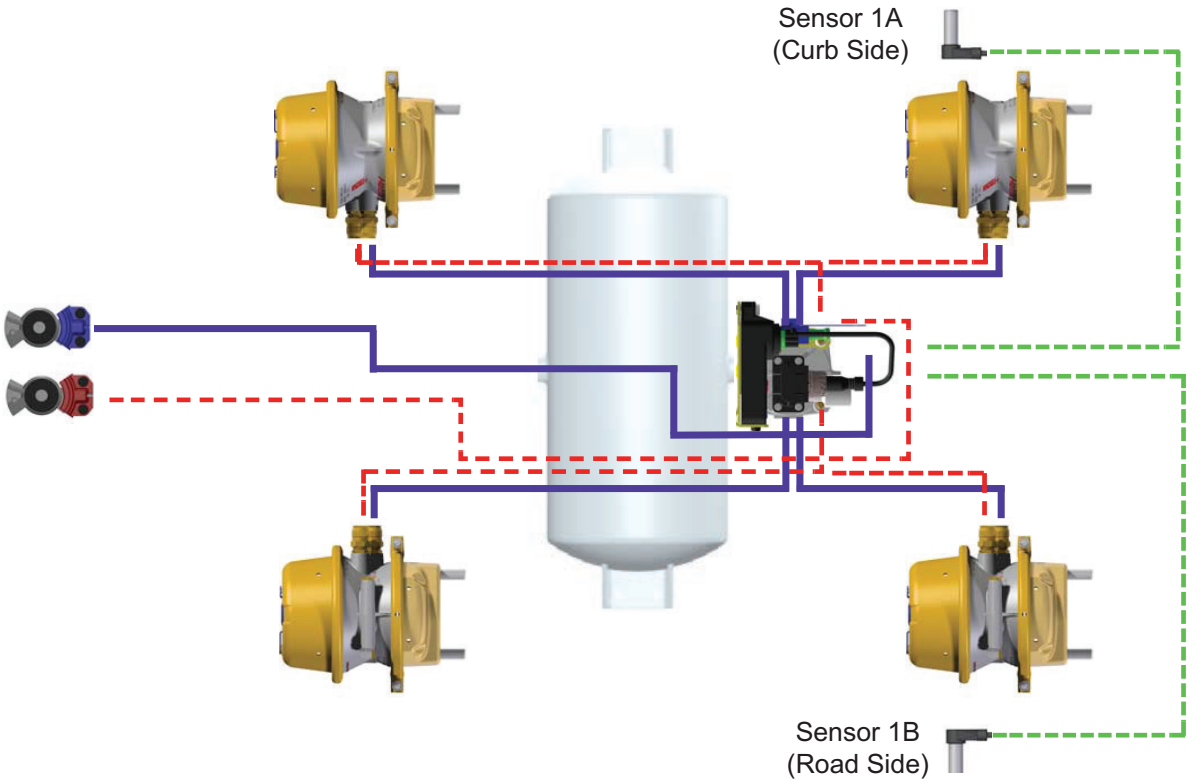
- Air suspension typically have the sensors on the rear axle
- Spring suspension typically have the sensors on the front axle



PLC Select 1M (FFABS)

Plumbing Schematic (2S/1M)

Top View



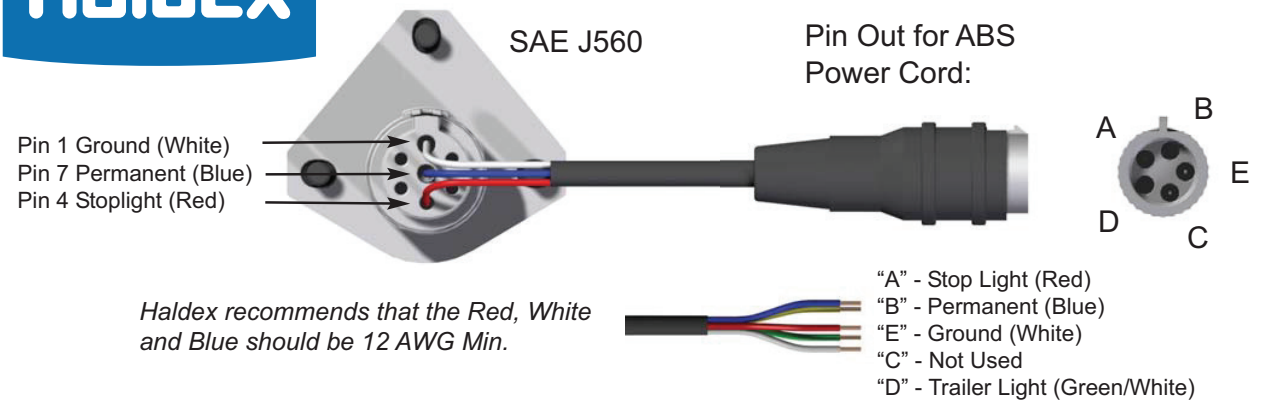
Legend:

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.

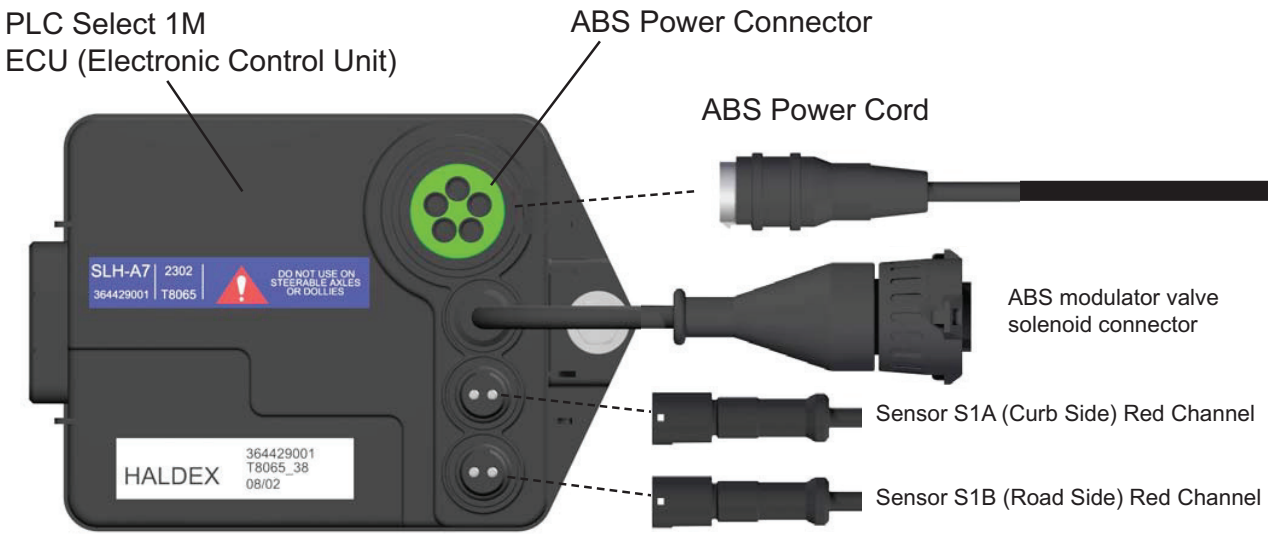


Note: *Federal regulations mandate that new trailers, built after 3/1/2001, have the capability to provide an ABS fault signal from the trailer ABS into the tractor for an In-Cab trailer ABS Lamp. Option (1) is through Industry standard "PLC4Trucks" multiplexing (the signal is carried on Pin 7)*

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.

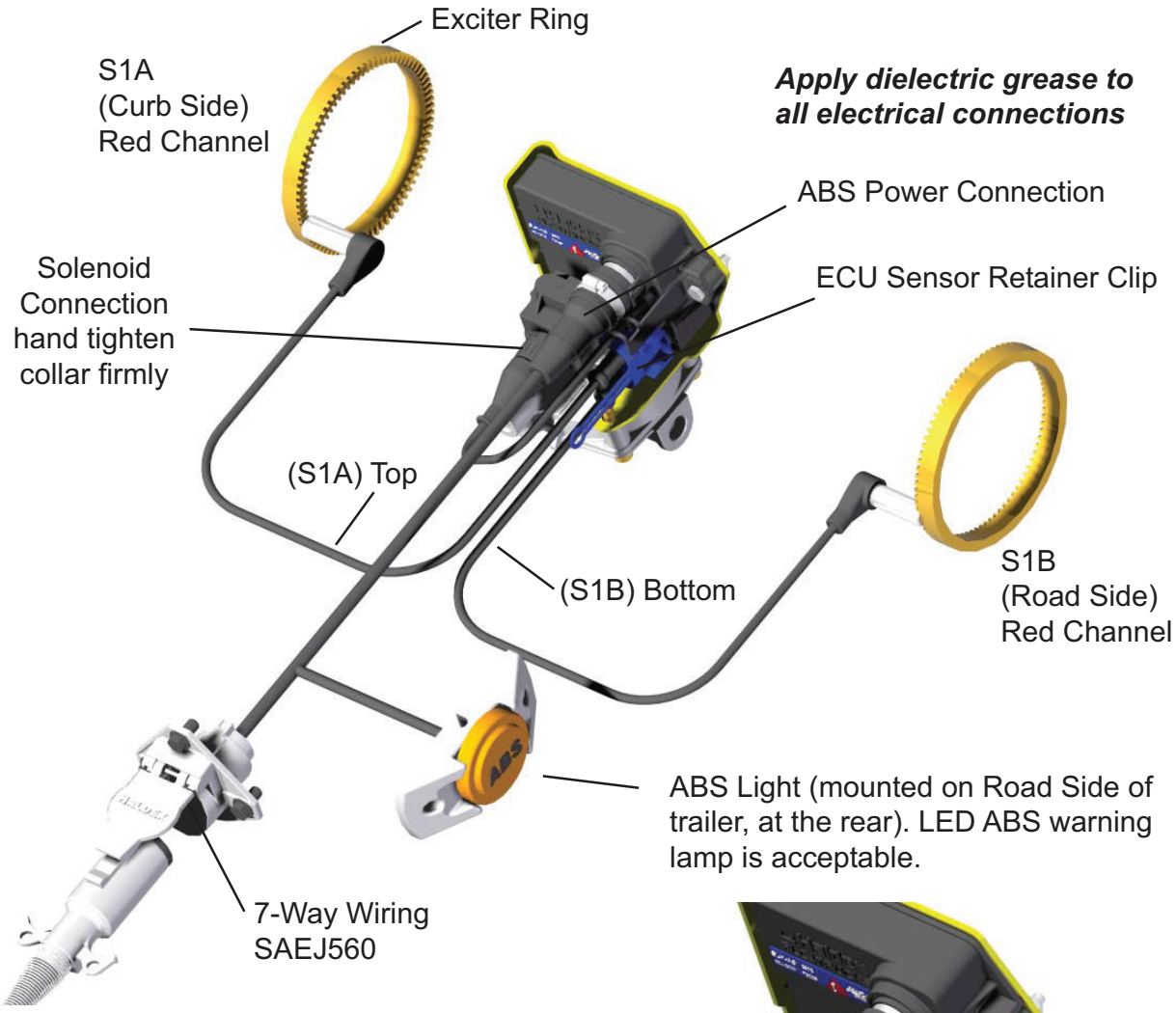
The figure below shows the correct power and speed sensor connections on the PLC Select 1M ECU (Electronic Control Unit).



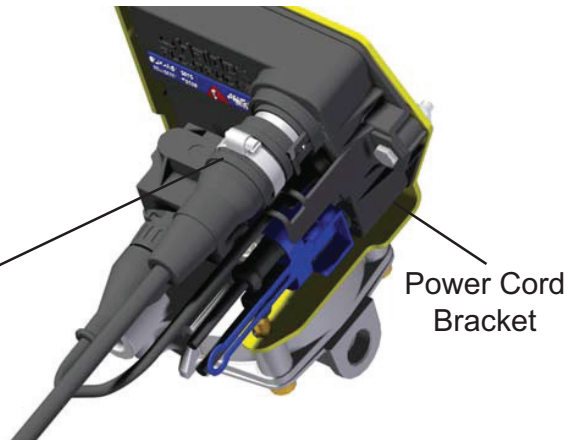
Note: When installing and servicing always apply small amount of dielectric grease to all electrical connections.

2S/1M System Wiring - PLC Select

Note: Cover all exposed electrical connections before painting



*Distance of ABS Light from Red rear clearance side marker light is 5.9” inches to 23” inches max.



The ABS Power Cord is secured to the power cord bracket (page 13) and is secured with a hose clamp (preferred) or tie strap.

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:

S1A: 1 Flash **S1B:** 2 Flashes **S2A:** 3 Flashes
S2B: 4 Flashes **S3A:** 5 Flashes **S3B:** 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

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.

SERVICE BULLETIN

L55134

Innovative Vehicle Technology

www.hbsna.com
2/03 5M CM L55134

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

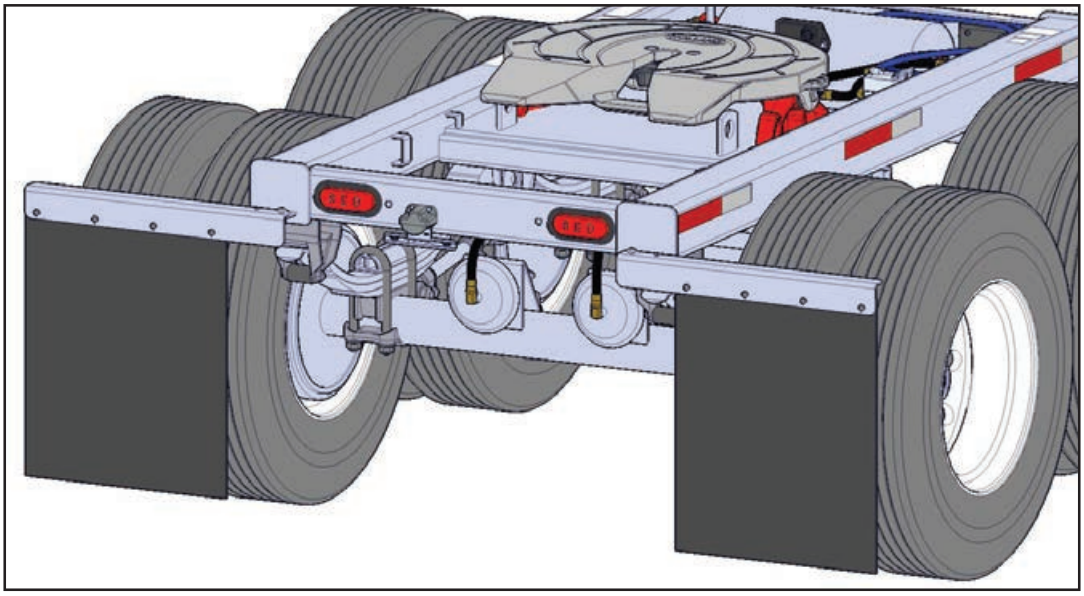
- In a system employing spring brake control valves, spring brakes should function and apply the brakes.Remember that serious air losses are extremely hazardous conditions that are likely to cause accidents or breakdowns.

WARNING:

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

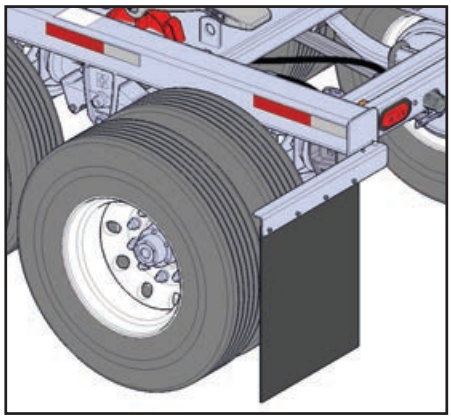
CHECK BRAKE OPERATION

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:

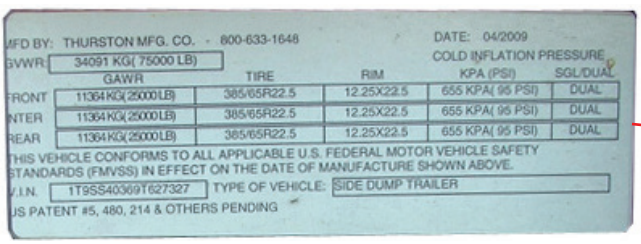
The law requires that you inflate tires according to the inflation pressure molded on the tire by the tire manufacturer. Tires must be matched with proper compatible rims for safe operation.
Replace any tire that has fabric exposed through the tread or sidewall, or that has less than 2/32" tread depth.

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.


MFD BY: THURSTON MFG. CO. - 800-633-1648 DATE: 04/2009

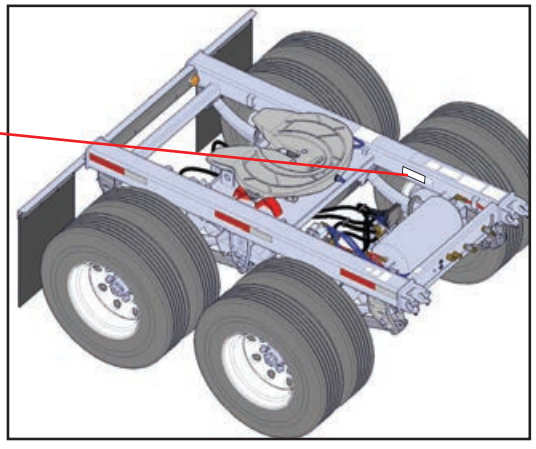
GVWR: 34091 KG(75000 LB) COLD INFLATION PRESSURE

	GAWR	TIRE	RIM	KPA (PSI)	SGL/DUAL
FRONT	11364 KG(25000 LB)	385/65R22.5	12.25X22.5	655 KPA(95 PSI)	DUAL
INTER	11364 KG(25000 LB)	385/65R22.5	12.25X22.5	655 KPA(95 PSI)	DUAL
REAR	11364 KG(25000 LB)	385/65R22.5	12.25X22.5	655 KPA(95 PSI)	DUAL

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS (FMVSS) IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

V.I.N. 1T9SS40369T627327 TYPE OF VEHICLE: SIDE DUMP TRAILER

US PATENT #5, 480, 214 & OTHERS PENDING

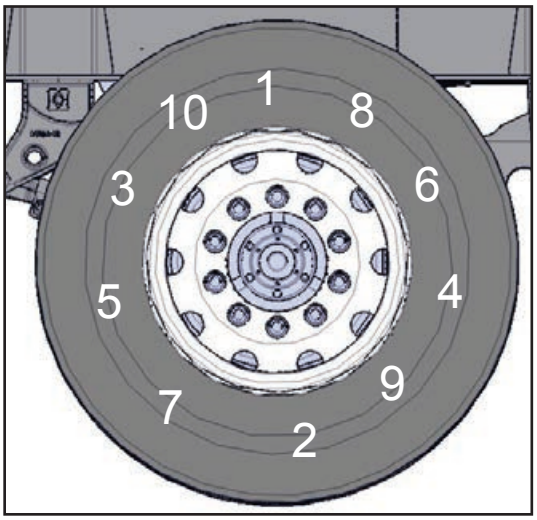


Hub Pilot Wheel Installation

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.

Wheel Maintenance During Tire Inspection

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.

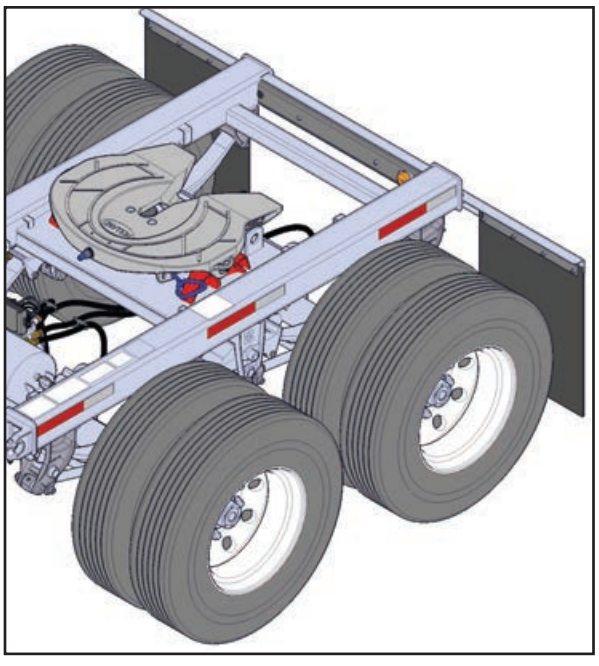
CAUTION:
Excessively corroded or cracked rims or rings can be dangerous. Deflate tires prior to the removal of rims or wheels from the vehicle.

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.

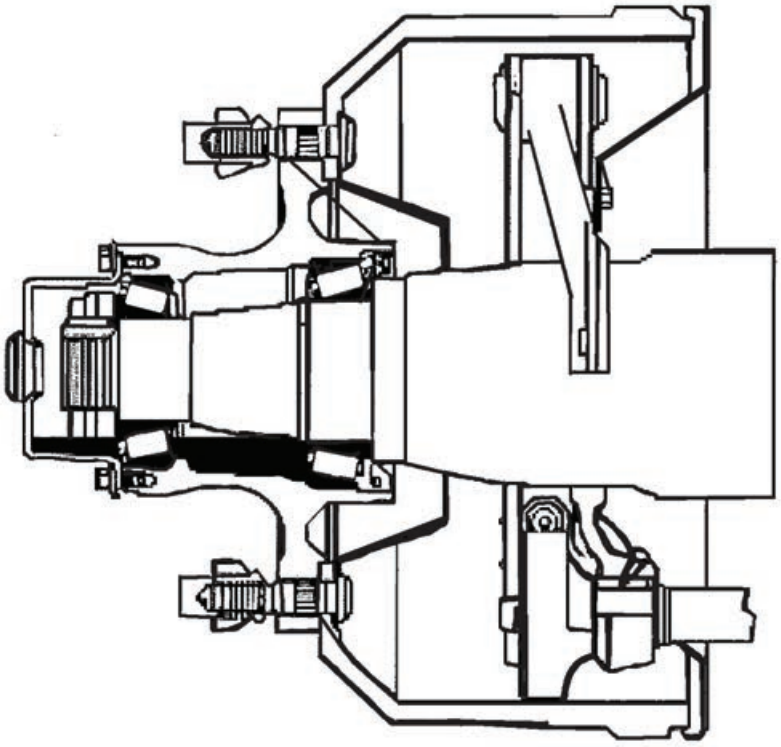
5. Inflate tires only to recommended air pressures.



Axle Inspection

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.

AIR SUSPENSION

The air suspension height is controlled by height control valves that maintains a constant trailer height by pressurizing or exhausting air in the air springs as needed to support the load being carried.
You must build up and maintain your trailer’s air pressure higher than 65 psi before operating the trailer. The air protection valve won’t operate until you have 65 psi in the system. This valve automatically maintains a safe air brake pressure higher than 65 psi in the event of an air loss due to a failure in the suspension system.
If an air spring failure occurs on one side, it is recommended to completely deflate the suspension and temporarily operate on the air spring’s internal rubber bumpers, to allow your trailer to be moved to a shop for repairs.
To deflate or cut off the air pressure to the damaged air spring, disconnect the height control valve actuating levers from their link assemblies and rotate to the vertical down position.

Suspension Torque Specifications

CBX / CB FIXED FRAME TRAILER AIR SUSPENSION TORQUE SPECIFICATIONS

Torques are with clean, lubricated threads.
Always apply torque to nut, if possible.

REQUIRED RE-TORQUING SCHEDULE:

- All fasteners after first three (3) months or 5,000 miles.
- At every routine preventative maintenance.
- At every brake relining.

Fastener Size	Pivot Connection	Shock	Air Spring		SwingAlign
	1-1/8"	3/4"	1/2"	3/4"	1/2"
Torque Ft.-Lbs. (N•m)	450-500 (608-676)	140-175 (190-237)	30-40 (41-54)	40-45 (54-61)	50-60 (68-81)

SAF-HOLLAND

www.safholland.us

XL-AR436 Rev. E

Troubleshooting
Electrical System

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 if 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.

Troubleshooting

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

TUBULAR AXLE

Malfunction	Probable Cause	Corrective Action
Semi-trailer Swerves.	A. Accidental damage to axle from striking obstruction.	A. Replace axle.
	B. Damage to axle from overloading.	B. Replace axle.
	C. Loose nuts holding shackle box.	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.	A. Adjust brakes.
	B. Brake drums out of round.	B. Repair or replace brake drum.
	C. Broken brake shoe return spring.	C. Replace broken return spring.
	D. Loose wheel stud nuts.	D. Tighten loose wheel bearings.
	E. Damaged wheel bearings.	E. Replace damaged wheel bearings.
	F. Wheel bearings not properly adjusted.	F. Adjust wheel bearings.
	G. Obstruction between dual wheels or in tire tread.	G. Remove obstruction.
	H. Bent or damaged wheels or hubs.	H. Replace damaged wheels or hubs.
Wobbly wheels.	A. Loose cap nuts.	A. Tighten or replace cap nuts.
	B. Improperly adjusted or damaged wheel.	B. Adjust or replace wheel bearings.
	C. Bent axle spindle.	C. Replace axle.
	D. Bent or damaged wheel.	D. Replace damaged wheels.

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

Malfunction	Probable Cause	Corrective Action
Overheated hubs.	A. Lack of wheel bearing lubricant.	A. Lubricate wheel bearings.
	B. Wheel bearings improperly adjusted.	B. Adjust wheel bearings.
	C. Damaged bearing or cup.	C. Replace damaged bearing or cup.
	D. Damaged hub.	D. Replace damaged hub.
	E. Bent axle spindle.	E. Check for bends and replace tubular axle.
	F. Overloading or unbalanced distribution of load.	F. Check load weights hauled and keep within rated gross capacity. Arrange load evenly to distribute weight.
Overheated brake drum.	A. Dragging brake shoe assembly.	A. Adjust brake shoe assembly.
	B. Broken brake lining.	B. Replace brake shoe assembly.
	C. Broken or weak brake shoe return spring.	C. Replace return spring.
	D. Bent axle spindle.	D. Replace axle.
Brakes erratic or unequal.	A. Improper lubricant or grease inside brake drum or outside of wheel.	A. Clean and lubricate.
	B. Loose hub cap.	B. Tighten hub cap.
	C. Defective oil seals.	C. Replace defective oil seals.
Undue wear of any or all tires.	A. Incorrect tire inflation.	A. Inflate tires to proper pressure. Tighten valve cap finger tight.
	B. Overloading.	B. Check load weights hauled and keep within rated gross capacity.
	C. Brake action too severe.	C. Check and adjust brakes.
	D. Tires not properly matched.	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.
Air leakage from tires.	A. Valve core loose or damaged.	A. Tighten or replace.
	B. Punctured tube.	B. Repair tube.

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 pushrod 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.

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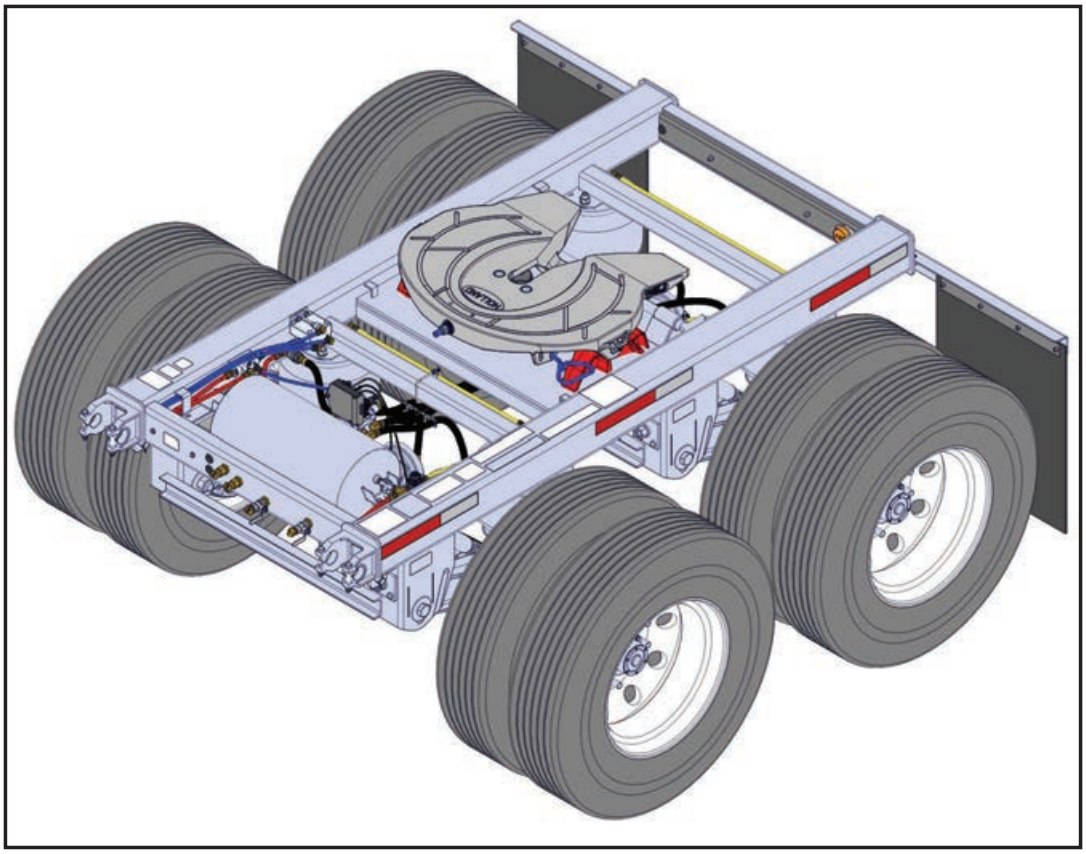
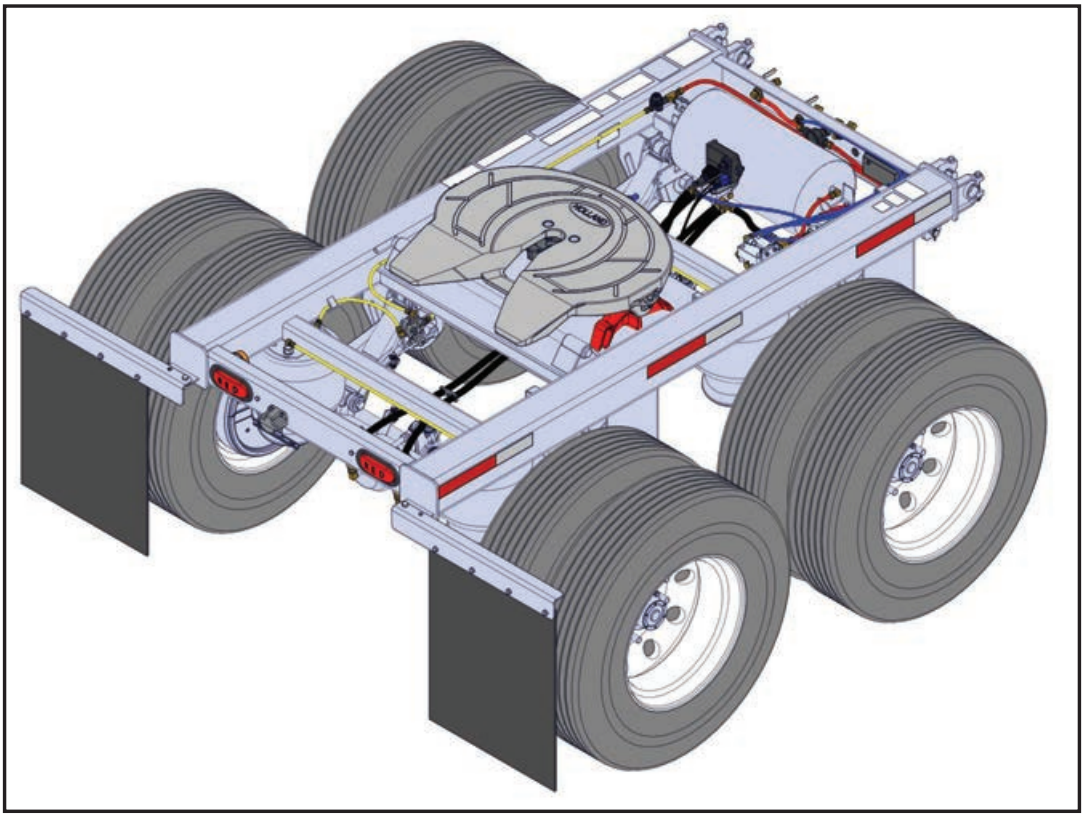
Troubleshooting
Air Brake System
(Continued)

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.

CR102AR-5th, Tandem Air Ride Converter Dolly





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CR102AR-5th, Tandem Air Ride Converter Dolly

BOM ID	Qty	Item No	Description
1	1	SS-102-AIR	TANDEM AIR RIDE CONVERTER DOLLY
2	2	AM9011	SPACER TUBE
3	2	AM9035	MUD FLAP BACKING STRAP
4	1	AM9240	MUD FLAP MOUNT, DOLLY, ROAD SIDE
5	1	AM9241	MUD FLAP MOUNT, DOLLY, CURB SIDE
6	1	AM9271	COVER, TAIL LIGHTS, CONVERTER DOLLY
7	2	AM9377	HOSE HOLDER, AIR BRAKE
8	1	AM9459	CHASSIS, CONVERTER DOLLY, CBX AIR RIDE
8A	1	AM9460	FRAME, CONVERTER DOLLY, CBX
8B	1	AP3611	HINGE SET, PREMIER #440
8C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
8D	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
9	1	AP2914	DECAL, WARNING, HIGH-PRESSURE FLUID
10	1	AP2985	DECAL, MADE IN USA BY TMC
11	1	AP2987	DECAL, WARNING, SUSPENSION HAZARD, 2-3/4" X 6-1/4"
12	6	AP3506	REFLECTIVE TAPE, RED/SILVER
13	1	AP3524	AIR TANK, 2800 CUBIC INCH
14	1	AP3525	DRAIN COCK, 1/4" NPT
15	2	AP3531	STREET TEE, 3/8", 90 DEGREES
16	7	AP3532	STREET ELBOW, 3/8", 90 DEGREES
17	2	AP3534	ADAPTER, 1/4" MP X 3/8" TUBE, STRT, BRASS
18	1	AP3535	TEE, BRASS PIPE, 3/8"
19	4	AP3537	NYLON TUBING, RED, 1/2"
20	4	AP3538	NYLON TUBING, BLUE,
21	2	AP3551	GROMMET, OVAL, MODEL 60
22	1	AP3557	VALVE, RELAY, HALDEX N-30096-PA
23	1	AP3671	DECAL, DANGER, SPRING BRAKE CHAMBER HAZARD
24	1	AP3672	DECAL, DANGER, EQUIPMENT HAZARD
25	1	AP3673	DECAL, DANGER, EMERGENCY PARKING BRAKE HAZARD
26	1	AP3681	DECAL, METAL IDENTIFICATION TAG
27	5	AP3683	NYLON TUBING, YELLOW, 3/8"
28	6	AP3687	ELBOW, 3/8" MP X 3/8" TUBE, 90 DEGREE, BRASS
29	4	AP3688	STREET ELBOW, 3/8", 45 DEGREE
30	2	AP3692	HEX PLUG, 3/8", BRASS
31	1	AP3693	HEX PLUG, 1/2" BRASS
32	5	AP3698	HEX BUSHING, 1/2" X 3/8", BRASS
33	1	AP3709	ELBOW, 90 DEGREE STREET, BRASS, 1/4"
34	1	AP3733	NIPPLE, HEX, 3/8" MP, BRASS
35	1	AP3752	QUICK RELEASE VALVE
36	2	AP3754	ABS SENSOR EXTENSION CORD, 1 meter
37	1	AP3813	TEE, RUN, 1/4" MP X 3/8" TUBE X 3/8" TUBE, BRASS
38	3	AP3864	AIR BRAKE HOSE SEPARATOR, 1/2" HOSE
39	1	AP3878	LICENSE PLATE BRACKET
40	2	AP4027	MUD FLAP, BLACK, RUBBER
41	3	AP4045	GROMMET, 3/4" ID G3137-016
42	1	AP4120	LISCENSE PLATE LAMP, CLEAR, 12 V
43	1	AP4121	LISCENSE PLATE LAMP MOUNTING BRACKET, GREY
44	3	AP4199	TUBE, 1/2" X 3/8 MP, 90 DEGREE, NUT & FERRULE, BRASS
45	5	AP4200	TUBE, 1/2" X 3/8" MP, STRT, NUT & FERRULE, BRASS
46	3	AP4201	NIPPLE, HEX REDUCER, 3/8" MP X 1/4" MP, BRASS
47	4	AP420	HOSE, 1/2" AIR BRAKE X
48	2	AP4233	ADAPTER, 3/8" MP X 3/8" TUBE, STRT, BRASS
49	1	AP4281	DECAL, WARNING, WHEEL NUT TORQUE
50	1	AP4301	ABS LIGHT BRACKET, 102008HP

BOM ID	Qty	Item No	Description
51	1	AP4302	ABS LIGHT, 101731F
52	1	AP4304	DECAL, ABS, ABS LIGHT, 101931-ZZ
53	2	AP4308	RETAINING CLIP, ABS SENSOR PLUG
54	2	AP4309	RIVET, POP, 1/8” AL
55	2	AP4312	LAMP, LED, OVAL, STOP TURN & TAIL, RED
56	1	AP4347	VALVE, SEALCO 110376
57	1	AP4348	VALVE, PRESSURE PROTECTION, DOLLY, HALDEX N-15759-DH
58	1	AP4349	VALVE, CHECK, 3/8” MP-3/8” FP, HALDEX N-13526-AG
59	1	AP4350	VALVE, CHECK, 1/2” MP-1/2” FP, HALDEX N-13526-AJ
60	1	AP4355	VALVE, ABS, 1/2” NPT, HALDEX N9001AD, DOLLY
60A	1	AP4352	ABS ECU, HALDEX PLC SELECT, AL919324, DOLLY
60B	1	AP4353	ABS VALVE, LESS ECU, HALDEX AL364041, DOLLY
60C	1	AP4354	ABS VALVE SOLENOID, 12V, HALDEX AQ40525
60D	1	AP4356	ABS VALVE ECU MOUNT, HALDEX 015505209
60E	1	AP4357	ABS VALVE SENSOR CORD RETAINER, DOUBLE, HALDEX
60F	2	BP3055	WASHER, FLAT, 1/4”, PLATED
60G	1	BP3587	NUT, HEX, 1/4” NYLOCK
60H	3	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
60I	1	BP3648	BOLT, 1/4” X 1-1/4” GRADE 8
61	2	AP4392	HOSE CLAMP, 2 HOLE, 1/2” AIR BRAKE HOSE
62	1	AP4397	NIPPLE, HEX REDUCER, 3/”MP X 1/2”MP, STEEL
63	2	AP4399	COUPLING, HEX REDUCER, 1/2”FP-3/8”FP, BRASS
64	2	AP4417	VALVE, BALL, 1/2”FP, BRASS
65	1	AP4470	HOSE, 1/2” AIR BRAKE X 14”, 3/8”MP-3/8”MPX
66	1	AP4478	DECAL, NEWAY TIRE CLEARANCE
67	1	AP4495	DECAL, WARNING, HOLLAND 5TH WHEEL HOOK-UP
68	1	AP4556	DECAL, SWING ALIGN INSTR, SAF-HOLLAND, XL-AR435
69	1	AP4557	DECAL, TORQUE SPECS, CBX, SAF-HOLLAND, XL-AR436
70	4	BP3015	WASHER, FLAT, 3/8”, PLATED
71	2	BP3054	WASHER, LOCK, 1/4”, PLATED
72	2	BP3189	HEX CAP SCREW, 3/8”-16 X 3-1/2”, GRADE 5 PLATED
73	1	BP3362	U-BOLT, 3/8”-16 X 3”W X 4”L
74	2	BP3403	PIN, CLEVIS, 1” X 2-3/4” USEABLE
75	4	BP3511	PIN, COTTER, 3/16” X 1-3/4”
76	4	BP3584	BOLT, TERMINAL, HB646
77	4	BP3587	NUT, HEX, 1/4” NYLOCK
78	4	BP3600	HEX CAP SCREW, 1/4”-20 X 1”, GRADE 8 PLATED
79	2	BP3601	HEX CAP SCREW, 1/4”-20 X 2”, GRADE 8 PLATED
80	17	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
81	2	BP3641	NUT, HEX LOCK, #10-24, NYLOCK
82	2	BP3642	PAN HEAD MACHINE SCREW, #10-24 X 3/4”
83	2	BP3643	WASHER, #10 USS FLAT Z
84	4	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
85	2	BP3674	HEX CAP SCREW, 1/2”-13 X 1-1/2” GRADE 8 PLATED
86	13	BP3692	BOLT, FLNG HEAD, 3/8”-16 X 1, GRADE 8 PLATED
87	2	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
88	4	BP3709	BOLT, FLNG HEAD, 5/16”-18 X 1, GRADE 8 PLATED
89	1	AP4204	AIR CONTROL VALVE, IR, HOLLAND-NEWAY
90	1	AP4205	HEIGHT CONTROL VALVE LINKAGE KIT
91	2	BP3111	HEX CAP SCREW, 5/16”-18 S 2-1”, GRADE 5, PLATED
92	1	BP3587	NUT, HEX, 1/4” NYLOCK
93	2	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
94	1	BP3648	BOLT, 1/4” X 1-1/4” GRADE 8
95	1	DP6322	JUNCTION BOX
96	1	DP6323	VALVE, AIR PRESSURE PROTECTION WITH FILTER
97	6	DP6326	ELBOW, 1/4” MP X 3/8” TUBE, 90 DEGREE, BRASS

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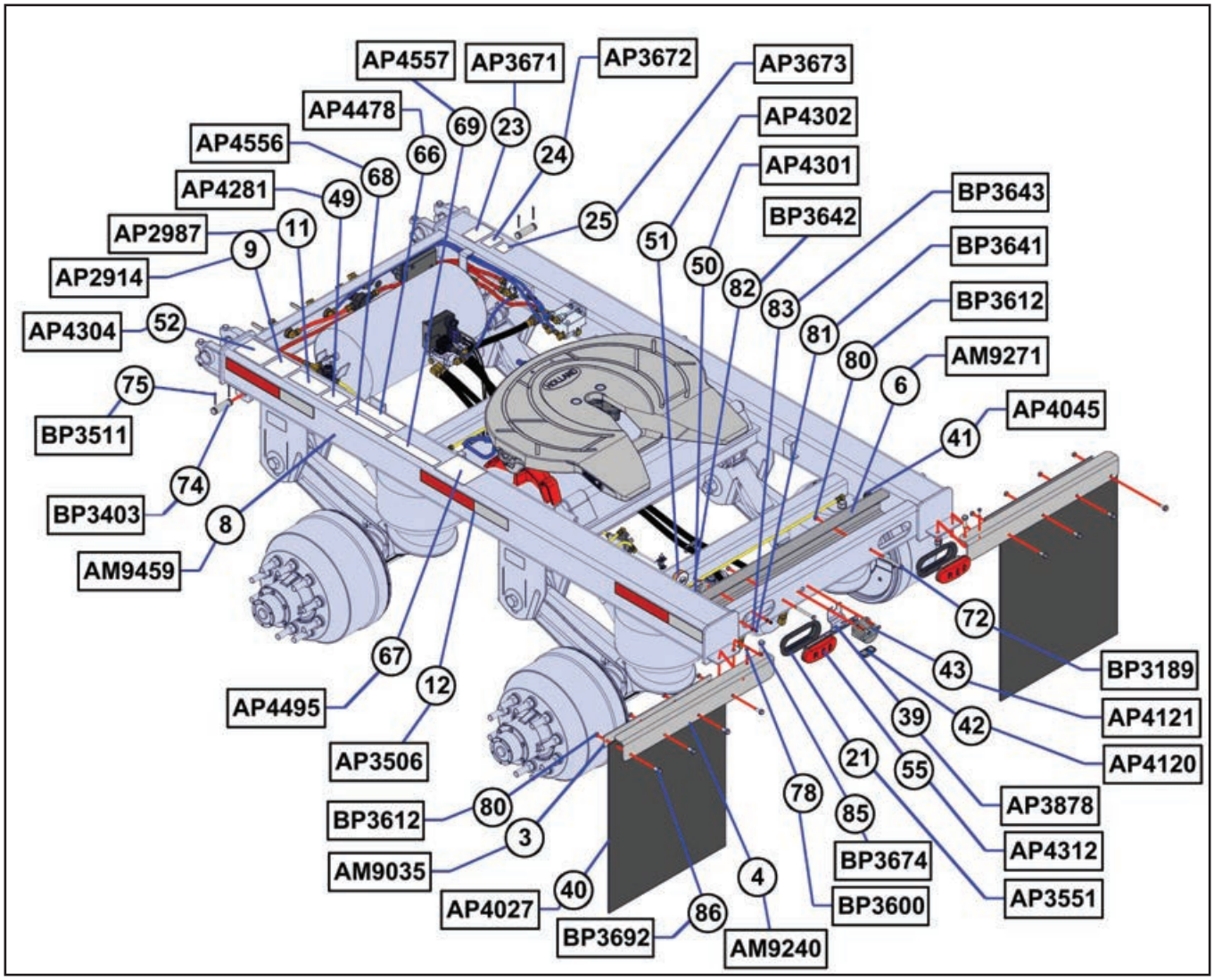

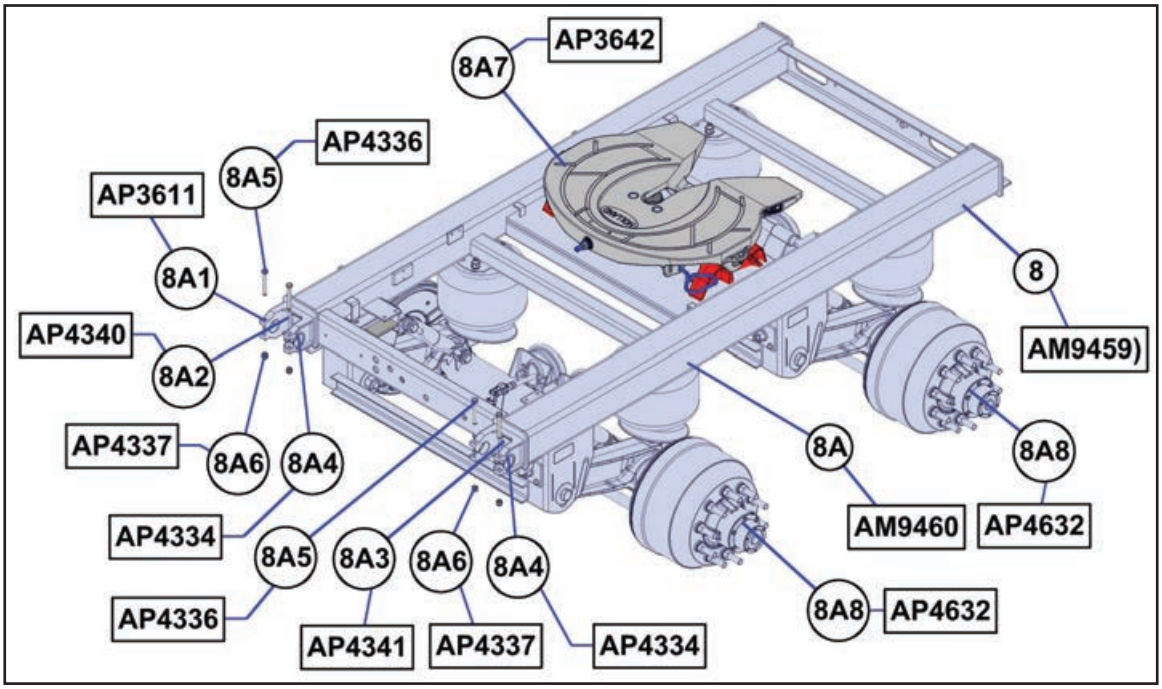

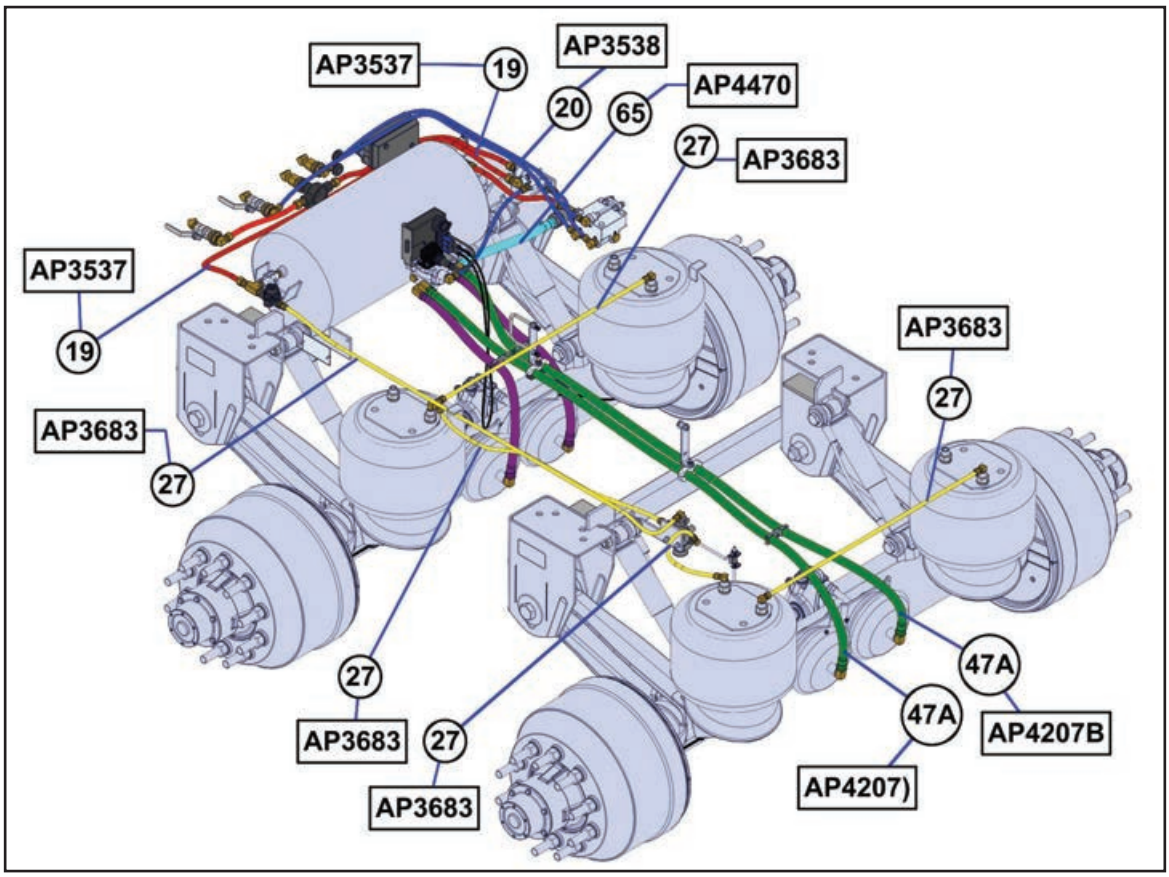
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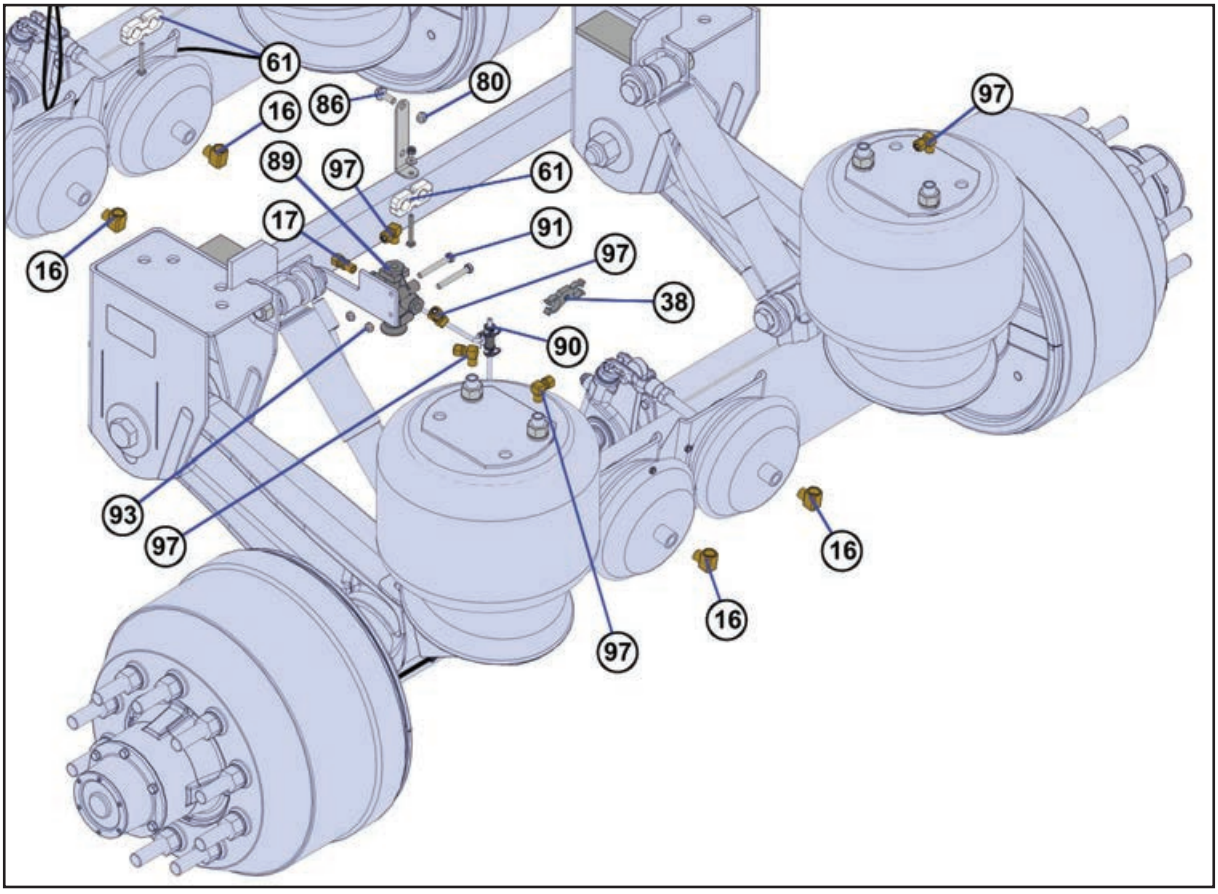
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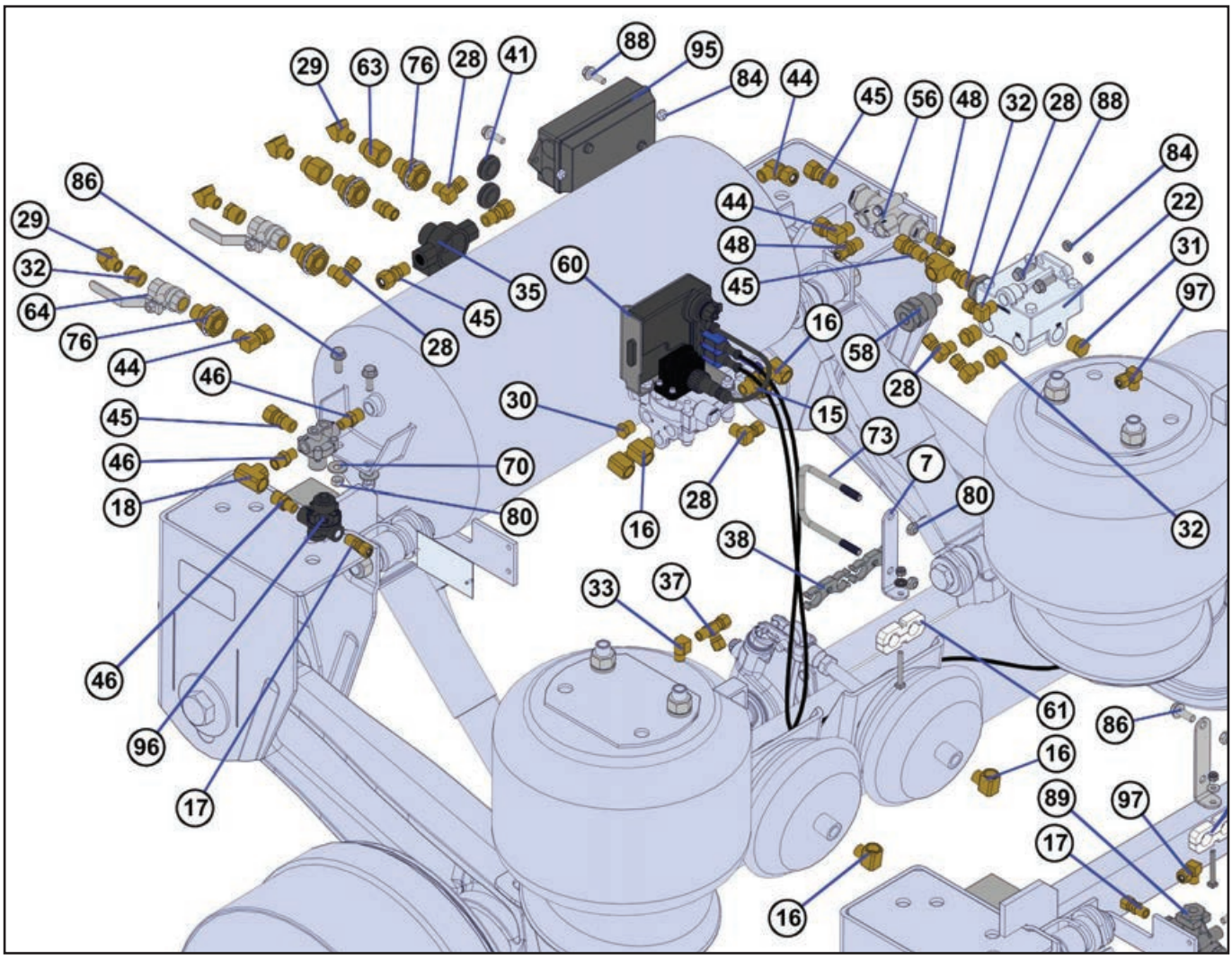

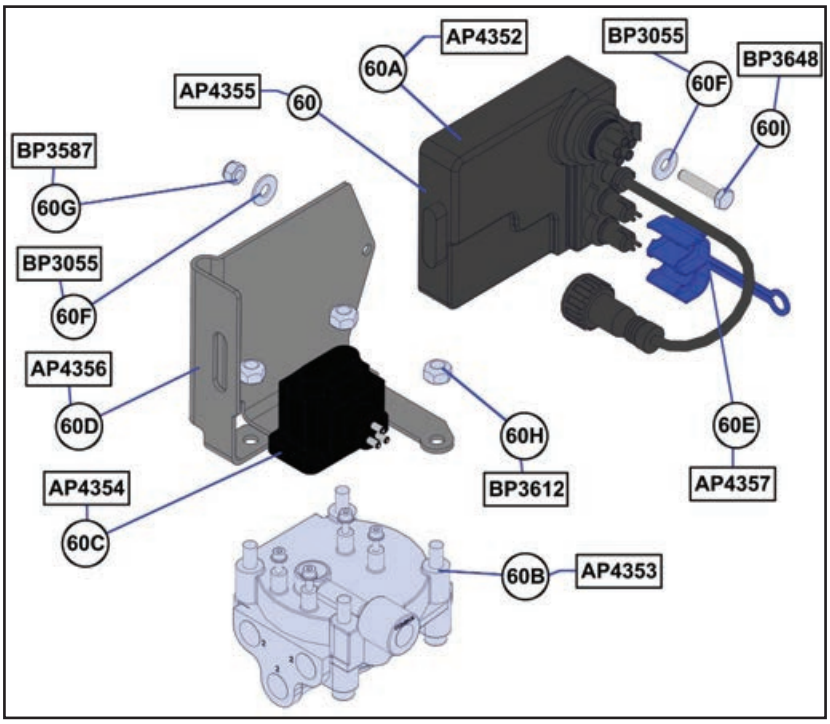

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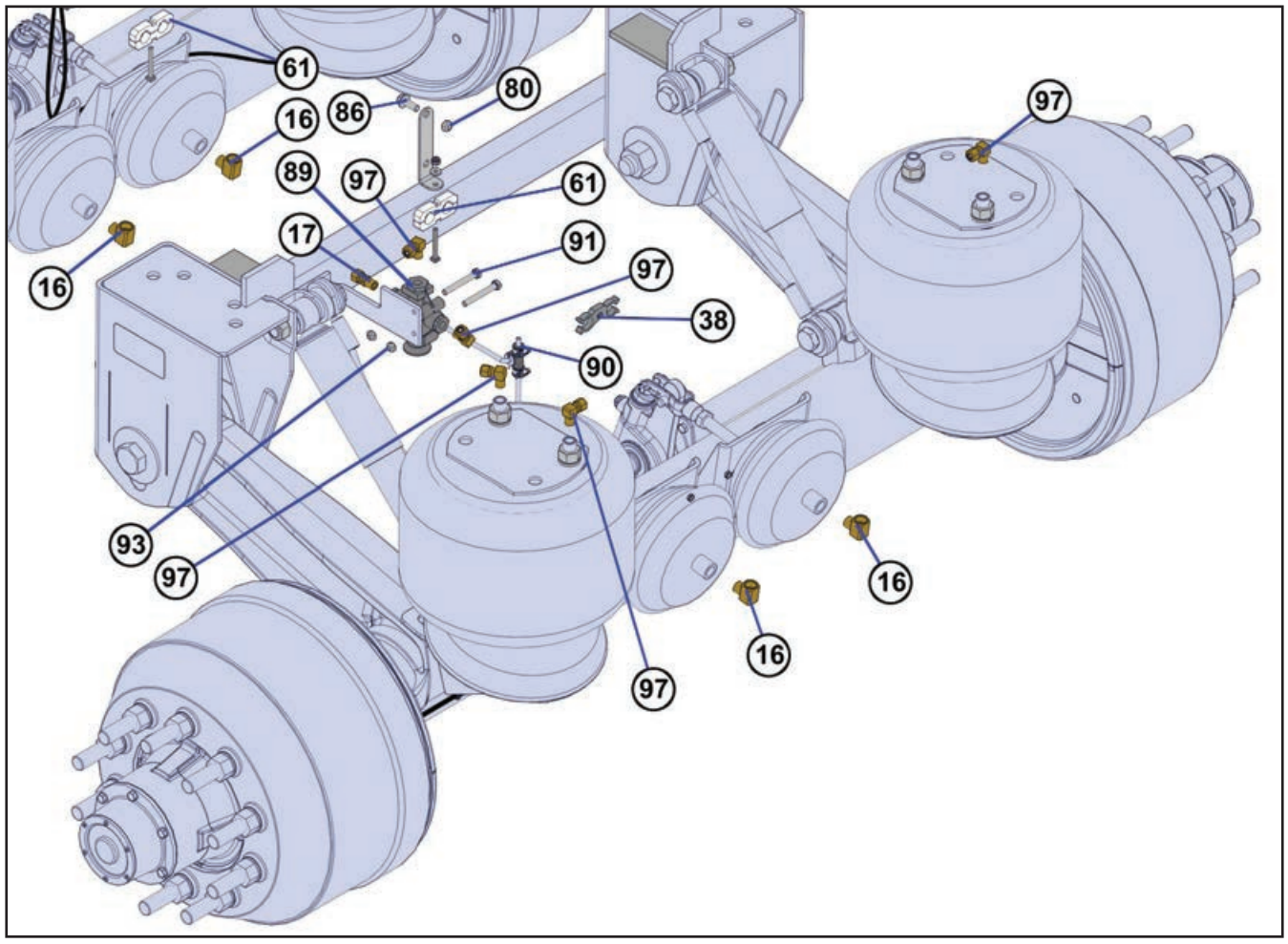
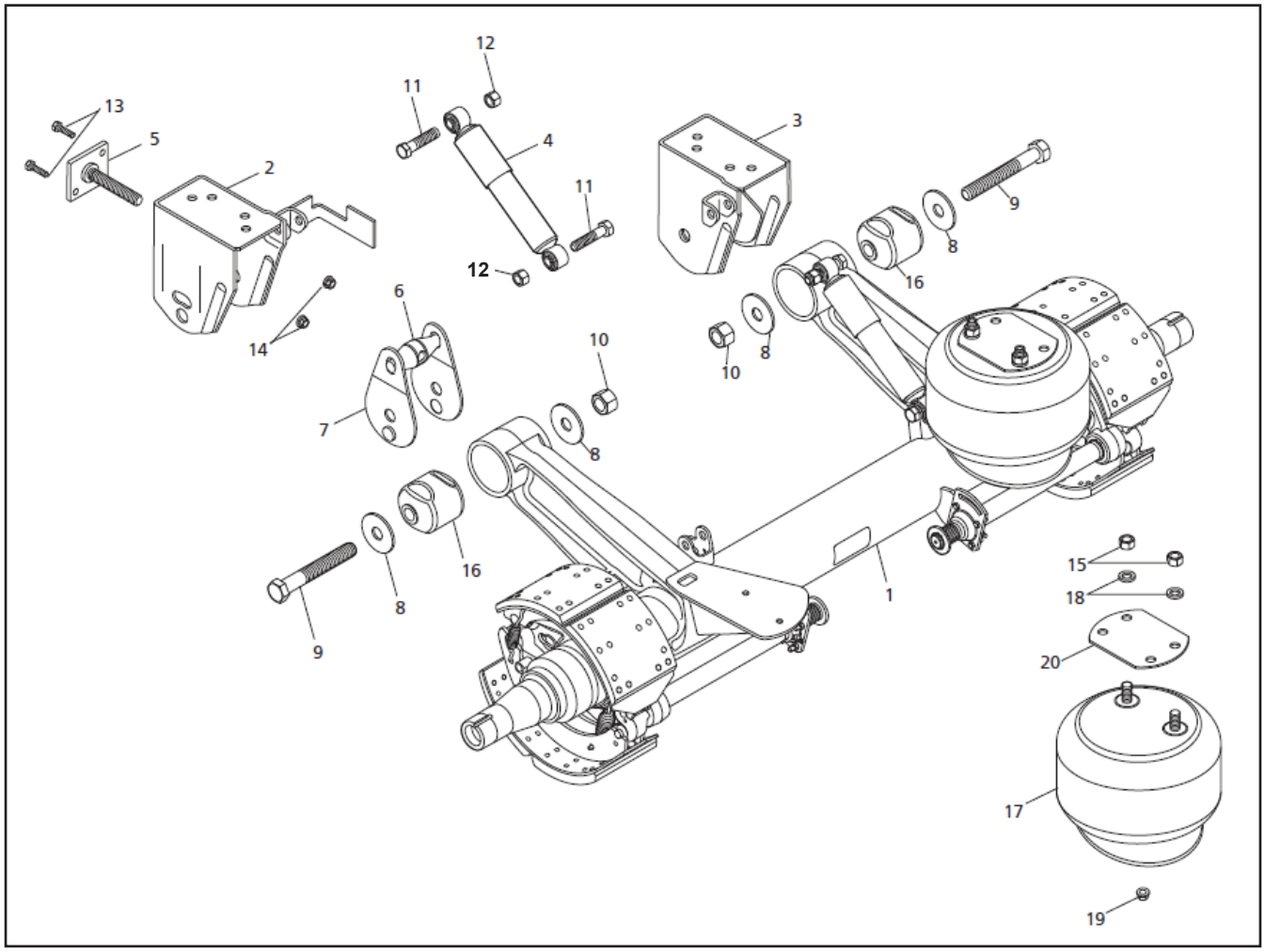


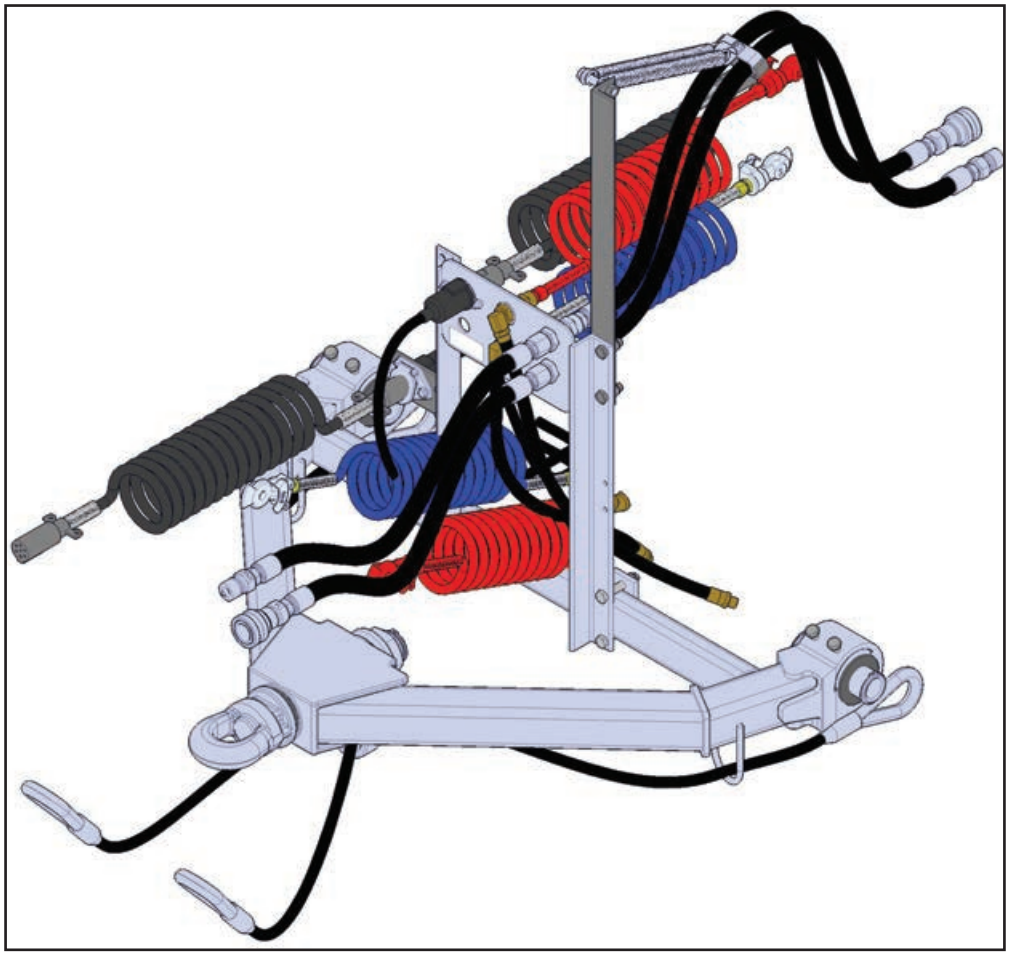
CBX23 Standard Suspension Parts List

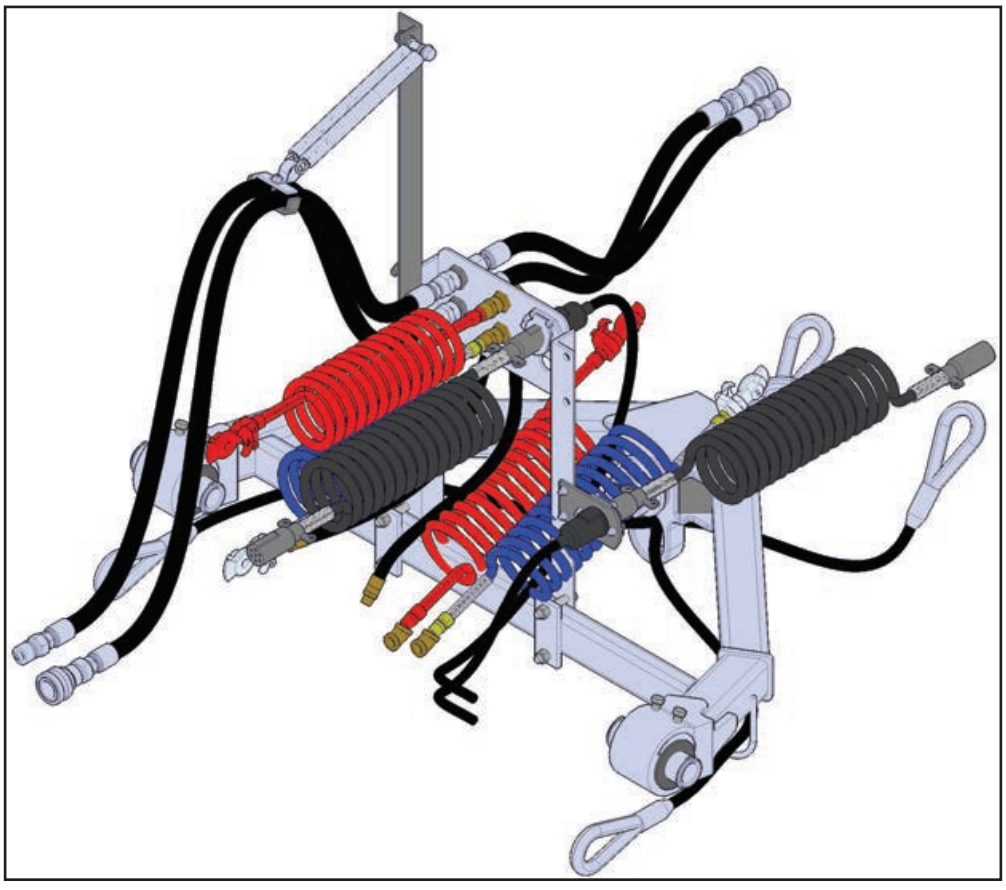


ITEM	DESCRIPTION	PART NUMBER	QTY / AXLE
1	CBX23 W/245 AXLE AND BEAM ASSEMBLY	NOT AVAILABLE	1
2	FRAME BRACKET STYLE #2	90521825	1
3	FRAME BRACKET STYLE #2	90521828	1
4	SHOCK ABSORBER FOR BRACKET STYLE #2, 17” RIDE HEIGHT	90044162	2
5	THREADED ROD ASSEMBLY	90548007	1
6	SWING ALIGN YOKE	90045491	1
7	PLATE WELDMENT	90531339	2
8	WASHER 1.14” I.D. x 3.50” O.D. GRADE 8	93600553	4
9	BOLT 1.125”-7 X 8.00”, GRADE 8	93201070	2
10	NUT HEX 1.125”-7 GRADE C	93400506	2
11	BOLT, HEX .75”- 10 X 3.50”, GRADE 5	93006035	2
12	NUT HEX .75”-10 GRADE B	93400492	4
13	SCREW HEX CAP .50”-13 x 1.75” GRADE-5 ZINC COATED	XB-HHC-001-33	2
14	NUT FLANGE .50”-13 GRADE B	93400623	2
15	AIR SPRING TOP MOUNTING NUT .75”-16 GRADE B	93400149	4
16	BUSHING, CAST BEAM SEE 48100394	90008247	2
17	AIR SPRING ASSEMBLY, 16.0”- 19.0” RIDE HEIGHT	90557399	2
18	AIR SPRING MOUNTING WASHER .76” I.D. x 1.27” O.D.	93600077	2
19	AIR SPRING BOTTOM MOUNTING NUT .50”-13 GRADE B	93400623	1
20	AIR SPRING MOUNT PLATE	90034247	1

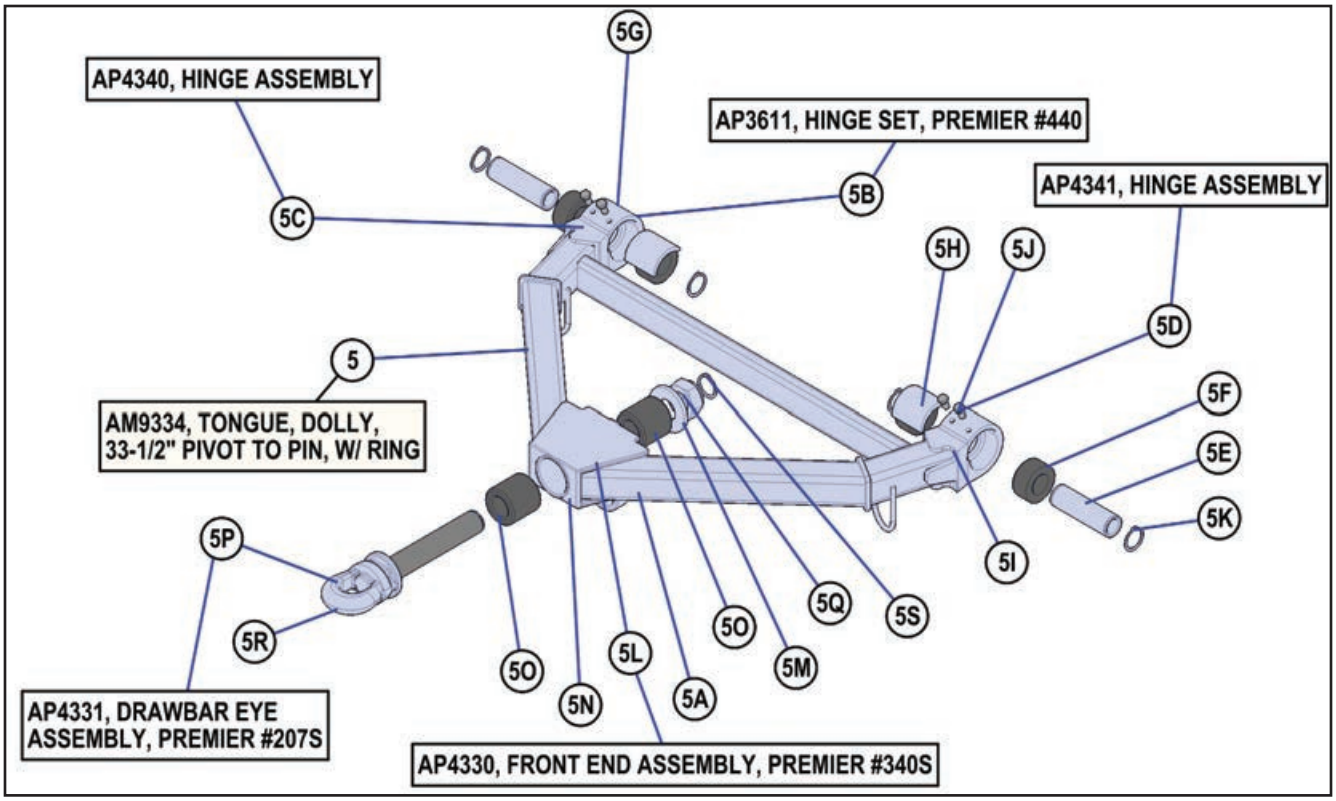
DEMCO

Converter Dolly Tongue, 33-1/2”, Assembled





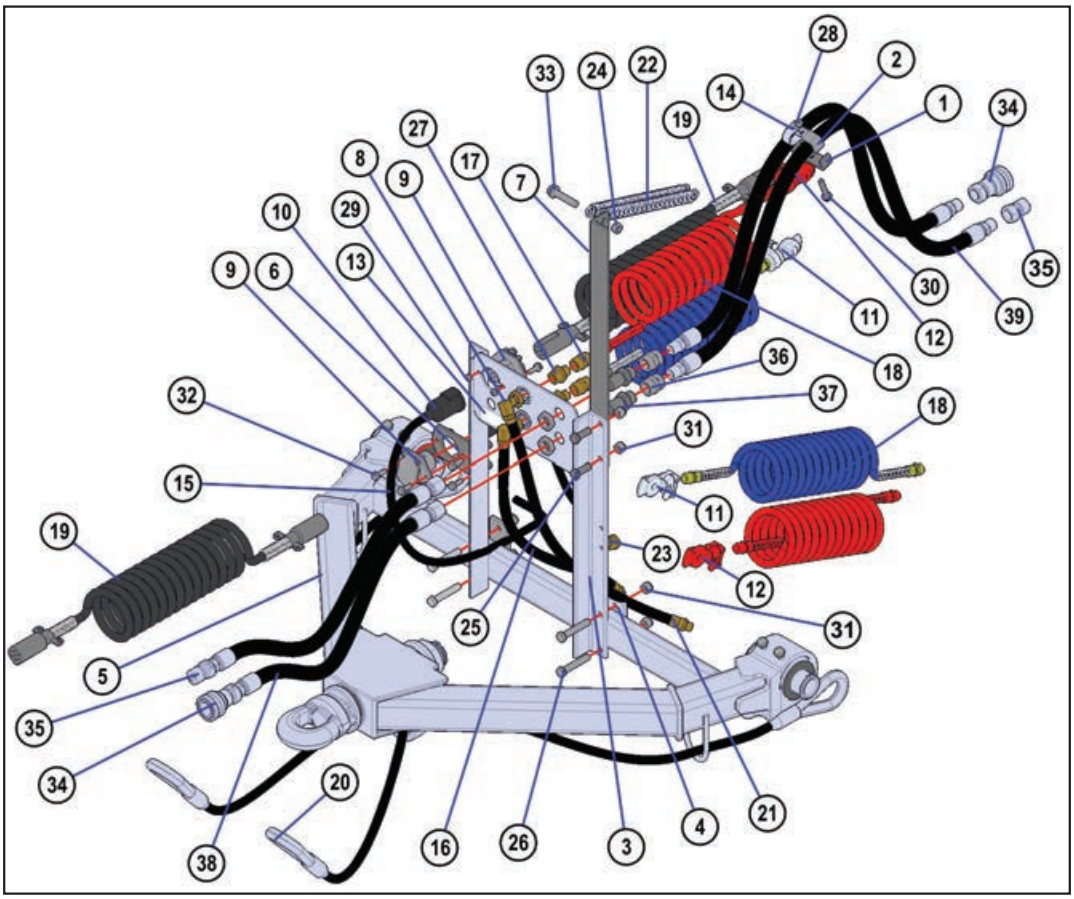
Converter Dolly Tongue, 33-1/2”, Assembled

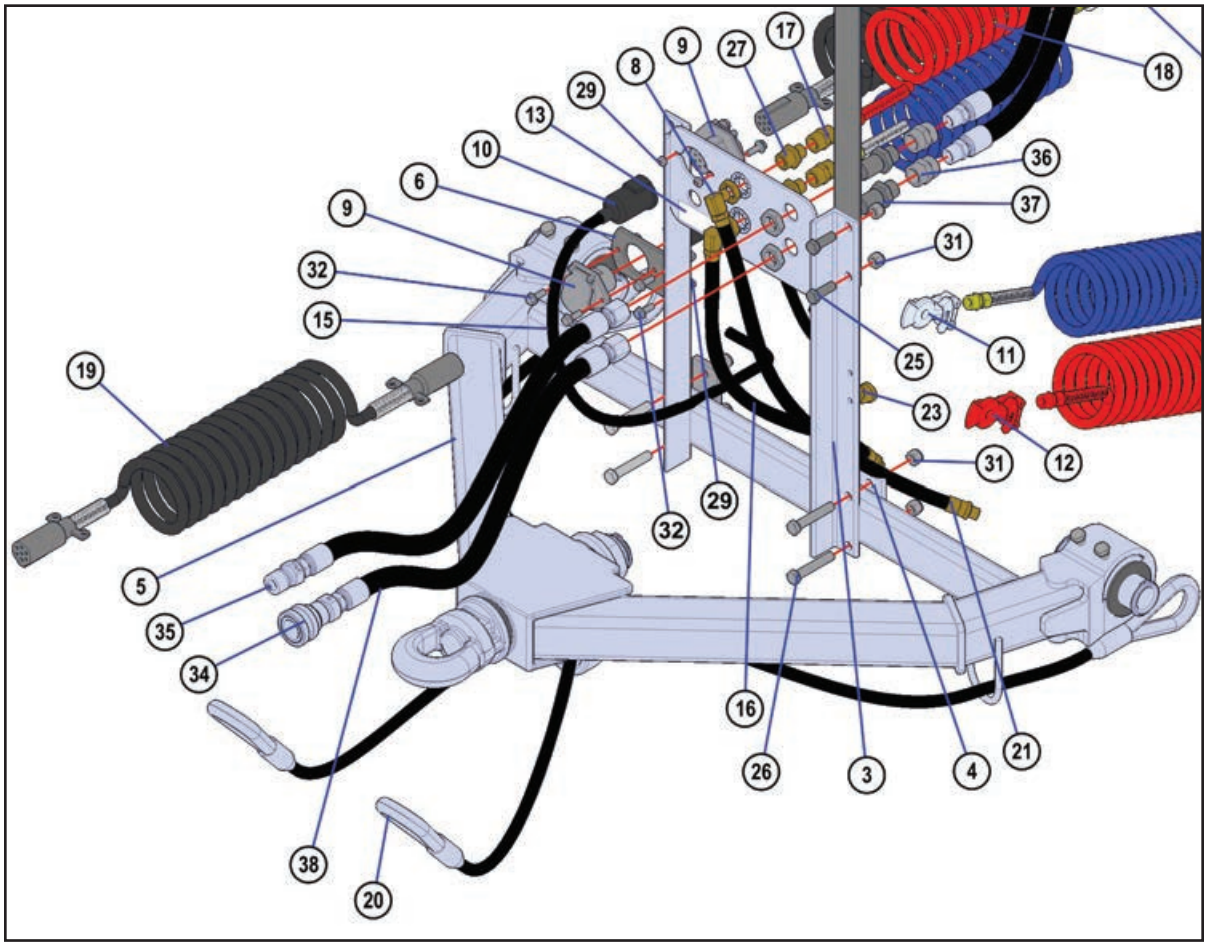


BOM ID	Qty	Item No	Description
5	1	AM9334	TONGUE, DOLLY, 33-1/2” PIVOT TO PIN, WITH RING
5A	1	AM9317	TONGUE, DOLLY, 33-1/2” PIVOT - PIN
5B	1	AP3611	HINGE SET, PREMIER #440
5C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
5D	1	AP4341	HINGE ASSEMBLY, LEFT HAND, PREMIER
5E	2	AP4332	HINGE PIVOT PIN, PREMIER #442
5F	4	AP4333	HINGE PIVOT BUSHING, RUBBER, PREMIER #448
5G	1	AP4335	HINGE SWIVEL, PREMIER #424-R
5H	2	AP4338	HINGE ADJUSTMENT SHOE, PREMIER #445
5I	1	AP4339	HINGE SWIVEL, PREMIER #424-L
5J	4	BP3125	HEX CAP SCREW, 1/2”-13 X 1”, GRADE 5, PLATED
5K	4	BP3216	SNAP RING, 2”, EXTERNAL
5L	1	AP4330	FRONT END ASSEMBLY, PREMIER #340S
5M	1	AP4342	FRONT END WASHER, PREMIER #349
5N	1	AP4343	FRONT END HOUSING, PREMIER #346
5O	2	AP4344	FRONT END BUSHING, PREMIER #348
5P	1	AP4331	DRAWBAR EYE ASSEMBLY, PREMIER #207S
5Q	1	AP 4345	DRAWBAR EYE LOCK NUT, PREMIER #416
5R	1	AP4346	DRAWBAR EYE, PREMIER #207S
5S	1	BP3216	SNAP RING, 2”, EXTERNAL

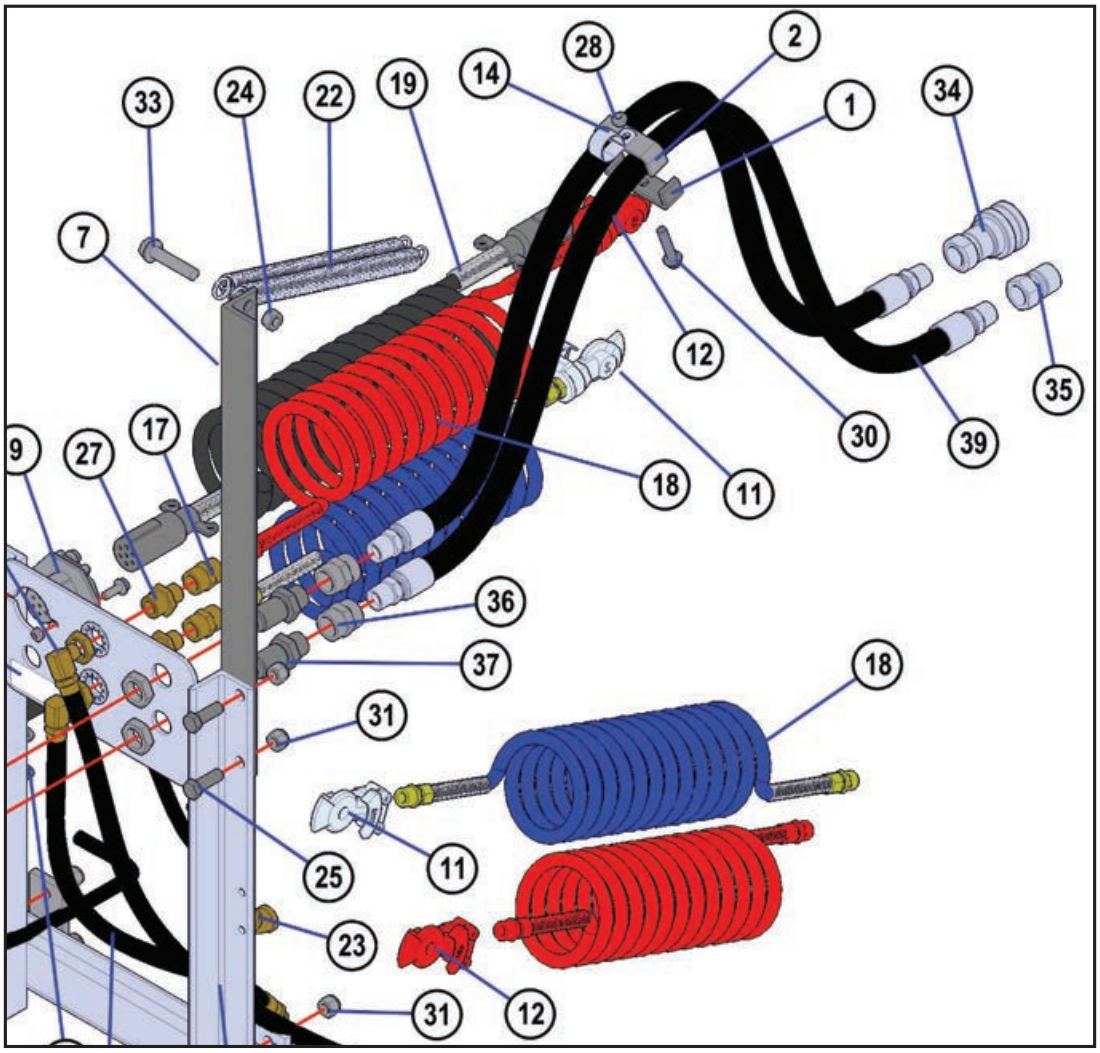
DEMCO

Converter Dolly Tongue, 33-1/2”, Assembled



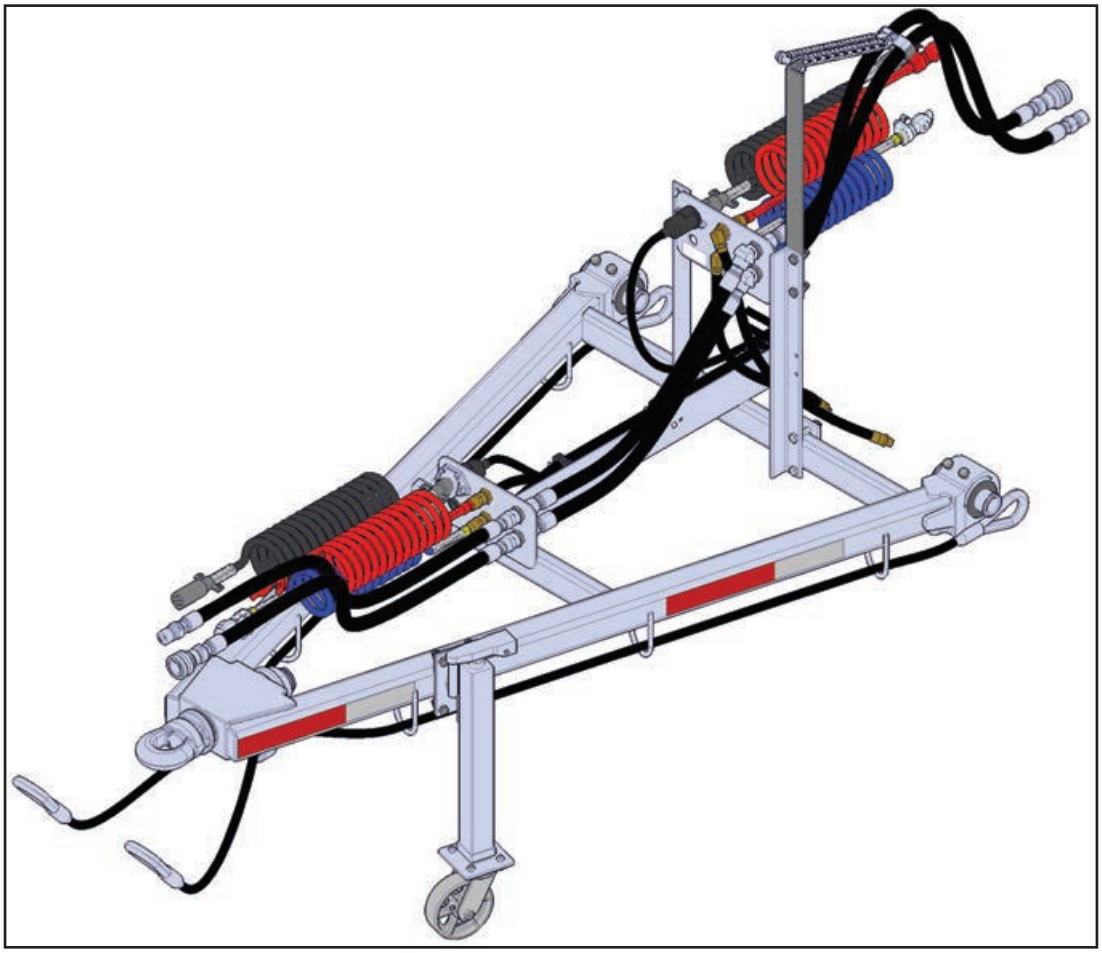


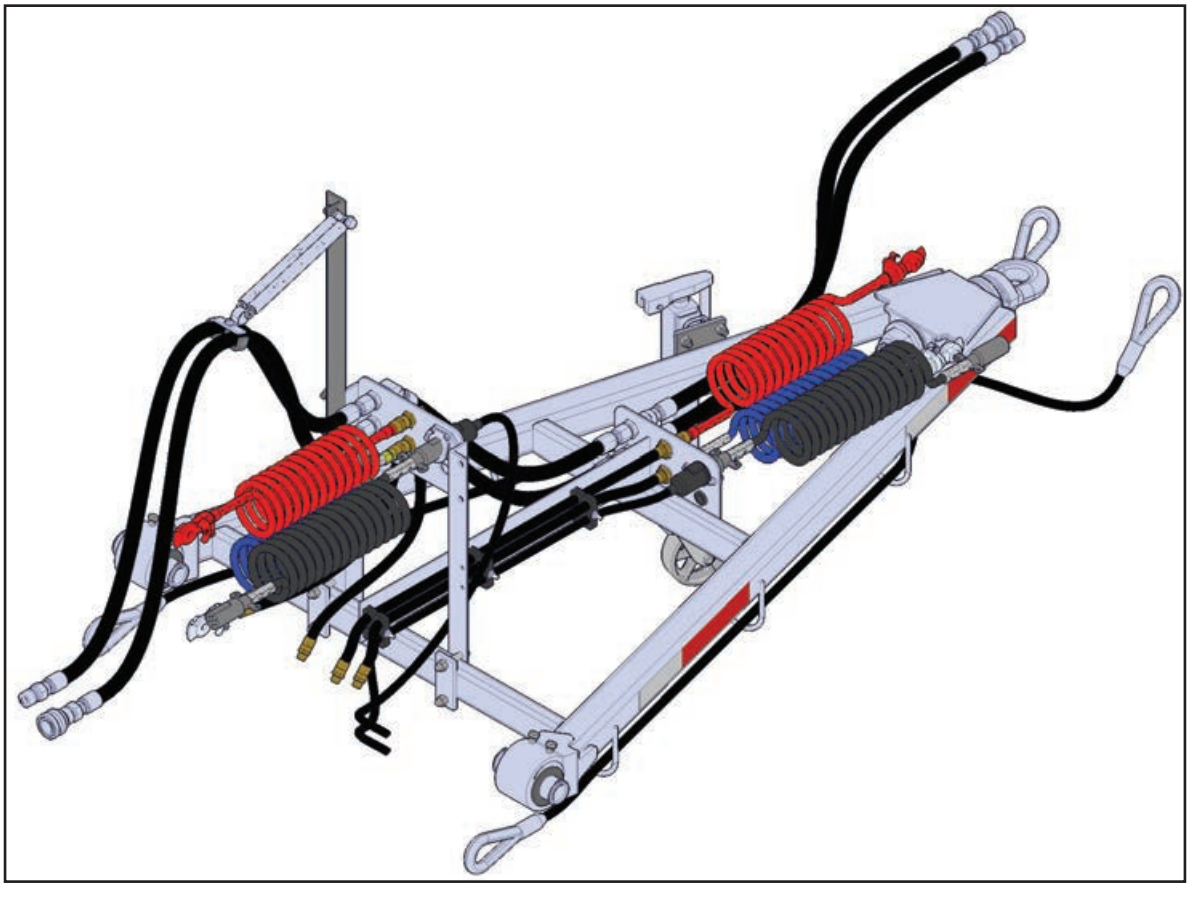
Converter Dolly Tongue, 33-1/2”, Assembled



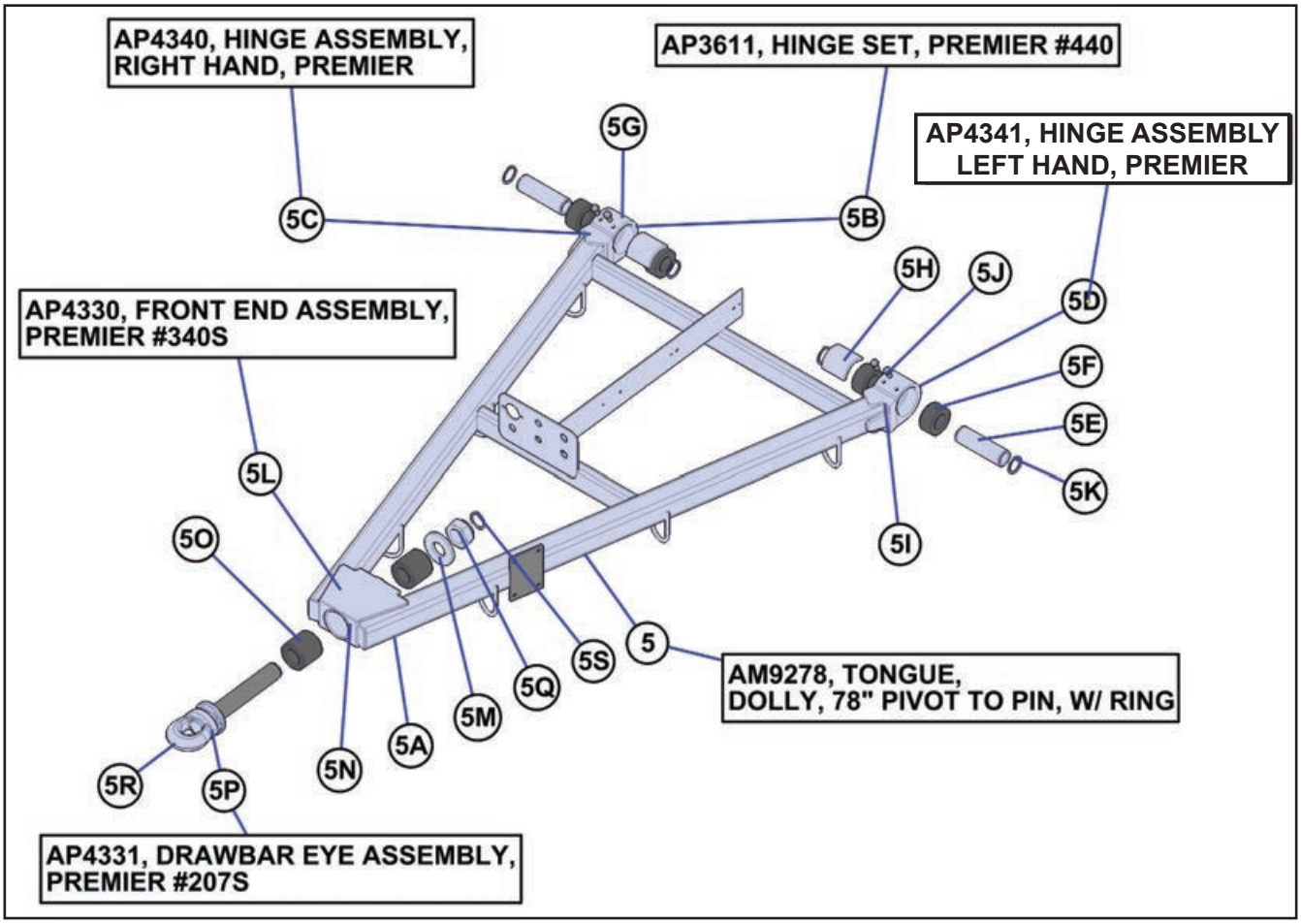
BOM ID	Qty	Item No	Description
1	1	AM8052	HOSE RETAINER, DOUBLE, 3/4” HYDRAULIC
2	1	AM8053	HOSE RETAINER, SINGLE
3	1	AM9272	HOSE MOUNT TOWER, CONVERTER DOLLY
4	2	AM9273	BACKING PLATE, 3/8”X 2”X 4-13/16” OAL WITH 9/16” HOLES
5	1	AM9334	TONGUE, DOLLY, 33-1/2” PIVOT TO PIN, WITH RING
6	1	AM9338	BRACKET, ELECTRICAL SOCKET MOUNTING
7	1	AM9339	BRACKET, HOSE HOLDER, CONVERTER DOLLY
8	2	AP3532	STREET ELBOW, 3/8”, 90 DEGREES
9	2	AP3543	SOCKET, 7 WAY, TRAILER
10	2	AP 3544	WEATHERGUARD BOOT FOR 7-WAY PLUG
11	2	AP3555	GLADHAND, SERVICE, BLUE
12	2	AP3556	GLADHAND, EMERGENCY, RED
13	1	AP3674	DECAL, WIRING HARNESS COLOR CODE
14	1	AP3809	1-1/4” HOSE SUPPORT CLAMP, 3/8” BOLT
15	2	AP3865	WIRE, 6-#12, 1-#10
16	1	AP4210	HOSE, 3/8” AIR BRAKE X 26”, 3/8”MP-3/8”MPX
17	2	AP4398	COUPLING, 1/2 NPT, BRASS
18	2	AP4400	AIR HOSE, COILED PAIR, 8’, 1/2” MP, RED/BLUE
19	2	AP4416	WIRE, COILED, 12’ HD, (1-10,6-12), BLACK, 125CE
20	2	AP4463	SAFETY CABLE, 5/8” X 72”, DOUBLE LOOP
21	1	AP4469	HOSE, 3/8” AIR BRAKE X 34”, 3/8”MP-3/8”MPX
22	2	AP4476	SPRING, EXTENSION, 1” OD X 13”, CMI 6610013
23	2	AP4486	ELBOW, 45 DEGREE, 8FP X 8FP, BRASS, 73355-8
24	2	BP3042	NUT, HEX, 1/2”-13, GRADE 2, PLATED
25	2	BP3126	HEX CAP SCREW, 1/2”-13 X 1-1/2”, GRADE 5, PLATED
26	4	BP3129	HEX CAP SCREW, 1/2”-13 X 3”, GRADE 5, PLATED
27	2	BP3584	BOLT, TERMINAL, HB646
28	1	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
29	6	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
30	1	BP3685	BOLT, FLANGE HEAD, 3/8”-16 X 2”, GRADE 8, PLATED
31	6	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
32	6	BP3709	BOLT, FLANGE HEAD, 5/16”-18 X 1”, GRADE 8, PLATED
33	1	BP3747	BOLT, FLANGE HEAD, 1/2”-13 X 2-1/2”, GRADE 8, PLATED
34	2	DP6300	COUPLER, QUICK, FEMALE, 3/4” NPT
35	2	DP6301	COUPLER, QUICK, MALE, 3/4” NPT
36	2	DP6307	COUPLING, 12FP-12FP, 5000-12
37	2	DP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
38	2	DP6600	HOSE, HYDRAULIC, 3/4” X 51”, 12MP-12FJX
39	2	DP6601	HOSE, HYDRAULIC, 3/4” X 72”, 12MP-12MP

Converter Dolly Tongue, 78”, Assembled





Converter Dolly Tongue, 78”, Assembled



BOM ID	Qty	Item No	Description
5	1	AM9278	TONGUE, DOLLY, 78” PIVOT TO PIN, WITH RING
5A	1	AM9251	TONGUE, DOLLY, 78” PIVOT TO PIN
5B	1	AP3611	HINGE SET, PREMIER #440
5C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
5D	1	AP4341	HINGE ASSEMBLY, LEFT HAND, PREMIER
5E	2	AP4332	HINGE PIVOT PIN, PREMIER #442
5F	4	AP4333	HINGE PIVOT BUSHING, RUBBER, PREMIER #448
5G	1	AP4335	HINGE SWIVEL, PREMIER #424-R
5H	2	AP4338	HINGE ADJUSTMENT SHOE, PREMIER #445
5I	1	AP4339	HINGE SWIVEL, PREMIER #424-L
5J	4	BP3125	HEX CAP SCREW, 1/2”-13 X 1”, GRADE 5, PLATED
5K	4	BP3216	SNAP RING, 2”, EXTERNAL
5L	1	AP4330	FRONT END ASSEMBLY, PREMIER #340S
5M	1	AP4342	FRONT END WASHER, PREMIER #349
5N	1	AP4343	FRONT END HOUSING, PREMIER #346
5O	2	AP4344	FRONT END BUSHING, PREMIER #348
5P	1	AP4331	DRAWBAR EYE ASSEMBLY, PREMIER #207S
5Q	1	AP 4345	DRAWBAR EYE LOCK NUT, PREMIER #416
5R	1	AP4346	DRAWBAR EYE, PREMIER #207S
5S	1	BP3216	SNAP RING, 2”, EXTERNAL

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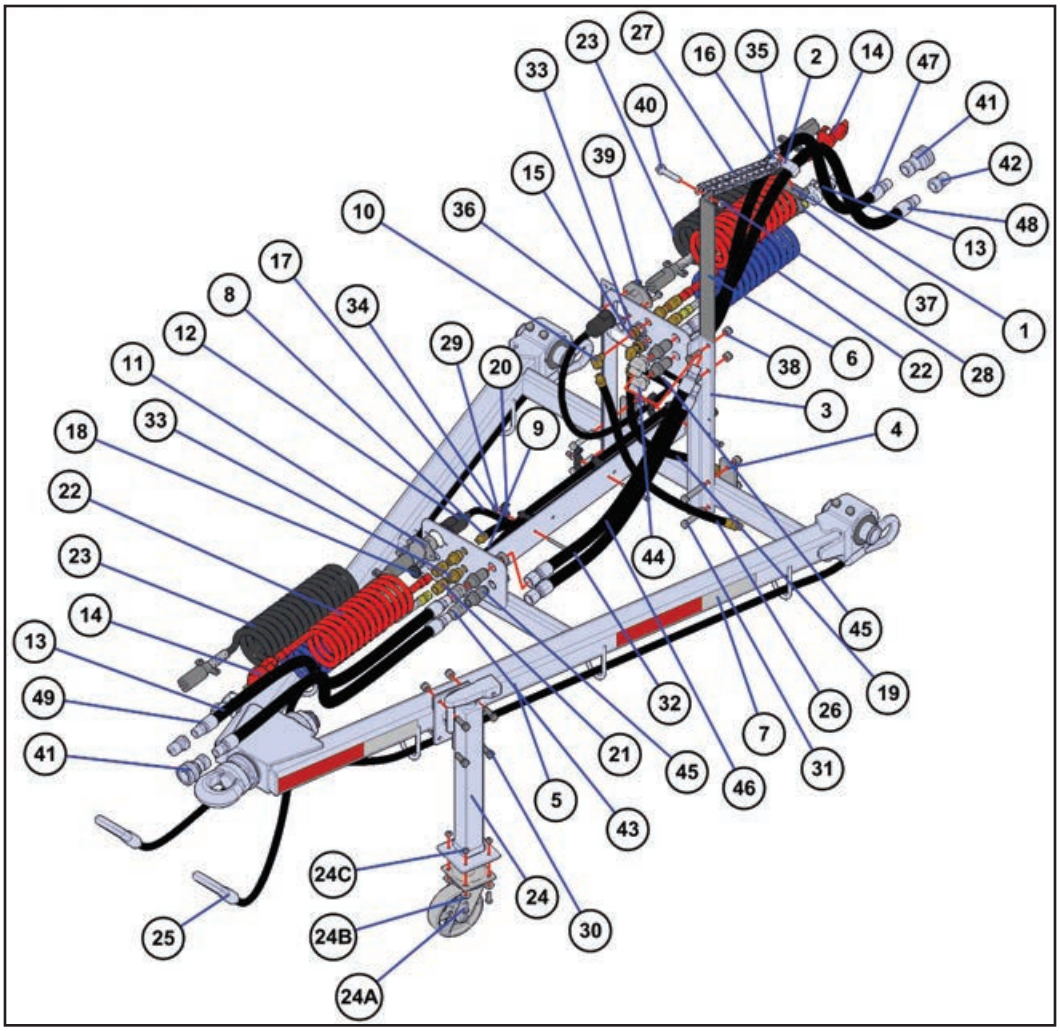
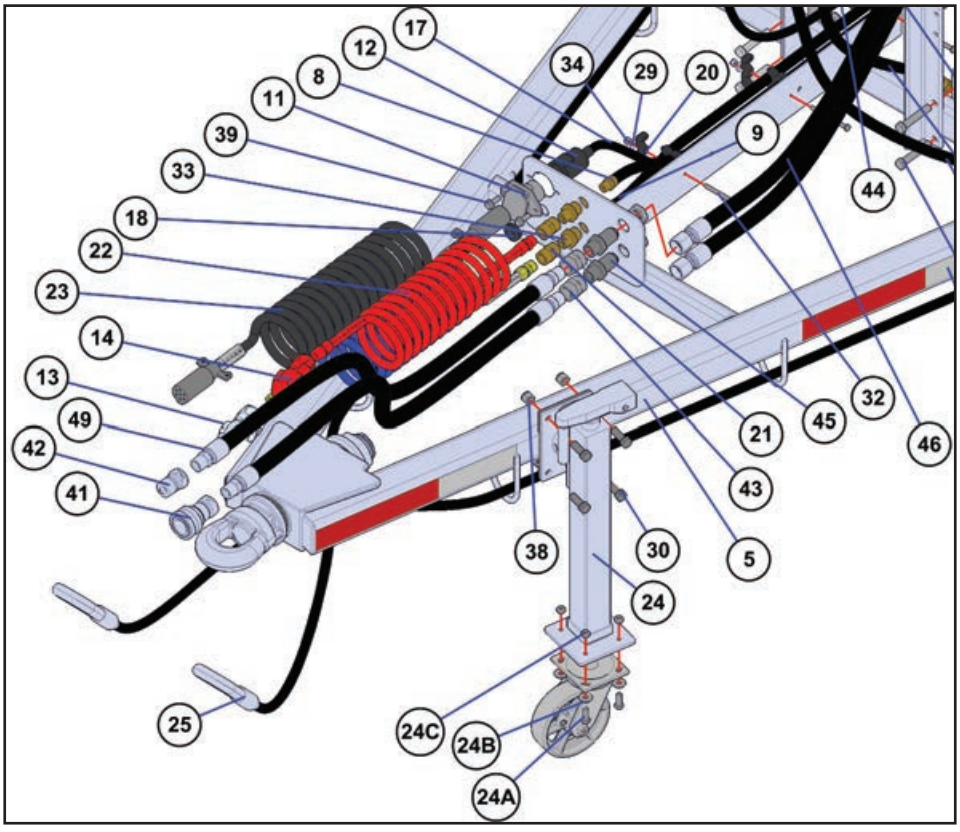
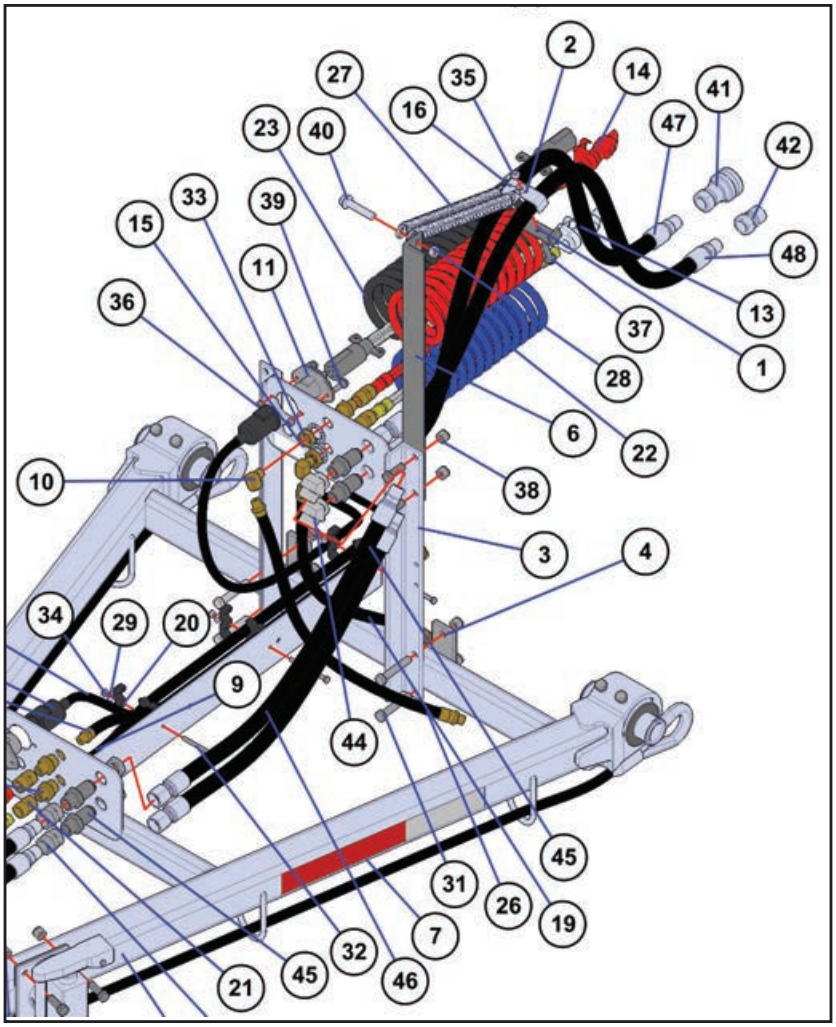
Converter Dolly Tongue, 78”, Assembled





Converter Dolly Tongue, 78”, Assembled



BOM ID	Qty	Item No	Description
1	1	AM8052	HOSE RETAINER, DOUBLE, 3/4” HYDRAULIC
2	1	AM8053	HOSE RETAINER, SINGLE
3	1	AM9272	HOSE MOUNT TOWER, CONVERTER DOLLY
4	2	AM9273	BACKING PLATE, 3/8” X 2” X 4-13/16” OAL WITH 9/16” HOLES
5	1	AM9278	TONGUE, DOLLY, 78” PIVOT TO PIN, WITH RING
6	1	AM9339	BRACKET, HOSE HOLDER, CONVERTER DOLLY
7	4	AP3506	REFLECTIVE TAPE, RED/SILVER
8	1	AP3526	HOSE, 3/8” AIR BRAKE X 42”, 3/8”MP-3/8”MPX
9	1	AP3526	HOSE, 3/8” AIR BRAKE X 42”, 3/8”MP-3/8”MPX
10	2	AP3532	STREET ELBOW, 3/8”, 90 DEGREE
11	2	AP3543	SOCKET, 7 WAY, TRAILER
12	2	AP3544	WEATHERGUARD BOOT FOR 7-WAY PLUG
13	2	AP3555	GLADHAND, SERVICE, BLUE
14	2	AP3556	GLADHAND, EMERGENCY, RED
15	1	AP3674	DECAL, WIRING HARNESS COLOR CODE
16	1	AP3809	1-1/4” HOSE SUPPORT CLAMP, 3/8” BOLT
17	2	AP3865	WIRE, 6-#12, 1-#10
18	1	AP4045	GROMMET, 3/4 ID G3137-016
19	1	AP4210	HOSE, 3/8” AIR BRAKE X 26”, 3/8”MP-3/8”MPX
20	6	AP4392	HOSE CLAMP, 2 HOLE, 1/2” AIR BRAKE HOSE
21	4	AP4398	COUPLING, 1/2” NPT, BRASS
22	2	AP4400	AIR HOSE, COILED PAIR, 8’, 1/2 MP, RED/BLUE
23	2	AP4416	WIRE, COILED, 12’ HD, (1-10,6-12), BLACK, 125CE
24	1	AP4418	JACK, DOLLY TONGUE, PREMIER 800P-15-620/688
24A	4	BP3006	HEX CAP SCREW, 3/8”-16 X 1”, GRADE 5, PLATED
24B	4	BP3015	WASHER, FLAT, 3/8”, PLATED
24C	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
25	2	AP4464	SAFETY CABLE, 5/8” X 109”, DOUBLE LOOP
26	1	AP4469	HOSE, 3/8” AIR BRAKE X 34”, 3/8”MP-3/8”MPX
27	2	AP4476	SPRING, EXTENSION, 1” OD X 13”, CMI 6610013
28	2	BP3042	NUT, HEX, 1/2”-13”, GRADE 2, PLATED
29	3	BP3055	WASHER, FLAT, 1/4”, PLATED
30	6	BP3126	HEX CAP SCREW, 1/2”-13 X 1-1/2”, GRADE 5, PLATED
31	4	BP3129	HEX CAP SCREW, 1/2”-13 X 3”, GRADE 5, PLATED
32	3	BP3155	HEX CAP SCREW, 1/4”-20 X 3-1/2”, GRADE 5 PLATED
33	4	BP3584	BOLT, TERMINAL, HB646
34	3	BP3587	NUT, HEX, 1/4” NYLOCK
35	1	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
36	4	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
37	1	BP3685	BOLT, FLANGE HEAD, 3/8”-16 X 2”, GRADE 8, PLATED
38	10	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
39	4	BP3709	BOLT, FLANGE HEAD, 5/16”-18 X 1”, GRADE 8, PLATED
40	1	BP3747	BOLT, FLANGE HEAD, 1/2”-13 X 2-1/2”, GRADE 8, PLATED
41	2	DP6300	COUPLER, QUICK, FEMALE, 3/4” NPT
42	2	DP6301	COUPLER, QUICK, MALE, 3/4” NPT
43	2	DP6307	COUPLING, 12FP-12FP, 5000-12
44	2	DP6415	ELBOW, 45*, 12FP-12FP
45	4	DP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
46	2	DP6540	HOSE, HYDRAULIC, 3/4” X 32”, 12MP-12FJX
47	1	DP6604	HOSE, HYDRAULIC, 3/4” X 73”, 12MP-12FJX
48	1	DP6604	HOSE, HYDRAULIC, 3/4” X 73”, 12MP-12FJX
49	2	DP6605	HOSE, HYDRAULIC, 3/4” X 54”, 12MP-12MP

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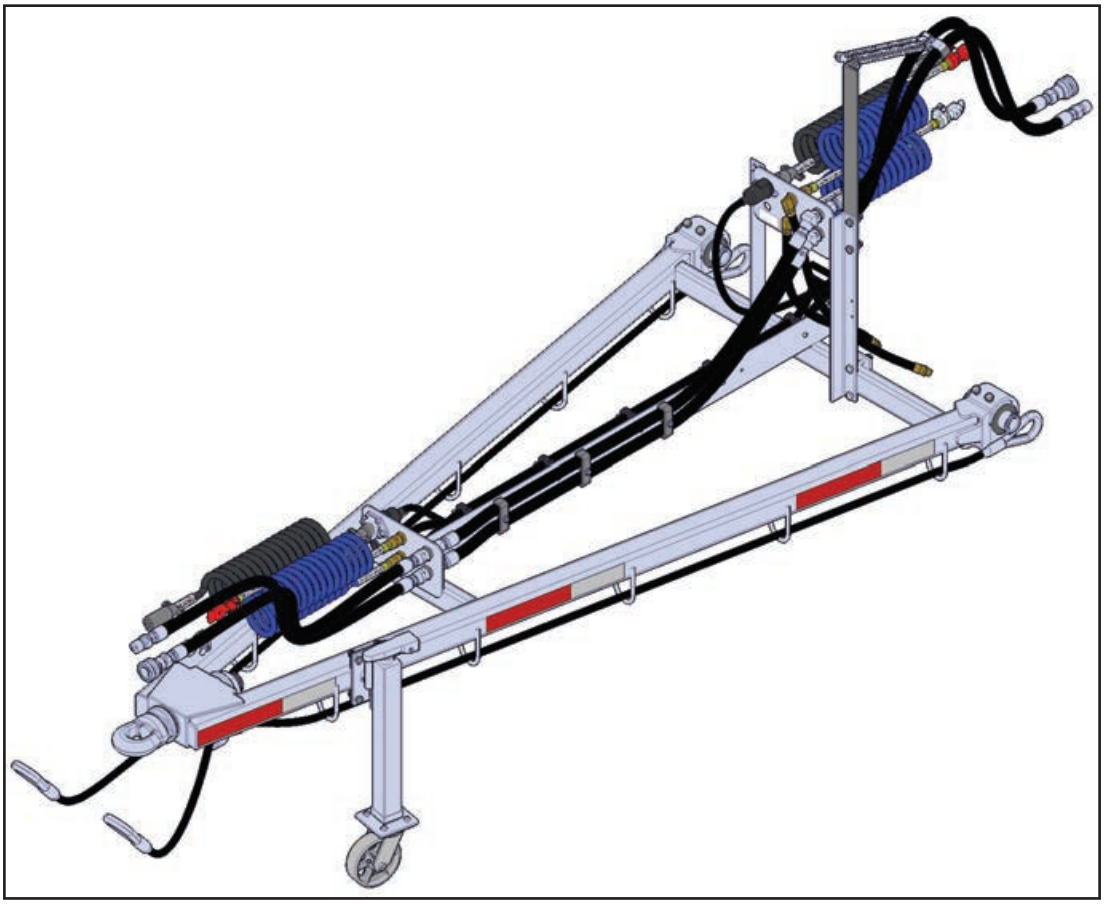
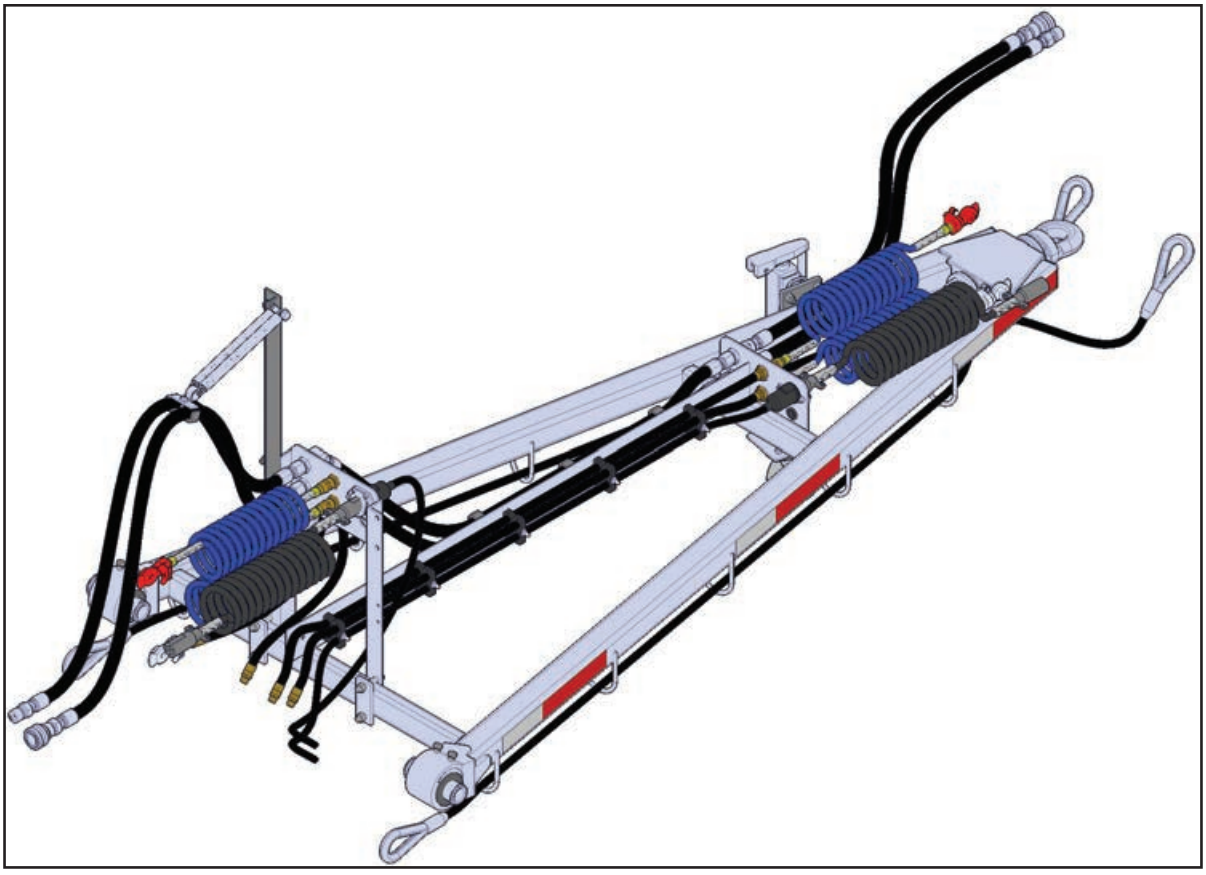
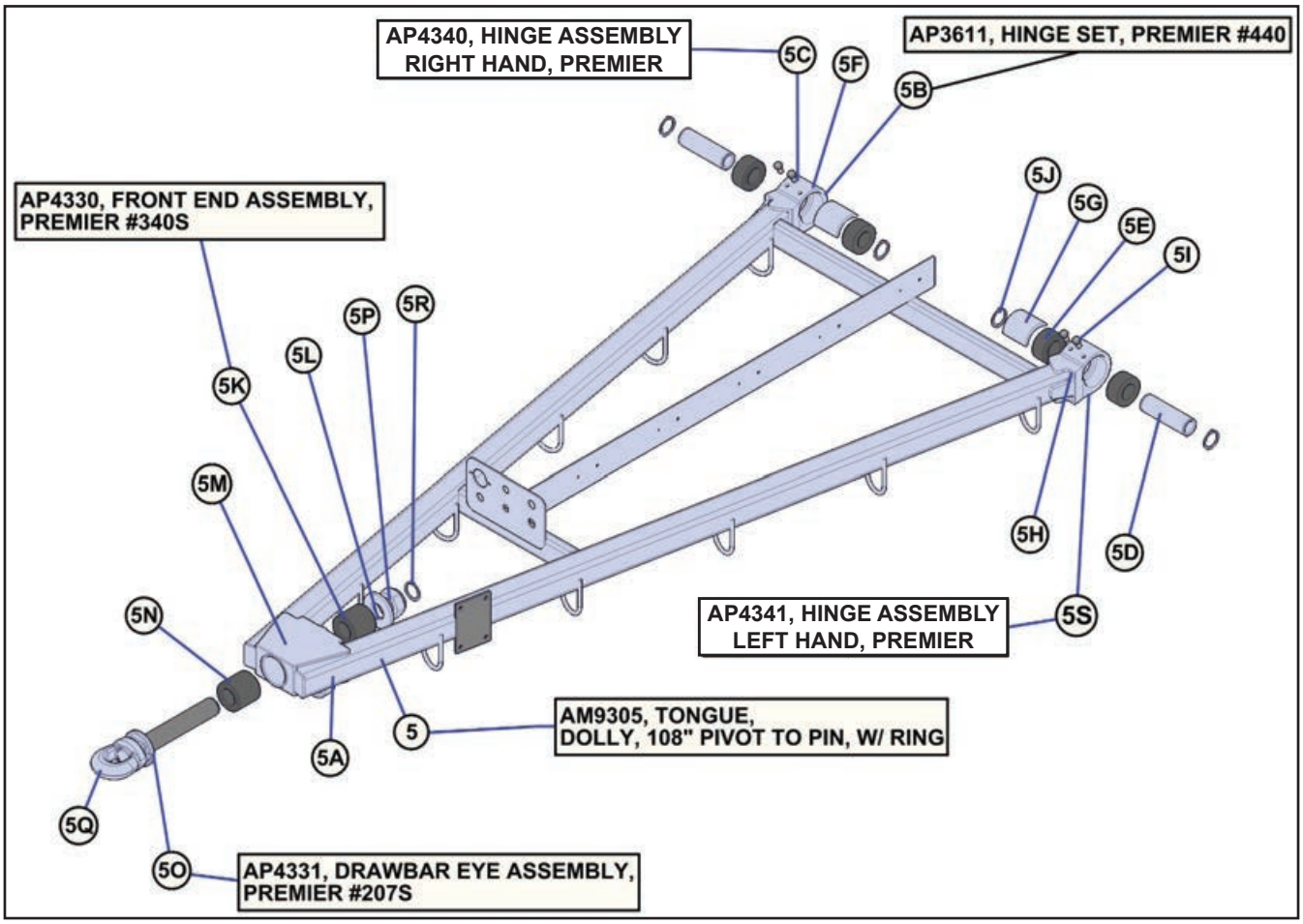
Converter Dolly Tongue, 108”, Assembled





Converter Dolly Tongue, 108”, Assembled



BOM ID	Qty	Item No	Description
5	1	AM9305	TONGUE, DOLLY, 108” PIVOT TO PIN, WITH RING
5A	1	AM9300	TONGUE, DOLLY, 108” PIVOT TO PIN
5B	1	AP3611	HINGE SET, PREMIER #440
5C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
5D	2	AP4332	HINGE PIVOT PIN, PREMIER #442
5E	4	AP4333	HINGE PIVOT BUSHING, RUBBER, PREMIER #448
5F	1	AP4335	HINGE SWIVEL, PREMIER #424-R
5G	2	AP4338	HINGE ADJUSTMENT SHOE, PREMIER #445
5H	1	AP4339	HINGE SWIVEL, PREMIER #424-L
5I	4	BP3125	HEX CAP SCREW, 1/2”-13 X 1”, GRADE 5, PLATED
5J	4	BP3216	SNAP RING, 2”, EXTERNAL
5K	1	AP4330	FRONT END ASSEMBLY, PREMIER #340S
5L	1	AP4342	FRONT END WASHER, PREMIER #349
5M	1	AP4343	FRONT END HOUSING, PREMIER #346
5N	2	AP4344	FRONT END BUSHING, PREMIER #348
5O	1	AP4331	DRAWBAR EYE ASSEMBLY, PREMIER #207S
5P	1	AP 4345	DRAWBAR EYE LOCK NUT, PREMIER #416
5Q	1	AP4346	DRAWBAR EYE, PREMIER #207S
5R	1	BP3216	SNAP RING, 2”, EXTERNAL
5S	1	AP4341	HINGE ASSEMBLY, LEFT HAND, PREMIER

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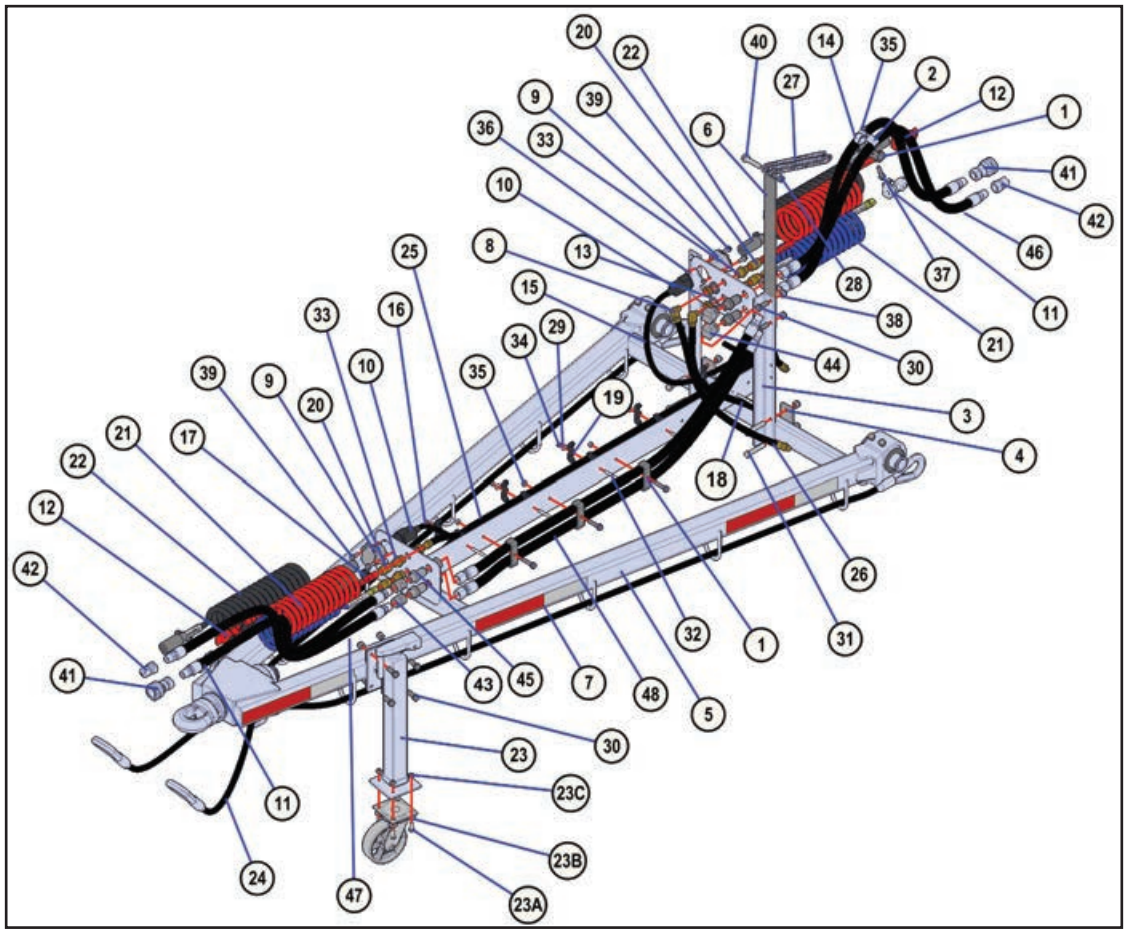
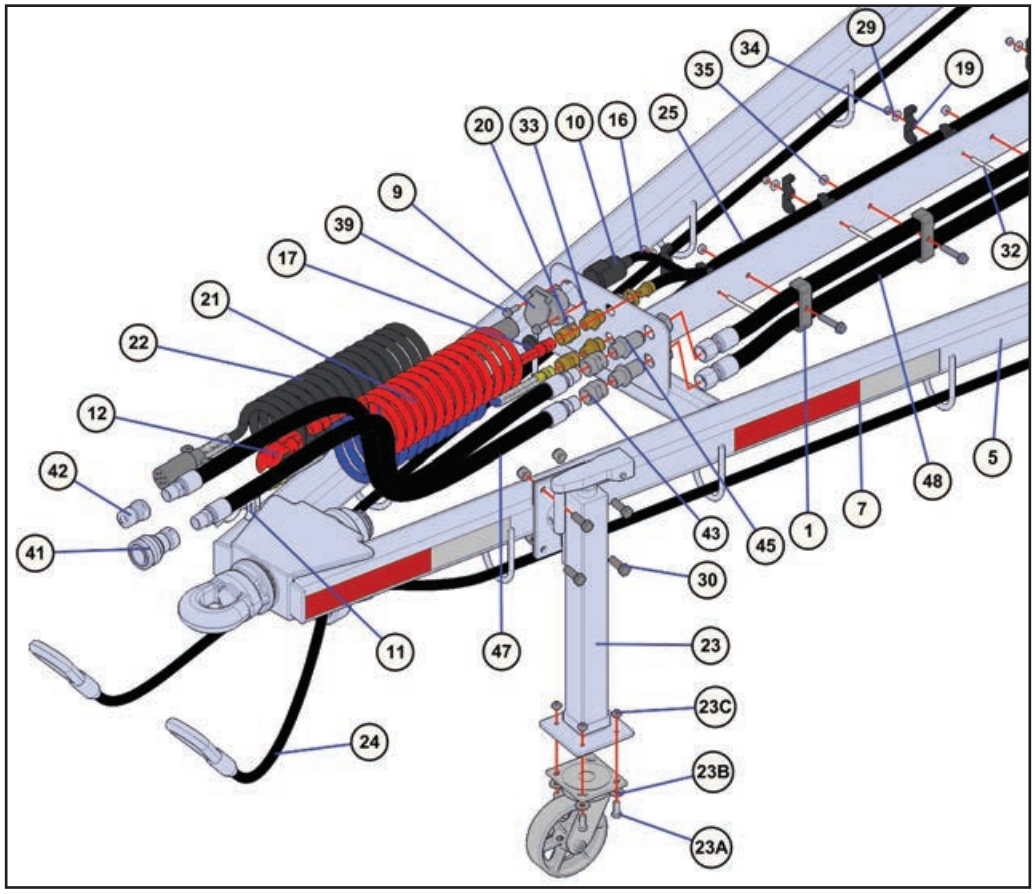
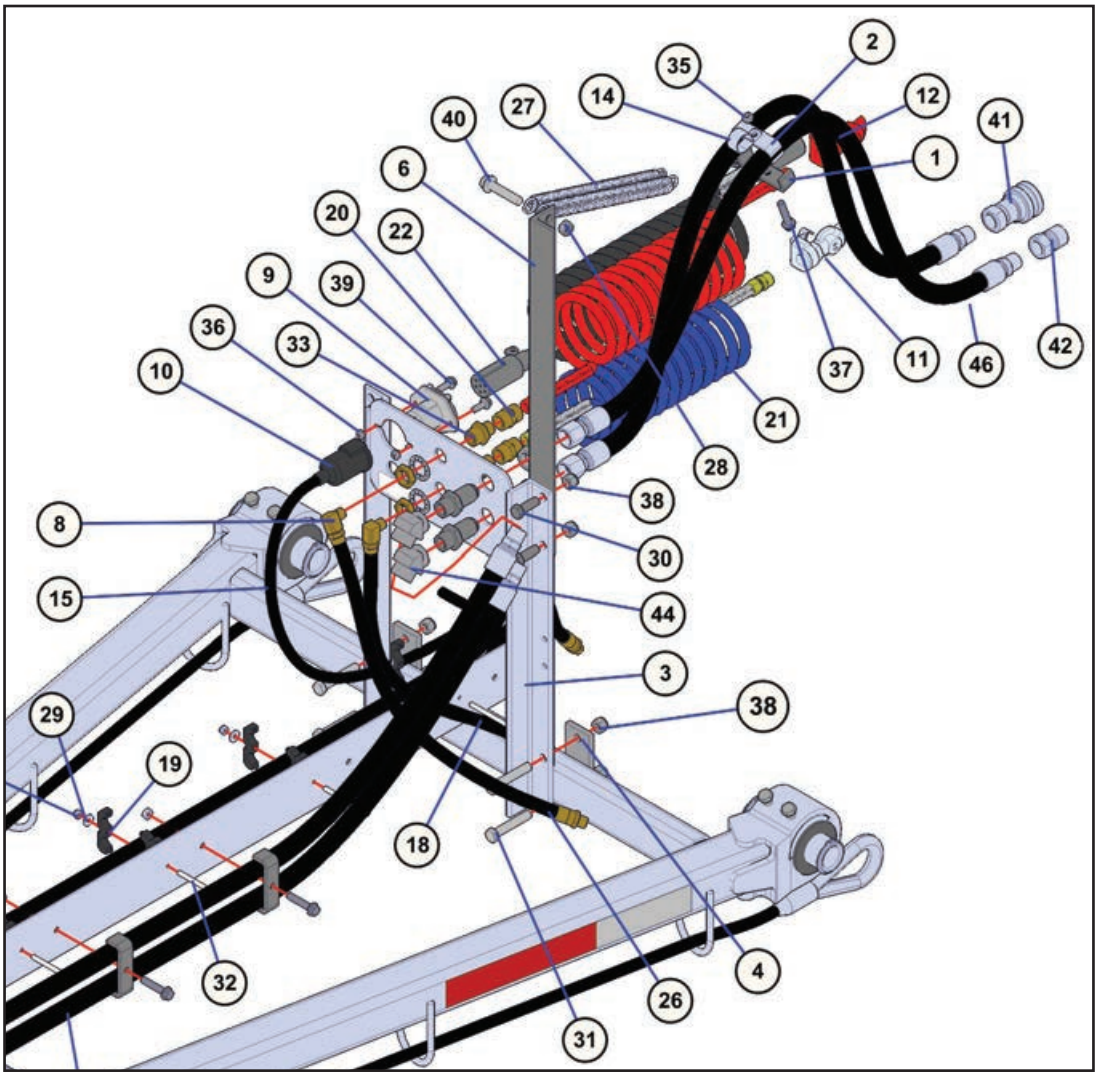
Converter Dolly Tongue, 108”, Assembled





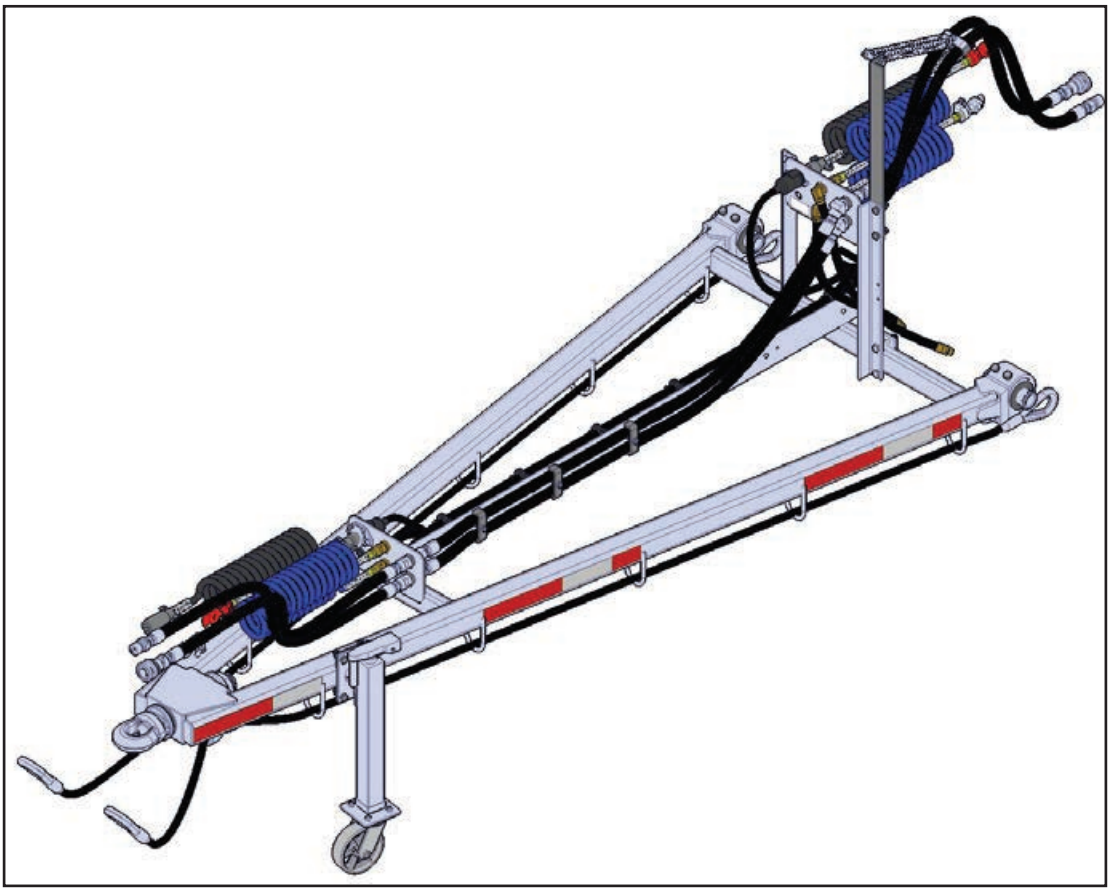
Converter Dolly Tongue, 108”, Assembled

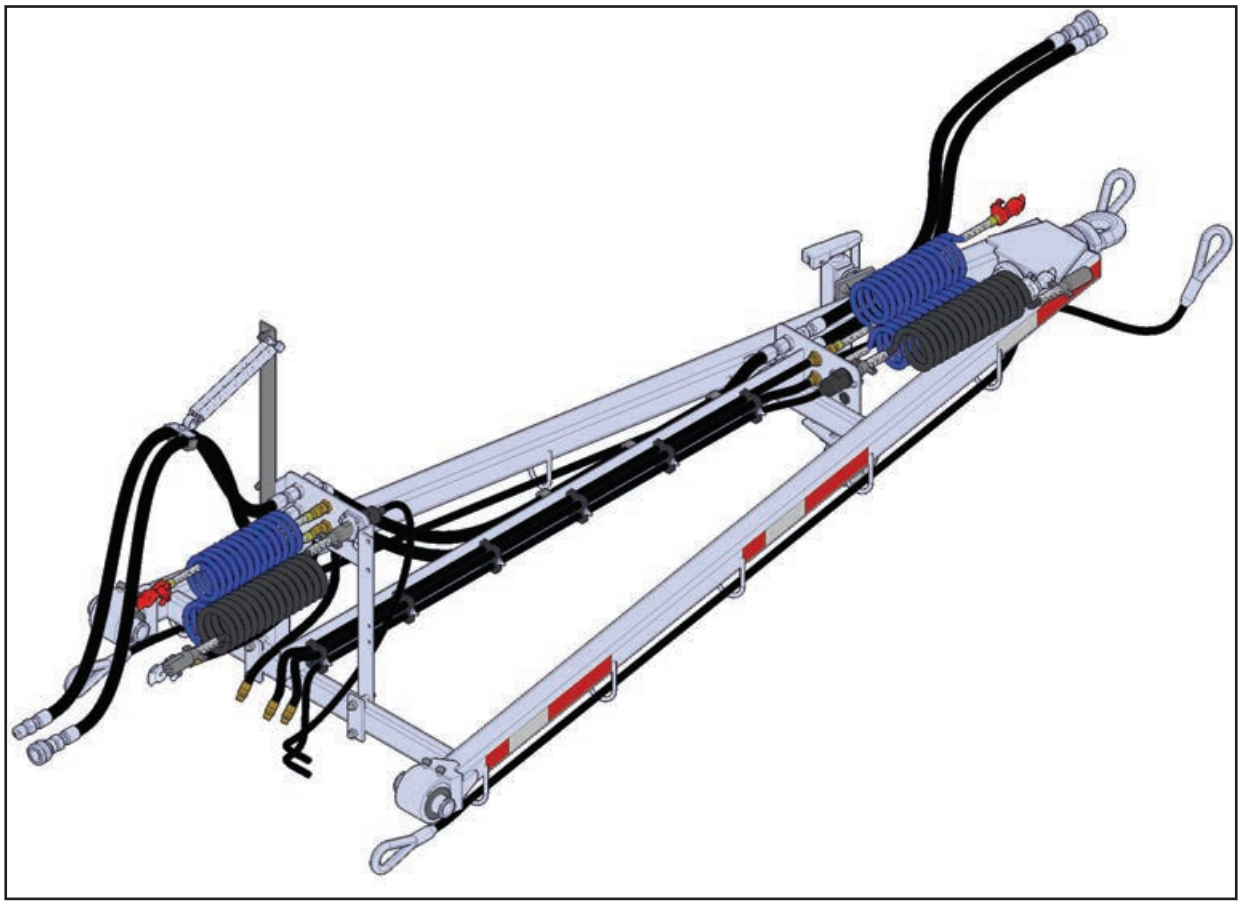


BOM ID	Qty	Item No	Description
1	4	AM8052	HOSE RETAINER, DOUBLE, 3/4” HYDRAULIC
2	1	AM8053	HOSE RETAINER, SINGLE
3	1	AM9272	HOSE MOUNT TOWER, CONVERTER DOLLY
4	2	AM9273	BACKING PLATE, 3/8” X 2” X 4-13/16” OAL WITH 9/16” HOLES
5	1	AM9305	TONGUE, DOLLY, 108” PIVOT TO PIN, WITH RING
6	1	AM9339	BRACKET, HOSE HOLDER, CONVERTER DOLLY
7	6	AP3506	REFLECTIVE TAPE, RED/SILVER
8	2	AP3532	STREET ELBOW, 3/8”, 90 DEGREE
9	2	AP3543	SOCKET, 7 WAY, TRAILER
10	2	AP 3544	WEATHERGUARD BOOT FOR 7-WAY PLUG
11	2	AP3555	GLADHAND, SERVICE, BLUE
12	2	AP3556	GLADHAND, EMERGENCY, RED
13	1	AP3674	DECAL, WIRING HARNESS COLOR CODE
14	1	AP3809	1-1/4” HOSE SUPPORT CLAMP, 3/8” BOLT
15	1	AP3865	WIRE, 6-#12, 1-#10
16	1	AP3865	WIRE, 6-#12, 1-#10
17	1	AP4045	GROMMET, 3/4” ID G3137-016
18	1	AP4210	HOSE, 3/8” AIR BRAKE X 26”, 3/8”MP-3/8”MPX
19	10	AP4392	HOSE CLAMP, 2 HOLE, 1/2” AIR BRAKE HOSE
20	4	AP4398	COUPLING, 1/2” NPT, BRASS
21	2	AP4400	AIR HOSE, COILED PAIR, 8’, 1/2” MP, RED/BLUE
22	2	AP4416	WIRE, COILED, 12’ HD, (1-10,6-12), BLACK, 125CE
23	1	AP4418	JACK, DOLLY TONGUE, PREMIER 800P-15-620/688
23A	4	BP3006	HEX CAP SCREW, 3/8”-16 X 1”, GRADE 5, PLATED
23B	4	BP3015	WASHER, FLAT, 3/8”, PLATED
23C	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
24	2	AP4467	SAFETY CABLE, 5/8” X 139”, DOUBLE LOOP
25	2	AP4468	HOSE, 3/8” AIR BRAKE X 72”, 3/8MP-3/8MPX
26	1	AP4469	HOSE, 3/8” AIR BRAKE X 34”, 3/8MP-3/8MPX
27	2	AP4476	SPRING, EXTENSION, 1” OD X 13”, CMI 6610013
28	2	BP3042	NUT, HEX, 1/2”-13”, GRADE 2, PLATED
29	5	BP3055	WASHER, FLAT, 1/4”, PLATED
30	6	BP3126	HEX CAP SCREW, 1/2”-13 X 1-1/2”, GRADE 5, PLATED
31	4	BP3129	HEX CAP SCREW, 1/2”-13 X 3”, GRADE 5, PLATED
32	5	BP3155	HEX CAP SCREW, 1/4”-20 X 3-1/2”, GRADE 5 PLATED
33	4	BP3584	BOLT, TERMINAL, HB646
34	5	BP3587	NUT, HEX, 1/4” NYLOCK
35	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
36	4	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
37	4	BP3685	BOLT, FLANGE HEAD, 3/8”-16 X 2”, GRADE 8, PLATED
38	10	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
39	4	BP3709	BOLT, FLANGE HEAD, 5/16”-18 X 1”, GRADE 8, PLATED
40	1	BP3747	BOLT, FLANGE HEAD, 1/2”-13 X 2-1/2”, GRADE 8, PLATED
41	2	DP6300	COUPLER, QUICK, FEMALE, 3/4” NPT
42	2	DP6301	COUPLER, QUICK, MALE, 3/4” NPT
43	2	DP6307	COUPLING, 12FP-12FP, 5000-12
44	2	DP6415	ELBOW, 45 DEGREE, 12FP-12FP
45	4	DP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
46	2	DP6604	HOSE, HYDRAULIC, 3/4” X 73”, 12MP-12FJX
47	2	DP6605	HOSE, HYDRAULIC, 3/4” X 54”, 12MP-12MP
48	2	DP6606	HOSE, HYDRAULIC, 3/4” X 61”, 12MP-12FJX

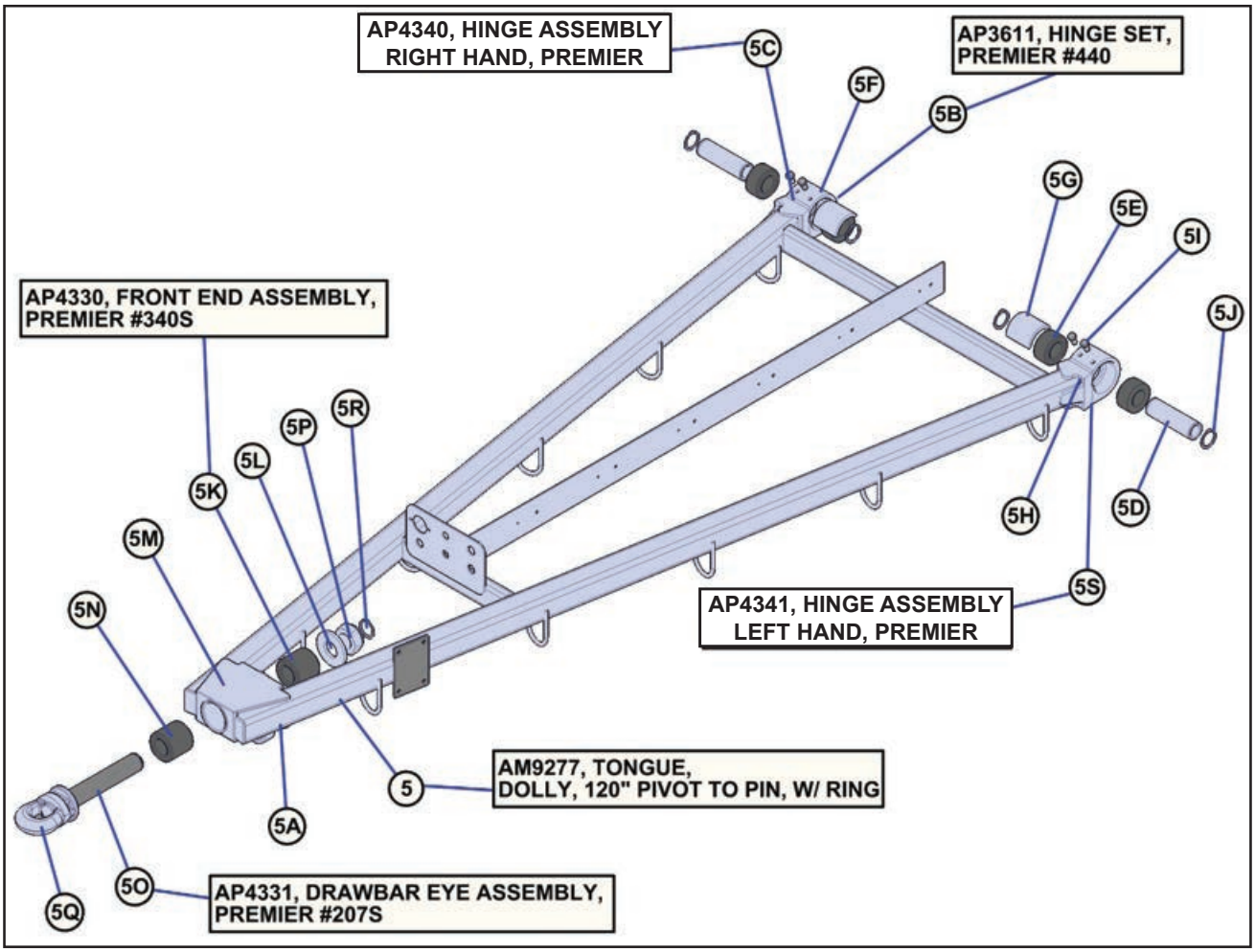
DEMCO

Converter Dolly Tongue, 120”, Assembled





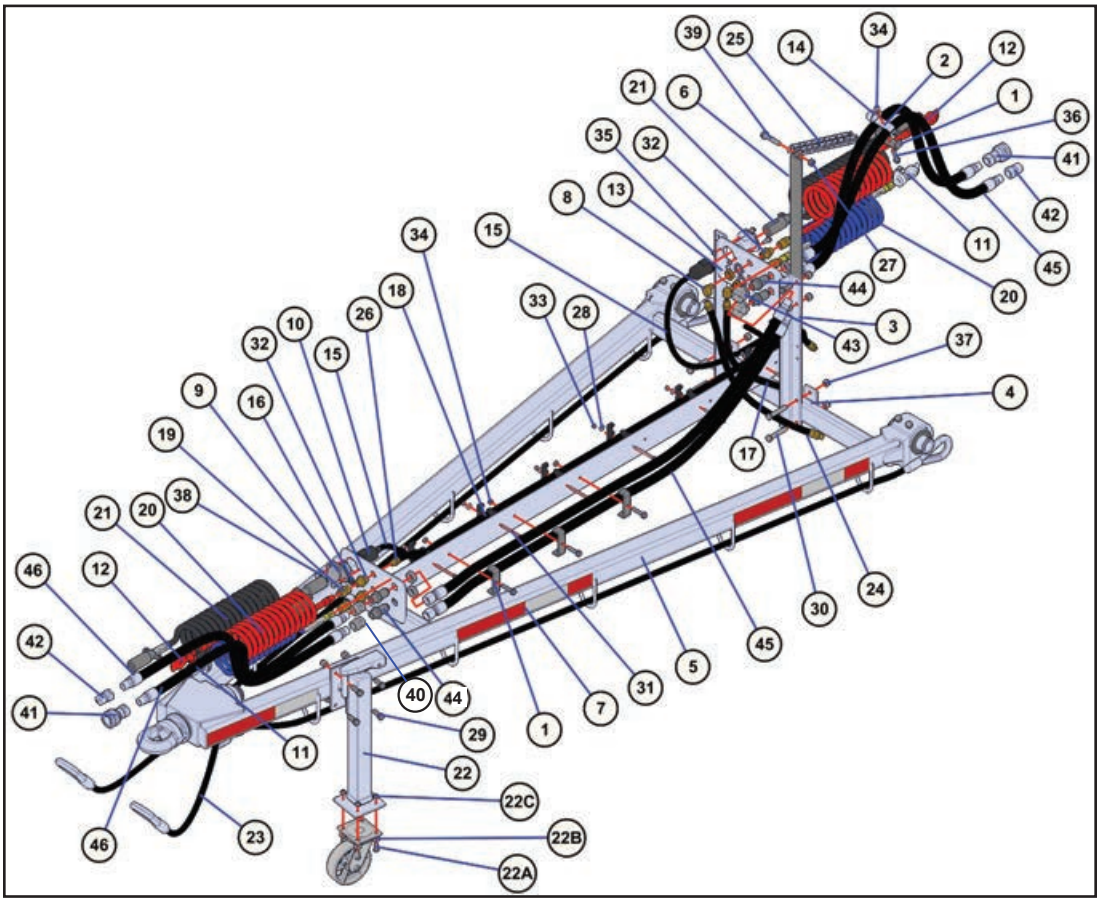
Converter Dolly Tongue, 120”, Assembled

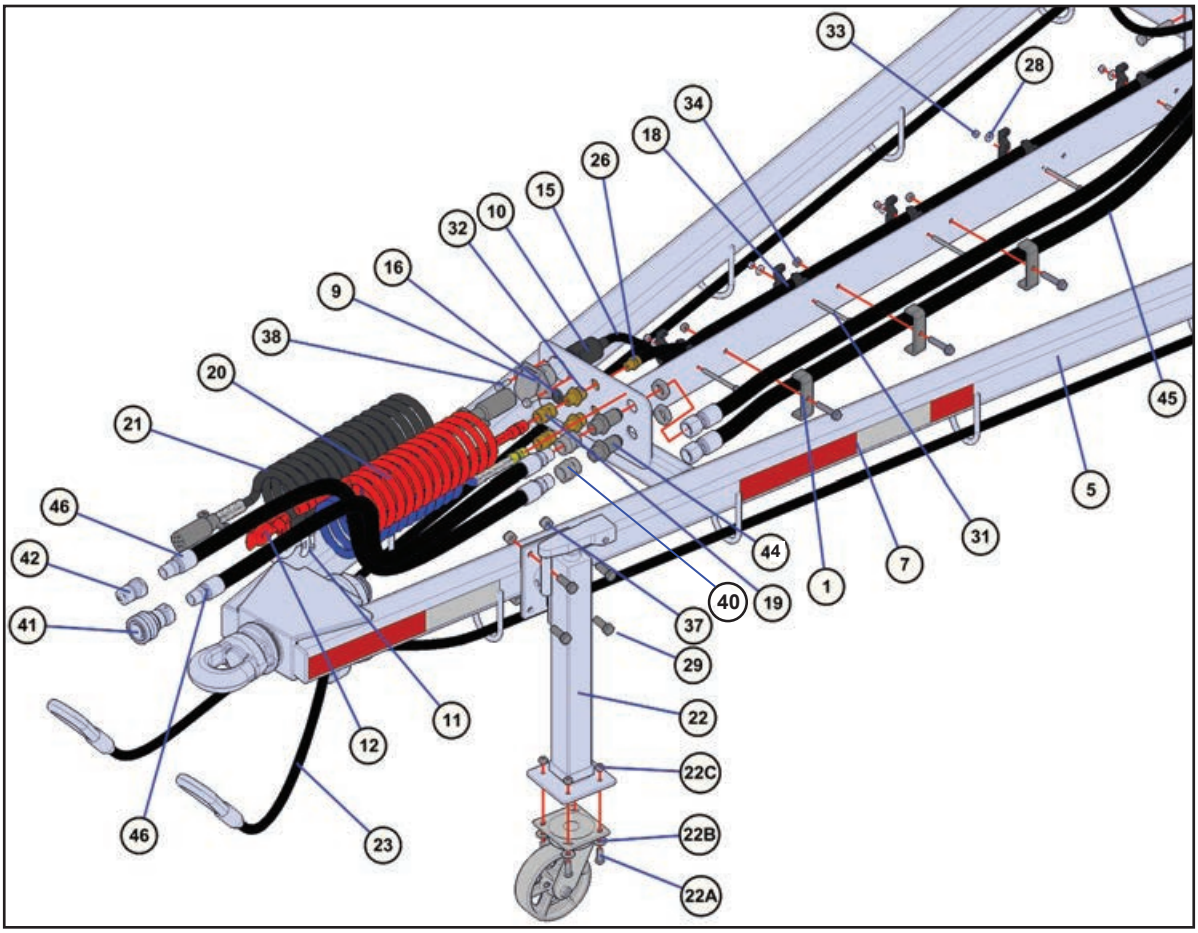


BOM ID	Qty	Item No	Description
5	1	AM9277	TONGUE, DOLLY, 120” PIVOT TO PIN, WITH RING
5A	1	AM9276	TONGUE, DOLLY, 120” PIVOT TO PIN
5B	1	AP3611	HINGE SET, PREMIER #440
5C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
5D	2	AP4332	HINGE PIVOT PIN, PREMIER #442
5E	4	AP4333	HINGE PIVOT BUSHING, RUBBER, PREMIER #448
5F	1	AP4335	HINGE SWIVEL, PREMIER #424-R
5G	2	AP4338	HINGE ADJUSTMENT SHOE, PREMIER #445
5H	1	AP4339	HINGE SWIVEL, PREMIER #424-L
5I	4	BP3125	HEX CAP SCREW, 1/2”-13 X 1”, GRADE 5, PLATED
5J	4	BP3216	SNAP RING, 2”, EXTERNAL
5K	1	AP4330	FRONT END ASSEMBLY, PREMIER #340S
5L	1	AP4342	FRONT END WASHER, PREMIER #349
5M	1	AP4343	FRONT END HOUSING, PREMIER #346
5N	2	AP4344	FRONT END BUSHING, PREMIER #348
5O	1	AP4331	DRAWBAR EYE ASSEMBLY, PREMIER #207S
5P	1	AP 4345	DRAWBAR EYE LOCK NUT, PREMIER #416
5Q	1	AP4346	DRAWBAR EYE, PREMIER #207S
5R	1	BP3216	SNAP RING, 2”, EXTERNAL
5S	1	AP4341	HINGE ASSEMBLY,LEFT HAND, PREMIER

DEMCO

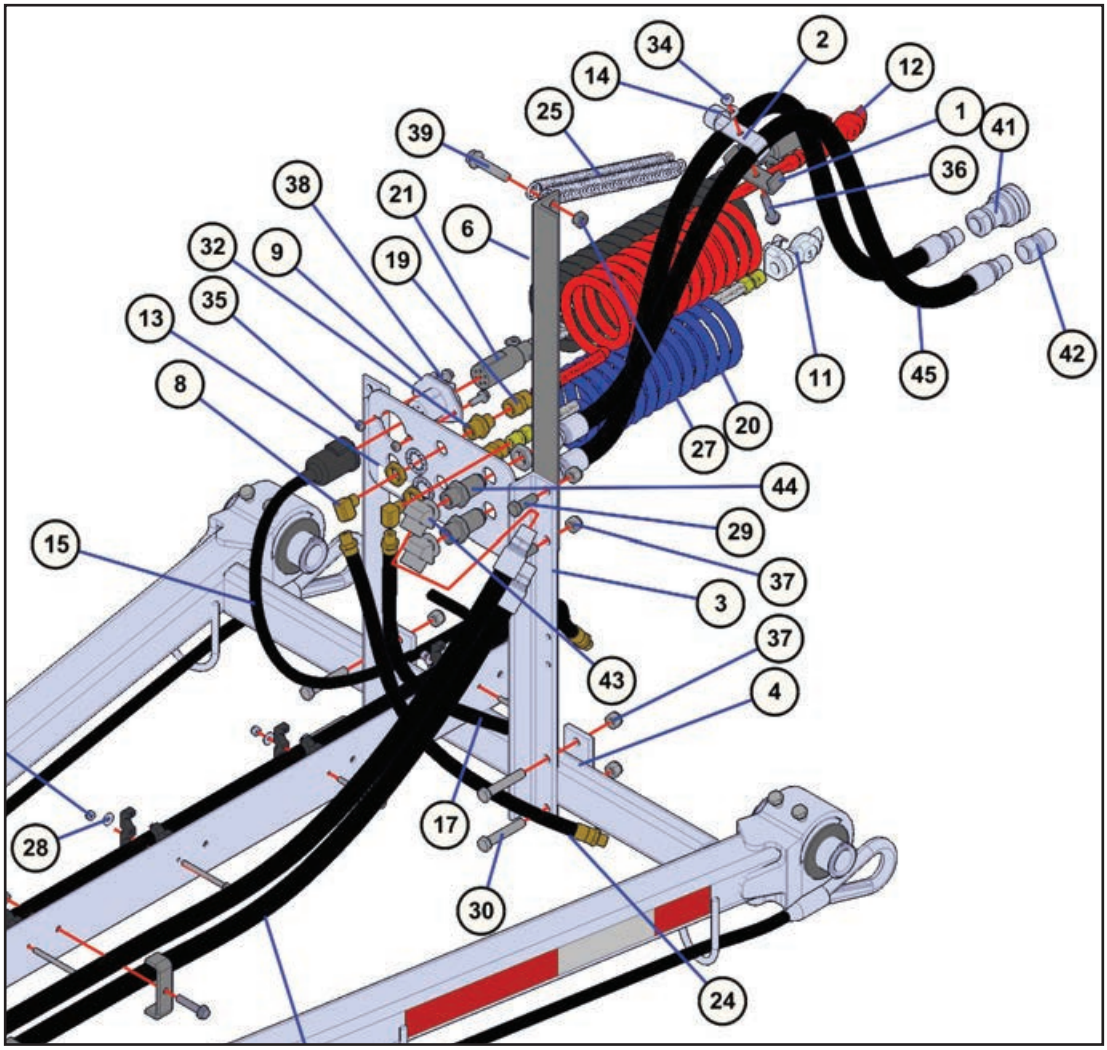
Converter Dolly Tongue, 120”, Assembled





DEMCO

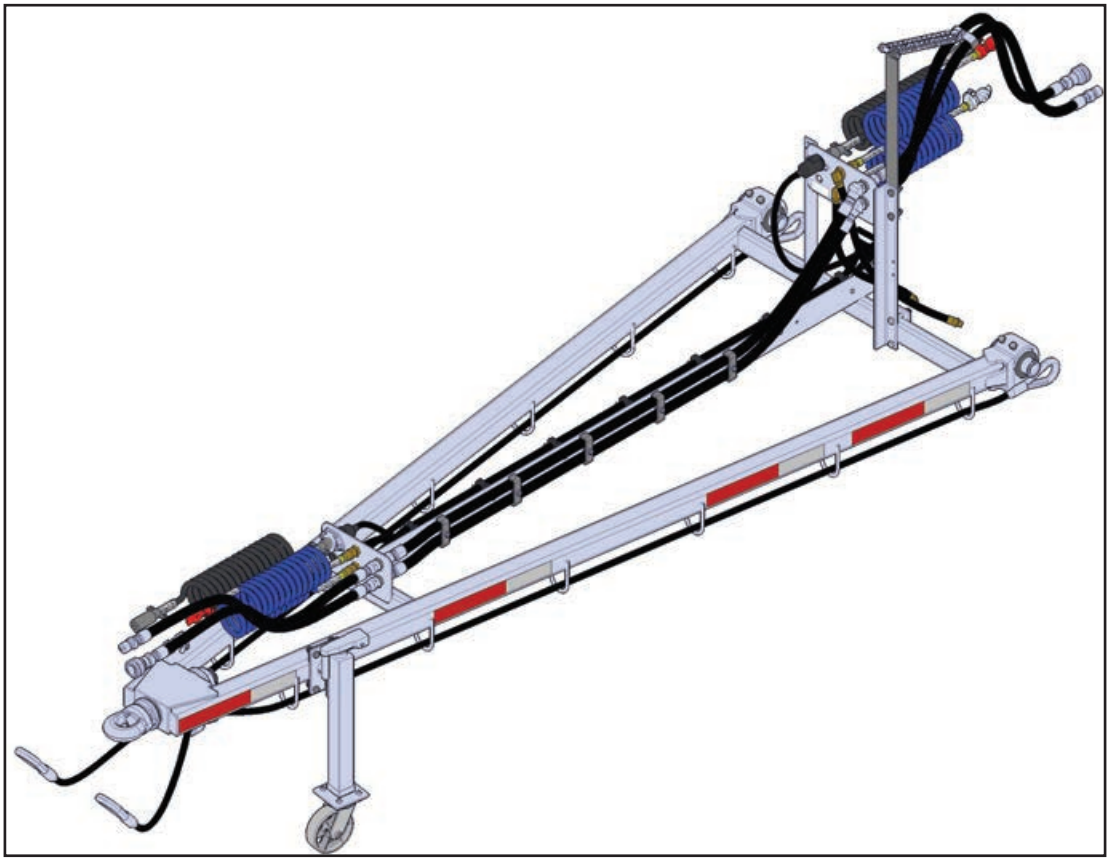
Converter Dolly Tongue, 120”, Assembled

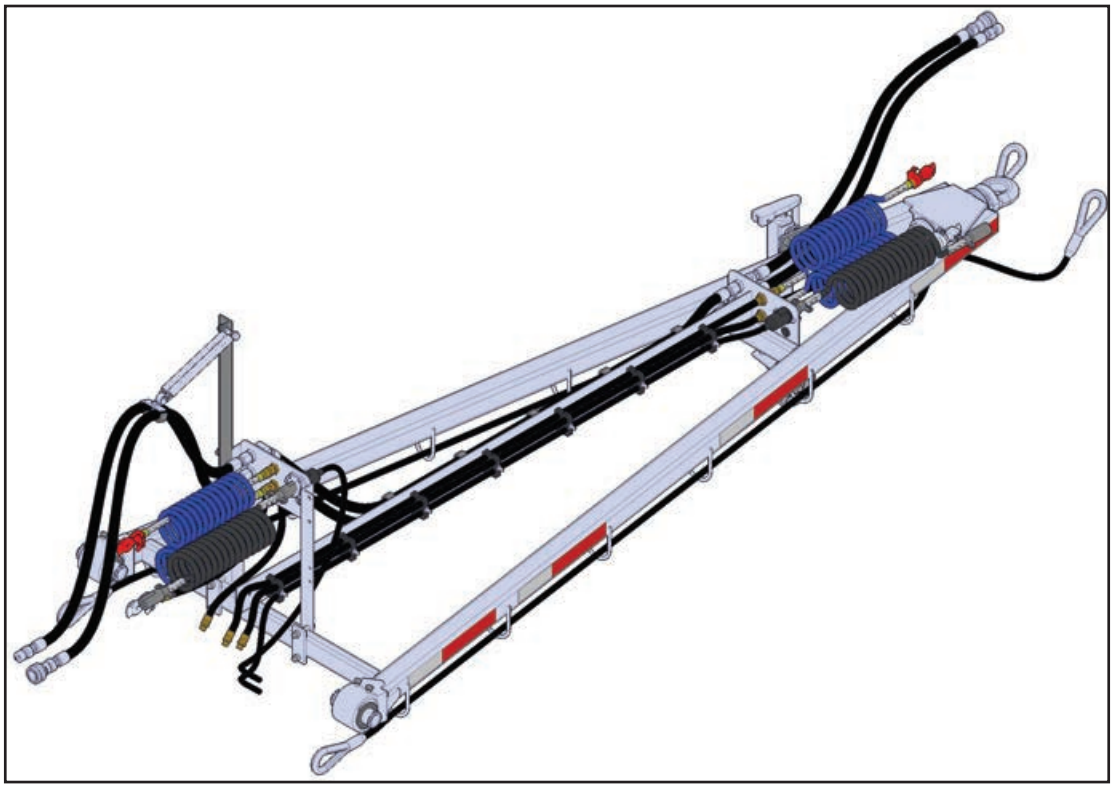


BOM ID	Qty	Item No	Description
1	4	AM8052	HOSE RETAINER, DOUBLE, 3/4 HYDRAULIC
2	1	AM8053	HOSE RETAINER, SINGLE
3	1	AM9272	HOSE MOUNT TOWER, CONVERTER DOLLY
4	2	AM9273	BACKING PLATE, 3/8” X 2” X 4-13/16” OAL WITH 9/16” HOLES
5	1	AM9277	TONGUE, DOLLY, 120” PIVOT TO PIN, WITH RING
6	1	AM9339	BRACKET, HOSE HOLDER, CONVERTER DOLLY
7	6	AP3506	REFLECTIVE TAPE, RED/SILVER
8	2	AP3532	STREET ELBOW, 3/8”, 90 DEGREES
9	2	AP3543	SOCKET, 7 WAY, TRAILER
10	2	AP 3544	WEATHERGUARD BOOT FOR 7-WAY PLUG
11	2	AP3555	GLADHAND, SERVICE, BLUE
12	2	AP3556	GLADHAND, EMERGENCY, RED
13	1	AP3674	DECAL, WIRING HARNESS COLOR CODE
14	1	AP3809	1-1/4” HOSE SUPPORT CLAMP, 3/8” BOLT
15	2	AP3865	WIRE, 6-#12, 1-#10
16	1	AP4045	GROMMET, 3/4” ID G3137-016
17	1	AP4210	HOSE, 3/8” AIR BRAKE X 26”, 3/8”MP-3/8”MPX
18	12	AP4392	HOSE CLAMP, 2 HOLE, 1/2” AIR BRAKE HOSE
19	4	AP4398	COUPLING, 1/2” NPT, BRASS
20	2	AP4400	AIR HOSE, COILED PAIR, 8’, 1/2” MP, RED/BLUE
21	2	AP4416	WIRE, COILED, 12’ HD, (1-10,6-12), BLACK, 125CE
22	1	AP4418	JACK, DOLLY TONGUE, PREMIER 800P-15-620/688
22A	4	BP3006	HEX CAP SCREW, 3/8”-16 X 1”, GRADE 5, PLATED
22B	4	BP3015	WASHER, FLAT, 3/8”, PLATED
22C	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
23	2	AP4465	SAFETY CABLE, 5/8” X 151”, DOUBLE LOOP
24	1	AP4469	HOSE, 3/8” AIR BRAKE X 34”, 3/8”MP-3/8”MPX
25	2	AP4476	SPRING, EXTENSION, 1” OD X 13”, CMI 6610013
26	2	AP4513	HOSE, 3/8” AIR BRAKE X 84”, 3/8”MP-3/8”MPX
27	2	BP3042	NUT, HEX, 1/2”-13, GRADE 2, PLATED
28	6	BP3055	WASHER, FLAT, 1/4”, PLATED
29	6	BP3126	HEX CAP SCREW, 1/2”-13 X 1-1/2”, GRADE 5, PLATED
30	4	BP3129	HEX CAP SCREW, 1/2”-13 X 3”, GRADE 5, PLATED
31	6	BP3155	HEX CAP SCREW, 1/4”-20 X 3-1/2”, GRADE 5 PLATED
32	4	BP3584	BOLT, TERMINAL, HB646
33	6	BP3587	NUT, HEX, 1/4” NYLOCK
34	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
35	4	BP3644	NUT, HEX LOCK, 5/16”-18, TOP LOCK
36	4	BP3685	BOLT, FLANGE HEAD, 3/8”-16 X 2”, GRADE 8, PLATED
37	10	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
38	4	BP3709	BOLT, FLANGE HEAD, 5/16”-18 X 1”, GRADE 8, PLATED
39	1	BP3747	BOLT, FLANGE HEAD, 1/2”-13 X 2-1/2”, GRADE 8, PLATED
40	2	DP6307	COUPLING, 12FP-12FP, 5000-12
41	2	DP6300	COUPLER, QUICK, FEMALE, 3/4” NPT
42	2	DP6301	COUPLER, QUICK, MALE, 3/4” NPT
43	2	DP6415	ELBOW, 45 DEGREE, 12FP-12FP
44	4	DP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
45	4	DP6604	HOSE, HYDRAULIC, 3/4” X 73”, 12MP-12FJX
46	2	DP6605	HOSE, HYDRAULIC, 3/4” X 54”, 12MP-12MP

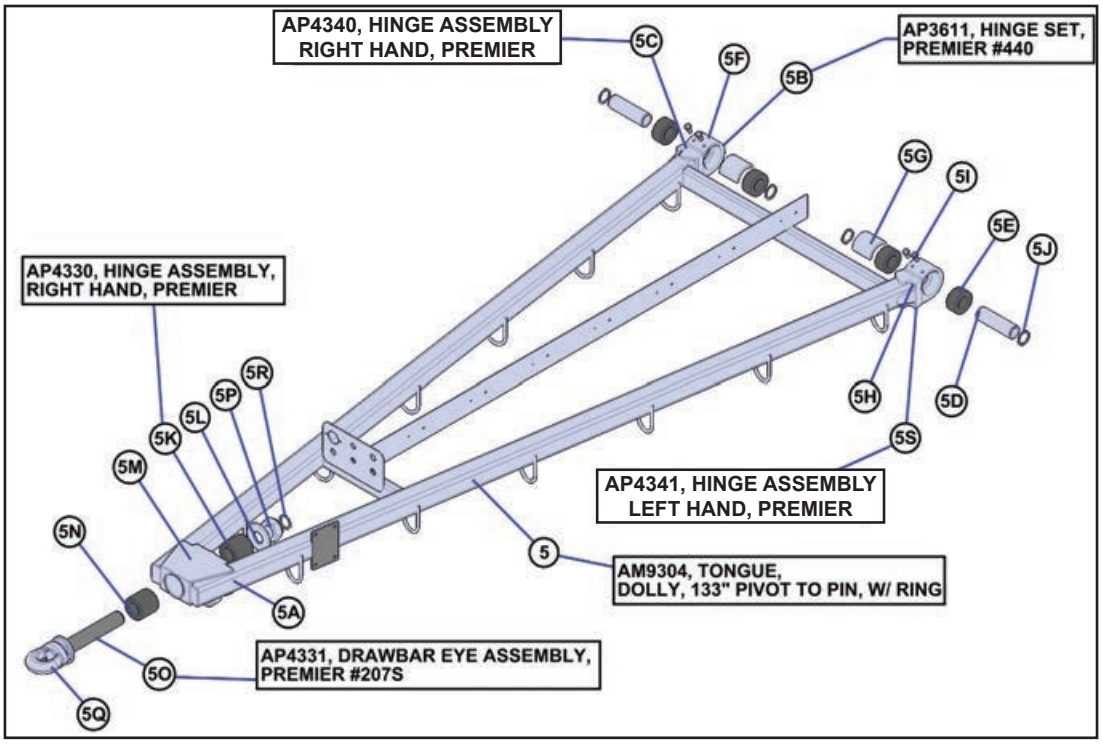
DEMCO

Converter Dolly Tongue, 133”, Assembled





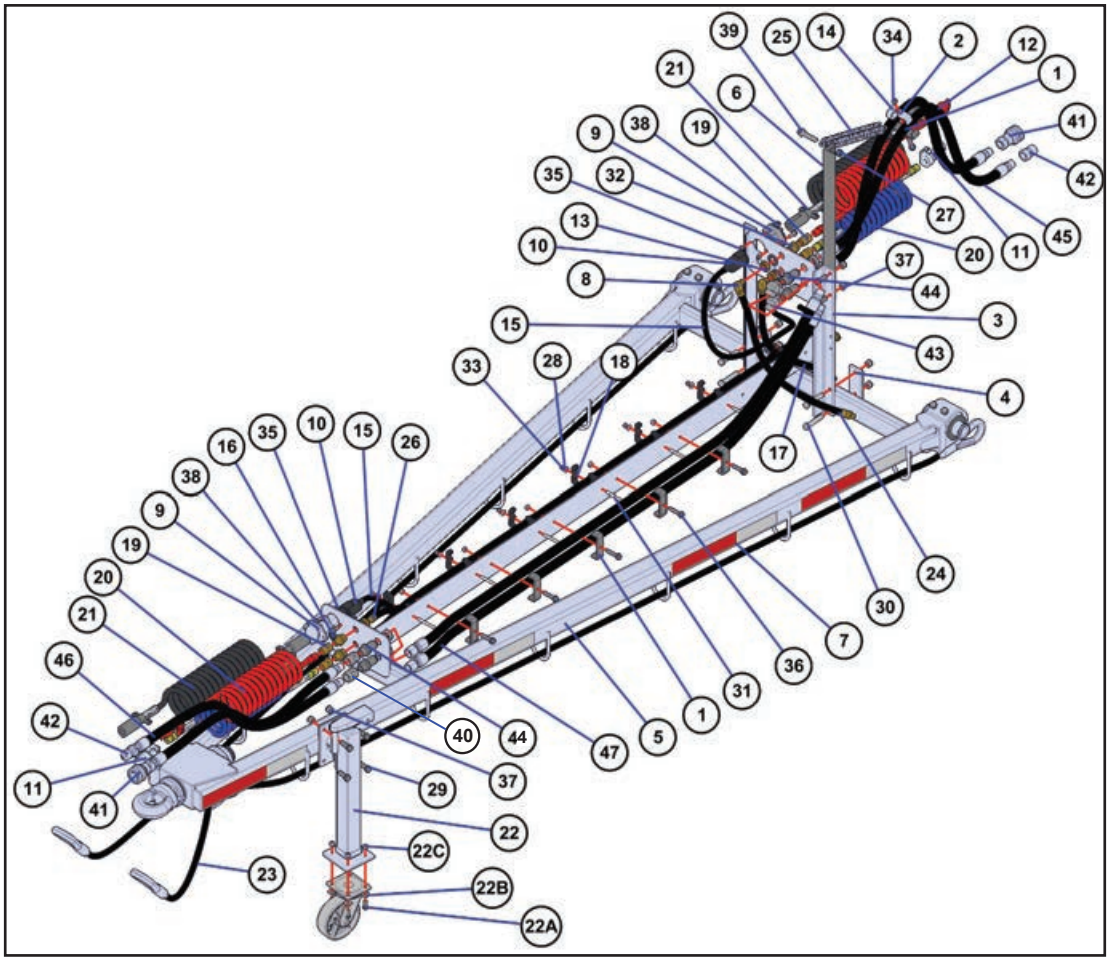
Converter Dolly Tongue, 133”, Assembled

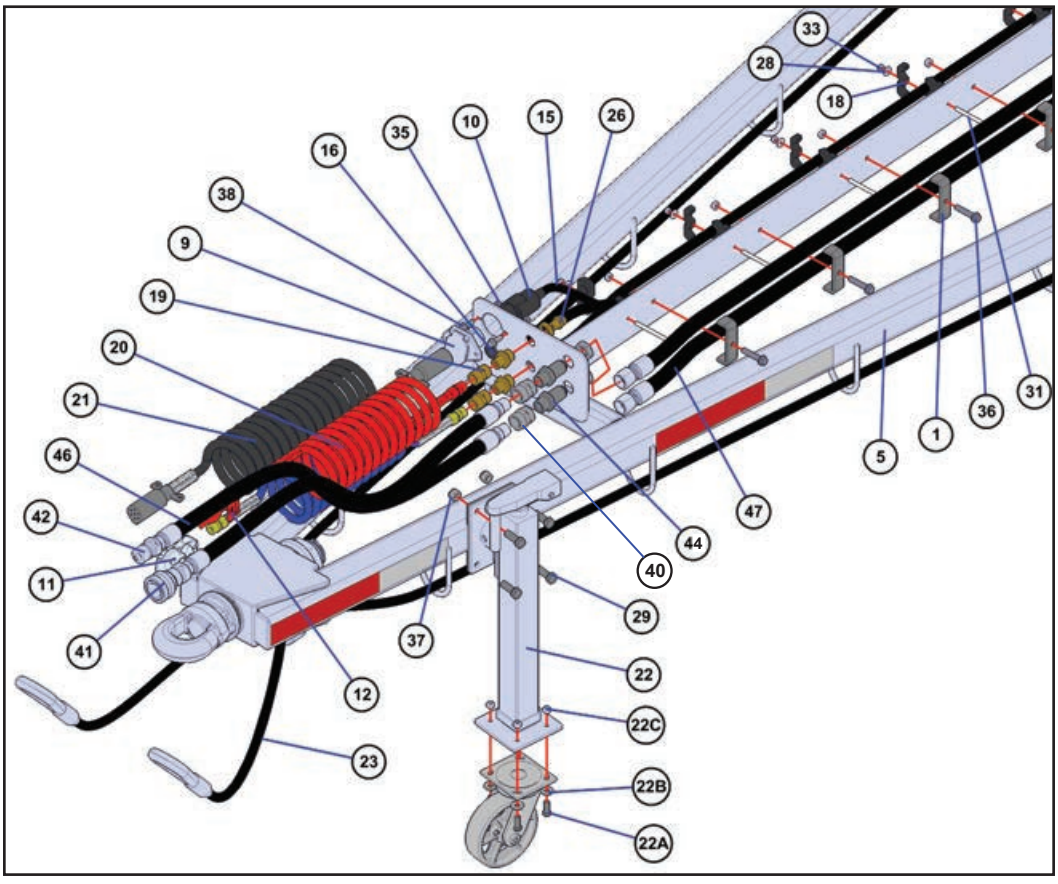


BOM ID	Qty	Item No	Description
5	1	AM9304	TONGUE, DOLLY, 133” PIVOT TO PIN, WITH RING
5A	1	AM9299	TONGUE, DOLLY, 133” PIVOT TO PIN
5B	1	AP3611	HINGE SET, PREMIER #440
5C	1	AP4340	HINGE ASSEMBLY, RIGHT HAND, PREMIER
5D	2	AP4332	HINGE PIVOT PIN, PREMIER #442
5E	4	AP4333	HINGE PIVOT BUSHING, RUBBER, PREMIER #448
5F	1	AP4335	HINGE SWIVEL, PREMIER #424-R
5G	2	AP4338	HINGE ADJUSTMENT SHOE, PREMIER #445
5H	1	AP4339	HINGE SWIVEL, PREMIER #424-L
5I	4	BP3125	HEX CAP SCREW, 1/2”-13 X 1”, GRADE 5, PLATED
5J	4	BP3216	SNAP RING, 2”, EXTERNAL
5K	1	AP4330	FRONT END ASSEMBLY, PREMIER #340S
5L	1	AP4342	FRONT END WASHER, PREMIER #349
5M	1	AP4343	FRONT END HOUSING, PREMIER #346
5N	2	AP4344	FRONT END BUSHING, PREMIER #348
5O	1	AP4331	DRAWBAR EYE ASSEMBLY, PREMIER #207S
5P	1	AP 4345	DRAWBAR EYE LOCK NUT, PREMIER #416
5Q	1	AP4346	DRAWBAR EYE, PREMIER #207S
5R	1	BP3216	SNAP RING, 2”, EXTERNAL
5S	1	AP4341	HINGE ASSEMBLY, LEFT HAND, PREMIER

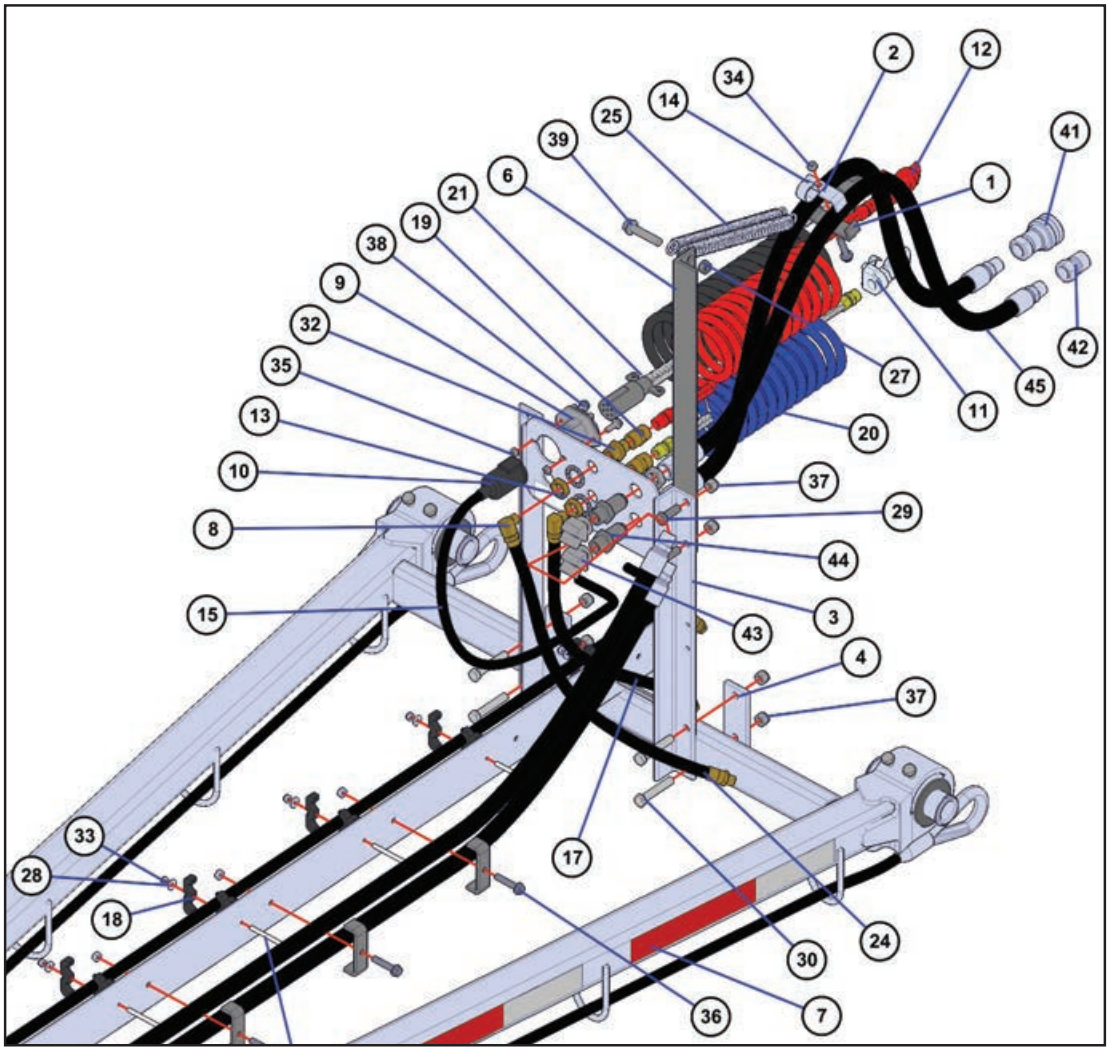
DEMCO

Converter Dolly Tongue, 133”, Assembled





Converter Dolly Tongue, 133”, Assembled



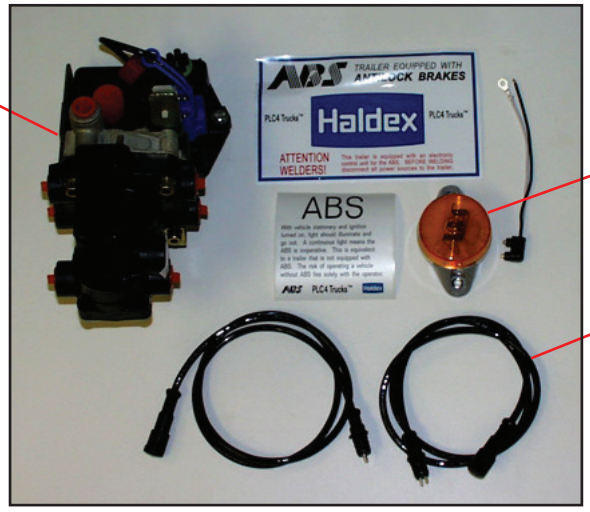
BOM ID	Qty	Item No	Description
1	6	AM8052	HOSE RETAINER, DOUBLE, 3/4” HYDRAULIC
2	1	AM8053	HOSE RETAINER, SINGLE
3	1	AM9272	HOSE MOUNT TOWER, CONVERTER DOLLY
4	2	AM9273	BACKING PLATE, 3/8” X 2” X 4-13/16” OAL WITH 9/16” HOLES
5	1	AM9304	TONGUE, DOLLY, 133” PIVOT TO PIN, WITH RING
6	1	AM9339	BRACKET, HOSE HOLDER, CONVERTER DOLLY
7	8	AP3506	REFLECTIVE TAPE, RED/SILVER
8	2	AP3532	STREET ELBOW, 3/8”, 90 DEGREES
9	2	AP3543	SOCKET, 7 WAY, TRAILER
10	2	AP 3544	WEATHERGUARD BOOT FOR 7-WAY PLUG
11	2	AP3555	GLADHAND, SERVICE, BLUE
12	2	AP3556	GLADHAND, EMERGENCY, RED
13	1	AP3674	DECAL, WIRING HARNESS COLOR CODE
14	1	AP3809	1-1/4” HOSE SUPPORT CLAMP, 3/8” BOLT
15	2	AP3865	WIRE, 6-#12, 1-#10
16	1	AP4045	GROMMET, 3/4” ID G3137-016
17	1	AP4210	HOSE, 3/8” AIR BRAKE X 26”, 3/8”MP-3/8”MPX
18	14	AP4392	HOSE CLAMP, 2 HOLE, 1/2” AIR BRAKE HOSE
19	4	AP4398	COUPLLING, 1/2” NPT, BRASS
20	2	AP4400	AIR HOSE, COILED PAIR, 8’, 1/2” MP, RED/BLUE
21	2	AP4416	WIRE, COILED, 12’ HD, (1-10,6-12), BLACK, 125CE
22	1	AP4418	JACK, DOLLY TONGUE, PREMIER 800P-15-620/688
22A	4	BP3006	HEX CAP SCREW, 3/8”-16 X 1”, GRADE 5, PLATED
22B	4	BP3015	WASHER, FLAT, 3/8”, PLATED
22C	4	BP3612	NUT, HEX LOCK, 3/8”-16, TOP LOCK
23	2	AP4466	SAFETY CABLE, 5/8” X 164”, DOUBLE LOOP
24	1	AP4469	HOSE, 3/8” AIR BRAKE X 34”, 3/8”MP-3/8”MPX
25	2	AP4476	SPRING, EXTENSION, 1” OD X 13”, CMI 6610013
26	2	AP4514	HOSE, 3/8” AIR BRAKE X 98”, 3/8”MP-3/8”MPX
27	2	BP3042	NUT, HEX, 1/2”-13, GRADE 2, PLATED
28	7	BP3055	WASHER, FLAT, 1/4”, PLATED
29	6	BP3126	HEX CAP SCREW, 1/2”-13 X 1-1/2”, GRADE 5, PLATED
30	4	BP3129	HEX CAP SCREW, 1/2”-13 X 3”, GRADE 5, PLATED
31	7	BP3155	HEX CAP SCREW, 1/4”-20 X 3-1/2”, GRADE 5 PLATED
32	4	BP3584	BOLT, TERMINAL, HB646
33	7	BP3587	NUT, HEX, 1/4 NYLOCK
34	6	BP3612	NUT, HEX LOCK, 3/8-16, TOP LOCK
35	4	BP3644	NUT, HEX LOCK, 5/16-18, TOP LOCK
36	6	BP3685	BOLT, FLANGE HEAD, 3/8”-16 X 2”, GRADE 8, PLATED
37	10	BP3704	NUT, LOCK, NYLON INSERT, 1/2”-13
38	4	BP3709	BOLT, FLANGE HEAD, 5/16”-18 X 1”, GRADE 8, PLATED
39	1	BP3747	BOLT, FLANGE HEAD, 1/2”-13 X 2-1/2”, GRADE 8, PLATED
40	2	DP6307	COUPLING, 12FP-12FP, 5000-12
41	2	DP6300	COUPLER, QUICK, FEMALE, 3/4” NPT
42	2	DP6301	COUPLER, QUICK, MALE, 3/4” NPT
43	2	DP6415	ELBOW, 45 DEGREE, 12FP-12FP
44	4	DP6495	BULKHEAD ADAPTER WITH NUT, 12MP-12MJ, 2706-LN-12-12
45	2	DP6604	HOSE, HYDRAULIC, 3/4” X 73”, 12MP-12FJX
46	2	DP6605	HOSE, HYDRAULIC, 3/4” X 54”, 12MP-12MP
47	2	DP6607	HOSE, HYDRAULIC, 3/4” X 89”, 12MP-12FJX

ABS-1 Axle
2S1M
System

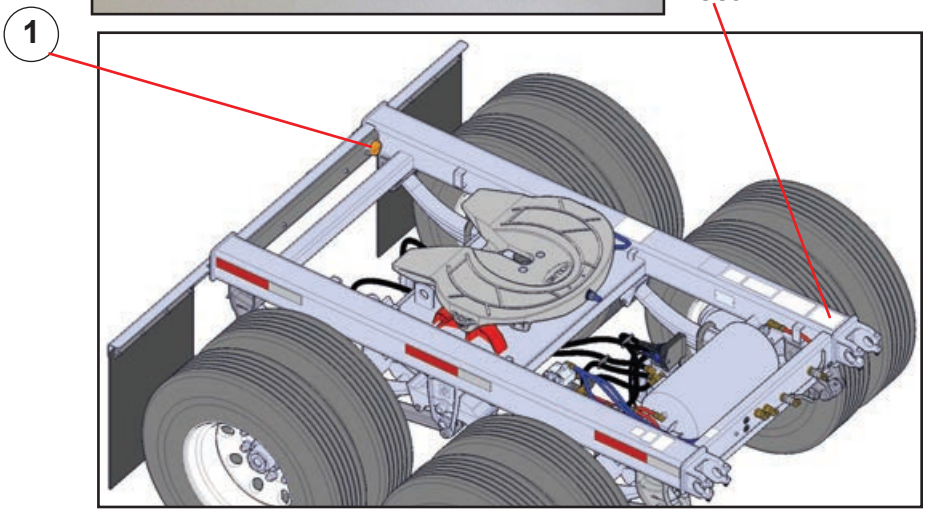
AP 4180 1 ABS Kit PLC Select

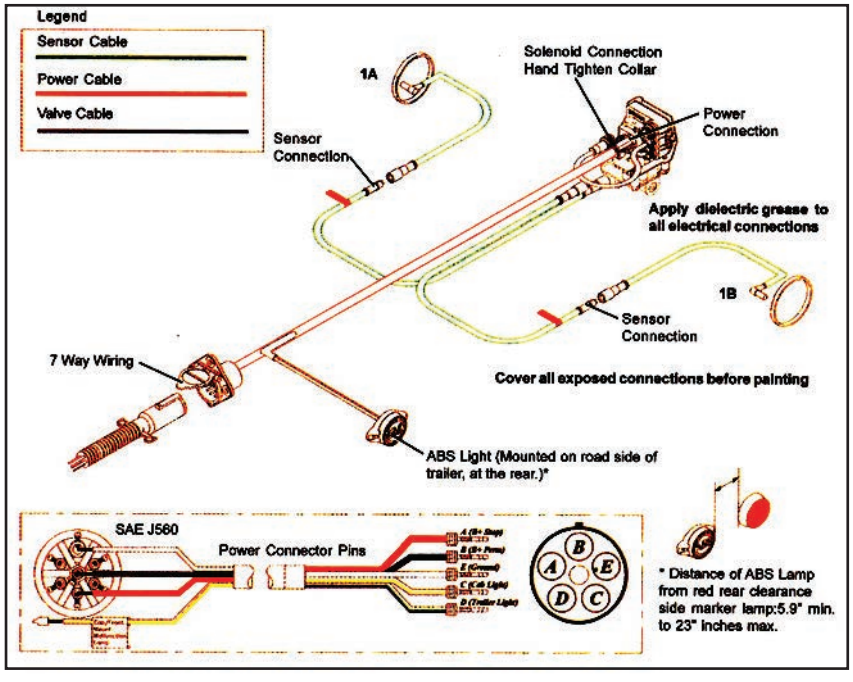
1.	AP3515	1	Light kit, Warning 1-SN154FC
2.	AP3528	1	MOD 1 FF-ABS SB PRTY 3/4"NPT (Includes Decals)
3.	AP3754	2	ABS sensor ext. cord 1 meter

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



Decal

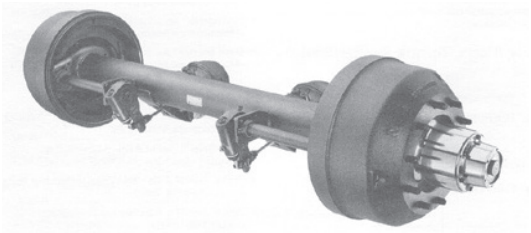




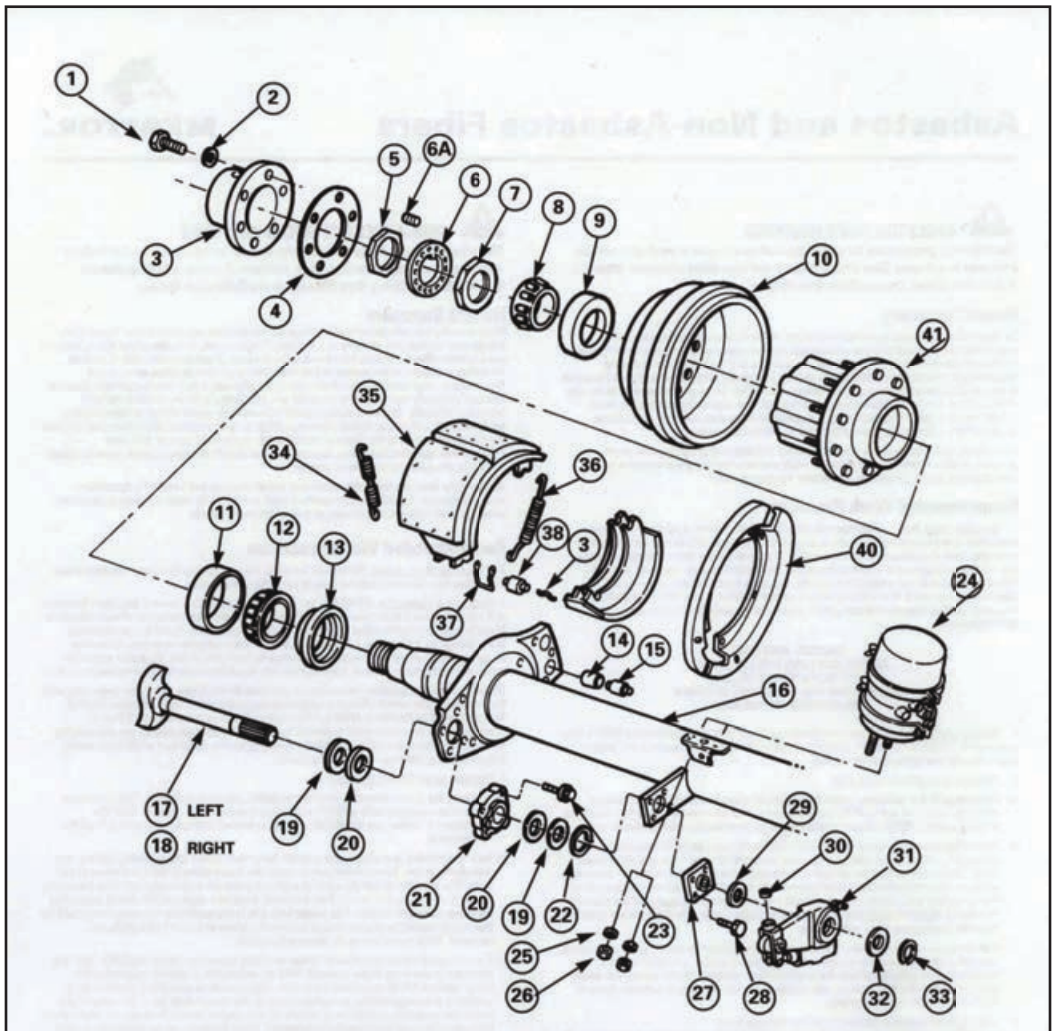
Hub Pilot Axles

Hub Pilot Axles

1. AP 3770 1 Hub pilot, non-ABS, cast drum steel hub, 25,000#
2. AP 3772 1 Hub pilot, ABS, cast drum, steel hub, 25,000#
3. AP 4179 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 retainirg 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

MERITOR™

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

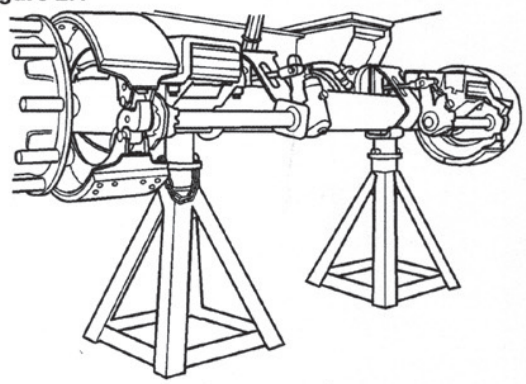
To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

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.**

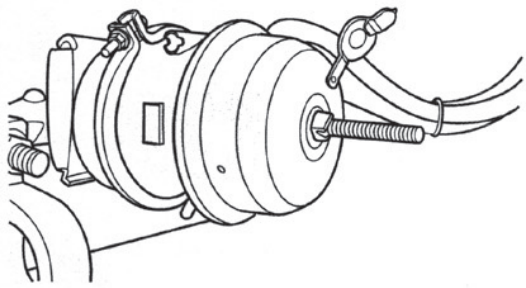
Figure 2.2

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



MERITOR™

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 24A, B, C.**

Figure 2.4A

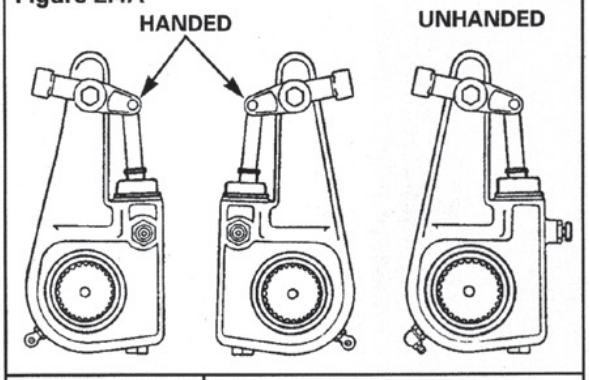
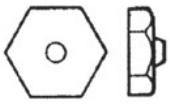
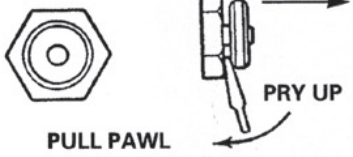


Figure 2.4B



CONVENTIONAL PAWL

Figure 2.4C



PULL PAWL

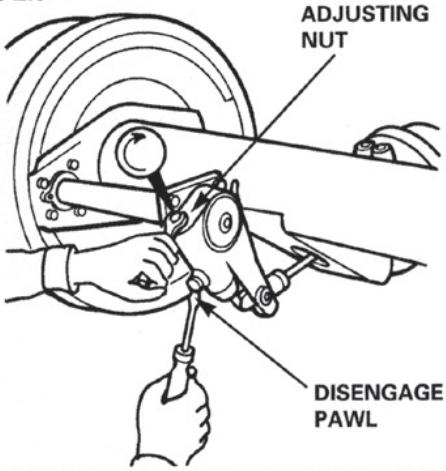
CAUTION

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.**

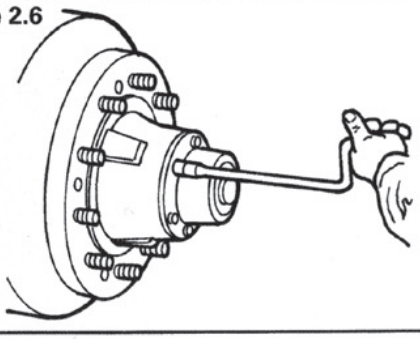
Figure 2.5



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.**

Figure 2.6



Section 2
Disassembly

MERITOR™

⚠ 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.

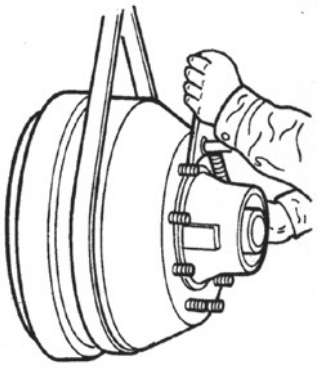
8. Remove setscrew from lockwasher. Then remove the jam nut, lockwasher and adjusting nut. **Figure 2.7.**

⚠ 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

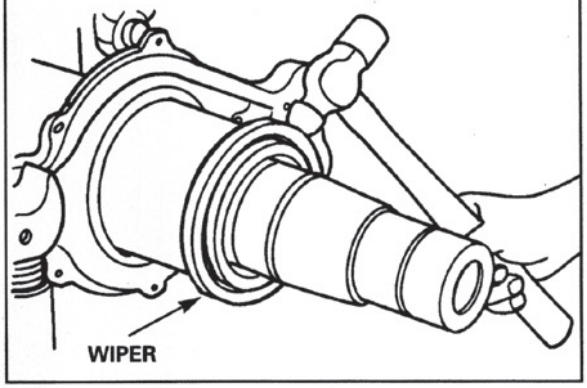
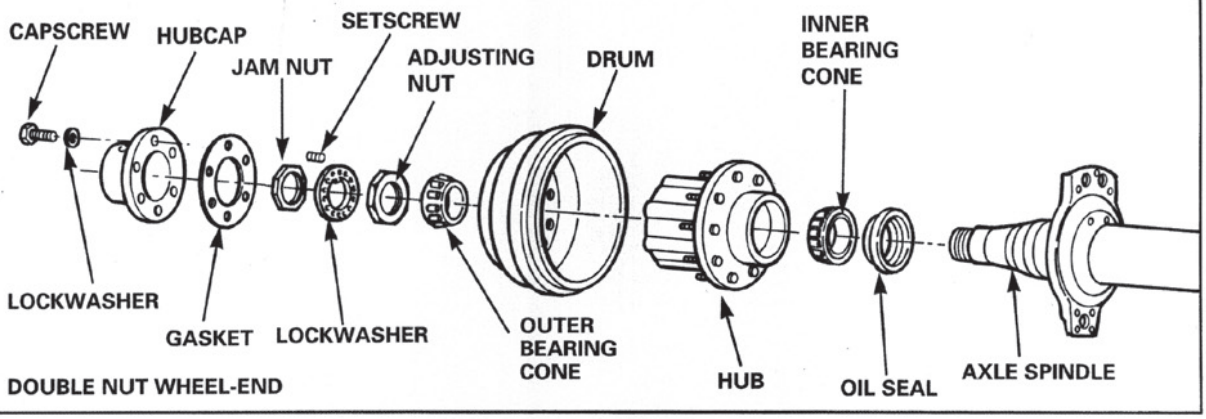
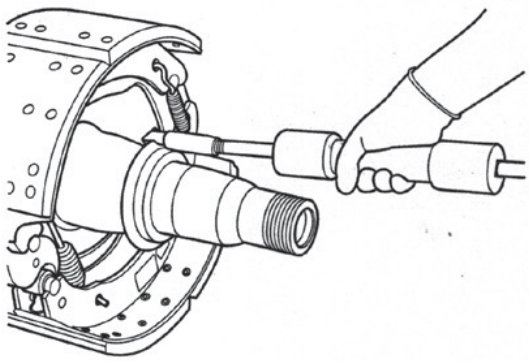


Figure 2.7



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

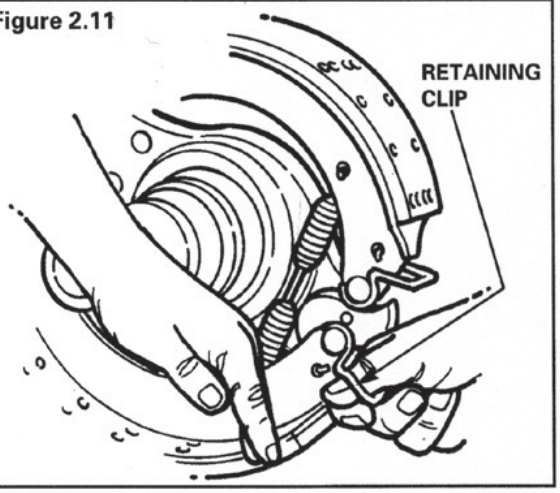


Remove the Brakes

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

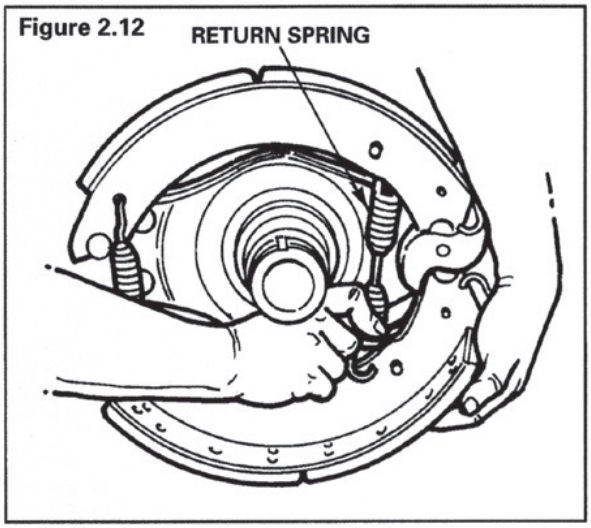


2. Lift the top brake shoe and pull on the roller retaining clip to remove top cam roller.

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

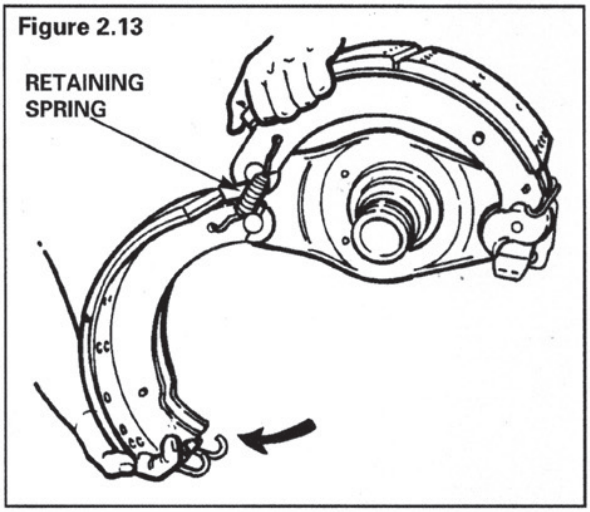


Section 2
Disassembly

MERITOR™

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

Figure 2.13



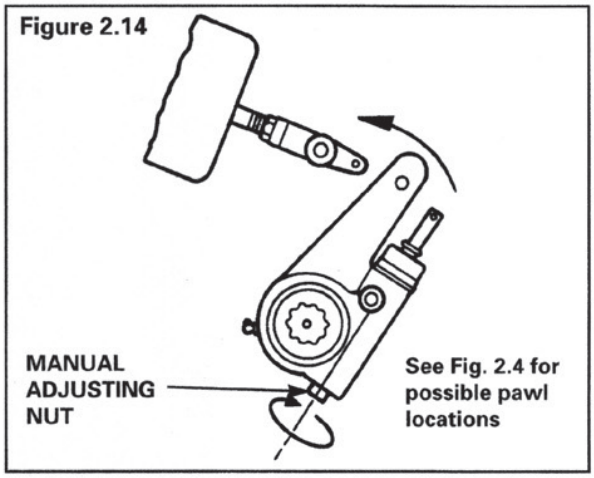
5. Disengage the slack adjuster from the air chamber push rod by removing the two slack adjuster clevis pins. Discard the two cotter pins that secure the clevis pins.

⚠ 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.

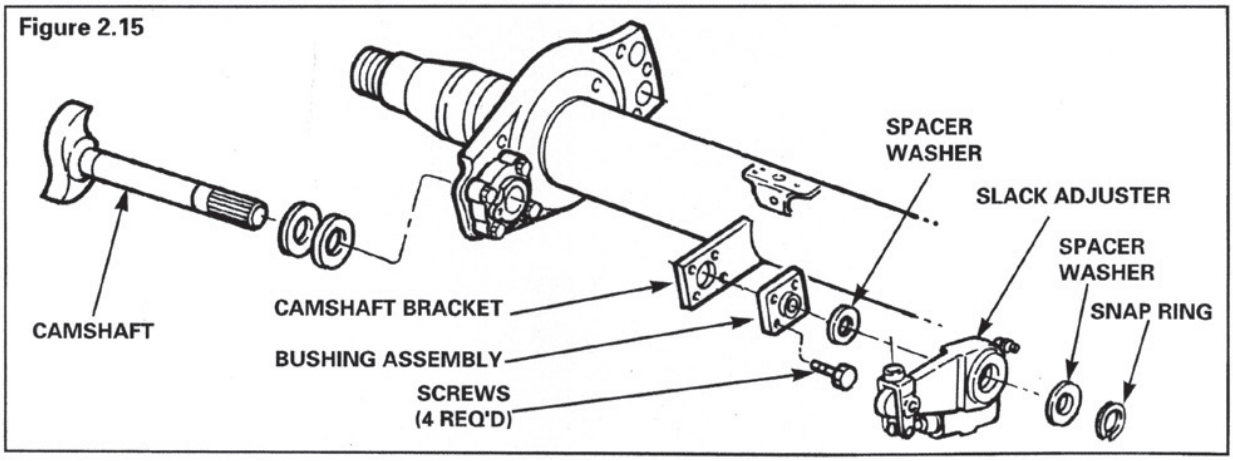
6. Remove a conventional pawl or pry a pull pawl at least 1/32-inch to disengage teeth. Rotate the manual adjusting nut clockwise to move the slack adjuster away from the clevis. **Figure 2.14.**

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



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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.

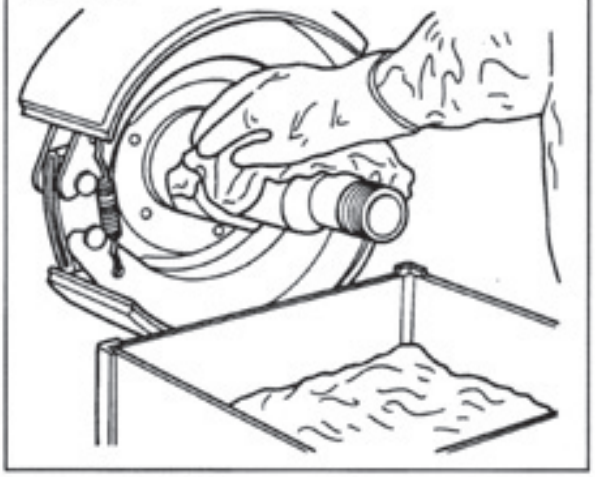
Clean Smooth Parts

⚠ 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

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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

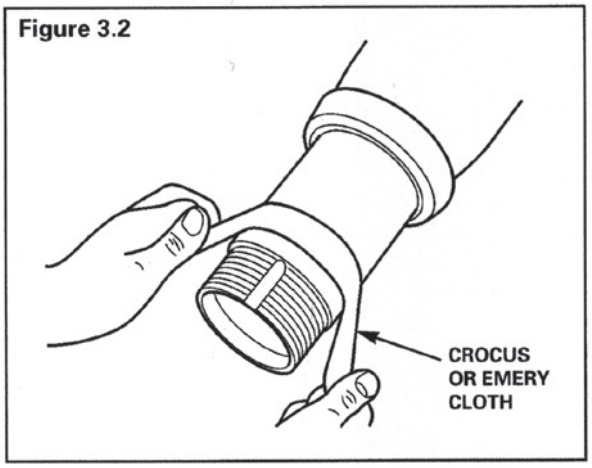
1. If parts are to be immediately assembled, apply lubricant to all machined surfaces.
2. If parts are to be stored, apply a coating that prevents corrosion to all machined surfaces.

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.

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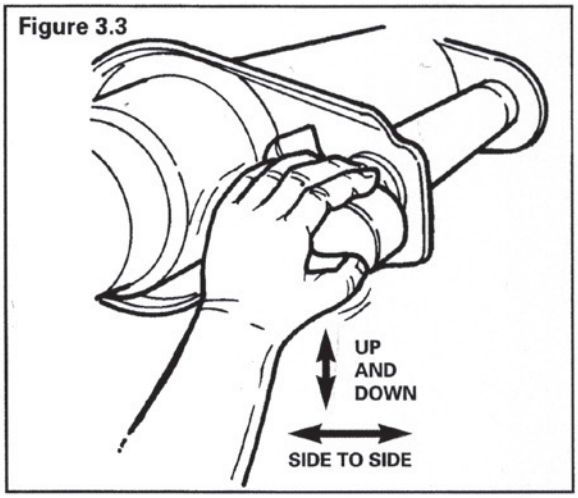
Section 3
Clean and Inspect Parts

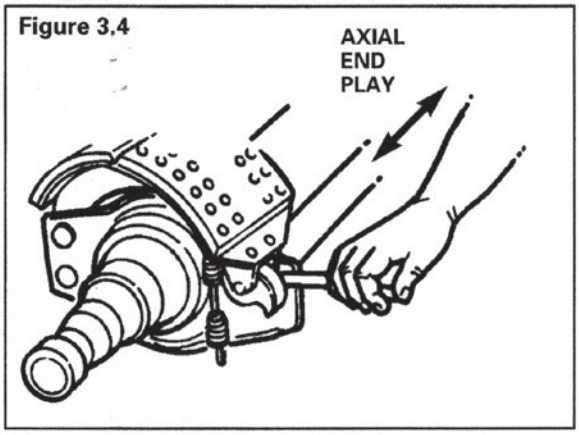
7. Inspect hub or spoke wheel. If damaged or worn, repair or replace as outlined in appropriate component manufacturer's maintenance manual.
8. Measure axle camber and toe as outlined in the "Alignment" section of this manual. If either of these parameters is out of specification, replace axle.
9. Inspect 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

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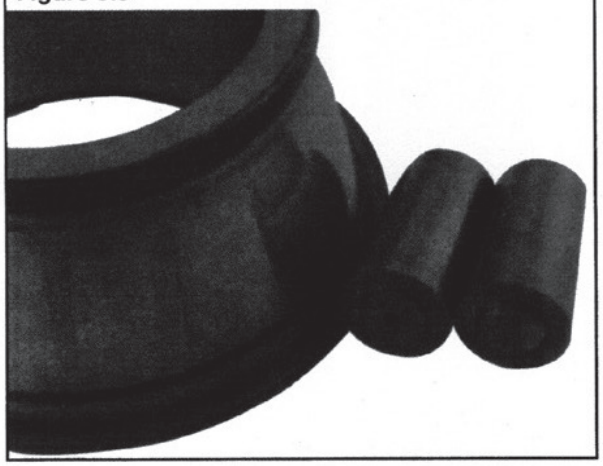
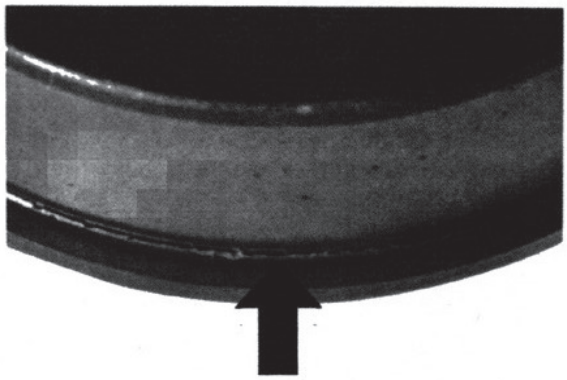
a. The roller ends are worn. **Figure 3.5.**

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

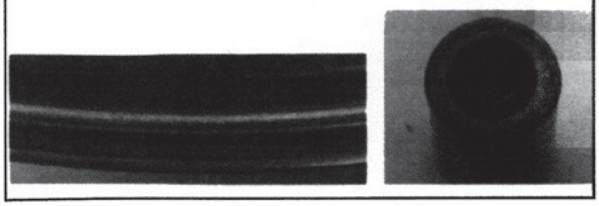
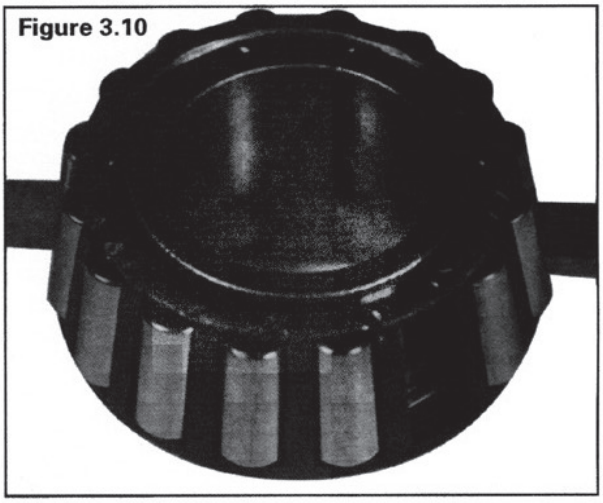


Figure 3.8

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

Figure 3.9

Figure 3.10



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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.**

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 3.11

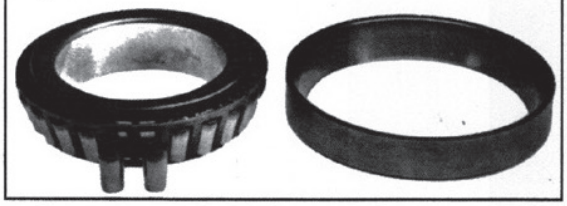


Figure 3.12

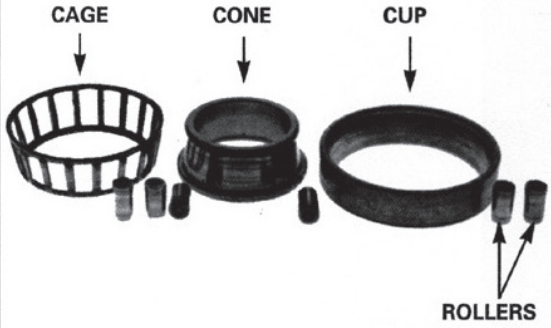


Figure 3.13

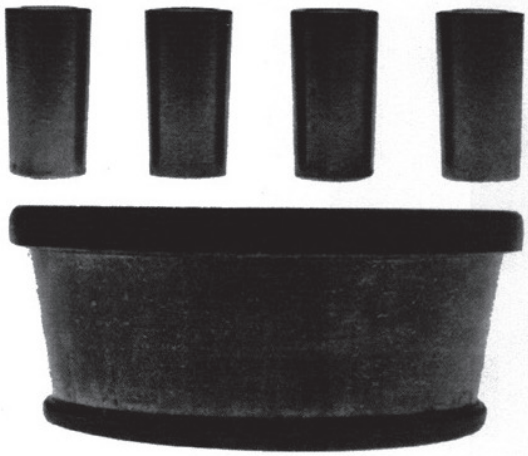


Figure 3.14

Figure 3.15

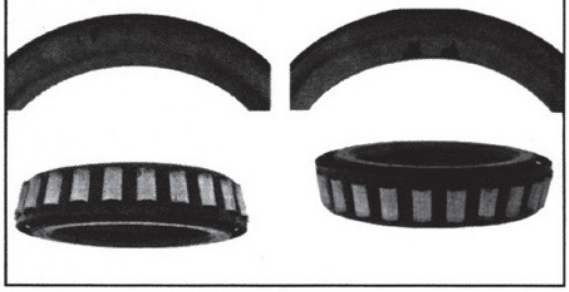


Figure 3.16

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.

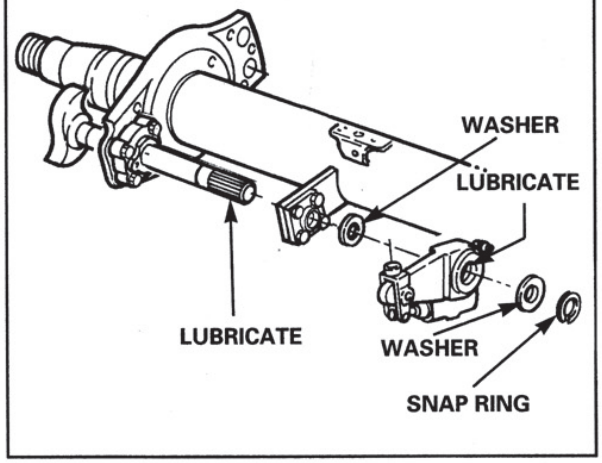
Most Meritor trailer axles are equipped with Q Series cam brakes. This section therefore details procedures for installing this brake. For information on lubricants specified, see the "Lubrication" section of this manual.

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

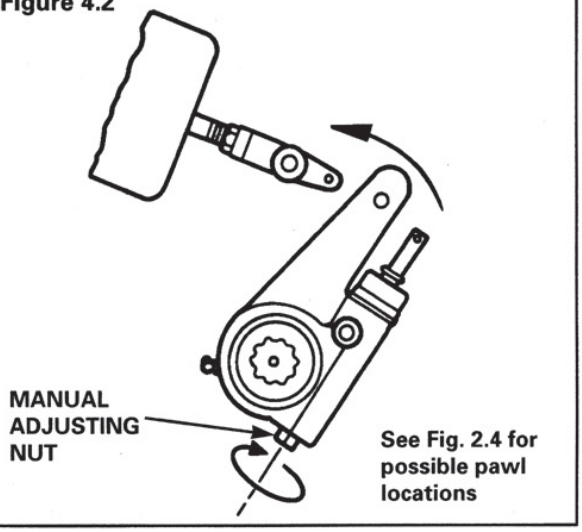


⚠ CAUTION

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

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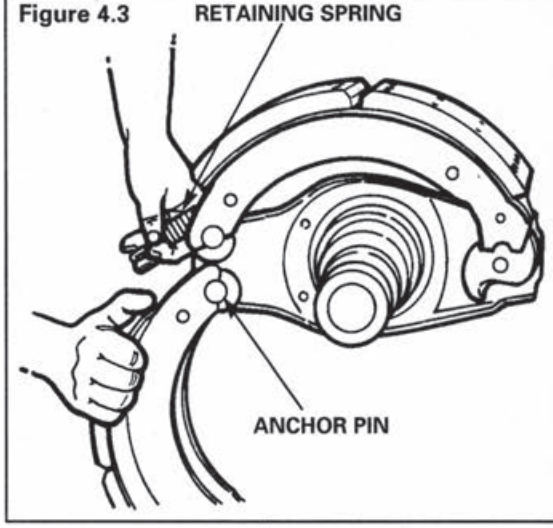
5. Lubricate anchor pins with Meritor specification O-616-A grease where brake shoes touch them. Put upper shoe in position on top anchor pin. Hold lower brake shoe on bottom anchor pin and install two new brake shoe retaining springs. **Figure 4.3.**

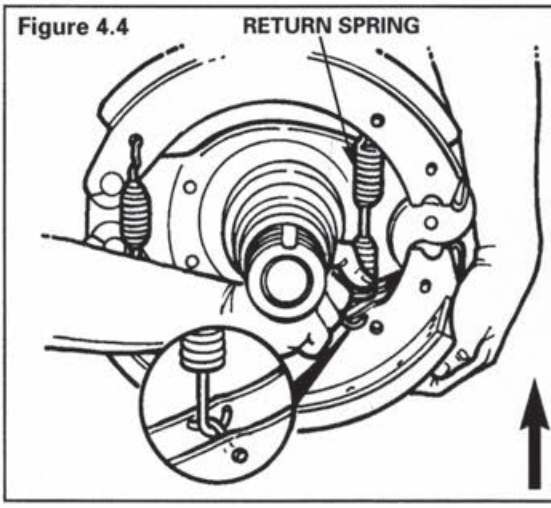
Figure 4.3



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.**

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

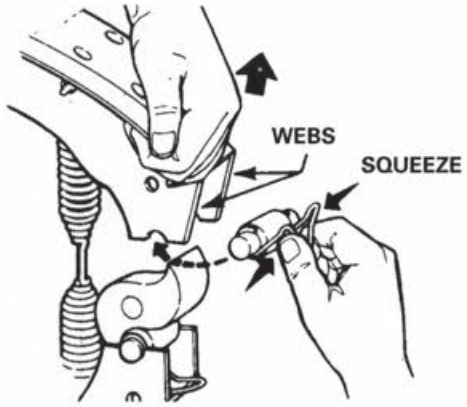
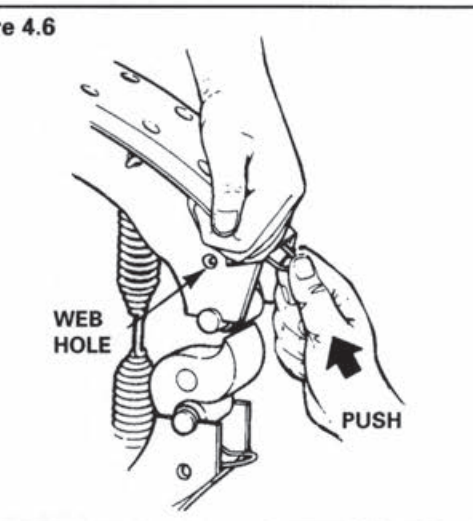


Figure 4.6

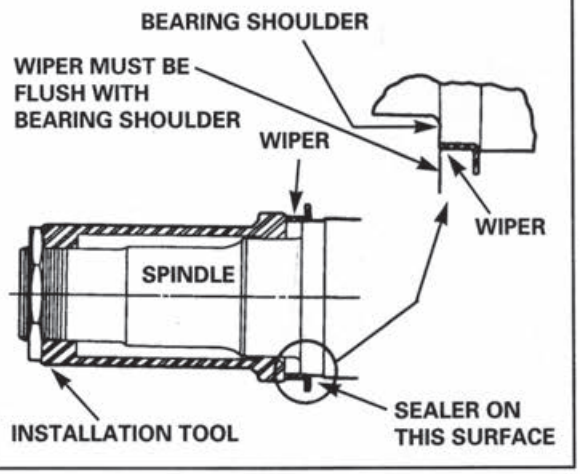


10. Lubricate camshaft bushings and slack adjusters as follows:
    - Wipe off grease fittings to prevent contamination from being injected into the joints along with grease.
    - Grease camshaft bushings until **new** grease flows from seals. If cam bushing seals at spider end of cam are installed 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.

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.**

Figure 4.7



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.

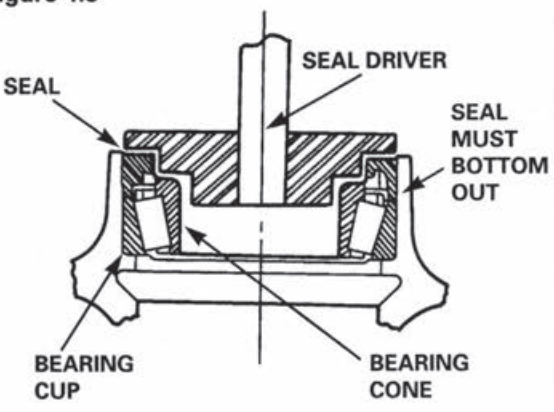
NOTE: Seal design and installation procedures vary. Contact the seal manufacturer for specific installation instructions.

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.**

Figure 4.8



Section 4 Assembly

MERITOR™

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

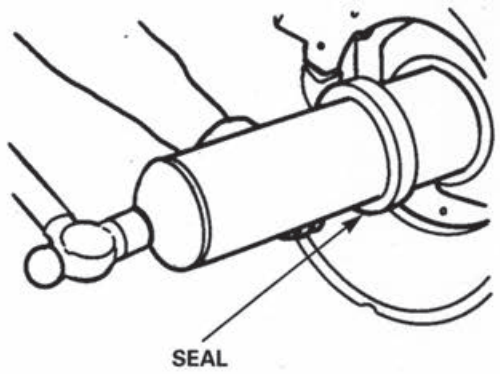
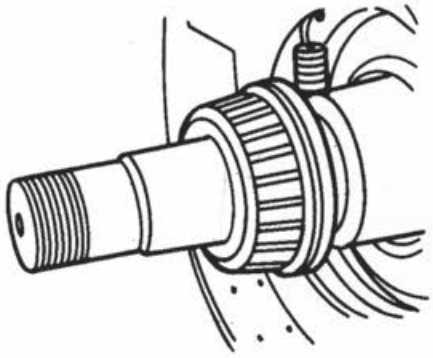
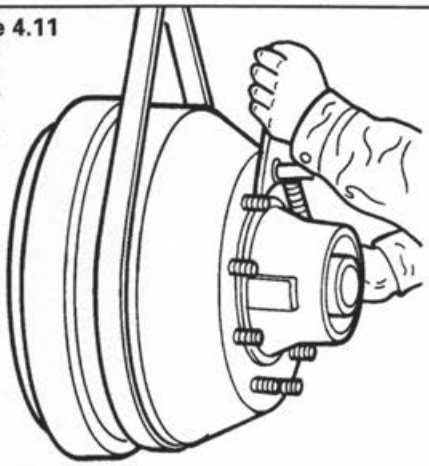


Figure 4.10



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.

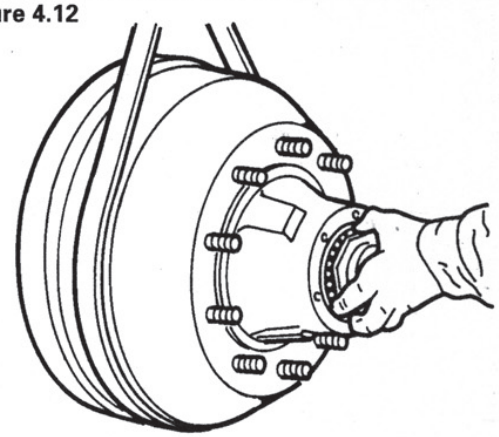
5. Install hub and drum assembly as follows.

   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.

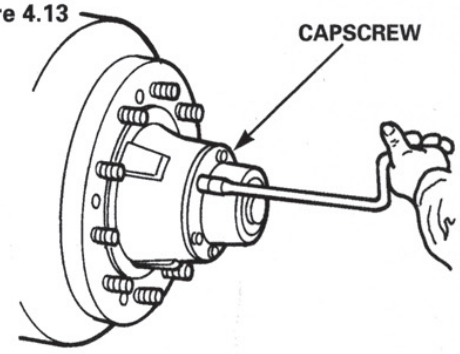
6. Install outer bearing cone then tighten adjusting nut until it is snug against outer bearing cone. Remove hub support so hub rests on bearings. **Figure 4.12.**

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.** T

Figure 4.13

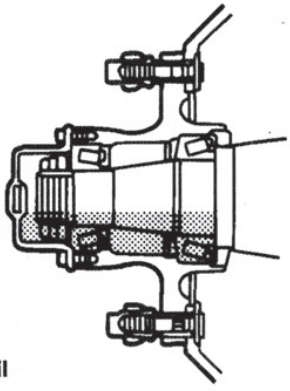


⚠ CAUTION

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



Shading indicates correct amount of oil

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

MERITOR™

⚠ WARNING

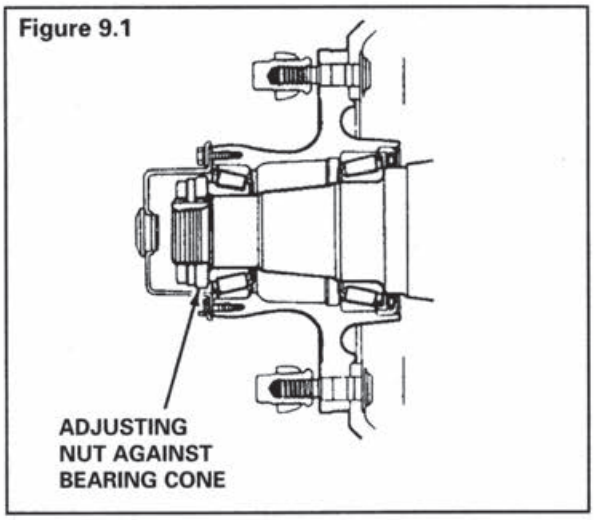
To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

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).

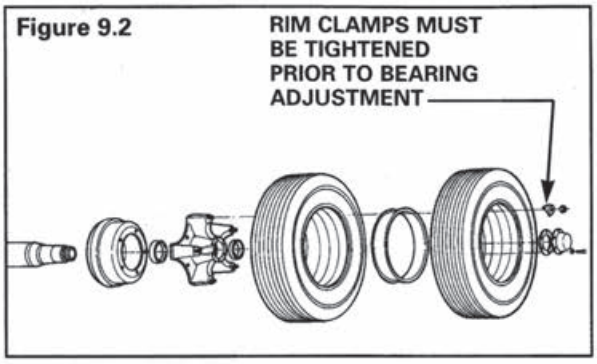
1. **Manual bearing adjustment** is the current production standard. The goal of this procedure is to obtain a wheel bearing end play of between 0.001 and 0.010 inch. This is achieved by first tightening the adjusting nut against the bearing cone, then backing it off a prescribed amount. **Figure 9.1.**

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.

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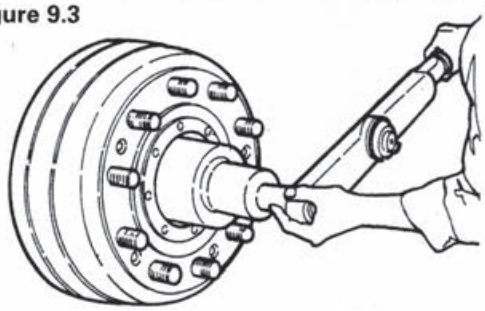
Section 9
Manual Bearing Adjustment

⚠ 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.**

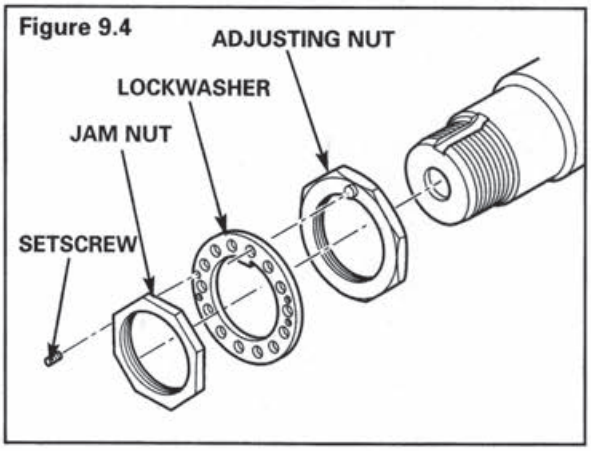
Figure 9.3



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.

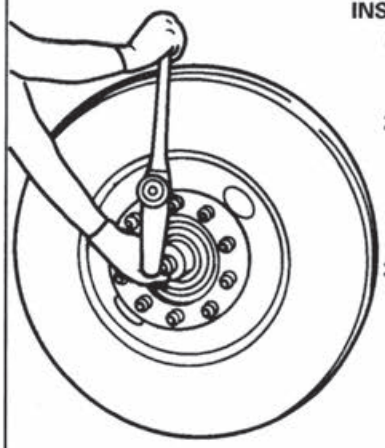
b. A setscrew was not used on an earlier **manual adjust** TP axle model.

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.** T

Figure 9.5



QUICK REFERENCE
ADJUSTING NUT INSTALLATION

1. **TIGHTEN NUT TO 100 LB-FT (136 N•m).** T
2. **LOOSEN NUT COMPLETELY THEN TIGHTEN NUT TO 50 LB-FT (68 N•m).** T
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. T
3. Loosen the nut 1/4 turn. Do not include socket backlash in the 1/4 turn.

Section 9
Manual Bearing Adjustment

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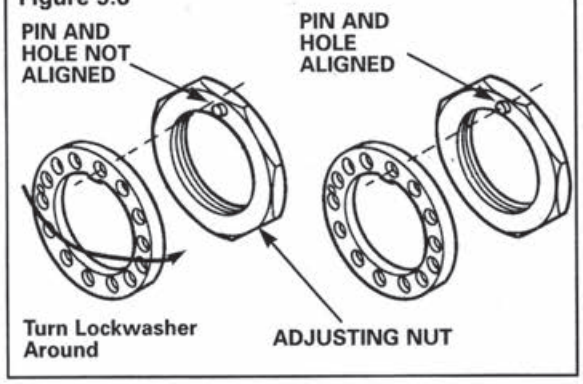
4. Install the lockwasher. If the hole in the washer is not aligned with the adjusting nut pin, remove the washer, turn it around and reinstall. The pin and hole should now be aligned. If not, slightly adjust the parts to align them. **Figure 9.6.**

Figure 9.6



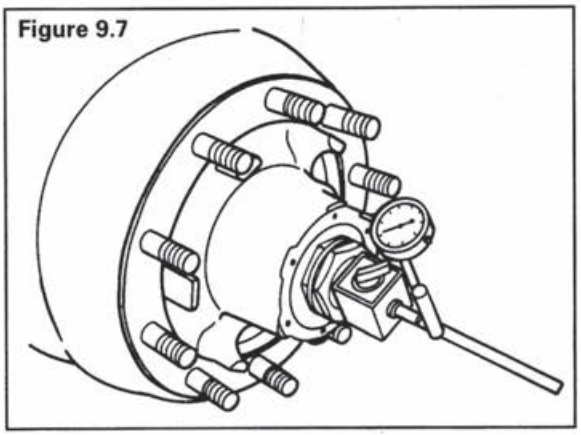
5. Install the jam nut and tighten the nut to 250-300 lb-ft (340-408 N•m). (T)

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.**

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.

Figure 9.8

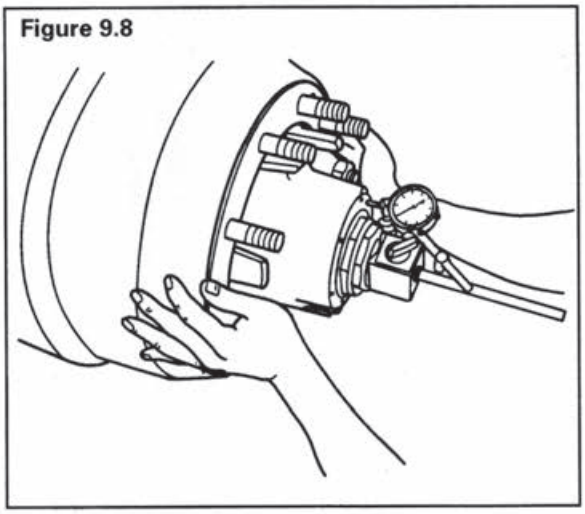
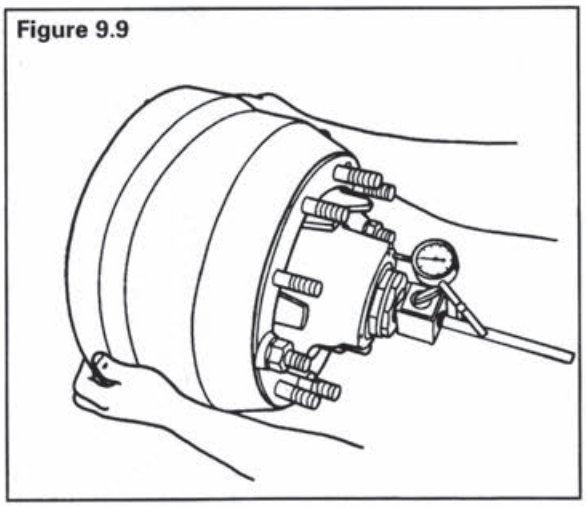


Figure 9.9



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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). T
   - 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

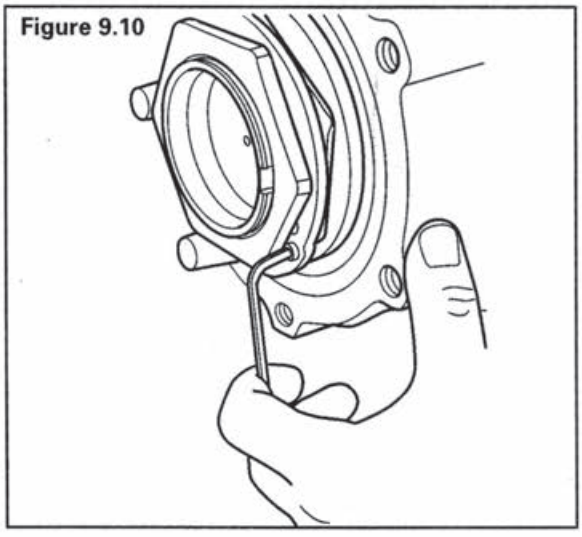
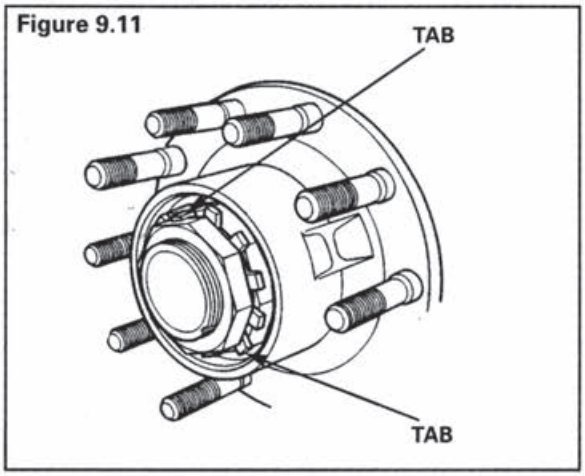


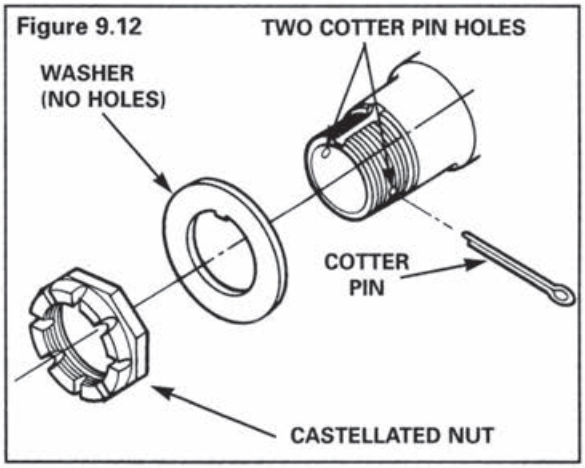
Figure 9.11



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

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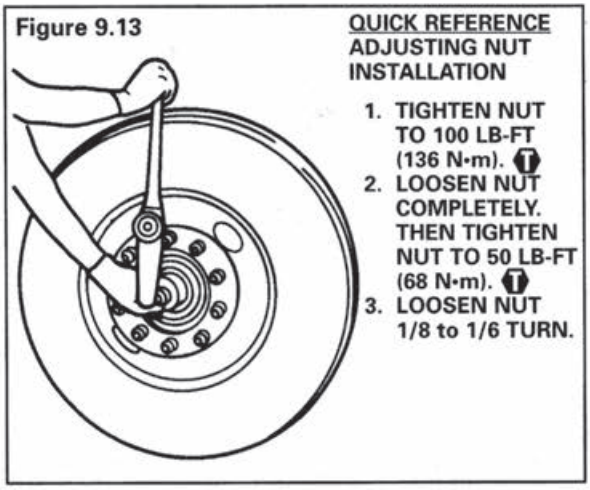
Use the following procedure to adjust the wheel bearings.

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.** (T)

Figure 9.13



2. Completely loosen nut, then tighten to 50 lb-ft (68 N•m) while rotating the wheel-end in both directions. (T)
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.