



PREMIER
MANUFACTURING

Document #10006329

THE FIRST NAME IN QUALITY COUPLINGS

Installation, Inspection, Operation & Maintenance Guide



MODEL 820ELA COUPLING

PART #10004805

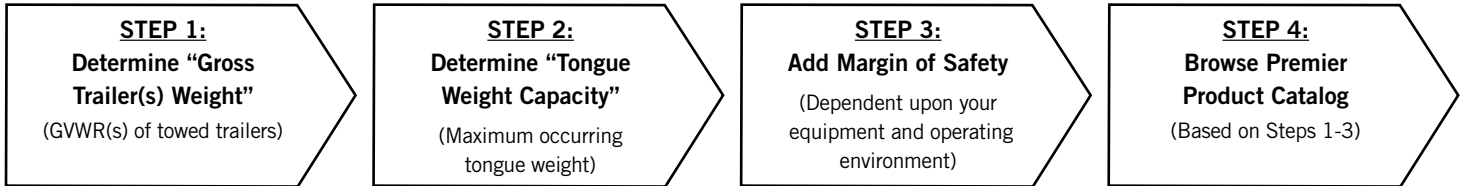
IMPORTANT

Read these instructions completely before installing, using or attempting to repair this product. If you have any questions, call Premier at (800) 255-5387 or (503) 234-9202

SELECTING THE RIGHT EQUIPMENT

Whatever your application, selecting the proper equipment for the job is very important. Proper selection along with regular inspection and maintenance will help keep operating costs minimal while providing long life to each component. Below are general guidelines for selecting Premier Coupling and Drawbar Eyes. If you feel that your application is unique, please give Premier a call so that we may help you through the selection process.

Follow these four steps to ensure proper selection of Premier Couplings and Drawbar Eyes.



STEP 1: Determine "Gross Trailer(s) Weight"

"Gross Trailer(s) Weight" is usually determined by the Gross Vehicle Weight Rating (GVWR). This information is attached to the trailer by the trailer manufacturer.

For "Double Trailer" configurations, only the rear trailer is considered when selecting your Premier Coupling or Drawbar Eye. In this example, a Coupling and Drawbar Eye with a "Gross Trailer Weight" rating of 40,000 lbs. (18,143 kg) would be the minimum rating acceptable for normal, over-the-road applications (see Tongue Weight section below).

Double Trailer Configuration



Example only, each application may vary and should be considered unique.

For "Triple Trailers", only the two most rearward trailers are considered in selecting your Premier Coupling or Drawbar Eye. In this example, a Coupling and Drawbar Eye with a "Gross Trailer Weight" rating of 80,000 lbs (36,287 kg) would be the minimum acceptable for normal, over-the-road applications. (See Tongue Weight section below).

Triple Trailer Configuration



Example only, each application may vary and should be considered unique.

STEP 2: Determine "Tongue Weight Capacity"

"Tongue Weight Capacity" is the maximum expected weight at the drawbar eye. If a hinged drawbar is used, the maximum weight will be approximately 1/2 the overall drawbar weight. If a non-hinged drawbar is used and the actual tongue weight is not known, you can approximate the weight by multiplying the GVWR of the towed trailer by 15%. However, each application is unique and the best practice is to weigh the tongue when the trailer is loaded to GVWR.



STEP 3: Consider Operating Conditions and Environments

Environments such as rough uneven roads or off-road use can dramatically increase shock loads to both drawbar eyes and couplings. In general, increasing the "Gross Trailer Weight" (Step 1:) and "Tongue Weight Capacity" (Step 2:) by a minimum of 25% will be sufficient for many applications. Even if an application is used off-road occasionally, the minimum increase necessary for Gross Trailer and Tongue Weight is 25%. Certain types of equipment and/or operating practices can also dramatically increase loads through equipment binding and/or improper loading practices. Of special concern is high tongue weight. However, each application is unique and every environment different, therefore your application may require more than 25%.

Once both "Gross Trailers(s) Weight" (Step 1:) and "Tongue Weight Capacity" (Step 2:) have been determined, evaluate your operating conditions and apply an appropriate margin of safety.

STEP 4: Browse Premier Product Catalog

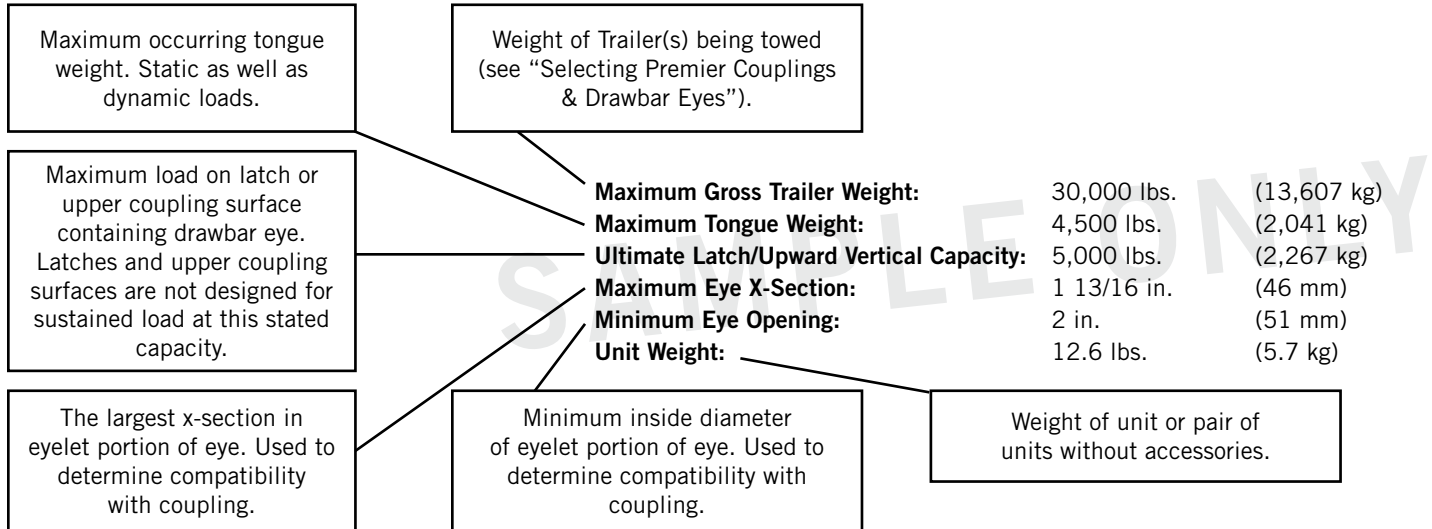
Browse the Premier Product Catalog and refer to the "Specifications" section of each product. Be sure to review the "Understanding Premier Load Specifications" sections and "Coupling to Drawbar Eye Cross-Reference" sheet on the next couple of pages.



SELECTING THE RIGHT EQUIPMENT

Understanding Premier Load Specifications

Each Premier product undergoes extensive design and testing prior to being introduced. We use the latest in Computer Aided Design and Analysis Software as well as physical destructive tests. Premier's published load specifications are the maximum load a given product or part will withstand without failure. Premier's testing procedures closely follow the Society of Automotive Engineers (SAE) guidelines of Recommended Practice for testing Couplings and Drawbar Eyes (SAE J847 & J849).



Importance of Inspection and Maintenance

Whether you use Premier Jacks, Couplings, Drawbar Eyes, Hinge Assemblies or any other Premier product, regular inspection and maintenance are essential for proper function, keeping repair costs to a minimum and above all, safe and efficient operation.

To determine wear limits, Premier created Wear Gages that help judge the useful life of couplings and drawbar eyes (details in catalog). In accordance with Premier and the Federal Motor Carrier Safety Regulations, these were designed to identify wear at the critical percentages of 18% and 20%, by measuring the cross-section of coupling hooks (horn) and drawbar eye loops. 18% wear indicates that the product should be replaced as soon as possible. At 20% wear, the product is no longer in usable condition and must be taken out of service immediately and replaced. The latch gage bar measures the gap space between the top of the coupling hook and the closed latch. If the 3/8" latch gage bar can pass between this region, then the latch components should be considered worn past safe limits and replaced. Please note that these wear gage specifications are in accordance with Premier Mfg. and the Federal Motor Carrier Safety Regulations (refer to other manufacturer's specifications for wear limits on their products).



Premier also provides Installation Guides for each of our major products. These help guide you through installation, inspection, routine maintenance and part replacement. Another resource is our website at www.premier-mfg.com. Here you will find Installation Guides, Service Guides, distributor locations, online catalogs, product information, trade show schedules and links to trucking resources.

Additional Product Resources at Your Fingertips

Customer Service: We are always here to support you. Do you need additional information or assistance? Your phone calls are greeted by our courteous receptionist, during business hours. We have exceptional, personable Customer Service Reps for you to rely on. If you have product questions or want to place an order, you can speak directly with one of our experienced and knowledgeable Customer Service Representatives.

Sales Representatives: Would you like on site training or assistance? Contact one of our veteran Premier Sales Reps for more information about product training for your staff. Or be sure to visit with them at a Trade Show (see website for schedule).

www.premier-mfg.com: Our website is an informative resource at your fingertips. In addition to our Installation and Service Guides, you will find Territory Manager contact information, distributor locations, product specifications, product selectors, cross-reference forms, digital product catalog, trade show schedule, and links to trucking resources.



MODEL 820ELA COUPLING

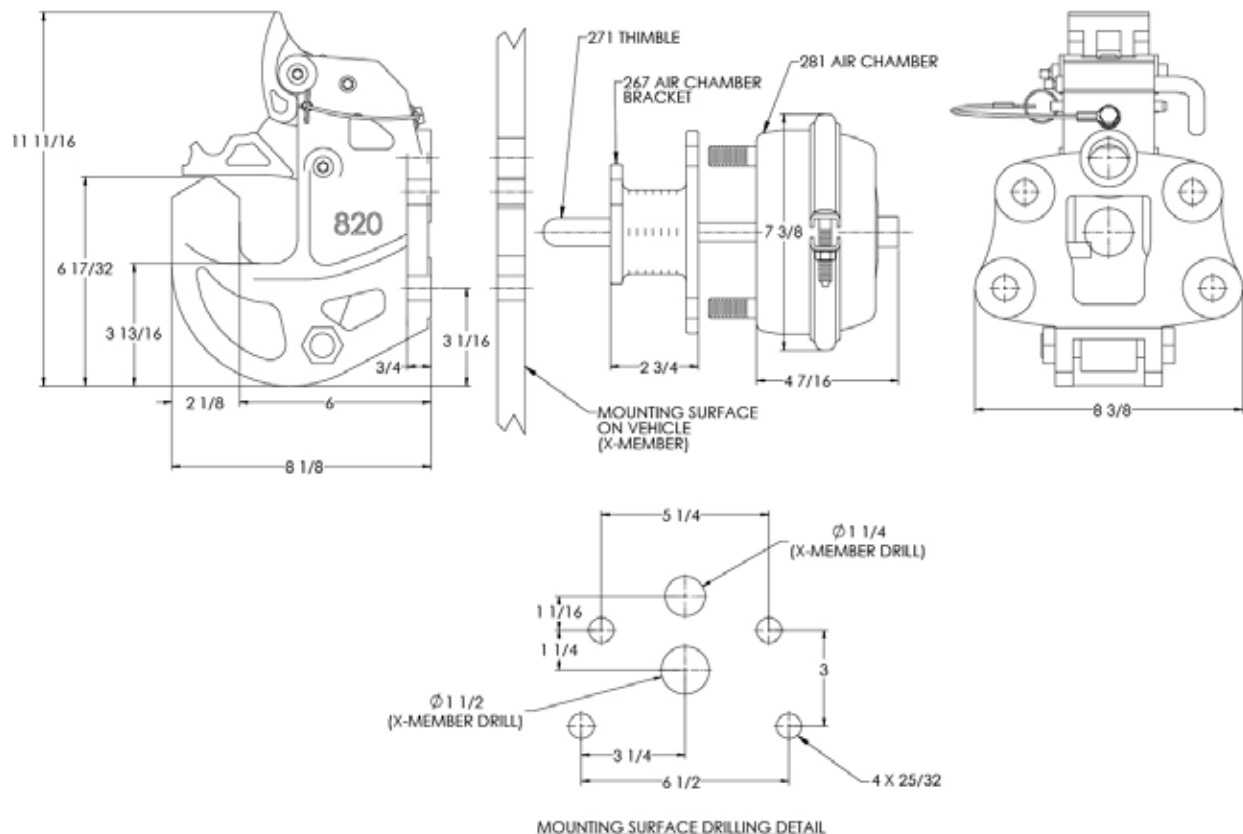
Specifications and Load Capacities

SAFETY WARNING

This product is designed for towing under normal conditions within the stated gross trailer weight. Do not overload or abuse this product. Overloading or abuse may lead to property damage, severe injury, or death.

Gross Trailer Weight:	100,000 lbs.	(45,359 kg)
Maximum Tongue Weight:	20,000 lbs.	(9,072 kg)
Ultimate Latch Capacity:	60,000 lbs.	(27,216 kg)
Maximum Eye X-Section:	1 13/16 in.	(46 mm)
Minimum Eye Opening:	2 3/8 in.	(60 mm)
Model 820ELA Unit Weight	48.8 lbs.	(22.1 kg)

820ELA Standard Installation Drawing

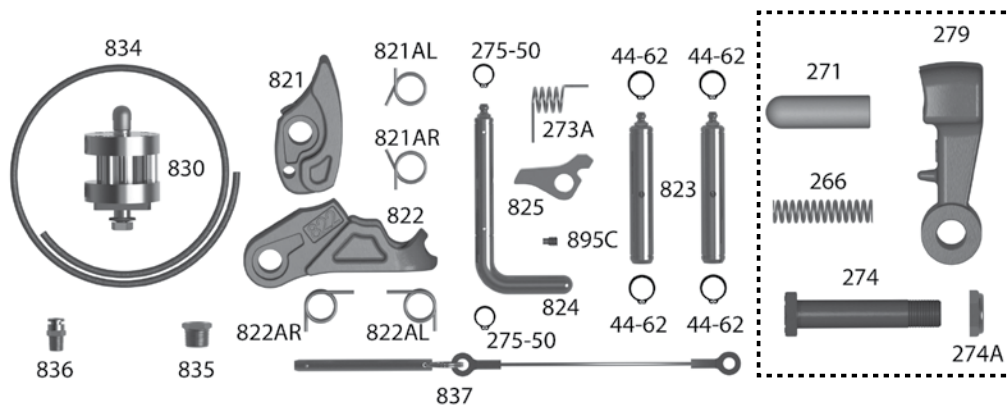


Pushrod length is 4 5/16 in. (110 mm) plus thickness of mounting structure (X-member) for standard installations as illustrated.



MODEL 820ELA COUPLING

Replacement Part Information



820PK-EL (#10000394) Parts Available:

Model #	Part #	Description	Model #	Part #	Description
273A	10000302	Spring	*266	10000290	Spring
275-50	10000311	Retaining Ring (2)	*271	10000107	Thimble
44-62	10000353	Retaining Ring (4)	*274	10000308	Bolt
821	N/A	Pawl	*274A	10000309	Locknut
821AL	N/A	Spring	*279	10000312	Shoe
821AR	N/A	Spring	**834K	10000496	Air Line Kit
822	N/A	Latch	**834	N/A	Air Line
821AL	N/A	Pawl	**835	N/A	Reducer Fitting
821AR	N/A	Pawl	**836	N/A	Fitting
823	10004809	Pin	***830	10000032	Auxiliary Air Cylinder
824	10004810	Handle			
825	N/A	Locking Pawl			
837	10000038	Safety Pin & Cable			
895C	N/A	Set Screw			

*Not included in 820PK-EL Parts Kit, available as 279PK Parts Kit

**Available as separate kit (834K)

***Not included in 820PK-EL Parts Kit, available individually

Parts

Parts Included with 820ELA (#10004805):

Model #	Part #	Description
820EL	N/A	Coupling
834K	10000496	Air Line Kit
**834	N/A	Air Line
**835	N/A	Reducer Fitting
**836	N/A	Fitting
509	10000156	Bolt Kit
267	10000098	Air Chamber Adapter Bracket
271	10000107	Thimble
281	10000116	Air Service Chamber

Parts Included with 820ELR (#10004807):

Model #	Part #	Description
820EL	N/A	Coupling
509	10000496	Bolt Kit
281L	10000120	Air Service Chamber
271	10000107	Thimble

**Available as separate kit (834K)

Accessories

Optional Accessories:

- 282 Air Chamber (Type-30) (#10000122): Larger chamber diameter provides greater shoe force compared to the 281 Air Chamber.
- Wear Gage 14014 (#10000062) (2 1/8 in.): To determine hook wear limits.
- Latch Gage 14026 (#10000071): To determine latch gap limit.



MODEL 820ELA COUPLING

Installation

WARNING:

This product is designed to be operated as described in the Inspection/Operation/Maintenance section of this document.

The 820ELA safety mechanism is not designed to be part of the normal operation of the coupling, and ideally should never be used to close the latch mechanism.

In the event that the latch was not properly closed as described in the Inspection/Operation/Maintenance section of this document, the safety mechanism is designed as an additional safety measure to potentially assist in closing the latch under ideal conditions, provided the coupling's latch system is operating smoothly and correctly per the operation sections for opening and closing the latch of this document.

There are conditions that can prevent the safety mechanism from closing the latch of the coupling. Per the Federal Motor Carrier Safety Regulations, Section 392.7, Paragraph (a) No commercial motor vehicle shall be driven unless the driver is satisfied that the following parts and accessories are in good working order, nor shall any driver fail to use or make use of such parts and accessories when and as needed: Coupling devices.

It is the responsibility of the operator making the equipment coupling connection to make sure that the latch is closed correctly according to the operation described in the Inspection/Operation/Maintenance section of this document.



MODEL 820ELA COUPLING

Installation

The 820ELA Coupling is only to be used and maintained with Premier parts listed in the Replacement Part Information section. Any substitution or use of non-Premier parts in a 820ELA Coupling will VOID ALL PRODUCT WARRANTY.

Installation Procedure:

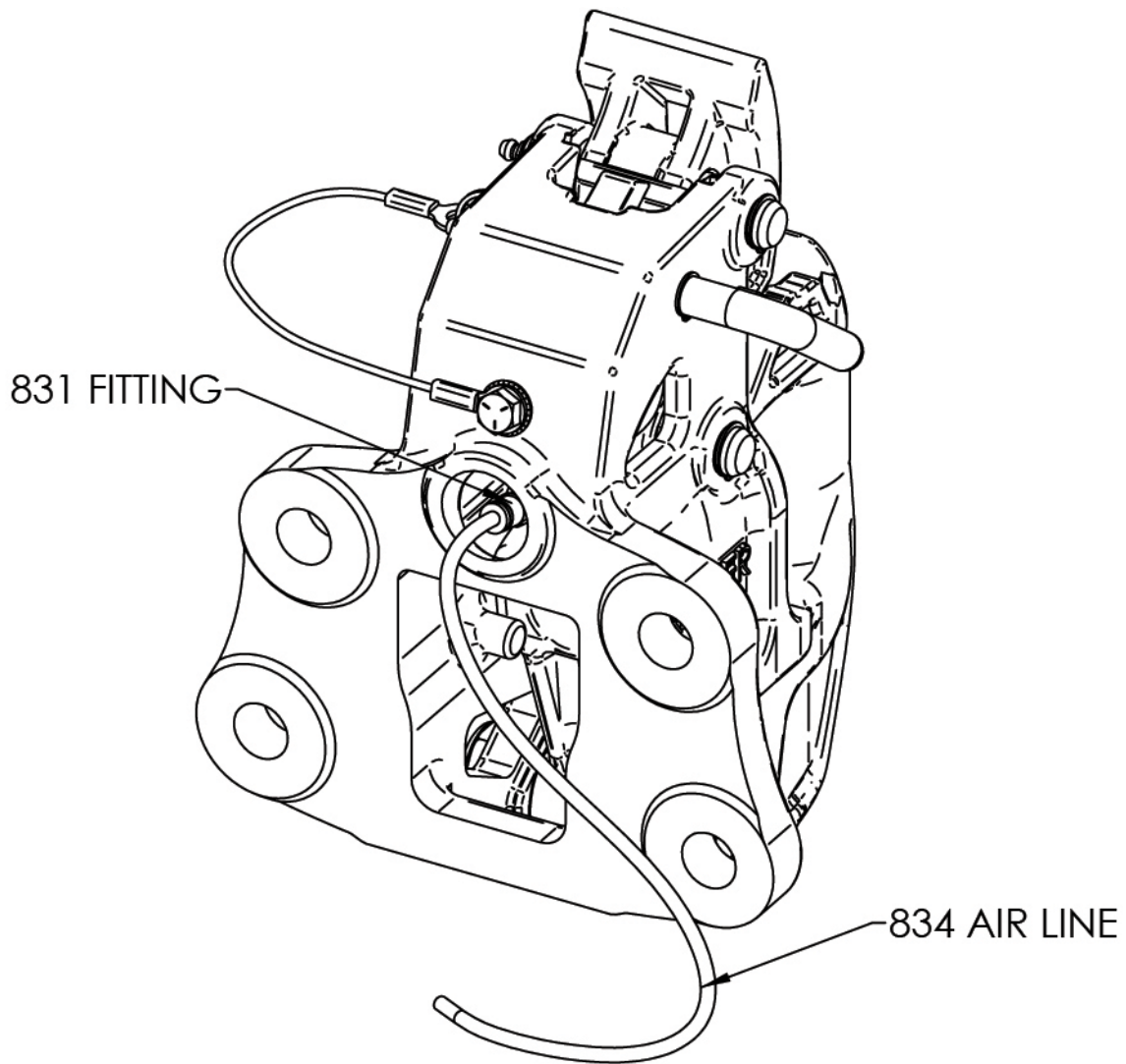
1. The 820ELA Coupling must be installed to comply with the Federal Motor Carrier Safety Regulations. Specifically, Section 393.70, Paragraph C: "Towing of Full Trailers." Prior to install or operation, consult with local, State and Federal agencies, as there may be additional applicable laws governing installation and use of this product.
2. Make certain the cross member that the 820ELA Coupling is to be mounted on is of sufficient strength to withstand the load rating of the coupling.
3. If using the 820ELA Coupling with a 281 Air Chamber, a 267 Air Chamber Bracket and 271 Thimble, measure the mounting structure thickness and cut the pushrod on the air chamber to a length of $4 \frac{5}{16}"$ plus the mounting structure thickness (i.e. $\frac{1}{2}"$ thick mounting structure would equate to: $4 \frac{5}{16}" + \frac{1}{2}" = 4 \frac{13}{16}"$ pushrod).
4. Using the Standard Installation Drawing supplied in this document, measure and layout the cross member and then drill the holes for the mounting bolts, pushrod, and 834 Air Line. **MAKE CERTAIN THE EDGE OF THE 834 AIRLINE CLEARANCE HOLE IS NOT SHARP. (See figure 3)**
5. Prior to mounting the 820ELA Coupling, insert the 834 Air Line into the 831 Fitting as shown in Figure 1. Install the 835 and 836 Fittings into the $\frac{3}{8}"$ - NPT port on the side of the 281 Air Chamber as shown in Figure 2.
6. Run the open end of the 834 Air Line through the 834 Air Line clearance hole in the mounting structure. **MAKE CERTAIN THE EDGE OF THE 834 AIRLINE CLEARANCE HOLE IS NOT SHARP**, and the 834 Air Line is routed in a manner that prevents the line from contacting sharp/abrasive surfaces. Ensure the 834 Air Line is not twisted, kinked, pinched or installed under tension. Use grommets or soft tube clamps if necessary. Mount the 820ELA Coupling, 281 Air Chamber, 267 Air Chamber Bracket and 271 Thimble as shown in the Standard Installation Drawing. Use either Premier's 509 Bolt Kit and provided torque value, or four other $\frac{3}{4}"$ grade-8 bolts and grade-C locknuts. Only use new fasteners when mounting couplings or drawbar eyes and torque to the manufacturer's recommendations. The two longer (3") mounting bolts in the bolt kit are used for mounting the coupling and air chamber bracket to the cross member. **WARNING:** Never use an air chamber on a Premier coupling without a 271 series thimble.
7. Once mounted, insert the open end of the 834 Air Line into the 836 Fitting. Check the latch components for proper operation and clearances (see the Inspection/Operation/Maintenance section for opening and closing the latch). If the operation of the latch components is sticky, lubricate via the zerk fittings on the 823 Pins and 824 Handle. Work the latch assembly several times to distribute the lubricant evenly and remove any excess with a rag. Do not apply lubricant to the pintle/hook or saddle area of the 820ELA Coupling.
8. Plumb the 281 Air Chamber from the vehicle's emergency side air supply. **NEVER** use the service side air supply.
9. **WARNING!** Keep hands clear of the 820ELA Coupling during this test. Open the latch mechanism of the 820ELA Coupling (see the Inspection/Operation/Maintenance section for opening and closing the latch). Activate the emergency side air supply by releasing the emergency brake and visually verify that the 279 Shoe fully roates toward the pintle and the 820ELA latch mechanism has moved to the closed position.
10. If the 279 Shoe does not move, verify that the 281 Air Chamber has been connected to the emergency side air supply and that the pushrod length is correct.
11. When the emergency side air supply is removed, the shoe should completely retract. Please note: The 279 Shpe acts as a shock absorbing device to help smooth the ride between vehicles. It is not considered part of the latching mechanism.
12. If the 820ELA latch mechanism did not close, verify that the 281 Air Chamber has been connected to the emergency side air supply. If the 281 Air Chamber has been correctly connected to the emergency side air supply, verify that the 834 Air Line is properly connected to the 830 Auxiliary Air Cylinder and the 281 Air Chamber. Make sure there are no leaks in any of the connections and the 834 Air Line is not twisted, kinked, pinched, or blocked in any manner. Verify the pressure to the 834 Air Line is at least 90 psi with the system fully pressurized. Verify the 839 Breather Vent is not blocked. Verify the 830 Auxiliary Air Cylinder is not damaged and the rod is clean and free of contaminants. Refer to Figure 4 and Figure 5 for the location of these components.
13. The 821 Pawl, 822 Latch, 823 Pin, 824 Handle, and 825 Locking Pawl are each plated for corrosion resistance. **DO NOT APPLY AN EXCESSIVE AMOUNT OF PAINT TO THESE PARTS.** Depending on the paint thickness and type this can negatively affect the 820ELA safety mechanism. If these components are painted the latch safety mechanism must be tested and confirmed to operate correctly and reliably at a test pressure of 60 psi. Refer to Figure 4 for the location of these components.
14. **DO NOT APPLY PAINT TO THE 839 BREATHER VENT OR THE ROD OF THE 830 AIR CYLINDER.** Refer to Figure 5 for the location of these components.
15. "IMPORTANT WARNINGS!" sticker was enclosed. This must be attached to the coupling or cross member and be visible for the end user to read.



MODEL 820ELA COUPLING

Installation

Figure #1



MODEL 820ELA COUPLING

Installation

Figure #2

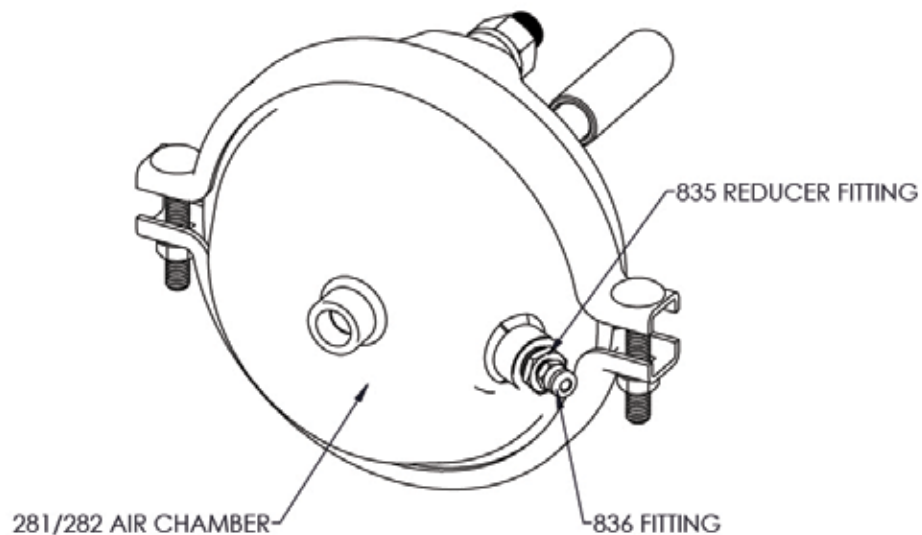
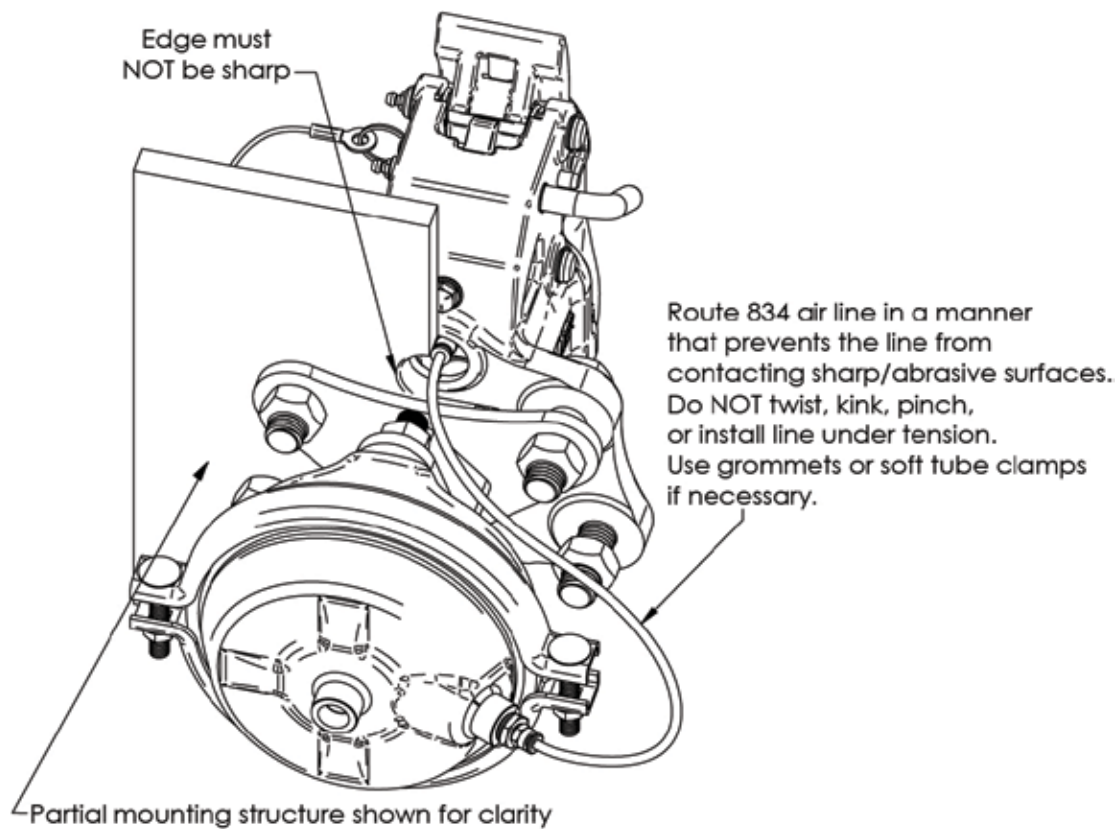


Figure #3



MODEL 820ELA COUPLING

Installation

Figure #4

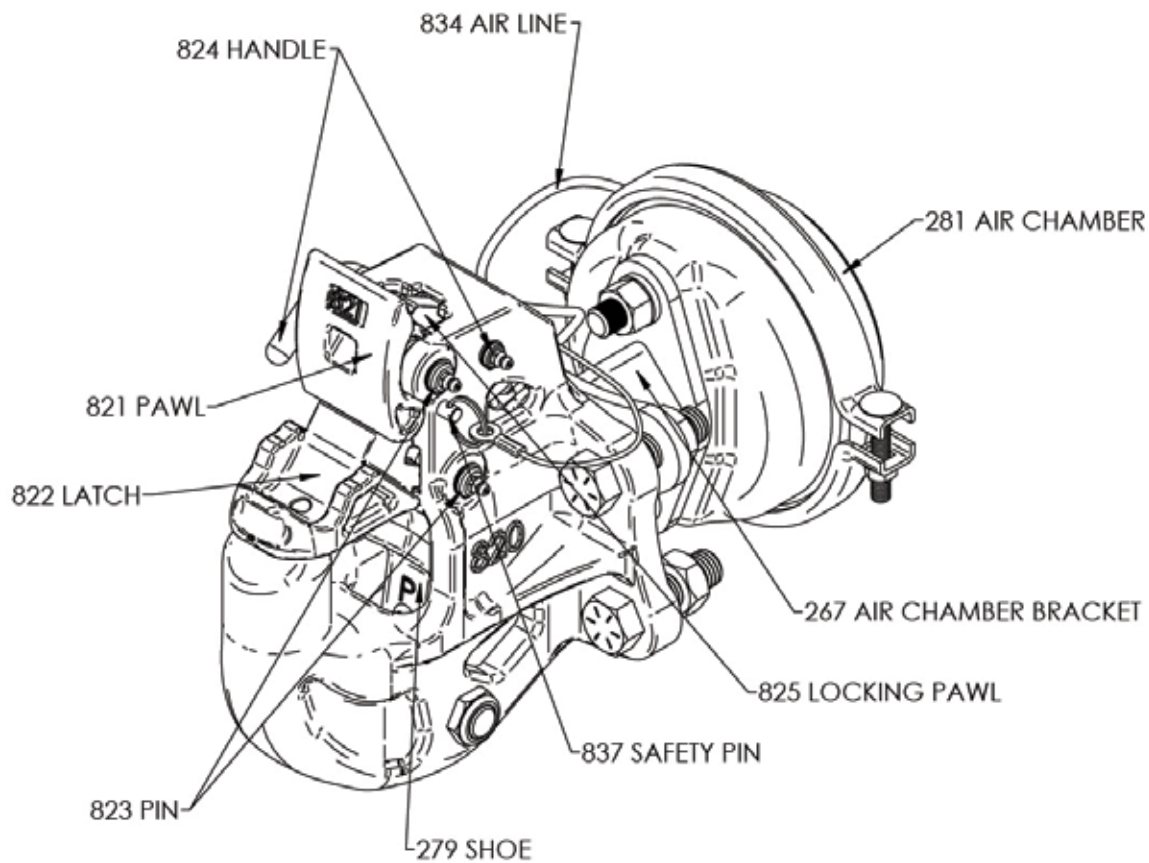
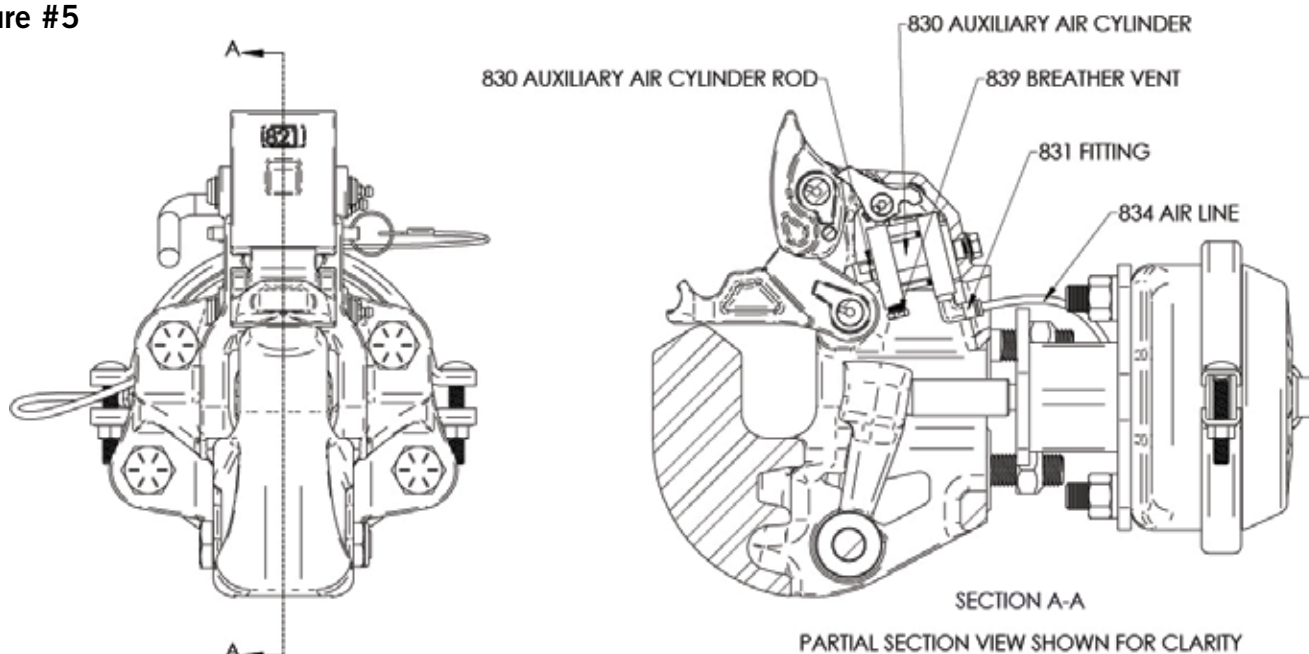


Figure #5



MODEL 820ELA COUPLING

Inspection/Operation/Maintenance

Inspection and Maintenance:

1. Visually inspect the coupling body and latch components for cracks, impact damage and/or deformation before each and every use. Do NOT use if any of these conditions exist.
2. Check the gap between the 822 Latch and the top of the pintle/hook on the coupling body before each and every use. A gap of 3/8" or more means the coupling must be taken out of service and repaired or replaced.
3. If the wear area on the pintle/hook has worn 20% or more from its original cross-section, the coupling is considered out of service and must not be used.
4. Lubrication of the zerk fittings must be performed at 90-day intervals or sooner depending on the operating environment. Lubricate the zerk fittings with a high-quality low temperature grease, to evenly coat all rotation points. Rotate each latch component several times to evenly distribute the lubricant. Test the coupling for proper operation per the operation section of this document.
5. Remove any excess lubricant with a rag. Do not apply lubricant to the pintle/hook or saddle area of the coupling.
6. The latch safety mechanism should be validated for proper function at 90-day intervals. The latch safety mechanism should be immediately repaired or replaced if it is not working properly.
7. Never weld on any Premier part in order to repair damaged or worn areas. Field and/or shop welds are inadequate and may further weaken the coupling.
8. **WARNING:** Other inspection and maintenance procedures are also required prior to the operation of combination vehicles. Consult and follow all Federal Motor Carrier Safety Regulations as well as local, state and federal guidelines.

Inspection/Operation/Maintenance

Operation:

OPENING Coupling Latch:

1. While facing the mounted 820ELA Coupling, remove the 837 Safety Pin from the 820 Coupling body. Pull the 824 Handle toward you until full rotational travel is reached. While keeping your hands clear of the 822 Latch, hold the 824 Handle in this position, push the top of the 821 Pawl away from you allowing the 822 Latch to rotate into the open position. Keep your hands clear of the 822 Latch until the components are no longer in motion.
2. Release the 824 Handle and 821 Pawl. The 820ELA Coupling is now open and ready to couple or uncouple.
Important Safety Note: During the opening procedure, the latch system should operate smoothly. The 822 Latch should quickly rotate to the completely open position each time it is operated. If it does not, the coupling is to be considered out of service until rectified.

CLOSING Coupling Latch:

3. Rotate the 822 Latch downward toward the pintle until the 821 Pawl and 825 Locking Pawl rotate into the closed and engaged position.
4. Insert the 837 Safety Pin into the 820 Coupling and 821 Pawl. The 820ELA coupling is now closed. **Important Safety Note:** During the closing procedure, the latch system should operate smoothly. The 822 Latch should not bind or exhibit a rotational resistance other than the friction imposed by the 821 Pawl, and the 822AL/822AR torsion springs. The 821 Pawl and 825 Locking Pawl should freely move to the closed and engaged position by the rotation of the 822 Latch to the closed position. If it does not, the coupling is to be considered out of service until rectified.
5. To test for proper latching, apply force to the top of the 821 Latch toward the mounting structure to the top of the 821 Latch. **THE LATCH SHOULD NOT OPEN!** If the latch does not stay closed, do not use until it has been repaired or replaced.
6. This product is designed to be operated within its free rotation limits. It is the responsibility of the vehicle designer/end user to assure that these limits are not exceeded (do not bind-up/jackknife).
7. **WARNING:** Prior to towing, make certain that adequately rated safety chains have been properly connected.



ATTENTION!

End Users must read and follow this information.

DISTRIBUTORS & OEM'S: Please ensure that your customers are made aware of the following information on this page.

1. VERIFY THAT BOTH COUPLING'S AND DRAWBAR EYE'S RATED CAPACITIES MEET YOUR APPLICATION(S) REQUIREMENTS.
2. DO NOT OVERLOAD COUPLING OR DRAWBAR EYE.
3. INSPECT COUPLING, LATCH AND DRAWBAR EYE FOR CRACKS, BENDING DAMAGE OR EXCESSIVE WEAR.
DO NOT USE IF ANY OF THESE CONDITIONS EXIST!
4. CHECK FOR GAP BETWEEN CLOSED LATCH AND TOP OF HORN OR COUPLING BALL.
DO NOT USE IF GAP IS 3/8 IN. OR MORE.
5. MAKE SURE COUPLING IS LATCHED AND THAT LATCH WILL NOT OPEN.
6. PRIOR TO USE, ALWAYS CONNECT SAFETY CHAINS OF ADEQUATE STRENGTH FOR LOAD(S) BEING TOWED.
7. DO NOT BIND-UP (JACKKNIFE) ANY APPLICATION AS STRESSES CAN CAUSE DAMAGE TO THE COUPLING, DRAWBAR EYE, OTHER COMPONENTS OR ANY COMBINATION OF THEM. JACKKNIFING MAY RESULT IN FAILURE OF PRODUCTS OR COMPONENTS, RESULTING IN DETACHMENT OF THE TRAILER WHILE IN USE.
8. DO NOT APPLY LUBRICANTS TO THE COUPLING HOOK OR DRAWBAR EYE LOOP, AS THEY CAN COVER UP POSSIBLE DAMAGE AND ACCELERATE WEAR.
9. ALWAYS ABIDE BY ALL APPLICABLE STATE AND FEDERAL REGULATIONS GOVERNING SAFE AND PROPER TRANSPORTATION.
10. NEVER STRIKE ANY OF THESE COMPONENTS WITH A HAMMER OR ANY OTHER DEVICE.
11. ALWAYS VERIFY PROPER OPERATION OF LATCHING SYSTEM AND COUPLING COMPONENTS PRIOR TO DRIVE OFF.
12. NEVER USE A COUPLING THAT YOU DO NOT FULLY UNDERSTAND HOW TO PROPERLY OPERATE AND VERIFY SECURE LATCHING OF.
13. **NEVER REPLACE ANY PART IN ANY OF PREMIER'S ASSEMBLIES WITH NON-PREMIER COMPONENTS. DOING SO WILL VOID ALL WARRANTY AND POTENTIALLY COMPROMISE THE UNIT'S INTEGRITY, WHICH COULD RESULT IN PROPERTY DAMAGE, SERIOUS INJURY, OR DEATH.**



WARNING!

This envelope contains important instructions
**AND MUST REMAIN ATTACHED TO THIS
COUPLING.** It may be removed only by the End
User or by an Original Equipment Manufacturer
who preserves this envelope and instructions and
provides it to the end user.



PREMIER MANUFACTURING
THE FIRST NAME IN QUALITY COUPLINGS
800-255-5387 (503)234-9202
www.premier-mfg.com

Model 820ELA Coupling

WARRANTY: We warrant all Premier products to be free from defects in material or workmanship for one year. We will repair or replace, at our option, any Premier product which our examination reveals to be defective, provided that the product is returned to our factory, at Tualatin, Oregon transportation prepaid, within one year of purchase by the first retail purchaser. Our warranty does not extend to products which have been subject to misuse, neglect, improper installation, maintenance or application, nor does our warranty extend to products which have been repaired or altered outside of 3UHPLHU-V facility unless the repair or alteration has been expressly authorized in writing by Premier. **This warranty is in lieu of all other warranties, express or implied, and excludes warranties of merchantability, fitness for a particular purpose and otherwise, and in no event will Premier be liable for incidental, special, contingent or consequential damages.**

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