

## THE FIRST NAME IN QUALITY COUPLINGS

## 820ELA/820ELR SERVICE GUIDELINES PART #10004805/10004807

#### BEFORE GETTING STARTED;

- This procedure should only be performed by a qualified mechanic.
- Tools required: snap ring pliers, flat-bladed screwdriver, 1/8" hex wrench, 1/2" open ended wrench, flat-bladed screwdriver, shop towel, Premier 14014 Wear gage (#10000062) and high-quality low temperature grease.
- Measure the wear on the coupling's pintle hook. If the wear is at or exceeds 20% of the cross section, the coupling is considered Out of Service. Do Not continue.
- NOTE: These instructions cover complete disassembly and assembly of the 820EL series coupling components, including pieces not included in the 820PK-EL specifically. Please follow the instructions that apply to your replacement components.
- CAUTION: When removing and replacing snap rings the appropriate snap ring plier tools are necessary. Do not attempt removal or replacement without the correct snap ring plier tools. In addition, use caution when removing and replacing snap rings Do not over-expand them as damage could result. Also, when assembling a snap ring into position Make certain that the snap ring is fully seated into the groove.
- Safety glasses are required for all of the following procedures.
- Prior to disassembly, familiarize yourself with the location of all the various parts in the coupling. This will assist in the assembly process.
- See attached Image Reference Section(s) with photos and/or drawings to identify various product parts.

#### **DISASSEMBLY:**

- 1. The 820EL Coupling should be positioned upright, as if mounted, with the latch in the closed position. See Image 2 in the Image Reference Section.
- 2. Remove the 837 Safety Pin from the 821 Pawl and the 820 coupling body.
- 3. Remove the left or driver side 44-62 Retaining ring from the 823 Pin in the 821 Pawl. While holding the 822 Latch down, insert a screwdriver through the 821 Pawl pushing the 823 Pin through the coupling body until completely removed. Remove the 821 Pawl and 821AL and 821AR Springs. Release the 822 Latch.
- 4. Remove the left or driver side 44-62 Retaining ring from the 823 Pin in the 822 Latch. Insert a screwdriver through the 822 Latch pushing the 823 Pin through the coupling body until it is removed. Remove the 822 Latch, 822AL and 822AR Springs. NOTE: if the 822 Latch does not freely come out of the 820 Coupling body, disengage the end of the 822AL and 822AR Spring legs with the casting surface of the 820EL spring pocket and then remove the 822 Latch.
- 5. Remove the 833 Bolt, 832 Washer, and 837 Safety cable from the 830 Auxiliary air cylinder. If necessary, lift up 824 Handle for better clearance and pull the 830 Auxiliary air cylinder out of the coupling body far enough to remove the 834 Air line from the 831 Push to connect fitting. Remove the 830 Auxiliary air cylinder from the coupling body. See Image 3, Image 5.
- 6. Disengage the 273A spring leg from the spring stop inside of the 820 coupling body. Insert a flat tipped screwdriver between the inner wall of the 820 Coupling body and the leg of the 273A Spring and pry the leg off the spring stop. Remove the 895C Set screw from the 825 Locking pawl. Remove the 275-50 Retaining ring from the right or passenger side of the 824 Handle. Pull the 824 Handle from the coupling body and remove 825 Locking pawl, and 273A Spring.
- 7. If you are replacing the 279 Shoe and related hardware, go to step 8. If not, disassembly is complete and go to step 9.
- 8. Remove the 274A Locknut and 274 Bolt from the coupling body. Remove the 279 Shoe and 266 Spring.
- 9. With all parts removed from the coupling body, clean and inspect the body for wear and/or damage. If wear exists or damage is noted, do not attempt to repair. DO NOT ATTEMPT WELD REPAIR OF ANY DAMAGED AND/OR WORN PART.

## DISASSEMBLY IS COMPLETE

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## **IMPORTANT NOTES TO CLEAN, INSPECT & LUBRICATE:**

- Use only genuine PREMIER replacement parts on any repairs. Use of other parts, which can have different specifications or tolerances, may fail to alert you to non-obvious damage to the hitch which can lead to hitch failure.
- All body holes, part holes and pins need to be thoroughly cleaned and lubricated with a heavy grease before the parts are reassembled. DO NOT LUBRICATE PINTLE HOOK WEAR SURFACE.
- Clean, inspect and lubricate latch components every 90 days or sooner if required by the operating environment.
- Clean and inspect the coupling for damage and excessive wear prior to each and every use.
- Do not over-tighten fasteners as this may cause damage.

#### ASSEMBLY:

- If you are replacing the 279 Shoe and its components, then follow the instructions below: Otherwise continue to step 2. Insert the 279 Shoe through the opening at the top of the 820 coupling body. Align and engage one end of 266 Spring with the nipple on the 279 Shoe, the other end of 266 Spring should seat into the concave cavity, which is the top pocket below the pintle base (See Image 1 and 5). The 266 Spring must be slightly compressed to align the hole in the 279 Shoe to the holes in the coupling body, insert the 274 Bolt (left to right) into the bottom coupling body hole and secure on the right side with 274A Locknut. Rotate the 279 Shoe to verify proper spring tension.
- 2. Insert a 275-50 Retaining ring into the groove on the side of the 824 Handle closest to the bend. Insert the free end of the 824 Handle into the left or driver side hole in the coupling body until it extends approximately one inch into the coupling. Place the 273A Spring onto the pin, straight leg side of the spring first. Insert the 825 Locking pawl onto the 824 Handle. Engage the bent leg of the 273A Spring with the spring engagement surface of the 825 Locking pawl. Align the threaded hole in the 825 Locking pawl to the blind hole located at the center of the 824 Handle. Holding the 824 Handle and 825 Locking pawl in place, insert and tighten the 895C Set screw. Use a hooked tool or flat tipped screwdriver to move the straight leg of the 273A Spring onto the spring ledge inside the coupling body. Place the remaining 275-50 Retaining ring onto the 824 Handle on the right side.
- 3. Feed 834 Air line through the hole in the rear of the 820 Coupling body and insert the 834 Air line into the 831 Push to connect fitting. Insert the 830 Auxiliary air cylinder into the hole in the rear of the coupling body, if necessary, lift up 824 Handle for more clearance. Make sure the fitting is correctly oriented (centered) in the large opening of the 820 Coupling body, and the mounting surface of the 830 Auxiliary air cylinder is butted up against the interior wall of the coupling body. NOTE: In order to make the assembly process easier, place one of the 823 Pins into the lower 5/8" hole of the coupling body and lightly wedge a soft cloth between the 823 Pin and 830 Auxiliary air cylinder in order to temporarily hold the 830 Auxiliary air cylinder in place. Place the 837 Safety cable eyelet and 832 Washer onto the 833 Bolt. Place the 833 Bolt into the hole in the 820 Coupling body and thread the bolt into the 830 Auxiliary air cylinder. Make sure the 837 Safety cable eyelet extends to the right or passenger side of the coupling body. Torque the bolt to 150 in\*lbs.
- 4. Place a 44-62 Retaining ring into the groove on the zerk side of the 823 Pin. Insert the 822AL and 822AR Springs into the spring pockets of the 822 Latch. Make certain the longer leg of the 822AL and 822AR Spring is placed in the spring pocket of the 822 Latch. Hold and lightly compress the springs in place while placing the 822 Latch into the coupling body. Insert the free end of the 823 Pin into the right or passenger side hole of the 820 coupling. Press the 823 Pin through to the other side of the coupling. Make sure that the 822AL and 822AR springs are properly engaged with the spring ledges in the coupling body. If the leg of the spring protrudes past the coupling body wall, then the spring was inserted backwards and must be corrected. Place the 44-62 Retaining ring onto the free end of the 823 Pin. Check that the 822 Latch operates correctly, smooth increase spring resistance should be felt when latch is rotating down.
- 5. Place a 44-62 Retaining ring into the groove on the zerk side of the 823 Pin. Insert the free end of the 823 Pin into the hole on the right or passenger side of the 820 Coupling body, let the free end not pass the inside face of the hole. Insert the 821AL and 821AR Springs into the spring pockets of the 821 Pawl. Make certain the longer leg of the 821AL and 821AR Springs is placed in the spring pocket of the 821 Pawl. Use the thumb of your left hand to push the 822 Latch down and at the same time use your left index finger lift the 824 Handle till 821 Pawl is mounted onto coupling body. While holding the 821AL and 821AR Springs in the 821 Pawl by right hand, rest the spring legs on the coupling body, slowly press in and down on the 821 Pawl, insert the 821 Pawl from above into the coupling body. Make sure the legs of the 821AL and 821AR Springs are correctly engaged with the 820 Coupling body. NOTE: If the legs of the 821AL and 821AR Springs and reassemble until the end of the legs of the 821AL and 821AR Springs seat approximately flush with the top surface of the 820 Coupling body, remove the 821 Pawl, 821AL, and 821AR Springs and reassemble until the way through the coupling body and 821 Pawl. Place the 44-62 Retaining ring onto the groove of 823 Pin on the left.
- 6. Once the coupling is assembled it should be opened and closed several times, testing for smooth and correct operation. DO NOT use the coupling if it does not operate properly. Call for assistance.
- 7. Apply a pump or two of grease in each grease zerk fitting on the 824 Handle and 823 Pins. Verify adequate greasing has occurred by checking to see if a small amount of grease came out either side of the 822 Latch, 821 Pawl, and both holes of the 820 Coupling body holding the 824 Handle. Remove any excess grease from the assembly.
- 8. For the procedures mounting the assembled coupling back to its mounting structure, reference the 820ELA Coupling installation guide.
- 9. 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).
- 10. WARNING: Prior to towing, make certain that adequately rated safety chains have been properly connected.

#### SAFETY MECHANISM OPERATION AND VALIDATION

1. After the assembled coupling has been tested for proper latch operation and it has been verified that the coupling has been correctly assembled the latch safety mechanism needs to be tested for proper operation. The factory test pressure for the 820EL Latch Safety mechanism is 60 psi. The safety mechanism needs to be tested as close to 60 psi as possible. WARNING! Keep hands clear of the 820EL Coupling during this test. Activate the emergency side air supply by releasing the emergency brake and visually verify that the 279 Shoe fully rotates toward the pintle, and both 821 Pawl and 825 Locking Pawl have moved to the closed position.

- 2. If the 279 Shoe did not move forward and the latch mechanism did not close during step 1, verify that the 281 Air Chamber has been connected to the emergency side air supply and the pushrod length is correct.
- 3. When the emergency side air supply is removed, the shoe should completely retract. Please note: The 279 Shoe acts as a shock absorbing device to help smooth the ride between vehicles and reduce wear of the pintle and drawbar eye loop. It is not considered part of the latching mechanism.
- 4. If the 820EL latch mechanism did not close during step 1, 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. See Image #4 and Image #5 for the location of these components.
- 5. 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 820EL 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.
- 6. DO NOT APPLY PAINT TO THE 839 BREATHER VENT OR THE ROD OF THE 830 AIR CYLINDER.

## WARNING:

• This product is designed to be operated as described in the Inspection/Operation/Maintenance section of this document. The 820EL safety mechanism (Auxiliary Air Cylinder) 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, thesafety mechanism (Auxiliary Air Cylinder) 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 in 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.

## **IMAGE REFERENCE SECTION**



Item	Model #	Part #	Description
1	*824	10004810	Pawl Handle
2	*273A	10000302	Spring
3	*825	N/A	Locking Pawl
4	*895C	N/A	Set Screw
5	*275-50	10000311	Retaining Ring (2)
6	*821AL	N/A	Pawl Spring,LT
7	*821	N/A	Pawl
8	*821AR	N/A	Pawl Spring,RT
9	*823	10004809	Pin Latch (2)
10	*44-62	10000353	Retaining Ring (4)
11	*822AL	N/A	Latch Spring,LT
12	*822	N/A	Latch
13	*822AR	N/A	Latch Spring,RT
14	*837	10000038	Safety Pin-Cable
15	**274	10000308	Bolt
16	**279	10000312	Shoe
17	**274A	10000309	Locknut
18	**271	10000107	Thimble
19	**266	10000290	Spring
20	830	10000032	Auxiliary Air Cylinder Assembly w/ Lock Washer (832), Bolt (833)
21	820	N/A	Coupling Body

\* Included in 820PK-EL (10000394), Parts Kit \*\* included in 279PK (10000315), Parts Kit

## Image ]



## Image 3



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Image 5



## **IMPORTANT GUIDELINES that apply to all Premier Air Adjusted Couplings**

- Do not weld on any coupling assembly
- Always use Grade-8 fasteners properly torqued
- Do not apply lubricants to the coupling hook
- Air service chamber must be Type-24 or Type-30 with 90-120 PSI air supply
- Clean & inspect coupling for damage & excessive wear prior to each and every use
- Lubricate all coupling components at a minimum of 90 day intervals
- Do not bind-up (Jackknife) any application as stresses can cause damage to products or components, resulting in failure and detachment of the trailer while in use

## **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.
- 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.





**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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