



PREMIER
MANUFACTURING

Document #10006357

THE FIRST NAME IN QUALITY COUPLINGS

Installation, Inspection, Operation & Maintenance Guide



MODEL 405 SWIVEL ADJUSTABLE DRAWBAR EYE

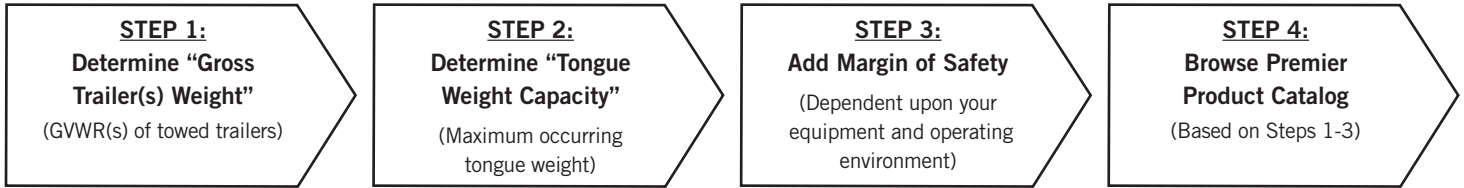
IMPORTANT

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.

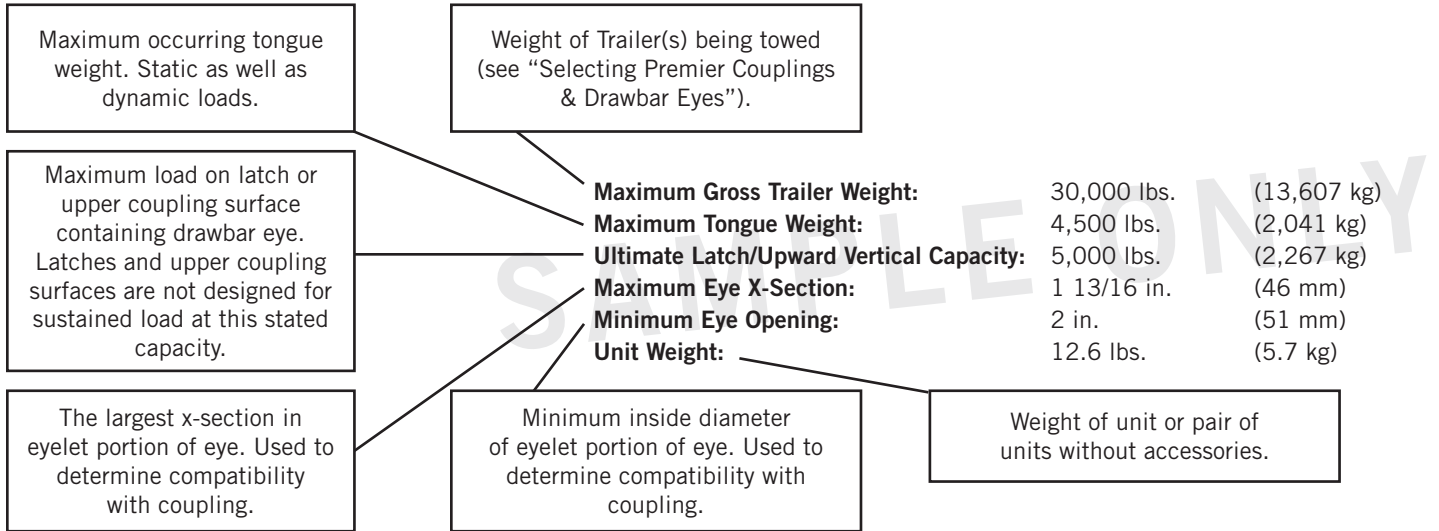
STEP 4: Browse Premier Product Catalog

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 405 SWIVEL ADJUSTABLE DRAWBAR EYE

Specifications and Load Capacities

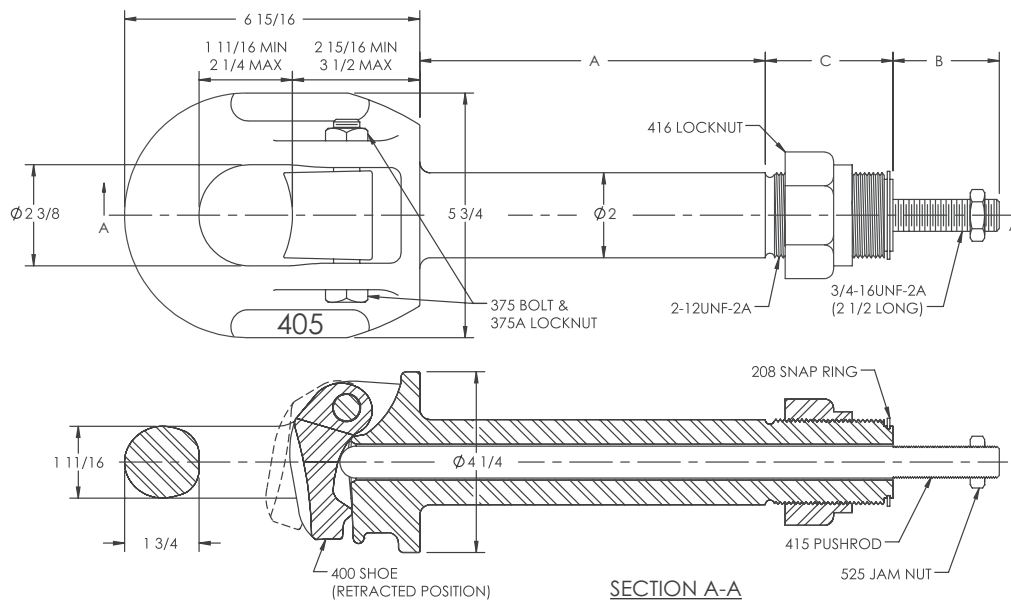
SAFETY WARNING

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.

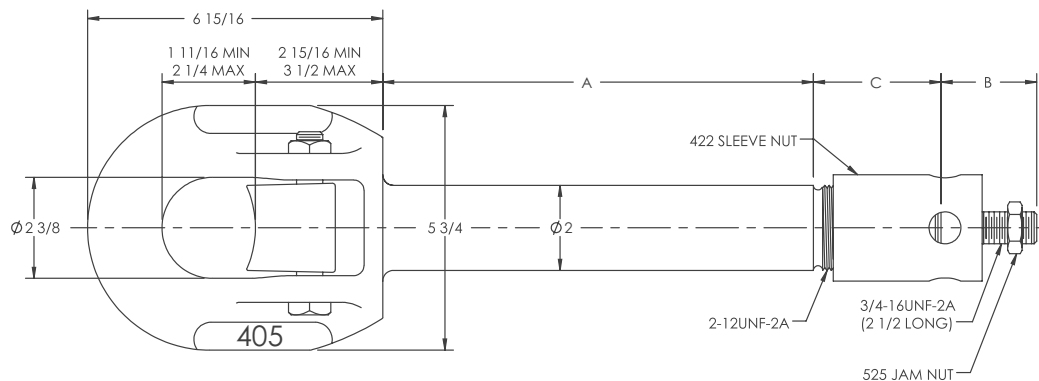
Max. Gross Trailer Weight: 90,000 lbs. (40,823 kg)
Maximum Tongue Weight: 3,700 lbs. (1,678 kg)
Inside Diameter: 2 3/8 in. (60 mm)
Unit Weight: See drawing chart

Standard Installation Drawing

405L & 405S with 416 Locknut & 208 Snap Ring:



405SE With 422 Sleeve Nut:



Model	Part #	A	B	C	Weight
405L/LL	10004770/10004771	9 1/4 in. (235 mm)	3 1/8 in. (79 mm)	3 in. (76 mm)	27.8 lbs. (12.6 kg)
405S/SL	10004772/10004774	8 1/8 in. (206 mm)	2 1/4 in. (57 mm)	3 1/4 in. (83 mm)	27.1 lbs. (12.3 kg)
405SE	10004773	10 1/8 in. (257 mm)	2 1/4 in. (57 mm)	3 in. (76 mm)	28.5 lbs. (12.9 kg)



MODEL 405 SWIVEL ADJUSTABLE DRAWBAR EYE

Parts

Parts Included:

Model #	Part #	Description
405	N/A	Drawbar Eye
400	10000009	Shoe
375	10000346	Bolt
375A	10000347	Locknut
416	10001181	Locknut
525	10000173	Jam Nut
208	10001106	Snap Ring
N/A	N/A	Pushrod

Standard Pushrod Lengths:

Model #	Part #	Description
405L	10004770	415A Pushrod (#10004776) - 17 1/4 in (438 mm), right-hand thread
405S	10004772	415 Pushrod (#10004775) - 15 1/2 in (394 mm), right-hand thread
405SE	10004773	415A Pushrod (#10004776) - 17 1/4 in (438 mm), right hand thread

Optional Left-Hand Threaded Pushrods:

Model #	Part #	Description
415L	10004770	15 1/2 in (394 mm), left-hand thread
415AL	10004773	17 1/4 in (438 mm), left-hand thread

Accessories

Optional Accessories:

- Type 281 (#10000116) or 282 (#10000122) Air Chamber, or Premier model 500 (#10000147) Mechanical Slack Adjuster
- 47 Series Couplers (#10000145)
- 281J Jam Nut (#10000006)
- 14008 (#10000056) (1 3/4") & 14032 (#10000075) (1 11/16") Wear Gage: Used to determine if the eye has worn beyond its intended service life.

Installation

The 405 Drawbar Eye is ONLY to be used in a Premier 340S/340SA, 640S/640SA, 435/435A, 536A/536B, 546A/546B or 556A/556B Front End Assembly, and only with Premier Bushings. Any use of a 405 Drawbar Eye without a Premier 416 Locknut, 208 Snap Ring, 415 Pushrod, 525 Jam Nut, 400 Shoe, Premier Bushings, or in a non-Premier front end assembly will VOID ALL PRODUCT WARRANTY.

Installation Procedure:

1. The 405 Drawbar Eye 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. Reference the specific Front End Assembly Installation, Inspection, Operation and Maintenance Guide for the initial 405 Drawbar Eye installation instructions. DO NOT ATTEMPT TO INSTALL THE 405 DRAWBAR EYE WITHOUT READING AND ADHERING TO THE FRONT END ASSEMBLY INSTRUCTIONS!
3. Once the 416 Locknut and 208 Snap Ring have been properly installed, push the 400 Shoe to the retracted position (see the Standard Installation Drawing). Hold the shoe in place while making sure the 415-series Pushrod is contacting the back side of shoe.
4. Connect the 415 Pushrod to the previously installed 281 or 282 Air Chamber, using a 47-series Coupler (not included). Make certain that the 281J Jam Nut (not included) is threaded far enough down the air chamber pushrod so it will not interfere with the coupler.
5. Adjust the 47 Coupler so the 400 Shoe is fully retracted when no air is being supplied to the air chamber.
6. Connect the air chamber to the EMERGENCY SIDE AIR SUPPLY.
7. WARNING! KEEP HANDS CLEAR OF THE DRAWBAR EYE DURING THIS TEST! Test the operation of the 400 Shoe by charging the emergency side air supply. The shoe should rotate fully forward.
8. If the 400 Shoe does not move, verify that the air chamber has been connected to the emergency side and not the service side of the air supply.



MODEL 405 SWIVEL ADJUSTABLE DRAWBAR EYE

Installation

9. If the 400 Shoe only partially projects forward, adjust the 47 Coupler and retest. The shoe must rotate forward until it is stopped by its side tabs, contacting the bottom surface of the 405 Drawbar Eye. Make certain that when the emergency side air supply is off, the shoe returns all the way to the fully retracted position.
10. Tighten the 525 Jam Nut, located on the 415 Pushrod, against the 47 Coupler. Next, tighten the 281J Jam Nut against the opposite side of the coupler, securing the connection between both pushrods.
11. If using a 500 Slack Adjuster in place of an air chamber, contact Premier for specific Installation Instructions.
12. An "IMPORTANT WARNINGS!" sticker was enclosed. This must be attached to the front end, adjacent to the drawbar eye, visible for the end user to read.

Inspection/Operation/Maintenance

1. Visually inspect the drawbar eye for cracks, impact damage and/or deformation before each and every use. Do NOT use if any of these conditions exist.
2. If the original cross-section of the eye loop has been reduced by 20% or greater, the drawbar eye is NOT to be used and is considered out-of-service.
3. This product is designed to be operated within its free rotation limits. It is the responsibility of the vehicle designer/end user to ensure that these limits are not exceeded (do not bind-up/jackknife).
4. WARNING: Prior to towing, make certain that adequately rated safety chains have been properly connected.
5. Never weld on any Premier drawbar eye in order to repair damaged or worn areas. Field and/or shop weld repairs are inadequate and may further weaken the drawbar eye.

IMPORTANT GUIDELINES that apply to all Premier Swivel Drawbar Eyes

- Never attempt weld repair of damaged or worn drawbar eyes
- Never attempt to use a swivel-type drawbar eye with a swivel-type coupling
- Air adjusted drawbar eyes must be used with an air service chamber or #500 slack adjuster
- Clean and inspect drawbar eyes and eye assemblies for damage or excessive wear before each and every use
- Assembly to which eye is attached must be of sufficient strength to withstand load rating of eye
- 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
- Do not apply lubricants to the coupling hook or drawbar eye loop, as they can cover up possible damage and accelerate wear



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 DRAWBAR EYE. 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 405 Swivel Drawbar Eye

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.**

DISCLAIMER: Although great care has been taken to ensure accurate information throughout this document, Premier Manufacturing must reserve the right to alter any information contained within. These changes include but are not limited to: Dimensional changes, load capacity and availability of any part or assembly.

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