

**QA1**  
GO DRIVE IT.



**QA1 9 in. REAR AXLE KIT  
INSTALLATION INSTRUCTIONS: 9919-347**

## WELCOME TO QA1!

### OUR COMMITMENT

Congratulations on your purchase of this high-quality QA1 9 in. rear axle housing assembly. It is engineered to the highest standards, utilizes the finest materials, and is built with exceptional craftsmanship and attention to detail.

While we understand your eagerness to start your build, please remember that your safety is our utmost priority. Always use an approved and appropriately rated jack, jack stand, or automotive lift, and take all necessary safety precautions to ensure the job is completed safely and correctly.

Before you start, read and understand all instructions thoroughly. If you are unsure of your abilities during the assembly or installation and need some help or have any uncertainties, please seek the assistance of a qualified mechanic or automotive repair shop.

If you have any product questions or need guidance, please don't hesitate to call and speak with QA1 technical support at 952-985-5675.

Remember, we're here to support you every step of the way and are committed to ensuring your assembly and installation process is successful and enjoyable. We wish you all the best!

### INSTALLATION OPTIONS

This rear axle housing was designed for a quick and easy assembly and installation by one or two persons.

For one-person installation: Lift and attach the empty housing to the vehicle, then complete the 3rd member and axle installation.

For two-person installation: The completed housing can be assembled entirely on the floor or bench, lifted, and attached to the vehicle.

### BEFORE INSTALLATION

Before you begin the QA1 9 in. rear axle housing installation, it is crucial to read and understand these instructions carefully. If instructions are not correctly followed, personal injury, equipment, or product damage can result.

Products that have been installed are not eligible for returns. To prevent mistakes, thoroughly read these instructions before you start the rear axle housing assembly procedure. A good automotive repair manual from your local auto parts store can aid with this task.

Ventilate combustible vapors and remove any nearby flammable materials during the use of welding and cutting equipment. Wear the appropriate personal protective equipment (PPE) during assembly and installation.

Follow the manufacturer's instructions for safe use when working with power tools, and be cautious and responsible in your work.

## ABOUT THIS MANUAL

### PURPOSE

These instructions outline the QA1 9 in. rear axle housing. This housing is designed to work with QA1 rear suspension systems.

### ITS CONTENTS

The information that follows is described in this instruction set:

- Required tools and supplies.
- Safety, hazard, and warning rules.
- Product overview and included parts.
- Installation and the setup procedures required for use.

Pages with images will have paragraphs and sentences with callout numbers that refer to their respective images, steps, and parts.

Procedures, once described in the text, are generally not repeated. When it is necessary to refer to another procedure, the page and step reference will be given.

### REQUIRED TOOLS AND SUPPLIES

- Floor Jack
- Jack Stands
- SAE Wrench Set
- SAE Socket Set
- Torque Wrench (lb-ft)
- Anti-Seize Lubricant
- Aftermarket Brake Kit
- Hard Brake Lines
- Parking Brake Cable Kit
- Assembled 31-spline 3rd Member (9 in.)
- Vent Tube
- Assembly Grease
- Gear Oil (as recommended by 3rd member manufacturer)
- Gasket or sealer (as recommended by 3rd member manufacturer).

### SAFETY FIRST

- Work on your vehicle in an appropriate location.
- Park your car on a level surface.
- Use wheel chocks to prevent vehicle roll.
- Check your owner's manual for the correct jack lift points.
- Always support your vehicle with jack stands.
- Wear personal protection like safety glasses and gloves.
- Never use compressed air to clean brake dust from brake and/or suspension components.
- Dispose of damaged or old parts in accordance with local laws. Do not throw any hazardous waste in the trash.

**CONTENTS**

**QA1 9 in. REAR HOUSING ..... 4-11**

**PARTS LIST ..... 4**

**FEATURES AND BENEFITS..... 5**

**APPLICATION SPECIFICATIONS ..... 5**

**INSTALLATION .....6-11**

    HOUSING STUDS..... 6

    THIRD MEMBER (DROPOUT DIFFERENTIAL) ..... 6

    AXLE SHAFT SEAL..... 8

    BRAKE BACKING PLATE..... 9

    SHORT AXLE SHAFT ..... 10

    AXLE SHAFT RETAINER..... 10

    RETAINER HARDWARE .....11

    LONG AXLE SHAFT .....12

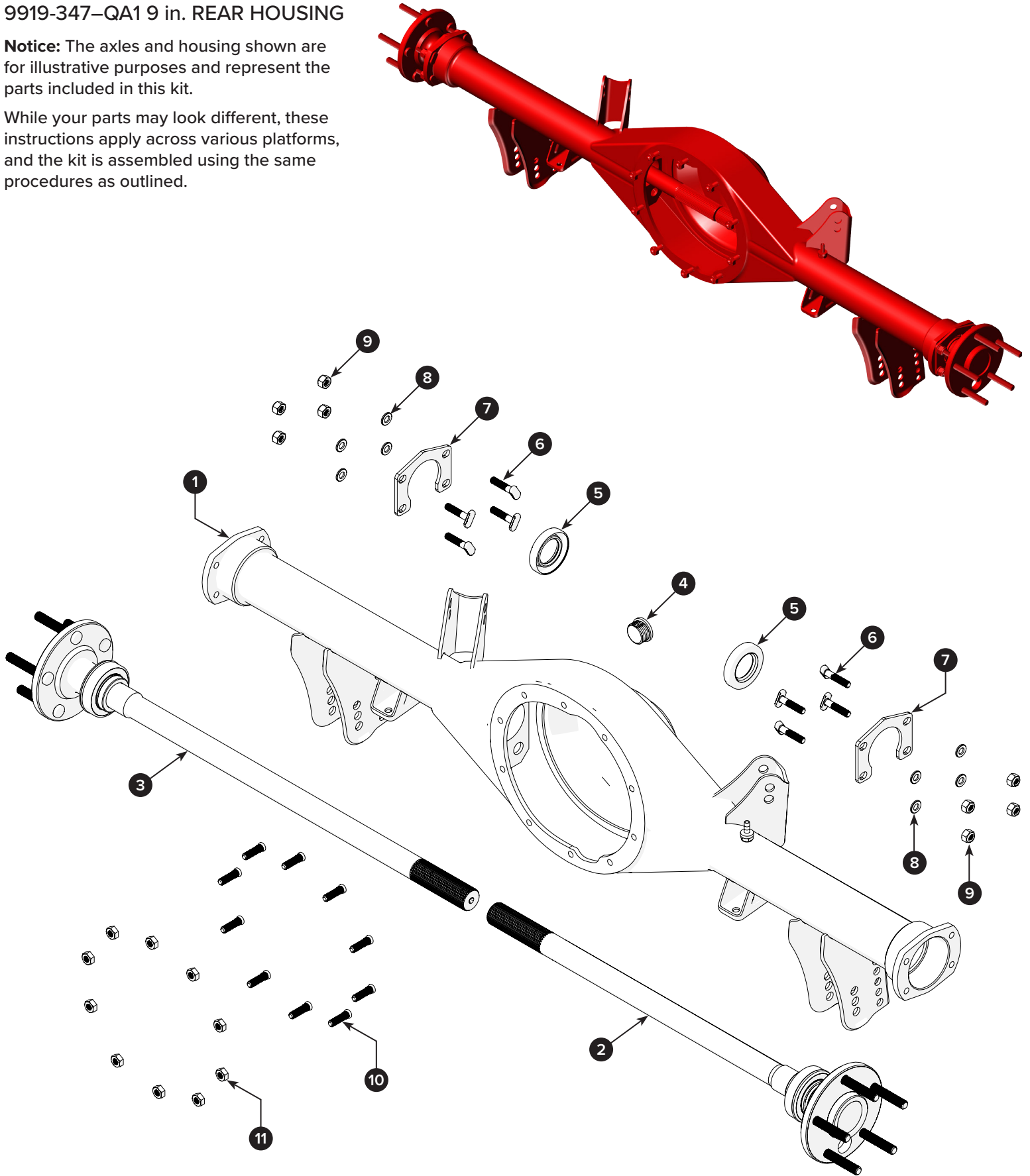
    AXLE HOUSING FILL .....12

**WARRANTY.....13**

9919-347-QA1 9 in. REAR HOUSING

**Notice:** The axles and housing shown are for illustrative purposes and represent the parts included in this kit.

While your parts may look different, these instructions apply across various platforms, and the kit is assembled using the same procedures as outlined.



9919-347—QA1 9 in. REAR HOUSING

POSITION	DESCRIPTION	QTY
1	QA1 AXLE HOUSING, 9 in., w/JACK PAD & DRAIN PLUG	1
2	31-SPLINE SHORT AXLE w/SEALED BEARING AND WHEEL STUDS (TORQUE @ 85 LB-FT), 1541H	1
3	31-SPLINE LONG AXLE w/SEALED BEARING AND WHEEL STUDS (TORQUE @ 85 LB-FT), 1541H	1
4	FILL PLUG w/O-RING, KNURLED	1
5	AXLE SHAFT SEAL	2
6	HOUSING END T-BOLTS, 3/8-24 x 1.25 NF (NOT ALL T-BOLTS WILL BE USED IN THIS ASSEMBLY)	8
7	AXLE RETAINER PLATE	2
8	WASHER, 3/8" (NOT ALL WASHERS WILL BE USED IN THIS ASSEMBLY)	8
9	LOCKNUT, 3/8" (NOT ALL LOCKNUTS WILL BE USED IN THIS ASSEMBLY)	8
10	HOUSING STUD, 3/8-24 x 1.75 NF (NOT ALL STUDS WILL BE USED IN THIS ASSEMBLY)	10
11	LOCKNUT, 3/8" (NOT ALL LOCKNUTS WILL BE USED IN THIS ASSEMBLY)	10

**Notice:** The part positions listed above will be called out in this installation manual as a visual reference to their respective positions during the installation procedure. Refer to these pages during the installation.

**Notice:** Count and compare all parts and fasteners to the list above. If parts are missing, contact QA1 at sales@qa1.net.

**FEATURES AND BENEFITS**

- **Fabricated Center Section:** Engineered for maximum strength and durability up to 800HP.
- **Formed Trailing Arm Brackets:** Reduces torsional flex under high loads, ensuring your suspension remains rigid.
- **Heavy-Duty 3" OD Wall Axle Tubes:** 1/4" thick walls provide durability for high-performance applications.
- **31-Spline 1541H Alloy Axles:** Supports up to 650 HP.
- **Durable Semi-Gloss Powdercoat Finish:** Offers long-lasting protection and a clean, sleek look.
- **Drain Plug, Fill Plug, and Jack Pad:** Comes standard to make service a breeze.
- **Includes T-bolts and Housing Studs:** These are used to assemble the axle shafts and install the 3rd members.
- **High-Quality Roller Bearings:** Offers smooth operation and long-lasting reliability.

QA1 9 in. REAR HOUSING APPLICATION SPECIFICATIONS

QA1 P/N	APPLICATION	QA1 WMS-WMS w/ROTOR HATS (in.)	BRAKE STANDOFF (in.)	HUB PILOT (in.)	BOLT PATTERN	AXLE SPLINE	HOUSING END STYLE	NARROWED PER SIDE (in.)
R901S	67-69 GM F-BODY, 68-72 X-BODY—STOCK WIDTH	60	2.5	2.77	5 x 4.75	31	TORINO	—
R901N	67-69 GM F-BODY, 68-72 X-BODY—NARROWED WIDTH	55	2.5	2.77	5 x 4.75	31	TORINO	2.5
R902S	70-81 GM F-BODY —STOCK WIDTH	61.125	2.5	2.77	5 x 4.75	31	TORINO	—
R902N	70-81 GM F-BODY —NARROWED WIDTH	56.125	2.5	2.77	5 x 4.75	31	TORINO	2.5
R903S	64-66 MUSTANG —STOCK WIDTH	57.375	2.5	2.77	5 x 4.5	31	TORINO	—
R904S	67-70 MUSTANG —STOCK WIDTH	59.375	2.5	2.77	5 x 4.5	31	TORINO	—

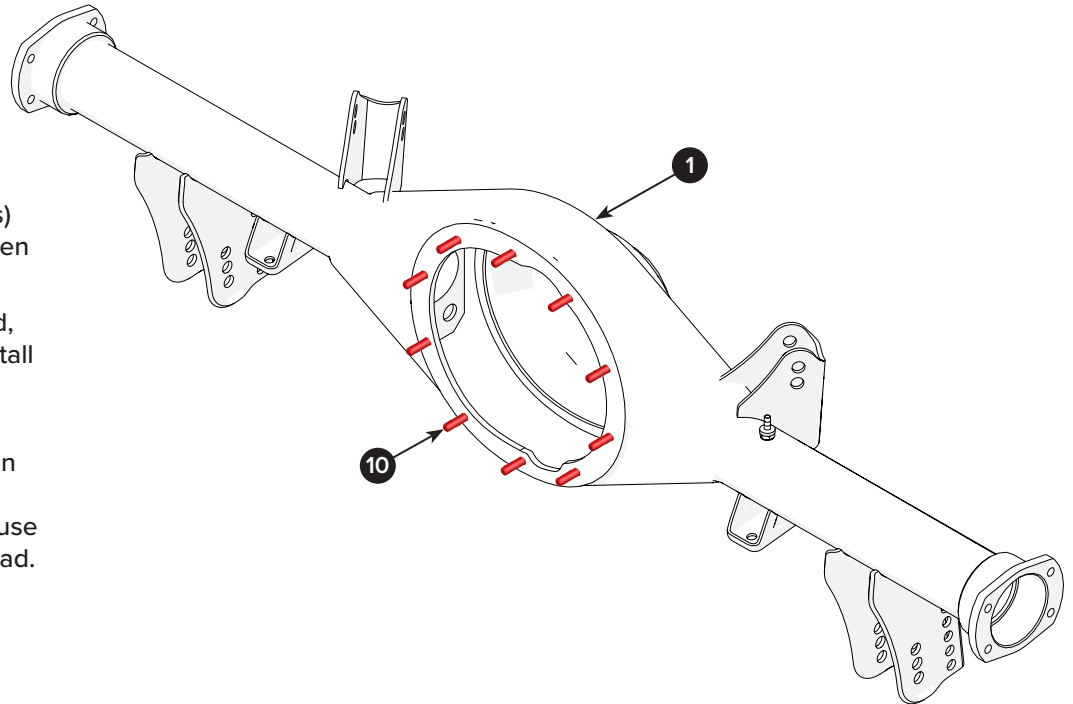


**1** With the axle housing (1) installed in the vehicle or on a work surface, press in the housing studs (10) from inside the axle's differential housing.

To seat a stud, place a stack of washers onto it, then use a nut (not one of the provided locknuts) and a ratchet with socket to tighten it and draw it in.

Make sure the stud is fully seated, then repeat this procedure to install and seat the remaining studs.

**Caution:** Do not use air or power tools for this step. These tools can break a stud or distort the drilled stud holes in the housing and cause gear oil leakage past the stud head.



**Attention:** The QA1 9 in. Rear Axle Housing does not include a 3rd member, as shown in this manual. It is shown only to offer visual clarity during the installation procedure. The customer must provide a 3rd member.



For best sealing results, use a LubeLocker or similar differential gasket.

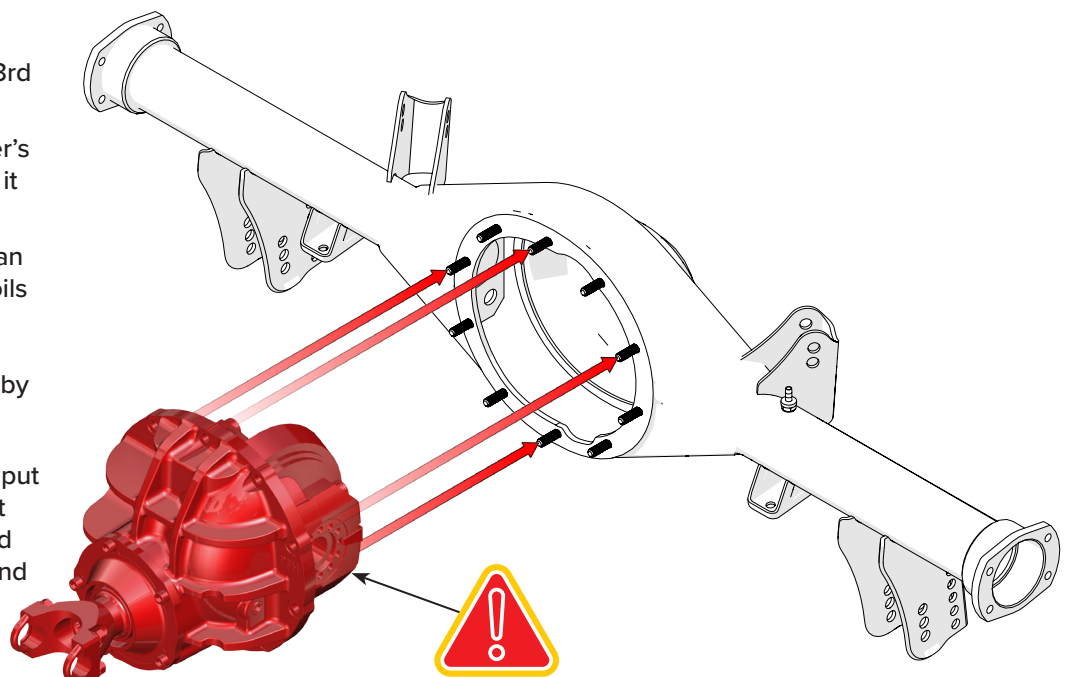
**2** Prepare the axle housing for the 3rd member.

If provided, align the manufacturer's included gasket and carefully put it on the studs.

If a gasket sealer is used, first clean both mating surfaces to remove oils and greases, then apply an even bead of sealer to the housing's mating surface as recommended by the manufacturer.

**3** Carefully lift the 3rd member and put it into the axle housing. The offset pinion yoke sits at the bottom, and the bolt pattern is asymmetrical and only fits in one direction.

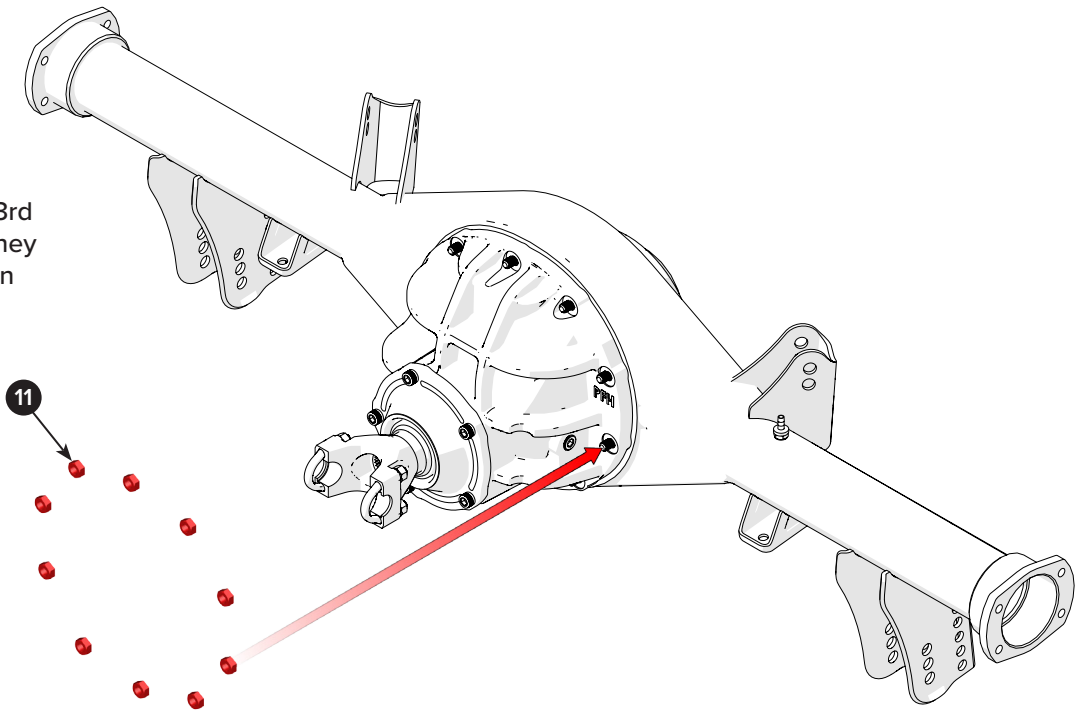
**Notice:** The 3rd member must be a 31-spline unit.



Not Included

**4** Fasten the 3rd member to the axle housing studs with the 3/8-24 locknuts (11).

**Notice:** Do not fully tighten the 3rd member locknuts at this time. They will be torqued to specification in the next step.

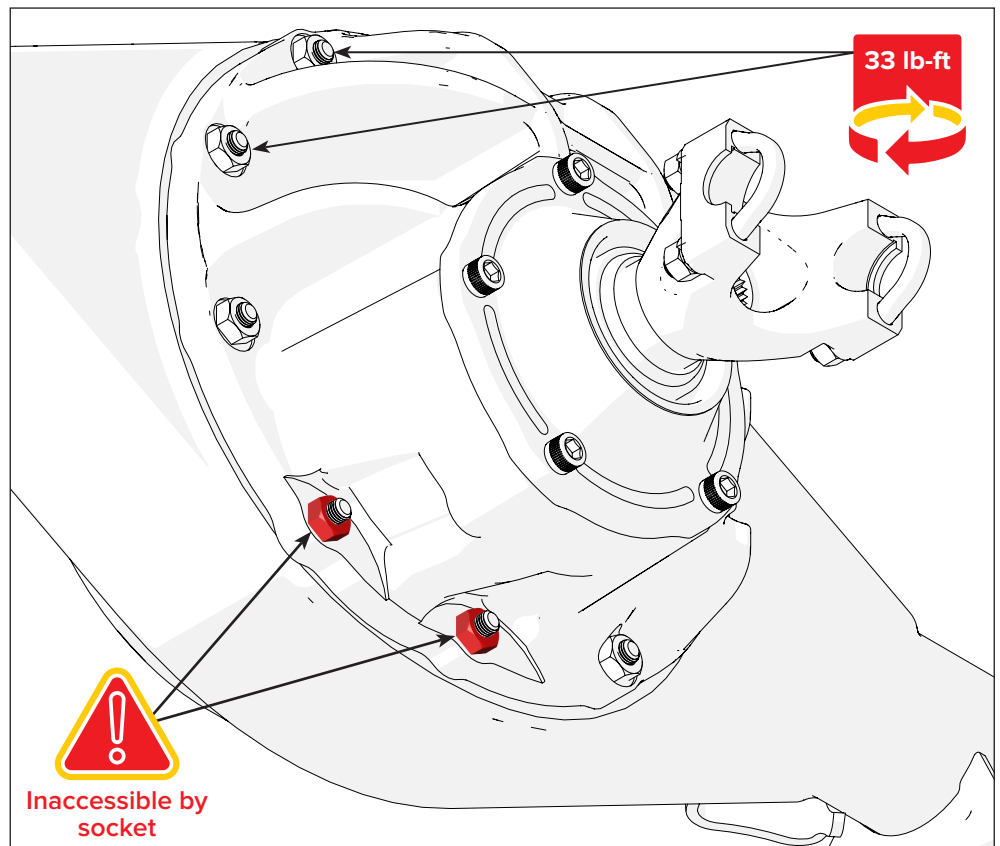


Use washers (not included) to protect the third member paint finish when the nuts are tightened.

**Attention:** Due to the pinion yoke offset, two nuts can only be accessed with an open-end or crowfoot wrench. A crowfoot can be used with a torque wrench to set the correct torque settings.

**5** Use a torque wrench to set all of the third member locknuts to 33 lb-ft (44.75 N-m).

Use a crisscross pattern to spread the clamp load evenly.

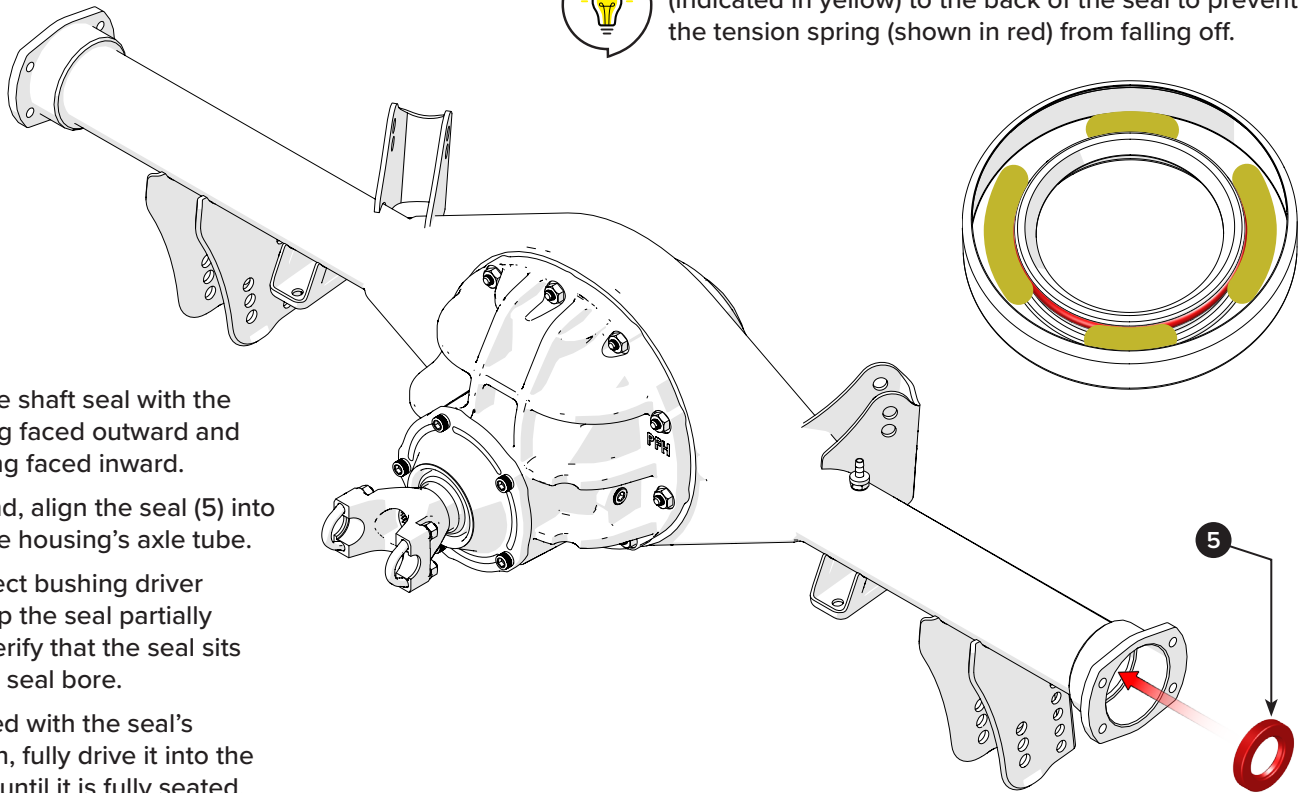


Inaccessible by socket





Before installation, liberally apply assembly grease (indicated in yellow) to the back of the seal to prevent the tension spring (shown in red) from falling off.



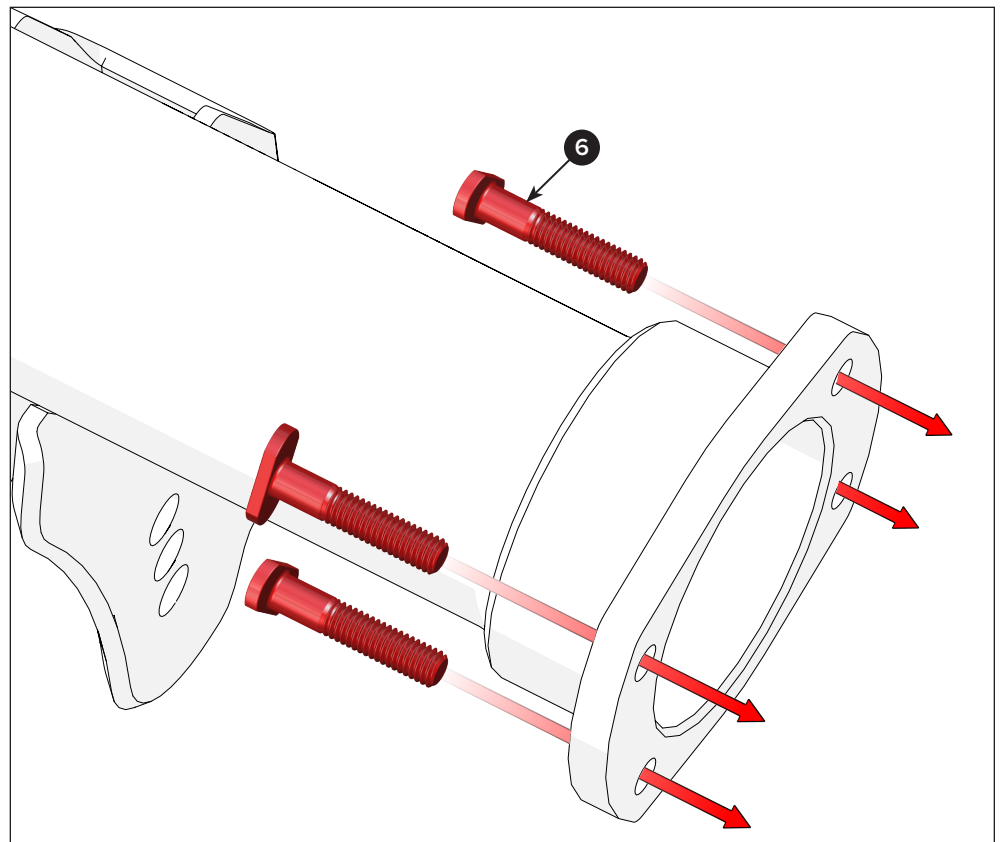
**6** Orient an axle shaft seal with the metal housing faced outward and the seal spring faced inward.

With one hand, align the seal (5) into the end of the housing's axle tube.

Use the correct bushing driver and lightly tap the seal partially in. Visually verify that the seal sits square in the seal bore.

When satisfied with the seal's initial position, fully drive it into the housing end until it is fully seated.

**7** Put one T-bolt (6) through each hole in the housing end plate. The locknuts will not be used at this time.

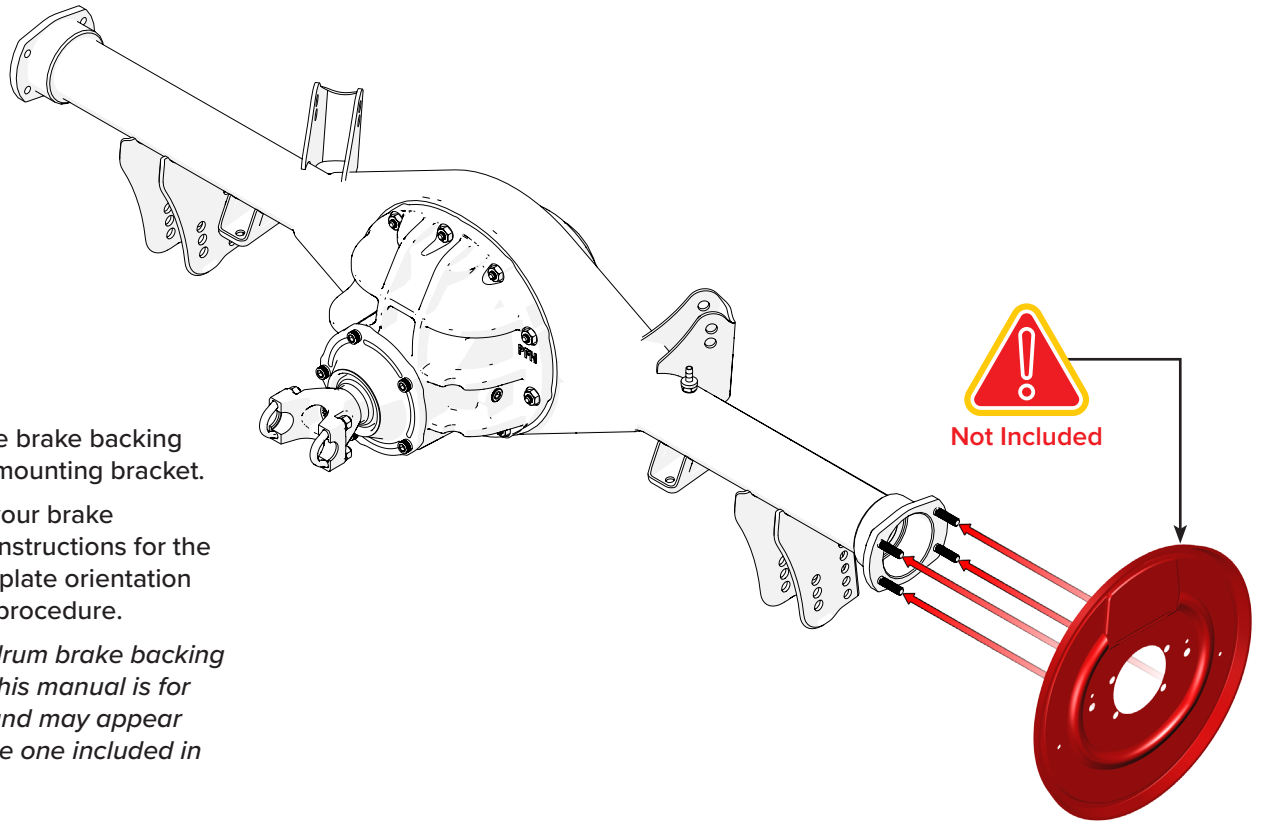


**8**

Now position the brake backing plate or caliper mounting bracket.

Please refer to your brake manufacturer's instructions for the correct backing plate orientation and installation procedure.

**Attention:** The drum brake backing plate shown in this manual is for reference only and may appear different than the one included in your braking kit.



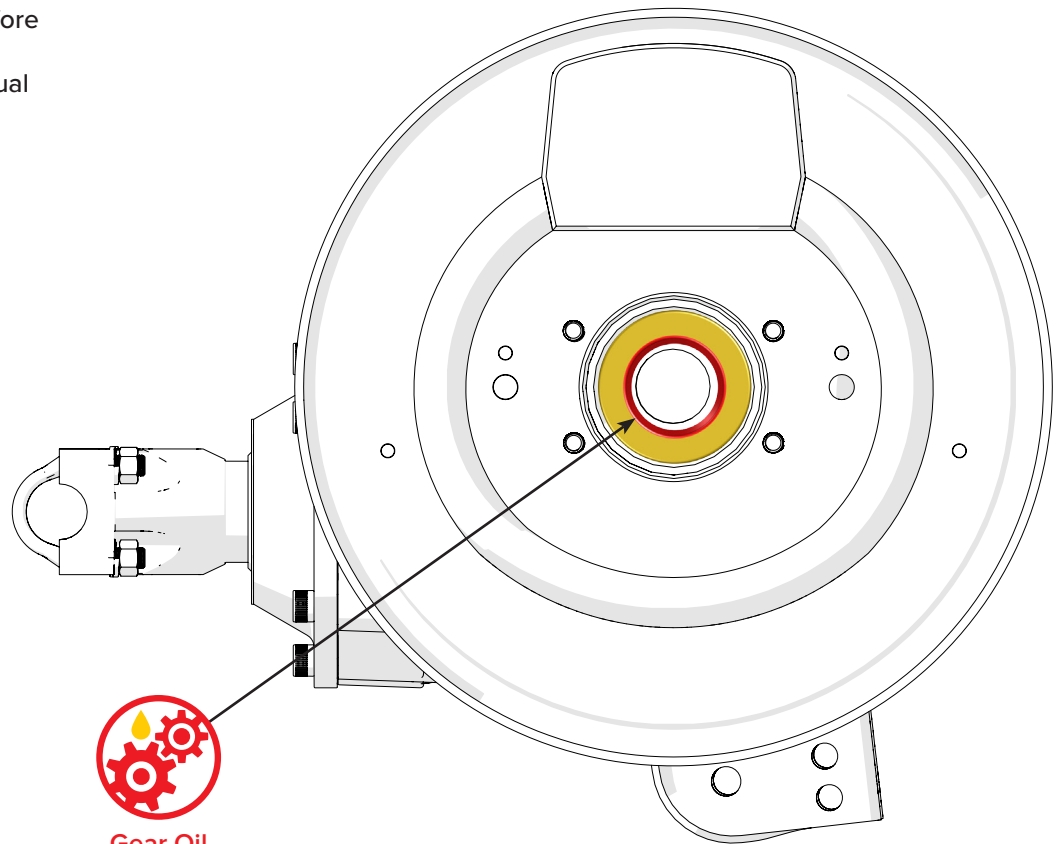
**9**

Lubricate the seal's rubber lip before the axle is installed to prevent damage to the seal and an eventual gear oil leak.

Lightly apply some gear oil to the seal's rubber lip (indicated in red) with a finger.

**Notice:** If provided, read the installation instructions included with the 3rd member.

The manufacturer will typically recommend the correct gear oil.



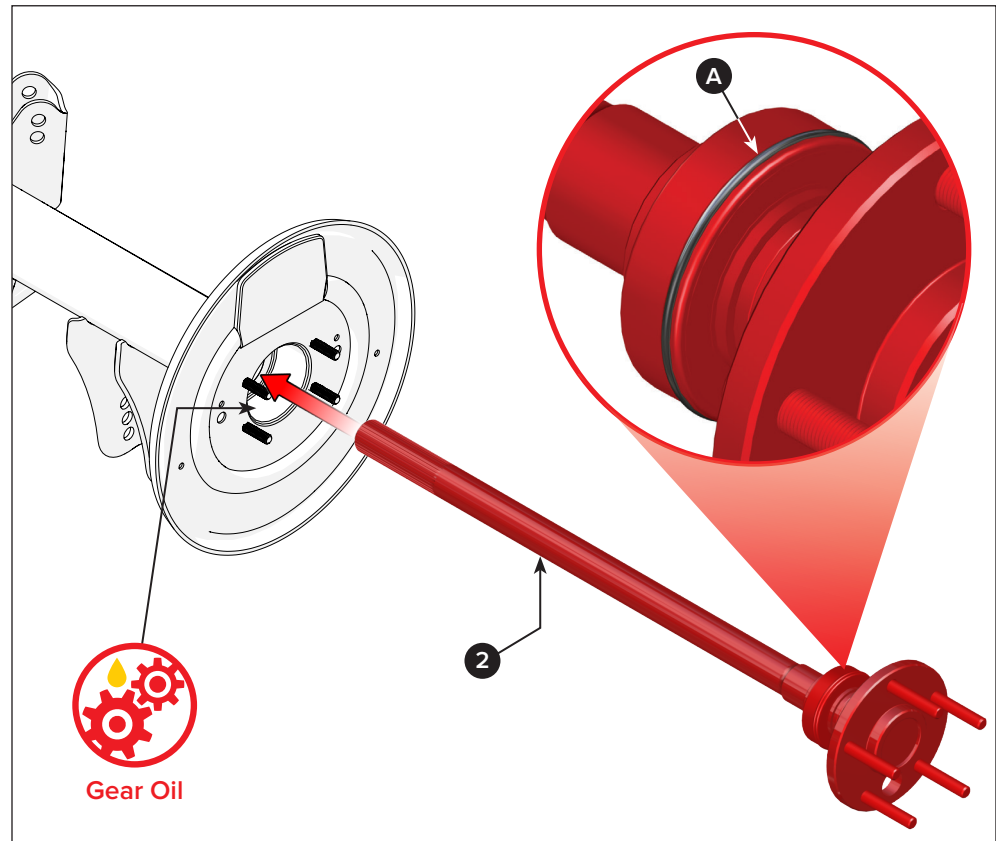
**10** The outer axle bearing has a rubber o-ring (A) to seal the end of the housing from dirt and moisture. To prevent damage to the o-ring, apply some gear oil to the bearing seat at the housing's end. Evenly spread the oil with a finger.

Feed the splined end of the short axle shaft (2) into the housing end with extreme care.

To prevent nicks or tears, center the axle in the seal, then carefully guide the axle splines past the seal's rubber lip.

Push the axle into the housing tube until it engages the differential side gear.

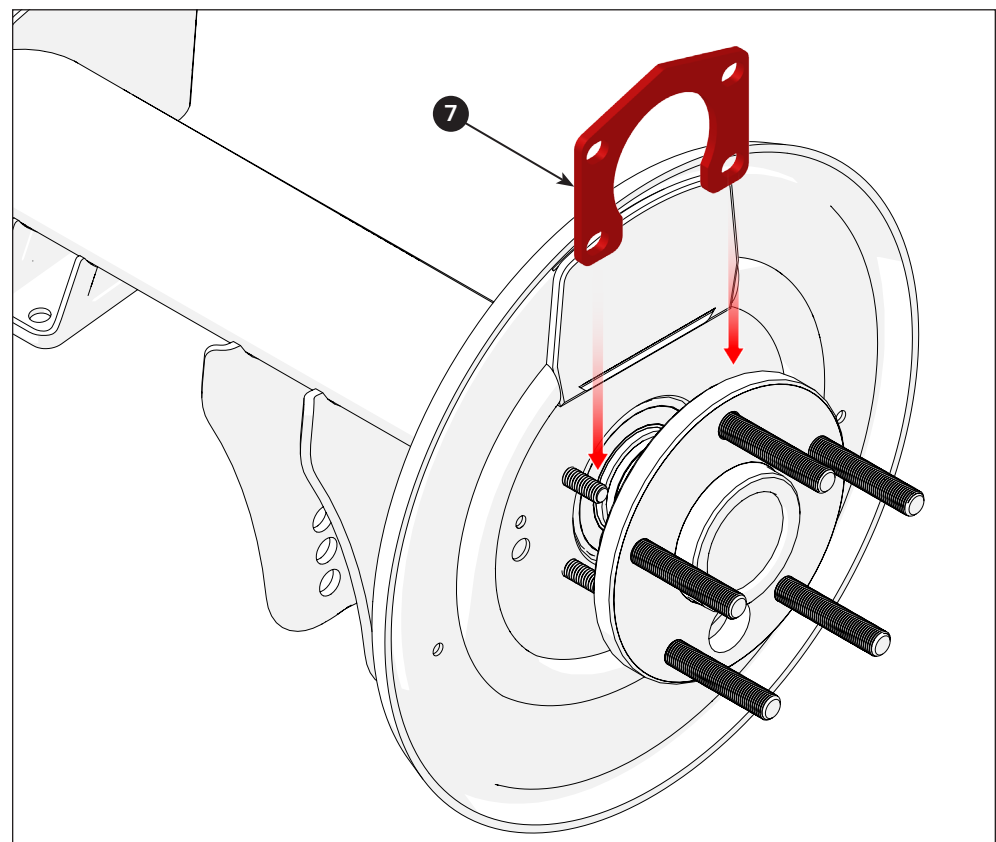
Make sure to fully seat the axle into the housing, then turn the axle hub by hand to verify the pinion shaft yoke also turns.



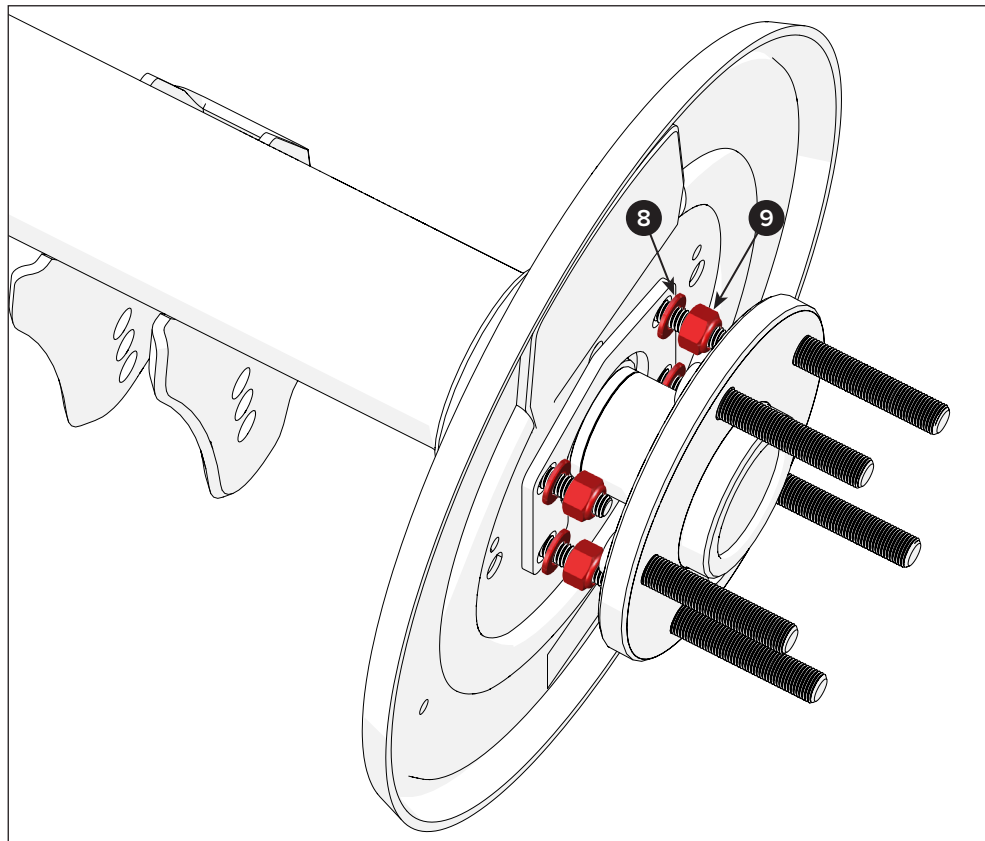
**11** Put an axle shaft retainer (7) into position with the axle shaft fully seated.

Make sure the retainer's bolt holes align with the holes in the housing end.

**Notice:** Some aftermarket braking kits include an axle retainer. If yours does, discard the retainer included with the QA1 9 in. rear housing assembly. Instead, use the axle retainer in the braking kit as it was specifically designed to be used with the brake backing plate.

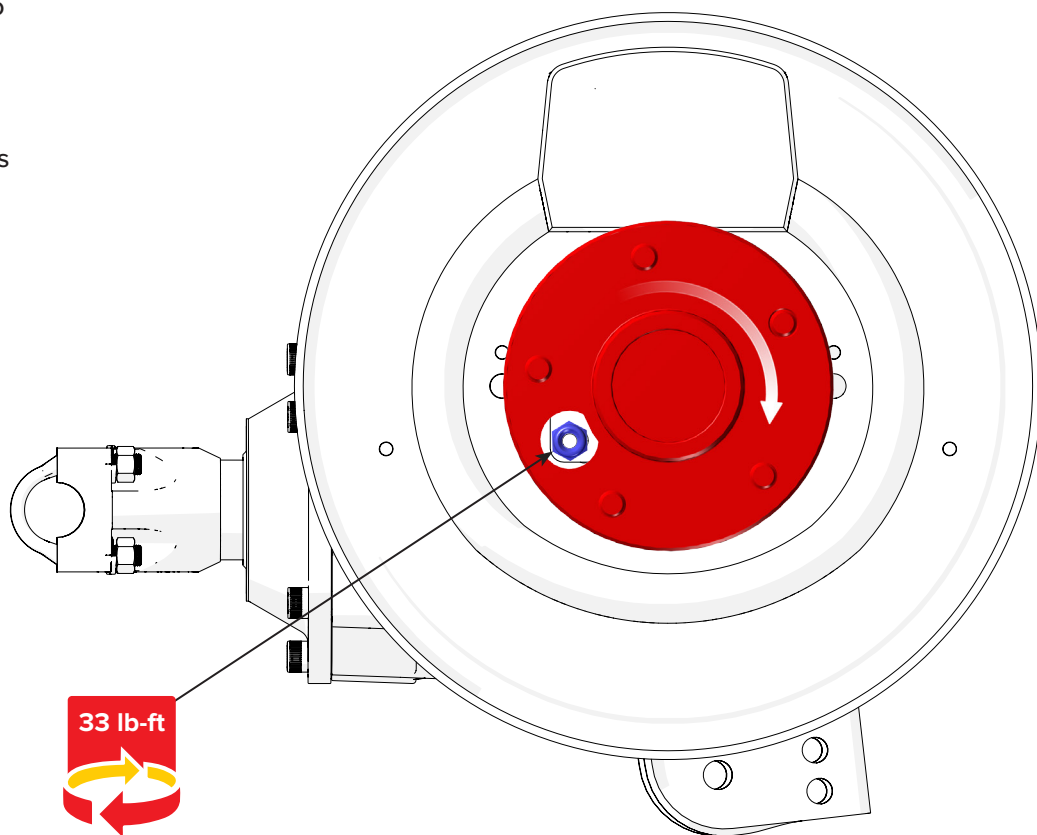


- 12** Hold the retainer plate in position and use one flat washer (8) and locknut (9) for each hole.



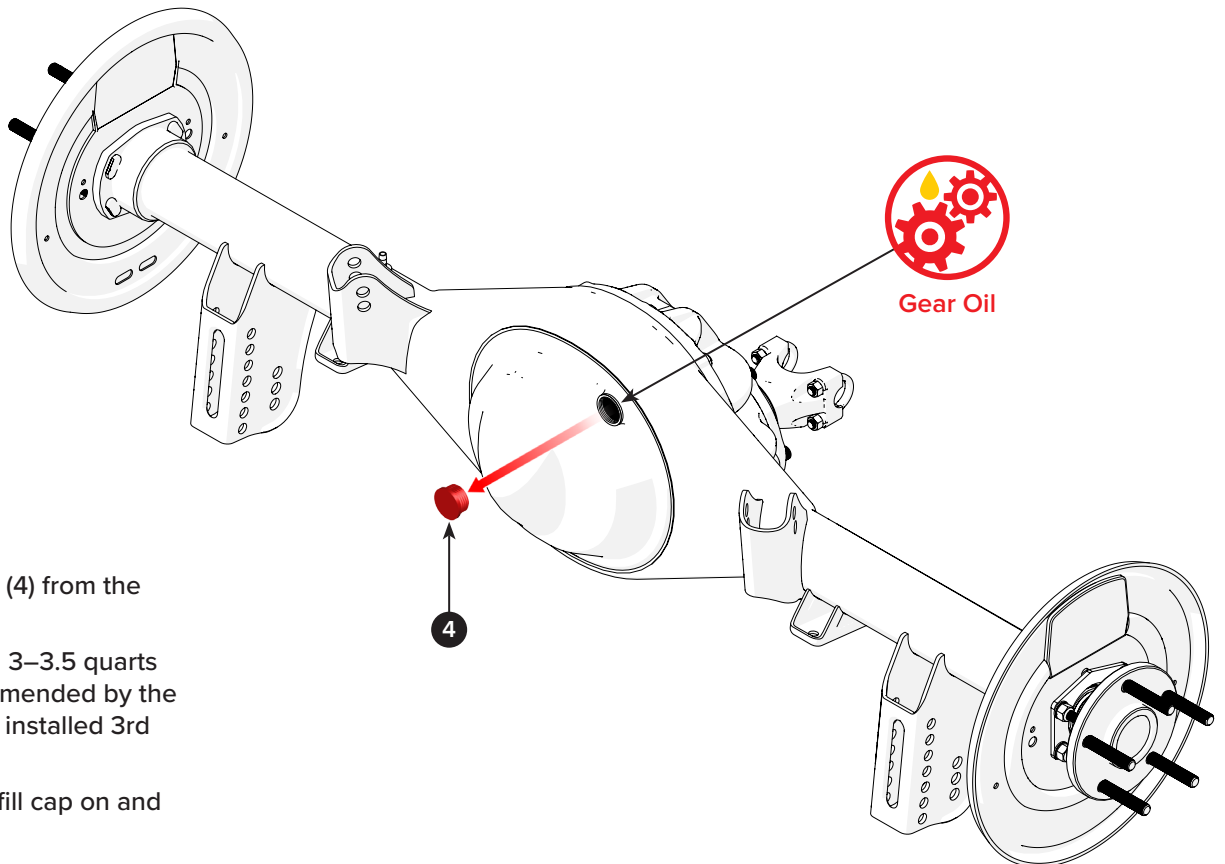
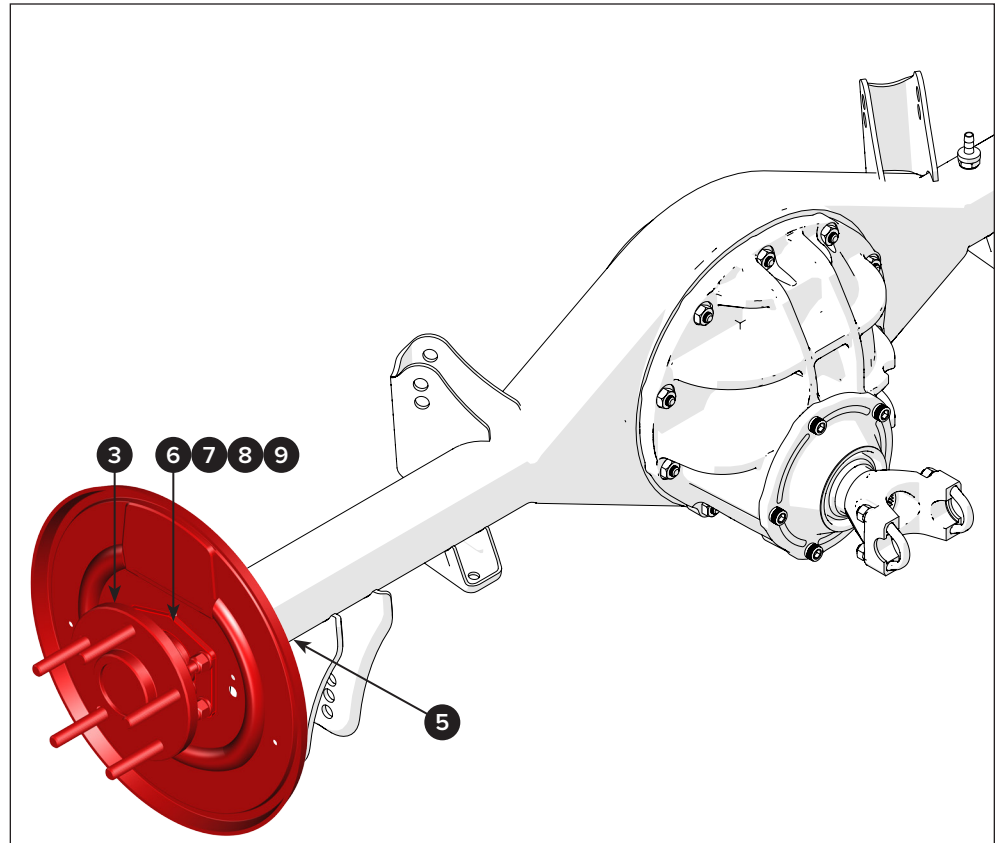
- 13** Use a torque wrench and socket to set the locknuts to 33 lb-ft (44.75 N-m). Use a crisscross pattern to spread the clamp load evenly.

**Notice:** The axle hub has an access hole to tighten and remove the retainer nuts. Turn the hub to gain access to torque each nut.



14

Repeat steps 6 through 13. Use the parts shown to assemble the long side axle (3) into the axle housing.



15

Remove the fill plug (4) from the differential housing.

Fill the housing with 3–3.5 quarts of gear oil as recommended by the manufacturer of the installed 3rd member.

Once filled, put the fill cap on and tighten it by hand.



## DISCLAIMER / WARRANTY

QA1 warrants that the products will be free from defects in material and workmanship for one year from the date of sale to the original purchaser. QA1 makes no other warranty of any kind, expressed or implied.

QA1 shall have no obligation under the preceding warranty where the defect results from improper or abnormal use, your negligence, vehicle accident, inappropriate or incorrect installation or maintenance, nor when the product has been repaired or altered in any way. QA1's liability in the case of defective products subject to the preceding warranty shall be limited to the repair or replacement of the defective products at QA1's option.

The user understands and recognizes that racing parts, specialized street rod equipment, and all parts and services sold by QA1 are exposed to many varied conditions due to the manner in which they are installed and used. It is the user's responsibility to determine the proper use or application of QA1 products.

QA1 shall bear no liability for any loss, damage, or injury, either to a person or to property, resulting from the installation, direct or indirect use of any QA1 products, or inability by the buyer to determine proper use or application of QA1 products. With the exception of the limited liability warranty set forth above, QA1 shall not be liable for any claims, demands, injuries, damages, actions, or causes of action to the buyer arising out of or connected with using any QA1 products.

Motorsports are inherently risky; therefore, no warranty or representation is made as to the product's ability to protect the user from injury or death. The user is fully aware and assumes that risk.



