



**1982-2002 GM F-BODY REAR AXLE HOUSING**  
**INSTRUCTIONS: 071020DS/071021DS (Raw), 071520DS/071521DS (Powder Coated)**

## WELCOME TO DETROIT SPEED & ENGINEERING!

### OUR COMMITMENT

Congratulations on your purchase of this high-quality Detroit Speed & Engineering 1982-2002 GM F-Body Rear Axle Housing. 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. Take all necessary safety precautions to ensure the job is completed safely and correctly.

Before you start, read and understand all instructions thoroughly. With hand tools and essential equipment, you can do the main assembly and setup of your new axle housing in your home garage, but if you feel 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 DSE technical support at 704-662-3272.

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!

### BEFORE INSTALLATION

Before you begin the DSE 1982-2002 GM F-Body rear axle housing installation, 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 begin installation.

Check your order as soon as possible upon delivery. DSE has provided parts list tables and images, as shown on pages 4 through 7. Compare your order's contents against the tables. Call your authorized dealer immediately if you discover anything missing from your order.

This kit requires no welding to assemble and install.

It is important to wear the appropriate personal protective equipment (PPE). However, the responsibility does not end there. Follow the manufacturer's instructions for safe use when working with power tools, and be cautious and responsible in your work. Make sure to ventilate combustible vapors and remove any nearby flammable materials.

## ABOUT THIS MANUAL

### PURPOSE

These instructions detail the installation of the DSE rear axle housing 1982-2002 GM F-Body models.

### 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)
- Aftermarket Brake Kit or OEM 93-02 Brakes
- Hard Brake Lines
- Parking Brake Cable Kit
- Assembled 31-spline FN988 3rd Member
- 31-spline rear axles
- Assembly Grease
- Gear Oil (3rd member manufacturer recommendation)

### SAFETY FIRST

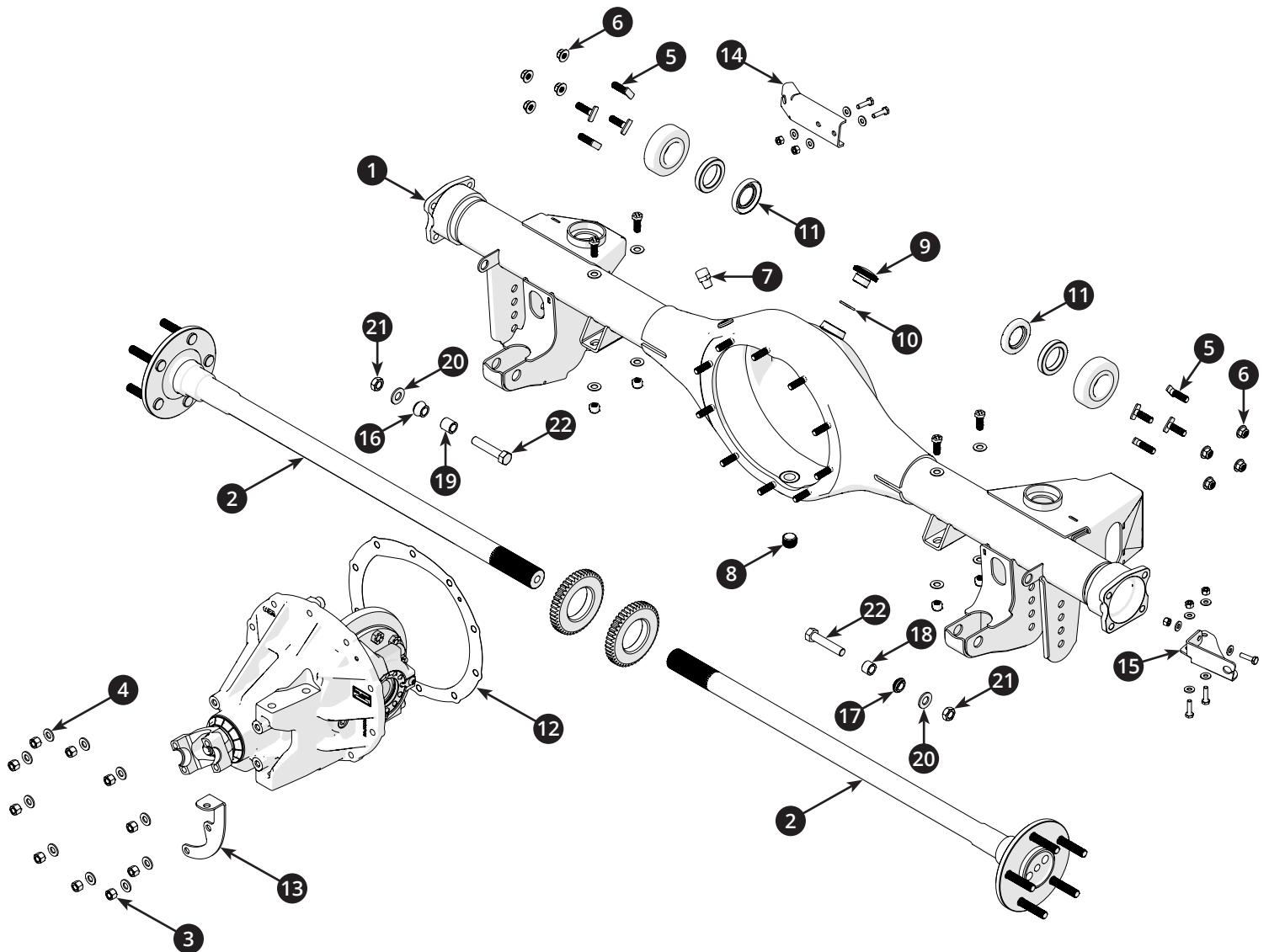
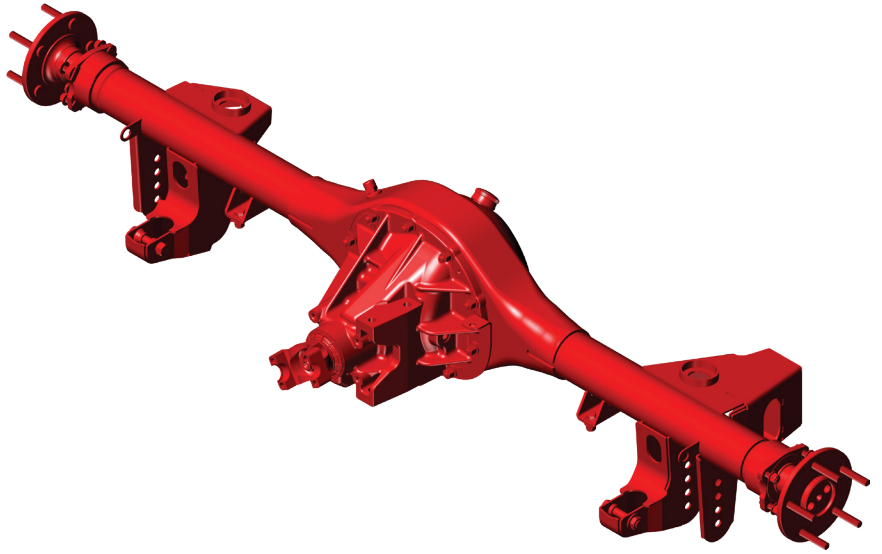
- Work on your vehicle in an appropriate location.
- Park your car on a level surface.
- Wear personal protection like safety glasses, gloves, and a fine particle respirator mask (if grinding).
- Never use compressed air to clean brake or metal grinding dust from the frame, or body panels.
- Grind metal only in a well-ventilated area, and wear a respirator until the dust has settled and the work area air has been cleared.
- Dispose of damaged or old parts in accordance with local laws. Do not throw any hazardous waste in the trash.
- Follow the manufacturer's instructions for safe use when working with power tools, and be cautious and responsible in your work.



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1982-2002 GM F-BODY REAR AXLE HOUSING  
071020DS (82-92) / 071021DS (93-02)



**1982-2002 GM F-BODY REAR AXLE HOUSING 071020DS/071021DS**

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
1	071020DS	9" TQ ARM TORINO HSG, 82-92F	1	—
	071021DS	9" TQ ARM TORINO HSG, 93-02F	1	—

**1982-2002 GM F-BODY REAR AXLES 071020DS/071021DS (SOLD SEPARATELY\*)**

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
2	070820DS	FN988 AXLE SHAFTS, M12, TORINO, 82-92 F	2	—
	070821DS	FN988 AXLE SHAFTS, M12, TORINO, 98-02 F	2	—
	070822DS	FN988 AXLE SHAFTS, M12, TORINO, 93-97 F	2	—

**1982-2002 GM F-BODY REAR AXLE HOUSING HARDWARE KIT 9307116**

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
3	960032FS	NUT, NYLOCK, 3/8"-24, GRADE 8, YELLOW ZINC	10	33 LB-FT
4	970035FS	WASHER, 3/8 AN YELLOW ZINC	10	—
5	99070068	T BOLT, REAR AXLE, 3/8"-24 x 1.3	8	—
6	960126FS	NUT, FLANGED, 3/8"-24	8	35 LB-FT
7	99070061	AXLE VENT, 1/4" NPT, ALUMINUM	1	—
8	99070001	DRAIN/FILL PLUG, DIFFERENTIAL, 1/2" NPT	1	—
9	99070004	FILL CAP, DIFFERENTIAL, 1.0"-12 UNF	1	—
10	MI-2-118	O-RING, BUNA, REAR HOUSING FILL CAP	1	—
11	CRS-SKF15141	REAR AXLE SEAL, SKF	2	—
12	CRS-FEL2301P	GASKET, DIFFERENTIAL, FEL-PRO, FORD 9"	1	—

**1982-2002 GM F-BODY REAR AXLE HOUSING BRAKE CABLE BRACKETS (OPTIONAL\*)**

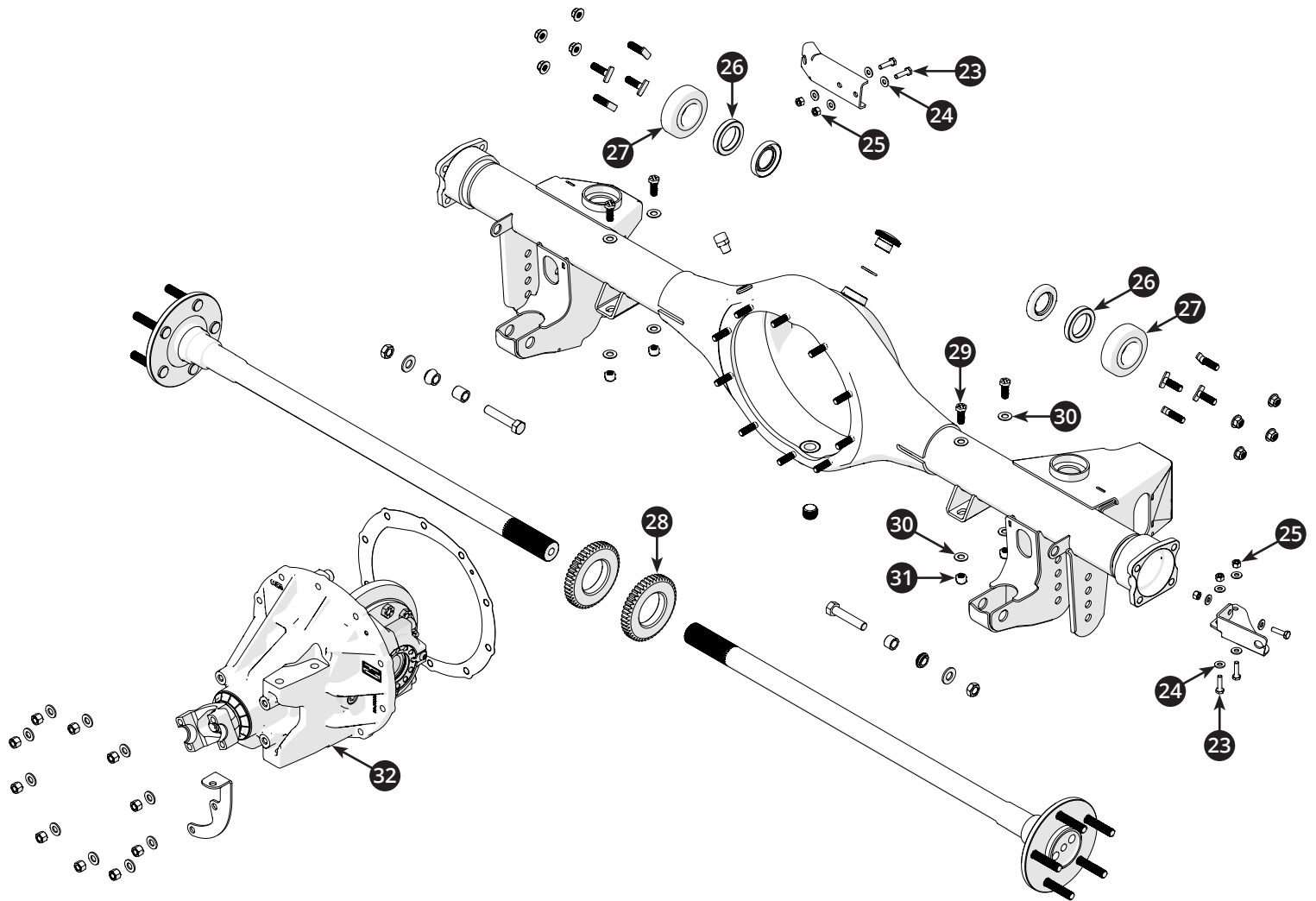
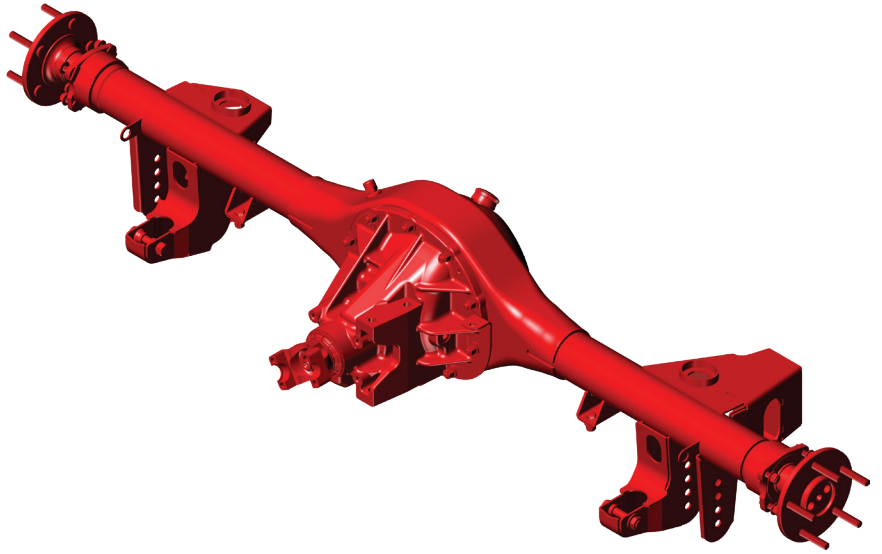
POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
13	99040877/882	BRAKE LINE BRKT REAR AXLE, 93-02 F	1	—
14	99040876/880	PARK BRAKE CABLE BRKT, LH 93-02 F	1	—
15	99040875/880	PARK BRAKE CABLE BRKT, RH 93-02 F	1	—

**1982-2002 GM F-BODY REAR AXLE SHOCK HARDWARE KIT 200189DS**

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
16	99040883	LOWER SHOCK MOUNT SPACER, .625 L	2	—
17	99040884	LOWER SHOCK MOUNT SPACER, .313 L	2	—
18	9303237	STEEL BUSHING, 1/2" ID x 3/4" OD x 1/2 L	2	—
19	9304228	STEEL BUSHING, 1/2" ID x 3/4" OD x 3/4 L	2	—
20	970037FS	WASHER, FLAT, 1/2" SAE, GRADE 8	2	—
21	960087FS	NUT, NYLOCK, 1/2"-20, RH JAM	2	—
22	980026FS	HHCS, 1/2"-20 x 2.50", GRADE 8	2	60 LB-FT



1982-2002 GM F-BODY REAR AXLE HOUSING  
071020DS (82-92) / 071021DS (93-02)





# PARTS LIST-1967-1972 C10 F-BODY REAR AXLE HOUSING

## 1982-2002 GM F-BODY BRAKE CABLE BRACKETS HARDWARE KIT 070223DS (OPTIONAL\*)

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
23	980147FS	HHCS 1/4-20 X 1 GRADE 8 YELLOW ZINC	5	15 LB-FT
24		WASHER, FLAT, 1/4" SAE, GRADE 8	10	—
25	960125FS	NUT, NYLOCK, 1/4'-20, YELLOW ZINC	5	—

## 1982-2002 GM F-BODY REAR AXLE HOUSING BEARINGS

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
26	1N022124C	BEARING RETAINER, STEEL	2	—
27	88128-2RS	ROLLER BEARING, 3.150 OD x 1.53 ID x 1.08 W	2	—

## 1982-2002 GM F-BODY REAR AXLE ABS TONE RING (OPTIONAL\*)

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
28	070221DS	ABS TONE RINGS, 98-02 F BODY, 4 CH ABS, 47T	2	—
	070222DS	ABS TONE RINGS, 93-97 F BODY, 4 CH ABS, 53T	2	—

## 1982-2002 GM F-BODY REAR AXLE, REAR SWAY BAR HARDWARE KIT 200187DS

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
29	980027FS	HHCS, 3/8"-16 x 1.00", GRADE 8, YELLOW ZINC	4	33 LB-FT
30	970023FS	WASHER, FLAT, 3/8" SAE, YELLOW ZINC	8	—
31	960053FS	NUT, NYLOCK, 3/8"-16, GRADE 8, YELLOW ZINC	4	—

## 1982-2002 GM F-BODY FN988 ASSEMBLED 3<sup>RD</sup> MEMBER CENTER SECTION (SOLD SEPARATELY\*)

POSITION	PART #	DESCRIPTION	QTY	TORQUE SPECIFICATION
32	070880-308DS	FN988 STD CASE 31 SPL TT 3.08 RATIO 1350	1	—
	070880-331DS	FN988 STD CASE 31 SPL TT 3.31 RATIO 1350	1	—
	070880-355DS	FN988 STD CASE 31 SPL TT 3.55 RATIO 1350	1	—
	070880-373DS	FN988 STD CASE 31 SPL TT 3.73 RATIO 1350	1	—
	070880-410DS	FN988 STD CASE 31 SPL TT 4.10 RATIO 1350	1	—
	070880-411DS	FN988 STD CASE 31 SPL TT 4.11 RATIO 1350	1	—

**Note:** 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. Count and compare all parts and fasteners to the list above. If parts are missing, contact Detroit Speed at Sales@detroitsspeed.com.

\*These items are available through DSE Technical Support and Order Lines at 704-662-3272

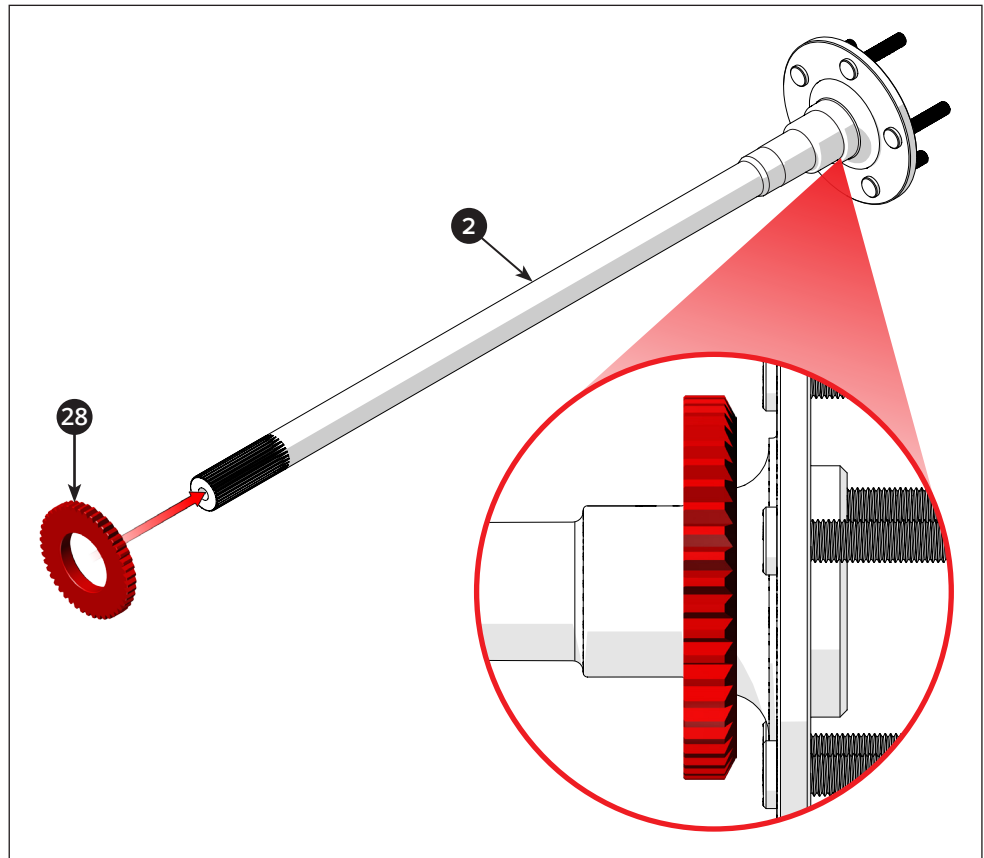


**Installer's Note:** The axles must be pre-assembled before installation into the axle housing.

If your vehicle is equipped with ABS tone rings, you can either remove the factory tone rings from the old axles and reuse them or purchase new tone rings from Detroit Speed & Engineering. Make sure to count the old tone rings and buy the correct tooth count, as the tone rings are available with either 47 or 53 teeth.

- 1 If equipped, and before the old tone ring is removed from the axle, note its orientation and all markings to aid in its installation on the new axle shaft (2).  
Then, press the used or new ABS tone ring (28) onto the axle. Make sure it fits snugly against the first step of the axle, which is closest to the wheel flange.

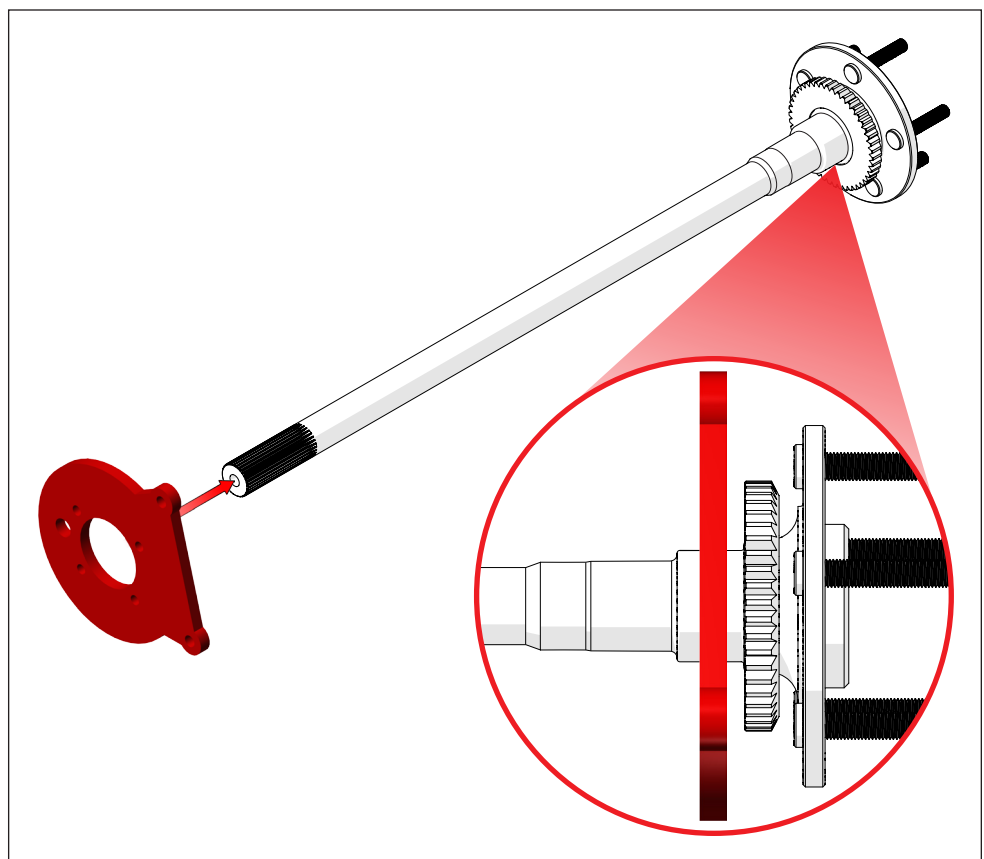
**Note:** Be sure that the chamfered corners are oriented in the same direction as they were on the factory axle.



**Installer's Note:** The brake backer plate shown is for illustrative purposes only. Use only the backer plates included with your brake kit, as they double as axle retainers.

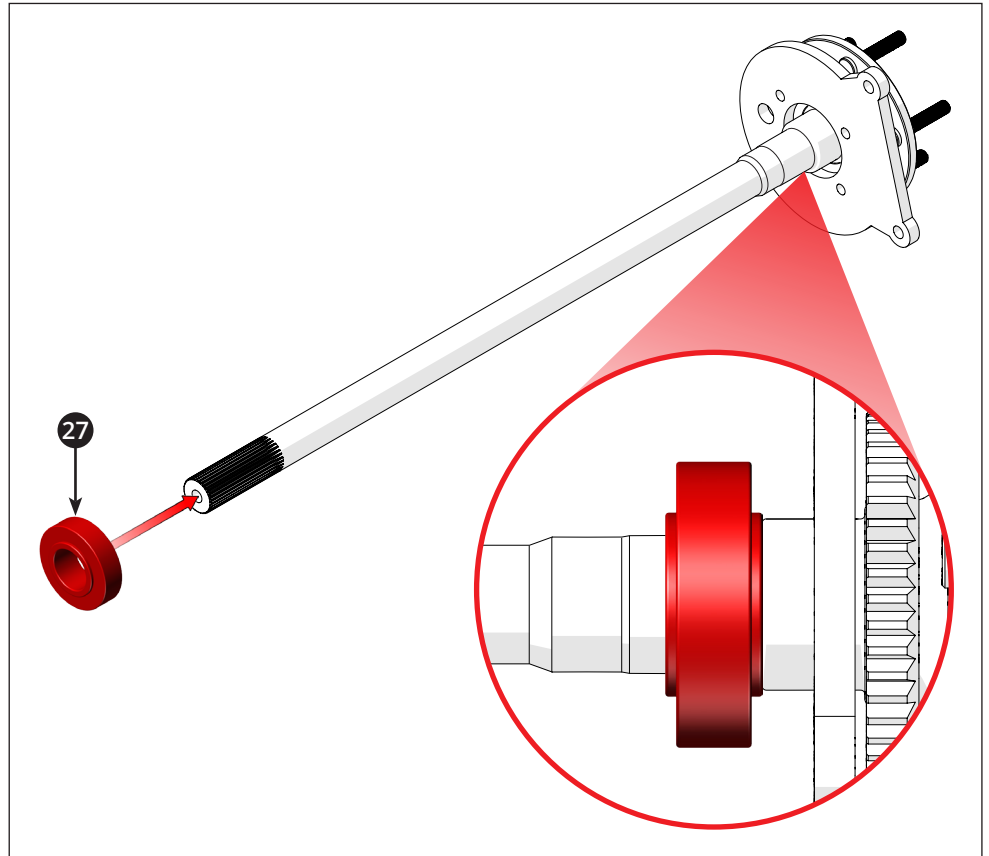
- 2 Now, slide the brake backer plate included with your brake kit onto the axle. Make sure it is correctly oriented according to the brake manufacturer's instructions.

**Note:** The backer will not fit tightly onto the axle. Position it onto the area closest to the ABS tone ring.



**3** Press the axle bearing (27) onto the axle.

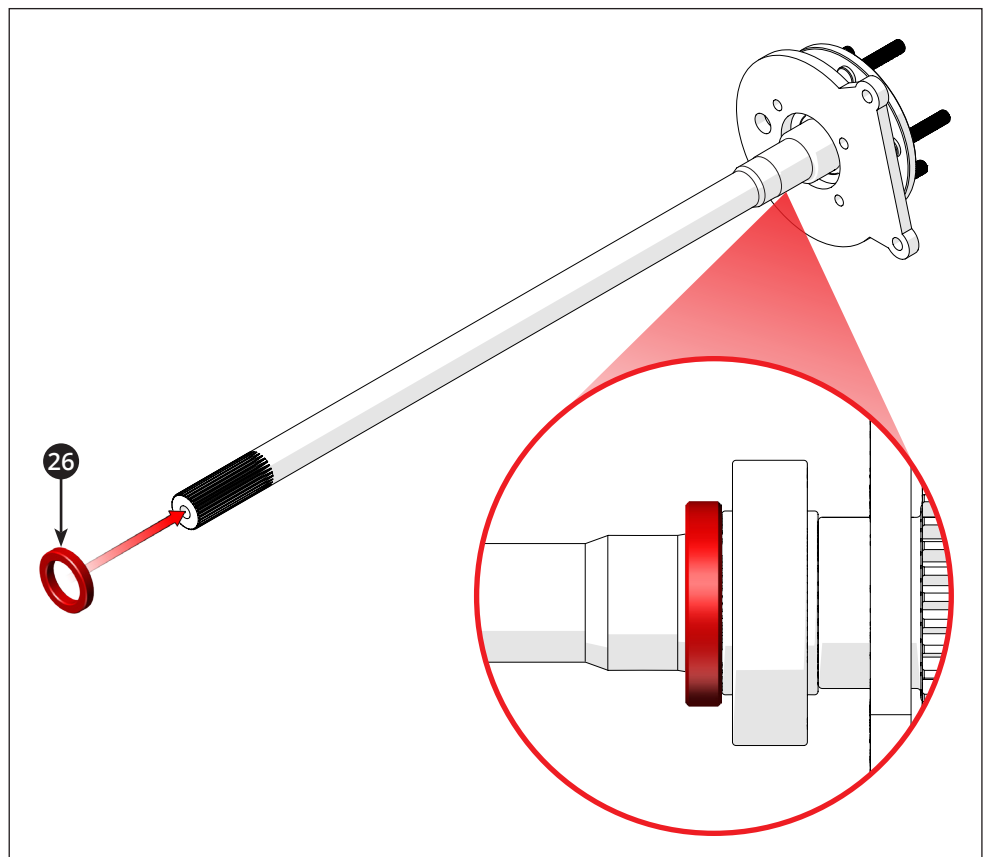
Press the bearing on the outermost journal until it makes complete contact with the ABS tone ring axle flange.



**4** Finally, slide the bearing retainer (26) onto the axle and press it onto the bearing journal until it makes complete and tight contact with the bearing.

**Note:** The bearing retainer must firmly seat against the bearing to prevent axle movement and misalignment during operation.

With the axle assembly complete, repeat steps 1 through 4 to assemble the other axle.



**Installer's Note:** DSE recommends that the user inspect and clean the inside of the housing (A), breather (B), and oil filler (C) openings, and axle tubes (D) before assembly to remove any manufacturing contaminants that could affect the gear oil.

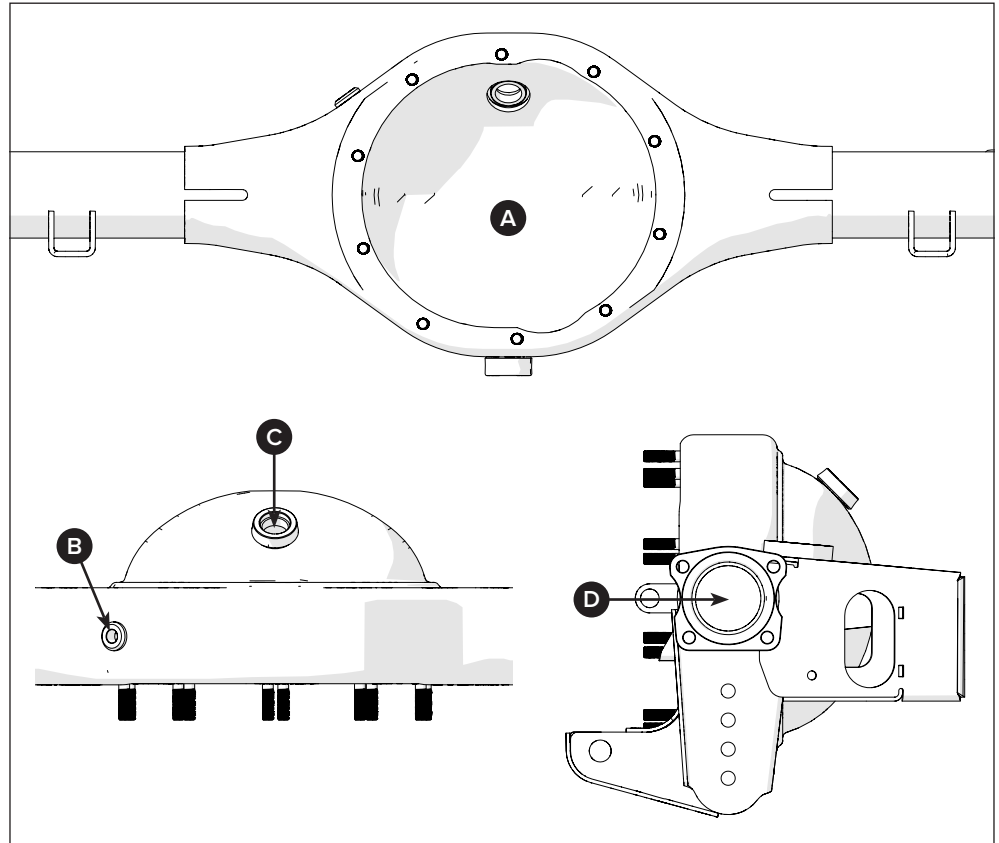
**5** Flush with solvent, like brake cleaner, into the housing to remove loose dirt. Repeat this until the solvent runs clear.

Use a stiff brush or a long-handled wire brush to scrub the inside of the housing and axle tubes.

Wipe the inside surfaces with a clean, lint-free rag. Examine the inside of the housing and tubes to make sure there is no dirt left.

Use compressed air to blow out the housing and axle tubes, and make sure to remove any leftover solvent and small particles.

After cleaning, apply a light coat of gear oil or assembly lube on all internal surfaces before installation to protect against flash rust.



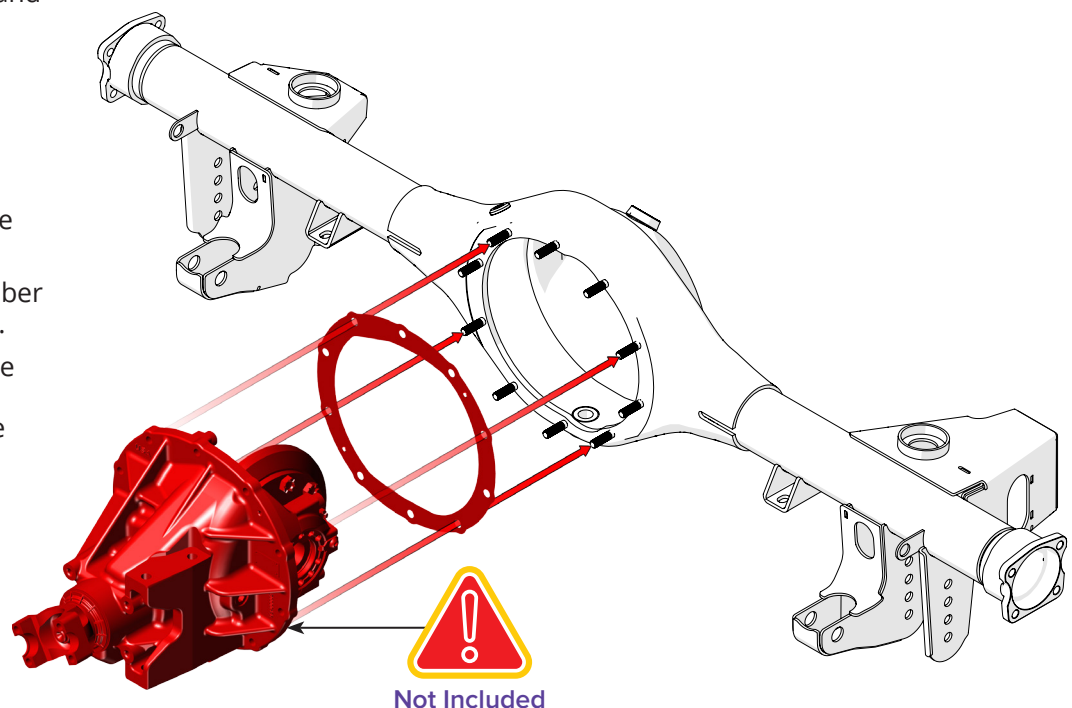
**Installer's Note:** The DSE 3rd and 4th Generation F-Body Housings are designed for use with an FN988 Torque Arm center section, and are sold separately.

**6** First, align the 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.

Then, carefully lift the 3rd member and put it into the axle housing.

The offset pinion yoke sits at the bottom, with an asymmetrical bolt pattern that fits only in one direction.



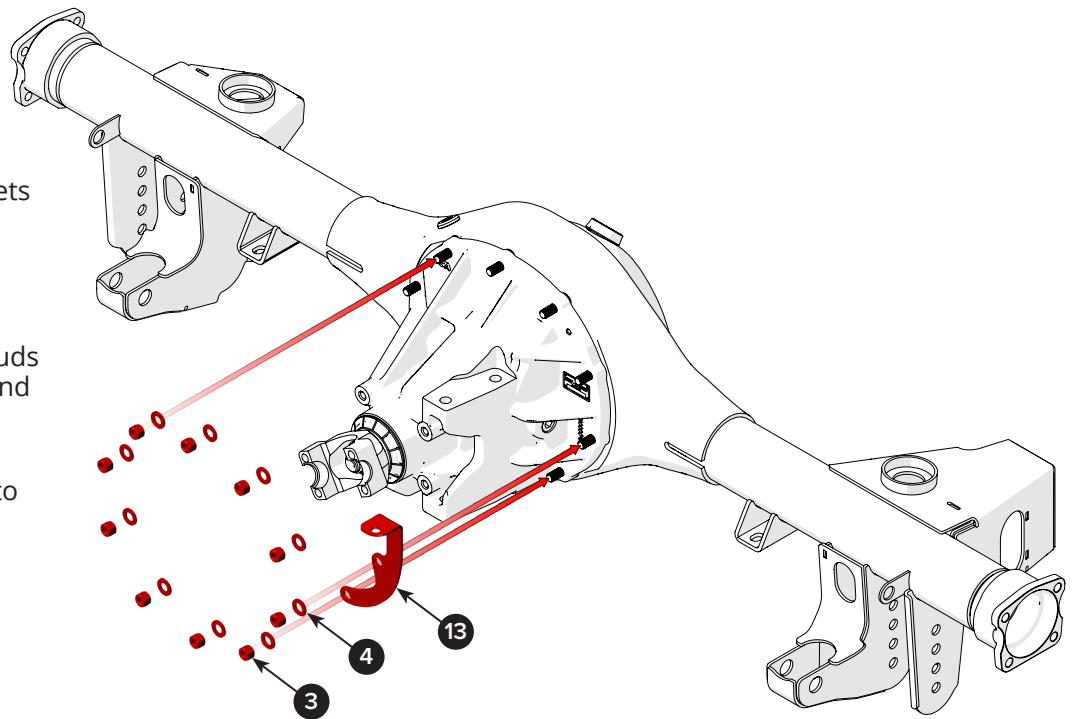
7

The front brake line bracket installs on the front of the center section so the factory junction block can bolt into place.

If the optional brake line brackets are to be used, place the rear main bracket (13) onto the axle housing studs as shown.

Fasten the bracket and 3rd member to the axle housing studs with ten each flat washers (4) and locknuts (3).

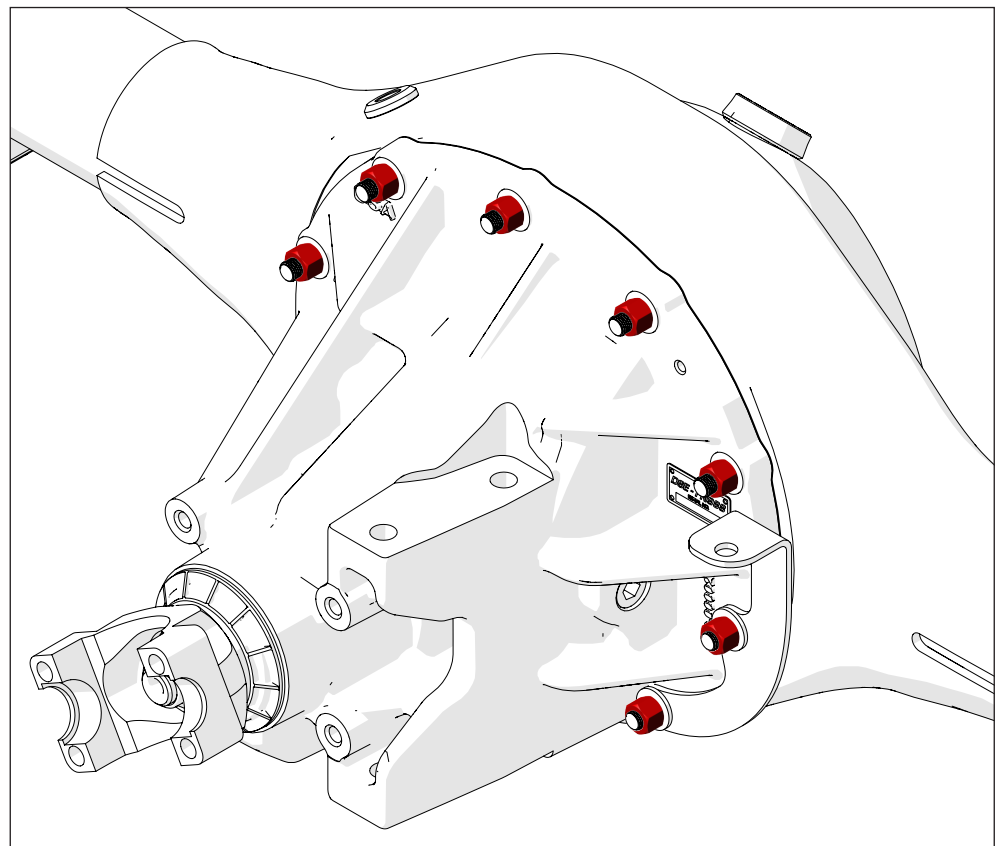
**Note:** Snug the 3rd member locknuts. They will be torqued to specification in the next step.



8

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

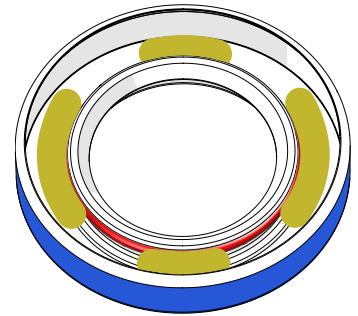
Use a crisscross pattern to spread the clamp load evenly.





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.

To prevent gear oil leaks, apply a thin layer of gasket maker or sealant to the seal's outer metal housing (blue).

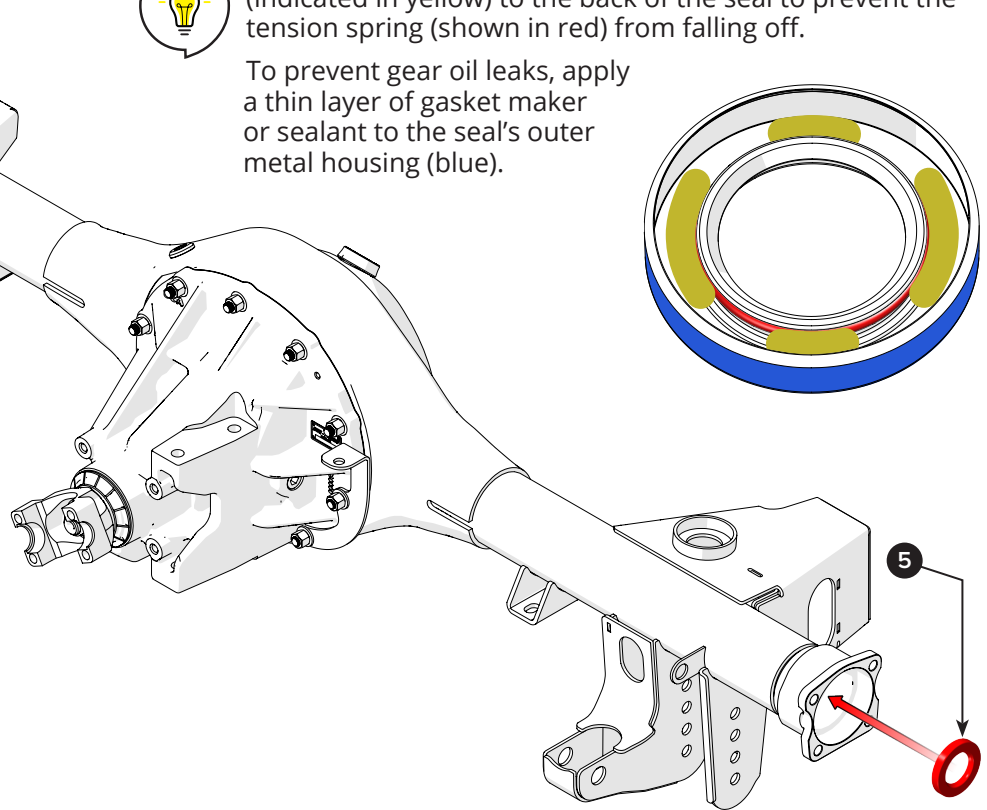


**9** Orient an axle shaft seal with the metal housing faced outward and the seal spring faced inward.

With one hand, align the seal (5) with 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.

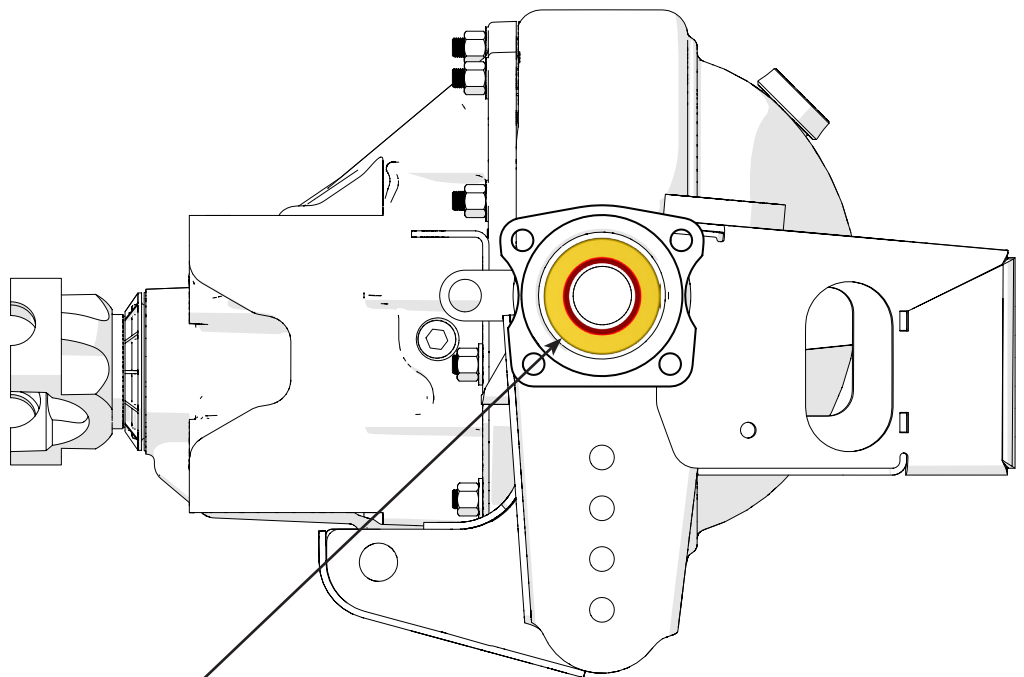


**10** Lubricate the seal's rubber lip before the axle is installed to prevent damage to the seal and an eventual gear oil leak.

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

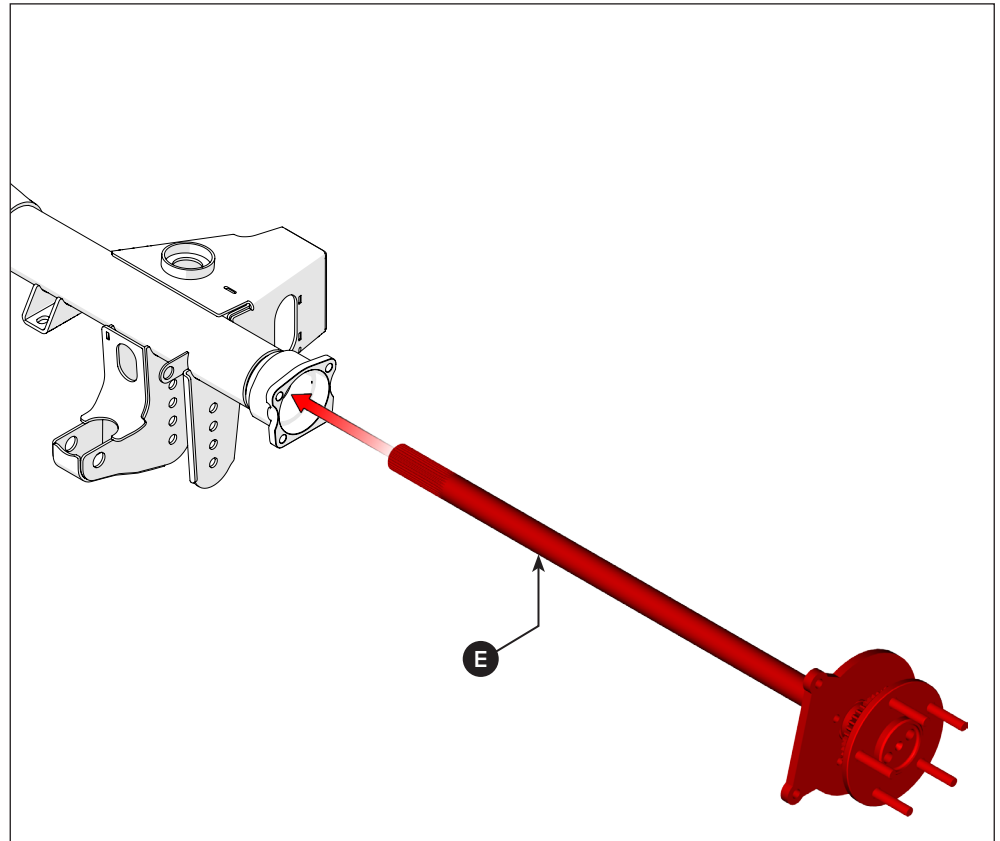
**Note:** If provided, read the installation instructions included with the 3rd member.

The manufacturer will typically recommend the correct gear oil.

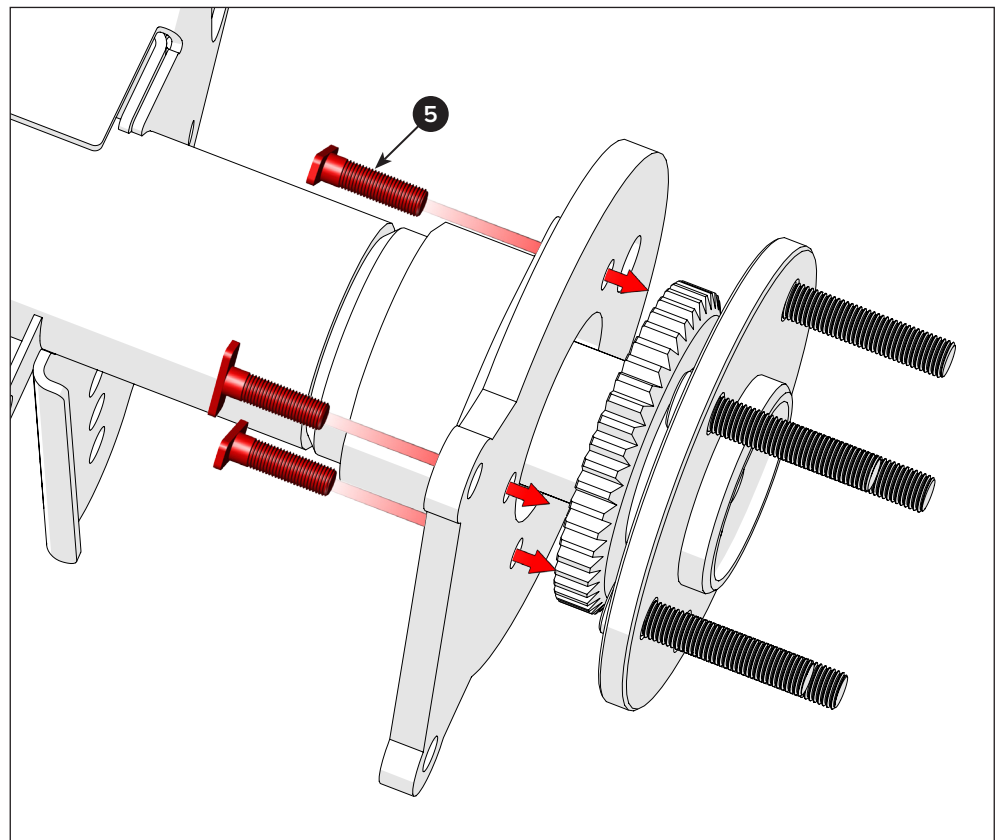


Gear Oil

- 11** Feed the splined end of the LH axle assembly (E) into the housing's LH axle tube 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 that the pinion shaft yoke also turns.
- Note:** The correct axle assembly depends upon the brake backer plate. Review the brake system instructions for guidance.



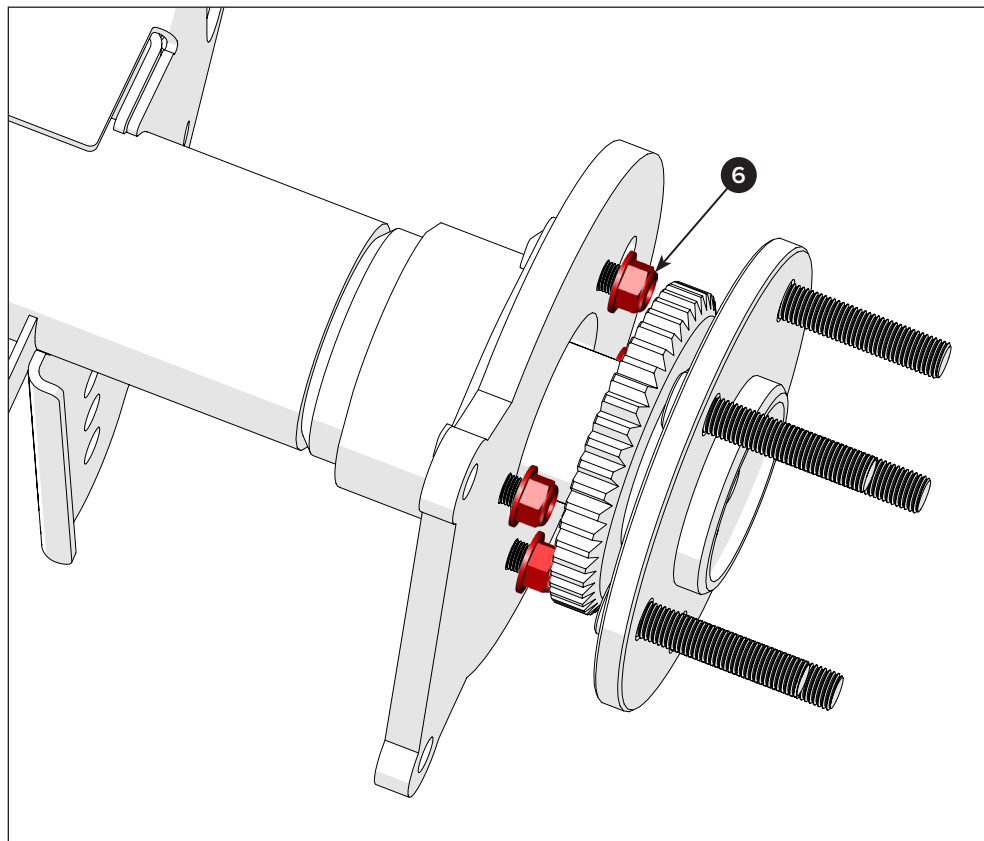
- 12** Put one T-bolt (5) through each hole in the housing end plate and brake backer plate.



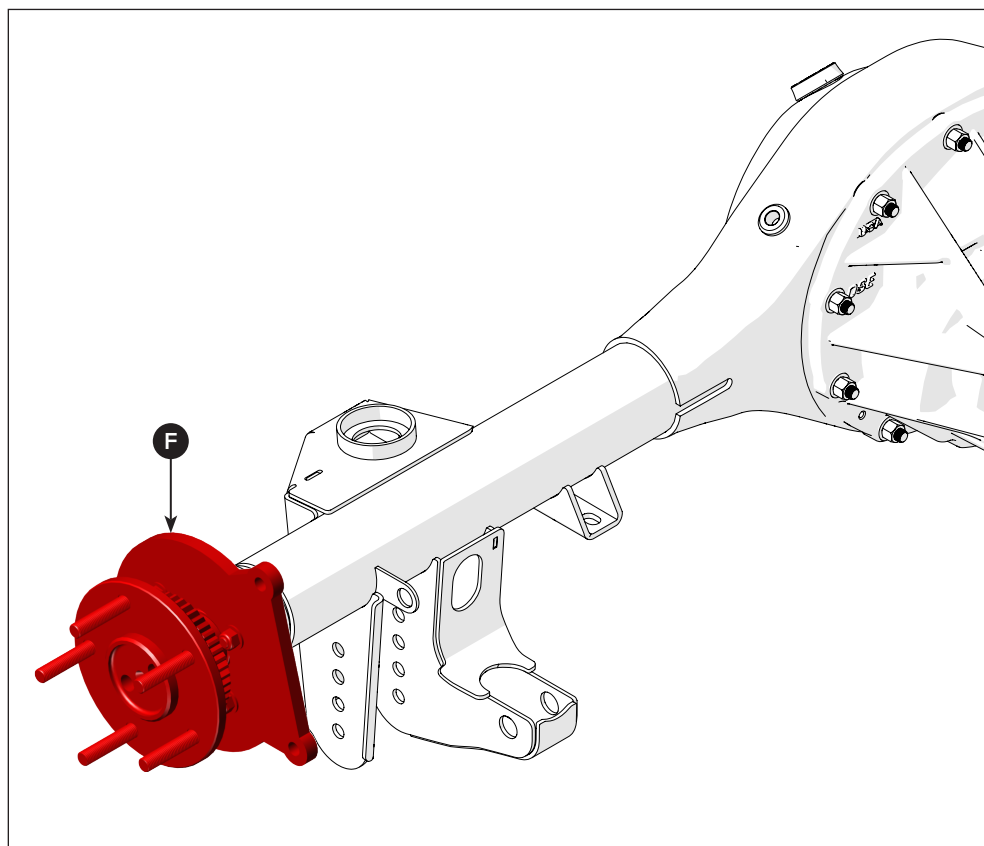
**13** First, apply red threadlocker to the T-bolt threads.

Then, hold the brake backer plate in position and use one locknut (6) for each T-bolt.

Use a torque wrench to set all the locknuts to 35 lb-ft. Use a crisscross pattern to spread the clamp load evenly.



**14** Repeat steps 9 through 13 to install the RH axle assembly (F) into the housing's RH axle tube end.

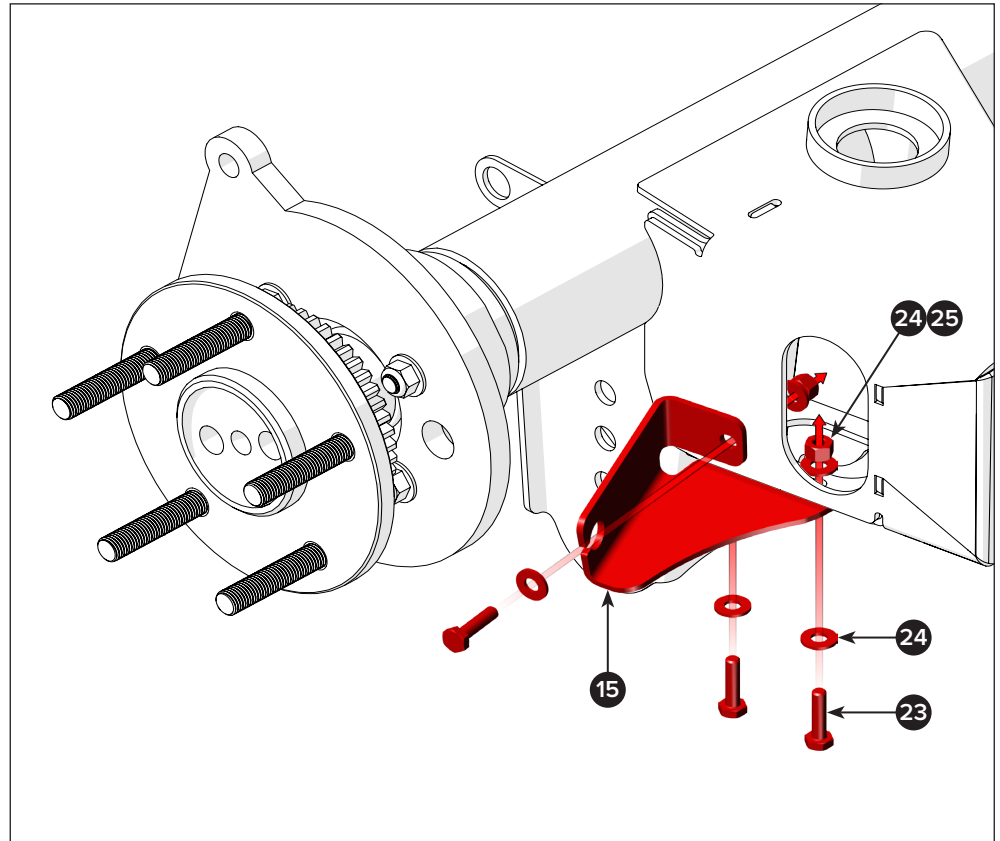


**15** The optional DSE rear brake brackets simplify installation of parking brake cables in 4th-gen applications and are attached to the rear of the housing with included hardware.

Position the LH parking brake cable bracket (15) to the LH back of the axle housing as shown.

Use three bolts (23), six flat washers (24), and three Nylock nuts (25).

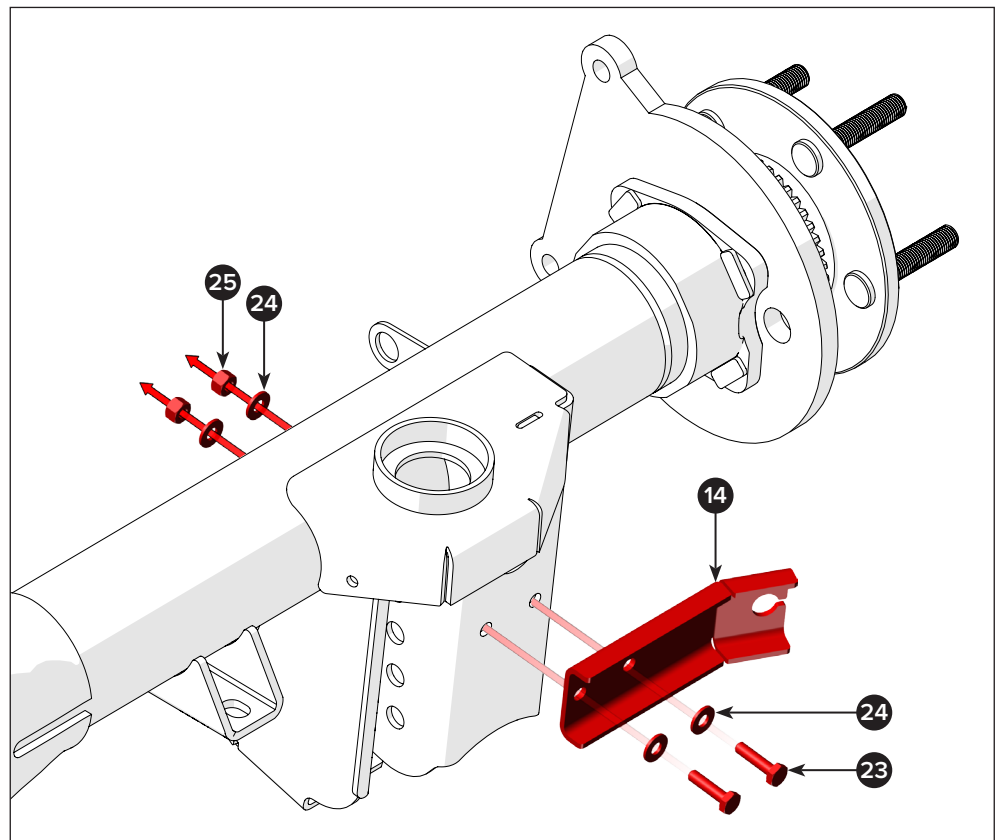
Torque the bolts to 15 lb-ft.



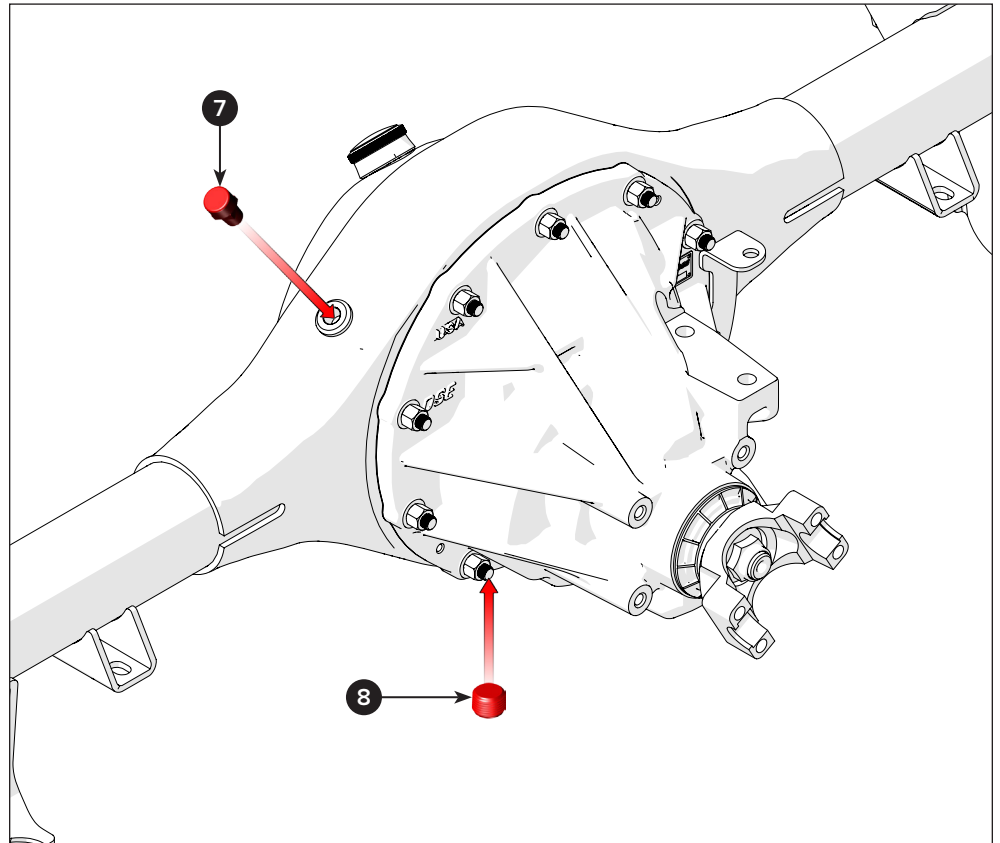
**16** Position, then attach, the RH parking brake cable bracket (14) to the RH back of the axle housing.

Use two hex bolts (23), four flat washers (24), and two Nylock nuts (25).

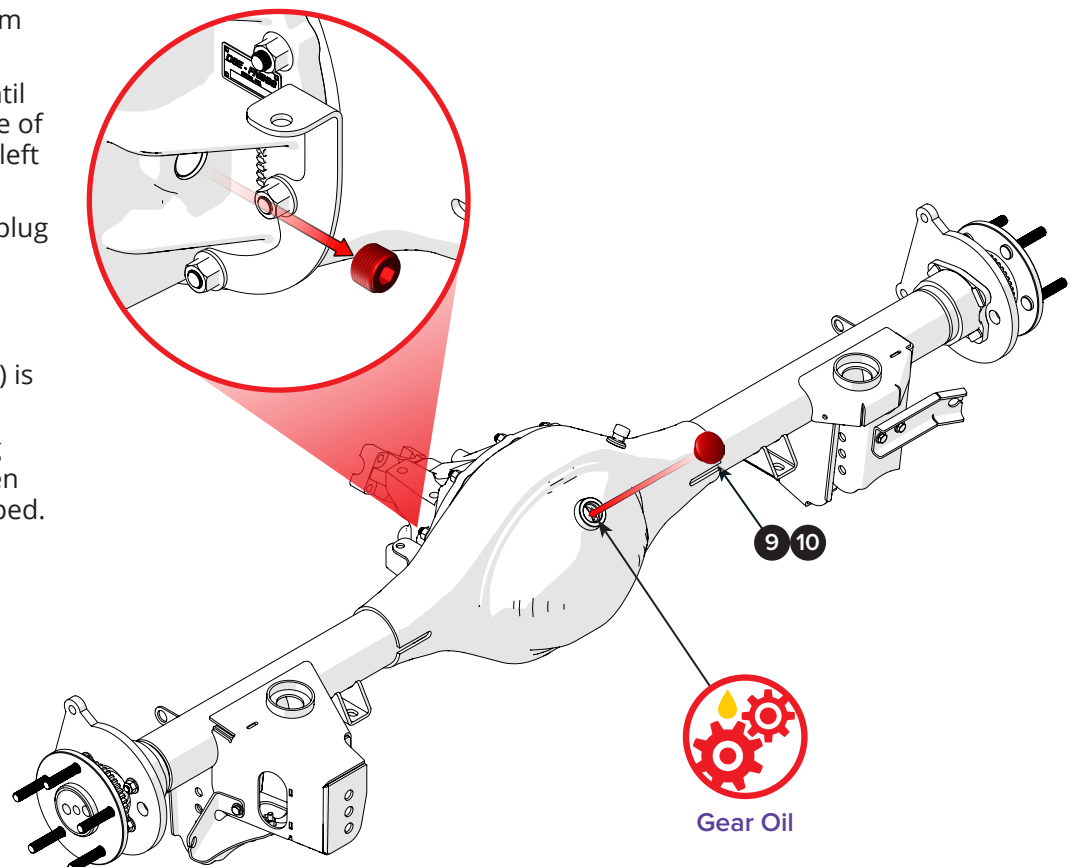
Torque the bolts to 15 lb-ft.



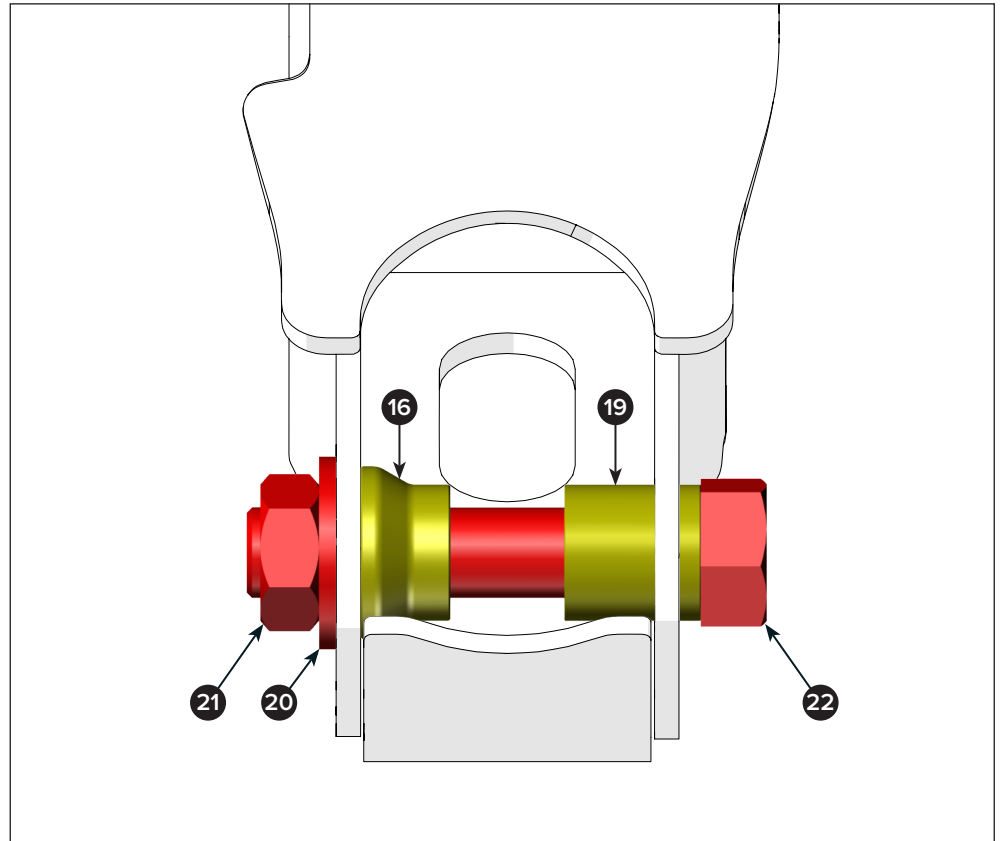
- 17** Apply either Loctite 592 thread sealer or Teflon tape to the threads of the drain plug (8) and housing vent (7).
- Install and tighten the drain plug into the bottom drain hole bung on the housing.
- Turn the axle vent into the vent bung on the top of the housing.



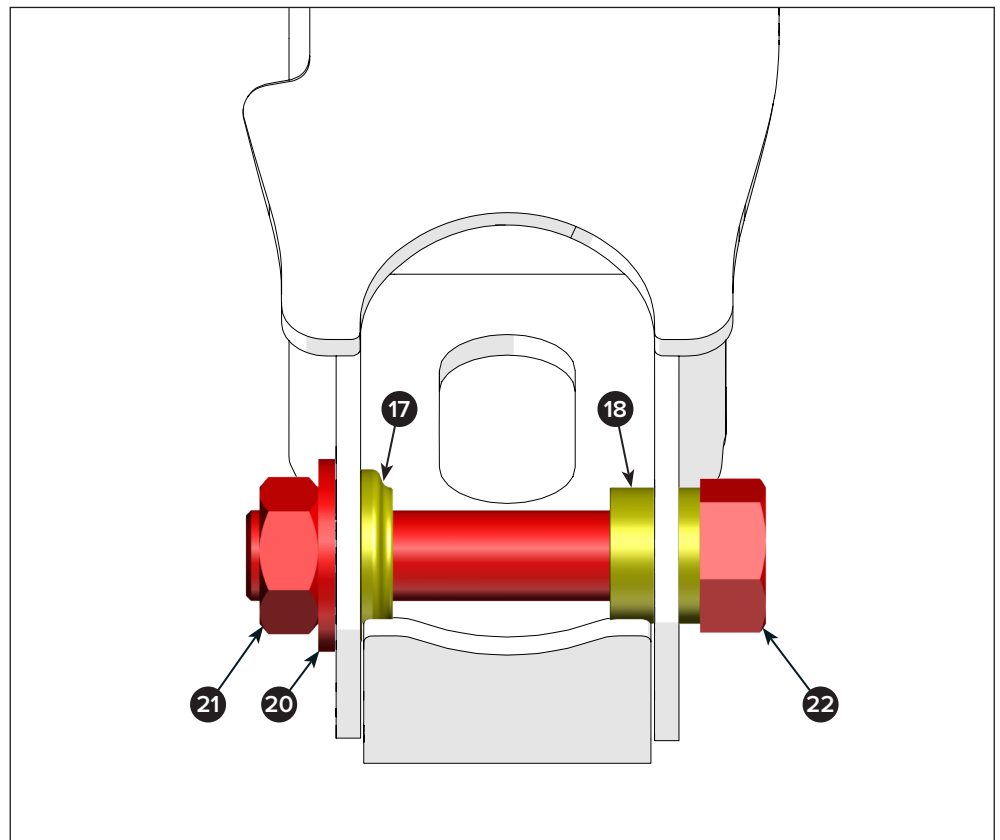
- 18** Remove the fill plug (9) and from the differential housing.
- Fill the housing with gear oil until the oil is level with bottom edge of the inspection plug hole in the left side of the 3rd member cover.
- Once filled, put the inspection plug back into the 3rd member.
- Finally, put the fill cap on and tighten it by hand.
- Note:** Make sure the o-ring (10) is seated in the fill cap's groove.
- If applicable, install the parking brake hardware and shoes, then install the ABS sensor, if equipped.



- 19** The axle housing can fit 5/8" and 1-1/4" wide coilover shock bearings.
- For narrow coilover bearings (5/8"), use the long step bushing (16) and the 3/4" long spacer (19).
- Due to the close clearance to the suspension links, the hex bolt (22) installs outward from the vehicle center.
- Use a flat washer (20) and a thin-profile Nylock nut (21) to secure the bolt to the housing bracket.
- Torque the bolt to 55 lb-ft.



- 20** For wide coilover bearings (1-1/4"), use the short step bushing (17) and the 1/2" long spacer (18).
- Due to the close clearance to the suspension links, the hex bolt (22) installs outward from the vehicle center.
- Use a flat washer (20) and a thin-profile Nylock nut (21) to secure the bolt to the housing bracket.
- Torque the bolt to 55 lb-ft.



### DISCLAIMER / WARRANTY

Detroit Speed warrants that its products will be free from defects in materials and workmanship for two years (24 months). This warranty is extended only to the first purchaser of any product at retail and who has retained ownership of the vehicle on which the product was originally installed.

This warranty does not cover any labor or materials not supplied by the manufacturer, nor does it include shipping or towing charges. It also does not cover any product that has been repaired, altered, or misused and/or misapplied. All warranty replacement or repair privileges are void when a product is modified by anyone other than Detroit Speed, Inc.

A dated purchase receipt or invoice must be presented with all claims. If DATE CODING is removed from the product, the warranty is void. If the product is found to be defective, Detroit Speed will, at its sole discretion, repair, replace, or refund the purchase price.

Detroit Speed will cover all standard ground shipping costs on replacement products when the returned products are found to be defective or unacceptable due to an error on the part of Detroit Speed, Inc. All non-defective products, as verified by Detroit Speed, will be returned to the customer.

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