

74WELD

TOYOTA PORTALS

OWNER'S MANUAL



THIS USER MANUAL IS FOR THE FOLLOWING TOYOTA MODELS:

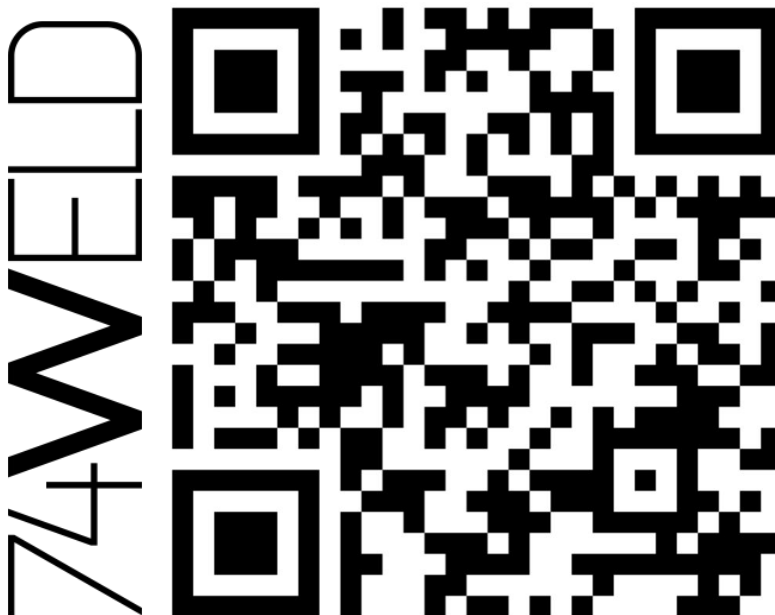
- 2024+ Tacoma
- 2025+ 4Runner
- 2024+ LC250
- 2024+ GX550
- 2022+ Tundra
- 2022+ Sequoia
- 2025+ LX700h

For older models, visit our instructions page and see the “Toyota” instructions manual.

Thank you for purchasing from 74Weld. Should you require support, please contact us at the following number.

74Weld Support: 1-619-286-6656

VIDEOS AND EXTRA INFO





IMPORTANT INFORMATION

READ PRIOR TO INSTALLATION

This product has been designed for proper fitment and function with your vehicle's original equipment. 74Weld does not guarantee proper fitment and function with third party aftermarket components.

Post-install, cycle your suspension to ensure components move freely, without binding or collision. Binding and collision of suspension components can result in mechanical failures, serious injury and death.

DO NOT over torque suspension components

DO NOT strike 74 Weld aluminum components. In the event that removal of a tapered connection is required, use a pickle fork or tie rod/ball joint separator.

WARNING: This manual describes installation for a left hand drive vehicle. Driver and passenger are used to describe positions on a left hand drive vehicle.

WARNING: Improper use or installation of this product can cause mechanical failures that may result in serious injury or death.

WARNING: Only perform this installation if you are a qualified mechanic with adequate equipment

WARNING: Wear safety glasses and personal protective equipment as-required to prevent injury



ORDER OF OPERATIONS

READ PRIOR TO INSTALLATION

This manual details 74 Weld portal installation, operation and maintenance procedures. Every step is critical. The installation procedure is structured as follows.

- ☐ **Kit Bill of Materials** - please review before you begin to ensure all necessary components are present.
- ☐ **Required Tools and Consumables** - please review before you begin to ensure you have all of the required tools and consumables.
- ☐ **Brake Bleed Preparation Notes** - Pretty please just take the time to review our instructions before you begin. Even if you have bled brakes many times, our suggestions will save you headaches.
- ☐ **Brake Bracket Installation**
- ☐ **Portal Installation**
- ☐ **Brake Bleed**
- ☐ **First Oil Fill and Break In**
- ☐ **Regular Maintenance - Oil Change Procedure**
- ☐ **Additional Information** (Troubleshooting, Replacement Parts ETC.)

KIT BILL OF MATERIALS

TOYOTA KITS

Depending on the year, trim and options of your Toyota, you will have received one of the following portal axle kits:

KIT	COMPATIBILITY
74W-4G-1.22-N400-30SPL-SET	4TH GENERATION TACOMA (2024+) NON TRD PRO AND 2024+ LAND CRUISER 250
74W-4G-1.22-XK70-36SPL-SET	2022+ TOYOTA TUNDRA AND 2023+ TOYOTA SEQUOIA WITH 36 SPLINE REAR END
74W-4G-1.22-XK70-32SPL-SET	2022+ TOYOTA TUNDRA WITH 32 SPLINE REAR END
74W-4G-1.22-GX550-SET	2024+ LEXUS GX550
74W-4G-1.22-LX700-SET	2025+ LEXUS LX700

The table below describes the collection of assemblies and kits that are included in your vehicle specific portal kit.

ITEM	74W-4G-1.22-N400-30SPL-SET	74W-4G-1.22-XK70-36SPL-SET	74W-4G-1.22-XK70-32SPL-SET
1	74W-4G-1.22-N400-FD	74W-4G-1.22-XK70-FD	74W-4G-1.22-XK70-FD
2	74W-4G-1.22-N400-FP	74W-4G-1.22-XK70-FP	74W-4G-1.22-XK70-FP
3	74W-4G-1.22-N400-RD	74W-4G-1.22-N400-RD	74W-4G-1.22-N400-RD
4	74W-4G-1.22-N400-RP	74W-4G-1.22-N400-RP	74W-4G-1.22-N400-RP
5	74W-N400-SHFT-30SPL-SET	74W-TNGA-SHFT-36SPL-SET	74W-TNGA-SHFT-32SPL-SET-B
6	74W-4G-1.22-N400-KIT-BRAKE-F	74W-4G-1.22-XK70-KIT-BRAKE-F	74W-4G-1.22-XK70-KIT-BRAKE-F
7	74W-4G-1.22-TNGA-KIT-BRAKE-R	74W-4G-1.22-TNGA-KIT-BRAKE-R	74W-4G-1.22-TNGA-KIT-BRAKE-R
8	74W-4G-1.22-N400-KIT-INSTALL	74W-4G-1.22-XK70-KIT-INSTALL	74W-4G-1.22-XK70-KIT-INSTALL

ITEM	74W-4G-1.22-GX550-SET	74W-4G-1.22-LX700-SET
1	74W-4G-1.22-GX550-FD	74W-4G-1.22-LX700-FD
2	74W-4G-1.22-GX550-FP	74W-4G-1.22-LX700-FP
3	74W-4G-1.22-N400-RD	74W-4G-1.22-N400-RD
4	74W-4G-1.22-N400-RP	74W-4G-1.22-N400-RP
5	74W-TNGA-SHFT-32SPL-SET-A	74W-TNGA-SHFT-32SPL-SET-A
6	74W-4G-1.22-XK70-KIT-BRAKE-F	74W-4G-1.22-LX700-KIT-BRAKE-F
7	74W-4G-1.22-TNGA-KIT-BRAKE-R	74W-4G-1.22-TNGA-KIT-BRAKE-R
8	74W-4G-1.22-GX550-KIT-INSTALL	74W-4G-1.22-LX700-KIT-INSTALL

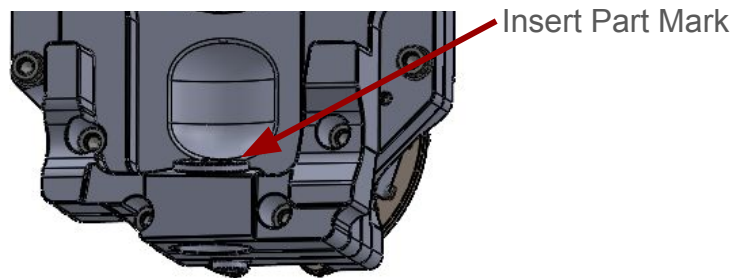
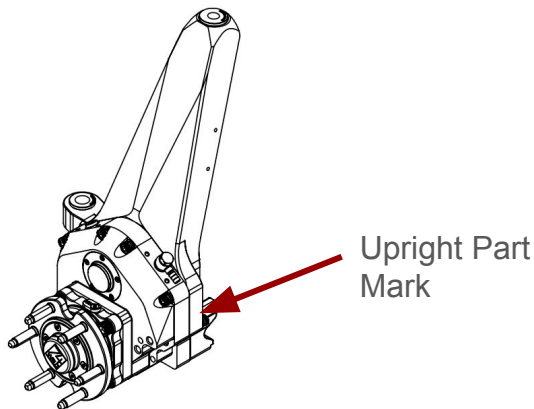
BOMs are included on the following pages. Please review BOMs and ensure you have received all required components prior to portal installation.

KIT BILL OF MATERIALS

CORNER ASSEMBLIES

There are four different pairs of front portal assemblies

- **N400**
 - 2024+ Tacoma, 2024+ LC250
 - Features
 - Upright Marked N400 (N400 lower ball joint insert)
 - 30 Spline Upper Gear
- **GX550**
 - 2024+ GX550
 - Features
 - Upright Marked N400 (N400 lower ball joint insert)
 - 34 Spline Upper Gear
- **LX700**
 - 2025+ LX700
 - Features
 - Upright Marked N400 (N400 lower ball joint insert)
 - 36 Spline Upper Gear
- **XK70**
 - 2022+ Tundra, 2022+ Sequoia
 - Features
 - Upright Marked XK70 (XK70 lower ball joint insert)
 - 36 Spline Upper Gear



All kits will include the following rear portal assemblies

- 74W-4G-1.22-TNGA-RD
- 74W-4G-1.22-TNGA-RP

KIT BILL OF MATERIALS

SHAFT SETS

Your portal kit will include two equal length shafts. The length will depend on your vehicle, see table below. The digits at the end of each shaft part number indicate the end-to-end length of the shaft. Check shaft lengths prior to installation.

74W-TNGA-SHFT-SET							
DESCRIPTION: SHAFT SET, TOYOTA NEW-GEN ARCHITECTURE REVISION: - DATE: 4/28/25							
ITEM	PART NUMBER	DESCRIPTION	-N400-30SPL	-N400-32SPL	-XK70-36SPL	-XK70-34SPL	-GX550
1	74W-TACO-SHFT-R-32SP L-33.53	SHAFT, REAR UPPER, 24 TACOMA TRD PRO, NGA LC300, LEFT AND RIGHT	-	2	-	-	2
2	74W-TACO-SHFT-R-32SP L-34.89	SHAFT, REAR UPPER, 22 TUNDRA, 32 SPLINE DIFF, LEFT AND RIGHT	-	-	-	2	-
3	74W-TNGA-SHFT-R-36SP L-34.89	SHAFT, REAR UPPER, TNGA 36 SPLINE TUNDRA AND SEQUOIA, L & R	-	-	2		
4	74W-YOTA-SHFT-R-30SP L-33.70	SHAFT, REAR UPPER, 2024 TACOMA TRD OFF ROAD WITH 8.2" REAR END	2	-	-	-	-

KIT BILL OF MATERIALS

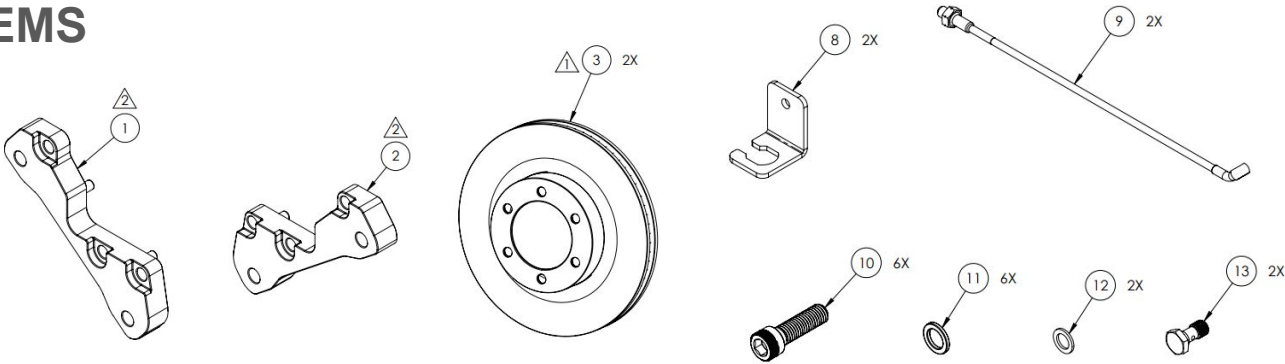
FRONT BRAKE KIT

Depending on your vehicle, you will either receive a -N400, -XK70, or LX700 front brake kit.

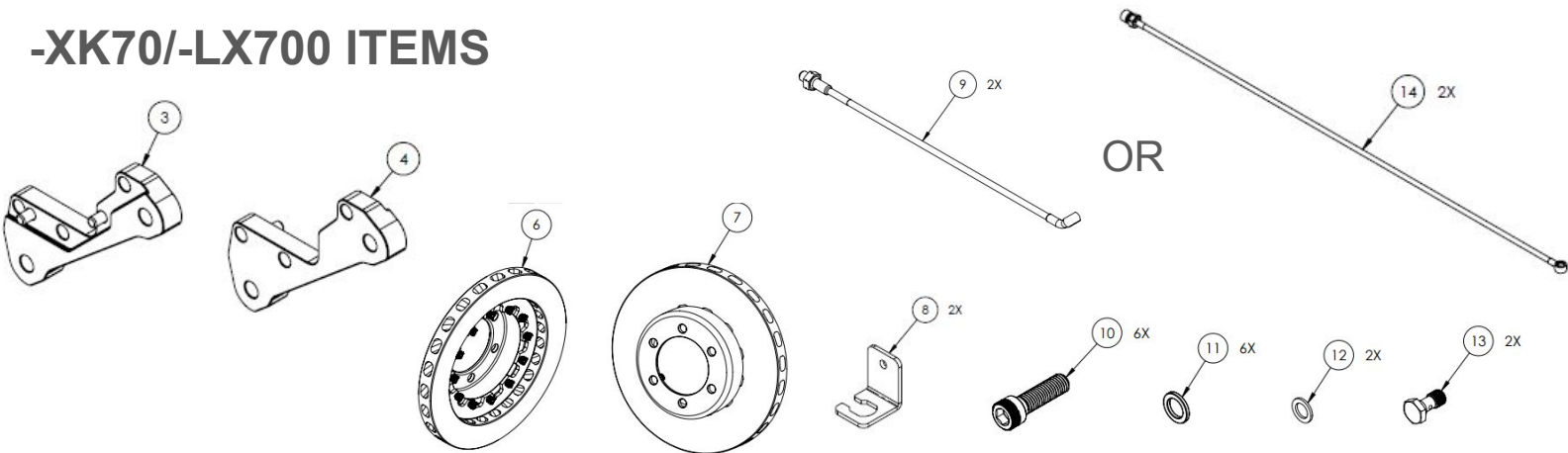
74W-4G-1.22-TNGA-KIT-BRAKE-F

DESCRIPTION: BRAKE KIT, TOYOTA NEW-GEN ARCHITECTURE, 6 LUG, FRONT REVISION: - DATE: 7/25/25					
ITEM	PART NUMBER	DESCRIPTION	-N400	-XK70	-LX700
1	74W-4G-1.22-N400-UBB-FPA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, 2024 TACOMA, FRONT PASSENGER	1	-	-
2	74W-4G-1.22-N400-UBB-FDA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, 2024 TACOMA, FRONT DRIVER	1	-	-
3	74W-4G-1.22-XK70-UBB-FPA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, TUNDRA/SEQUOIA, FRONT PASSENGER	-	1	1
4	74W-4G-1.22-XK70-UBB-FDA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, TUNDRA/SEQUOIA, FRONT DRIVER	-	1	1
5	74W-RTR-13.31X1.26	ROTOR, 4RUNNER, 6 LUG, 13.31" DIAMETER, 1.26" THICK	2	-	-
6	74W-XK70-RTR-FP	ROTOR ASSEMBLY, TUNDRA/SEQUOIA, FRONT PASSENGER, 6 ON 5.5	-	1	1
7	74W-XK70-RTR-FD	ROTOR ASSEMBLY, TUNDRA/SEQUOIA, FRONT DRIVER, 6 ON 5.5	-	1	1
8	74W-N400-BL-BRKT	BRACKET, BRAKE CABLE, 2024 TACOMA	2	2	2
9	74W-BL-YOTA-F	BRAKE LINE, TOYOTA, FRONT, 45DEG M10 BANJO TO 3AN	2	2	-
10	BT-073	SCREW, SHCS, M12 X 1.75 X 40MM LG, ALLOY STEEL, ZINC PLATED	6	6	6
11	WS-026	WASHER, FLAT, 12MM SCREW, 20MM OD, GRADE 10.9 STEEL	6	6	6
12	WS-007	CRUSH WASHER, 19.9MM OD, 14.2MM OD, COPPER	4	4	4
13	PS-016	BANJO, BOLT, M10X1.0	2	2	2
14	74W-BL-LX700-F	BRAKE LINE, LX700, FRONT, ONE PIECE	-	-	2

-N400 ITEMS



-XK70/-LX700 ITEMS



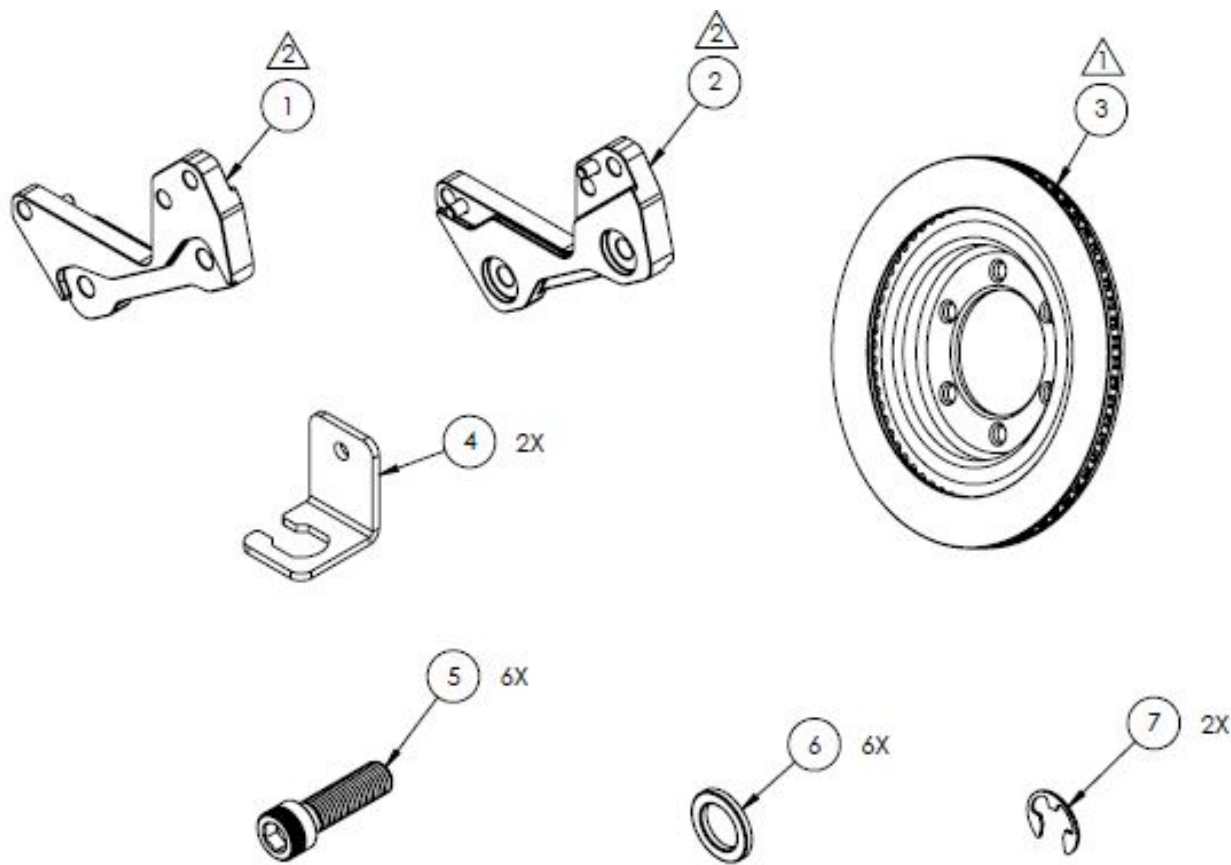
KIT BILL OF MATERIALS

REAR BRAKE KIT

All new gen Toyota portal kits will use rear brake kit
74W-4G-1.22-N400-KIT-BRAKE-R

74W-4G-1.22-N400-KIT-BRAKE-R

DESCRIPTION: BRAKE KIT, TOYOTA NEW-GEN ARCHITECTURE, 6 LUG, REAR REVISION: F DATE: 7/25/25			
ITEM	PART NUMBER	DESCRIPTION	QTY
1	74W-4G-1.22-N400-UBB-RDA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, 2024 TACOMA, REAR DRIVER	1
2	74W-4G-1.22-N400-UBB-RPA	ASSEMBLY, BRAKE BRACKET, UNIVERSAL PORTAL BOX, 2024 TACOMA, REAR PASSENGER	1
3	74W-XK70-RTR-6X5.5-R-1P	ROTOR ASSEMBLY, 2024 TACOMA, REAR DRIVER, 6 ON 5.5	2
4	74W-N400-BL-BRKT	BRACKET, BRAKE CABLE, 2024 TACOMA	2
5	BT-073	SCREW, SHCS, M12 X 1.75 X 40MM LG, ALLOY STEEL, ZINC PLATED	6
6	WS-026	WASHER, FLAT, 12MM SCREW, 20MM OD, GRADE 10.9 STEEL	6
7	RR-004	RETAINING RING, SIDE MNT EXT, 0.625 OD	2



KIT BILL OF MATERIALS

INSTALL KIT (SHEET 1 OF 2)

Depending on kit, you will receive a -N400, -XK70, -GX550, or -LX700 install kit which includes items listed below.

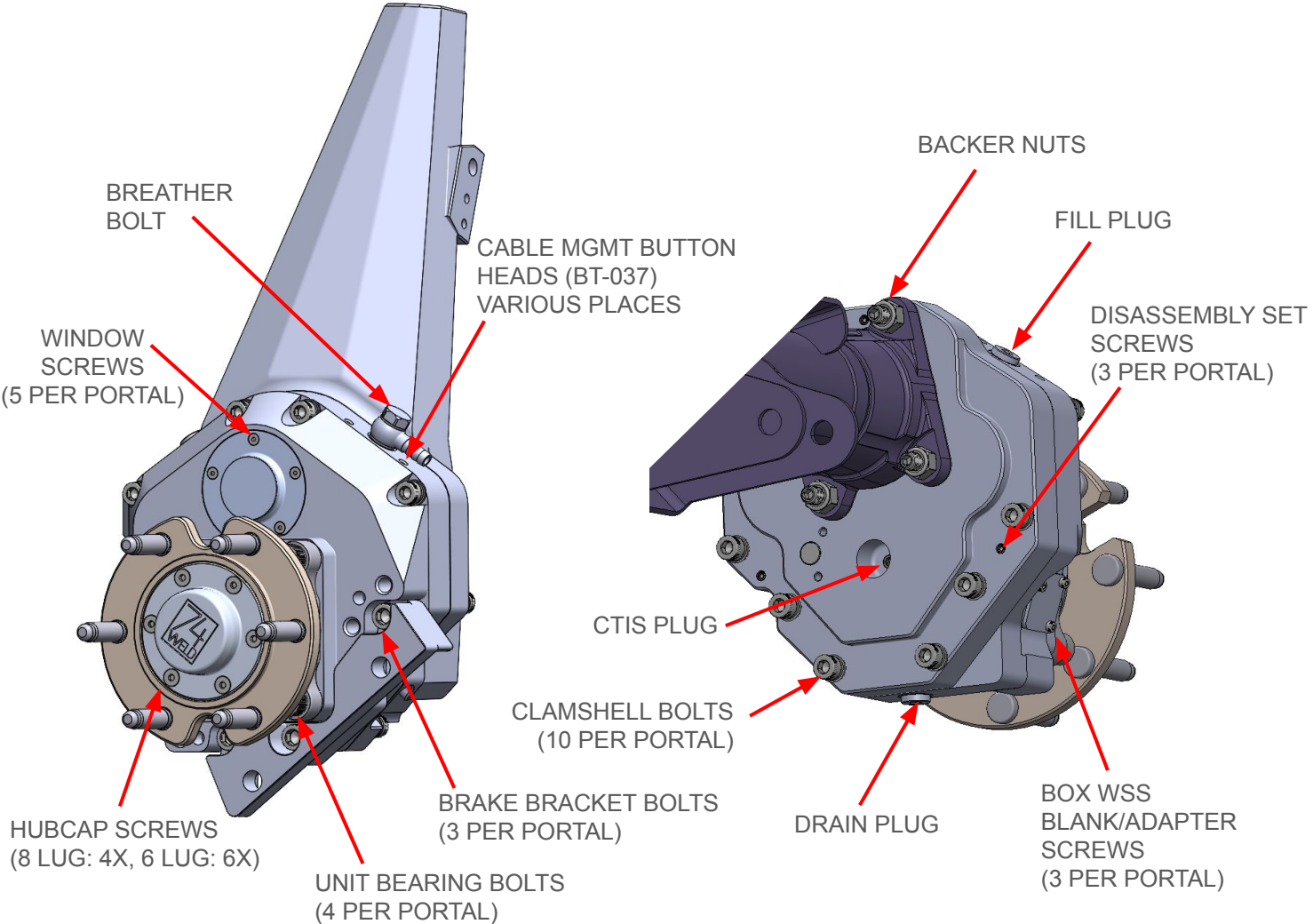
74W-4G-1.22-TNGA-KIT-INSTALL

DESCRIPTION: INSTALL KIT, TOYOTA NEW-GEN ARCHITECTURE REVISION: - DATE: 7/15/2025

ITEM	PART NUMBER	DESCRIPTION	-N400	-XK70	-GX550	-LX700
1	74W-4G-N400-SAW	STEERING ARM WASHER, 2024 TACOMA	2	2	2	2
2	74W-4G-N400-LBJW	LOWER BALL JOINT WASHER, 2024 TACOMA	2	-	2	2
3	74W-4G-XK70-LBJW	LOWER BALL JOINT WASHER, TNGA TUNDRA/SEQUOIA	-	2	-	-
4	74W-TNGA-WSS-ADPT-D	ADAPTER, WHEEL SPEED SENSOR, UNIVERSAL BOX, 4G TNGA, DRIVER	1	1	1	1
5	74W-TNGA-WSS-ADPT-P	ADAPTER, WHEEL SPEED SENSOR, UNIVERSAL BOX, 4G TNGA, PASSENGER	1	1	1	1
6	74W-4G-1.22-YOTA-SS-TOOL	PVC STUB SHAFT CUTTING GAUGE	1	1	1	1
7	74W-YOTA-SPCR-VRING	SPACER, FOR UPPER STUB SHAFT V-RING SEAL	2	-	-	-
8	74W-XK70-SPCR-VRING	SPACER, XK70, FOR V-RING SEAL	-	2	-	2
9	PS-019	OIL CATCH CAN KIT	2	2	2	2
10	74W-MISC-CC-BRKT	BRACKET, REAR CATCH CAN	2	2	2	2
11	SEAL-70 VA V	V-RING SEAL, FKM, 68-73MM ID, 11MM WIDTH	2	-	2	-
12	SEAL-85 VA V	V-RING SEAL, FKM, 83-88MM ID, 11MM WIDTH	-	2	-	2
13	PS-001	BLUE LOCTITE 242, SINGLE USE	1	1	1	1
14	PS-002	RED LOCTITE 263, SINGLE USE	1	1	1	1
15	PS-005	HOSE, EPDM RUBBER, 3/8 ID <u>(Unit of measure FT)</u>	20 FT	20 FT	20 FT	20 FT
16	PS-006	P CLAMP, 3/16" ID, VINYL CUSHION	4	4	4	4
17	PS-007	P CLAMP, 5/8" ID, VINYL CUSHION	4	4	4	4
18	PS-025	HOSE CLAMPS FOR VENT HOSE/BANJO FITTINGS	4	4	4	4
19	PS-75W90	75W90 MAXIMA GEAR OIL	2	2	2	2
20	BT-037	M6X1.0 X 10MM, HEX BUTTON HEAD, 18-8SS	6	6	6	6
21	BT-041	M12X1.75 REAR STUDS	8	8	8	8
22	NT-009	M12X1.75, CLASS 10, ZINC-PLATED, NYLOCK NUT	8	8	8	8
23	NT-024	NUT, FRONT AXLE SHAFT, M32X1.5, FLANGED HEX, TUNDRA/SEQUOIA, MODIFIED	-	2	-	2
24	NT-020	NUT, FRONT AXLE SHAFT, M28X1.5, FLANGED HEX, GX550	-	-	2	-
25	OR-10.5X7.5	O-RING, 10.5MM OD, 7.5M ID, 1.5MM WIDE, BUNA-N, FOR WHEEL SPEED SENSOR	4	4	4	4
26	OR-219	O-RING, DASH 219, BUNA N, FOR N400 FRONT UPPER GEAR	2	-	-	-
27	OR-222	O-RING, DASH 222, BUNA N, FOR XK70 FRONT UPPER GEAR	-	2	-	2
28	OR-220	O-RING, DASH 220, BUNA N, FOR GX550 FRONT UPPER GEAR	-	-	2	-
29	OR-153	O-RING, DASH 153, BUNA N, FOR REAR HOUSING	2	2	2	2
30	RR-002	RETAINING RING, INV EXT, 1.500 OD	2	2	2	2
31	PS-008	COTTER PIN, 1/8" DIAMETER, 1.25" LONG	4	4	4	4
32	PS-031	12 GA WIRE, WHITE JACKET	19 IN	19 IN	19 IN	19 IN
33	PS-032	12 GA WIRE, BLUE JACKET	19 IN	19 IN	19 IN	19 IN
34	PS-033	WIRE LOOM SPLIT TUBING, 1/2" DIA	19 IN	19 IN	19 IN	19 IN
35	PS-034	BUTT SPLICE CONNECTOR, 10-12 GA, INSULATED	8	8	8	8
36	PS-035	20 GA WIRE, WHITE JACKET	19 IN	19 IN	19 IN	19 IN
37	PS-036	20 GA WIRE, BLUE JACKET	18 IN	18 IN	18 IN	18 IN
38	PS-037	BUTT SPLICE CONNECTOR, 16-22 GA, INSULATED	8	8	8	8
39	PS-038	WIRE LOOM SPLIT TUBING, 1/4" DIA, BLACK	19 IN	19 IN	19 IN	19 IN

TOOLS, CONSUMABLES, TORQUE SPECS (1 OF 3)

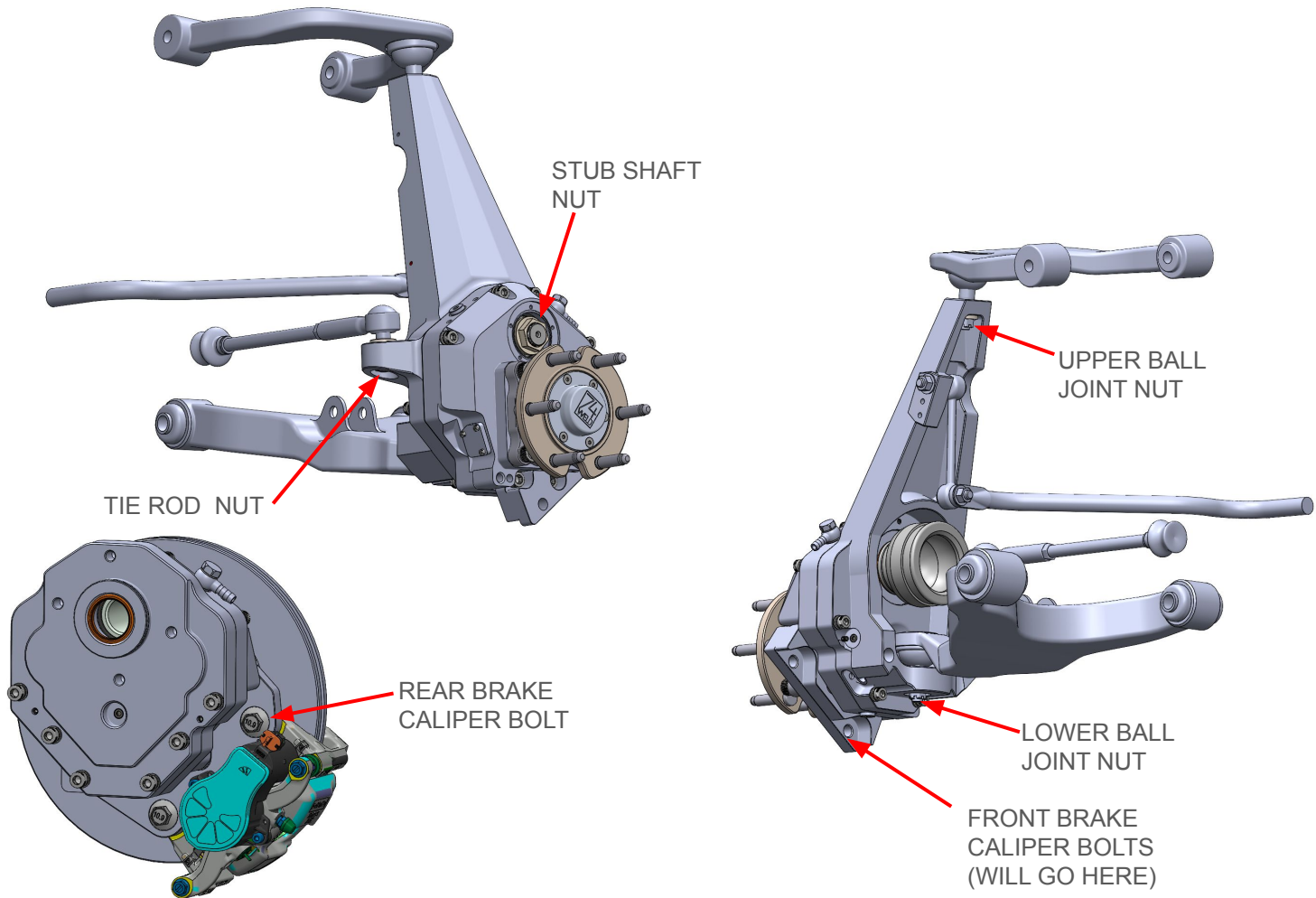
TOOLS REQUIRED - COMMON TO ALL PORTALS					
HARDWARE	TOOL	SIZE	COMPOUND	TORQUE VALUE	TORQUE UNIT
BREATHER BOLT	SOCKET	19 MM	-	10	FT-LBS
BACKER NUTS	SOCKET	19 MM	-	70	FT-LBS
UNIT BEARING BOLTS	ALLEN	12 MM	LOCTITE 263	110	FT-LBS
BRAKE BRACKET BOLTS	ALLEN	10 MM	LOCTITE 263	65	FT-LBS
CLAMSHELL BOLTS	ALLEN	8 MM	LOCTITE 263	30	FT-LBS
DRAIN & FILL PLUG	ALLEN	6MM	-	10	FT-LBS
HUBCAP - 6 LUG	ALLEN	4 MM	LOCTITE 242	5	FT-LBS
CABLE MGMT BUTTON HEADS	ALLEN	4 MM	LOCTITE 242	5	FT-LBS
HUBCAP - 8 LUG	ALLEN	5/32"	LOCTITE 242	4	FT-LBS
BOX WSS BLANK/ADAPTER	ALLEN	3 MM	LOCTITE 263	19	IN-LBS
DISASSEMBLY SET SCREWS	ALLEN	3 MM	-	-	-
WINDOW SCREWS	ALLEN	2.5 MM	LOCTITE 242	8-12	IN-LBS
CTIS PLUG	ALLEN	3/16"	TEFLON TAPE	7	IN-LBS
SNAP RINGS	SNAP RING PLIERS	-	-	-	-



TOOLS, CONSUMABLES, TORQUE SPECS (2 OF 3)

TNGA INSTALLATION FASTENERS AND TOOLS					
HARDWARE	TOOL	SIZE	COMPOUND	TORQUE VALUE	TORQUE UNIT
STUB SHAFT NUT	SOCKET	SEE * NOTE	LOCTITE 263	105	FT-LBS
UPPER BALL JOINT NUT	SOCKET	19 MM	COTTER PIN	92	FT-LBS
LOWER BALL JOINT NUT	SOCKET	24 MM	COTTER PIN	117	FT-LBS
TIE ROD & DRAG LINK NUT	SOCKET	24 MM	COTTER PIN	89	FT-LBS
FRONT BRAKE CALIPER	SOCKET	19 MM		151	FT-LBS
REAR BRAKE CALIPER	SOCKET	19 MM		90	FT-LBS
FRONT WHEEL SPEED SENSOR	ALLEN	5 MM		HAND TIGHT	-
REAR WHEEL SPEED SENSOR	SOCKET	10 MM		HAND TIGHT	-
FRONT BLEED SCREW	BOX WRENCH	8 MM		HAND TIGHT	-
REAR BLEED SCREW	BOX WRENCH	8 MM		HAND TIGHT	-

*30 and 34 spline front ends will require a 35mm socket. 36 Spline front ends will require a 39mm **12 point**, thin wall, socket. The socket will need to fit inside of a 2.1” hole.



TOOLS, CONSUMABLES, TORQUE SPECS (3 OF 3)

Generic Tools

General tools required for this install include but are not limited to

- Hammer
- Cut off wheel
- Pry bar
- Torque wrench capable of 150 ft-lbs
- Pliers
- Vehicle Lift or jack and jackstands
- Brake line clamps or vise grips

Consumables

- 40 oz 75W-90 GL-5 Gear Oil
- Loctite 263 (provided in kit)
- Loctite 243 (provided in kit)
- Assembly grease
- Oil to top off the rear axle - see vehicle manufacturer's specification
- Brake fluid to top off reservoir - see vehicle manufacturer's specification
- RTV Silicone Adhesive (Jeep JL & JT only)
- Teflon Tape

!! LUG NUT NOTE !!

74Weld portal hubs are equipped with M14 X 1.5 wheel studs. Prior to installation, ensure that you have M14 X 1.5 lug nuts on-hand.

!! TAPER TOOL NOTE !!

We recommend purchasing a separator tool in the event that separating tapered connections is required. Ball joint and tie rod separators are readily available at automotive retailers or a specialty separator tool can be purchased from 74Weld.

IMPORTANT: BRAKE BLEED PREPARATION NOTES

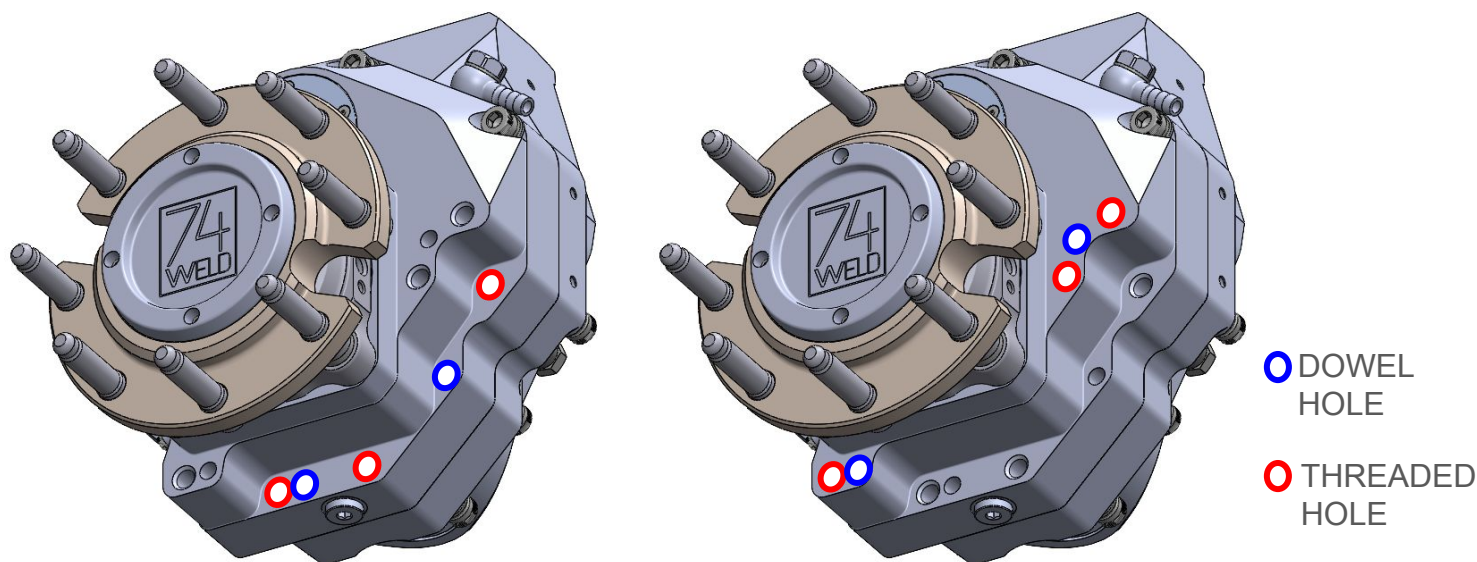
This kit includes extended brake lines which means that post-install the brake system will need to be bled.

Newer vehicles have been observed to be more sensitive to changes to the brake system. Some vehicles even have a “brake maintenance mode” that can be activated at the dash. We have found the following procedure to be effective without the use of brake maintenance modes.

1. Lift and support the vehicle
2. Once the vehicle is in the intended workspace (lift or on jack stands) disengage the parking brake and turn the vehicle off. Check that the parking brake is off at this time by rotating a rear tire.
 - a. *Note: some vehicles that are equipped with an electronic parking brake will automatically engage the brake when the vehicle is in park or turned off. In this situation*
 - i. *Have one person in the driver's seat turn the vehicle on, depress and hold the brake pedal, disengage the parking brake, put the vehicle in neutral*
 - ii. *Have a second person disconnect the wiring harnesses to both rear brake calipers*
 - iii. *Have the first person put the vehicle in park and turn the vehicle off*
3. Disconnect the negative battery terminal and leave it disconnected for the remainder of the install
4. Perform the installation per this manual, but leave the brake bleeding until the end. This way you can be sure that the brake lines are routed properly prior to bleeding and you will not have to bleed twice due to a re-route.
 - a. *Note: During install, some or all factory brake lines will be removed. Use brake hose clamps or vise grips to clamp upstream soft lines to keep brake fluid from continually leaking during install activity.*
 - b. **NOTE: DO NOT LET YOUR MASTER CYLINDER RUN DRY.** *Periodically check the fluid level in your reservoir and top off as required.*
5. Bleed brakes per procedure in this instruction
6. Reconnect negative battery terminal
 - a. *If you had previously disconnected your electronic parking brake caliper wiring harnesses, ensure they are plugged in prior to reconnecting the battery terminal.*

BRAKE BRACKET INSTALLATION (1 OF 2)

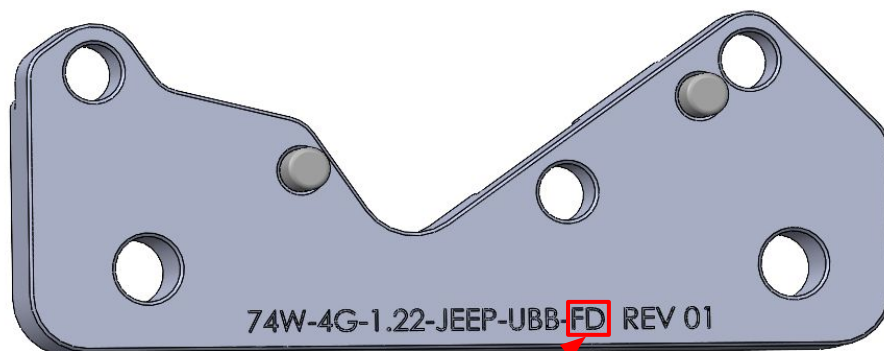
Each portal has a “lower” and “upper” brake bracket hole pattern. Each hole pattern consists of two dowel holes and three threaded holes.



“LOWER” HOLE PATTERN”

“UPPER” HOLE PATTERN”

Your portal kit will include front and rear brake brackets. They are engraved with part numbers that specify which corner they belong to. Brackets include dowels that are spaced such that they can only be installed to the correct hole pattern.



FD: Front Driver
RD: Rear Driver

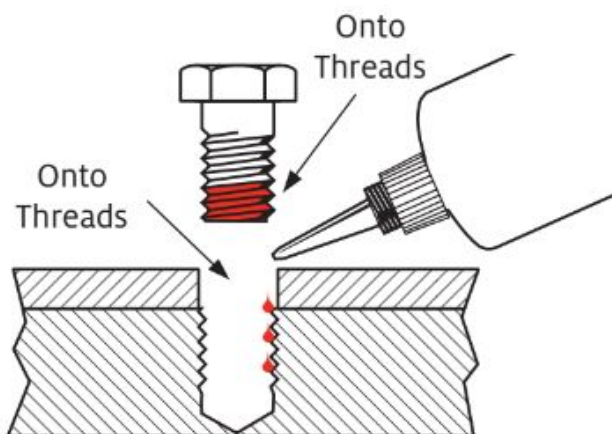
FP: Front Passenger
RP: Rear Passenger

BRAKE BRACKET INSTALLATION (2 OF 2)

Locate M12 brake bolts (BT-073) and M12 washers (WS-026) supplied with your kit. Place one washer on each brake bolt.

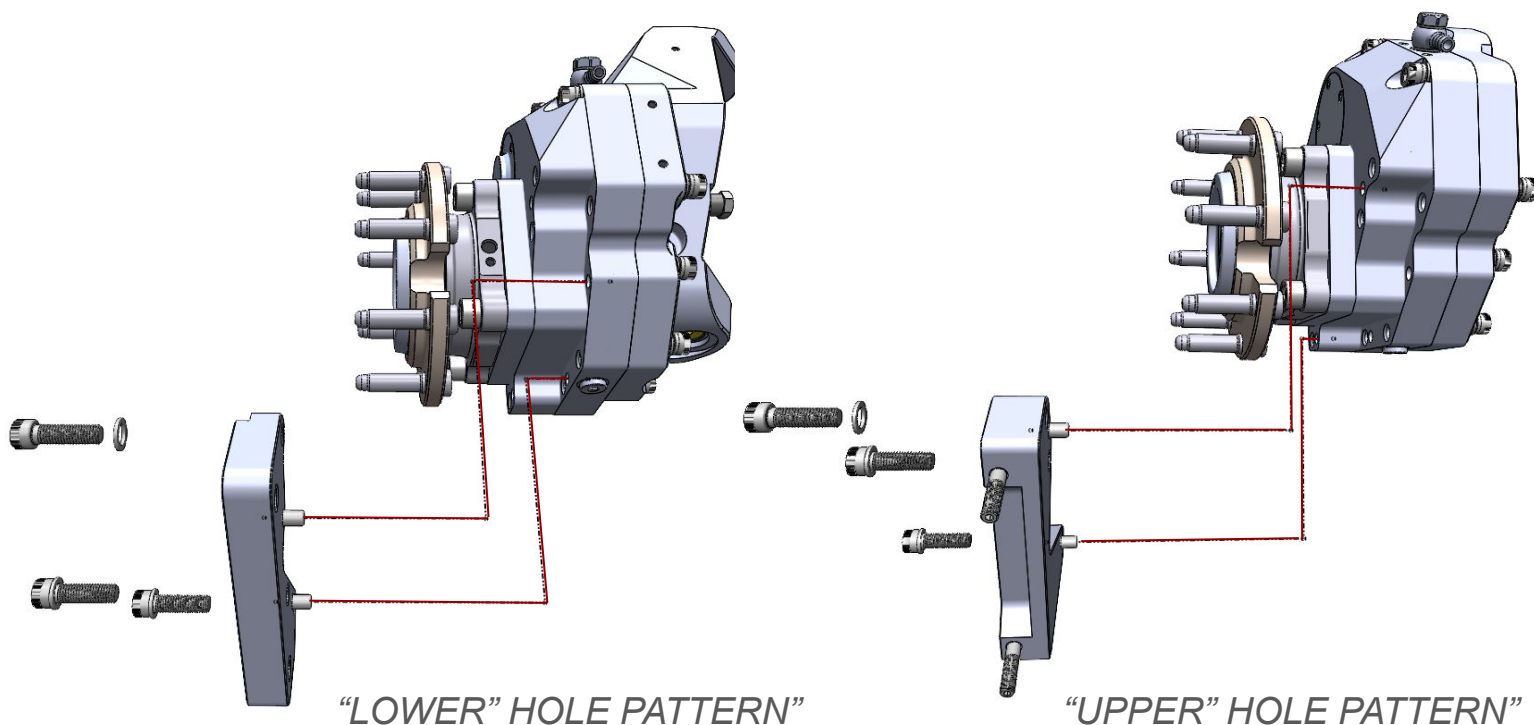
Apply red loctite 263 to the threads on the tip of each brake bolt AND into the threaded brake pattern holes on the portal box.

BLIND HOLES (CAP SCREWS, ETC.)



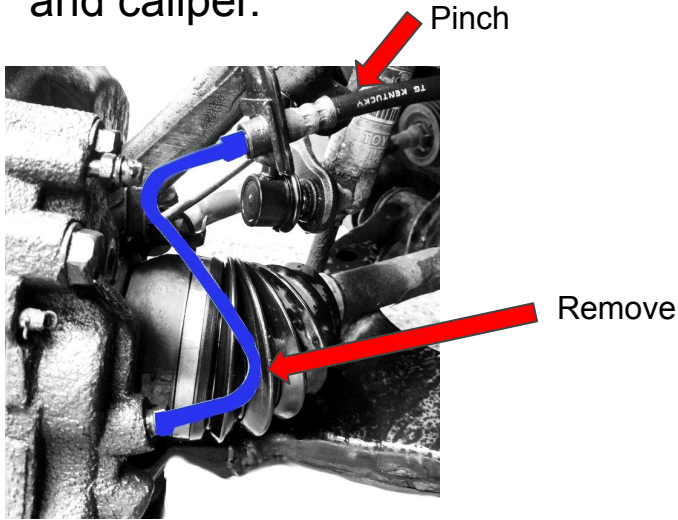
Install brake brackets onto corresponding portal boxes by piloting the dowels on the brackets into the dowel holes on the portal box.

Thread brake bolts into portal box and torque to **65 ft-lbs**



INSTALLATION - FRONT END DISASSEMBLY

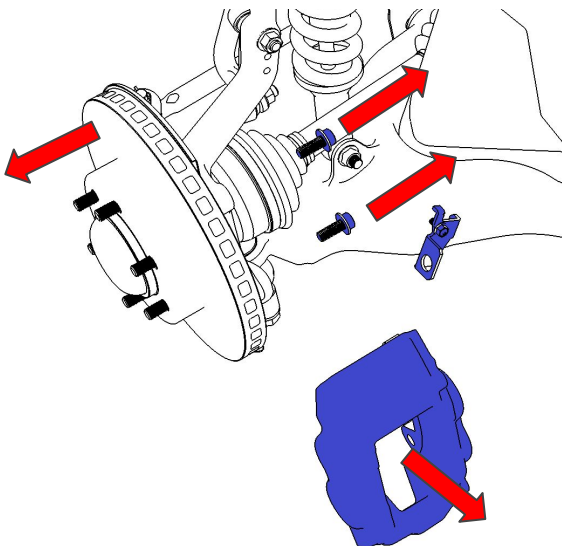
- ❑ Lift and support the vehicle.
- ❑ Remove the wheels and tires from the vehicle.
- ❑ Clamp soft line between chassis and upright with vise grips or brake line clamp. Remove the hard line between the chassis and caliper.



- ❑ Remove brake calipers and rotors.

Save Caliper bolts.

4Runner - Save Calipers



- ❑ Remove abs sensor and cable management brackets from upright. Take care not to crush or kink sensor cable. Remove sensor cable retaining bracket from upright

Save Sensor Screw



INSTALLATION - FRONT END DISASSEMBLY

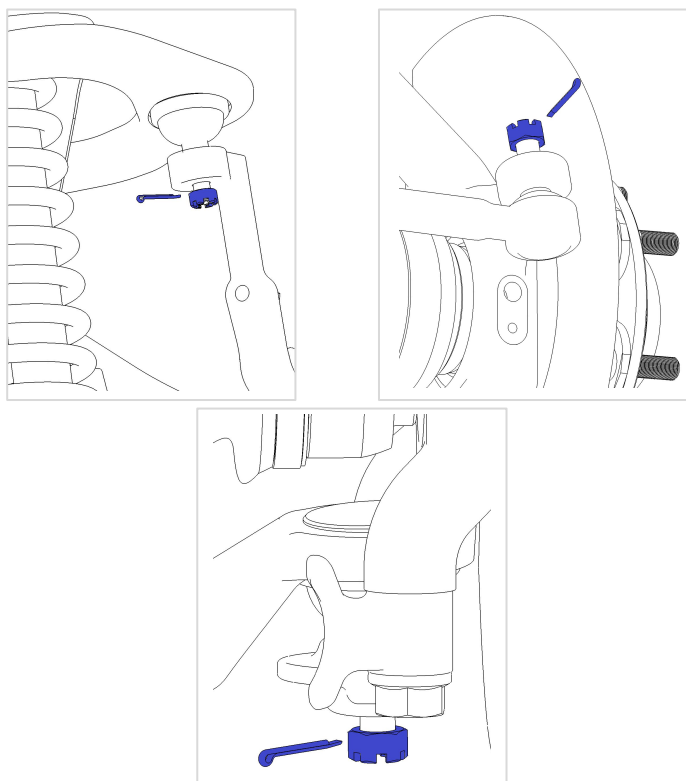
Save Spindle Nut



- ❑ Pry hubcap from bearing hub and remove the cotter pin from the spindle nut. Remove spindle nut. Thread spindle nut onto stub shaft backwards and tap to unseat stub axle shaft from the unit bearing.

Save Spindle Nut

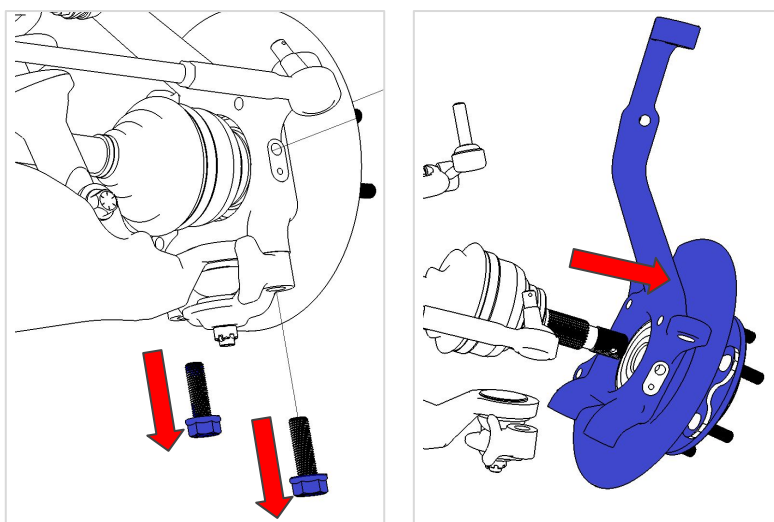
- ❑ Loosen tie rod, upper ball joint and lower ball joint nuts. Keep nuts partially threaded on ball joint studs. Break tapers.



- ❑ Remove upper ball joint and tie rod nuts, then remove steering stop bolts in order to separate the upright from the suspension.

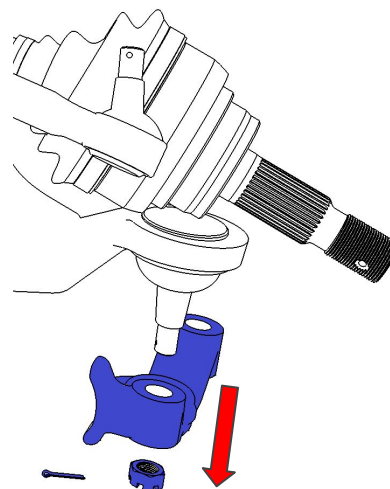
Save Tie Rod Nut

Save Upper Ball Joint Nut



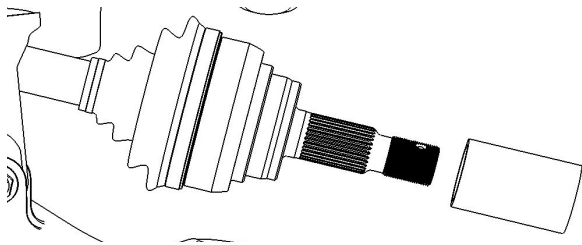
- ❑ Remove lower ball joint nut to separate steering stop attachment from the lower control arm.

Save Lower Ball Joint Nut

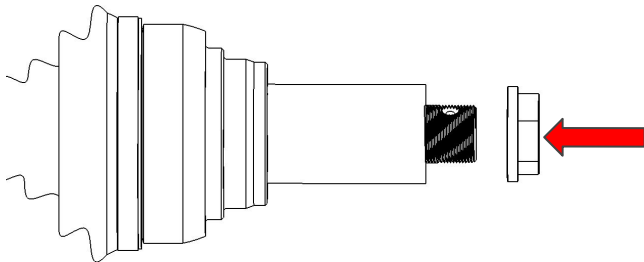


INSTALLATION - STUB SHAFT MODIFICATION

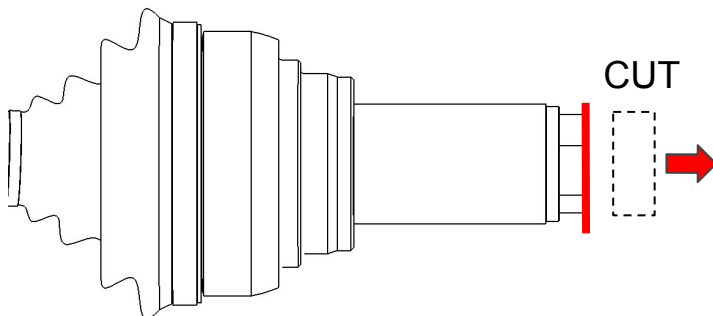
The front stub shafts will need to be trimmed down to fit within the portal box.



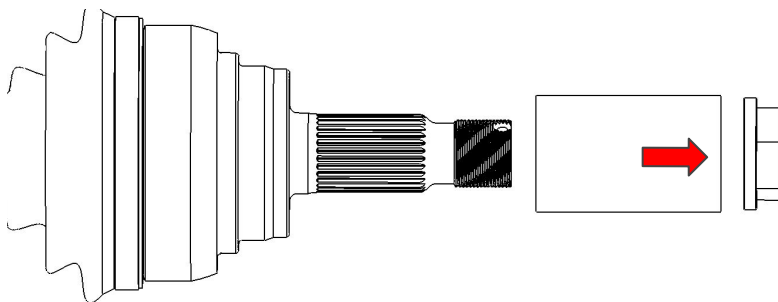
Slide shaft cutting tool from install kit onto stub shaft



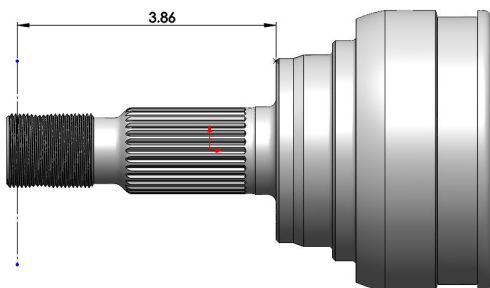
Secure shaft cutting tool with spindle nut



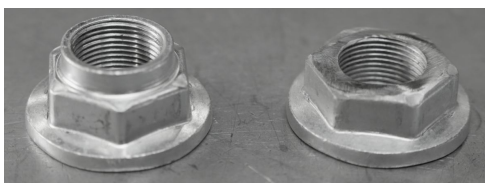
Cut the end of the stub shaft off such that it is flush with the nut. This will allow the sub shaft to fit within the portal assembly.



Remove the nut and cutting tool from the stub shaft. It is important to cut the shaft with the nut installed as removing the nut will clean the threads.



If you have an aftermarket nut, cut the stub shaft to a length between 3.75 & 3.86" from the shaft thrust face



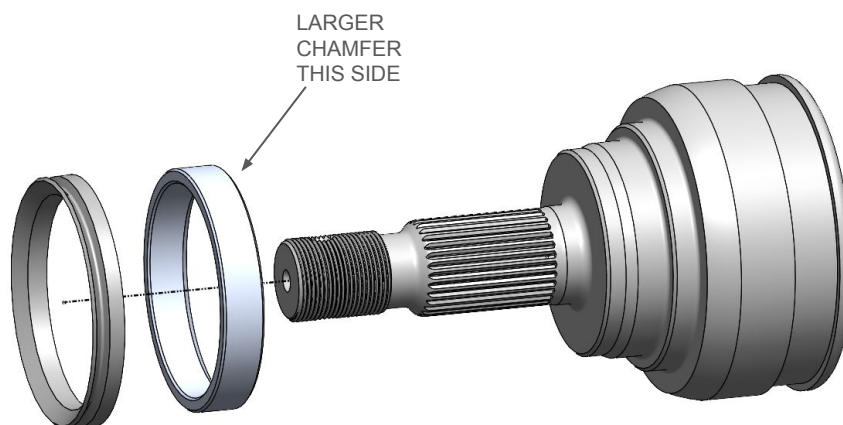
30 spline front ends, trim the end of the nut flush with the hex. On 34 and 36 spline front ends, nuts are included.

INSTALLATION - STUB SHAFT V RING SEAL

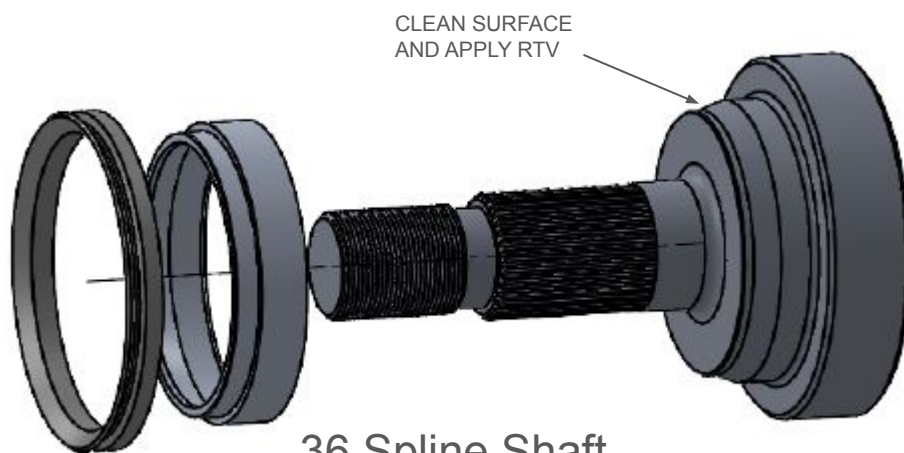
V-Ring seals can provide additional protection to the input seal from dirt and debris.

On 30 and 36 spline front ends, your installation kit includes two spacer rings and two v-ring seals. Slide the spacer onto the stub shaft shoulder and then stretch the v-ring seal over the stub shaft shoulder. On 36 spline shafts the spacers must be secured to the shaft using RTV. Spacer rings are not required on 34 spline front ends. V-ring seals stretch directly onto the shaft.

The lip of the seal should be facing the threads on the stub shaft. Grease the sealing lip with assembly grease.



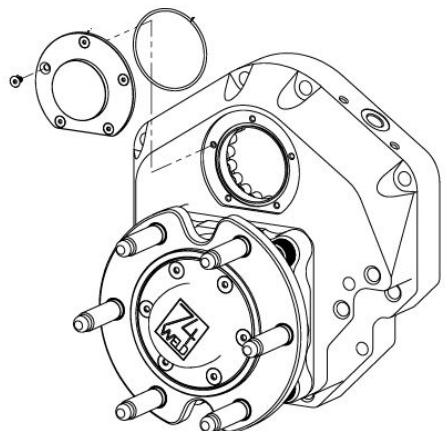
30 Spline Shaft



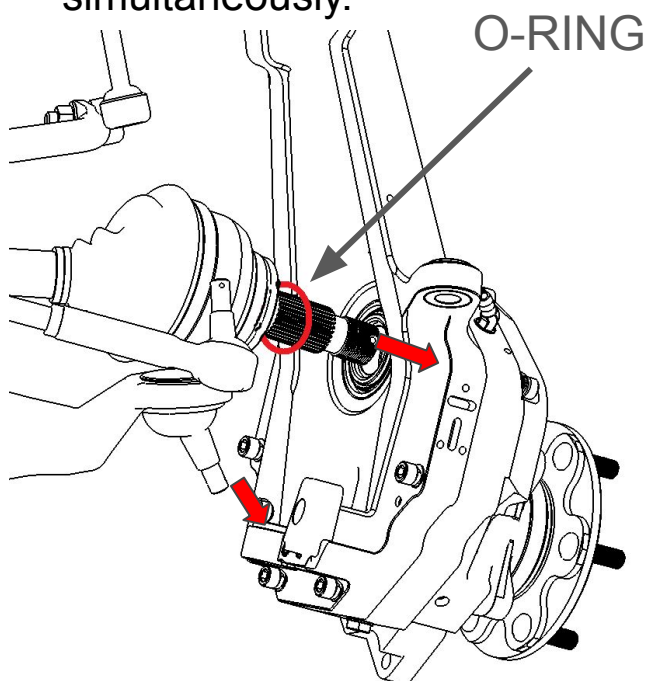
36 Spline Shaft

INSTALLATION - FRONT PORTAL

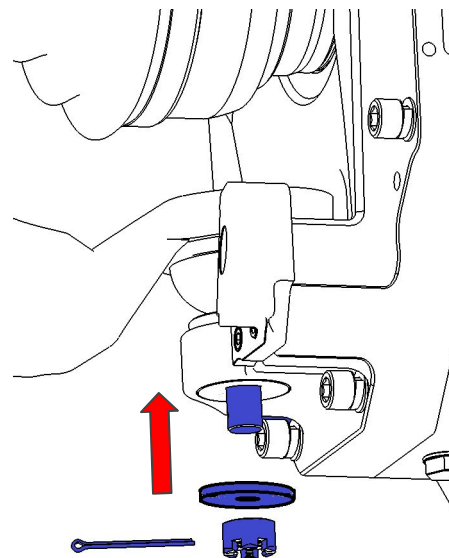
- ❑ Locate front portal box, front o-rings and washers.
- ❑ Remove the front portal box window. Do not lose o-ring.



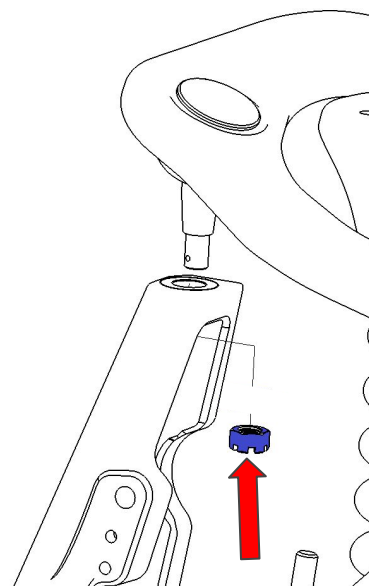
- ❑ **IMPORTANT** Grease and slide o-ring from install kit onto stub shaft. Depending on kit, it will be OR-219, OR-220 or OR-222
- ❑ Maneuver portal to slide lower ball joint and stub shaft into portal simultaneously.



- ❑ Install lower ball joint washer from install kit to lower ball joint stud. Reuse lower ball joint castle nut and torque to 117 ft-lbs. Install new cotter pin.



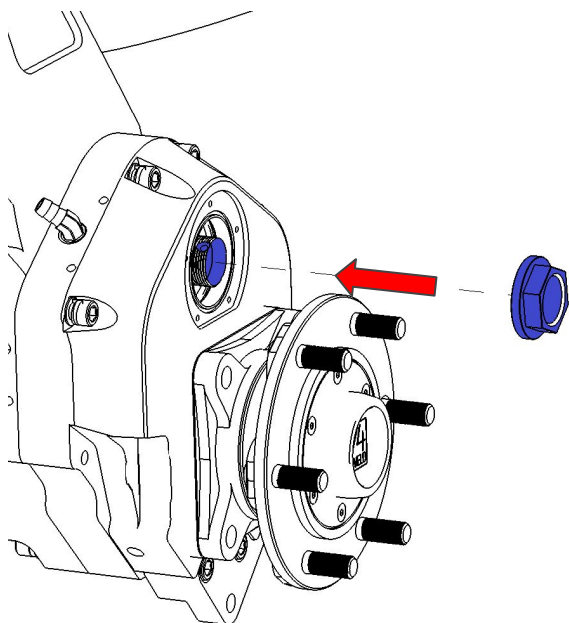
- ❑ Reuse upper ball joint castle nut and torque to 92 ft-lbs. Install new cotter pin.



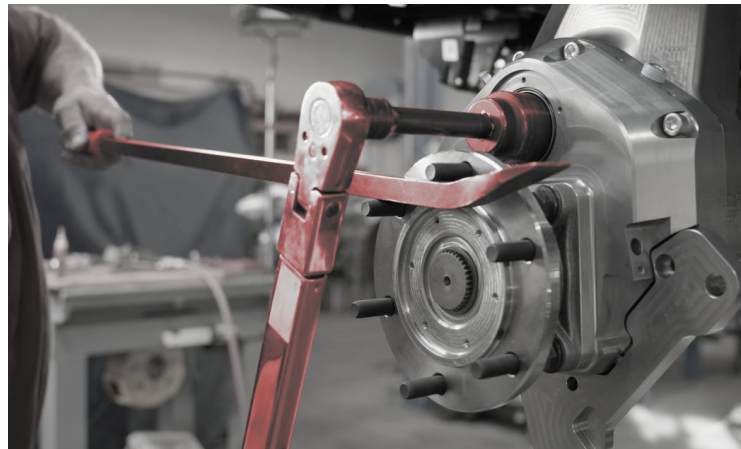
INSTALLATION - FRONT PORTAL

- ❑ Install steering arm washer from install kit to outer tie rod stud. The tie rod will be rotated 180 degrees and be installed from the top of the steering arm. Reuse tie rod nut and torque to 89 ft-lbs. Install new cotter pin.

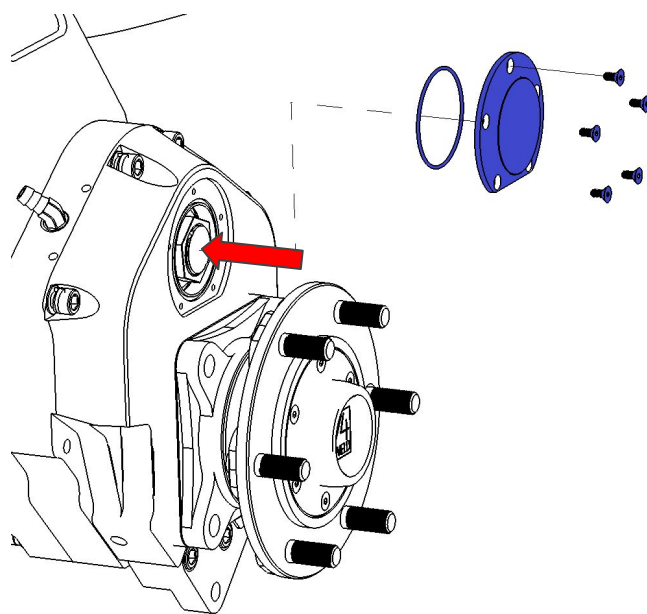
- ❑ Apply loctite 263 to threads on the stub shaft and into the threads on the factory stub shaft nut. Torque nut to 105 ft-lbs. On 34 spline front ends, deform the end of the nut into the groove on the axle shaft.



- ❑ Use a pry bar as-required to keep gears from rotating when torquing.



- ❑ Grease window o-ring and Re-install window.

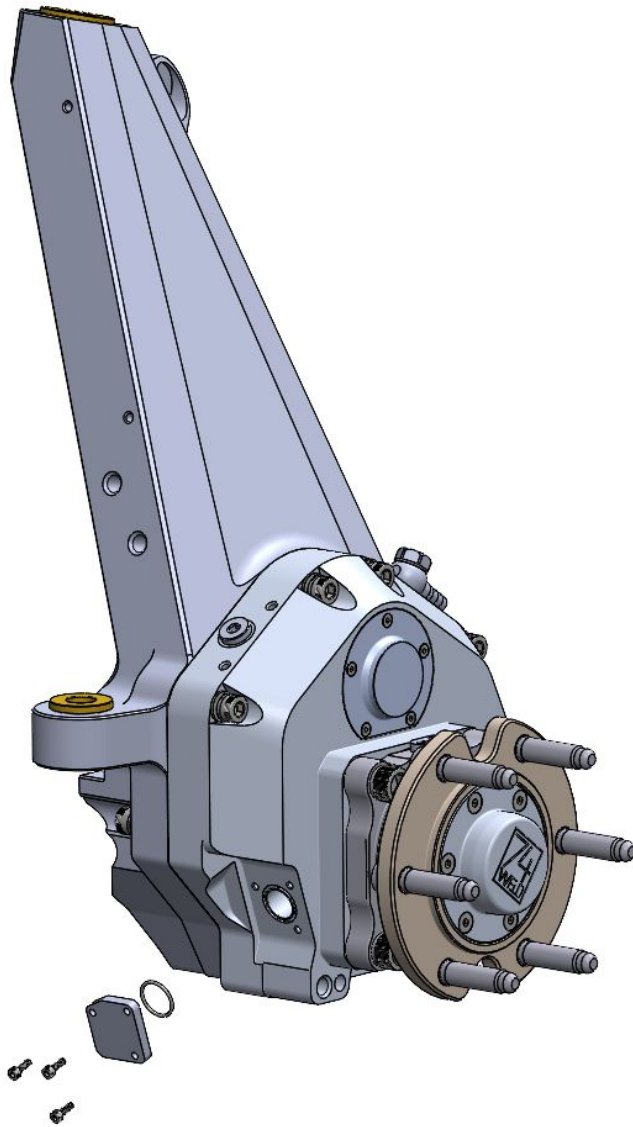


- ❑ If brake brackets have not yet been installed, do so at this time. See "Brake Bracket Installation" section earlier in this manual.

INSTALLATION - FRONT PORTAL

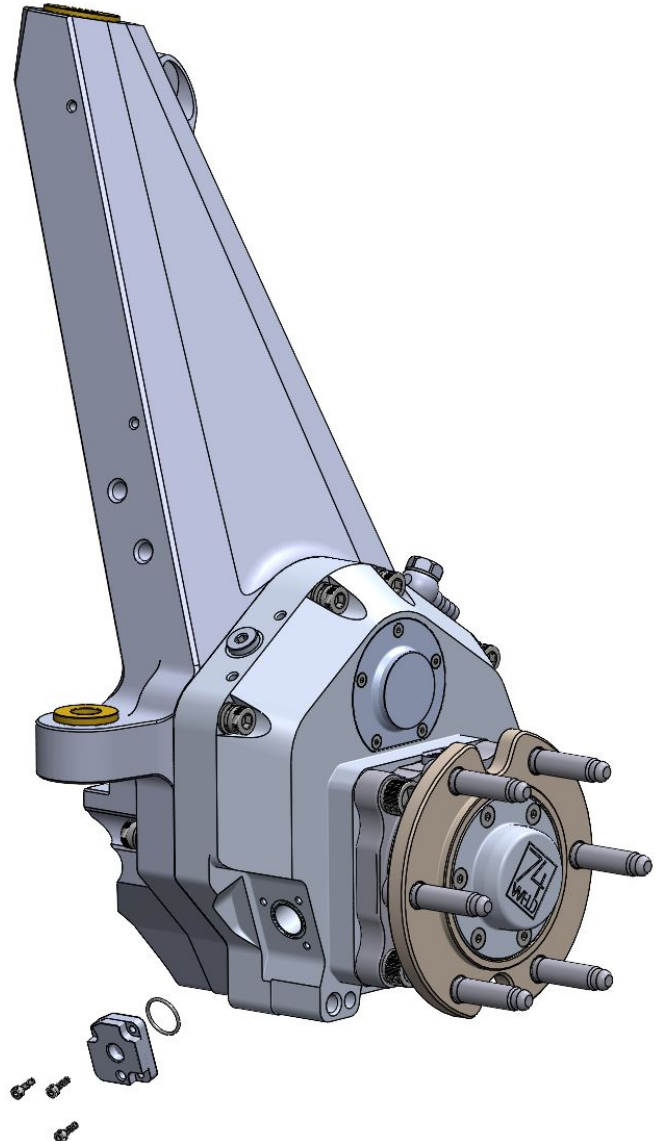
WHEEL SPEED SENSOR ADAPTER

Your install kit includes two wheel speed sensor adapters for the front portals, one “-D” for driver and one “-P” for passenger. Rear portals will not need sensor adapters.



Remove blank plate from front portal. Save screws and o-ring.

Driver's side shown.



Install sensor adapter, reusing screws and o-ring.

Driver's side shown.

INSTALLATION - FRONT PORTAL

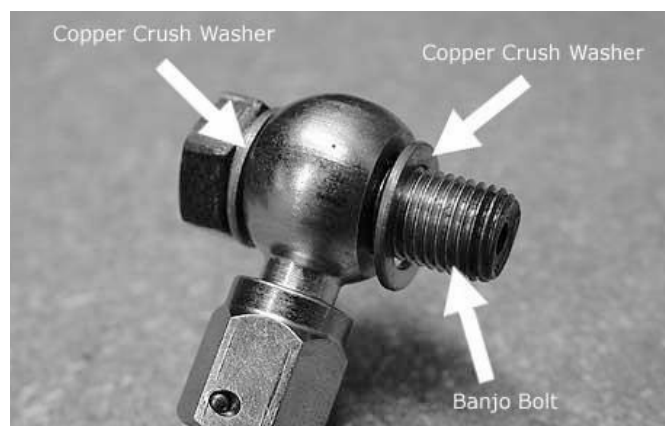
- ❑ Install front brake caliper onto brake bracket reusing factory caliper bolts. Bolts can be snugged, but do not need to be torqued at this time. The caliper will need to be removed again for brake bleeding.



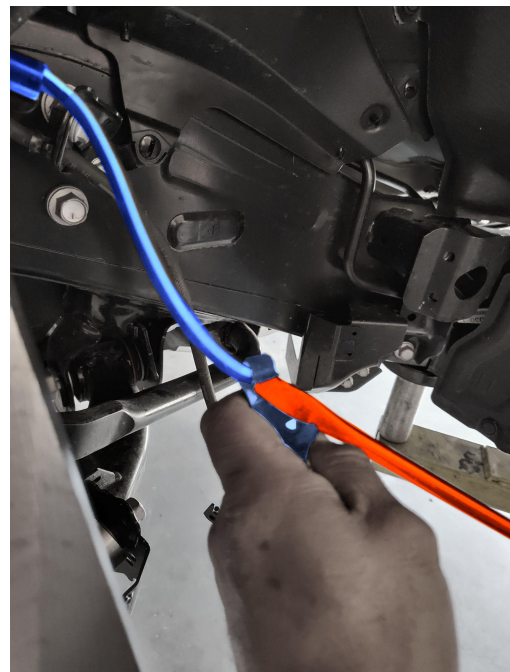
- ❑ Install supplied brake line retaining bracket to the upright. Install supplied front brake line and run from the factory soft line to the brake caliper.



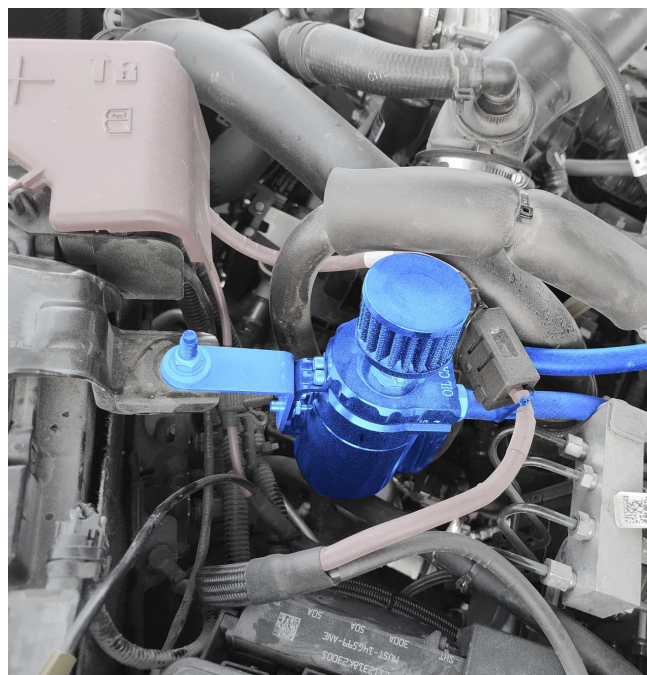
- ❑ Use supplied banjo bolt and crush washers to attach line to caliper. Once the line is routed in a strain-free condition, torque banjo bolt to 96-120 IN-LBS.



INSTALLATION - FRONT PORTAL

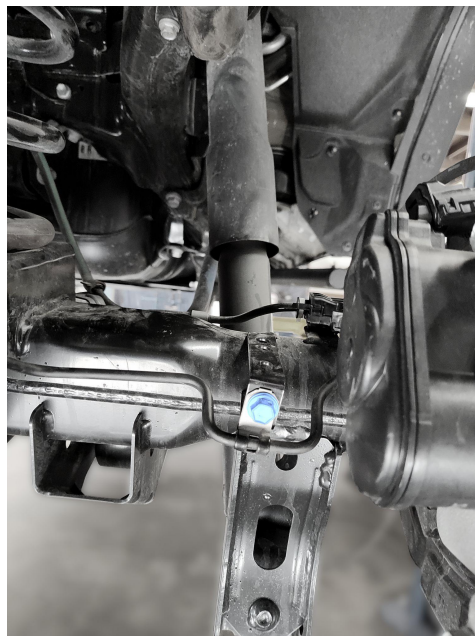


- The front wheel speed sensor cable is retained to the rear side of the upper control arm. In order to create slack, the cable will need to be routed down the front of the upper control arm. Remove the wheel speed sensor retaining bracket from the upper control arm and carefully pry the bracket off of the wheel speed sensor cable.

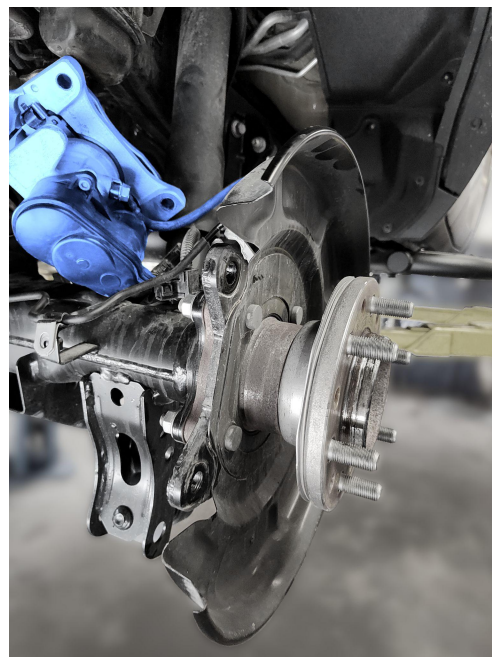


- Route the wheel speed sensor and supplied vent line up the front of the upright as-shown and retain using supplied P-clamps. The vent line can be pushed onto the barbed banjo fitting on top of the portal box. Do not tighten the banjo bolt until you are happy with the routing. The front breather lines can be routed into the engine bay to the supplied catch can. See "Catch Can Overview" later in this manual for catch can details.

INSTALLATION - REAR END DISASSEMBLY



- Remove rear brake line retaining clip. Save the clip.
- Remove the hard line retaining screw to create slack in the line.
- Cut a slit in the hard line retaining bracket so that hard line can be removed. **DO NOT CUT THE HARD LINE**



- Remove the hard line from the retaining bracket.
- Remove brake caliper bolts.
- Remove the rear brake caliper and set aside. The rear brake lines will be retained, **do not disconnect rear brake lines.**

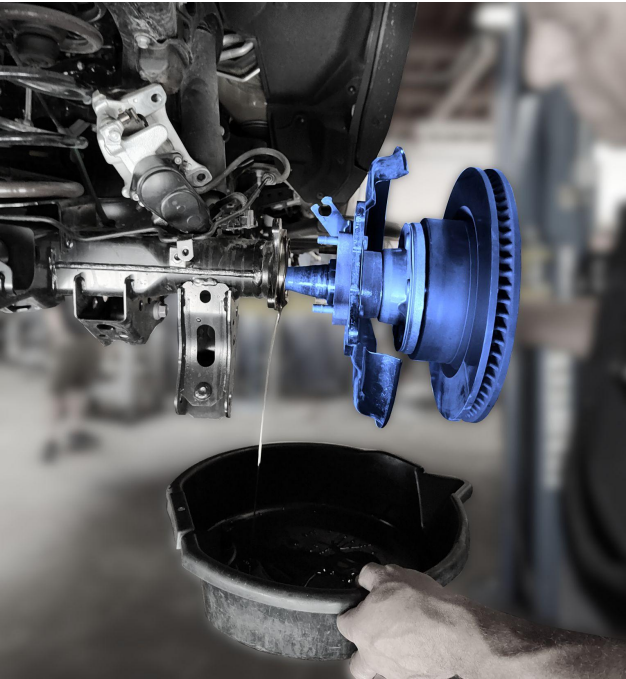
INSTALLATION - REAR END DISASSEMBLY



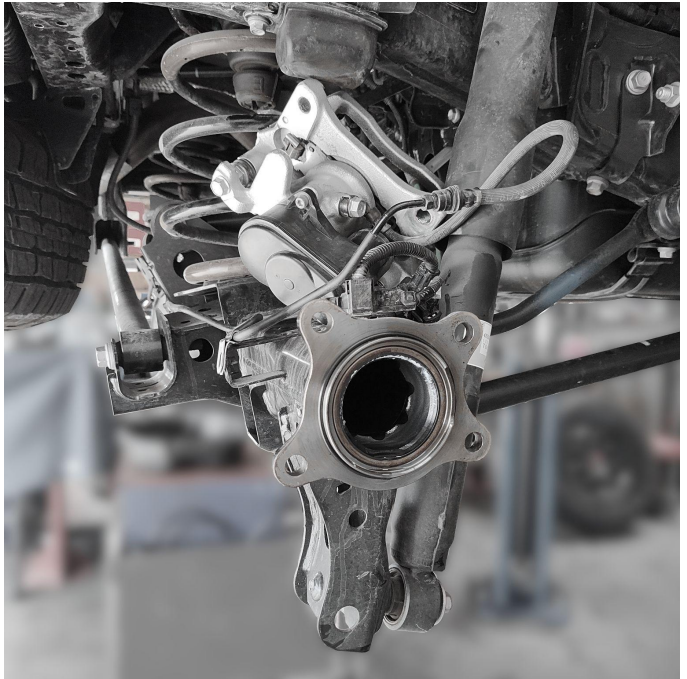
- Remove the rear wheel speed sensor from the rear hub.



- Remove the four nuts retaining the axle shaft to the axle housing.

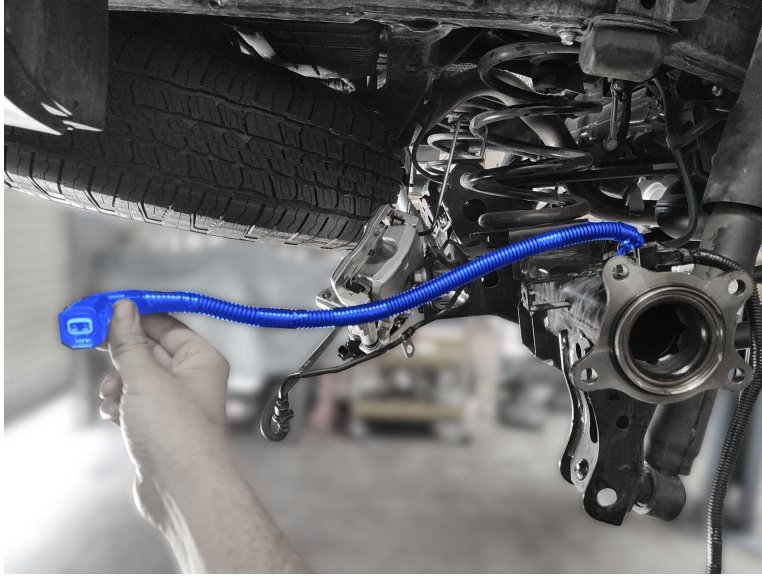


- Get a catch can ready and remove the rear axle shaft. The rotor can be inverted and nuts loosely installed which will allow the rotor to be used as a slide hammer to aid in removal. Oil will spill from the axle housing.



- The rear end is now ready for portal installation.

INSTALLATION - REAR END DISASSEMBLY

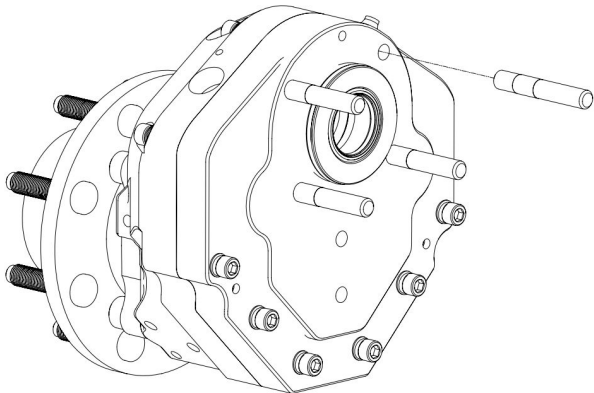


- In order to account for the added drop of the portal, the cables running to the wheel speed sensor and electronic parking brake will need to be extended. Use supplied wire, butt connectors, heat shrink and wire loom to extend this wiring. To get the most accurate length for your specific application and routing, measure the distance required once the portal is installed.

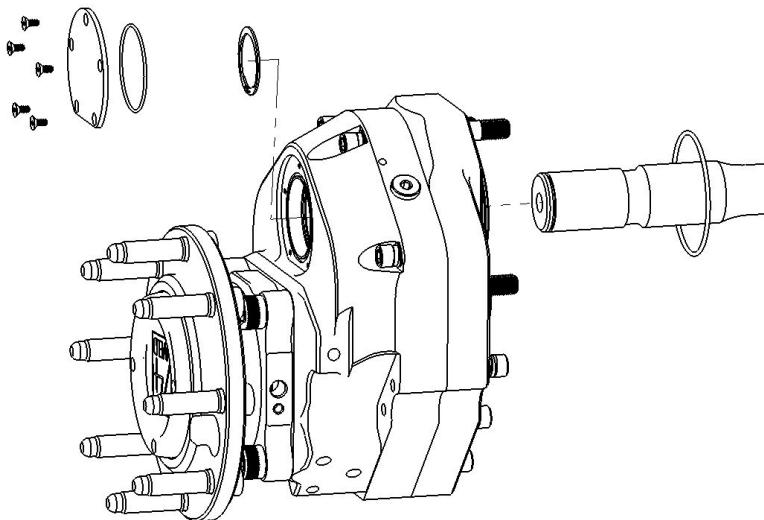


INSTALLATION - REAR PORTAL

- ❑ Install wheel studs, BT-041, included in stud kit into backer. Apply red loctite 263 to short-side thread. Torque to 35 ft-lbs.

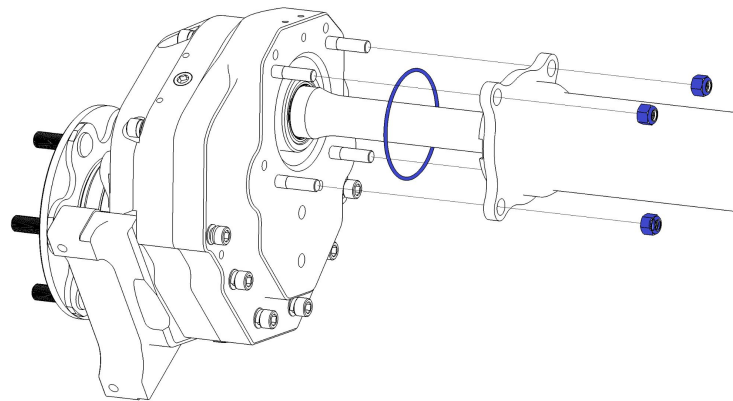


- ❑ If brake brackets have not yet been installed, see brake bracket install procedure earlier in this manual.
- ❑ Remove window from rear box. Make sure not to lose o-ring.
- ❑ Locate axle shaft. Grease shaft splines and seal surface. Insert shaft into portal box and retain with snap ring RR-002 from install kit.
- ❑ Re-install window o-ring and window.



- ❑ Grease o-ring 153 from install kit and install on the lip of the axle housing. Slide shaft and portal box assembly into housing and secure with nylocks supplied in install kit, NT-009.

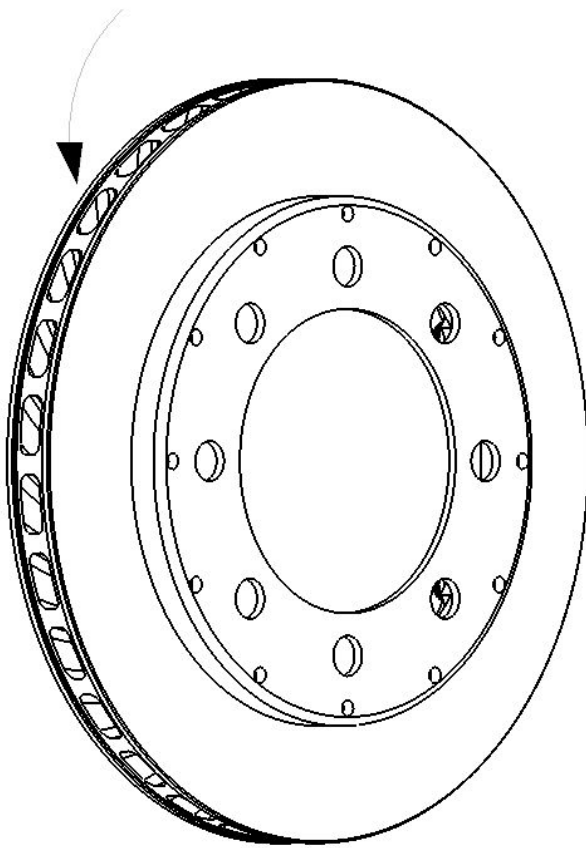
Torque to 70 ft-lbs.



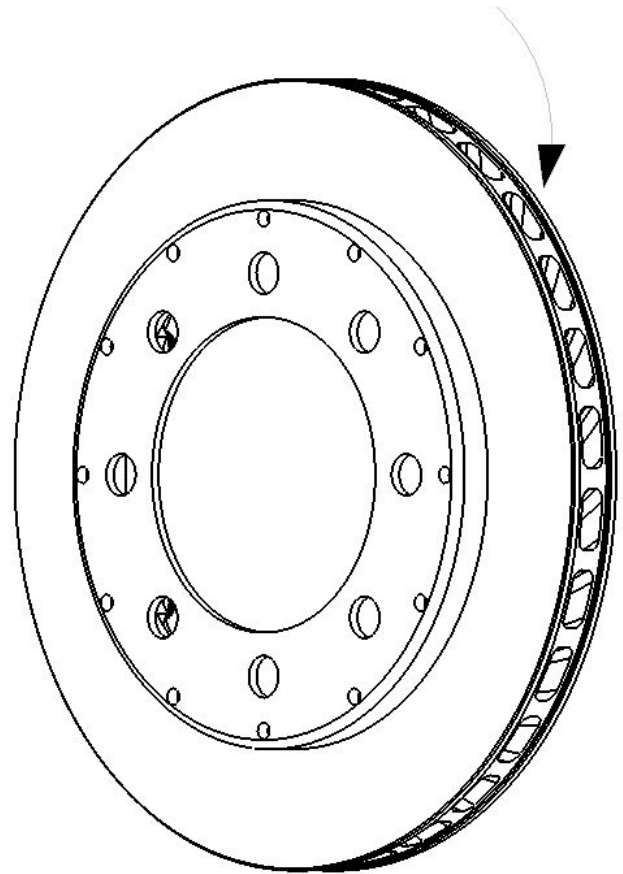
INSTALLATION - REAR PORTAL

If the rear rotors in this kit are directional (curved vanes) look at vent spiral direction to determine which side rotor you are looking at.

Driver Side Vent Spiral
Direction



Passenger Side Vent
Spiral Direction

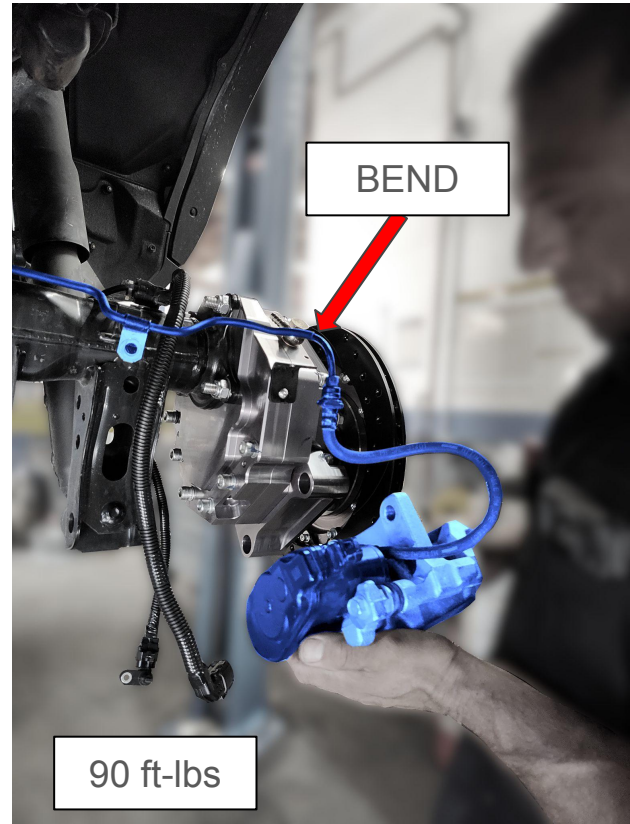


If the rear rotors are one-piece cast rotors, they are not directional and can be used on either side of the vehicle.

INSTALLATION - REAR PORTAL



- Install wheel speed sensor into portal box. Use replacement wheel speed sensor o-rings. Retain with supplied M6 screw.

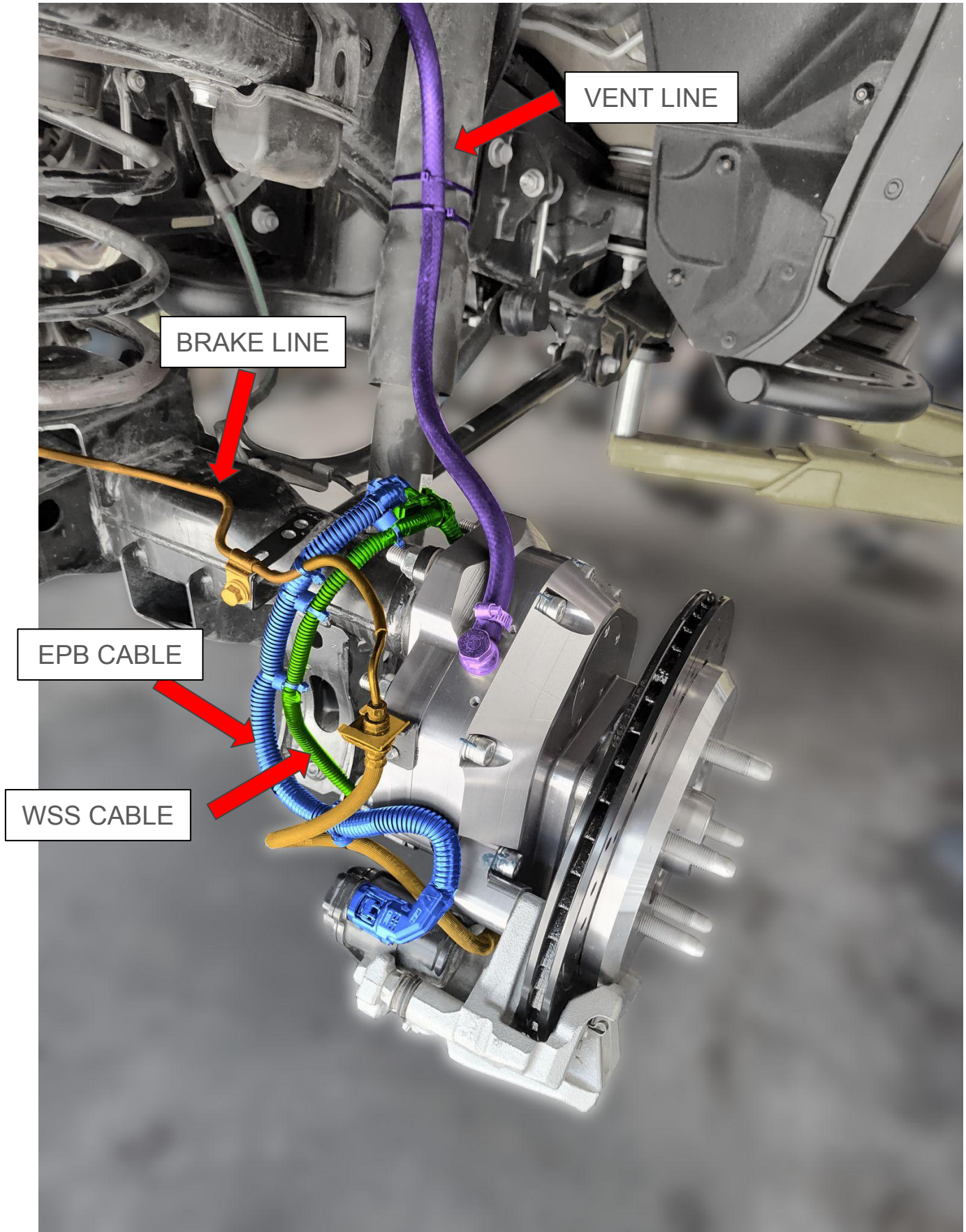


- Bend hard line and install rear brake caliper onto box. Reuse factory bolts and torque to 90 ft-lbs



- Install catch can onto the spare tire crossmember and route vent lines. See "Catch Can Overview" later in this manual for catch can details.

INSTALLATION - REAR PORTAL



INSTALLATION - CATCH CAN OVERVIEW

- ❑ The install kit includes two catch can kits which will each include the following items.



- ❑ Remove handle from catch can using a 5/32" allen wrench. Use supplied hardware to fasten handle to supplied mounting bracket (front or rear) then reattach handle to catch can.



- ❑ Wrap teflon tape on threads of the medium hose barb and attach it to the top of the catch can. Then use a hose clamp to attach the filter to the medium hose barb.



- ❑ Wrap the threads of the small hose barbs in teflon tape and then thread the small hose barbs into the forward facing ports of the catch can. Make sure the dipstick is installed in the catch can.



- ❑ The bottom of the can is detachable. Drop steel wool in.

BRAKE BLEED PROCEDURE (1 OF 2)

Due to the location of the brake caliper on the portal and the sensitivity of the braking system on modern vehicles, we recommend the following brake bleed procedure. It is important to bleed the brakes with the caliper rotated upward to mimic the factory position. This is to position the bleed screw in the orientation in which it was designed to allow air to escape from the caliper.

We will first gravity bleed the system, then we will pedal bleed the system with the vehicle off before bleeding with the vehicle on.

Some Ford vehicles have a feature called "Brake Maintenance Mode". We have had success bleeding brakes without using this mode, but will provide instructions on how to engage and disengage it at the end of this procedure.

Procedure:

- Make sure the battery is disconnected.
- Remove brake line clamps from soft lines
- During each phase, brakes will be bled one by one. Furthest from the master cylinder to closest. Rear Passenger, Rear Driver, Front Passenger, Front Driver.
- Position calipers as shown below. 74Weld produces and sells a brake bleed positioning tool, or you can use brake rotors as shown to position the calipers.



**74Weld
Positioning Tool**



W/O Tool Front
Flip Rotor Inside Out
Place caliper on Rotor
Rotate Upward to
Factory Position



W/O Tool Rear
Flip Supplied Rear Rotor Inside Out
Clamp Factory Rotor to Supplied Rotor
Place caliper on Rotor
Rotate Upward to Factory Position

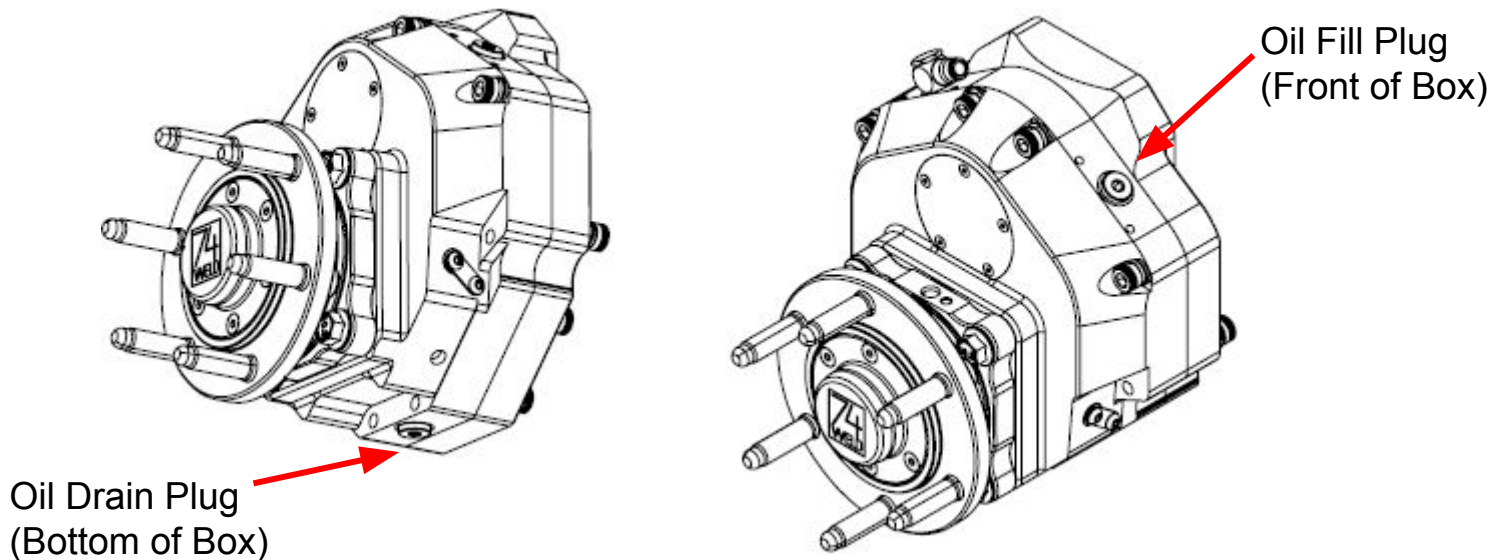
BRAKE BLEED PROCEDURE (2 OF 2)

- ❑ Prior to bleeding, top off brake fluid reservoir. Watch and top off reservoir periodically. **DO NOT LET MASTER CYLINDER RUN DRY.**
- ❑ First, gravity bleed the system. Open the lid on the brake fluid reservoir and leave it open during gravity bleeding. Crack the bleed screw open and let fluid and air bubbles flow out. Tap the bleed screw and caliper with a wrench to release stubborn bubbles. Once air bubbles are no longer observed, close bleed screw.
- ❑ Again, check the brake fluid reservoir, top off and do not let the master cylinder run dry.
- ❑ Next, pedal bleed the system. **CLOSE THE BRAKE FLUID RESERVOIR LID.** Have someone pump the pedal several times to build pressure and then hold the pedal down. Open and close the bleed screw, watch for air bubbles escaping. Repeat until no bubbles are observed. Bleed brake calipers one by one, moving from farthest to closest to the master cylinder.
- ❑ Check the reservoir, top off and do not let the master cylinder run dry.
- ❑ Reconnect the battery, turn on the vehicle and repeat the pedal bleed procedure.
- ❑ Once bleeding is complete, install rotors into their proper orientations, reinstall the front caliper to the caliper bracket and reinstall rear caliper bracket onto portal box.

FIRST OIL FILL AND BREAK IN

- ❑ Remove fill plug from the top of each portal box.
- ❑ Add 300 ml (10 oz.) to each portal. Your kit includes two quarts of Maxima synthetic racing oil. For the first fill, we recommend using a budget brand 75W-90 GL-5 gear oil as this fluid will be drained and discarded after a short period of time.
- ❑ Re-install fill plug to the top of each portal box.
- ❑ Install wheels and tires onto the vehicle.
Torque lug nuts to 120 ft-lbs.
- ❑ Drive 200-300 miles then perform the first oil change using the provided Maxima synthetic oil. See next sheet for oil change procedure.
- ❑ During this first oil change, inspect your portals and suspension.
 - ❑ Check torque seal (blue marking on fasteners) on portal box fasteners assembled by 74Weld. Re-torque as-required.
 - ❑ Check torque and/or paint marks on all portal and suspension fasteners involved in the installation. Re-torque as-required.
 - ❑ *LOCTITE EXCEPTION: do not re-torque fasteners where loctite has been applied.*
 - ❑ Check brake lines, breather hoses and ABS cables for chafing and abrasion. Adjust routing as-required.
 - ❑ Visually inspect all suspension and portal components for signs of contact or impact with other components. Adjust suspension as-required.
 - ❑ Visually inspect portals and undercarriage for signs of oil spray.
 - ❑ Check rear differential oil level. Top off as-required.

REGULAR MAINTENANCE - OIL CHANGE PROCEDURE



- ☐ Make sure vehicle is parked, on its own weight and on level ground.
- ☐ Remove fill plug and drain plug. Allow oil to completely drain from box.
- ☐ Re-install drain plug.
- ☐ Pour 300ml (10 oz) of 75W-90 GL5 gear oil (Maxima Pro Gear Recommended) into the box through the oil fill plug.
- ☐ Re-install oil fill plug

OIL CHANGE INTERVAL: 5,000 miles

- ☐ During the oil change, we recommend you inspect your portals and suspension.
 - ☐ Check torque seal (blue marking on fasteners) on portal box fasteners assembled by 74Weld. Re-torque as-required.
 - ☐ Check torque on all portal and suspension fasteners involved in the installation. Re-torque as-required.
 - ☐ Check brake lines, breather hoses and ABS cables for chafing and abrasion. Adjust routing as-required.
 - ☐ Visually inspect all suspension and portal components for signs of contact or impact with other components. Adjust suspension as-required.
 - ☐ Visually inspect portals and undercarriage for signs of oil spray.
 - ☐ Check rear differential oil level.

TROUBLESHOOTING - CHECK ENGINE LIGHT (1 OF 2)

Improper installation of components and damage to components during installation activities can trigger codes and/or cause your vehicle's check engine light to turn on. There are two systems that can be affected by portal installation.

1. Anti-lock braking system - most common
2. General functionality of brakes due to bleeding during installation

ANTI-LOCK BRAKING SYSTEM (ABS)

Should you receive an ABS code we recommend the following actions to remedy.

- ☐ Using a scan tool, determine what code has been triggered.
- ☐ For general (non-corner specific) codes **ALSO GEAR RATIO CODES:**
 - ☐ If a tuner is available for your vehicle that can adjust tire size and gear ratio values, purchase one and program your vehicle accordingly.
 - ☐ To determine the gear ratio to enter, multiply your ring and pinion ratio by 1.22. Example: $4.10 \times 1.22 = 5.00$
 - ☐ For Jeep we recommend the Z-automotive Tazer and for Ford we recommend the Ford Performance ProCal. We are not aware of a tuner for Toyota, however, we have not seen a case where a tuner was necessary.
 - ☐ Disconnect your vehicle's negative battery terminal, wait 15 minutes and reconnect. If code/CEL has disappeared, go for a short drive that includes left and right hand turns and where your speed will reach 65 mph.
- ☐ If a specific corner has been flagged:
 - ☐ Check that wheel speed sensor connector is fully engaged. Disconnect, clean terminals and reconnect as-required.
 - ☐ Check wheel speed sensor wire for damage including chafing, crimping, crushing etc. To be completely sure wire is OK for use, use a multimeter to ensure there is not a short.
 - ☐ Clean the magnetic side of the wheel speed sensor system. Lift the corner and support the axle with a jack stand. Pull wheel speed sensor from the portal.
 - ☐ If the portal uses a mechanical tone ring (Jeep F/R, Ford Rear), clean the wheel speed sensor head of metal debris that may have collected.
 - ☐ If the portal uses a magnetic encoder (Toyota F/R, Ford F), insert a Q-Tip through the wheel speed sensor hole onto the encoder and rotate the wheel to clean the encoder face of metal debris. To more thoroughly clean the encoder face, remove the portal box from the backer/knuckle/upright. See next sheet for details.

Continued on next sheet

TROUBLESHOOTING - CHECK ENGINE LIGHT (2 OF 2)

- ☐ Replace wheel speed sensor as required.
- ☐ Inspect the tone ring or magnetic encoder for damage. To do so, remove the portal box from the backer/knuckle/upright. (not applicable to Jeep front. Jeep front, Contact 74Weld).
 - ☐ Remove the brake caliper from the portal box.
 - ☐ Remove wheel speed sensor from the portal box.
 - ☐ Remove the vent hose from the portal box.
 - ☐ Remove any additional cable mgmt from the portal box.
 - ☐ Remove the ten (10) screws holding the case halves together.
 - ☐ Remove the portal box assembly from the backer/knuckle/upright. If the portal box assembly is stubborn you can tap it with a rubber mallet, use a rotor as a slidehammer, or use the three set screws on the backer/knuckle/upright as jackscrews to wedge the case halves apart.
- ☐ **Tone Rings**
 - ☐ Inspect tone ring to ensure there are no missing teeth
 - ☐ Make sure tone ring is pressed onto the lower gear and is not free to spin independent from the gear or move axially on the gear.
 - ☐ If damage is observed, contact 74Weld for replacement.
- ☐ **Magnetic Encoder**
 - ☐ Inspect magnetic encoder for damage
 - ☐ Encoder face should be flat with no dents, divots or waves.
 - ☐ Encoder face should be flush with the spindle nut or lower gear.
 - ☐ If damage is observed, contact 74Weld for replacement.

GENERAL FUNCTIONALITY OF BRAKES

During the portal installation process, brake lines will be removed and the brake system will need to be bled. Improper bleeding of brakes can result in soft pedal feel and, in newer vehicles, can cause check engine lights and codes. Should you experience either of these problems.

- ☐ Re-bleed brakes per the procedure outlined in this manual. Ensure calipers are in the positions shown as improper caliper position can result in trapped air bubbles.
- ☐ Check brake fluid reservoir and ensure that the master cylinder has not run dry. If the brake fluid reservoir has been depleted, take your vehicle to a dealership and have them perform a full pressurized bleed of the system per the manufacturer's service manual.

TROUBLESHOOTING - OIL LEAKS (1 OF 7)

Damaged seals and other components can lead to oil leaks. These leaks are important to take care of to ensure the portal retains oil and keeps contaminants out of the gearbox. Oil leaks can also be a warning sign of a more serious problem occurring within your portals.

By the time an oil leak is noticed, chances are that oil has been flung by a rotating component or blown by passing air which can make it difficult to diagnose the source of the leak. **For this reason, unless it is extremely obvious, we recommend cleaning the portal then going for a 10-15 mile drive to re-establish a clear leak path.** For some types of leaks, it may take letting the vehicle sit overnight after a drive for the path to rebuild.

NOTE: After installation and maintenance, there is the possibility of false leak indicators.

- One example is the case-half seam where the box meets the backer/knuckle/upright. This interface is sealed by a greased o-ring. If grease is left on a mating surface during assembly it will be forced out of the portal, then collect dirt making it appear that the mating surface is leaking.
- Another example is residual oil inadvertently spilled on the portal after a fill or oil change.

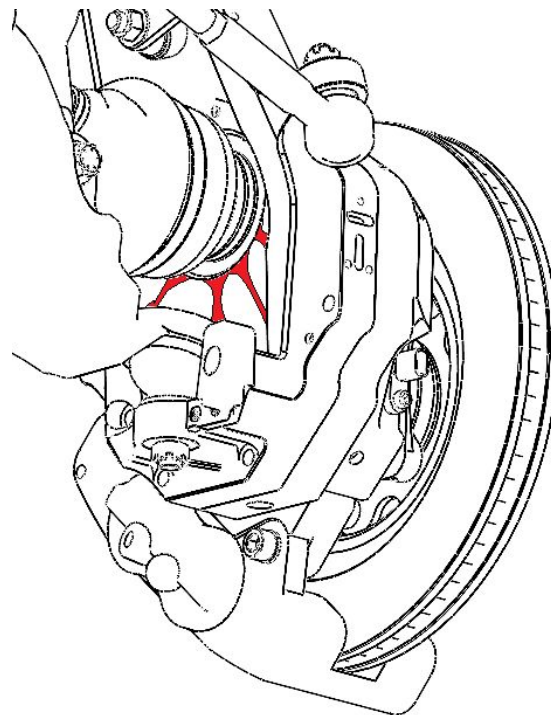
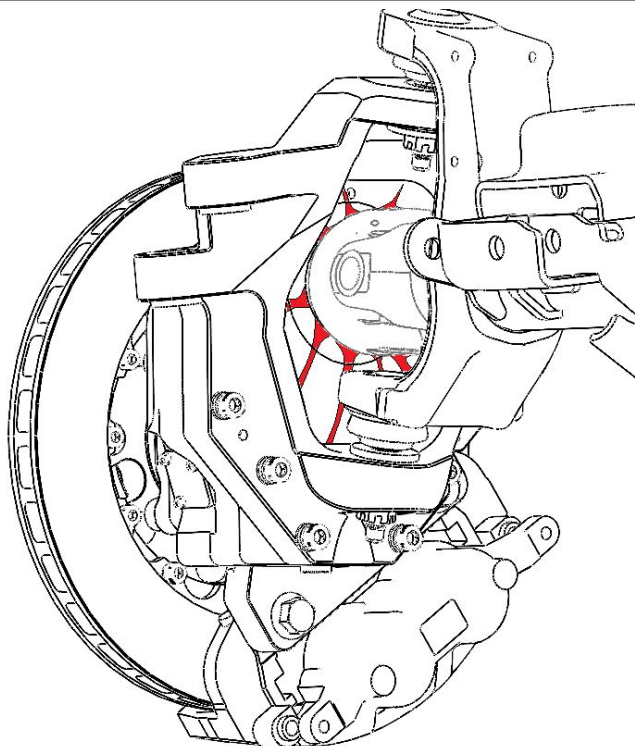
If a “leak” is cleaned and then does not return during subsequent driving, there is a possibility that one or more of these false indicators was observed.

SEE FOLLOWING SHEETS FOR INFORMATION ON DEALING WITH SPECIFIC LEAK TYPES

SEE REPLACEMENT PARTS LIST IN THIS MANUAL FOR PART NUMBERS

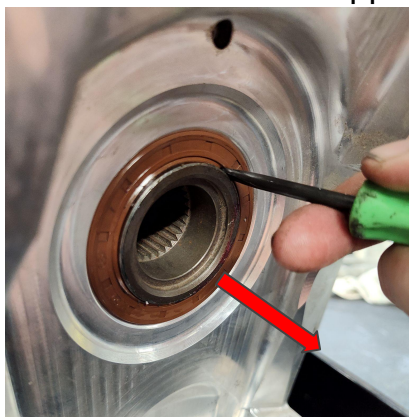
AFTER LEAK REPAIR WORK IS PERFORMED, ENSURE THE PORTAL HAS THE PROPER OIL LEVEL

TROUBLESHOOTING - OIL LEAKS (2 OF 7)

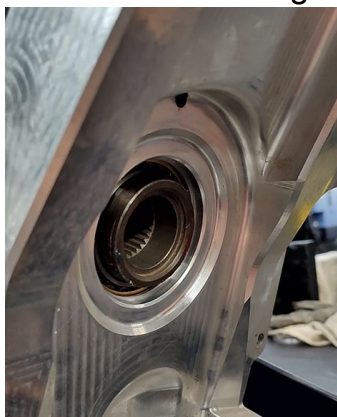


FRONT UPPER GEAR SEAL LEAK

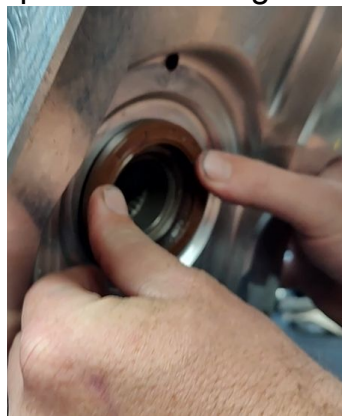
- Check vent lines and catch cans to ensure they are not kinked and allow for air to flow freely in and out of the portal. Obstructed airflow can cause pressure build up and blow out this seal. In many cases, once the obstruction is removed the seal will resume its intended function.
- If seal has been damaged it will need to be replaced. Many kits include a V-ring seal as a second layer of protection. We recommend replacing these seals together. Install seal in the same orientation as the seal you remove.
 - To access the seal for replacement on solid axle vehicles, remove the box from the knuckle then remove the knuckle from the axle. On IFS vehicles, remove the tie rod and upper control arm to swing the portal out enough to remove the stub shaft.



PRY OUT



CLEAN



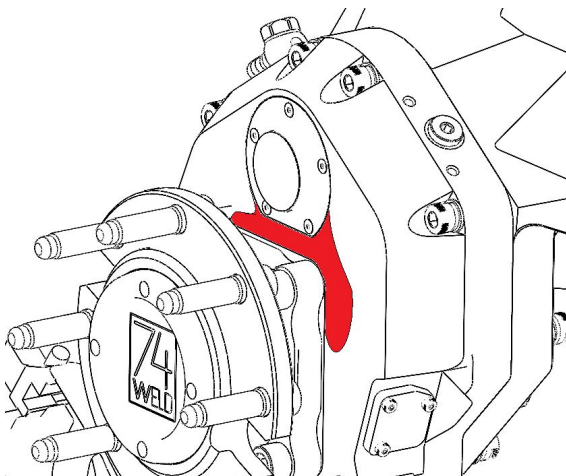
GREASE & SEAT



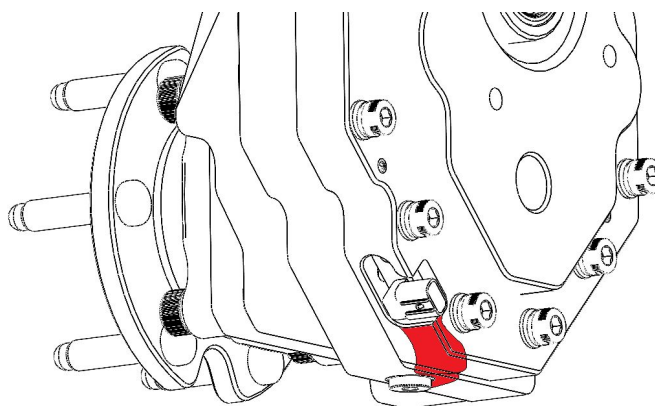
TAP IN

- The other leak path is through the upper gear splines, past the stub shaft o-ring. Check that the stub shaft nut (behind portal window) is tight. Replace o-ring on stub shaft as required.

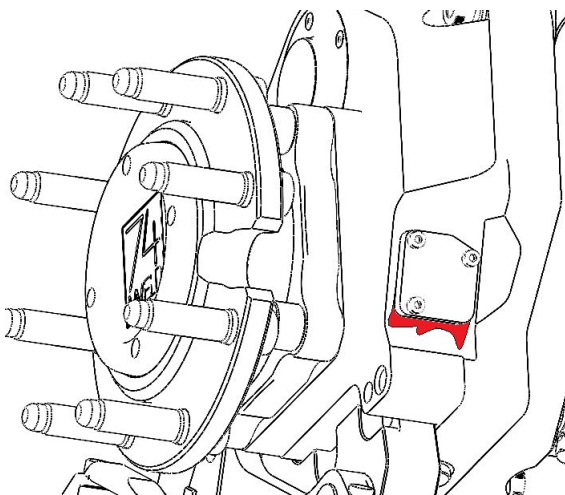
TROUBLESHOOTING - OIL LEAKS (3 OF 7)



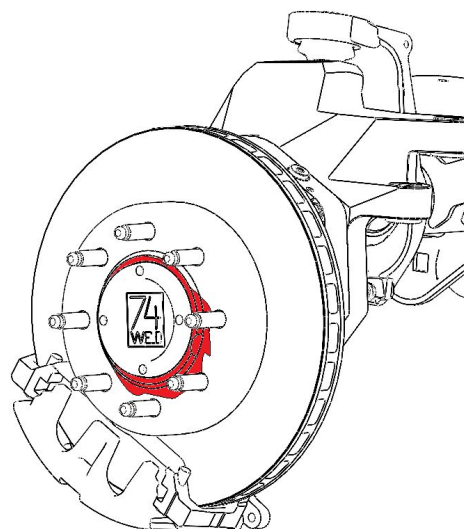
WINDOW



WHEEL SPEED SENSOR



BOX WSS FEATURE



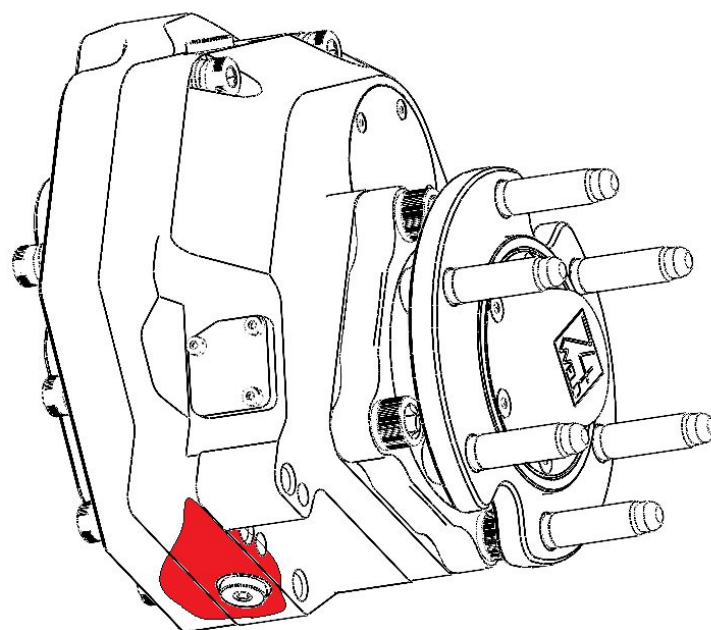
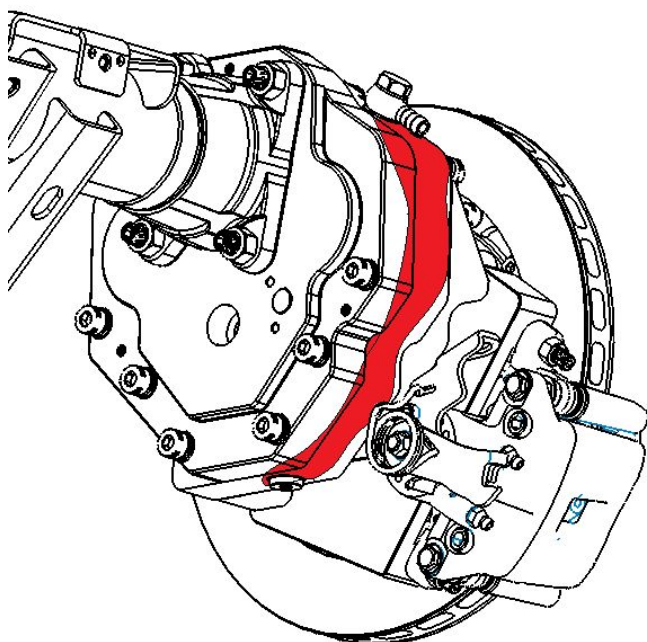
HUBCAP

GENERAL O-RING LEAKS

The window, hubcap, and wheel speed sensor interfaces on boxes, backers and knuckles are all sealed with o-rings. In the event that one of these interfaces leaks, it is recommended to replace the o-ring.

- Face seal o-ring grooves (Hubcap, Window, Box WSS feature)
 - Clean o-ring groove and mating part. Both parts should be free of nicks, dings and burrs that could create a leak path.
 - Grease and install new o-ring into groove.
 - Reassemble and torque in star pattern.
- Radial o-ring grooves (Wheel Speed Sensor)
 - Same steps as above
 - If necessary, use sandpaper to smooth out entry to wheel speed sensor bore to ensure o-ring is not cut on install.

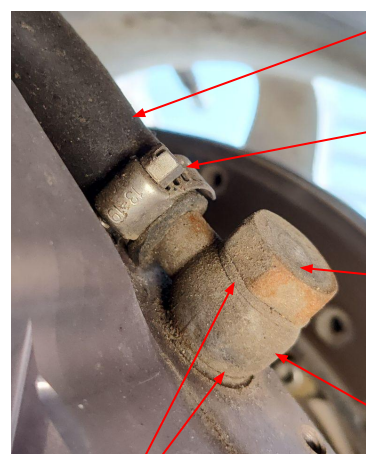
TROUBLESHOOTING - OIL LEAKS (4 OF 7)



BREATHER AND PLUG LEAKS

BREATHER FITTING

- Ensure breather hose is secured to banjo fitting with a hose clamp.
- Ensure crush washers are present on either side of the banjo fitting.
- Ensure Banjo bolt is torqued and not loose.
- Crush washers are single use. Replace as-required.
- Over-torquing the banjo bolt can cause the bolt to twist. Twisted bolts should be replaced. Do not over torque.



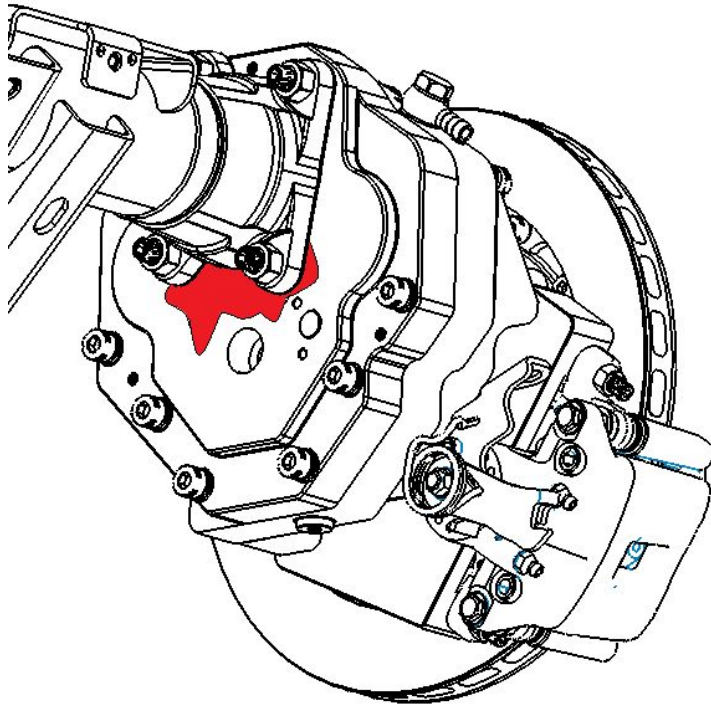
Hose

Hose
clampBanjo
boltCrush
WashersBanjo
Fitting

DRAIN AND FILL PLUGS

- Ensure drain or fill plug is fully seated.
- Ensure o-ring is present on plug and not damaged.
- Replace plugs as required. The drain plug has a magnet on it, the fill does not. **DO NOT PUT A PLUG WITH A MAGNET IN THE FILL POSITION.**

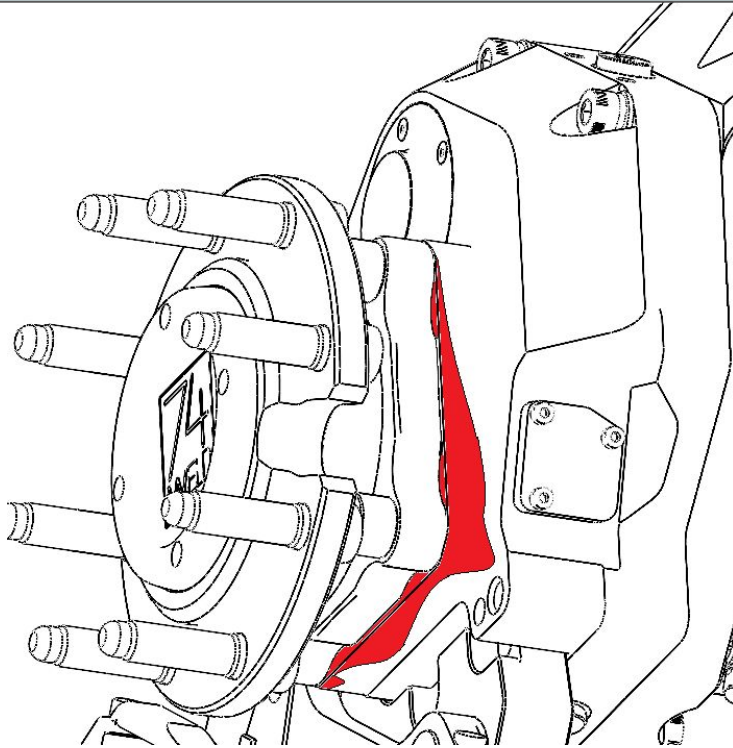
TROUBLESHOOTING - OIL LEAKS (5 OF 7)



LEAK AT REAR AXLE HOUSING FLANGE

- Check torque on the portal to axle housing nuts.
 - If fasteners were loose, determine if the nut is loose on the stud or the stud is loose in the backer.
 - In the event that the nuts were loose on the studs, replace nylocs and retorque.
 - If the studs are loose in the backer
 - Remove the portal from the axle housing
 - Remove the loose studs
 - Clean threads on studs and backer holes
 - Apply red loctite 263 to threads on studs and in backer holes
 - Re-install stud into backer and allow 24 hours for loctite to cure.
 - Reinstall portal to axle housing per instructions in this manual.
 - Replace o-ring between backer and axle housing as-required.
 - Remove portal from axle housing.
 - Grease and install new o-ring.
 - Reinstall portal to axle housing per instructions in this manual.

TROUBLESHOOTING - OIL LEAKS (6 OF 7)

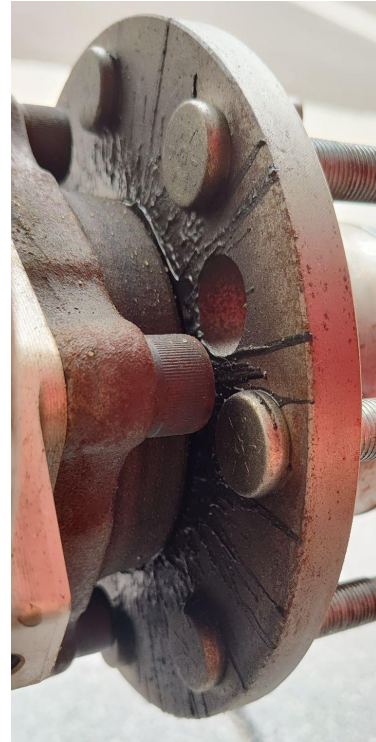
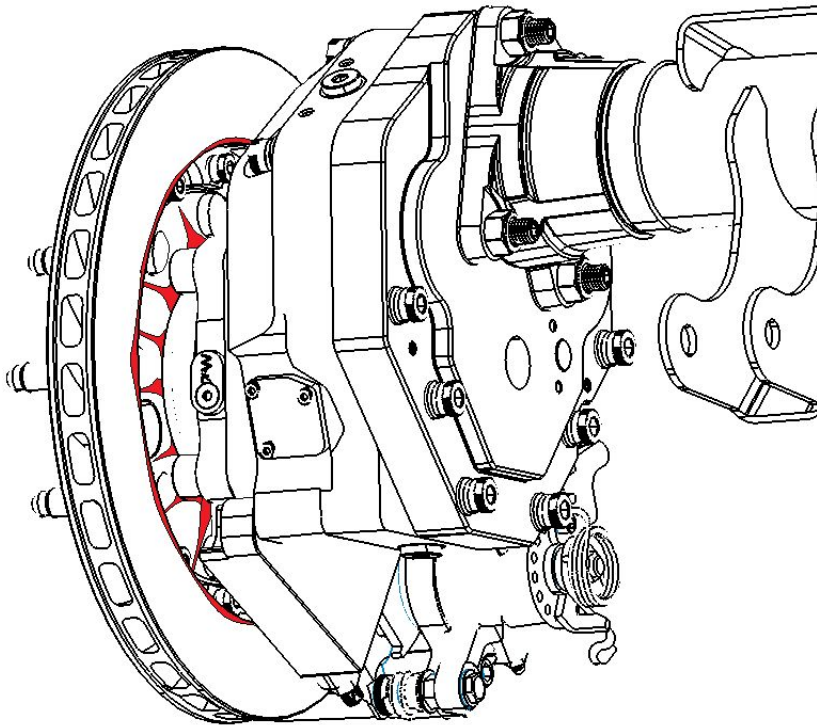


LEAK BETWEEN UNIT BEARING AND BOX

In order for this leak to happen, oil needs to pass through a radial seal and two o-rings. It can be caused by damage to all three seals during installation, or loosening of the unit bearing bolts. **Even if the cause is loose unit bearing bolts, the following procedure is recommended in order to ensure the longevity of your unit bearing hub.**

- Remove the brake caliper from the portal box.
- Remove wheel speed sensor from the portal box.
- Remove the vent hose from the portal box.
- Remove any additional cable mgmt from the portal box.
- Remove the ten (10) screws holding the case halves together.
- Remove the portal box assembly from the backer/knuckle/upright. If the portal box assembly is stubborn you can tap it with a rubber mallet, use a rotor as a slidehammer, or use the three set screws on the backer/knuckle/upright as jackscrews to wedge the case halves apart.
- Inside of the lower gear, there is a snap ring retaining the lower stub shaft. Remove this snap ring and pull the lower gear out of the box.
- Remove the four unit bearing bolts and pull the unit bearing off of the box.
- Clean the internals of the portal box.
- **REPLACE THE RADIAL SHAFT SEAL AND TWO O-RINGS. GREASE SEAL LIP AND O RINGS.**
- Reassemble portal in the reverse order of disassembly. Clean hardware and threaded holes. See Torque specs and loctite requirements in this manual.

TROUBLESHOOTING - OIL LEAKS (7 OF 7)



LEAK BEHIND UNIT BEARING WHEEL FLANGE

In order for this leak to happen, oil needs to pass through a radial seal in the portal box and both the inner and outer seal of the unit bearing hub. The unit bearing hub is non-serviceable and will require replacement along with the seal in the portal box.

- Remove the brake caliper from the portal box.
- Remove wheel speed sensor from the portal box.
- Remove the vent hose from the portal box.
- Remove any additional cable mgmt from the portal box.
- Remove the ten (10) screws holding the case halves together.
- Remove the portal box assembly from the backer/knuckle/upright. If the portal box assembly is stubborn you can tap it with a rubber mallet, use a rotor as a slidehammer, or use the three set screws on the backer/knuckle/upright as jackscrews to wedge the case halves apart.
- Inside of the lower gear, there is a snap ring retaining the lower stub shaft. Remove this snap ring and pull the lower gear out of the box.
- Remove the four unit bearing bolts and pull the unit bearing off of the box.
- Clean the internals of the portal box.
- **REPLACE THE RADIAL SHAFT SEAL GREASE SEAL LIP.**
- Remove the hubcap and lower stub shaft from the old unit bearing and transfer to the new unit bearing.
- Grease and install new o-rings onto new unit bearing.
- Reassemble portal in the reverse order of disassembly. Clean hardware and threaded holes. See Torque specs and loctite requirements in this manual.

REPLACEMENT PARTS (1 OF 2)

Refer to bills of materials provided earlier in this manual for part numbers supplied in kits. The table below and diagram to follow detail part numbers used in portal assemblies.

REPLACEMENT PARTS LIST - 74WELD 1.22 PORTALS

ITEM	USED	74WELD PN	MCMaster PN	DESCRIPTION
1	ALL	BT-072	91502A263	SCREW, SHCS, M14 X 2 X 40MM LG, 12.9 ALLOY STEEL, BLUE DYE ZINC PLATE
2	6 LUG	BT-035	91263A837	SCREW, 90 DEG FH, M6 X 1.0 X 12MM LG, ALLOY STEEL, ZINC PLATE
	8 LUG	BT-022	90128A944	SCREW, SHCS, #10-32 X .63 LG, ALLOY STEEL, ZINC PLATE
3	-	-	-	HUBCAP - CALL FOR REPLACEMENT
4	6 LUG	OR-145	9452K152	O RING, BUNA N, DASH 145
	8 LUG	OR-230	9452K69	O-RING, DASH 230, BUNA N
5	ALL	RR-002	90213A118	RETAINING RING, INV EXT, 1.500 OD
6	-	-	-	UNIT BEARING HUB - CALL FOR REPLACEMENT
7	ALL	BT-031	90128A291	SCREW, SKT HD CAP, M10 X 1.5, 50MM LG, ALLOY STEEL, ZINC PLATE
8	ALL	WS-014	98688A118	WASHER, FLAT, ZINC PLATED STEEL, ISO 7092
9	ALL	WS-011	93837A150	WASHER, HIGH COLLAR, 10.7 MM ID, 16 MM OD
10	ALL	BT-036	91263A827	SCREW, 90 DEG FH, M4 X 0.7 X 8MM LG, ALLOY STEEL, ZINC PLATE
11	-	-	-	WINDOW - CALL FOR REPLACEMENT
12	ALL	OR-035	9452K123	O-RING, DASH 035, BUNA N
13	ALL	PS-030	-	FILL PLUG, M14 X 1.5, ELASTOMERIC SEAL
14	-	-	-	PORTAL BOX - CALL FOR REPLACEMENT
15	ALL	PS-043	-	BANJO BOLT, M14 X 1.5, HEX HEAD
16	ALL	WS-008	97725A118	CRUSH WASHER, 19.9MM OD, 14.2MM OD, COPPER
17	ALL	PS-042	-	BANJO FITTING, 14MM BORE, BARBED FOR 10MM/3/8" HOSE
18	ALL	OR-047	9452K312	O RING, DASH 047, BUNA N
19	ALL	OR-156	9452K319	O RING, DASH 156, BUNA N
20	ALL	SEE DESCRIPTION		SKF 90X110X10 HMSA10 V
21	ALL	PS-030-M	-	FILL PLUG, M14 X 1.5, ELASTOMERIC SEAL, MAGNET
22	-	-	-	LOWER STUB SHAFT - CALL FOR REPLACEMENT
23	ALL	PS-041	98381A624	DOWEL, 3/8 DIA, 1.0 LG, ALLOY STEEL
24	ALL	NJ 206 ECP	-	CYLINDRICAL ROLLER, 62MM OD, 30MM ID, 16MM THK, POLYMER CAGE
25	ALL	NJ 1010 ECP	-	CYLINDRICAL ROLLER, 80MM OD, 50MM ID, 16MM THK, POLYMER CAGE
26	ALL	NA 4908	-	NEEDLE ROLLER, 62MM OD, 40MM ID, 22MM THK
27	-	-	-	GEAR SET - CALL FOR REPLACEMENT
28	ALL	RR-003	90442A117	RETAINING RING, 2.500" ID, INVERTED EXTERNAL
29	-	-	-	BACKER, UPRIGHT OR KNUCKLE - CALL FOR REPLACEMENT
30	FRONTS	SEE DESCRIPTION		SEAL-50X68X7 HMSA10 V
	REARS	SEE DESCRIPTION		SEAL-40X50X8 HMSA10 V
31	-	-	-	HOUSING SEAL (REAR) OR V RING SEAL (FRONT) SEE INSTALL KIT BOM
32	REARS	-	-	STUD, M12 X 1.75, 10.9 ALLOY STEEL, VARIOUS LENGTHS
33	ALL	BT-033	92015A129	SCREW, SET, M6 X 1.0 X 12MM LG, ALLOY STEEL, CUP POINT

REPLACEMENT PARTS (2 OF 2)

