WARN®

WARN INDUSTRIES, INC.

INSTALLATION INSTRUCTIONS FOR THE

FULL FLOATING AXLE CONVERSION KIT

SCOUT DANA 44, 1971-1980

Before starting Installation, Brake Drum pilot hole must be machined out to 4.150 diameter, in both drums. (Shown on page 1)

As you read these instructions, you will see NOTES, CAUTIONS and WARNINGS. Each message has a specific purpose. NOTES are additional information to help you complete a procedure. CAUTIONS are safety messages that indicate a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. A CAUTION may also be used to alert against unsafe practice. WARNINGS are safety messages that indicate a potentially hazardous situation, which, if not avoided could result in serious injury. CAUTIONS and WARNINGS identify the hazard, indicate how to avoid the hazard, and advise of the probable consequence of not avoiding the hazard. PLEASE WORK SAFELY!

WARN INDUSTRIES, INC. ● 12900 SE CAPPS ROAD ● CLACKAMAS, OR 97015-8903

(503) 722-1200 ● CUSTOMER SERVICE LINE 1-888-722-6730 ● FAX (503) 722-3051

SAFETY PRECAUTIONS

CAUTION

Read instructions thoroughly before beginning installation.

This sheet provides guidelines to install the WARN Full Floating Axle Kit (Figure 2). There are **NOTES**, **CAUTIONS**, and **WARNINGS** which should be followed during installation to avoid possibility of personal injury or damage to the vehicle. During installation, standard safety precautions and equipment should be used where appropriate. Because the skill and experience of the installer and the tools used can vary widely, it is impossible to anticipate all conditions under which this installation is made or to provide cautions for all possible hazards. If your installation varies from the instruction, you must be completely satisfied that your safety or the operation of the vehicle will not be compromised.

NOTE: If you have questions concerning the installation of the Warn Full Floating Axle Kit, call our toll-free number (1-888-722-6730) for assistance.

FEATURES

The Warn Full Floating Axle kit is the industry's only kit with internal mount hublocks. Your vehicle can be prepared for towing simply by dialing out the hublocks. This kit has an improved sealing system that will protect the internal components from mud, water, and dust. The nickel-chrome-moly alloy steel heat treated axles are the strongest available for this application.

TOOLS AND MATERIALS NEEDED

Jack	1/2" Drive Socket Set	Wire Brush
Jackstands	4-Lug Socket for Dana 44 (Fig 1)*	Shop Rags
Thread sealant (High temp RTV)	Mallet	Degreaser/Cleaner
Torque Wrench	Safety Goggles	Snap Ring Pliers
5/64" Hex Key	Transfer Punch	13/32" Drill Bit
7/64" Hex Key	Wheel Bearing Grease	Brake Fluid
3/8" Flare Nut Wrench		Brake Line Caps (2)

*Snap-on P/N S8695C or similiar

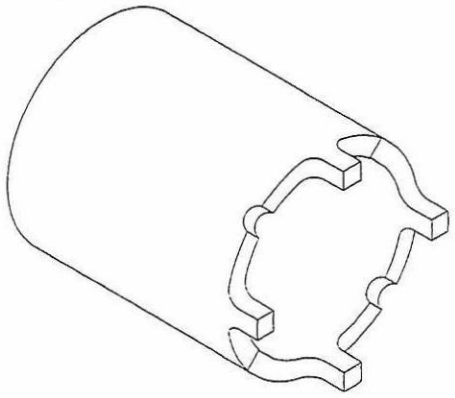
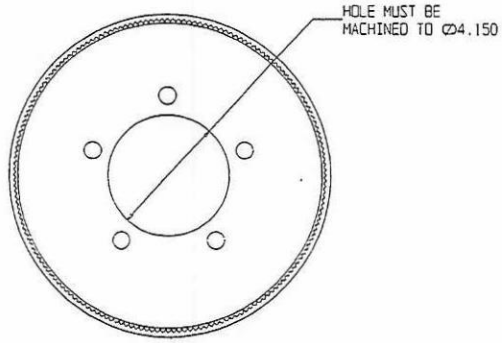


Figure 1. 4-Lug socket.



Brake Drum machine detail

PARTS LIST (Refer Item # to Figure 2)

Item #	Part Name (Qty)	Item #	Part Name	Other P/N
1-6	Hublocks (2)	13	Outer Bearing Cone	LM501349*
7	Setscrew 8-32 (6) (installed)	14	Outer Bearing Cup (installed)	LM501310*
8	Outer Spindle Nut w/setscrews (2)	15	Wheel Stud 1/2-20 (installed)	142042‡
9-10	Lock Washer (2)	17	Inner Bearing Cup (installed)	LM102910*
11-12	Inner Spindle Nut (2)	18	Inner Bearing Cone	LM102949*
16	Wheel Hub (2)	20	Hub V-seal	CR400650**
21,23	Spindle (2)	19	Hub Radial Seal	CR22353**
22	Lock nut 3/8-24 (10)	25	Spindle Radial Seal (installed)	473210†
24	T-bolt (10)	29	Russell Speed Bleeders (2)	3959***
26	O-ring Seal (installed)		Washers (2)	
27-28	Axle Shaft (2)		Plews O-Ring Pick (optional)	72-017

* AFBMA bearing P/N **CR Services p/n ***Russell P/N †Rockwell P/N ‡Bendix P/N

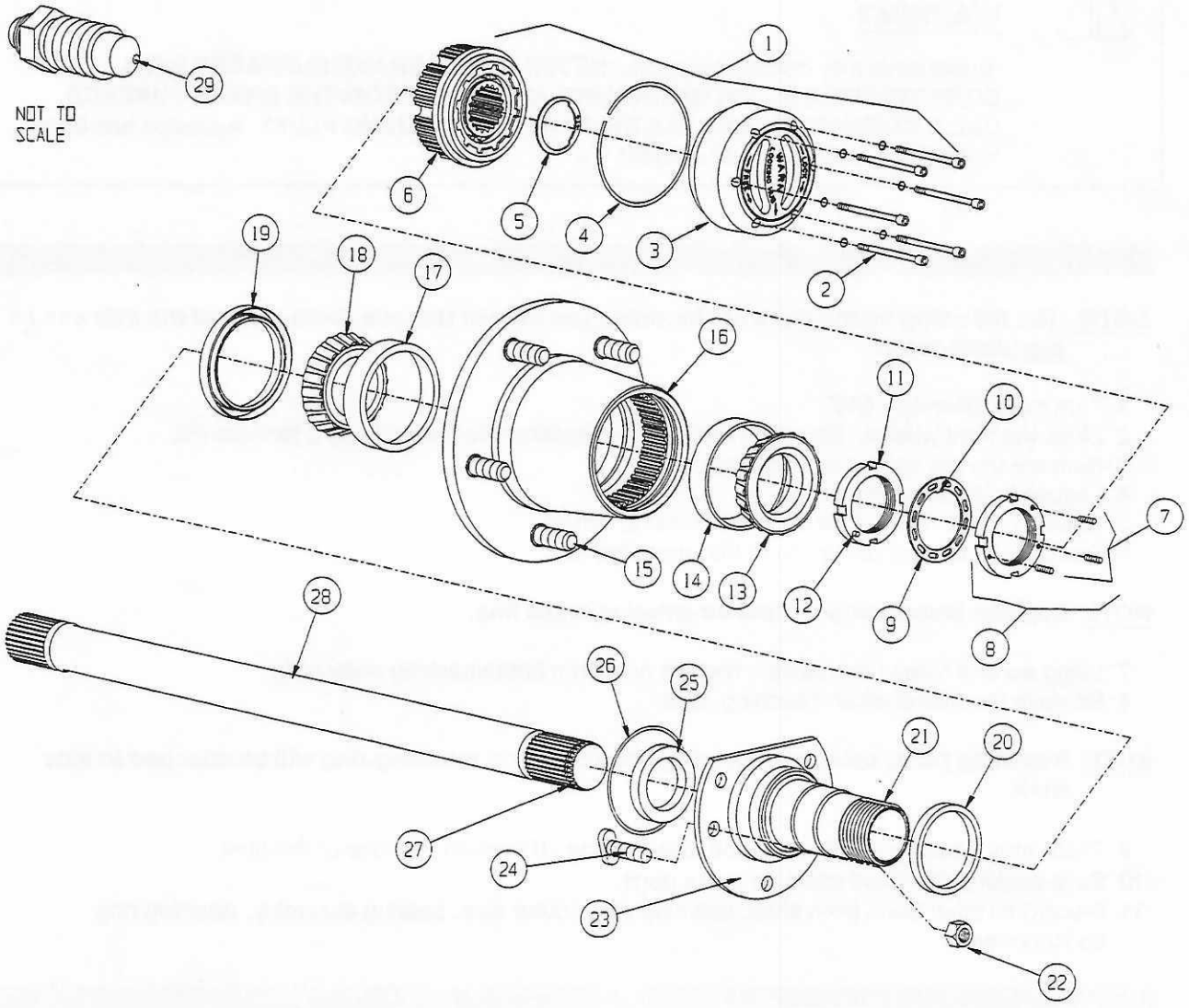


Figure 2. Full Floating Axle Kit.

WARNING

Raised vehicles can cause falling particles. **WEAR SAFETY GOGGLES.** Falling particles can cause eye injury.

Improperly supported vehicles can fall. **DO NOT USE A JACK TO SUPPORT THE VEHICLE. USE JACK STANDS IN PAIRS TO SUPPORT THE VEHICLE. USE JACKS OR JACK STANDS ONLY ON A HARD, STABLE, AND LEVEL SURFACE. DO NOT EXCEED THE RATED CAPACITY OF A JACK OR JACK STANDS.** An unstable vehicle can fall and cause a crushing injury.

A rolling vehicle can cause jackstands to tip. Before working under vehicle, verify that **THE FRONT WHEELS ARE CHOCKED.** A tipping jackstand or vehicle can cause injury.

WARNING

Brake pads may contain asbestos. **NEVER CLEAN BRAKE SURFACES WITH COMPRESSED AIR. AVOID INHALING ANY DUST FROM THE BRAKE SURFACE. USE A COMMERCIALLY AVAILABLE BRAKE CLEANING FLUID**. Asbestos has been found to be a cancer causing agent.

FLANGED SEMI-FLOAT AXLE DISASSEMBLY

NOTE: The following Instructions are for doing one side of the axle. Both sides of the axle can be done simultaneously.

1. Turn the ignition key OFF.
2. Block the front wheels. Raise the rear end and support the rear axle on 2 jack stands.
3. Remove the tire and wheel assembly.
4. Loosen brake adjustment.
5. Remove brake drum. Use a rubber mallet to loosen.
6. Disconnect and cap brake line at the wheel cylinder.

NOTE: Cap line immediately to limit air entering brake line.

7. Using access hole in axle flange, remove nuts from brake backing plate bolts.
8. Remove the axle shaft and backing plate.

NOTE: Retaining plate, outer seal, bearing assembly, and retaining ring will be attached to axle shaft.

9. There may be an inner oil seal in the axle housing. If present, remove at this time.
10. Save backing plate and attached brake parts.
11. Discard all other parts (axle shaft, retaining plate, outer seal, bearing assembly, retaining ring and inner seal).

PREPARATION FOR ASSEMBLY

1. Remove dirt, grease, oil and old sealing material from backing plate, axle housing flange (Figure 3, Flag 1) and bore of the housing end (Figure 3, Flag 2).

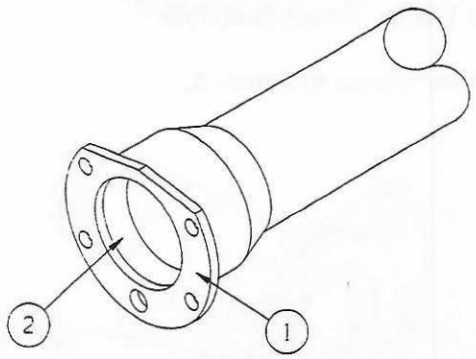


Figure 3. Axle housing end.

WARNING

Cleaning solvents and degreasers may contain hazardous chemicals. **FOLLOW MANUFACTURERS' INSTRUCTIONS WHEN USING AND STORING CLEANERS AND DEGREASERS. DO NOT USE CHEMICALS FROM UNMARKED CONTAINERS.** Improperly used chemicals can cause injury.

2. Thoroughly degrease axle housing flange, backing plate bolt circle and axle housing end bore.
3. Inspect bore of axle housing end for corrosion, nicks and scratches. Smooth with crocus cloth or similar abrasive if necessary.

NOTE: Axle bore must be smooth to avoid damaging o-ring on spindle. If axle bore damage can not be smoothed by sanding, RTV sealant will have to be applied to bore before installing spindle.

SPINDLE INSTALLATION

NOTE: An additional bolt hole must be drilled in axle housing flange. Follow steps 1 and 2 to properly locate and drill this hole.

NOTE: WARN has specifically selected 7/16 bolts for this application. Please do not drill out spindle holes for ½ fasteners.

1. Locate the spindle over holes 1 through 4 (Figure 5) in the axle housing flange. Using a transfer punch, mark the center of the bottom hole of the spindle.
2. Drill 13/32" hole in axle housing flange. Remove any burrs.
3. Locate the brake backing plate over holes 1 through 4 (Figure 5) in the axle housing flange. Using a transfer punch, mark the center of the bottom hole of the axle flange.
4. Drill 13/32" hole in brake backing plate. Remove any burrs.
5. Apply a light coating of oil to o-ring on spindle (Figure 4).
6. Install spindle in axle housing bore.
7. While holding spindle, install 4 T-bolts in holes 1 through 4 (Figure 5).

NOTE: For T-bolts installed in holes 1 through 4, the heads should be located on the inboard side of the axle flange.

8. Install backing plate on T-bolts.
9. Install the bottom T-bolt.

NOTE: The bottom T-bolt head should be located on the outboard side of the backing plate.

NOTE: Turn the bottom T-bolt head horizontal so the wheel hub will clear it.

10. Place a washer (included in kit) on threaded end of the bottom T-bolt..

11. Start 3/8-24 lock nuts onto T-bolts. Torque to 50 ft-lb.

NOTE: Torque bolts in the order shown in Figure 5.

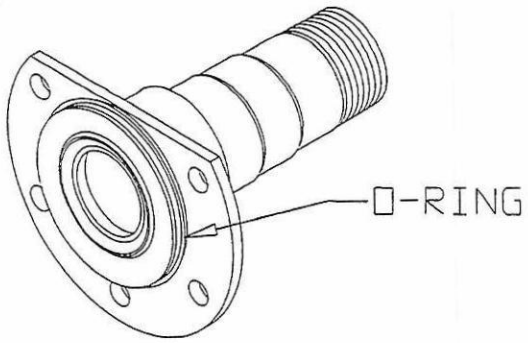


Figure 4. Spindle o-ring.

WARNING

Excess force can cause tool slippage or breakage and damage to the nut. **DO NOT OVERTORQUE NUTS.** Broken or slipping wrenches can cause eye or other injury.

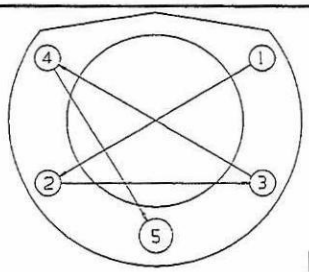


Figure 5 - Spindle installation nut tightening sequence.

BEARING INSTALLATION

NOTE: Bearing cups are pre-installed in wheel hubs.

1. Inspect inside of wheel hub and clean if necessary.
2. Pack wheel hub inner diameter (Figure 6, Flag 1) with wheel bearing grease.
3. Apply a coating of grease to the inside diameter of the bearing cups.
4. Pack the inner wheel bearing with wheel bearing grease. Use a wheel bearing packer if possible. To pack by hand, place a large amount of grease in the palm of your hand and force the edge of the bearing into the grease so that it fills with grease. Continue until the whole bearing is coated with grease. Apply additional grease with fingers

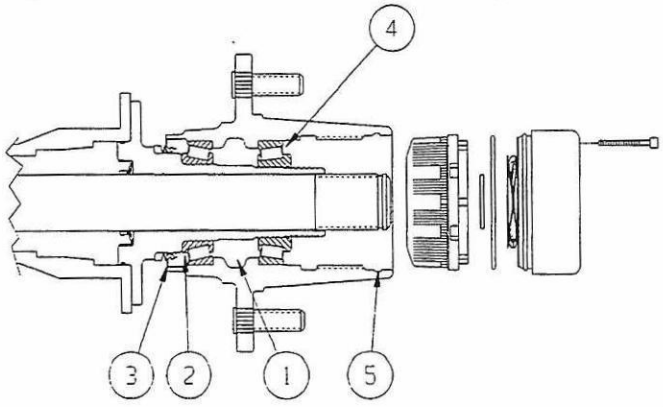


Figure 6. Bearing and seal installation.

NOTE: To ensure correct installation, refer to page 2 for bearing part numbers.

5. Install packed bearing into cup on inboard side of wheel hub.
6. Apply additional grease to top of installed bearing (Figure 6, Flag 2).
7. Press large radial seal into seat in hub (Figure 6, Flag 3).

NOTE: Seal should be flush with edge of hub.

8. Pack outer bearing with grease using the same technique described in step 4.
9. Install outer bearing (Figure 6, Flag 4).

WHEEL HUB INSTALLATION

1. Apply a light coating of grease to the spindle.
2. Install V-seal on spindle with thick section inboard (Figure 2, Flag 20)
3. Slide wheel hub assembly onto spindle.

NOTE: Keep wheel hub aligned with spindle so bearings don't stick on spindle.

NOTE: Check clearance between parking brake strut (Figure 7, Flag 1) and wheel hub. If there is interference, bend parking brake strut to fit around hub with no contact. Use Figure 8 as a guide.

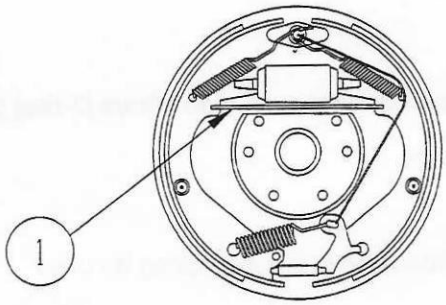


Figure 7. Rear Drum Brake And Strut.

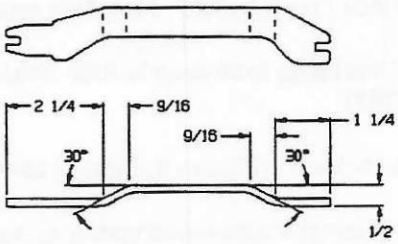


Figure 8 - Parking Brake Strut

4. Thread inner nut (Figure 2, Flag 11) on spindle.

NOTE: Pin on nut should face outboard (Figure 2, Flag 12).

5. Using hub spindle nut socket (Figure 1) and torque wrench, torque nut to 50 ft-lb. Rotate wheel back and forth while tightening the nut. This helps seat the bearings.
6. Loosen the nut 1/2 turn (180 degrees).
7. Retorque the nut to 3 to 5 ft-lb.

NOTE: All free clearance should be removed from the bearings. If not, repeat procedure.

8. Install lock washer on spindle.

NOTE: Align tab on washer with spindle keyway (Figure 2, Flags 10 and 21).

NOTE: Pin on inner nut must fit into a slot on washer. If it doesn't, flip washer over and reinstall (Figure 2, Flags 12 and 9).

9. Thread outer nut on spindle.

NOTE: Socket heads on set screws should face outboard (Figure 2, Flag 7).

10. Torque outer nut to 30 ft-lb.

11. Tighten all 3 set screws until they bottom out. Use a 5/64" hex key.
12. Place Brake Drum back on wheel drum.

NOTE: The set screws prevent the outer nut from backing off. At least one set screw should enter a washer slot. It will take 3 to 4 turns to bottom out if it is in a slot. Set screws not in a slot will bottom out in less than 1 turn.

HUBLOCK INSTALLATION

NOTE: Do not add grease to hublocks.

1. Separate body assembly from cap assembly (Figure 2, Flags 6 and 3).
2. Install body assembly (Figure 2, Flag 6) on axle shaft.

NOTE: Install hublock body on axle end that has retaining ring groove (Figure 2, Flag 27).

3. Using snap ring pliers, install axle retaining ring (Figure 2, Flag 5).
4. Insert axle shaft into axle housing .

NOTE: Hold shaft level and use care to avoid damaging seals.

5. Rotate the shaft so its splines align with the differential side gear.
6. Push shaft in so hublock body engages splines in wheel hub and lock ring groove in wheel hub is visible.
7. Install large lock ring (Figure 2, Flag 4) in groove in wheel hub.

NOTE: Ensure that large lock ring is fully seated. The lock ring can be removed with Plews O-ring pick (P/N 72-017).

NOTE: Dial hublock cap (Figure 2, Flag 3) to FREE position.

8..Insert spacer (tubing) inside wave spring as shown in Figure 9. Make sure that wave spring is coiled properly (not overlapping).
9. Place hublock cap on body as shown in Figure 10.
10. Install small o-rings on cap screws.
11. Align holes on cap using one socket head cap screw (Figure2, Flag 2) as a pilot.
12. Insert remaining 5 cap screws. Torque to 25-30 **INCH**-lb.

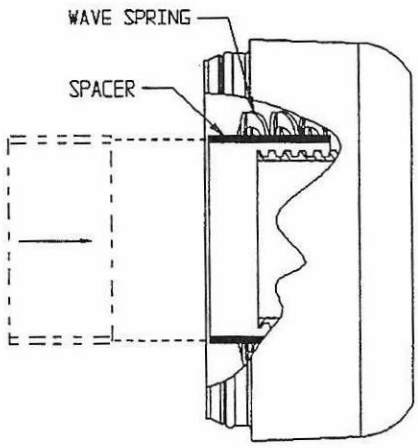


Figure 9 - Hublock Cap With Spacer

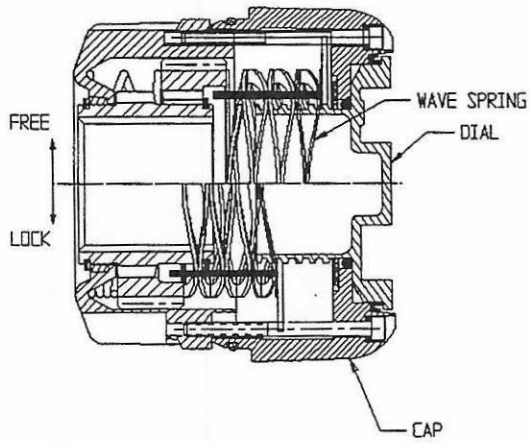


Figure 10 - Hublock Cross Section

BLEEDING THE BRAKES

1. Replace OEM bleeder screws with Russell™ Speed Bleeder™ valves (included in kit Figure 2, Flag 29).
2. Reconnect brake lines. Install brake drums.
3. Clean master cylinder cover.

4. Remove cover and fill master cylinder with brake fluid if necessary.
5. Reinstall cover.
6. Open the metering section of the combination valve.

NOTE: The combination or metering valve may need bleeding. The method to open the valve depends on the model. Consult a Scout maintenance manual for detailed information.

7. Attach hose to Russell Speed Bleeder. Place free end of hose in a transparent container.
8. Open Russell Speed Bleeder 1/4 to 1/2 turn.
9. Pump brakes until air is purged from wheel cylinder.

NOTE: The Russell Speed Bleeder does not have to be closed between pumps.

10. Close valve.

NOTE: Add fluid to master cylinder as necessary.

11. Repeat for other wheel.

HUBLOCK CHECK

1. To check for proper engagement, dial both hublocks to LOCK. You may need to rock the vehicle slightly while dialing hublock to lock position to ensure proper alignment and full engagement. Spin one axle.

NOTE: For an open differential, the opposite axle will reverse rotate if the hublocks are engaging properly.

NOTE: For a locking differential, the drive line and opposite axle will turn if the hublocks are engaging properly.

2. To check for proper disengagement, dial one hublock to FREE and spin the same axle.

NOTE: For a locking differential, if the drive line does not turn and there are no ratcheting sounds, the hublock is disengaging properly.

NOTE: For an open differential, if the opposite axle does not turn and there are no ratcheting sounds, the hublock is disengaging properly.

3. Repeat steps 1 and 2 for opposite hublock.

4. Install wheels and tires. Snug lug nuts.

5. Lift vehicle. Remove jackstands. Lower vehicle to ground.

6. Torque lug nuts per manufacturer's specifications.

Warn 4x4 Full Floating Axle Kit
Limited Warranty

Warn Industries, Inc. ("Warn") warrants parts and labor directly to the first purchaser of each Warn Full Floating Axle Kit ("Kit") against defects in material and workmanship appearing under normal use and service for as long as said purchaser owns the Warn Full Floating Axle Kit (Bearings and seals are not covered). If you discover a covered defect, Warn will, at its option, repair, replace, or refund the purchase price of the Kit, or components, at no charge to you, provided you remove the Kit or components from the vehicle and return them prepaid to the nearest Warn Industries' Factory Authorized Jobber. You can obtain additional information from Warn directly at the address printed below. Please attach to the returned Kit or components, your name, address, telephone number, a description of the problem and a copy of the bill of sale (as proof of original retail purchase). To obtain warranty coverage, it is absolutely necessary that you present proof of purchase acceptable to Warn, such as a copy of the purchase receipt.

This warranty does not apply if the product has been damaged by: accident, abuse, misuse, collision, overloading, or misapplication; or has been improperly: installed, used, serviced, or modified without the written permission of Warn.

Except as expressly stated herein, there are no warranties, express or implied, including implied warranties of merchantability or fitness for a particular purpose. Any implied warranty of merchantability or fitness for a particular purpose which by law may not be excluded is limited in duration to one (1) year from the date of the original retail purchase of this product.

The warranty and the remedies set forth above are exclusive and in lieu of all others, oral or written, express or implied. No Warn dealer, agent or employee is authorized to make any modification, extension or addition to this warranty.

In no event is Warn responsible for special, incidental or consequential damages resulting from any breach of warranty, or under any other legal theory, including, but not limited to lost profits, down time, goodwill, damage to or replacement of equipment and property, loss of use of the product or of any associated equipment, or cost of substituted products.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitation on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may have other rights which vary from state to state.

Warranty inquires should be directed to: WARN INDUSTRIES, INC.
Full Floating Axle Customer Service Department
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