

INSTALL INSTRUCTIONS



RAM ASSIST SINGLE-ENDED RAM REBUILD KIT

304201-KIT (FOR 1.5" BORE X 3/4" ROD RAMS WITH 6" OR 8" STROKE)
304202-KIT (FOR 2" BORE X 3/4" ROD RAMS WITH 6" OR 8" STROKE)

KIT CONTENTS



304202-INS

TRAIL-GEAR

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USA TOLL FREE: 877.4X4.TOYS • WORLDWIDE: 559.252.4950
WWW.TRAIL-GEAR.COM

INSTALL INSTRUCTIONS (CONT'D.)



RECOMMENDED TOOLS

Vise	3/16" Pin Adjustable Spanner Wrench (For 2" bore rams only)
Small Flat Head Screwdriver	Rod Seal Installation Tool
Set of Seal Removal Picks	Rubber Mallet
Safety Glasses	Clean Shop Towels or Rags
Oven or Hot Water Bath	Power Steering Fluid
Floor Jack	Thermometer
Drain Pan	Jack Stands
Replacement Steering System Filter	Grease (compatible with power steering fluid)
2" Dia. x 1/4" Pin Spanner Wrench (For 1.5" bore rams only)	Seal Driver

CAUTION

1. Read all instructions completely and carefully before you begin. If anything is not clear, please call our tech support line at 1.877.4X4.TOYS or 559.252.4950 or email tech@trail-gear.com before proceeding.
2. Check to make sure the kit is complete and that no parts are missing (refer to the Kit Contents Section on the first page of these instructions). If anything is missing, please contact Trail-Gear at 1.877.4X4.TOYS or 559.252.4950 or email tech@trail-gear.com.
3. Park vehicle on a clean, dry, flat, level surface and block the tires so the vehicle cannot roll in either direction.
4. This product is for off-road use only. It is recommended that the installation steps below be performed by a competent mechanic, preferably one experienced in hydraulic cylinder rebuilding. Buyers and users of this product hereby expressly assume all risks associated with the installation and use of this product.



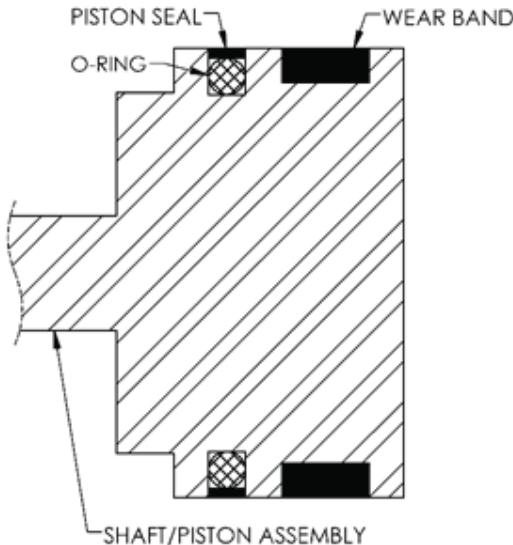
INSTALL INSTRUCTIONS (CONT'D.)



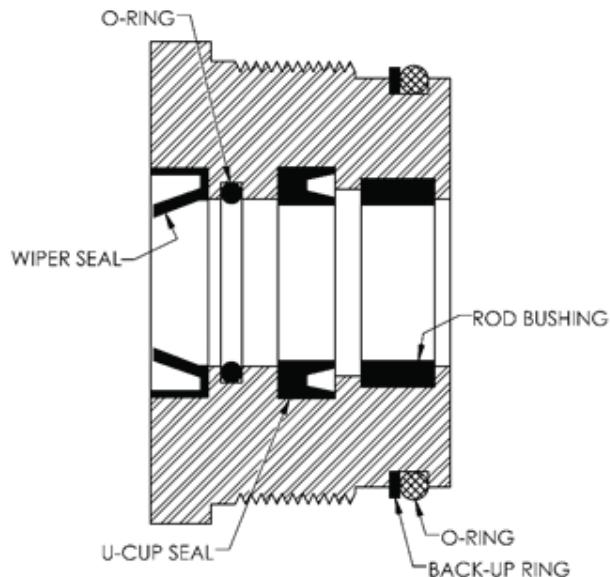
INSTALLATION NOTES

Refer to the following diagrams when installing the seals to make sure the seals are installed in the proper orientation:

PISTON SEAL ARRANGEMENT



SEAL GLAND SEAL ARRANGEMENT



STEP 1

Remove the steering ram from the vehicle and drain the oil from the ram. Place the ram securely in a vise as shown. Use shop rags or Delrin vise jaws to prevent marring the finish on the ram cylinder.



INSTALL INSTRUCTIONS (CONT'D.)



STEP 2 (1.5" RAMS)

Using a 2" spanner wrench, unscrew the seal gland from the cylinder. Carefully remove the seal gland and set aside for later use.



STEP 2 (2" RAMS)

Using an adjustable pin spanner, unscrew the seal gland from the cylinder. Carefully remove the seal gland and set aside for later use.



STEP 3

Take hold of the shaft and slowly pull the shaft from the cylinder. Use care to not damage the shaft threads or the cylinder threads.



STEP 4

Wipe the shaft and piston assembly clean. Place the assembly on a clean, dry shop towel.



STEP 5

Carefully remove the wear band from the piston. Save the wear band for reinstallation.



INSTALL INSTRUCTIONS (CONT'D.)



STEP 6

Remove the piston seal from the piston. We recommend using a sharp seal pick to stab and break the seal in one spot. Use care to not damage the piston. Discard the piston seal.



STEP 7

Using a seal pick, remove the piston O-ring. Use care to not damage the piston. Discard the piston O-ring.



STEP 8

Inspect and clean the piston and shaft. Carefully remove all dirt and debris from the piston and shaft.

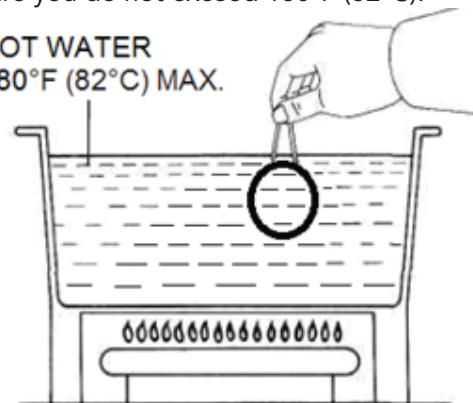
STEP 9



STEP 10

Heat the new piston seal to 150°F-180°F (65°C-82°C) in an oven or clean water bath. This will make the piston seal more pliable and easier to install. DO NOT exceed 180°F (82°C), as this will damage the seal. Use a pocket or cooking thermometer to make sure you do not exceed 180°F (82°C).

HOT WATER
180°F (82°C) MAX.



INSTALL INSTRUCTIONS (CONT'D.)



STEP 11

Make sure the new piston seal is dry. Carefully work the new piston seal over the piston and into the groove. Take care to not overstretch the seal.



STEP 13

Carefully remove the O-ring and back-up ring from the OD of the seal gland. Use care to not damage the seal gland. Discard the O-ring and back-up ring.



STEP 15

Carefully remove the O-ring from the ID of the seal gland. Use care to not damage the seal gland. Discard the O-ring.



STEP 12

Make sure the piston wear band you removed in Step 5 is clean and free of debris. Carefully reinstall the wear band back onto the piston. Set aside the completed piston and shaft assembly for later reinstallation.



STEP 14

Using a sturdy steel seal pick or small screwdriver, carefully wedge the tool in between the gland and the metal can of the wiper seal. Collapse the metal can inward and remove the entire wiper seal. This will be a difficult process, so go slowly and use care to not damage the seal gland. Discard the wiper seal.



STEP 16

Carefully remove the U-cup seal from the ID of the seal gland. Use care to not damage the seal gland. Discard the U-cup seal.



INSTALL INSTRUCTIONS (CONT'D.)



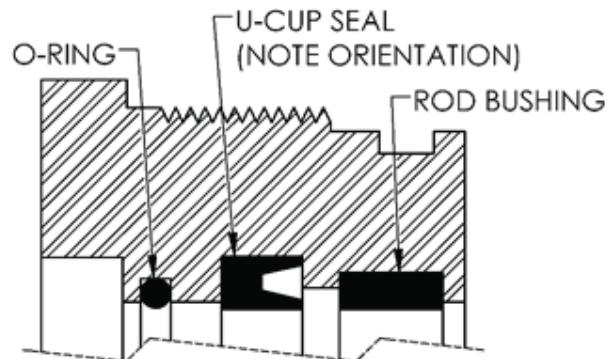
STEP 17

DO NOT remove the rod bushing from the bottom of the gland. It does not need to be replaced. Carefully remove all dirt and debris from the seal gland before moving to the next step.



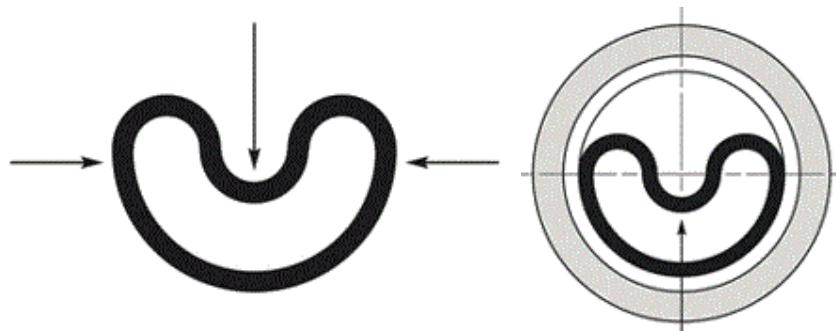
STEP 18

Install the O-ring into the O-ring groove. Next, using a rod seal installation tool, install the U-cup seal into the seal gland. The opening of the "U" should be pointed towards the inside of the cylinder. Using your finger, make sure that the U-cup seal has returned to a circular shape.



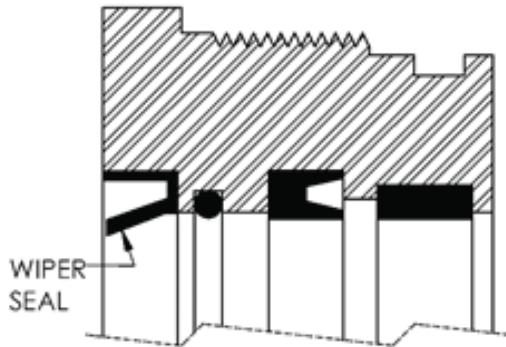
(STEP 18 - ALTERNATE METHOD)

If you do not have a rod seal installation tool, carefully bend the U-cup seal into a kidney shape. Make sure that the bends are not sharp. Install the U-cup seal into the groove. Next, manually reshape the U-cup seal into a circle. Make sure that the U-cup seal is fully seated into the groove.



STEP 19

Install the wiper seal into the seal gland using a seal driver. Before pressing the wiper seal into the gland, make sure you are installing the wiper seal in the correct orientation.

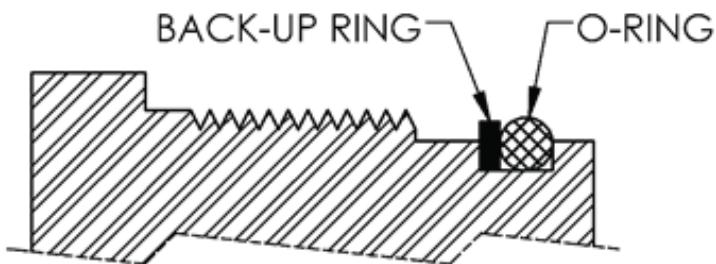


INSTALL INSTRUCTIONS (CONT'D.)



STEP 20

Install the back-up ring and O-ring onto the OD of the seal gland. Put the newly rebuilt seal gland aside.

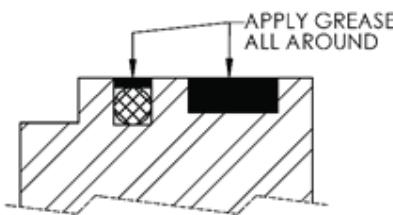


STEP 21

Carefully clean and inspect the ID of the cylinder to make sure there are no scratches or gouges. If any are present, smooth the edges down with jeweler's files.

STEP 22

Apply grease to the OD of the piston seals. Carefully and slowly insert the shaft & piston assembly back into the cylinder. Keep the shaft parallel with the cylinder at all times. Note: Make sure the grease that you use is compatible with power steering fluid. DO NOT reinstall the piston into the cylinder without lubricating the seals, as this will damage the seals and cause premature seal failure.

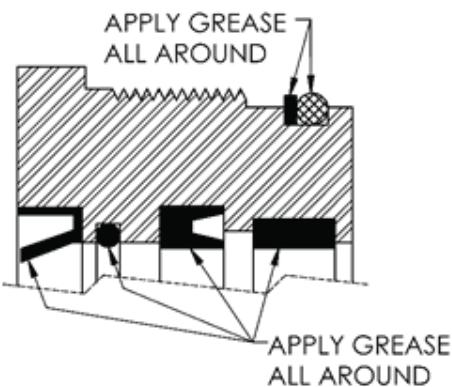


INSTALL INSTRUCTIONS (CONT'D.)



STEP 23

Apply grease to the ID & OD of the seals on the seal glands. Carefully slide the seal gland onto the shaft and reinsert the gland into the cylinder. Keep the seal gland parallel with the cylinder at all times. Note: Make sure the grease that you use is compatible with power steering fluid. DO NOT reinstall the seal gland into the cylinder without lubricating the seals, as this will damage the seals and cause premature seal failure.



STEP 24

Slowly screw the seal gland back into the cylinder. Make sure the threads are snug.



STEP 25

Completely drain the hydraulic steering system on your vehicle and change the steering system filter. Reinstall the steering ram and fill your power steering reservoir with fresh power steering fluid.

STEP 26

With the vehicle on jack stands and tires completely off the ground and engine off, turn the steering wheel from lock to lock several times and then refill the power steering reservoir with fluid. This is done so that the power steering pump does not get started dry, which can cause damage to the pump.

STEP 27

Start the engine and turn the steering wheel from lock to lock. We recommend that you run the motor at idle for about 5 minutes at a time while bleeding the steering system. Allow the oil to sit until all the bubbles have separated out of the oil, then run the motor again for 5 minutes. Repeat this procedure until the oil runs without foam or bubbles.

REPLACEMENT PARTS

This product is sold as a complete seal kit only. Seals are not available individually.