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Water Pump Seal Replacement

This Manual provides instructions on how to replace the water pump seals on the Sherco 2001 – 2003 models (1.25, 2.0, 2.5, 2.9). Water pump seals should be replaced when the transmission oil appears “milky” whitish in color, indicating that coolant has mixed with the transmission oil. They also require replacement when coolant is leaking out of the clutch cover “weep” hole.

We recommend that while you have the bike apart that you replace both seals and the shaft. These parts are available from Ryan Young Products.

While the 1999 and 2000 models utilized a single seal design, the basic instructions apply to them, as well.

The motorcycle shown in the pictures is an in-service 2002 2.9, but the same principles apply for the 1.25 through 2.5 models, too.

If you have any questions about the procedure, please call Ryan Young Products at 1-800-607-8742.



Step 1: Drain the transmission oil

1. Support the bike on a suitable stand.



2. Place an oil drain pan under the engine.

3. Using a 5mm Allen wrench remove the oil drain plug and drain the oil.

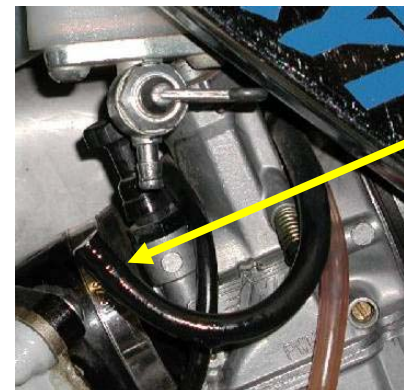
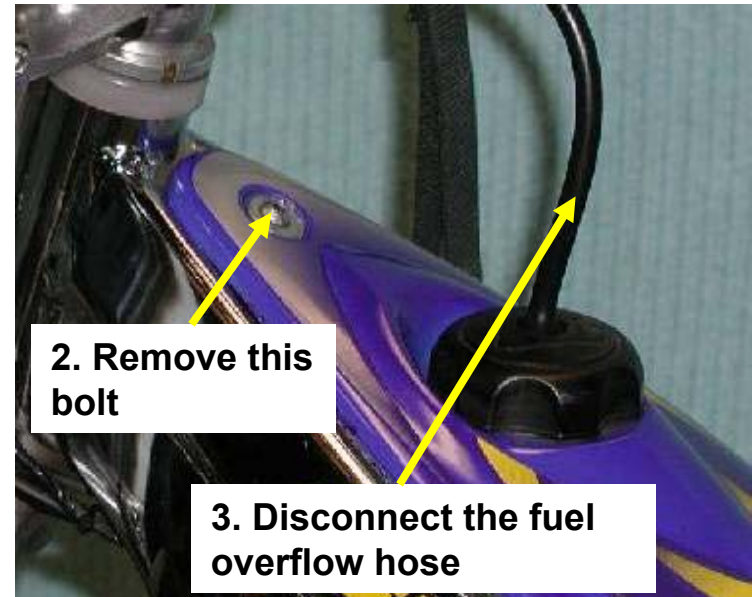


Step 2: Drain the engine coolant

Remove the rear fender and the fuel tank.



Use a 4mm Allen wrench to remove the 4 bolts shown on this page.



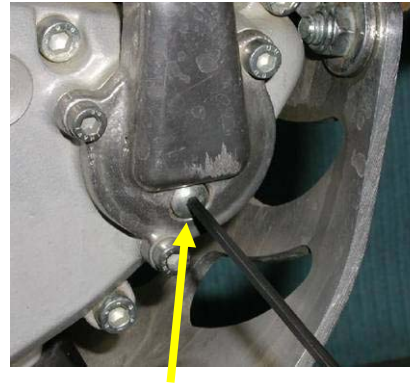
Remove the fender and fuel tank and set them aside.

Step 4: Remove the water pump cover

Step 3: Remove the radiator cap



The cap can be removed without removing the ignition coil assembly. Use a long screwdriver to tap the cap threads loose from the radiator assembly.



1. Using a 3mm Allen wrench, remove the engine coolant drain plug and drain the coolant into a suitable container.



2. Using a 4mm Allen wrench, remove the 3 bolts that retain the water pump cover.



3. Use a zip tie to fasten the water pump cover to the exhaust pipe, moving it out of the way.



Step 4: Continued.



With the water pump cover removed,
the impeller is exposed.

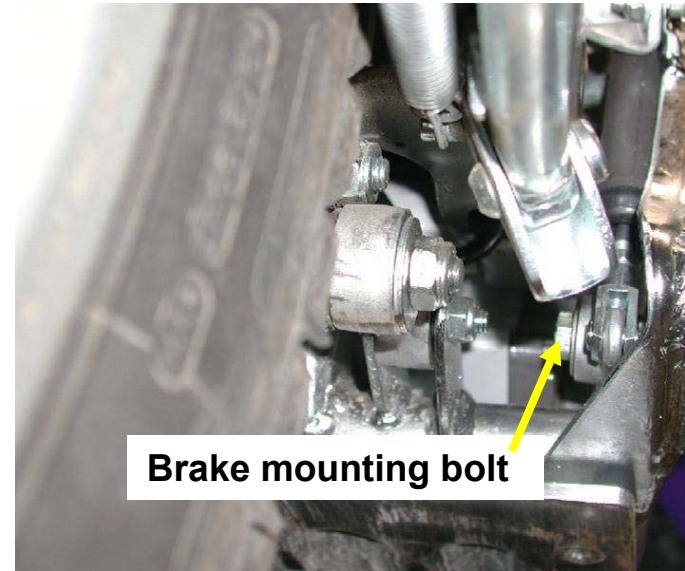
***DO NOT REMOVE THE IMPELLER
AT THIS TIME AS YOU COULD
CAUSE DAMAGE TO THE INTERNAL
DRIVE GEAR.***



Step 5: Remove the clutch cover



1. Using a 5mm Allen wrench, remove the kick starter bolt and then remove the kick starter lever.



2. Using a 13mm box end wrench, remove the rear brake pedal mounting bolt, to remove the rear brake pedal.



Step 5: Continued.

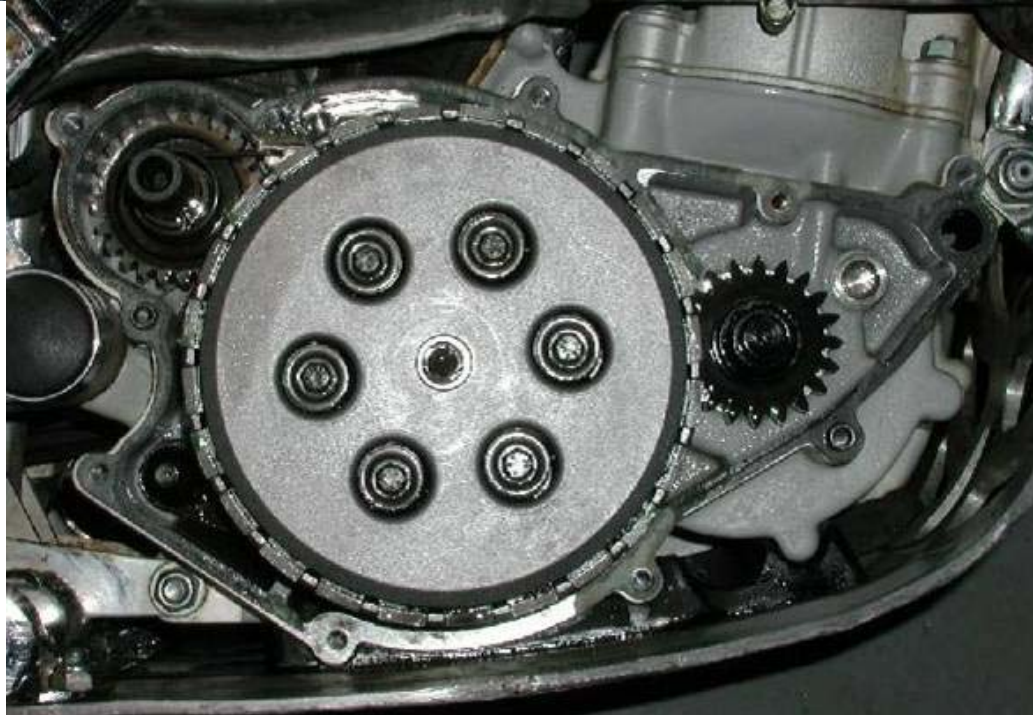


3. Using a 5mm Allen wrench, remove the 10 bolts that secure the clutch cover to the engine. Carefully remove the clutch cover. You may have to gently tap the sides of the cover with a plastic hammer to loosen and remove it.

Tip: lay the bike over on it's gear shifter side to make it easier to work on.



Step 6: Clean off the old gasket.



View of engine with clutch cover removed. Note that the gasket tore unevenly in a few places as the cover was removed. Use a gasket scraper to remove any trace of the old gasket, being careful not to nick or gouge the engine housing mating surface.

Be careful to prevent any pieces of old gasket from falling into the transmission area.



Inside view of clutch cover. Note the remaining traces of old gasket on the cover. Use a gasket scraper to remove all traces of the old gasket, being careful not to nick or gouge the side case mating surface.



Thrust Washer



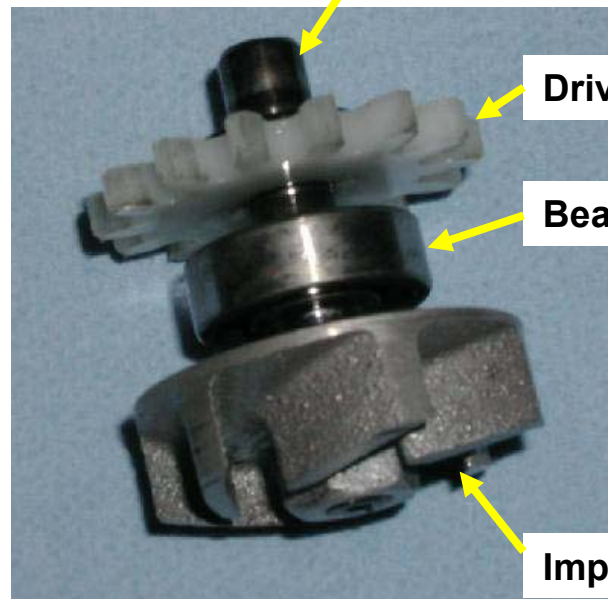
This photo shows the water pump drive gear and the thrust washer, which can fall off of the shaft when the side cover assembly is handled. Be careful that this washer does not fall into the internal transmission, as it may cause severe damage.

Shaft

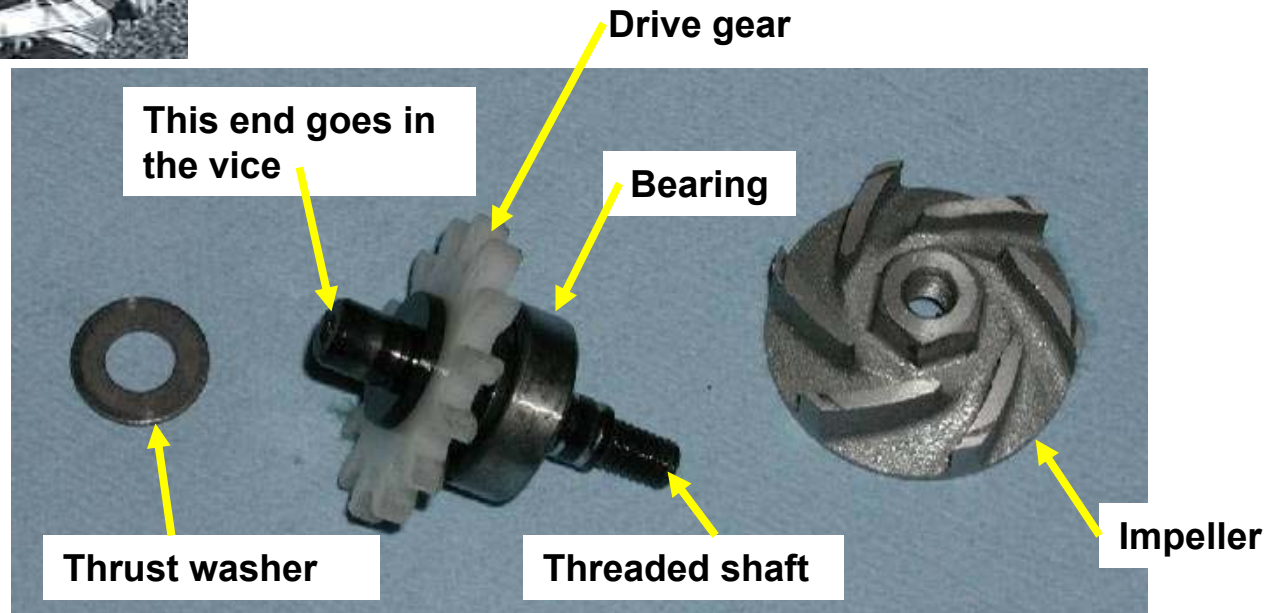
Drive Gear

Bearing

Impeller



This photo shows the water pump assembly after it has been removed from the cover and with the impeller reinstalled. This picture is shown for reference purposes only.



View of the water pump assembly with the impeller and thrust washer removed.

To remove the impeller from the shaft when it is installed in the clutch cover:

- 1. Install brass or plastic adapters on your vice to avoid damaging the shaft.**
- 2. Place the end of the shaft in the vice, (as shown in the photo above) do not over tighten the vice.**
- 3. Use a 12mm socket and remove the impeller, which utilizes a standard thread on it's retaining nut.**
- 4. The bearing and the drive gear push off of the shaft towards the threaded end of the shaft.**



View of clutch side cover with the outer seal in place.

To remove the seals, place a small screwdriver into the shaft area of the seal to pry it out. Be careful not to damage the housing around the seal by nicking or scraping.

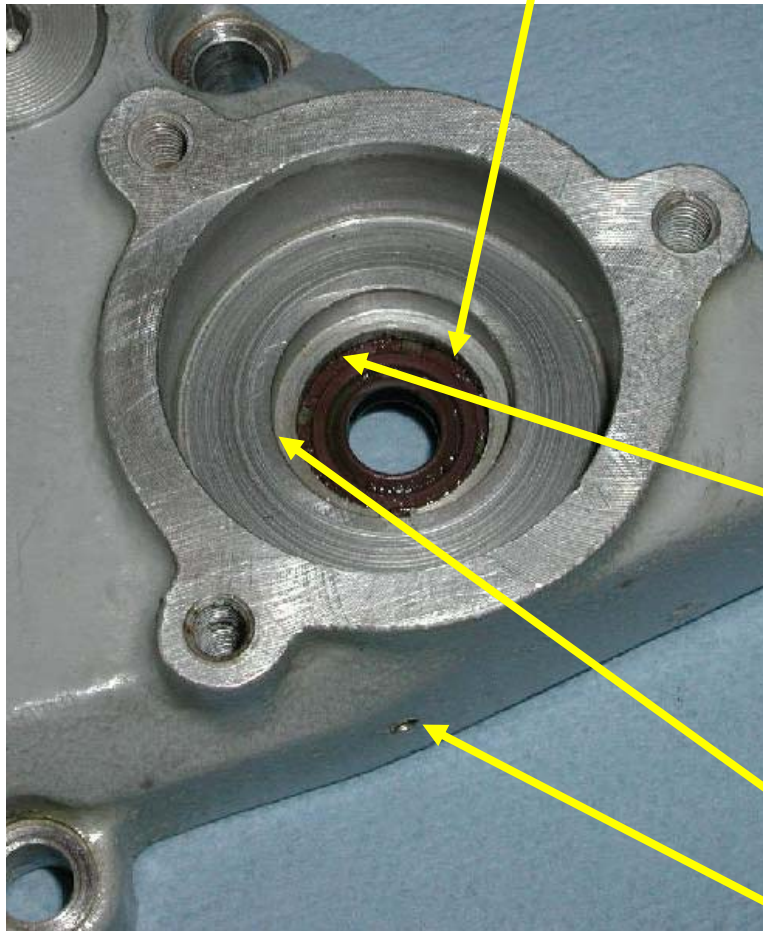


View of clutch side cover with the outer seal removed.

Note that there is another seal below the seal you just removed. Sherco uses two back-to-back seals on the water pump shaft. The outer seal keeps the coolant in the cooling system, while the inner seal keeps the transmission oil in the transmission.



View of inner seal, with outer seal removed.



Note the weep hole in the photo that was added in 2001 when the design was changed to the two-seal system.

If coolant is leaking out of the weep hole, the outer seal will have to be replaced. If transmission oil is leaking out of the weep hole, the inner seal will have to be replaced.

We suggest replacing both the outer and inner seals simultaneously.

Note also the shoulder in the water pump area against which the seals seat. The seal should seat flush with the top of this shoulder. Be careful not to allow the seal to "cock" sideways during installation.

The "outer" seal sits in this cavity.

"Weep hole"



Step 7: Install the new seal

1. Note that each seal has 2 sides: inside and outside.
2. Install the seals into the clutch cover with the outside of the seal facing up.
3. Use a seal driver or a socket that is the same diameter as the seal to drive the seal into the housing until it is flush with the inside surface of the clutch cover. (See photo on page 12 of the seal properly installed)
4. Lightly grease the inner surface of the seals.
5. Reinstall the water pump assembly into the clutch cover.. Install the impeller the same way you removed it by placing the shaft in the vice and screwing it onto the threaded shaft. Tighten the impeller nut to 6 ft lbs.
6. Apply a dab of grease to the thrust washer and place it in position as shown below.



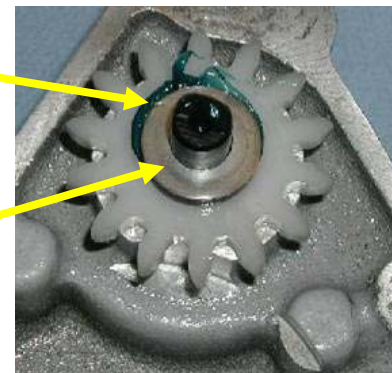
Inside



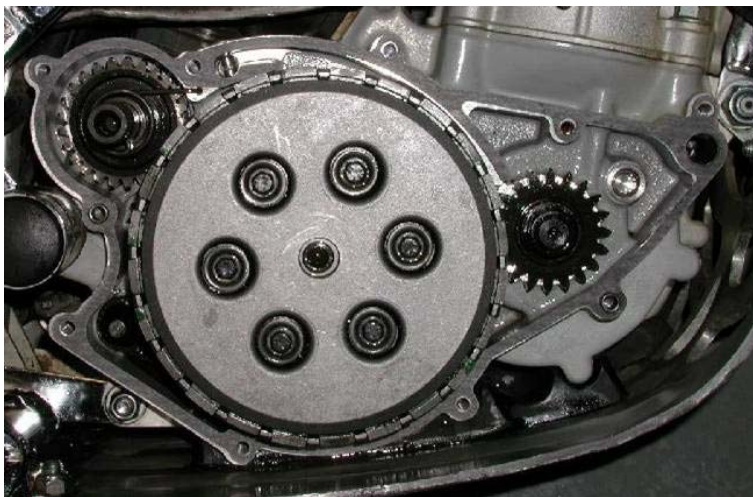
Outside

Grease

Thrust washer



Step 8: Reassembly.



Generally, reassembly is the same as assembly, but performed in reverse order.

1. Install a new clutch cover gasket on the engine housing ensuring that the gasket properly aligns with the bolt holes and perimeter of the side case.
2. Carefully install the clutch cover, ensuring that the water pump thrust washer is not accidentally dropped off the shaft. Be careful to properly align the water pump gear with the drive gear to prevent damage to the gears
3. Tighten the 10 clutch cover bolts to 8 ft lbs.

4. Reinstall the water pump cover, inspecting the o-ring seal to make sure it is serviceable, and then tighten the 3 bolts to 5 ft lbs.

5. Reinstall the coolant drain plug. Inspect the seal to make sure it is serviceable.

6. Reinstall the kick starter and tighten the mounting bolt to 15 ft lbs.

7. Reinstall the rear brake pedal and tighten the mounting bolt to 15 ft lbs.

8. Fill the transmission with 450cc of a high grade transmission oil. We recommend Maxima MTL.

9. Fill the cooling system to the top inside collar of the radiator with a 50/50 mixture of Ethylene Glycol and water. We recommend Maxima Coolanol.

10. Reinstall the fuel tank and the rear fender.

11. Take the bike for a test ride. Check that no coolant leaks from the water pump weep hole. Change the oil after 2 hours of riding to confirm that the used oil is a normal brown color, indicating that the seal was correctly installed.

Note: We recommend that you apply anti seize to all fasteners.