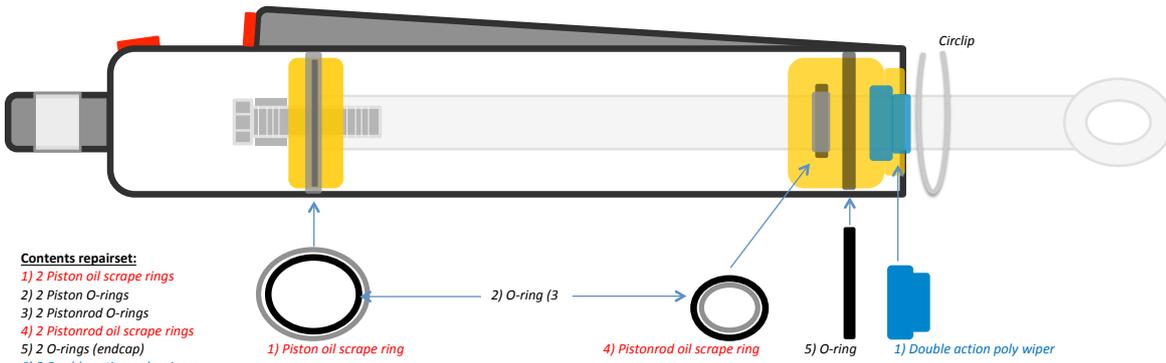


## Volvo Penta steering cylinder repairset for 2 cylinders.

This steering cylinder is at least mounted on the following drives: [DPH-A](#), [DPH-B](#), [DPH-C](#), [DPR-A](#), [DPR-B](#), [DPR-C](#)  
 Volvo Penta OEM nr.: 22452005, 21745119



### Contents repairset:

- 1) 2 Piston oil scrape rings
- 2) 2 Piston O-rings
- 3) 2 Pistonrod O-rings
- 4) 2 Pistonrod oil scrape rings
- 5) 2 O-rings (endcap)
- 6) 2 Double action poly wipers

### Instructions

#### 1) Demounting

- a) First remove the bellow from the pistonrod. If the bellow is glued and/or fixed with a tie-wrap first carefully cut the bellow loose from the cylinder without harming the cylinder. If the bellow(s) can not be used again your Volvo Penta supplier can deliver new bellows. There are 2 models available. See picture A.
- b) Then place the cylinder in a vice (if available) and remove the circlip. This can be a quite delicate job because the circlip is most of the time stuck caused by dirt. For cleaning the area around the circlip you can use brake cleaner or WD-40. Use a small and thin screwdriver to get under the circlip and lift it to remove the circlip. It can take some time to get it removed.  
**Tip:** To loosen the circlip place a screwdriver to the outer end of the circlip and hit softly the screwdriver with a hammer till the circlip start turning so it will be easier to remove.
- c) Then the pistonrod should be pulled out of the cylinder. First try to pull the pistonrod out of the cylinder by hand. If this doesn't work place the upper end of the cylinder in a vice with the pistonrod faced down. Make sure that you place the vice at the end and not squeeze and harm the cylinder. See picture B. Put a pin in the end of the pistonrod and hit carefully on the pin to get the pistonrod removed. Another option is to fix the pistonrod in a vice and try to get the cylinder removed by pulling it up and down by hand. Most of the time this will work if the piston is not too much stuck in the cylinder.
- d) Remove the bolt which fixes the piston. See picture C.
- e) When the piston is removed slide the endcap of the pistonrod.
- f) Remove the O-ring and piston oil scrape ring from the piston. Remove the O-ring on the outer side of the endcap. Remove the O-ring and oil scrape ring from the inner side of the endcap. Remove the poly wiper from the endcap.
- g) Clean the endcap, piston and pistonrod and the cylinder thoroughly with scotchbrite See picture C. Do NOT use sandpaper. Any part of dirt or sand will cause leakage of the cylinder.

#### 2) Mounting

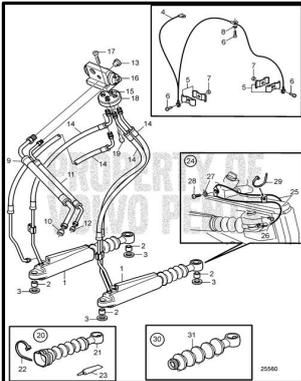
- a) Mount the correct O-ring on the outer side of the piston. Then carefully slide the oil scrape ring over the piston and push it into position. Do NOT use sharp tools which might harm the oil scrape ring.
- b) Mount the O-ring on the outer side of the endcap. Mount the correct O-ring on the inner side of the endcap and after that the oil scrape ring. To get the oil scrape ring into place you can use a stump tool to be sure the oil scrape ring will not be harmed. Any overstretching or damage will make the oil scrape ring worthless.
- c) Mount the double action poly wiper in the endcap.  
**Tip:** To get the O-rings, oil scrape rings and poly wiper into place you can use some ATF-oil to make the job easier.
- d) Put some ATF-oil on the piston rod and slide the endcap on the piston rod.
- e) Mount the piston on the pistonrod with the bolt. Fix the bolt with (Loctite) threadlocker which is suitable for hydraulic applications.
- f) Put some ATF-oil in the cylinder, on the piston and endcap end slide the pistonrod into the cylinder. After that mount the circlip.

#### 3) Testing

- a) You can test the rebuild cylinder by closing the threaded oil connections with a plastic bolt and try to move the pistonrod. If the plastic bolts do not leak air it must be very hard to move the pistonrod.
- b) If the cylinder is tested you can mount the bellow(s). Because most of the harm on these steering cylinders is caused by growth on the pistonrod which harms the poly wiper seal and the cylinder starts leaking. I advise to fix the bellow(s) with a tie-wrap and 2-component epoxy glue to be sure the bellow stays in place.
- c) When you mount the hydraulic lines from the steering pump back on the cylinder I advise to use Loctite 542 threadlocker for hydraulic applications. Do NOT use teflon.

Any questions please do not hesitate to contact me!

Picture A:



Picture B:



Picture C:

