

Original Threads

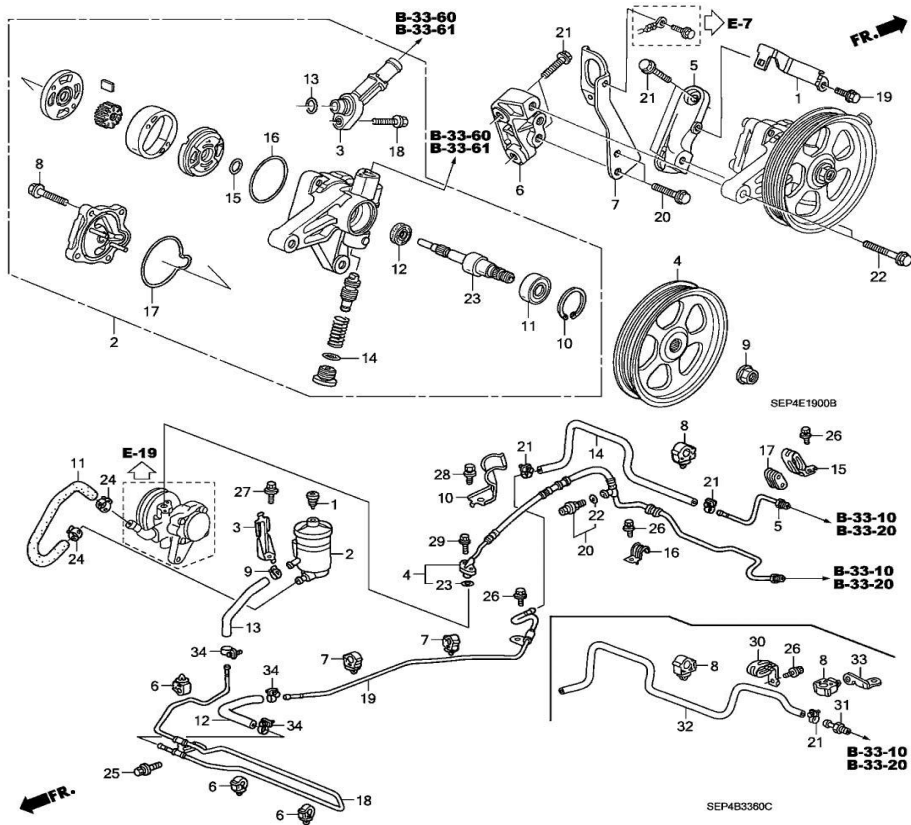
[Power Steering Pump Overhaul](#)
[Fluid Flush & Refill](#)

Online Vendors (Your preference, Google for more options)

parts.sonsacura.com
www.oemacuraparts.com
acura.bernardiparts.com

"my preference"

Diagram - #	Part #	Desc.	# Needed	
1 - #12	91249-PNC-003	SEAL, POWER STEERING PUMP	1	} <i>First Picture</i>
1 - #13	91345-RDA-A01	O-RING (13.0X1.9)	1	
1 - #14	91347-P2A-003	O-RING (15.2X2.4)	1	
1 - #15	91347-PAA-A01	O-RING (16.7X1.8)	1	
1 - #16	91348-P2A-003	O-RING (51.0X2.4)	1	
1 - #17	91349-P2A-003	SEAL, POWER STEERING PUMP COVER	1	
2 - #23	91370-SV4-000	O-RING (14.4X1.9)	1	→ <i>Second Picture</i>
N/A	08206-9002A	Acura FLUID, P.S. (12oz)	4	



Parts (the pump seal is missing from image, diagram #2 - part #23 above)



Tools & Items Suggested

Impact Wrench & Ratchet Wrench
Breaker Bar
Torque Wrench
Snap Ring Pliers
Hammer / Rubber Mallet
Sandwich Bags
Cardboard (4) Squares
Old Cloths (Many)
Turkey Baster
3/8" or 5/8" Rubber Hose (2-3')
Bucket/Container (Old Fluid)
Duct Tape & Twist Ties
Allen Wrench - 10mm
Socket - 24mm
Socket - 19mm
Socket - 14mm
Socket - 12mm
Socket - 10mm

1. Lay many old cloths on top of the accessory belt and surrounding area before beginning.
 2. Remove the side power steering pump inlet hose (tension clip) and use the sandwich bags and wire twist ties to encase, protect, and move aside the inlet hose.
 3. Next remove the (2) 10mm bolts from the power steering pump outlet hose, using the same sandwich bag and wire twist tie method. Protip: Use a straw (turkey baster) to extract some fluid from the pump itself to minimize making a mess. Do NOT turn your engine on or move the steering wheel at all until this hose is reconnected later in the process.
 4. Now, use a 14mm socket and ratchet with breaker bar to push back on the belt tensioner and move the belt off the ps pump pulley. Just move it off to the side, don't remove the belt entirely from the car, instead tuck it underneath the cloths/towels you've already laid down. Now would also be a good time to lay more old cloths on top of the accessory belt and surrounding area before continuing.
 5. There are (2) 12mm bolts that mount the power steering pump to the engine, remove the rear one first using your wrench, once it breaks free it will come out by hand easily. Next, pull the pump up a bit and you can fit a normal sized 6 point 12mm socket and ratchet in there with the breaker bar; be careful with hand placement here.
 6. At this point, the pump is free and your engine bay should look similar to this.
-



7. Take the power steering pump to a working area you can sit more comfortably. Remove the (4) 12mm bolts that holds the housing on the pump. Afterwards, three of the o-rings (#15, 16, and 17) that will be replaced becomes visible. Lubricate all new o-rings with power steering fluid by hand as you replace them, doing so liberally.





8. Next couple of o-rings are accessed on the exterior of the pump. One (#14) on the underside of the pump, remove the *10mm allen bolt* (flow control valve cap); breaker bar may be necessary. The other (#13) is near the front of the pump (herein lies the infamous o-ring replacement); use a *10mm socket* to remove this bolt. Hand tighten these bolts for now.



8a. Next the pulley will need to be removed to access the power steering pump seal (#12). Mark the pulley with whiteout, crayon, or similar in order to put back properly later. Place a screwdriver, bar, etc. in one of the pulley's eyes and use a *19mm socket and impact wrench* to break it loose.



8b. Take out the C-Clip using your *Snap Ring Pliers* .



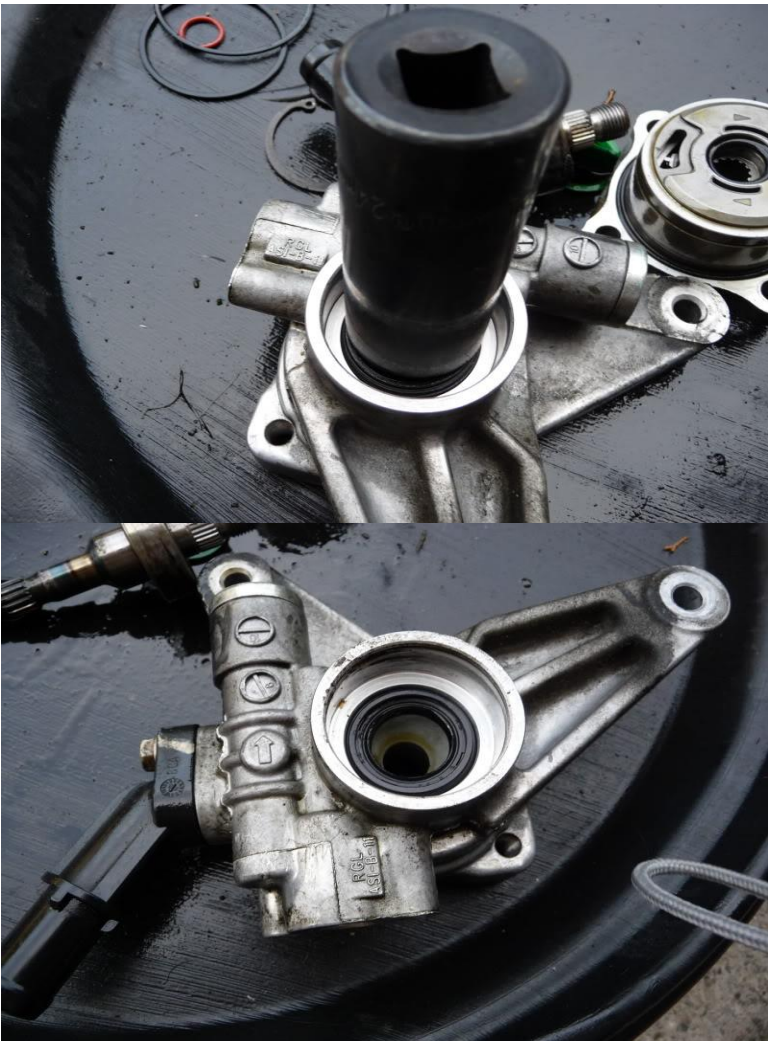
8c. Turn it around and hammer the shaft out.



8d. Pry out the seal while being careful not to scratch the insides, a wooden chopstick would work great here.



8e. Start the new seal with your fingers (Seal can only be installed one way) and hit the new one in till it's flush; easier accomplished by tapping a 24mm socket.



9. Hammer the shaft back in, re-install the C-Clip. Reassemble the pump components and remember to follow torque specifications (shop manual image #17-20 below and summarized immediately below); reattach the pulley to torque as well. Protip: When reassembling lay the power steering pump housing down and set the pump onto it, then tighten all the bolts up to torque specifications. Reattach the accessory belt.

9a. Before reattaching the power steering pump outlet line (2) 10mm bolts, the last o-ring (#23) will be replaced. Replace the last o-ring and reattach the inlet hoses with the respective bolts and tension clip.

Torque Specifications (reverse assembly order):

(4) 12mm bolts - Pump Housing Bolts - 14lbs/ft

(1) 10mm allen bolt - Flow Control Valve Cap - 36lbs/ft

(1) 10mm bolt - Inlet Pump - 8lbs/ft

(1) 19mm bolt - Pulley Bolt - 47lbs/ft

(2) 12mm bolts - Power Steering Mounting Bolts - 16lbs/ft

(2) 10mm bolts - Power Steering Outlet Hose - 8lbs/ft



10. Next, the power steering fluid will be drained and replaced. Before getting started, place two each of the cardboard squares (one on top of the other) under the front tires so the wheels will turn smoothly. You could also use jack stands.



11. Use the turkey baster and try to remove as much of the remaining fluid from the reservoir as possible and dump it into your bucket/container. Try to get the fluid level in the reservoir below the top hose. Reason for doing so is because when you remove the upper hose, any fluid above that outlet will spill out.

12. Slide the reservoir up and remove it from the bracket (it slides up and down so you have more room to work with). Stick some rags under the reservoir to catch any spilled fluid. Remove the hose indicated by the red arrows. This is the return line. You have 2 choices at this point. Disconnect the hose directly from the reservoir or disconnect the other end that connects to the metal tube by the radiator. Protip: The removal of the hose from the reservoir is preferred because its a very tight fit to remove the clamp on the other end.



13. Wipe up any drips after removing the hose quickly and be careful not to get any fluid on the drive belt; or elsewhere. Since the hose is only about 1.5' long you'll have to attach your extra piece of hose to the existing one; either with duct tape (3/8" option) or insert the original into your extra piece (5/8" option).



14. Stick the extra hose securely into your bucket/container so it will not flop around in a bit, then start the car. Turn the wheel from lock to lock a few times and all the fluid will come out. Continue to do this until the hose stops dripping.

15. Turn the car off. Remove your extra section of hose. Reattach the hose to the reservoir. Slide the reservoir back onto the bracket.

16. Add power steering fluid to the max (top) line. Start the car again. As soon as the car is started, all the fluid in the reservoir is quickly pulled into the hoses and the pump and the reservoir is dry again. Turn the car OFF again and pour power steering fluid to the max fill line again.

17. Turn the car back ON and turn the wheel from lock to lock at a constant, calm pace several times while keeping the engine at about 1,000 rpms. You will hear air in the system escaping, it's normal and may sound strange. Turn the car OFF again and add some more power steering fluid to the max fill line. Turn the car ON again and then turn the wheels from lock to lock again like before. Repeat this process until there are no more noises from the pump and the fluid stays stationary at the max fill line. (Bone dry is 37.2 ounces.)

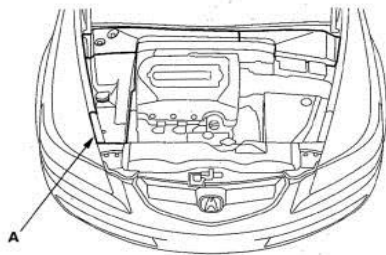
18. Go for a quick drive and check for noises while idling in and while turning. After parking, check the fluid level once more and check for leaks. If everything looks good then your done.

Repair Manuals

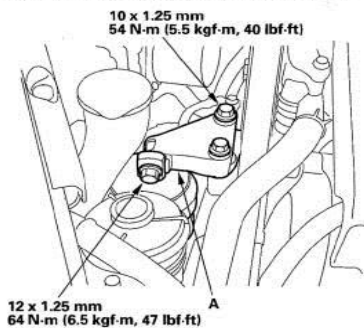
Power Steering

Pump Replacement

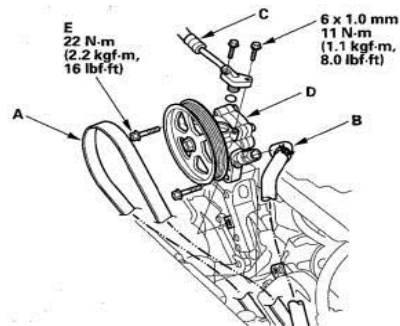
1. Place a suitable container under the vehicle.
2. Remove the right side engine component cover (A).



3. Drain the power steering fluid from the reservoir.
4. Remove the side engine mount bracket (A).



5. Remove the drive belt (A) from the pump pulley (see page 4-29).

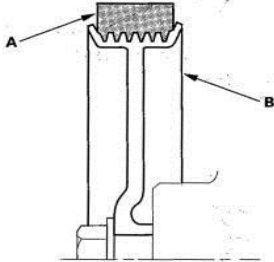


6. Cover the auto-tensioner, alternator, and A/C compressor with several shop towels to protect them from spilled power steering fluid. Disconnect the pump inlet hose (B) and pump outlet hose (C) from the pump (D), and plug them. Take care not to spill the fluid on the body or parts. Wipe off any spilled fluid at once. Do not turn the steering wheel with the pump removed.
7. Remove the pump mounting bolts (E).
8. Cover the opening of the pump with a piece of tape to prevent foreign material from entering the pump.
9. Connect the pump inlet hose and pump outlet hose onto the new pump.
10. Loosely install the pump in the pump bracket with the mounting bolts, then tighten the pump fittings securely.

11. Tighten the pump mounting bolts to the specified torque.
12. Install the drive belt (A).

Note these items during belt installation:

- Make sure that the belt is properly positioned on the pulleys (B).
- Do not get power steering fluid or grease on the auto-tensioner, alternator, A/C compressor, and drive belt or pulley faces. Clean off any fluid or grease before installation.

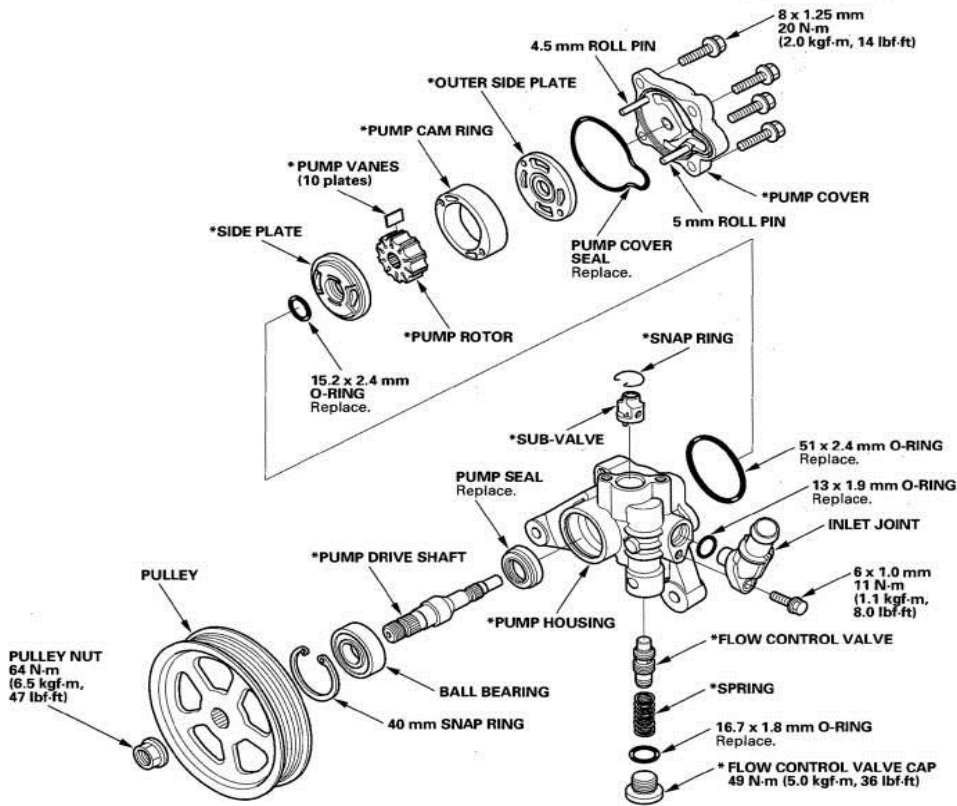


13. Install the side engine mount bracket. Tighten the bolts to the specified torque.
14. Fill the reservoir to the upper level line (see page 17-12).
15. Install the right side engine component cover.

Pump Overhaul

Exploded View

Replace the pump as an assembly if the parts indicated with asterisk (*) are worn or damaged.

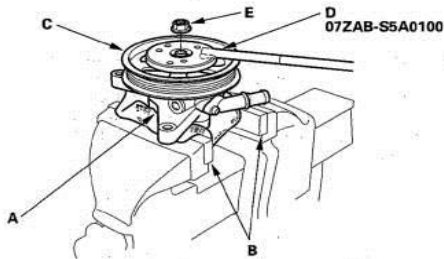


Special Tools Required
Pulley holder 07ZAB-S5A0100

Disassembly

NOTE: Refer to the Exploded View as needed during the following procedure.

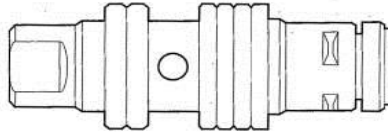
1. Drain the fluid from the pump.
2. Remove the power steering pump (see page 17-14).
3. Hold the power steering pump (A) in a vise with soft jaws (B), then hold the pulley (C) with the special tool (D), and remove the pulley nut (E) and pulley. Be careful not to damage the pump housing with the jaws of the vise.



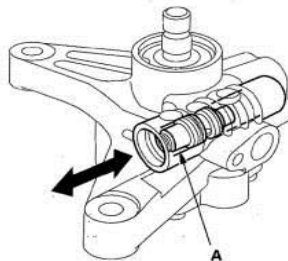
4. Remove the inlet joint and O-ring.
5. Loosen the flow control valve cap with a hex wrench, and remove it and the O-ring, the flow control valve and spring.
6. Remove the pump cover and pump cover seal.
7. Remove the outer side plate, cam ring, rotor, vanes, side plate and O-rings.
8. Remove the snap ring, then remove the sub-valve from the pump housing.
9. Remove the snap ring, then remove the pump drive shaft by tapping the shaft end with the plastic hammer.
10. Remove the seal from the pump housing.

Inspection

11. Check the flow control valve for wear, burrs, and other damage to the edges of the grooves in the valve.



12. Inspect the bore of the flow control valve on the pump housing for scratches and wear.
13. Slip the flow control valve back in the pump housing, and check that it moves in and out smoothly. If OK, go to step 14; if not, replace the pump as an assembly. The flow control valve (A) is not available separately.



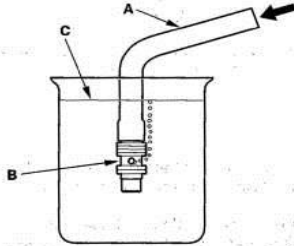
(cont'd)

17-17

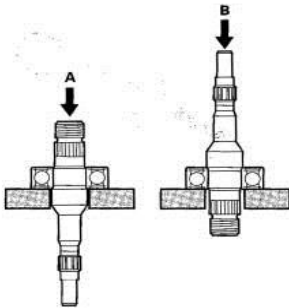
Pump Overhaul (cont'd)

14. Attach a hose (A) to the end of the flow control valve (B) as shown. Then submerge the flow control valve in a container of power steering fluid or solvent (C), and blow in the hose.

- If air bubbles leak through the valve at less than 98 kPa (1.0 kgf/cm², 14.2 psi), replace the pump as an assembly. The flow control valve is not available separately.
- If the flow control valve OK, set it aside for reassembly later.



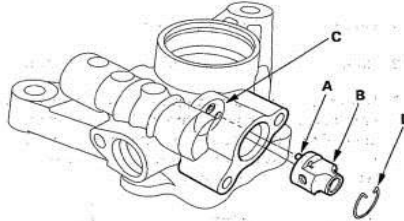
15. Inspect the ball bearing by rotating the outer race slowly. If you feel any play (axial or radial) or roughness remove the faulty ball bearing (A), and install a new one (B).



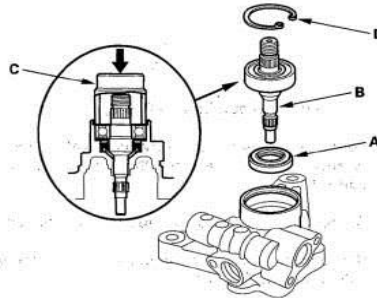
16. Inspect each part shown with an asterisk in the Exploded View. If any of them are worn or damaged, replace the pump as an assembly.

Reassembly

17. Align the pin (A) of the sub-valve (B) with the oil passage (C) in the pump housing, and push the sub-valve into place, then install the snap ring (D).

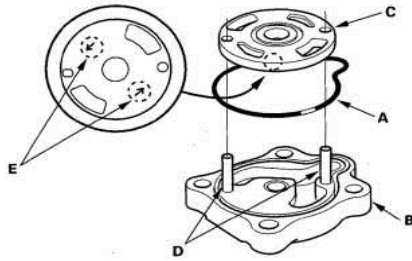


18. Install the new pump seal (A) (with its grooved side facing in) into the pump housing by hand first, then position the pump drive shaft (B) in the pump housing. Press the pump drive shaft and pump seal with the appropriate size socket wrench (C) as shown.



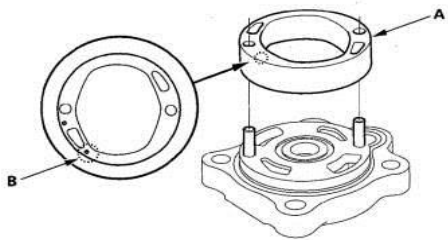
19. Install the 40 mm snap ring (D) with its radiused edge facing out.

20. Coat the new pump cover seal (A) with power steering fluid, and install it into the groove in the pump cover (B).

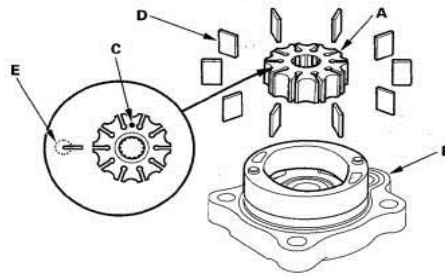


21. Install the outer side plate (C) over the two roll pins (D) with its arrow marks stamped (E) facing down.

22. Set the pump cam ring (A) over the two roll pins with its "v" mark (B) facing down.

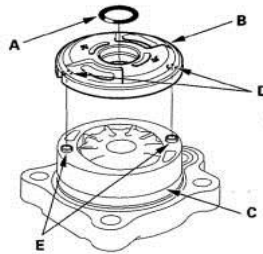


23. Assemble pump rotor (A) to the pump cover (B) with its "v" mark (C) facing up.



24. Set the 10 vanes (D) in the grooves in the rotor. Make sure that the round ends (E) of the vanes are in contact with the sliding surface of the cam ring.

25. Coat the new 15.2 mm O-ring (A) with power steering fluid, and install it into the groove in the side plate (B).



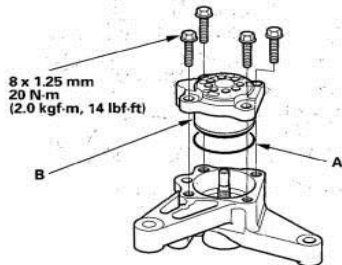
26. Install the side plate on the cam ring (C) by aligning the roll pin set holes (D) in the side plate with the roll pins (E).

(cont'd)

Power Steering

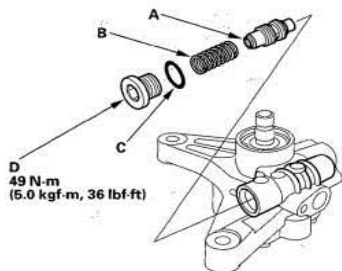
Pump Overhaul (cont'd)

27. Coat the new 51 mm O-ring (A) with power steering fluid, and position it in the bottom of the pump housing.



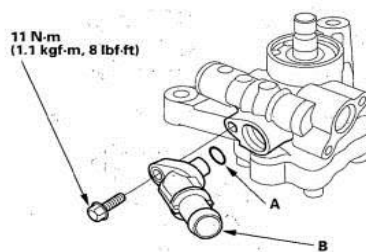
28. Install the pump cover assembly (B) in the pump housing. Tighten the bolts to the specified torque.

29. Coat the flow control valve (A) with power steering fluid, then install it and the spring (B) in the pump housing.

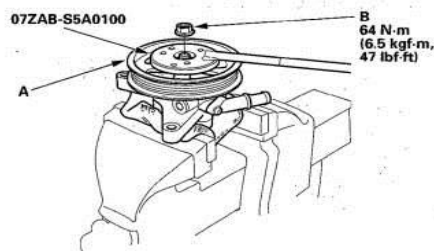


30. Coat the new 16.7 mm O-ring (C) with power steering fluid, and install it on the flow control valve cap (D), then install the cap on the pump housing, and tighten it to the specified torque.

31. Coat the new 13 mm O-ring (A) with power steering fluid, and install it on the inlet joint (B). Install the inlet joint on the pump housing.



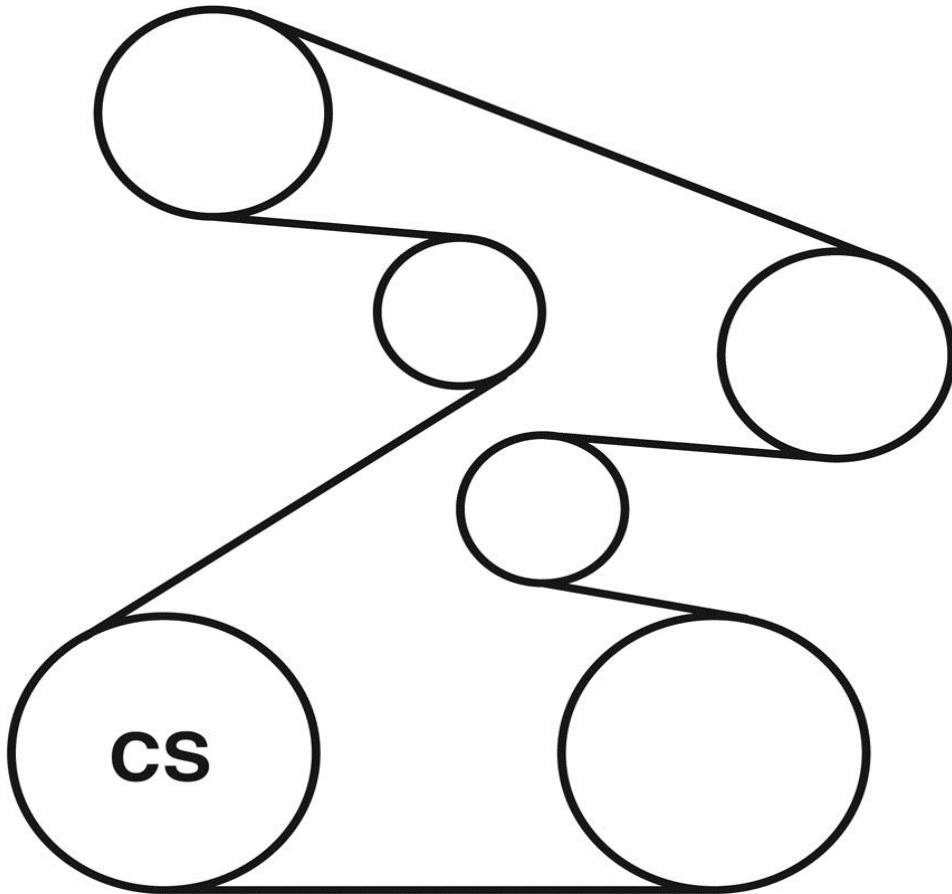
32. Install the pulley (A), then loosely install the pulley nut (B). Hold the steering pump in a vise with soft jaws. Be careful not to damage the pump housing with the jaws of the vise.



33. Hold the pulley with the special tool, and tighten the pulley nut to the specified torque.

34. Check that the pump turns smoothly by turning the pulley by hand. If it turns hard, loosen the four flange bolts on the cover, then retighten them in same manner as in step 28. Turn the pump again by hand.

Belt Positioning



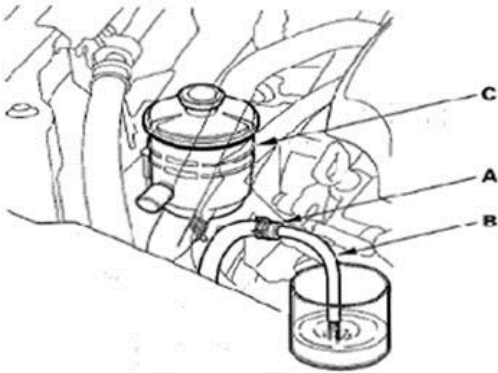
Fluids

Power Steering Fluid

SYSTEM CAPACITY:
1.1 ℓ (1.16 US. qt) at disassembly
RESERVOIR CAPACITY:
0.32 ℓ (0.33 US. qt)

Roughly
37.20 ounces for dry system
10.82 ounces for resevoir only

1. **Raise the reservoir, then disconnect the return hose (A) to drain the reservoir. Take care not to spill the fluid on the body and parts. Wipe off any spilled fluid at once.**



2. **Connect a hose (B) of suitable diameter to the disconnected return hose, and put the hose end in a suitable container.**
3. **Start the engine, let it run at idle, and turn the steering wheel from lock-to-lock several times. When fluid stops running out of the hose, shut off the engine. Discard the fluid.**
4. **Reinstall the return hose on the reservoir.**
5. **Fill the reservoir to the upper level line (C).**
6. **Start the engine and run it at fast idle, then turn the steering from lock-to-lock several times to bleed air from the system.**
7. **Recheck the fluid level and add some if necessary. Do not fill the reservoir beyond the upper level line.**
8. **If the fluid is contaminated, dark, or discolored, repeat the procedure as necessary.**