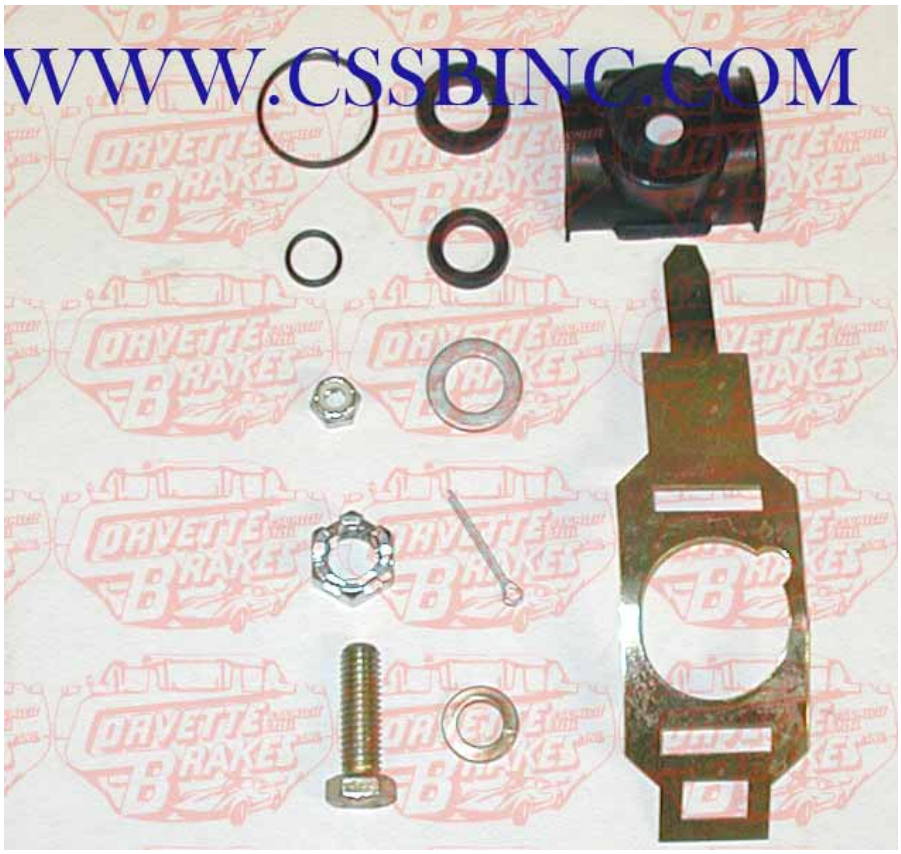
1963-82 Corvette Power Steering Control Valve Rebuild Instructions

Read the instructions First!

DO Not be a "COWBOY" and mess it up.

1. Inspect your core! Cracks, welds, excessive grinds on especially these areas deem the core as non-rebuildable.



The Kit. #PSV-2

Tools Needed; includes 9/16” & 7/16” sockets,5/16” wrench
Bench vise, parts washer, grease, small brush, working brain,
& PS Fluid

2. After removing the control valve from the car, place the valve in a bench vise gripping the area where the 3/8” x 16 bolt tightens the valve to the drag link. Using the flat tipped screwdriver, pry the boot’s strap open where the tab is holding it tight Some boot straps are held together with small machine screw and nut.

3. Using a parts washer, remove excess grease and dirt from the valve.

4. Using a chisel, carefully knock the cap off the top of the valve.

5. Remove the ¼” x 28 Zerk fitting. Some valves have a socket set screw instead of a grease fitting.

6. Remove the ¼” x 28 adjustment nylock nut using a 7/16” socket

7. Using either the 9/16” or 7/16” (12 point) socket, remove the 2- 3/8”x 16 bolts holding the valve together. Some valves have a rock guard (shield) held by these 2 bolts.

8. Slowly pull the head off the assembly making sure no parts fall out.

9. Pull the parts from the head.

10. Using the curved end pick, pull the small spring from inside the large piston.

11. Using your T-handle bar, push the large piston out the top of the head. **DO not push the piston in the opposite direction; you have a 97% chance of damaging the cylinder walls in the head. (97?)**

12. Most all valves have an o-ring set in a groove on the bottom of the head, pull it out!

13. Pull the thick plate & thin metal gasket from the lower part of the valve. (Some valves do not have the Thin Metal Gasket)

14. Pull the small washer off the shaft, then pull the locking clip off and then pull the rubber boot off the valve.

15. Using the large flat tipped screw driver; put the tip into the groove as shown and loosen (counter clockwise) the nut that hold the ball stud parts.

16. Pull the shaft up with the nut, and then pull the round spring up and out.

17. Push the ball stud up, loosening the ball stud cap, and then pull the cap up and out. Then pull the ball stud out the side.

18. Pull the ball stud cage up and out.

19. Being careful not to scratch the pistons, pull the rubber seal & o-ring off.

20. Degrease all of the metal parts, discard the rubber parts.

21. Inspect the cleaned parts, for stripped threads, excessive rust, bent or crushed parts. Make sure the ball stud is not worn from being loose on the pitman arm or modified in anyway.

22. If the plate or metal gasket is bent, you can hammer them flat. Check the ball stud cage for cracks, check the threads, too.

23. Clean the outside of the head and flush the inside along with the 4-Fluid holes.

24. Remove the excess grease with a rag, then wash the ball stud casting with solvent.

25. Wearing Eye and Ear protection; Blow out the passage ways of both the head and ball stud castings.

26. Rustoleum Gloss gives the best coverage and protection. **DO not paint the inside of the head or the ball stud casting. DO paint the threads or the brass seats. If paint gets on the insides of the parts, the valve may not work properly!**

27. After the paint dries, 24 hours, apply grease to the inside of the ball stud casting.

28. Put 1 of the ball stud caps in the cage as shown.

29. Slide the ball stud cage into the ball stud casting as shown.

30. Grease the ball stud and install into side of ball stud casting as shown.

31. Place the ball stud cap into the top of the casting as shown.

32. Place the casting in the vise as shown.

33. Place the ball stud spring on top of the ball stud cap inside the hole **exactly** as shown. Then make sure the ball stud cap is set correctly and spring is lying flat on top.

34. Pace a small screw driver into the side of the ball stud casting; holding the ball stud cage assembly up. Drop the ball stud cage nut with the rod in place and start the threads turning the rod clockwise.

35. Like step “15” use the tip of the screwdriver to tighten the nut the rest of the way. **What is “The rest of the way”? The nut will get tight to where you cannot tighten it any more because it is crushing the hell out of the spring below it. Tighten the nut until the ball stud is hard to move, you have to make the slots line up for step”36”.**

36. **Place the lock <u>easily</u> into the slot as shown. DO NOT force the lock on!**

37. Lay the small washer on the lock, have the flatter side of the washer face up.

38. With the thin metal gasket on the bottom, place the 2 plates over the shaft as shown.

39. Have the 2 plates indexed as shown.

40. Place the washer from our kit **PSV-2** as shown, have the flatter side face up.

41. Using fresh and clean power steering fluid, dip the large lip seal from kit **PSV-2**.

42. Place the large lip seal onto washer, flat side of seal down.

43. Drop the lip expander into the groove of the lip seal.

44. Drop the Large spring on top of the lip expander as shown.

45. Lube the small O-ring for the small piston: from kit **PSV-2.**

46. Place the lubed o-ring on the small piston as shown.

47. After you slid e the o-ring into the groove of the piston, Grip and spin the o-ring to ensure placement.

48. Drop the small piston onto the shaft.

49. Drop the small spring onto the shaft.

50. Slide the slotted washer into the groove below the o-ring groove on the small piston. Make sure the slotted washer sits on top of the large spring.

51. This is what it should look like so far.

52. Lube the small lip seal from kit **PSV-2** and the large piston.

53. The lip goes on the piston in this direction with the flat part of the seal towards the top of the piston.

54. Install the seal as shown. Then use the same technique used in step “47” to ensure placement.

55. Use a small brush to lube the inside bore of the valve head and the large piston.

56. The Large piston should easily slide into the top of the head. The piston will stop when the rubber seal starts to compress, go to step “57”. If it is binding as you start sliding the piston in; check for dirt, you may have to use 400-600 grit sandpaper to remove any burr. Clean the parts with solvent after sanding.

57. Using your thumb, press down on top of the piston until the piston completely enters bore. **Do Not push the piston all the way to the bottom, leave it at the top of the bore! Never pass the piston through the bottom of the head>**

58. Lube the groove for the Large O-Ring and install, the lube in the groove helps hold the o-ring in place. Then lube the inside bores of the head and the large piston.

59. Slide the head over the shaft **exactly** as shown.

60. Start the 2- 3/8” x 16 bolts with lock washers as shown. Do not tighten, just get the threads started. **Note the direction of the head compared the lower half.**

61. Using the smaller flat tipped screw driver, align the washer under the large lip seal. **This is very important, if the washer is not exactly perfectly under the seal; you will be screwed. The seal will tear and the thick plate will bend when you tighten the 2 bolts.** If the washer does not move easily, you might not have any lube on the seal or the 2 bolts maybe too tight or the lock washers may be bound. The head should jiggle if you move it with your hand.

62. Study this picture carefully. If you are right handed; put your right hand on top of the head and have the t-bar with the socket on the bolt as shown. Push down hard with your right hand, compressing all of the parts together. If the washer from step "61" is not centered, the head will not come flush with the lower half. Before you start to tighten the bolt with your left hand, **make sure the 2 halves are flush together.** Tighten both bolts evenly to 60 ft lbs.

63. Make sure piston is down inside bore, then lift the ball stud up to expose the threads of the shaft. At this time install the Nylock nut from kit **PSV-2.**

64. Tighten the nut with a 7/16” socket until the amount of threads shown in picture are exposed from top of nut. This will get you close to center for when you follow the adjustment procedure in the GM service manual. SO, do not put the cap on yet!

65. Install the Zerk fitting as shown. Then grease the valve slowly until the grease starts to come out around the ball stud.

66. Install the Boot from kit **PSV-2** as shown. Note the position of this tit.

67. Index the tit of the boot into the notch of the strap, then wrap the strap from kit **PSV-2** around the valve as shown.

68. Using your brain and a good pair of needle nose pliers, slide the nose of the pliers through the hole of the strap, then grip the opposite end of the strap and pull it through.

69. As you keep tension on the end of the strap. Bend the end back to hold the strap tight around the valve.

70. **Congratulations! You are now ready to install the valve and adjust per the GM service manual.**