READ ALL INSTRUCTIONS COMPLETELY AND THOROUGHLY UNDERSTAND THEM BEFORE DOING ANYTHING.
CALL TOTAL CONTROL PRODUCTS TECH SUPPORT (916) 388-0288 IF YOU NEED ASSISTANCE.

INSTALLATION GUIDE

TCP HOSE-02

Stainless Braided Hose Kit for Remote Reservoir Pump

Description: TCP hose kit braided style. Contains #6 & #10 stainless braided exterior bulk hose lengths and required plated steel hose ends to connect power rack & pinion, power steering pump and remote reservoir.

Applications: Fits TCP power rack and pinion with remote reservoir Street or Pro power steering pump.

FLUID REQUIREMENT: The only medium recommended for use in our rack-and-pinion system is petroleum (OIL). DO NOT USE SILICONE SYNTHETIC FLUID, any automatic transmission fluid, or any fluid containing a “resealing” additive. Materials such as silicones, brake fluids, water-or glycol-based hydrostatic fluids, and phosphate ester-based aviation hydraulic fluids like Skydrol are incompatible with the seals in the servo and cylinder and will cause them to swell, shrink, crack, or even dissolve. Damage or leaks caused by use of these fluids voids the manufacturer’s warranty.

If the label does not say “Contents: Petroleum Oil” do not use it.

Approved Fluids:

United States - NAPA Brand – PSF 9832 (1 qt.), PSF 9801 (1 gal.), NHF 85401 (1 gal.)
Canada - NVO 15040 (10 liter) -
Europe - Pentosin CHF7.1 - 1404106 (BMW/Audi dealerships)

PARTS LIST

TCP HOSE-02 - Stainless Braided Hoses and Fittings

Qty	Part Number	Description
1	7900-187	Hose, #6 High Pressure 2500 psi; 72” Long Stainless Braided
1	7900-188	Hose, #10 High Pressure 2500 psi; 36” Long Stainless Braided
4	7900-189	Hose End, 90 deg. #6 AN/JIC 37 deg. Flare Steel Silver Finish
2	7900-190	Hose End, 90 deg. #10 AN/JIC 37 deg. Flare Steel Silver Finish

INSTRUCTIONS

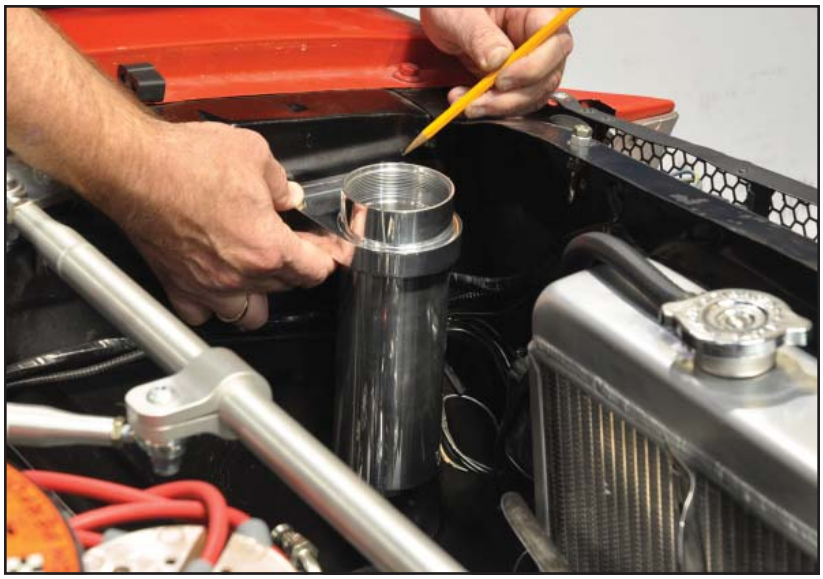
Installing the Reservoir

1. The reservoir must be mounted in close proximity to the pump (i.e. inner fender, radiator support, or shock tower).
2. The hidden plug inside the billet clamp pushes against the reservoir body so the clamp can be tightened anywhere along the length of the reservoir.

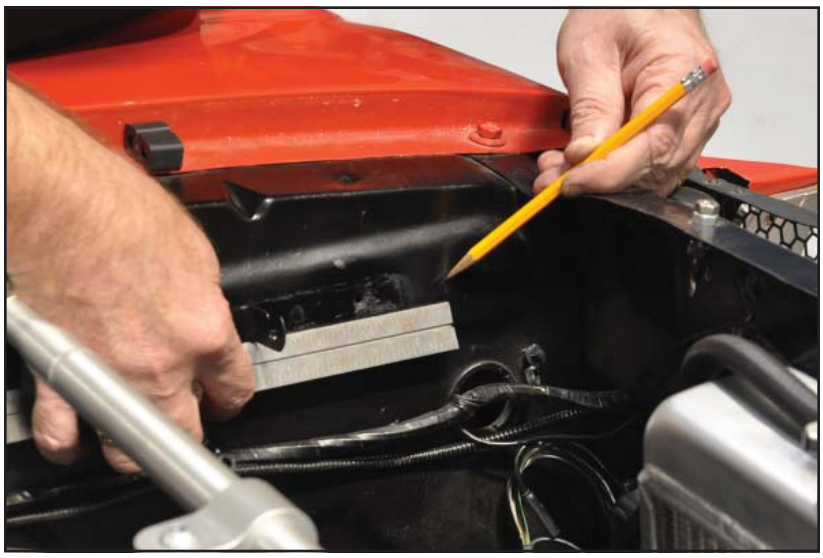
3. Slide the clamp assembly over the reservoir and tighten the allen head cap screws from the back side of the clamp. Test fit the reservoir to make sure the fittings are correctly clocked and easily accessible before fully tightening the clamp.

4. Next attach the 14 degree adapter, TCP PSR-01, to the billet clamp assembly with the socket-head cap screws provided.

5. Position the reservoir on the inner fender, so when filled the fluid level is at least 2 inches above the top of the pump.
6. Once positioned correctly, mark the location of the adapter bracket.



7. Use a ruler to measure the location of the two mounting holes in the adapter. The front hole is 15/16” back from the front edge of the adapter, and the rear hole is 2-15/16” back from the same front edge.

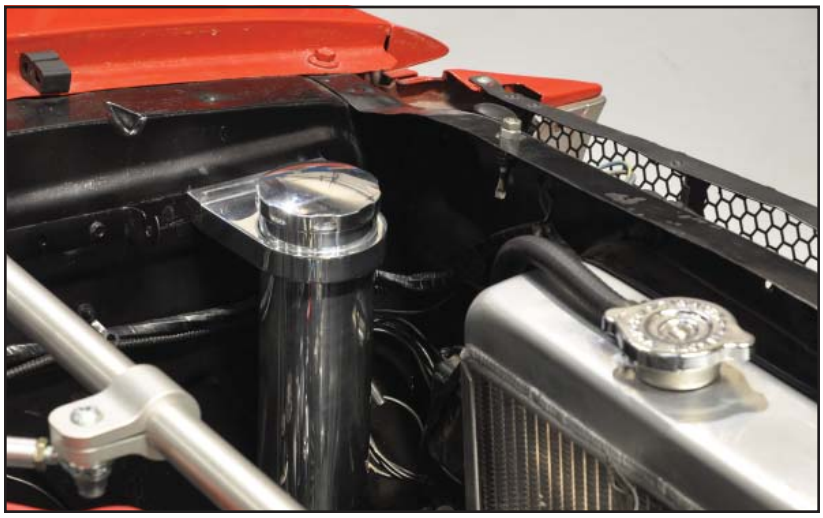


8. Check the area behind the hole locations prior to drilling. Make sure the locations are clear of wiring and are accessible for hardware installation.

9. Use a 5/16” bit to drill mounting holes in the inner fender. In some cases the forward hole will be inside the headlight bucket area.

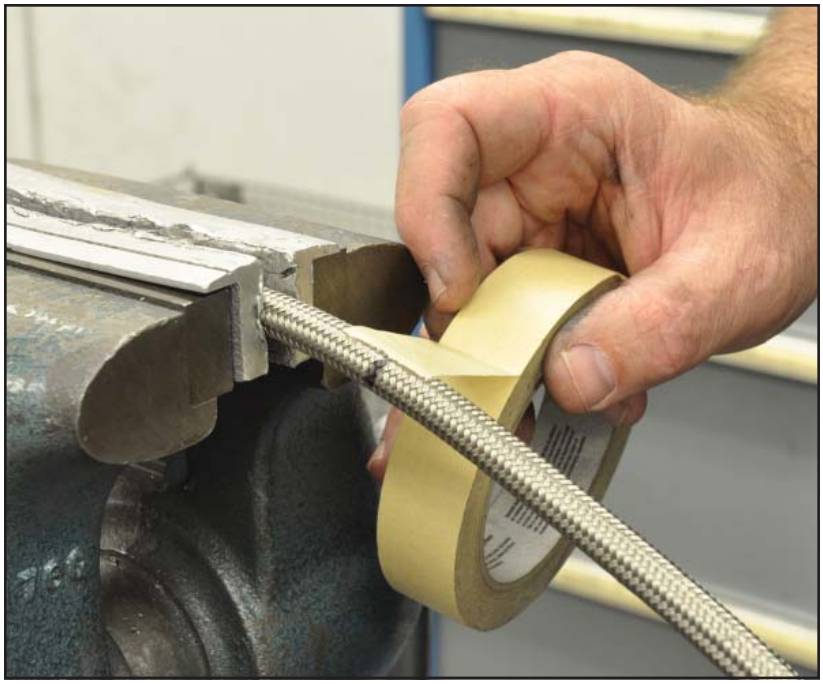
10. Secure the reservoir to the inner fender with the 5/16-18 x 1/2” button heads and flat washers supplied with the adapter.

11. The reservoir is now installed.



Assembling the Hoses

12. If the end of the hose is frayed, it will need to be taped and cut to have both ends of the hose straight and usable.
13. Wrap the hose with tape centered on the marked cut line.



14. Cut hoses square with fine-tooth hacksaw or cut-off wheel.
15. Burrs along the inside edge of the Teflon hose can be removed with a razor.

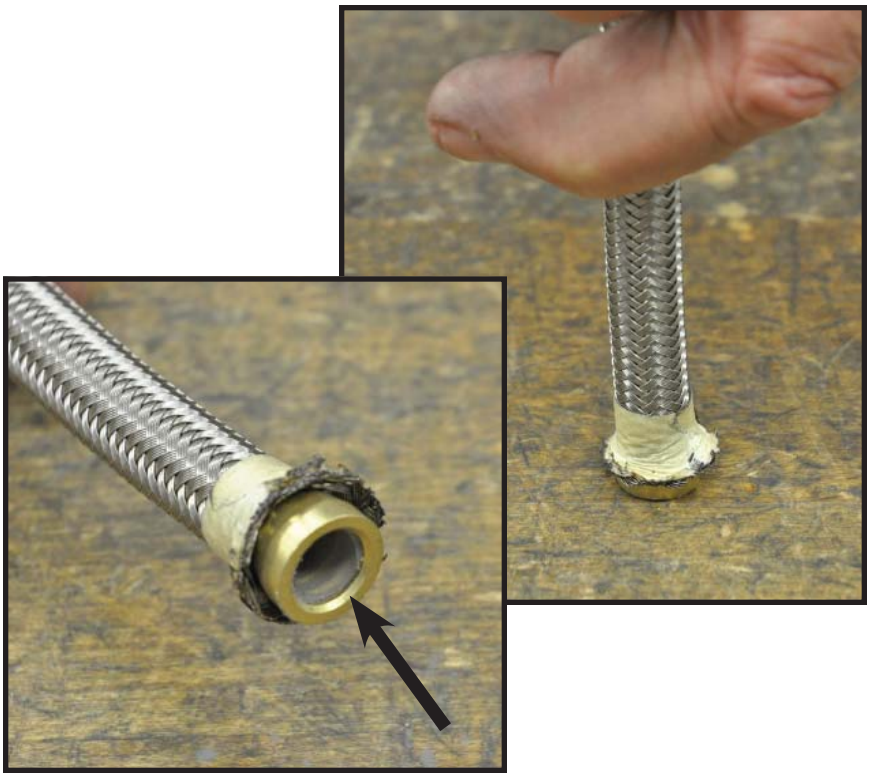
16. Clean inside of hoses thoroughly. Small metal and Teflon particles will damage the pump.
17. Use a rifle bore brush, water, and compressed air to remove loose particles and dry each hose.

18. Disassemble the hose ends and slide the outer socket onto the hose with the threaded end of socket closest to the freshly cut end of the hose.

19. Place the brass ferrule in between the Teflon hose and steel braid as shown.

20. Apply pressure against the ferrule until the Teflon hose is seated against the inside lip of the ferrule.

21. The Teflon should be tight against the brass ferrule.



22. Apply “moly” assembly lubricant or petroleum based lubricant to the threads of the outer socket and elbow.

23. Insert the nipple end of the fitting through the ferrule and into the Teflon hose.

24. Remove tape.

25. Slide outer socket into position and thread onto elbow portion of hose end.

26. A vise can be used to hold the outer socket while tightening the fitting with a wrench.

27. Leave a .031” gap between the socket and elbow. Tighten further to align outer hexes of hose end.

28. The fitting is assembled and we have lined up the tube of the fitting to a index mark. This is an important step because the fitting can not be rotated once they are tight.

Routing the Hoses

29. Route hoses avoiding exhaust headers and moving parts. Avoid bends that allow air to be trapped along the hose path.

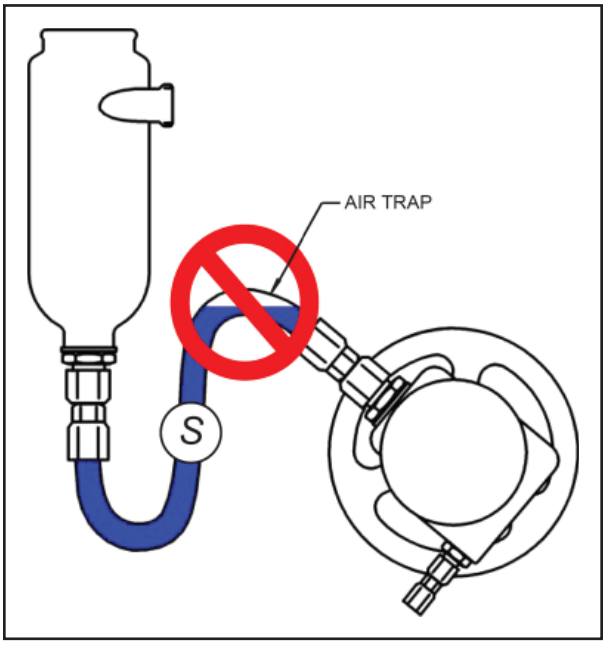
30. Leave slack in hoses to allow for engine movement and pressure changes. Avoid tight bends.

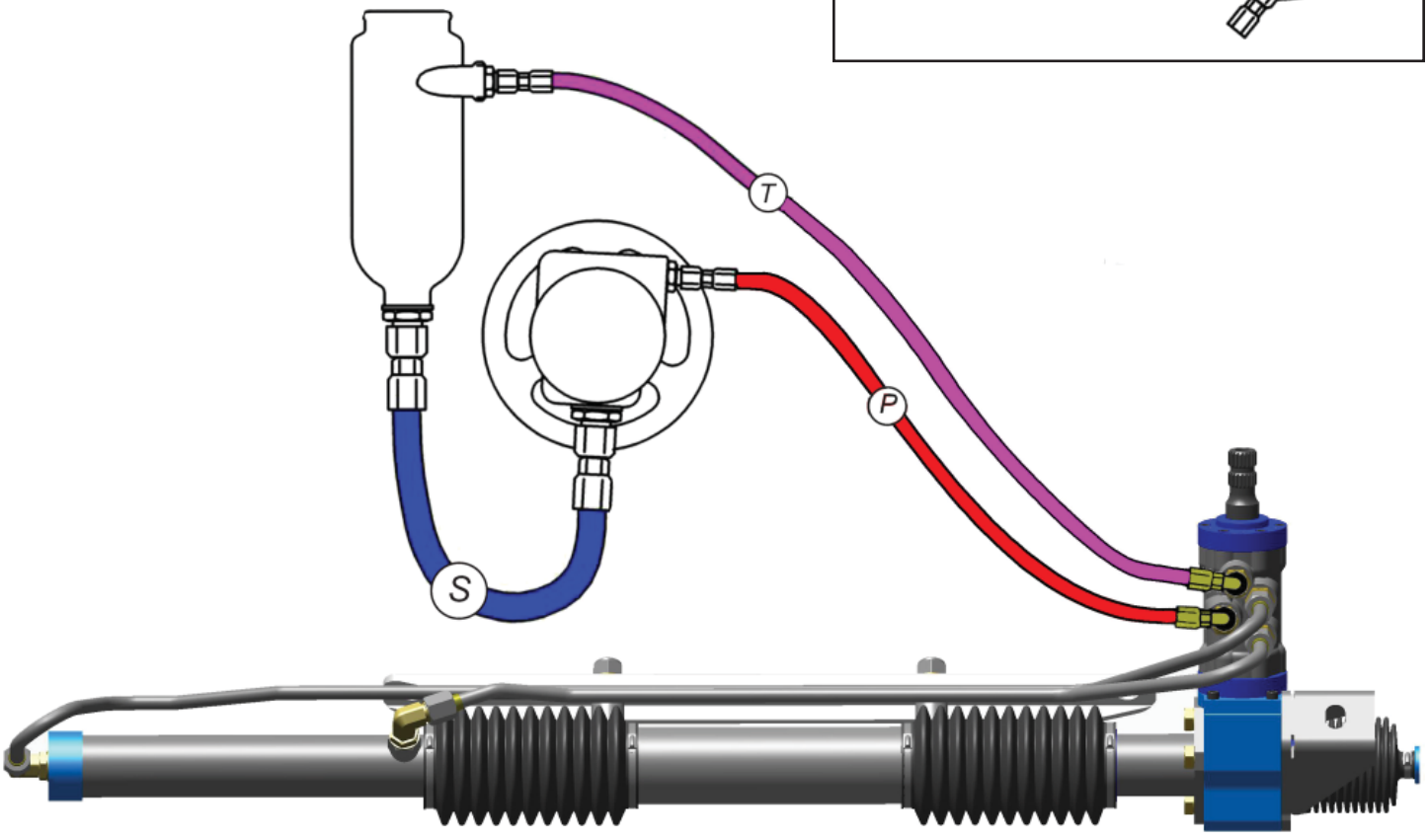
31. Secure hoses where necessary to maintain safe clearance from extreme heat and moving parts.

32. Connect #10 hose to large fitting on the bottom of reservoir and to red fitting at pump.

33. Connect #6 hose to blue/black fitting of pump and to rack-&-pinion control servo fitting marked “P” (pump).

34. Connect #6 hose to rack-&-pinion control servo fitting marked “T” (tank/reservoir) and to small fitting on the reservoir.

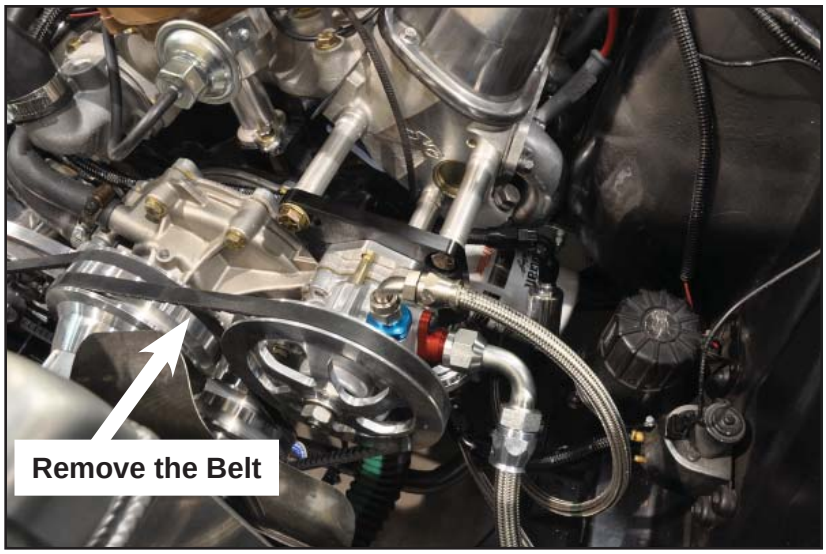




Diagrams courtesy of Woodward Steering

Filling the Reservoir

35. Before filling the system with fluid remove the power steering belt from the pump.



36. Fill the reservoir using only petroleum based power steering fluid.

    FLUID REQUIREMENT: The only medium recommended for use in our rack-and-pinion system is petroleum (OIL). DO NOT USE SILICONE SYNTHETIC FLUID, any automatic transmission fluid, or any fluid containing a “resealing” additive. Materials such as silicones, brake fluids, water-or glycol-based hydrostatic fluids, and phosphate ester-based aviation hydraulic fluids like Skydrol are incompatible with the seals in the servo and cylinder and will cause them to swell, shrink, crack, or even dissolve. Damage or leaks caused by use of these fluids voids the manufacturer’s warranty.

37. As the system is being filled, the pump must be rotated several times by hand to prime the pump. Leave the cap off of the reservoir to monitor the fluid level. Fluid must be added to prevent the pump from drawing in air.

    IMPORTANT: Failure to properly prime the pump before starting the engine for the first time after installation will damage the pump. Pumps that are damaged are not covered by any type of warranty and the customer will be responsible for replacement costs.

38. Raise the front wheels off the ground, then start the engine and turn the steering lock to lock repeatedly to work any air out of the system while maintaining the fluid level in the reservoir to completely fill the system.

39. The reservoir should be filled to approximately the halfway point between the top of the internal turn tube and the top of the reservoir.

Maximum Pump Speed

The maximum recommended pump speed is 9,000 rpm. Street performance engines with commonly sized crankshaft pulleys will rotate the power steering pump well below the 9,000 rpm limit. Customers with high-rpm engines or engines with over-driven pulley arrangements must calculate the pump speed to ensure they are not exceeding the pump’s maximum speed.

Calculating Pump Speed

Divide your crank pulley diameter by the power steering pump pulley diameter and multiply by maximum engine rpm.

(Example: 5.5” crank pulley ÷ 6” pump pulley = 0.916 x 6,500 engine rpm = 5,958 rpm pump speed.)

Slowing Down the Pump

If a smaller crank pulley is not an option, larger diameter pump pulleys are available special order for extremely high-rpm engine applications to significantly slow the pump speed. This option reduces low speed pump output and should not be used for street cars. (Correct torque on the pump pulley nut is 46 ft-lbs.)

Notes:

Notes:

WARRANTY NOTICE:
There are NO WARRANTIES, either expressed or implied. Neither the seller nor manufacturer will be liable for any loss, damage or injury, direct or indirect, arising from the use or inability to determine the appropriate use of any products. Before any attempt at installation, all drawings and/or instruction sheets should be completely reviewed to determine the suitability of the product for its intended use. In this connection, the user assumes all responsibility and risk. We reserve the right to change specification without notice. Further, Chris Alston's Chassisworks, Inc., makes **NO GUARANTEE** in reference to any specific class legality of any component. **ALL PRODUCTS ARE INTENDED FOR RACING AND OFF-ROAD USE AND MAY NOT BE LEGALLY USED ON THE HIGHWAY**. The products offered for sale are true race-car components and, in all cases, require some fabrication skill. **NO PRODUCT OR SERVICE IS DESIGNED OR INTENDED TO PREVENT INJURY OR DEATH**.

Total Control Products
A Chris Alston's Chassisworks, Inc. Brand
8661 Younger Creek Drive
Sacramento, CA 95828
Phone: 916-388-0288
Technical Support: tcptech@cachassisworks.com

CHRIS ALSTON'S Chassisworks
THE HOME OF HIGHER TECHNOLOGY