



# #CP3200R - Hydraulic Brake Assist System Instructions

## Universal Kit with Lineset Materials

### Note:

This system is intended for "off road use only"

### Instructions:

1. This system is for "advanced fabricators / master installers" only. If you are not highly experienced in automotive braking systems fabrication, results may be less than desirable, if not downright dangerous! Please do not attempt installation of this product if you are not comfortable with any aspect of this installation – enlist the services of a professional!
2. Please carefully inspect entire braking system thoroughly and replace any marginal items. Installation of braided steel, high performance brake lines and high performance brake fluid is highly recommended, though not mandatory.
3. This system is designed for use with 1970 and newer GM style master cylinders equipped with the "shallow style piston".
4. Please carefully inspect entire power steering system thoroughly and replace any marginal items. This system will not function properly unless the power steering system is 100%
5. Removal of the drivers seat greatly increases ease of kit installation and is highly recommended in some applications!
6. Disconnect battery.
7. Disconnect brake lamp switch electrical connector.
8. Disconnect brake pedal rod connection.
9. Remove existing power brake booster assembly if applicable.
10. Remove master cylinder attachment nuts and secure master cylinder approximately 8-10 inches forward of existing mounting, if brake line routing / integrity permits.
11. Installation of any power assist unit into a vehicle originally equipped with manual brakes may require adjusting the length of the brake lines to the master cylinder. In most cases, if the lines are in good shape, the brake lines can be carefully massaged to accommodate the revised master cylinder location.
12. Inspect master cylinder at this time for any signs of brake fluid seepage at rear seal and check for any sludge accumulation in fluid reservoirs. Replace master cylinder if necessary. This high output assist unit will fail a marginal master cylinder due to the higher levels of assist it is capable of generating!
13. Perform mock up of assist unit to firewall mounting, modify mounting plate as necessary to achieve secure mounting. This type of hydraulic assist unit can be mounted in either the "right side up or upside down" and will still function correctly.
14. Once firewall mounting has been established, determine the brake pedal rod connection needs and fabricate to suit. The installed pedal rod is threaded 3/8 NF.
15. After mounting and pedal rod configurations have been established, connect the master cylinder to hydraulic brake assist unit firmly, using either the supplied studs OR GRADE 8 class high strength bolts and locking nuts. (studs are mounted via left hand threads)
16. At this time it is highly recommended that you test your firewall and brake pedal pushrod fabrications by applying the brakes as hard as physically possible / reasonable to verify their integrities and proper functions.
17. Remove existing high side power steering line and completely drain system.
18. Connect supplied pressure line, -6 AN style 90 degree elbow end, to the AN style inlet fitting adapter of hydraulic assist unit (nearest port to the accumulator bottle). Carefully determine the line length measurement to the power steering pump output fitting. Remove line, cut hose to length, and assemble "raw" line end using the correct fitting. Clean hose carefully of any foreign material, preferably flushing with brake cleaner, following with compressed air. Route line to suit, install line.
19. Connect supplied pressure line, direct fit flare style 90 degree elbow end, to the outlet port of hydraulic assist unit (farthest port from the accumulator bottle). Route line along the path of the other ps line, and carefully determine the line length measurement to the power steering box / control valve inlet fitting. Remove line, cut hose to length, and assemble "raw" line end using the correct fitting. Clean hose carefully of any foreign material, preferably flushing with brake cleaner, following with compressed air. Route line to suit, install line.
20. Install polished aluminum line clamps to secure the pressure lines together as needed.
21. Inspect existing power steering return line, replace if marginal.
22. If using an average, single ps return fitting ps pump, fabricate an additional low pressure fluid return fitting into the existing ps pump fluid reservoir, OR cut existing power steering return line approximately 3 1/2 inches from pump fitting and install a brass "T" fitting STRAIGHT INLINE for ps fluid return line circuit.
23. Connect supplied low pressure return line (chromed "hosenut end") to the return line fitting / nipple on the assist unit.
24. Route low pressure return line from assist unit to fluid return fitting of power steering pump or to the installed brass "T" perpendicular hose nipple. Trim hose to length as needed and connect to return line fitting on ps pump or brass "T".
25. Verify that all prior steps have been successfully completed!
26. With engine off, fill power steering reservoir with high quality power steering fluid only. \* Never use poor quality ps fluid or ATF because it foams in use causing noisy pump operation and erratic operation. Genuine GM PS fluid, Valvoline Synpower or equivalent recommended.



## Hydraulic Brake Assist System Instructions (Continued)

27. Reconnect battery and verify for proper brake light operations.
28. Disable ignition system and crank engine for five full seconds to initiate proper system priming.
29. Recheck fluid level topping off as necessary and crank engine for five more seconds. Repeat this procedure as necessary until fluid level remains consistent.
30. Cap fluid reservoir and restore ignition system operations.
31. Start engine briefly, check for any signs of fluid leakage. Do not depress brake pedal yet.
32. Shut engine off and recheck fluid level, topping off as necessary. Pump brake pedal a few times to purge any air trapped in the nitrogen reserve accumulator. If fluid appears foamy and pump operation was noisy in prior run sequence, allow vehicle to sit for 15 – 20 minutes.
33. Start engine, allow to warm up to full operating temperature.
34. With engine warmed up and idling, check for proper power steering operations and any leakage by steering vehicle from lock to lock approximately 5 full sweeps.
35. If all prior steps have been performed successfully, apply moderate pressure to brake pedal slowly 5 – 6 times. Shut engine off and recheck fluid level.
36. Start engine, apply full pedal pressure 2 or 3 times to verify proper systems integrities.
37. Carefully road test vehicle to verify proper operations and to get accustomed to the brake systems response.
38. Allow vehicle to sit overnight. Next day, when vehicle is still cold, recheck all connections and lines for proper torque, recheck fluid level and top off as necessary.
39. Congratulations! You are now ready to “Stop on a dime and get two nickels change!” And, as always, please drive carefully!

### **IMPORTANT! NEVER APPLY THE BRAKES WHILE THE MASTER CYLINDER IS REMOVED, OR YOU WILL DESTROY THE BRAKE ASSIST UNIT!**

- Perform brake bleeding procedures with the engine off for best results.
- If supplied with the optional slip fit replaceable master cylinder pushrod, simply gently twist and pull the existing master cylinder pushrod out, then slip on the alternate rod by reversing the procedure. The longer rod will accommodate most 1969 and earlier “deep style” master cylinders, the shorter rod supplied standard will accommodate most 1970 and newer “shallow style” master cylinders.
- Please note: The high quality Aeroquip power steering linesets have adjustable end fittings! If the preset angles require adjustment, simply use two 11/16 wrenches to slightly change the fitting angles. The gap between the stationary hose nut on the line and the end fitting itself should not exceed more than the thickness of a penny, or leakage may occur.
- Please allow up to 500 miles of operation for the systems to fully “settle / break in”! Until all the air pockets and “micro bubbles” settle out of the assist unit and power steering system, operations may be initially noisy, accompanied by some “pedal kickback” upon braking, and “stiff / slow pedal return” caused by air in the systems.

### **PLEASE REFER TO OUR AEROQUIP LINE ASSEMBLY INSTRUCTIONS WHEN INSTALLING NEW LINE SETS.**

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