

Section 2 – Installing the Bypass Valve in the Heater Circuit

Next will be the cutting of the heater hoses and the installation of the by-pass valve. You will lose some fluid (less than a quart). Be sure to put plenty of towels or rags or oil absorptive cloths under the hoses you cut (catch it all if possible). Also be very careful not to let any anti-freeze get inside the climate unit itself (where the vent hose is removed). I suggest using an old bath towel jammed in the vent opening as a backup shield over your other rags. Whatever fluid leaks in will stick for awhile.

Here's the finished installation of the valve. The following steps will help you get there. The EGR vacuum switch can be seen in the foreground (right by my finger). Red arrows are normal flow, blue arrows indicate bypass flow.



- 1) Remove the large corrugated vent hose pulling it from the vent manifold at the top and the Heating/AC unit at the bottom. It is a slip fit, no clamps. Set it aside.

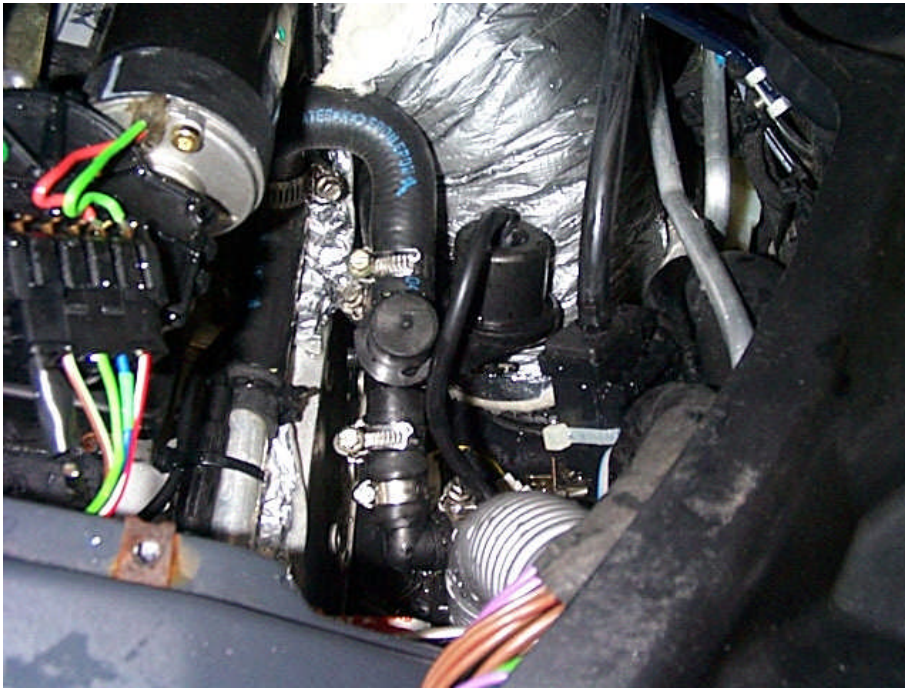
- 2) Look at the hose layout that feeds the heater core. The hot water flows from the passenger side and out through the driver's side.
- 3) Optional - This is a good time to insulate either or both of two aluminum tubes that carry the hot water through the frame. Split the 3/4" heat shield tubing lengthwise. Work it in between the aluminum tubing and the frame on both the passenger and drivers side (wrap the tube as best you can). The idea is to stop radiating heat into the cockpit via the firewall. This step is not required, but seems to help the AC incrementally. You can secure the heat shield tubing with tie wraps.
- 4) Hold the valve up to the heater hoses and mark the hoses with a sharpie where they will be cut. Keep in mind that the large corrugated vent hose will be refitted, so **the valve needs to be as far away from it as possible (keep the valve as far left as practical).**
- 5) **Put old towels or rags or oil spill cloths under the area where you will cut the hoses. Some anti-freeze will spill out, probably less than 1 quart. Make every effort to catch it. It's much easier to catch than clean up later. Make especially sure to block the opening to the climate system where you removed the vent hose. Anti-freeze dripping into that section will cause a bad smell when you turn on your AC or heater the next few times....**
- 6) Cut the hoses, catch the fluid and then trial fit the valve without clamps. No further cutting of the hoses should be required (another update from the original instructions). Be aware of the arrow on the valve that indicates the required flow direction. The inlet nipple should be on the upper right. Make sure that the hoses are fit to the proper nipple. The input hose (the top right hose in the picture) comes from the passenger side. The output hose (bottom right) goes to the driver side for water return. The upper left hose goes to the heater core nipple nearest the front of the car. The bottom left hose goes to the rear heater core nipple.
- 7) Once satisfied with the fit, remove the valve. Cut a 8" section of 1/8" or 7/64" vacuum hose and attach it to the nipple on the bypass valve vacuum pot. Secure it with a small tie-wrap if possible.
- 8) Optional – Wrap the corrugated vent hose with the mylar/fiberglass insulation, secure with duct tape. Make sure that you can still bend the hose 90 degrees after you apply the tape as it will have to take that shape when fit back to the car.



- 9) Reinstall the vent hose
- 10) Install the bypass valve tightening all clamps. You should install and tighten one hose at a time to avoid obscuring the bottom hoses so that the clamps

can't be tightened. Take one last look at the valve to make sure the right hoses are on the right nipples. Make sure the action of the valve will not foul against the vent hose. You may want to put a piece of foam or insulation between the heater hoses and the vent hose if you didn't insulate the vent hose in the Step 8 above.

- 11) Wire the EGR vacuum valve with two wires. The pins in this EGR valve require either a GM connector or push-on pins. **If you purchased the kit, you will already have a pre-made harness with the pin connectors soldered on, installed in the valve and ready to wire into the car's harness.** Push-on connectors can be made by carefully crimping two butt connectors to make a tight fit when the slide down onto the posts. This can be tedious, but effective. One of these conductors will go directly to ground (2 ft black wire) and the other conductor will be used to attach to the switch inside the cockpit, so leave the required slack.
- 12) Tie wrap the EGR valve to the wiring harness using a 12" tie wrap (there is ONE in the kit) so that the 8" 1/8" vacuum hose from the valve vacuum pot can be slipped onto the vacuum nipple next to the foam filter on the EGR valve. Secure the hose with a small tie wrap. Arrows indicate foam filter and vacuum nipple. Use additional tie wraps as necessary to secure the EGR valve and its wiring.



Installation of the valve and EGR vacuum switch is now complete.

End Section 2