

**OWNERS
MANUAL
WITH INSTALLATION
INSTRUCTIONS**

banks
EMISSIONS
KIT

LIGHT DUTY 6.2L CHEVROLET/GM DIESEL

FOR USE ON GM 6.2L DIESEL TRUCKS
EQUIPPED WITH THE BANKS SIDEWINDER TURBO SYSTEM

THIS MANUAL IS FOR USE WITH SYSTEM PART NUMBER **21056**



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GENERAL INSTALLATION PRACTICES

1. IMPORTANT: Please read all instructions (both these and Sidewinder turbo system instructions) before starting any work. This package contains 3 pages of copy, 7 sheets of illustrations, and 1 page of parts listing. If any pages are missing from this package, please call GALE BANKS ENGINEERING immediately for a replacement.)

2. OPERATION: The EGR valve functions as it normally would under all operating conditions. The solenoid valve in this kit protects the EGR valve diaphragm from turbo boost conditions when the EGR valve is closed. This also prevents exhaust pressure from lifting the EGR valve off its seat during boost conditions.

3. IMPORTANT: All emissions components on the vehicle must be hooked up and functioning in order for the engine to run properly with this kit. EGR valves that are disconnected from the emissions plumbing and inoperative electrical systems may allow exhaust gas to recirculate during boost conditions which is detrimental to performance and could cause engine damage. If this system is properly installed, the emissions system will function just as it did in the original factory installation.

4. NOTE: The GM 6.2L Light Duty diesel engines use an EPR (exhaust pressure regulator) valve in the exhaust system. This valve looks like a typical heat riser valve, and is mounted on the outlet of the left exhaust manifold. This valve closes while the EGR valve is open, to create a higher exhaust pressure and help the EGR to function. The EPR valve is open under boost to allow for unrestricted exhaust flow. The EPR valve must be in place and functioning for the emissions and turbo system to operate properly. Exhaust cross-over piping is included with this kit to allow the EPR valve to remain in place on the exhaust manifold.

5. RETROFIT TO HEAVY DUTY TURBO KIT: This Light Duty Emissions Kit may be used to adapt the Banks Sidewinder turbo system intended for heavy duty (non EGR equipped) diesels to the light duty diesel engine. *NOTE: The early heavy duty Banks pressure chamber must be modified inside to clear the EGR valve. See step 4 for identification of those pressure chambers and necessary modification.*

INSTALLATION INSTRUCTIONS

1. Install the fittings in the solenoid valve provided and aim the elbows as indicated in **Figure 1**.
1. Make sure the fittings are installed in the correct ports on the valve. The ports are stamped with the identification "EXH" and "IN". The third port is the "N.O." port. Do not over-tighten the plastic fittings, finger-tight is sufficient. No sealant is required on the threads.

2. Bolt the solenoid valve to the bracket supplied with two 4-40 x $\frac{7}{8}$ screws, washers and lock nuts. Make sure the ports on the valve are oriented as shown in **Figure 1**.

3. Bolt the solenoid valve and bracket to the intake manifold as shown in **Figure 2**. This will be at the location of the fifth intake manifold bolt (or stud), counting front to back on the driver's side. If the vehicle is equipped with factory air conditioning,

this is the rear bolt location where the air conditioning compressor bracket attaches to the intake manifold.

Inspect the inside of the pressure chamber casting between the two bolt bosses. If the pressure chamber is an early style casting, it will have a rib joining the bosses together (see **Figure 3**). This rib must be ground away to provide clearance for the EGR valve, see Figure 3 for details on modification. If no rib is present, proceed to **step 5**.

With the pressure chamber off the engine, drill a $\frac{21}{64}$ " hole through the side of the pressure chamber

5. $\frac{3}{4}$ " above the existing threaded hole (see **Figure 4**) with drill bit provided. Remove all burrs from the hole and all chips from inside of the pressure chamber.

6. Push one end of the blue silicone vacuum hose through the drilled hole in the side of the pressure chamber, until half its length (6 inches) is inside the pressure chamber. Once this hose is started through the hole, it will be easier to reach inside the pressure chamber and pull it through.

7. When the hose is positioned through the hole, run a bead of silicone sealant around the hose, where it enters the **inside** of the pressure chamber.

8. Temporarily install the pressure chamber on the intake manifold. Make sure the base gasket and new EGR hold-down studs (supplied with the Banks Sidewinder turbo system) are in place. Check that the pressure chamber sits squarely against the gasket and will contact it before tightening it down. Do not use any spacers or washers between the EGR studs and the mounting ears of the EGR valve. See **Figure 5**.

9. Lift the pressure chamber from the intake manifold and push the inner half of the blue silicone hose over the nipple on top of the EGR valve. Remove any hose clamps or spring clips that may have previously been used on the hose-to-nipple connection. See **Figure 5**.

10. Install the pressure chamber over the studs, secure with two sealing washers, $\frac{5}{16}$ " I.D. x $\frac{3}{4}$ " O.D. flat washers, and $\frac{5}{16}$ –24 nylock nuts.

IMPORTANT

Two different types of EGR control are found on the GM 6.2L light duty diesels, Vacuum Switched and Pulse Width Modulated. The type of system used can be identified by observing the cluster of factory installed solenoid valves above the rear of the left (driver's side) engine valve cover. See Figure 6 for system identification. Once your system type has been determined, plumb the new solenoid valve as shown in the appropriate system diagram, then proceed to the final step for the electrical hook-up.

NOTE: The EPR (heat riser valve) must be in place for the system to operate properly. Make sure you have the proper Banks exhaust cross-over pipe that will allow the EPR valve to mount in place on the driver's side exhaust manifold outlet. The vacuum line to the EPR must be attached to the EPR valve and the EPR solenoid.

VACUUM SWITCHED EGR SYSTEM

Vacuum Switched EGR systems can be identified by the presence of two solenoid valves over the rear

of the left (driver's side) engine valve cover. (If your engine has three solenoid valves at this location, it uses the Pulse Width Modulated EGR system; proceed directly to the instructions covering the Pulse Width Modulated EGR system.)

VACUUM SWITCHED EGR PLUMBING

Route and connect the hoses as shown in **Figure 7**. Use the black spring band clamp to secure the blue silicone hose. Use the green clamps on the neoprene hose. The neoprene hose supplied need not be used if the existing neoprene vacuum line on the vehicle is long enough and in good condition. When the vacuum plumbing is completed, move on to the appropriate wiring diagram, **Figure 9**.

PULSE WIDTH MODULATED EGR

Pulse Width Modulated EGR systems can be identified by the presence of three solenoid valves over the rear of the left (driver's side) valve cover. (If your engine has only two solenoid valves at this location, it uses the Vacuum Switched EGR system; go back to the section covering the Vacuum Switched EGR plumbing.)

PULSE WIDTH MODULATED EGR PLUMBING

Route and connect the hoses as shown in **Figure 8**. Use the black spring band clamp to secure the blue silicone hose. Use the green clamps on the neoprene hose. The neoprene hose supplied vehicle is long enough and in good condition. When the vacuum plumbing is completed, move on to the appropriate wiring diagram, **Figure 10**.

NOTICE

For later style solenoid valve, as shown in **Figure 0**, use port number 2 as "IN", port number 3 as "N.O.", and port number 1 as "EXH". Otherwise, assemble with barbed fittings as shown in Figure 1.

FIGURE 0

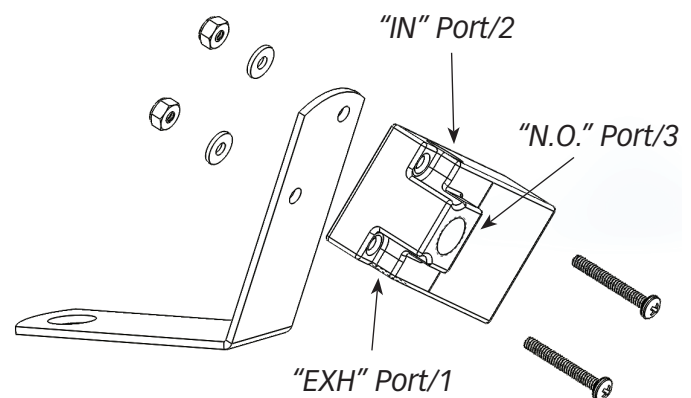


FIGURE 1

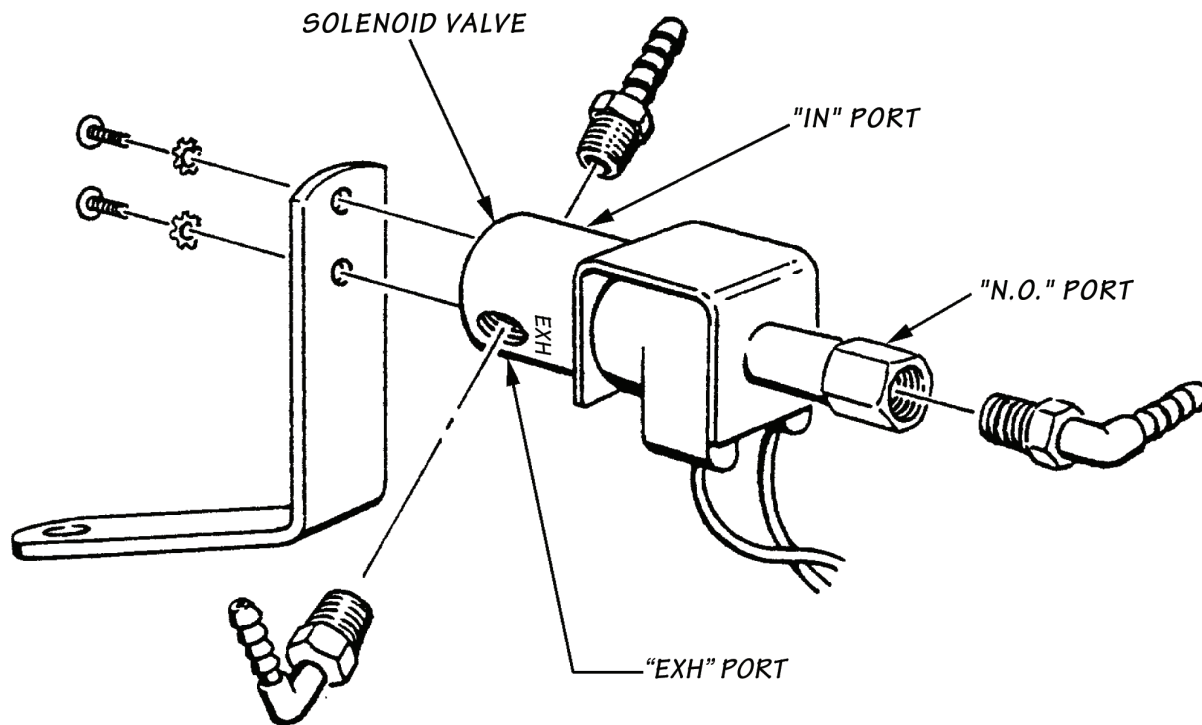


FIGURE 2

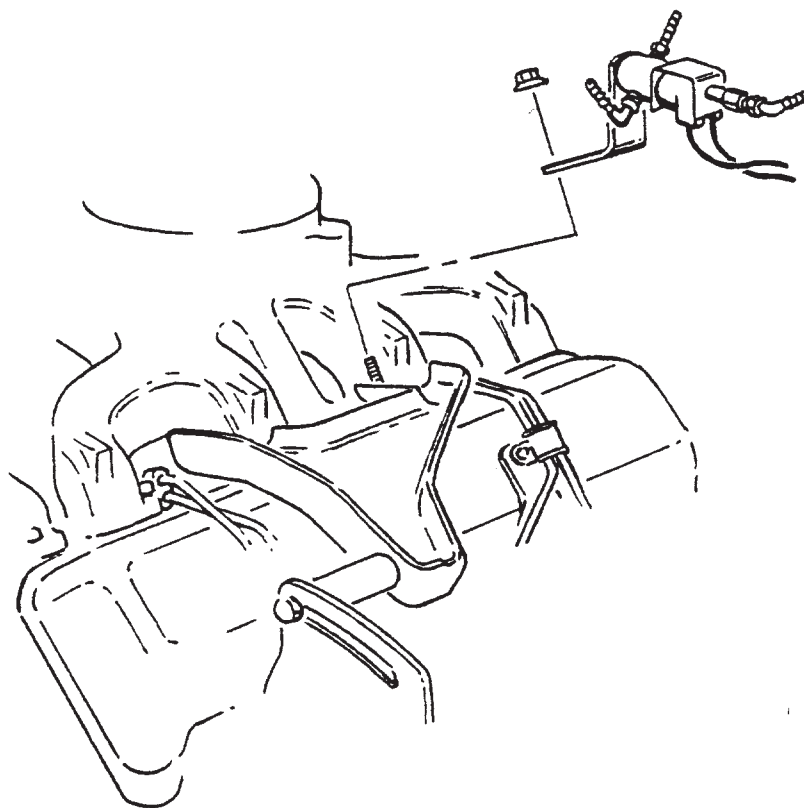


FIGURE 3

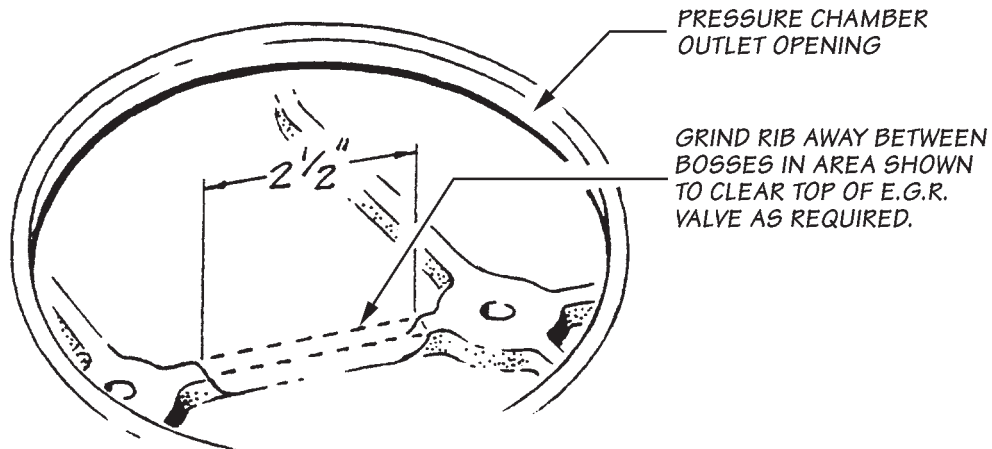


FIGURE 4

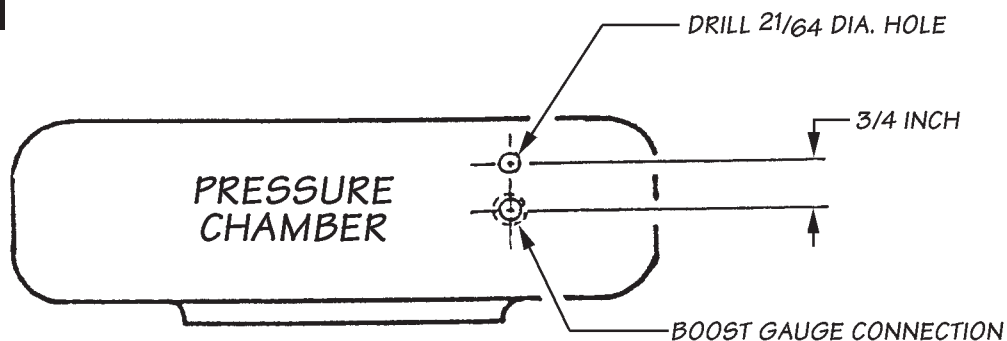
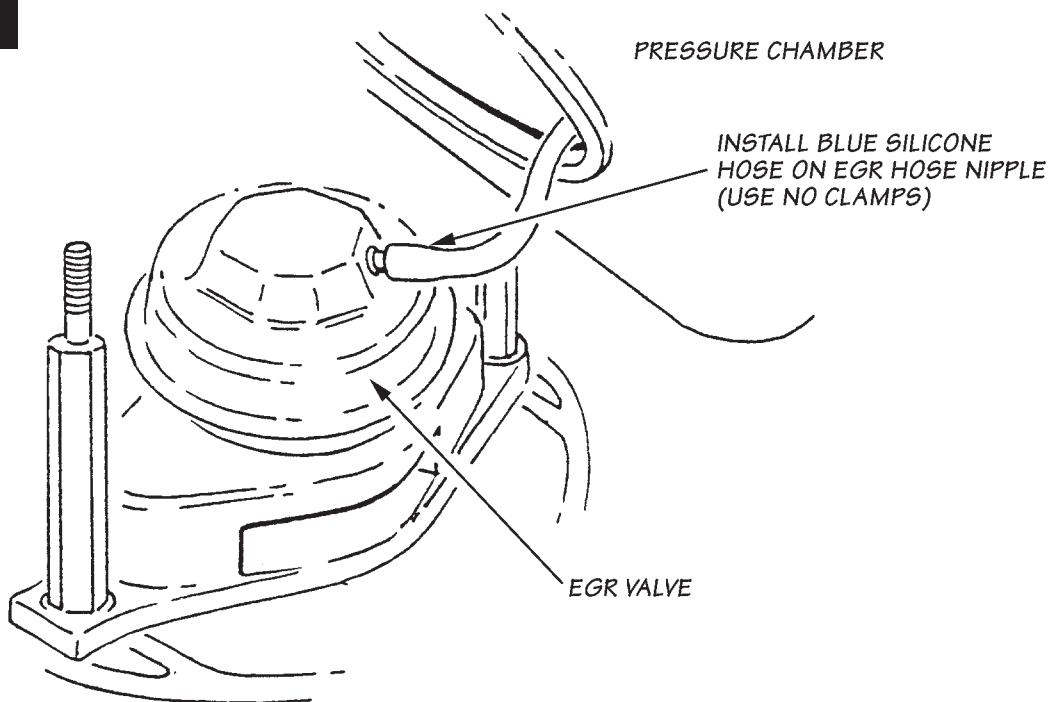
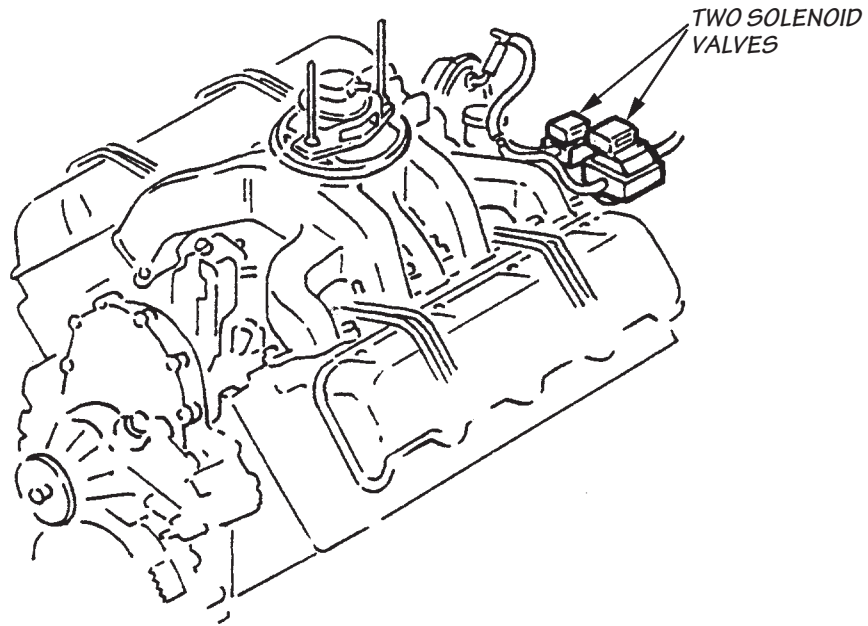


FIGURE 5



VACUUM SWITCHED



PULSE WIDTH MODULATED

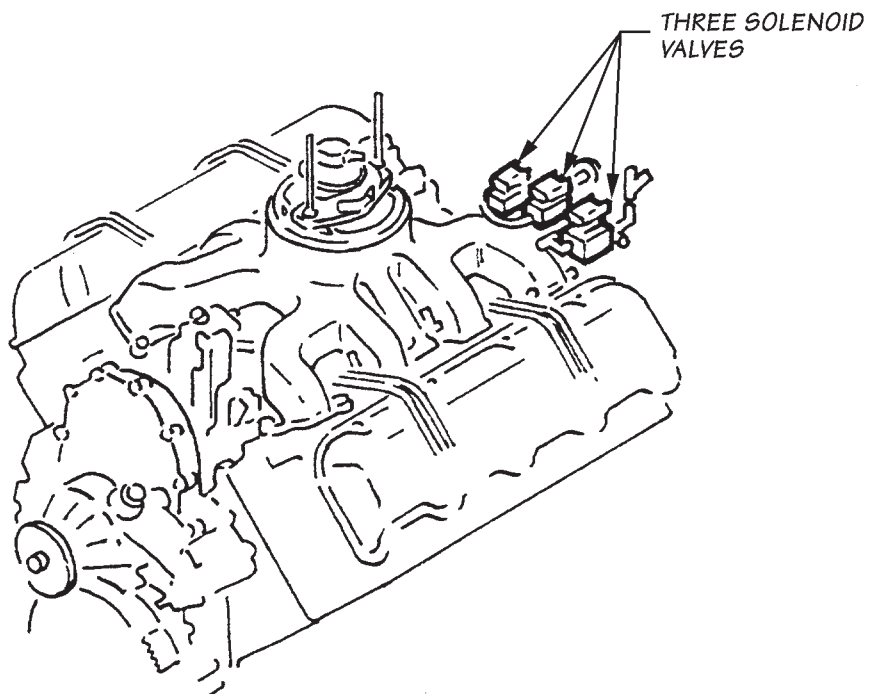


FIGURE 7

VACUUM SWITCHED EGR PLUMBING

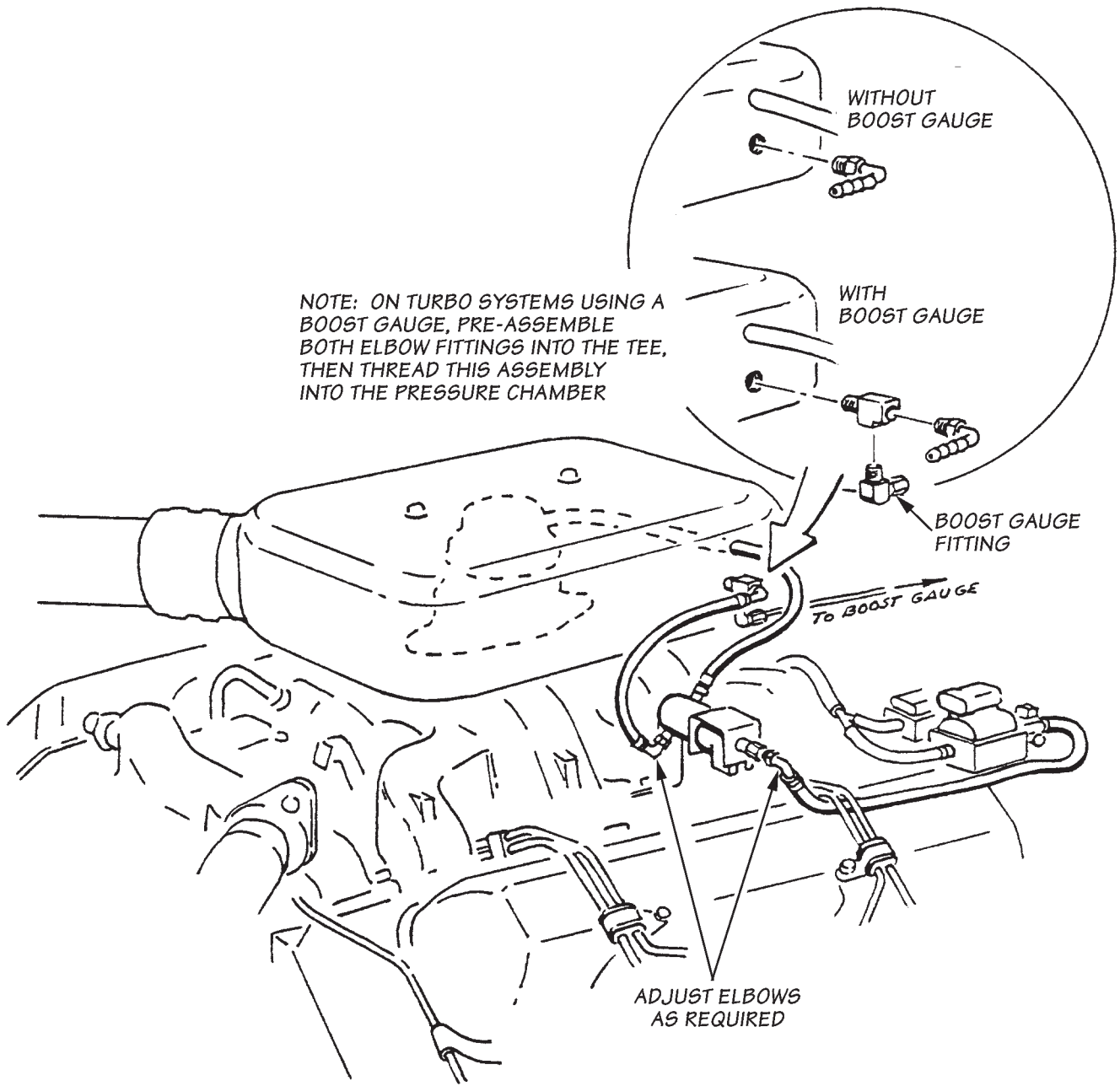


FIGURE 8

PULSE WIDTH MODULATED EGR PLUMBING

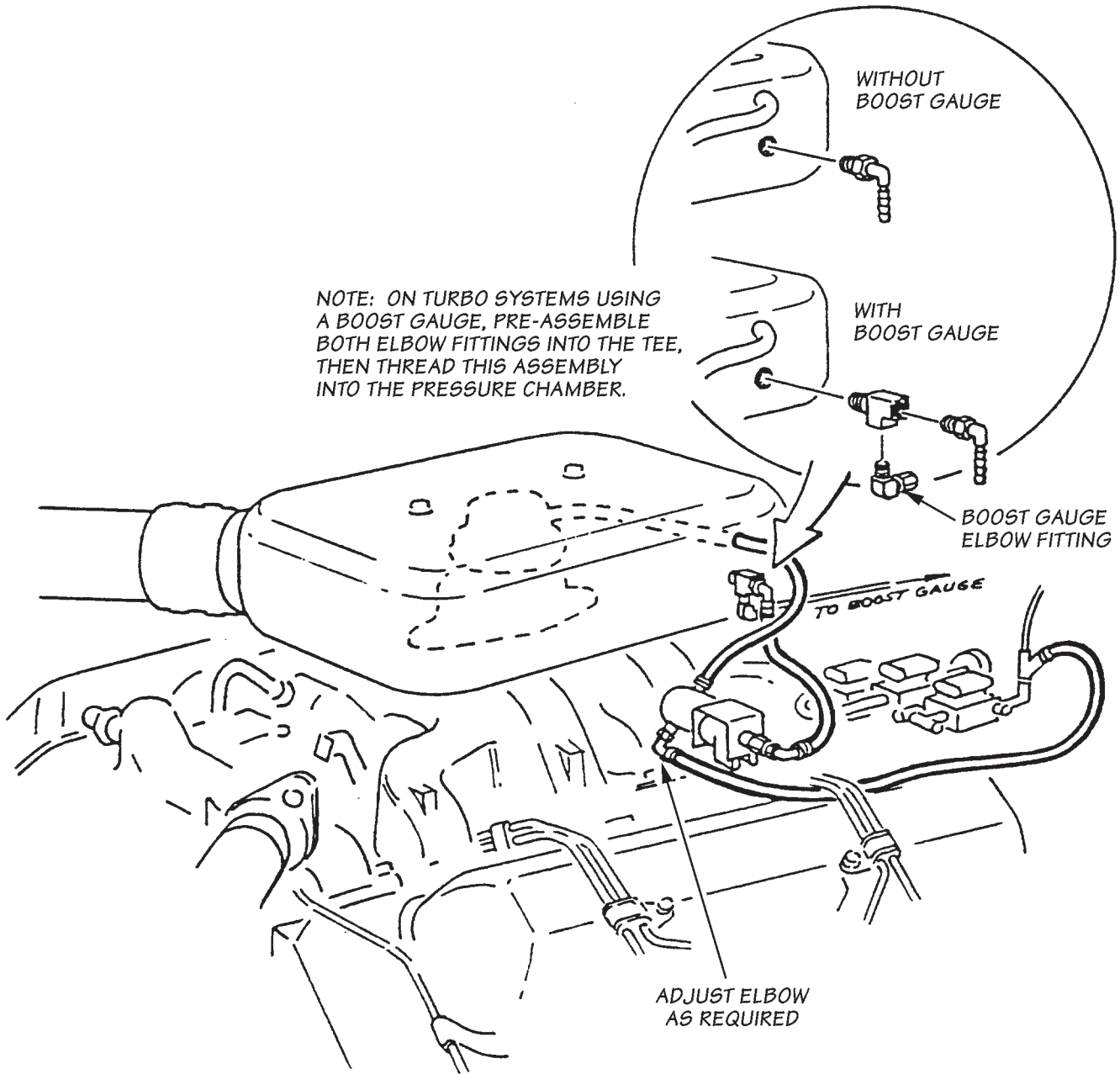


FIGURE 9

VACUUM SWITCHED EGR WIRING

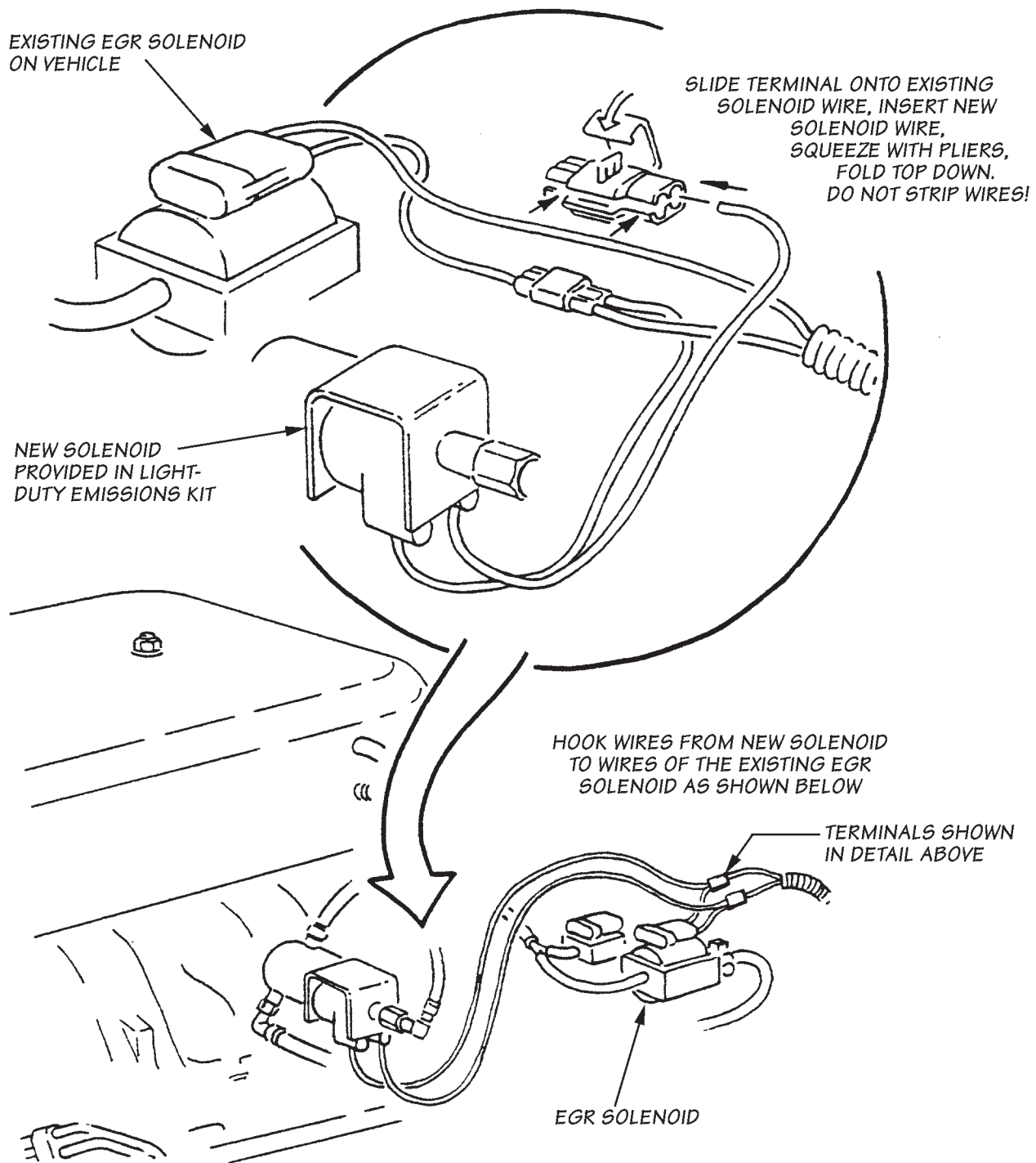
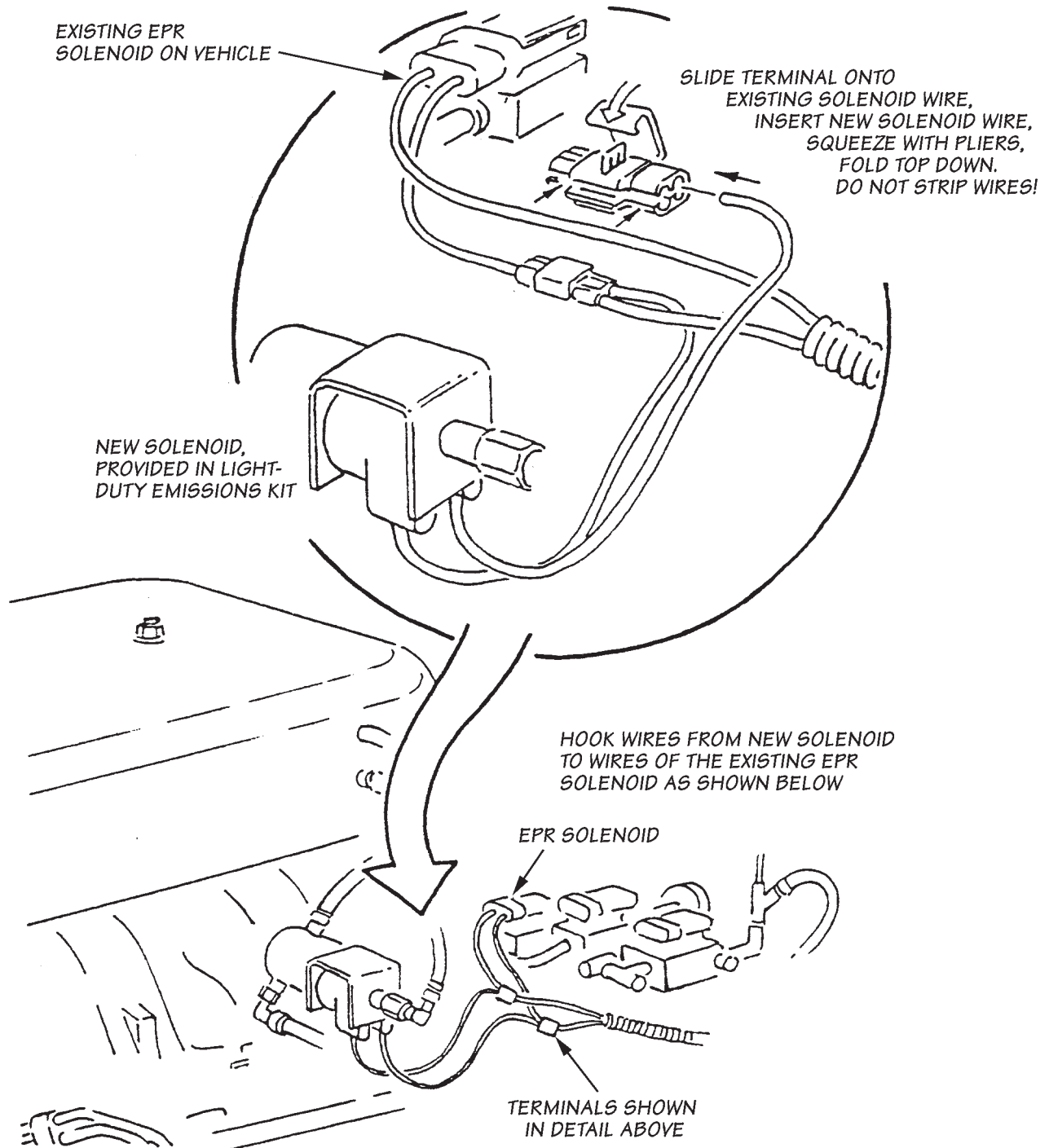


FIGURE 10

PULSE WIDTH MODULATED EGR WIRING



PARTS LIST

Emissions Kit, Light Duty 6.2L GM Diesel

<i>COMPONENT</i>	<i>PART#</i>
BRACKET, Solenoid Valve	41127-00
CLAMP, Spring Band, 5/16" black	92876
(4) CLAMP, Spring Band, 3/8" green	92875
DRILL BIT, 21/64"	92998
FITTING, 1/8" Brass ST Tee	92253
FITTING, 1/8 NPT x 3/16, Hose Barb Str. Plastic	92240
(3) FITTING, 1/8 NPT x 3/16, Hose Barb 90 El Plastic	92242
HOSE, Silicone Vac, 3/16" x 12"	94291
HOSE, Vac, 7/32" x 24"	94127
(2) WASHER, #4 SAE, ZINC	91863
OWNERS MANUAL	96293
(2) SCREW, Machine, 4-40 x 7/8"	91861
VALVE, Solenoid	55133-01
(2) WIRE SPLICE, 16-14 Scotchlok	62035
(2) NUT, NYLOCK, 4-40, ZINC	91862

