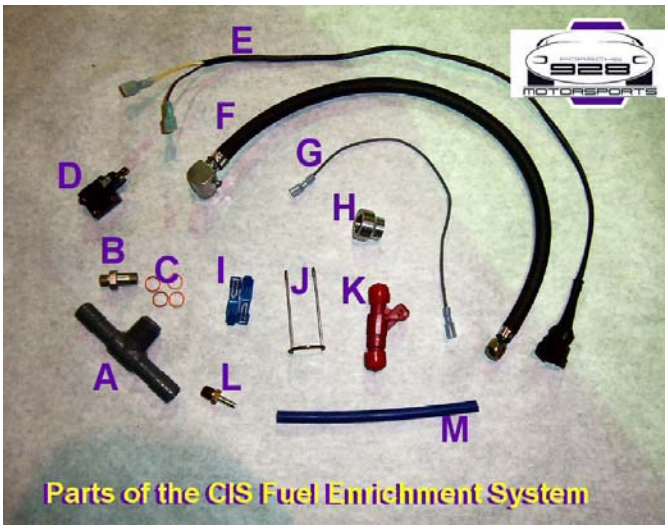
Instructions to add a 928 Fuel Enrichment System on a Supercharged K-Jetronic car.

The Fuel Enrichment System (FES) when added to the Stage 2 928 Motorsports Supercharger Kit will add almost 30 hp to the vehicles output between 5,000 and 6,000 rpm. Only Stage 2 kit owners who report a lean condition between 5,000 and 6,000 rpm should consider this modification. This modification can be reversed if desired.

The fuel enrichment system will replace the cold start injector. The 928 will still start and run correctly, but it will be a little bit more difficult to get started when cold. The CIS cars, because they have continuous injection systems, do start without the cold start injector attached (unlike L-Jet cars) but you will find that the FES (fuel enrichment system) will make the car just slightly harder to start.

Let's identify the parts of the FES.

A. The large vacuum T
B. The special fuel banjo bolt
C. 10mm copper crush washers (4)
D. Adjustable boost switch
E. Fuel injector wiring harness
F. Fuel supply assembly
G. Ground wire
H. Fuel injector boss
I. Electrical taps (2)
J. Fuel injector retention clamp
K. Fuel injector
L. Boost pressure nipple
M. Length of vacuum line

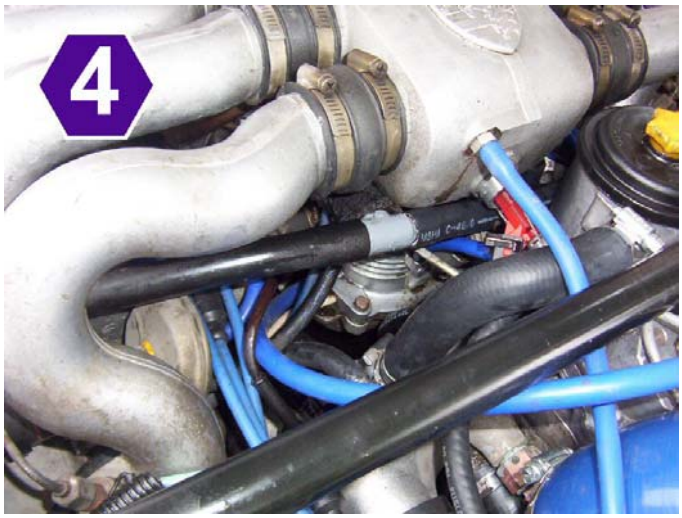


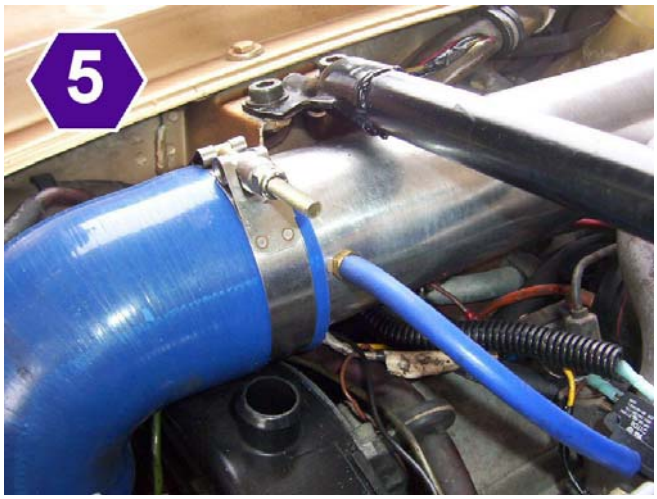
Picture 1. The first thing we want to do is remove the auxiliary air valve and the electric auxiliary idle valve as shown by the arrows in picture 1. The auxiliary air valve functions only as part of the EGR system for the vehicle and as the air pump for the EGR system has already been removed, we can now remove the auxiliary air valve too without any harm. The little electric solenoid that hangs from the cross bar is a auxiliary idle vacuum bleed to increase the rpm of the engine when the air conditioner is turned on at idle. It also is no longer necessary, you can do quite nicely without it.

Picture 2 shows the auxiliary air valve removed from the vehicle.

Picture 3 shows the auxiliary idle switch removed from the cross bar.

Picture 4 shows that we have taken part A from your kit, (the large vacuum T) and used it to reconnect the hoses now that we've removed the auxiliary air valve.

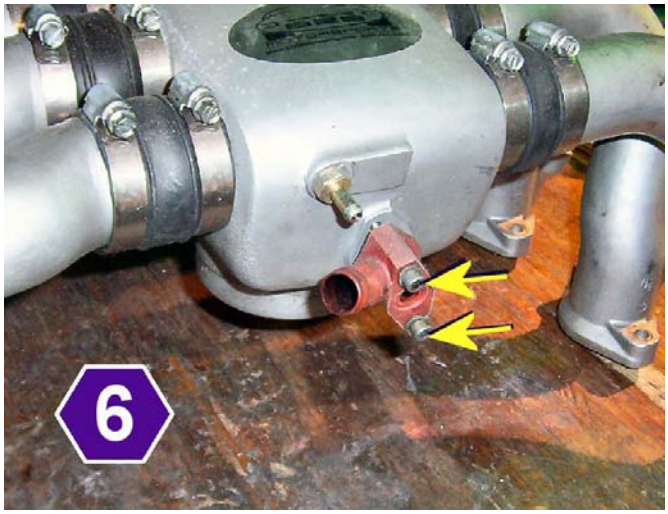




Picture 5. Take the vacuum nipple marked Item L in the kit photograph, and drill and tap your air intake as shown and insert the vacuum nipple.

Remove the aluminum pipe to drill and tap it so you do not get any metal shavings in the intake.

Picture 6. For clarity, some of these pictures to install this FES have been taken with the intake manifold on the bench so that we can get more accurate photographs. In photo 6, remove the collar from the front of the intake manifold that the auxiliary air hose went to.



After it has been removed, the front of your intake manifold will look like picture 7.

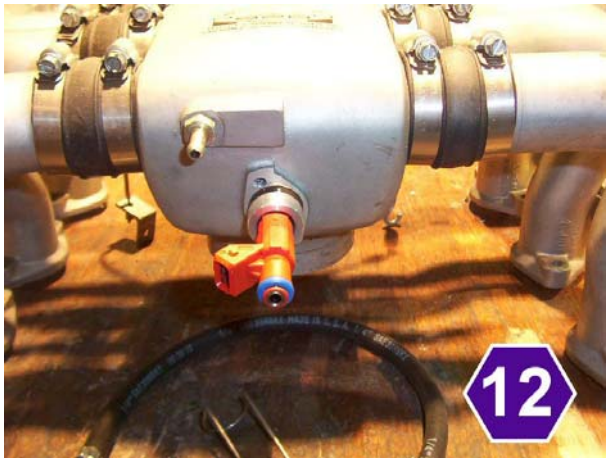
Picture 8. Spray some carburetor cleaner on a rag and use it to clean out all the varnish inside the hole as shown in picture 8.

Picture 9. Test fit the fuel injector boss (Item H in your kit) in the cold start injector hole. You should find that it goes partway in, but not go all the way in. Mix up a small batch of JB Weld that was supplied with your supercharger kit and put it around the perimeter of Part H, as shown in picture 9.

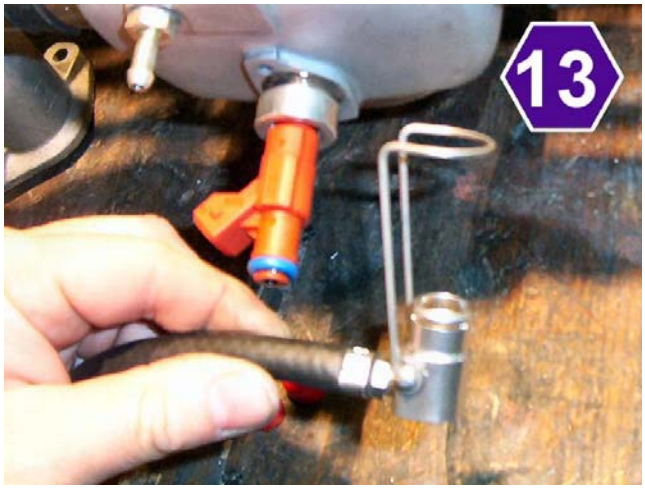
Insert the fuel injector boss into the front of the manifold as shown in picture 10 and wipe off any extra JB Weld around the outside so that there is a shoulder that is available for the retaining clip at the back of the fuel injector boss collar, as shown in picture 10.

Depending on whether you use JBQuick (20 minutes) or normal JB Weld (24 hours) you need to wait for the epoxy to harden before proceeding.

Picture 11. The fuel injector is pushed into the fuel injector boss with just hand pressure.



Picture 12. Shows the injector held in the boss by only the o-ring at this time.



Picture 13. Take the retaining spring clip (Item J) and attach it to the head of the fuel line (Item F) as shown in Picture 13.

Picture 14. We have the retaining clip under the shoulder of the fuel injector boss. Picture 14 shows that we are holding the retaining clip together at the rear temporarily with a cable tie.

Picture 15. Safety wire on the fuel injector clip.

Picture 16. Finished safety tie holding the fuel retaining clip together at the rear so it cannot possibly come out.

Picture 17. The finished assembly.

Picture 18. Go to the warm-up regulator and remove the line that goes to the top of the warm-up regulator as shown and replace it with part B from your kit and 1 of the 10mm copper crush washers (part C in your kit).

Picture 19. Take the end of the fuel line from the injector and run it around the air intake of the supercharger, and place it on that banjo bolt you have just installed in picture 18. Put a crush washer (Part C) on each side of the banjo fitting.

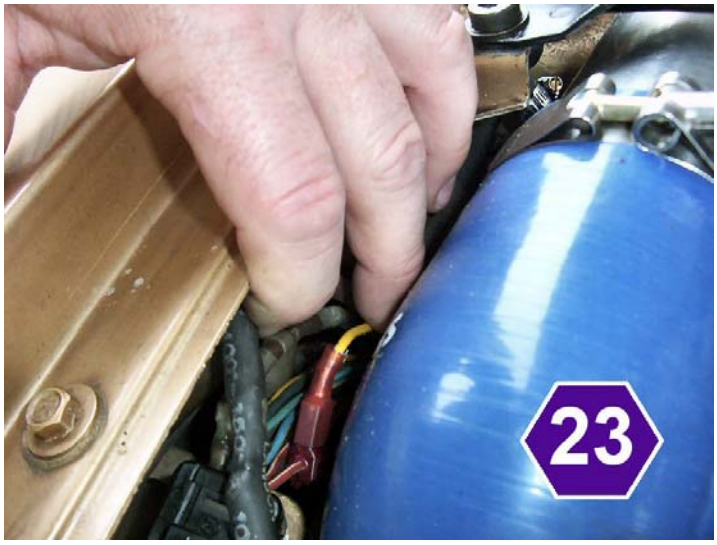
You will have an extra crush washer left. This is in case you need an additional seal at this step later, when we check for leaks.

Picture 20. Banjo bolt and the fitting re-attached. It shows the direction of the fuel line and how it goes around the intake for the supercharger.

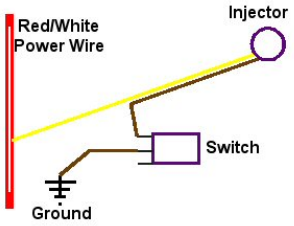
Picture 21. This also shows the routing of the fuel line.

Picture 22. Attach the wire harness (Item E) from your kit to the injector at this time.

Picture 23. On your right front inner fender well, find the 14 pin connector that connects your engine harness to the vehicle. You will find one red wire with a white stripe coming out of that 14 pin connector. Use one of the clamp on wiring taps (Item I) in your kit and attach it to that red and white wire. The yellow wire from the fuel injector then plugs into that wire tap.



Picture 24. Now you can take the small piece of hose (Item M) in your kit and attach it to the vacuum nipple you've already installed and plug the other end into the adjustable boost gauge (Item D) in your kit.



Picture 25. The ground wire goes to the com or upper most wiring connection on your switch, as shown in picture 25 and the ground wire is spliced into a brown or ground wire in the engine wiring harness, just like we did in step 23 just a moment ago.

Picture 25. Also shows adjusting the switch with a small allen wrench.

This fuel enrichment system is now completely installed and only needs adjustment to complete the installation. Generally speaking the function of this FES is only to add additional fuel from 5,000 to 6,000 rpm. Start the car and check the fuel lines for leaks at every fitting before proceeding. An additional crush washer has been supplied if you need it at the Warm Up Regulator.

(Step 19) You will want to adjust your boost switch (Item D) so that it fires the 9th injector when your boost gauge reads about 4 psi or when your tachometer is at about 5,000 rpm. You will have to trial and error with this on some country road to get it adjusted the way you like it, but generally speaking, we never fire the 9th injector under normal driving and certainly not under interstate cruising, but only between 5,000 and 6,000 rpm.

How the FES works. It is erronious to think that we're adding more fuel in one location in the plenum because we're using a 9th injector. That is not the case. The key to this FES on the CIS cars is where we're taking the fuel from. When we spliced into the fuel line on top of the warm-up regulator as in pictures 18, 19 & 20, we tapped into the control pressure side of the warm up regulator. When the control pressure of the warm up regulator decreases, increases the pressure to the injectors increases, thereby enrichening the mixture. This is how the CIS systems adjust for the cold starts, cold mornings and hot summer days.

What our FES does is; when that 9th injector fires, we're bleeding off pressure from the control side of the warm up regulator. It will react as it was designed to do, by increasing the pressure into the injectors. So the mixture to all 8 injectors will be evenly enriched in the entire system, plus shooting the bleed-off into the center of the central plenum. The proper fuel distribution is maintained, and the output is obvious.

Enjoy your Fuel Enrichment System, everything about it can be backed out if you desire to do so.
Call Carl at 928 Motorsports, LLC if you should have any questions.