

J30 Fuel Injector Replacement w/o Removing the Plenum

As contributed by NICO member Chris Fowler

Removing a fuel injector without removing the plenum isn't without risk. Grinding of the upper plenum will be involved with the possibility of completely grinding through the plenum wall thus ruining the plenum. The trade off is several hours of labor and many dollars saved by not having to replacing a slew of gaskets and hoses.

Tools

- *8mm Ball end Hex wrench (Allen wrench)
- *Dremel rotary tool w/assorted grinding bits
- *Voltmeter w/Ohm measurement
- *Assortment of Phillips screwdrivers
- *Liquid Wrench
- *Pliers
- *Vacuum
- *Vaseline

Once a malfunctioning fuel injector is detected, rather through a CEL or common sense, the first step is to identify which injector has failed. There are two ways to identify the faulty injector.

- 1) Using a mechanics stethoscope place the scope on each injector until you find the one not 'clicking' while the engine is running. Voila, 60 seconds later you know which injector is dead. This is definitely the easiest and quickest method.
- 2) The 2nd method is done by measuring the resistance of each injector. I recommend double-checking the assumed failed injector with this method to verify it needs replacement and it's not the coil pack that has failed. The factory specification of the injector is 10-14 Ohms. If the reading exceeds this range then replacement is necessary. This is how the measurement was made:

Checking Fuel Injector

- 1) Remove the throttle cable cover. This will require the 8mm Ball end hex wrench. There are 5 screws to remove.



2) Although not all can be seen but I've circled the approximate locations of the FI's.



3) Now remove the wiring harness from each FI (if not using the stethoscope method) or just the single harness (if the stethoscope method was used). The harness can be a little tricky to get off. While doing this you should check for corrosion on the connections, as this could be a cause of the malfunction. In some instances, depending on the cylinder, it may be beneficial to disconnect the coil pack and move the wiring and harness out of the way.



- 4) Once the FI harness is removed use your voltmeter to measure the resistance of the FI. Use the two prongs surrounded by the red plastic to take your measurement. If it is good and in spec it should measure 10-14 Ohms. If it is out of this range it needs to be replaced.

Removing and Replacing the Injector

As you can see in the above picture of the FI only one of the two screws is accessible. There's an identical screw on the left side that cannot be seen because it is underneath the plenum. This is why a dremel must be used to grind away the plenum to gain access to this screw. By looking at the picture you can tell how corroded these screws can be. This was taken from a 10 year old J30 with 123K miles, mostly garage stored. The screws have softened over time so be careful not to strip them.

- 1) The first step is to relieve the pressure in the fuel lines. Make sure all or at least 5 (of the six) FI's and all coil packs are plugged back up. Start the engine then pull the fuel pump fuse. The engine should die on it's own within seconds. Then shut off the ignition key.



- 2) To get an idea of how much should be grinded away from the plenum, stick a Phillips screwdriver into the hidden FI screw. Now imagine trying to get this out. Considerable grinding should be realized.
- 3) Several style bits were used to get this just right. Cylindrical, spherical and cone shaped were all used to make room on my #6 FI. During the process be careful not to grind on the hidden screw as you will need all of it you can to break it free without stripping. After grinding away enough plenum to at least reach the screw try to break it lose and begin unscrewing it. You'll notice that when backing it out the top will touch the plenum preventing you from completely taking it out. Use this as a gauge to know how much more, and where, to grind on the plenum.



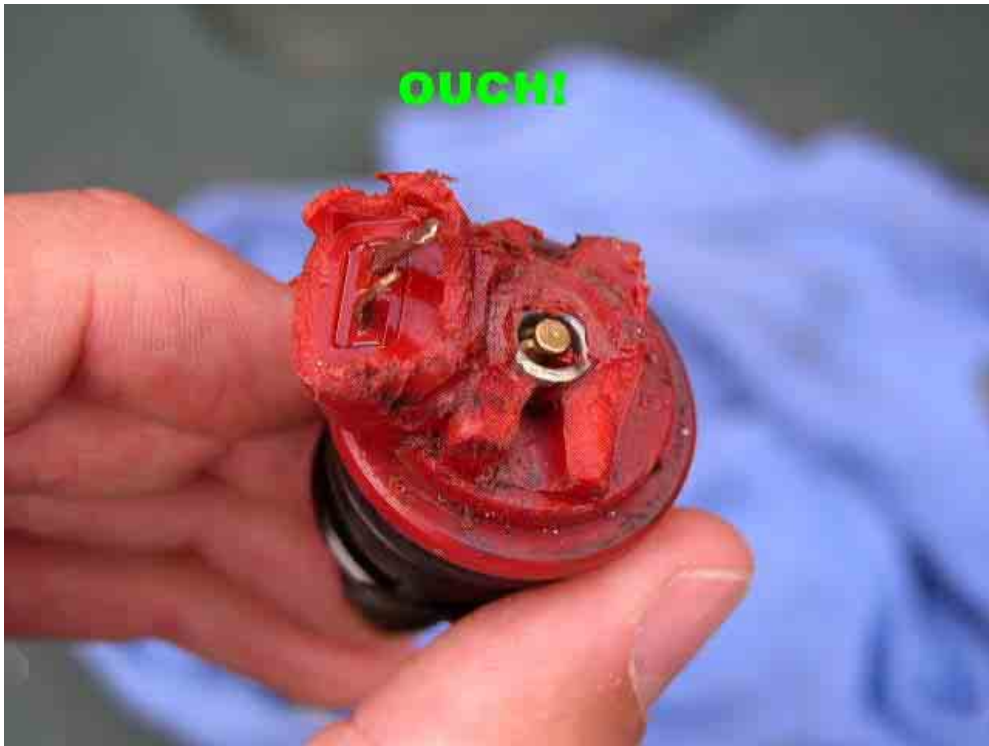


- 4) To get out that last millimeter of screw it may be beneficial to go ahead and remove the right screw and move the FI brace around until the left screw comes out. This will save a little more grinding.
- 5) Once the brace is off, use a vacuum cleaner to clean up as many of the grinds that you can. After that I used pressured air and cleaned off the entire plenum.
- 6) Now that you are ready to pull out the injector soak the injector with Liquid Wrench overnight. Without it, chances are you'll get nowhere. The next day after a good soak I pulled it out on the first try! Use a good pair of pliers and get a good grip on the red part of the injector. Then pull like hell! I actually ended up using Piston Ring Compressor Pliers to get the FI out because so much of the tip had been broken off the day before.



- 7) Sit down and grab a beer because you're 97% done.
- 8) Install new O-rings on the new FI. Use some Vaseline on them to help out a little.





- 9) Place new injector into the fuel rail. Press down until red plastic cap of the new injector is flush with the mount. It should almost snap into place. I used a flat head screwdriver and a hammer to *lightly* tap the injector into place. It's crude but it worked.
- 10) Now put everything back together. Brace, harness, throttle cable cover, fuel pump fuse and start her up!