

XJ8 (X308) Under-Intake-Manifold Heater Hoses Replacement. Feb 2019 (*You can zoom in PDF format to better see some of the pic details*)

The two large heater hoses on the 1998-2003 XJ8 are routed under the intake manifold and are not easily accessible, so if/when they do fail it is an inconvenient and lengthy job to replace them. Therefore it is wise preventative maintenance to replace them as a precautionary measure. Because of similar age deterioration concerns and difficult accessibility, it is advisable to also replace the 3-way hose connection while the vehicle is apart. One more "advantage" is that when the intake manifold is removed, access to the thermostat housing is made really simple, and so it is prudent to replace the original plastic thermostat housing with an improved metal variant, if this hasn't already been done.

As with all such things, when you do a job like this for the first time it can be daunting and time consuming.....even after having read some of the excellent "tutorial" overviews by previous owners. Once done it doesn't seem so arduous and you feel it could be repeated in half the time! It isn't a difficult procedure, you just have to take your time, I found the most frustrating thing was dealing with those stubborn, and often fragile, plastic Jaguar hose connectors. The "T" connector under the left side of the throttle body was particularly stubborn for me and didn't want to release and I wasted a lot of time struggling to remove it before finally succeeding,and after all that, I modified it with hose clamps and re-routed it so it doesn't run under the manifold, and is a lot easier to access.

This is a list of parts I used for my 2001 XJ8 VDP A27 and where I bought them (*earlier versions and/or A26 engines may have some different part numbers*)

Parts:

- 1) Heater Hose Feed NCA3945CD \$18.29 OEM SNG Barrett
- 2) Heater Hose Return NNE3946CA \$18.29 OEM SNG Barrett
- 3) 3 Way Connector NNE3944BA \$3,09 OEM SNG Barrett
- 4) Manifold gaskets AJ83356 \$1.36 each (x 8) Aftermarket SNG Barrett
- 5) Throttle body gasket NNE3021AC \$21.48 OEM SNG Barrett
- 6) Hose to throttle body NNE3246BA (right/passenger side hook-shaped) \$5.04 URO Rock Auto
- 7) Hose to throttle body NNE3976CA (left/driver side to 3-way connector) \$5.66 URO Rock Auto
- 8) Generic vacuum hose NAPA \$13.50
- 9) Fuel line disconnect tools Harbor Freight \$6.00 or NAPA \$12.00
- 10) Metal thermostat housing \$56.00 Welshes Jag parts

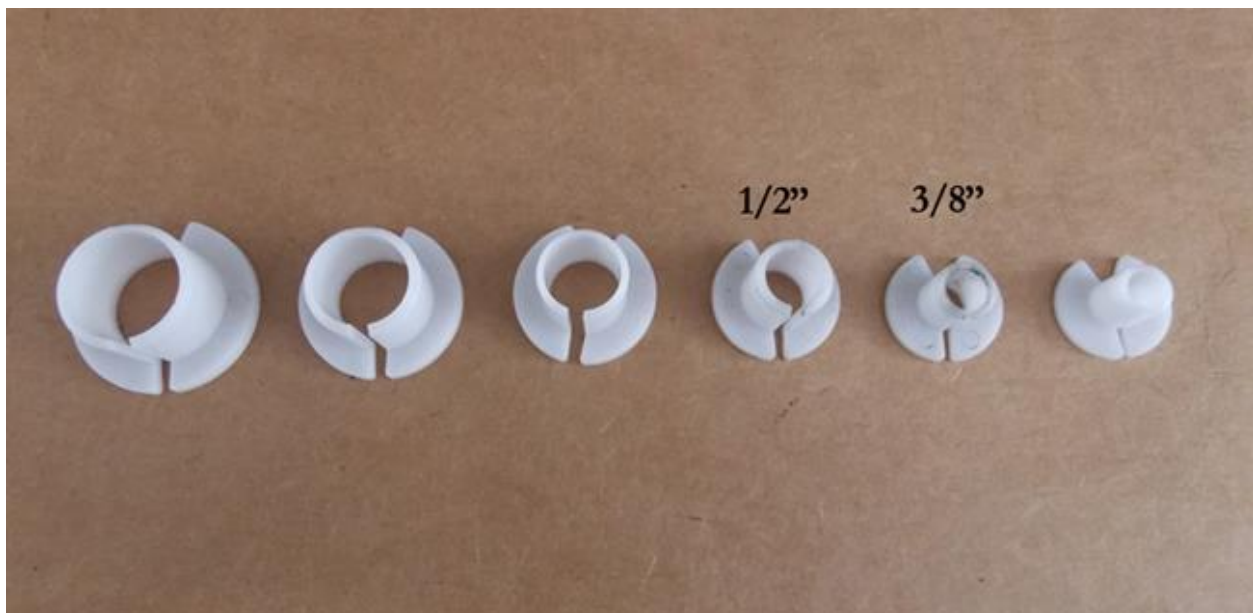
And, if you do break any of the reservoir hoses www.motorcarltd.com has them at the best prices.

- 11) Hose from reservoir tank to radiator MNC4583AC \$23.00 MotorcarsLtd
- 12) Hose from reservoir tank to thermostat MNC4582AC \$25.00 MotorcarsLtd

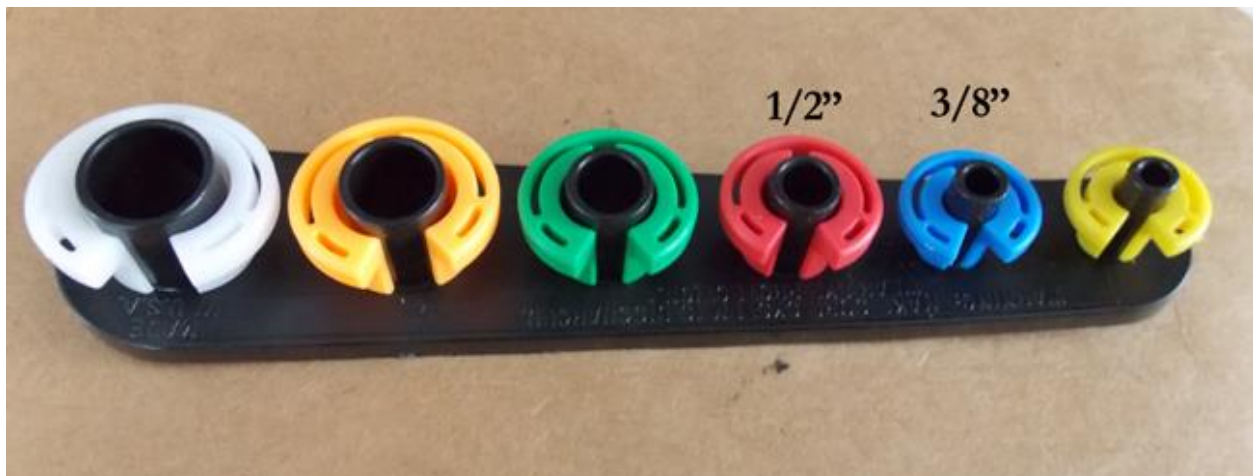
1) Because you are going to be disconnecting various electrical connectors, the first thing to do is open the trunk and disconnect the negative terminal on the battery. *(Be sure your key opens the trunk if you close the trunk lid, because with the battery disconnected only the key will re-open it!)*

2) You are going to be leaning over the fenders for quite a while doing this job, so be sure to drape some soft protectors over each fender. Large, soft towels may suffice, I used some furniture pads which I got free with purchases from Harbor Freight.

3) You will need a variety of metric socket wrenches, channel locks, pliers, screwdrivers, etc., and some special tools. You have to have the fuel disconnect tools. And a home-made tool of 12 or 14 gauge electrical wire is useful in disconnecting those stupidly frustrating Jaguar hose connectors.



Harbor Freight has the fuel-disconnect tools for an economic \$6.00. NAPA has a fancier looking set for \$12.00. Both work perfectly fine.



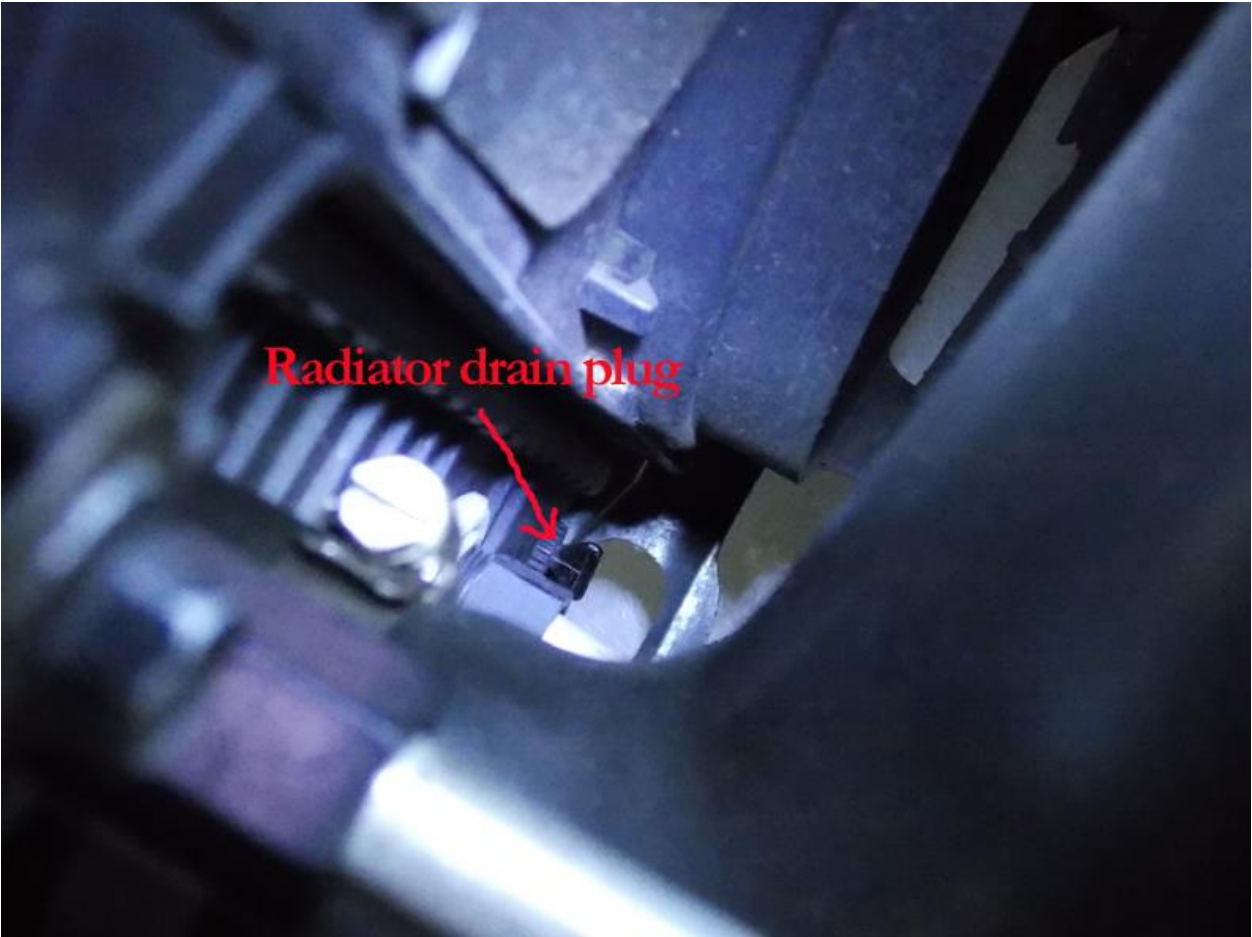
4) I find the Jaguar-style hose connectors extremely frustrating. In theory you can squeeze the clips which releases the barbs, in reality you end up needing to insert either a pair of small screwdrivers to try and expand the clip, or making a tool out of 12 or 14 gauge electrical wire for the smaller ones. Whatever method you use be careful because the connectors tend to be brittle after all this time, and they are either difficult-to-impossible to source, or damned expensive as OEM Jag parts!

(Home made connector-release tools of 12 and 14 gauge electrical wire. Flatten the tips for easier initial insertion)

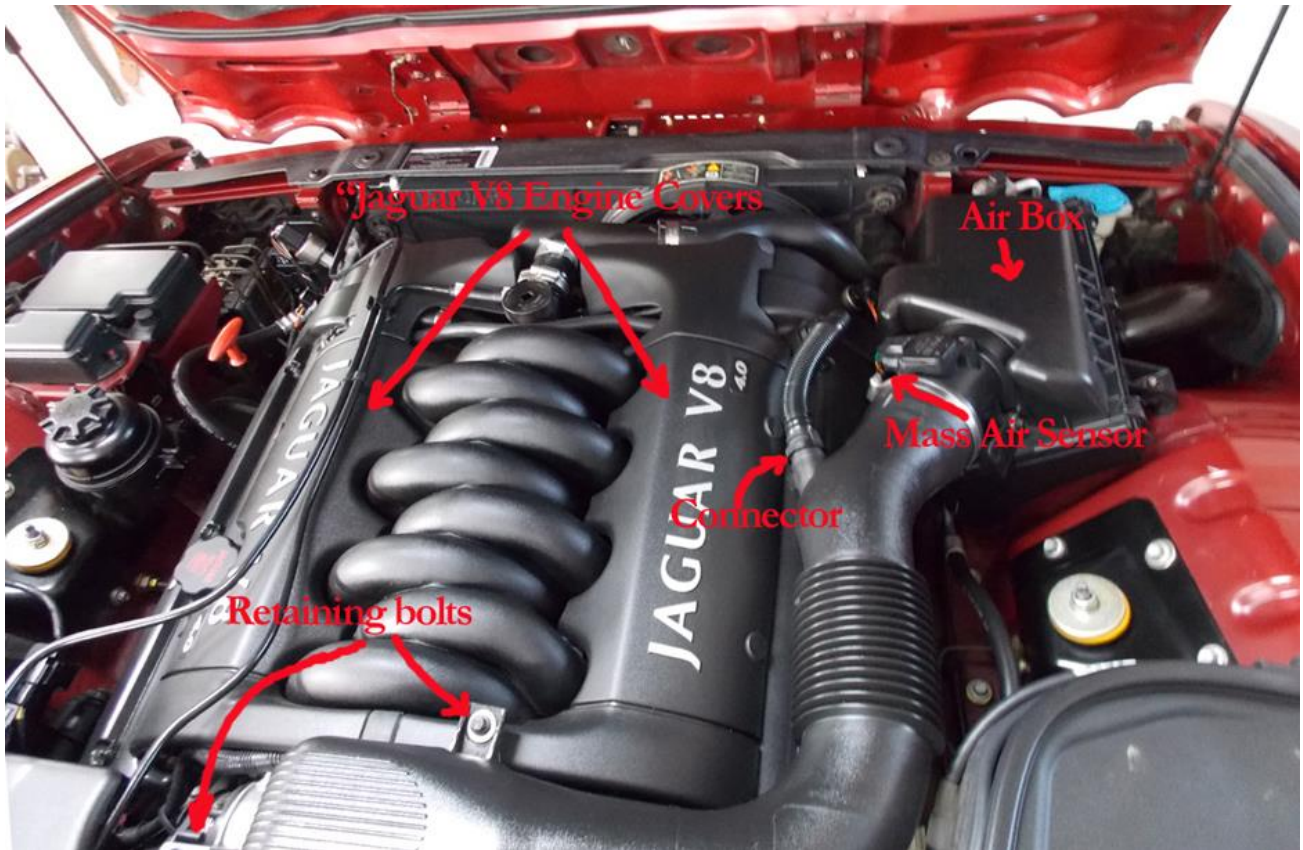


Also, while working on the car from the left side, be careful around the hoses coming from the coolant reservoir, (part#s MNC4583AC & MNC4582AC) it is easy to inadvertently lean on them and break them..... I know, because I broke one of them!

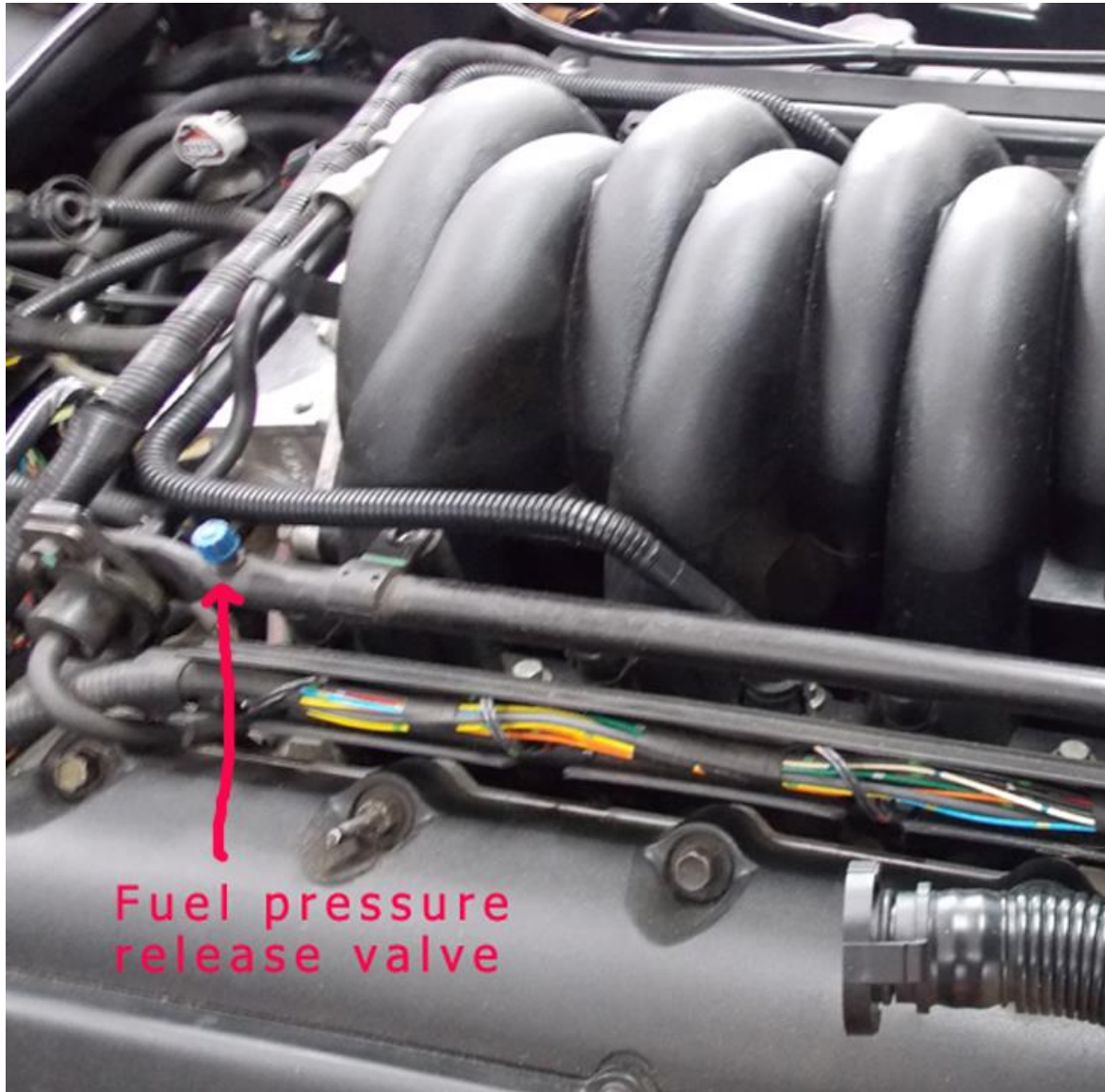
5) The antifreeze will have to be drained, so you may as well do it now. Locate the small black drain plug on the bottom left underside of the radiator and drain into a clean container (*I use one of those large but shallow plastic storage containers that slide under your bed containing all the old family photos.....take the photos out first!*) You may have to jack the car up an inch or so to get the drain pan under the car.



6) Remove the two black plastic "Jaguar 4.0" engine covers, being careful not to break the fragile plastic retaining prongs. Remove the electrical connection to the mas airflow sensor (MAS) unit on the air box. Disconnect the plastic connector that draws air from the valve cover and swivel it to one side. Remove the center plastic guard/shield from the center of the engine bay to allow access to the throttle body. Remove the airbox top by unclipping the 5 retaining clips. Remove the 2 bolts located at the throttle body intake holding the intake tube to the throttle body and remove the intake tube as a whole. Be careful not to drop the rubber seal where the air tube fits on the throttle body.

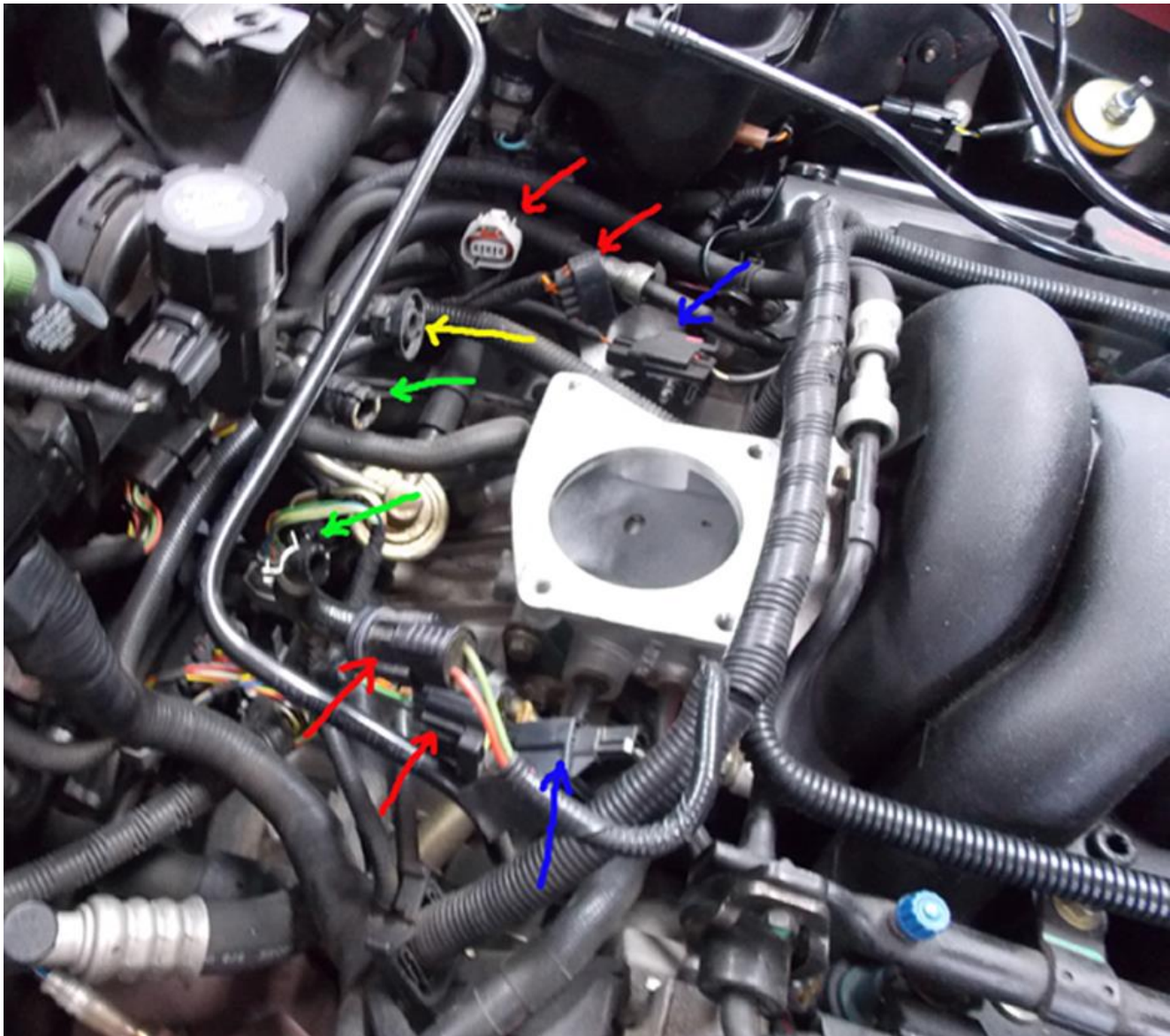


7) De-pressurize the fuel rail system by removing the small blue screw cap located at the right/passenger rear of the fuel rail, and depress the Schrader valve. Have a clean rag ready to soak up any gasoline. Replace the blue cap.

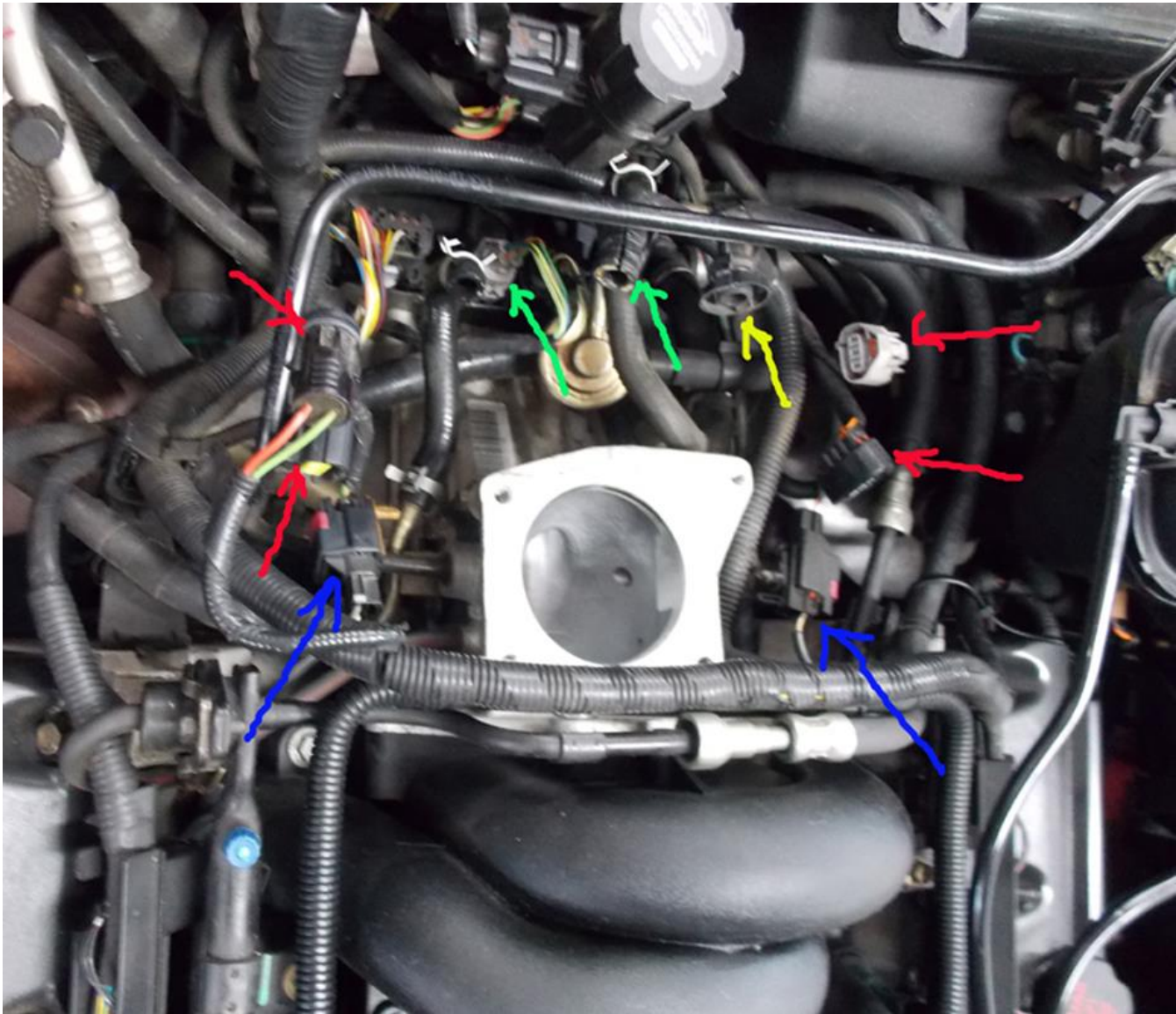


8) Disconnect the four electrical connectors at the throttle body, **(marked with red arrows in the picture)** A round one on the right/passenger side. A black oblong one on the right/passenger side. A white oval one on the left/driver side, and a black oblong one on the left/driver side. They tend to have different ways of unsnapping, and age makes the plastic brittle, so be careful when disconnecting them. There are also two other black electrical connector, **(marked with blue arrows in the picture)** one on either side of the throttle body, and attached to the throttle body on metal plates by "barbed" plastic "push-holds", and age usually makes these brittle and resistant to being pulled out. You can wait until the throttle body is loose to pull these off as they are easier to get to by then, and also a little silicone spray or WD 40 helps coax them out. *(Once removed from their retaining plates on the throttle body, if you need to disconnect either of these two connectors you have to slide the small red plastic shield back to gain access to the release lever).*

(View of the various connectors/hoses AFTER the throttle body has been removed for better visual)



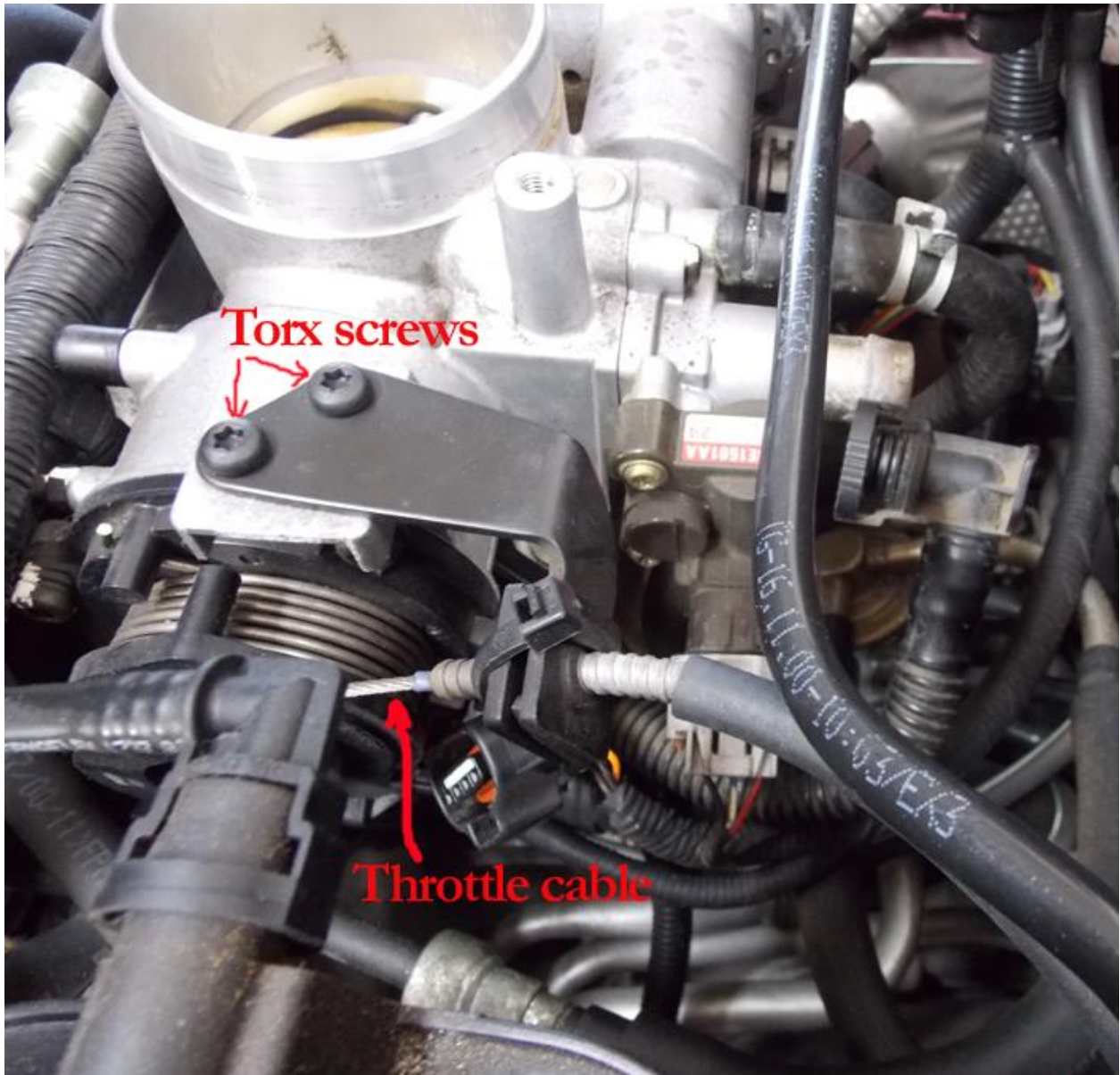
(A second view of the connectors/hoses AFTER the throttle body has been removed)



9) There are two small coolant hoses that attach to the rear of the throttle body, **(marked with green arrows in the picture)** due to age these are by now probably firmly attached to the throttle body stubs even when the hose clamps are removed. I recommend not struggling with these, just pre-order them and cut them off and replace them (parts# NNE3246BA & NNE3976CA).

10) There is an air hose connection at the rear of the throttle body, **(marked with a yellow arrow in the picture)** carefully disconnect and pull the hose back.

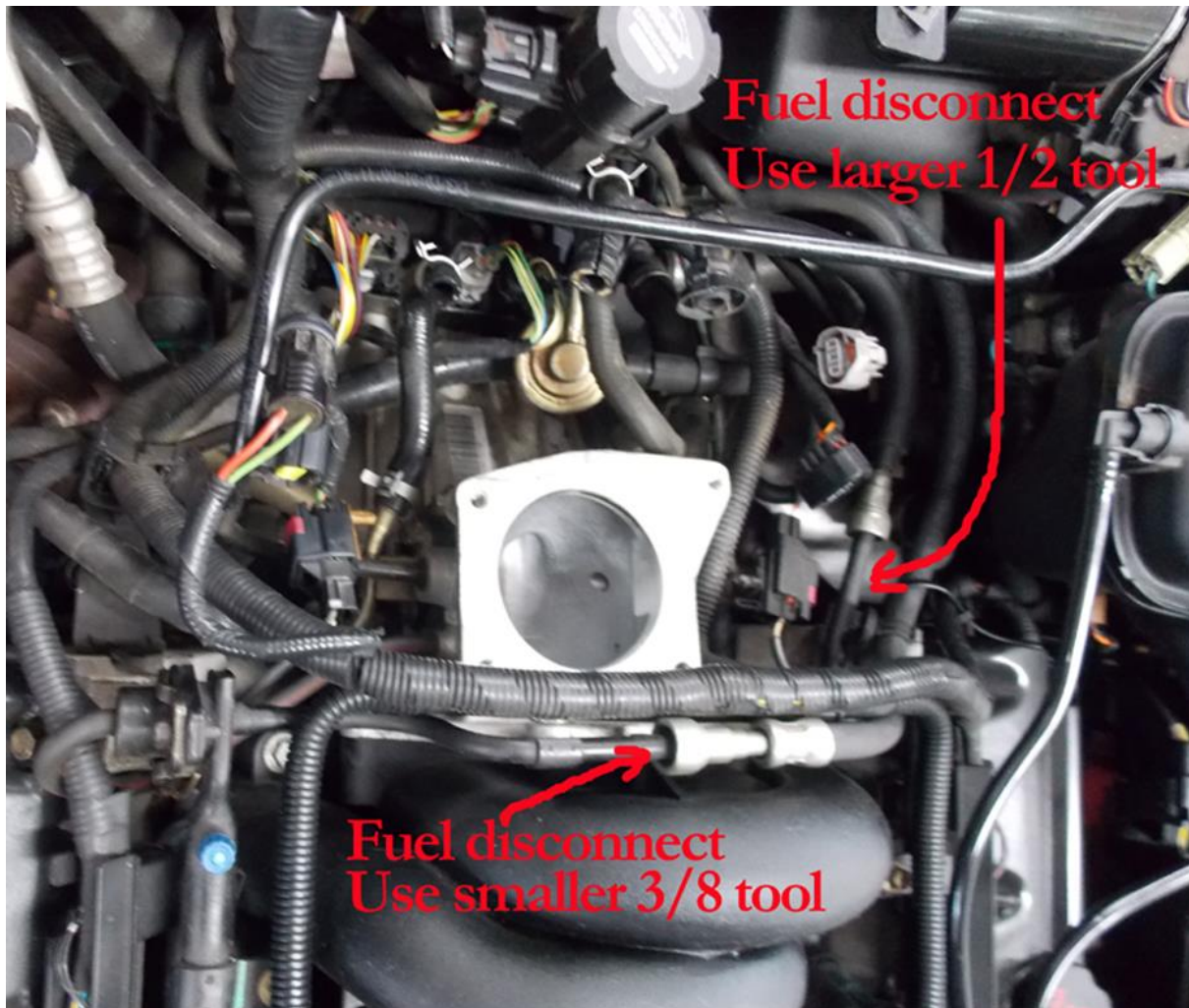
11) Disconnect the throttle cable by rotating the throttle drum clockwise to the full open position and remove the cable. Then remove the two torx screws holding the bracket and move the cable out of the way.



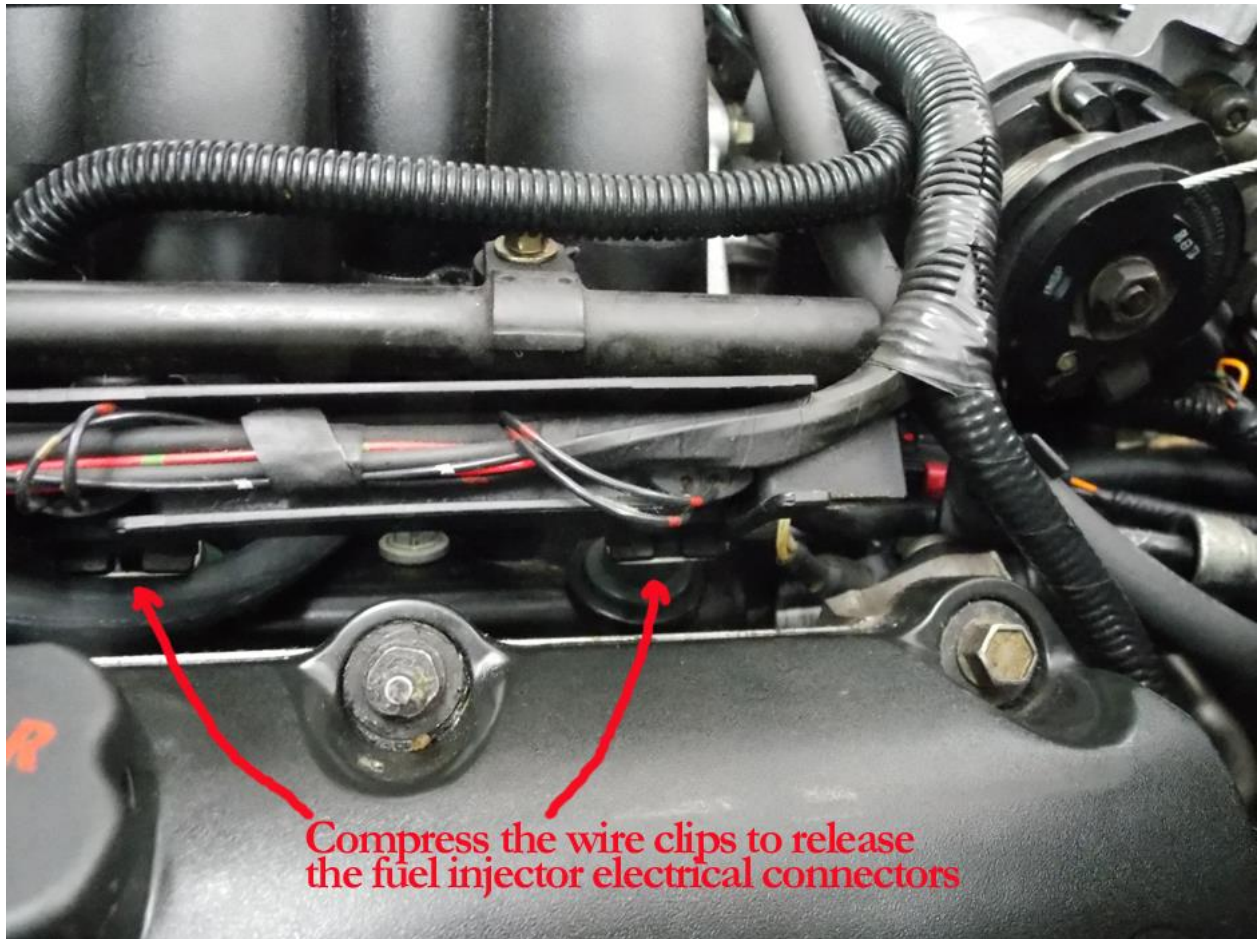
12) Now you can undo the four x 10mm bolts holding the throttle body to the rear of the intake manifold. Mine were extremely tight, but once they broke free they removed easily. The throttle body is now loose and can be wrangled out of the car. While the throttle body is off the car it would be a good time to clean it with appropriate spray cleaner.

13) Now you can get easier access to the small vacuum line on the right/passenger side of the throttle body chamber which goes to the fuel rail, There is a similarly small vacuum line on the left/driver side. I would replace these with new standard vacuum line. On the driver/left side of the throttle body chamber you now have access to a "T" connector that draws air from the left side valve cover This connector is difficult to get to, and care should be taken to remove it without breaking it. *(This vacuum line runs under the intake manifold, which I think is unnecessary, so I reused the connector with new vacuum hose and re-routed this line to run above the intake manifold, adjacent to the fuel injector rail, giving easier future access).*

14) Disconnect the two fuel lines using the special fuel line disconnect tools, *(available from any auto-parts store, or Harbor Freight for just \$6.00)*. These feed and return fuel lines look to be the same size, but they are not, the one running fore and aft is a little larger (1/2" tool) than the one running left-right (3/8" tool), and you can waste a good twenty minutes finding this out.....ask me how I know!

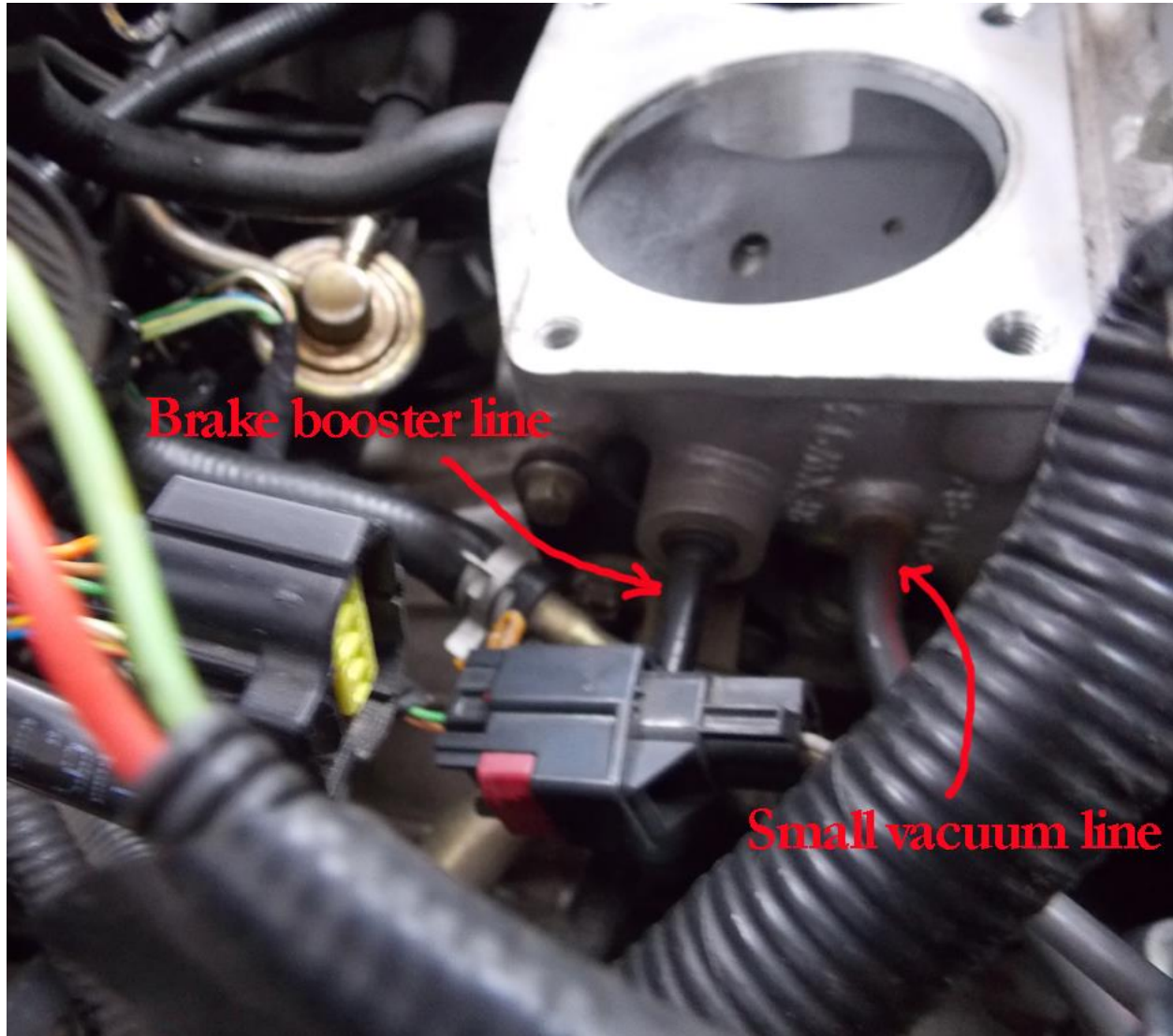


15) Disconnect the eight fuel injector electrical connectors by compressing the metal wire clips until they make a clicking sound, then lift the wiring harness gently up one injector at a time. You can also use a wide-blade screwdriver to compress the metal clips, they are pretty sturdy and should unclip without fear of breaking. The fuel injector electrical bars don't need to be pulled very far back to allow the intake manifold to be easily removed without hitting it.



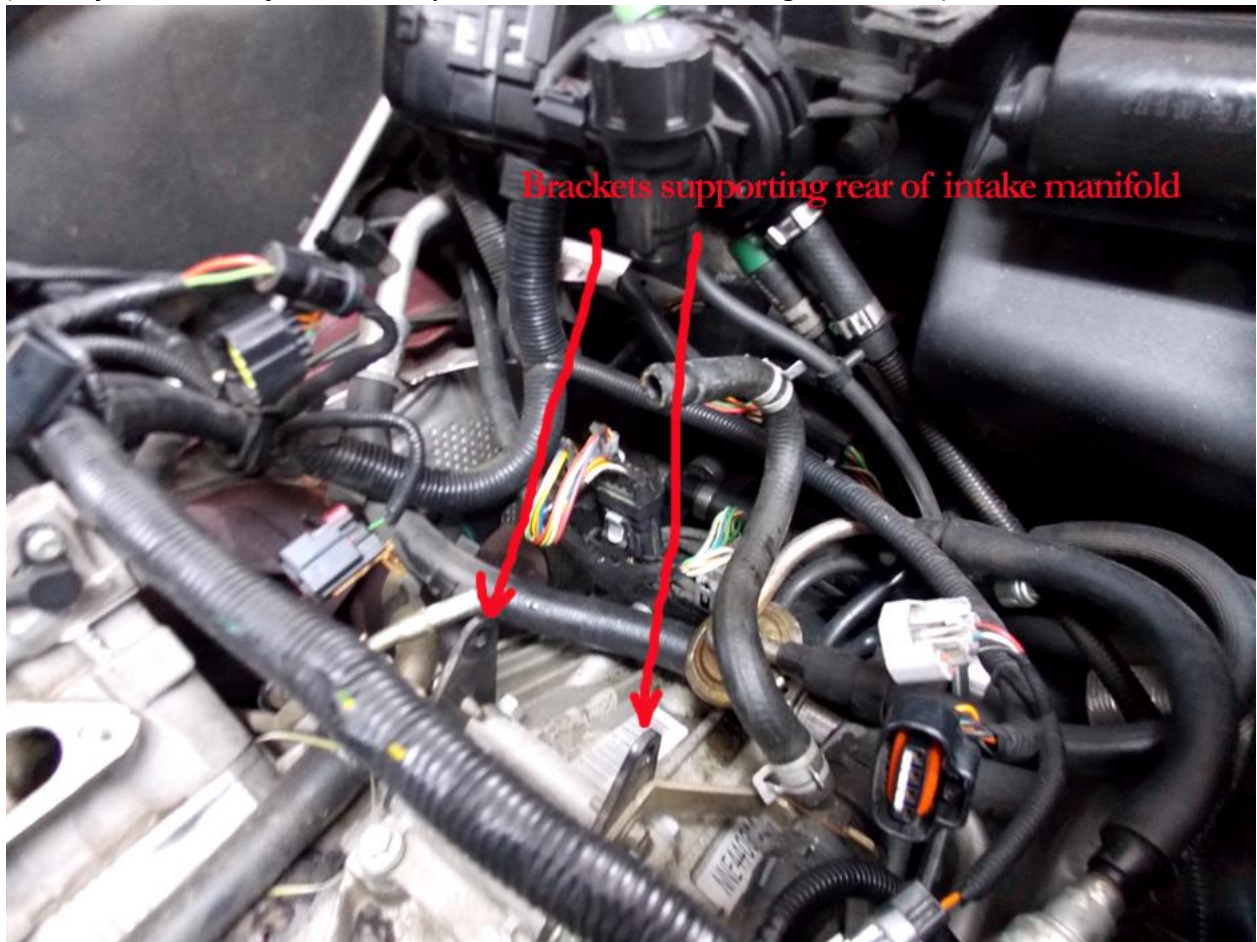
Compress the wire clips to release the fuel injector electrical connectors

16) Remove the brake booster vacuum line going to the right/passenger side of the throttle body chamber. The line has a crimp in the tubing which holds it in place but is easily removed by simply pulling it from the throttle body chamber.



17) There are twelve x 10mm retaining bolts holding the intake manifold in place, ten of them are the five pretty obvious ones on either side of the tubed manifold, and two shorter 10 mm bolts are located on either side of the chamber beneath the throttle body, bolting the chamber to two engine brackets. Once these twelve bolts are removed the manifold will lift up while maneuvering around the various hoses and wiring. The manifold is very light and easy to remove.

(Rear of intake manifold is held by two short bolts on this engine bracket)



18) Now the area under the manifold is revealed. There will be some debris from the years of duty but before attempting to clean the area up, the first thing you should do is block the eight intake ports with clean rags or paper towels to prevent anything falling in the intake.

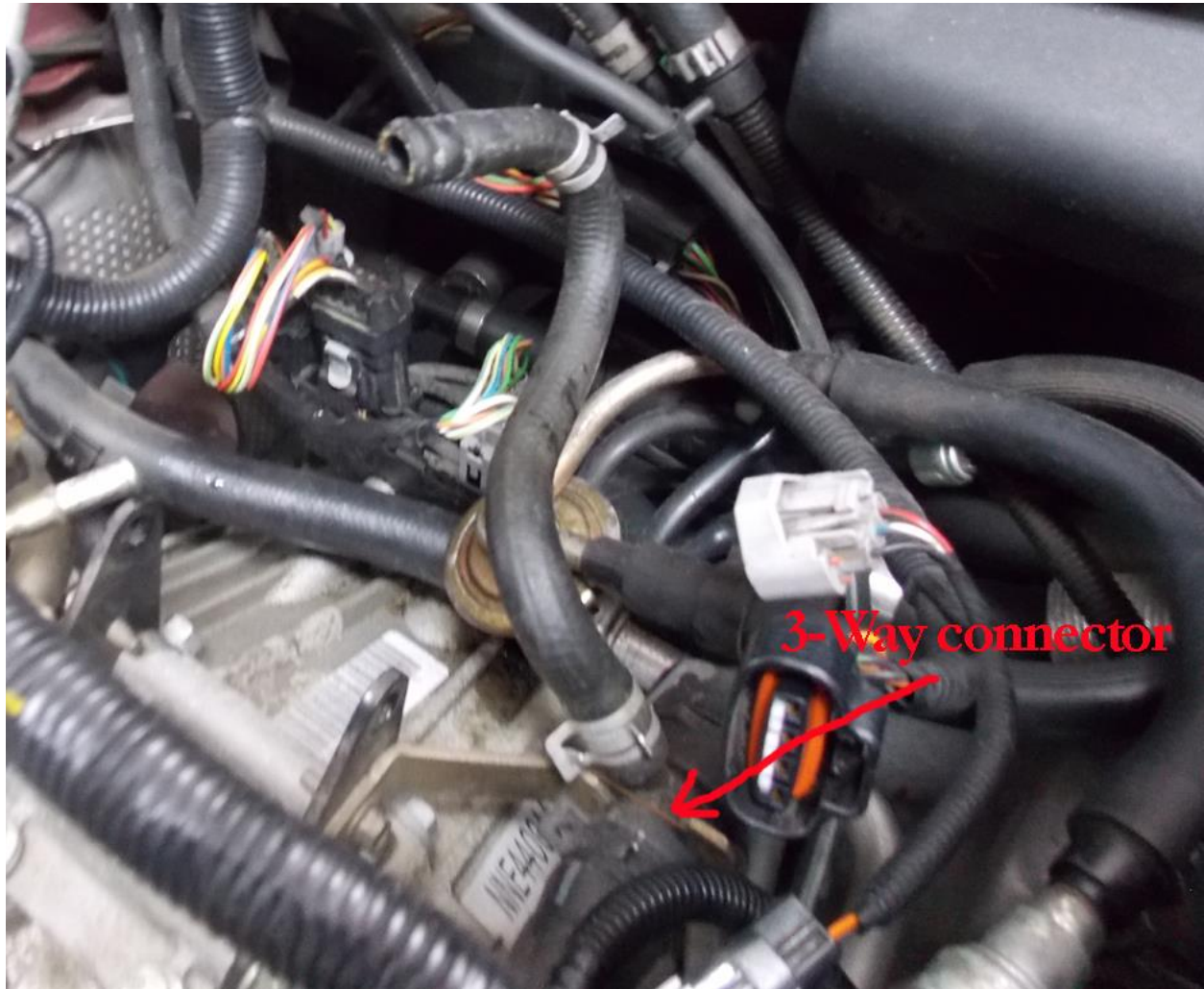


19) After cleaning all the debris from the intake valley it should look something like this. Remove the two large heater hoses by compressing the constant pressure clamps and replace with new hoses. NCA3945CD and NNE3946CA. I used genuine Jaguar hoses (made in Portugal!). When you remove these hoses the intake valley will fill up with coolant so have plenty of paper towels ready to mop up.

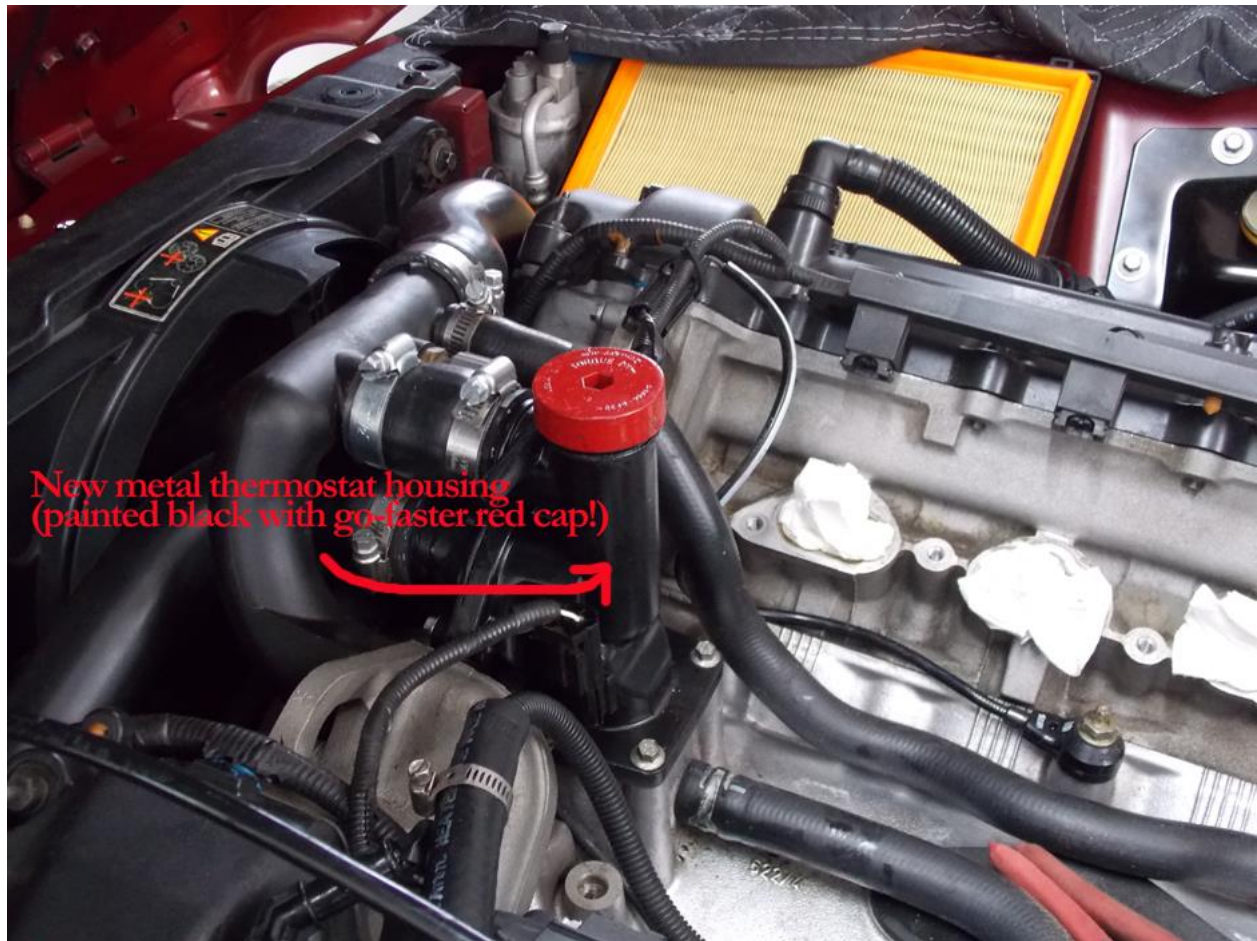
(Clean the intake valley before removing the heater hoses)



20) I recommend you also replace the plastic 3-way connector, NNE3944BA, at this time. Be careful disconnecting the main feed to the 3-way connector, you do NOT want to break the retaining clips on that plastic main feed connector!



21) Once the intake valley has been cleaned, the two heater hoses have been replaced, and the 3 way connector has been replaced. If you still have the original plastic thermostat housing, now is the time to replace it with a metal version. *(And also replace the thermostat if it has not been replaced recently)*



22) Remove and discard the eight blue intake manifold gaskets. Genuine Jag gaskets are around \$10 each, whereas aftermarket ones are \$1.39.....and the aftermarket ones are actually made in the UK! The new gaskets are a firm fit and should remain firmly in their recesses during assembly, but to be sure I add some grease to help hold them.

23) Now you are in the "Assembly-is-the-reverse-of-Disassembly" stage. Make sure the mating surfaces of the intake ports are clean, and then slide the intake manifold assembly in place, locate the ten retaining bolts and hand-start them to be sure all are started in their threads, start the two short 10mm bolts in the rear bracket holding the rear of the manifold, and then fully tighten all twelve bolts. Be careful to avoid trapping the knock sensor electrical wires.

Re-connect the eight fuel injector electrical connectors, being sure to hear the connectors audibly "click" into place. Install the short coolant hose NNE3976CA to the 3-way connector, and even shorter hose NNE3246BA.

Re-connect both the feed and return fuel line hoses by simply sliding them together, making sure you hear/feel a firm click as they are pushed all the way home.

Install a new metal throttle body gasket NNE3021AC, It only fits one way around and the best way to ensure it is located correctly is to lightly grease both sides and pass the four bolts through the throttle body which help hold the gasket in place. Then install the throttle body and tighten the four bolts.

Re-connect the brake vacuum line and the other two small vacuum lines.

Reconnect the two short coolant hoses to the throttle body (**green arrows**). Reconnect the two electrical connections that attach to the plates under the throttle body, (**blue arrows**) and re-connect the other 4 electrical connectors (**red arrows**). Re-connect the larger vacuum line to the throttle body (**yellow arrow**).

Re-connect the throttle cable.

Reinstall the air intake box, MAS connector, etc.

Refill the system with anti-freeze. As long as what you have drained is fresh, and has been drained into a perfectly clean container it can be used again, otherwise refill with new 50/50 Pentofrost SF antifreeze and distilled water. Reconnect the battery and start the car and check for any leaks. If all is okay refit the center cover over the throttle body and the two "Jaguar 4.0" engine covers. Road test and cycle through all heater settings to "bleed" the system. Re-check water levels over the next few days to ensure correct level and add Pentofrost SF/distilled water as necessary.

I have benefited greatly from other peoples' tutorials regarding various Jaguar repair and maintenance issues, either posted on the forum, or on YouTube, and often times I wouldn't have tackled some of the tasks without these valuable step-by-step guides, so I hope that this overview is useful to anyone and everyone thinking about replacing their intake manifold heater hoses. CK