

GenIII Prius Intake Manifold

When you remove the intake manifold you will find tons of gummy carbon deposits blocking the EGR path to the intake and quite a bit of heavy gunk/oily substance in and under the throttle body cavity. This blockage is a definite cause of the engine knocking and P030x codes.

Remove the entire Air Cleaner / Air Duct assembly:

- * Remove air filter cap.
 - Loosen the top 4" hose clamp as it connects to the cover.
 - Unclip mass air flow meter connector (from the back left side of the cover).
 - Release the 2 clamps and slide off the air filter top cover.

- * Remove all the 10mm long bolts that secure the air handler. Remove the entire top assembly.
 - (2) 10mm inside the air filter box.
 - (2) 10mm bolts holding the passenger side duct to the front of the car.
 - (1) 12mm bolts on top of the engine (near cyl-4).

- * Release the bottom hose clamp and separate the ventilation hose.

- * Disconnect the associated wiring from the sensors, etc.

- * Remove the (2) 10mm bolts that hold the EGR pipe to the EGR valve.

- * Unbolt the (5) 12mm bolts / nuts holding the intake manifold to the head. (3) bolts (2) nuts

- * Remove the (4) 10mm bolts that secures the throttle body.

- * Clamp off and remove the (2) coolant hoses that connect to the top rear of the throttle body.
 - I used large hemostats.
 - One enters from the top, the other from the driver's side.
 - They were still under pressure and gave me a blast of coolant.
 - Try unscrewing the engine coolant tank lid to release any coolant pressure.

- * Disconnect the PVC hose.

- * Disconnect the fuel vapor hose.

- * Separate the throttle body and remove the intake manifold.

- * Clean the throttle body inlet and cover it to keep it clean.

***** Cleaning inside the intake manifold.**

* I used a combination of creative tools to clean the intake manifold. It was messy!

A. A plastic hose that was about the same diameter as the EGR pipe inlet.

This was from a gas siphon tube.

B. A stiff coat hanger to open the small inlets on the valve side of the manifold.

C. Air nozzle with ~12" extension with has slight bend at the end.

The bend made it easier to scrape the carbon and push air toward the inward chambers.

The more I thought it was clean... the more junk kept coming out.

* Clean the area below the throttle body inlet.

* Inspect / Clean the MAP sensor.

* Inspect / Clean the EGR Pipe

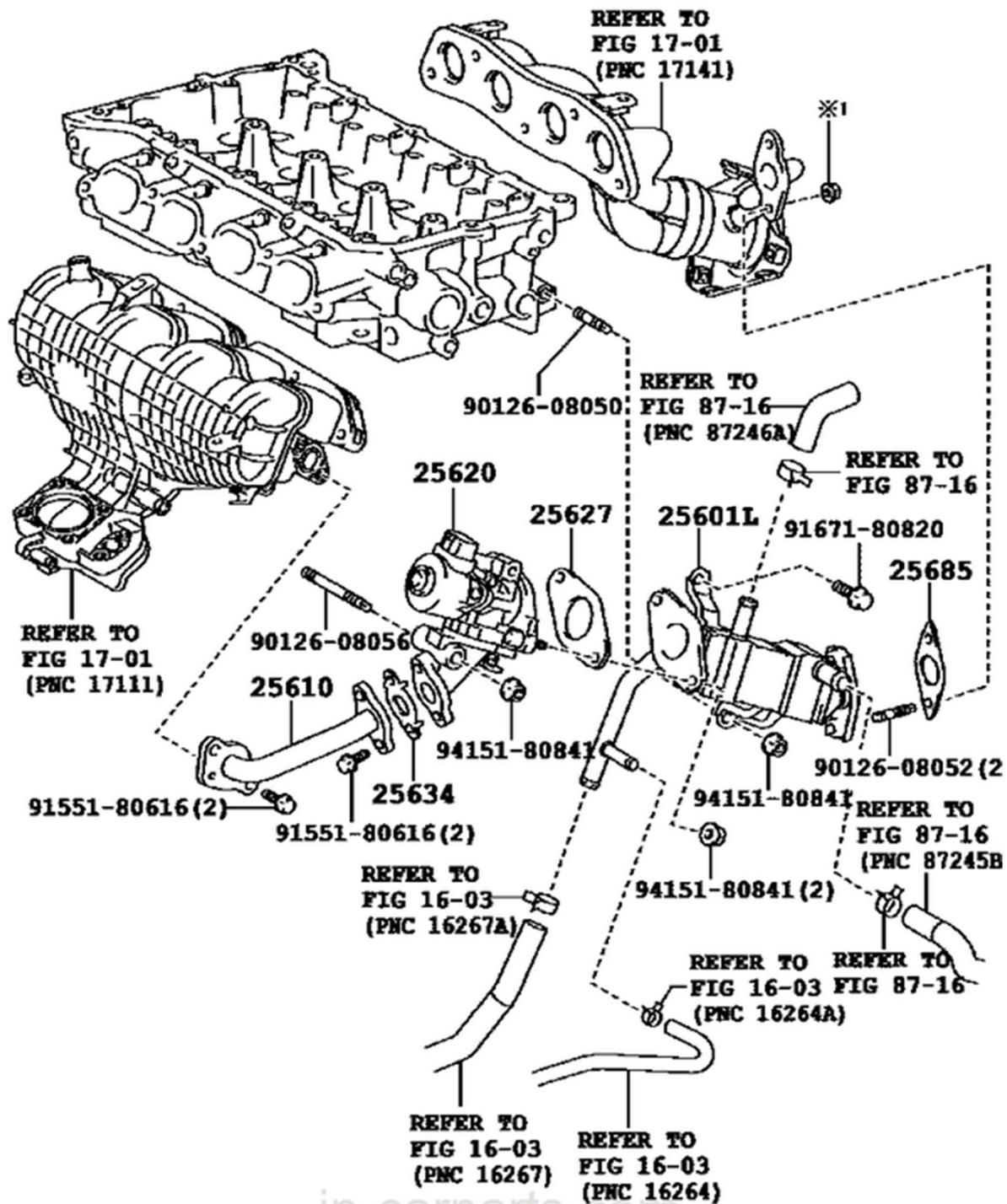
* Check the PVC Valve (while you are in there).

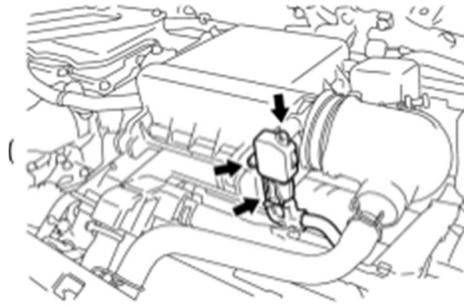
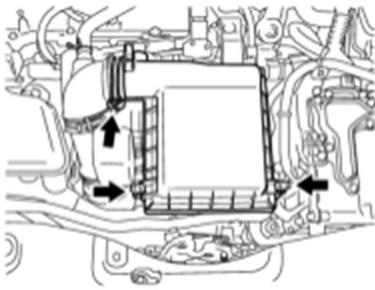
Reinstall:

Inspect / Replace the intake manifold and EGP pipe gaskets.

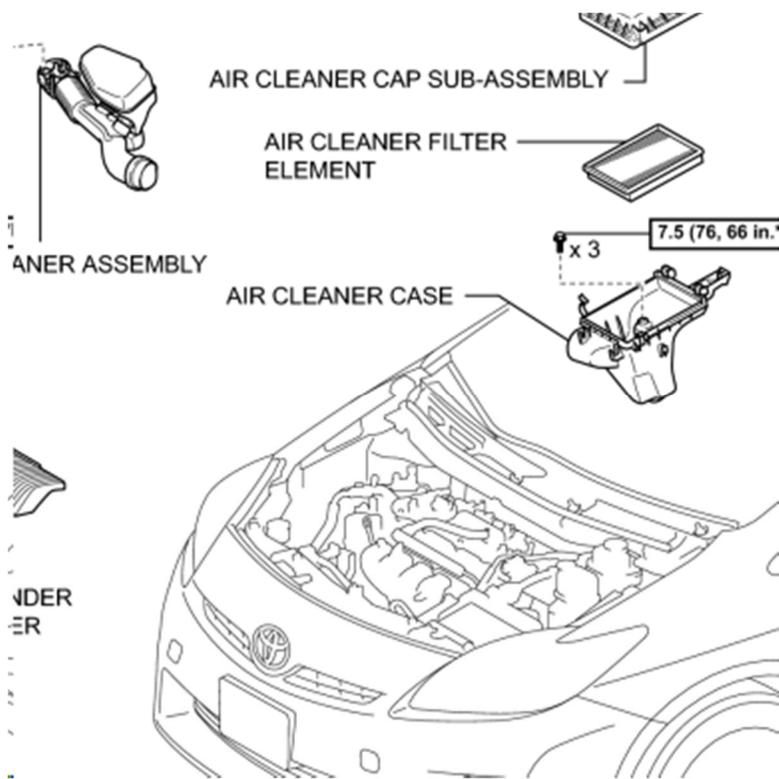
Reverse the removal steps.

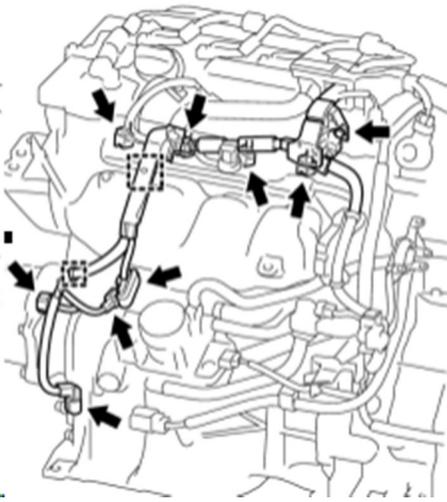
Remember to check the coolant levels in case you lost any coolant.



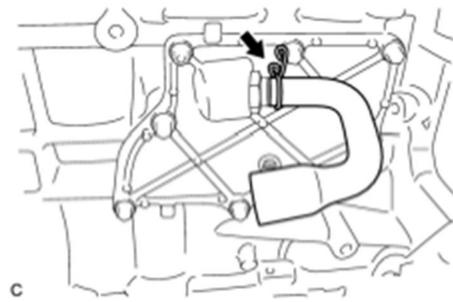


Air Filter Cap + Mass Air Flow Connector

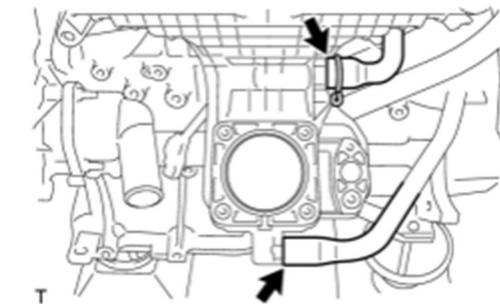




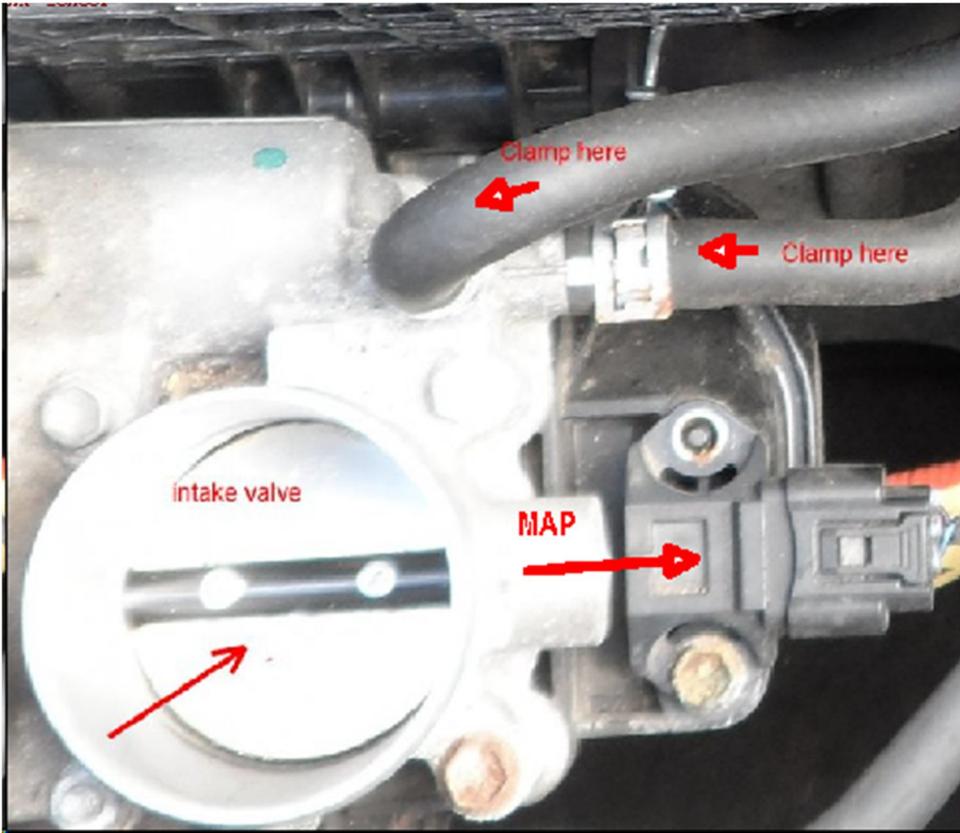
Engine Harness / Connectors



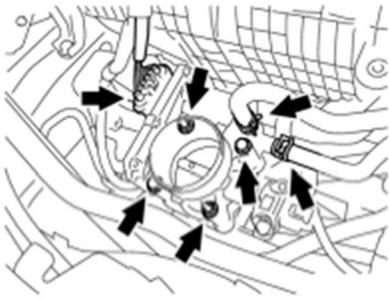
PVC / Ventilation Hose



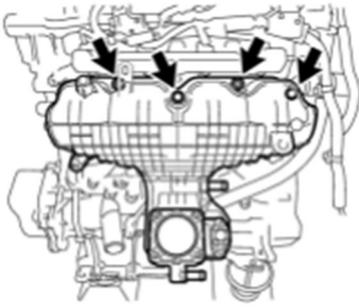
Disconnect the fuel vapor feed hose and ventilation hose.



Clamp off Coolant Hoses before removing from the throttle body.



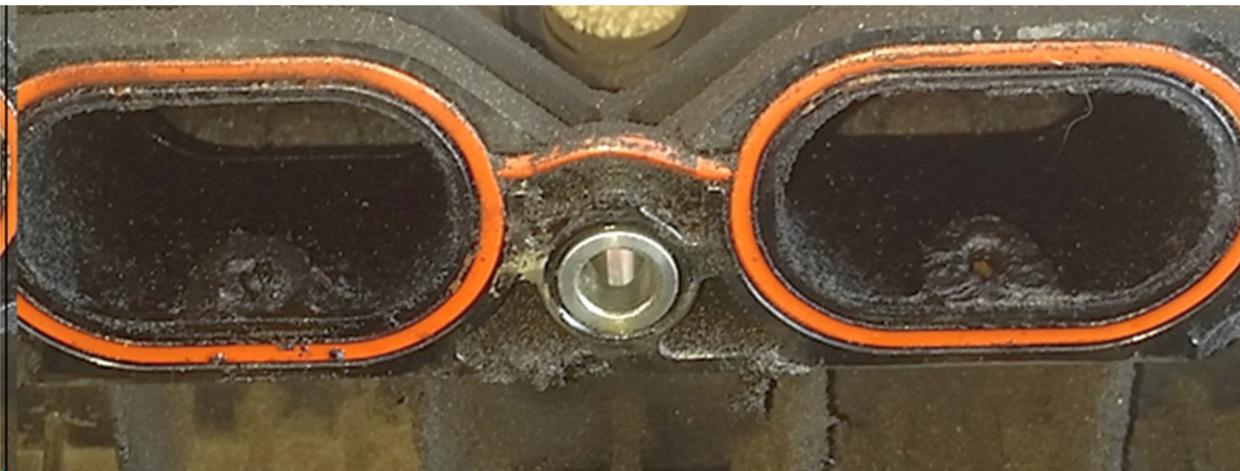
Throttle Body



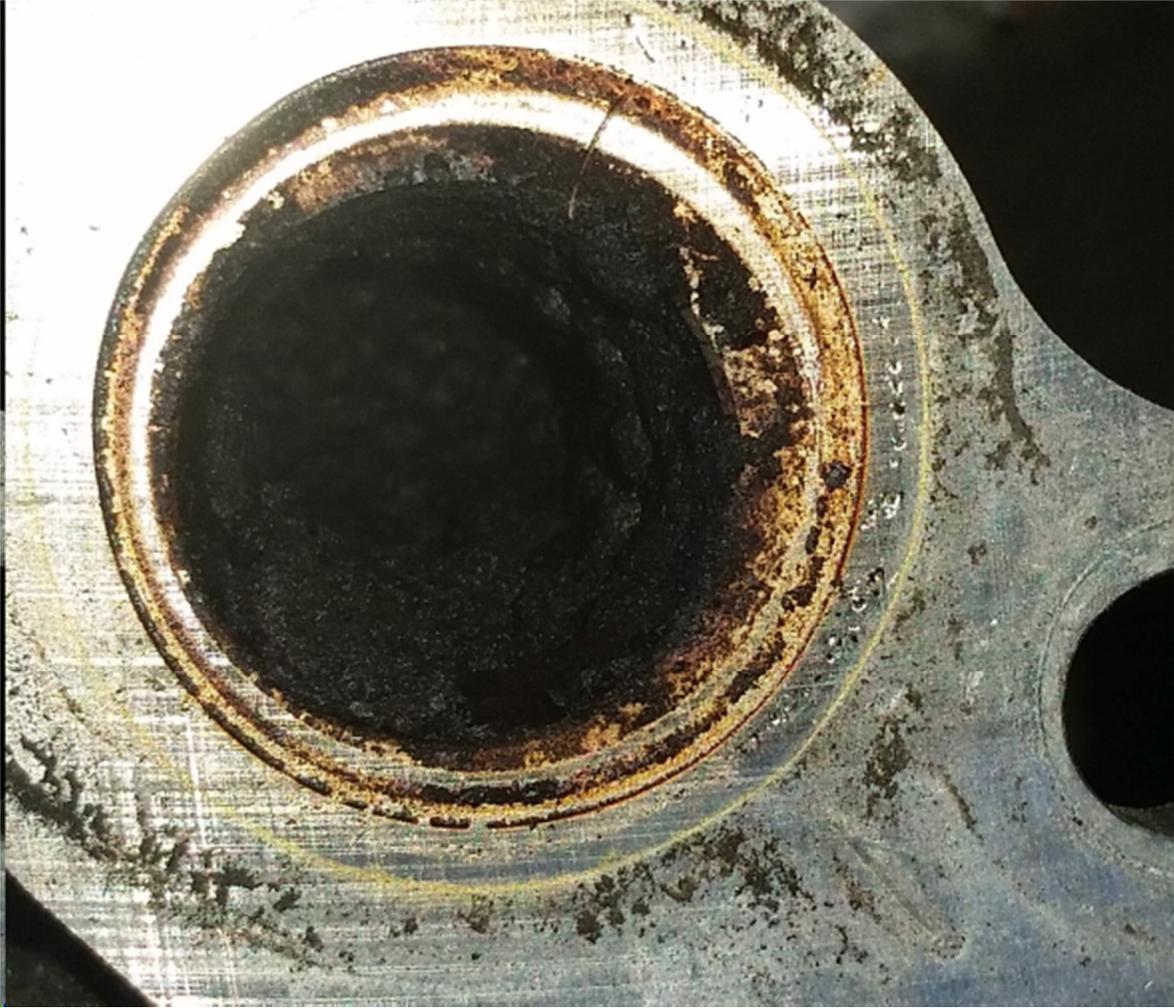
Intake Manifold Bolts

Example #1: Prius.1 2010 with clogged Intake Manifold. Generating P0304 misfire codes.

The car would also shake when accelerating at certain high torque conditions. Originally there were not error codes but eventually it started to generate P0304 misfire codes. The EGR path was full of a wetter (gummy) carbon deposit where the second Prius.2 was more of a dryer (sootier) carbon build-up.



Intake Manifold (Prius.1)



EGR Pipe (Prius.1)



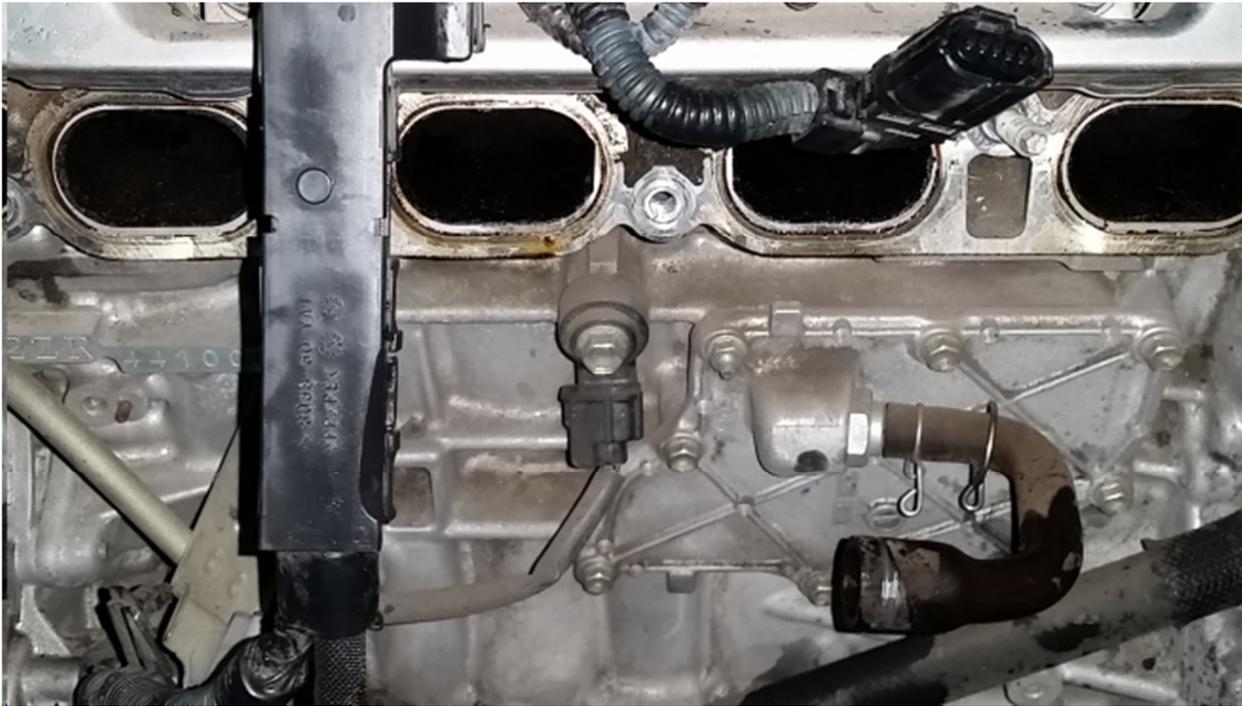
Cleaning Carbon Deposits with Air Nozzle



Example #2: Prius.2 (Different Car, Same Issue)

This car was generating P0301 Misfire codes at random times but otherwise it was running fine.

The Intake manifold was not as clogged as bad as Prius.1 but there was a river flow of oily substance under the throttle body. Reading else ware and talking to Toyota techs this may be a common finding with these engines (and perhaps due to the Atkinson cycle design?).



PCV Valve Tube (Prius.2)



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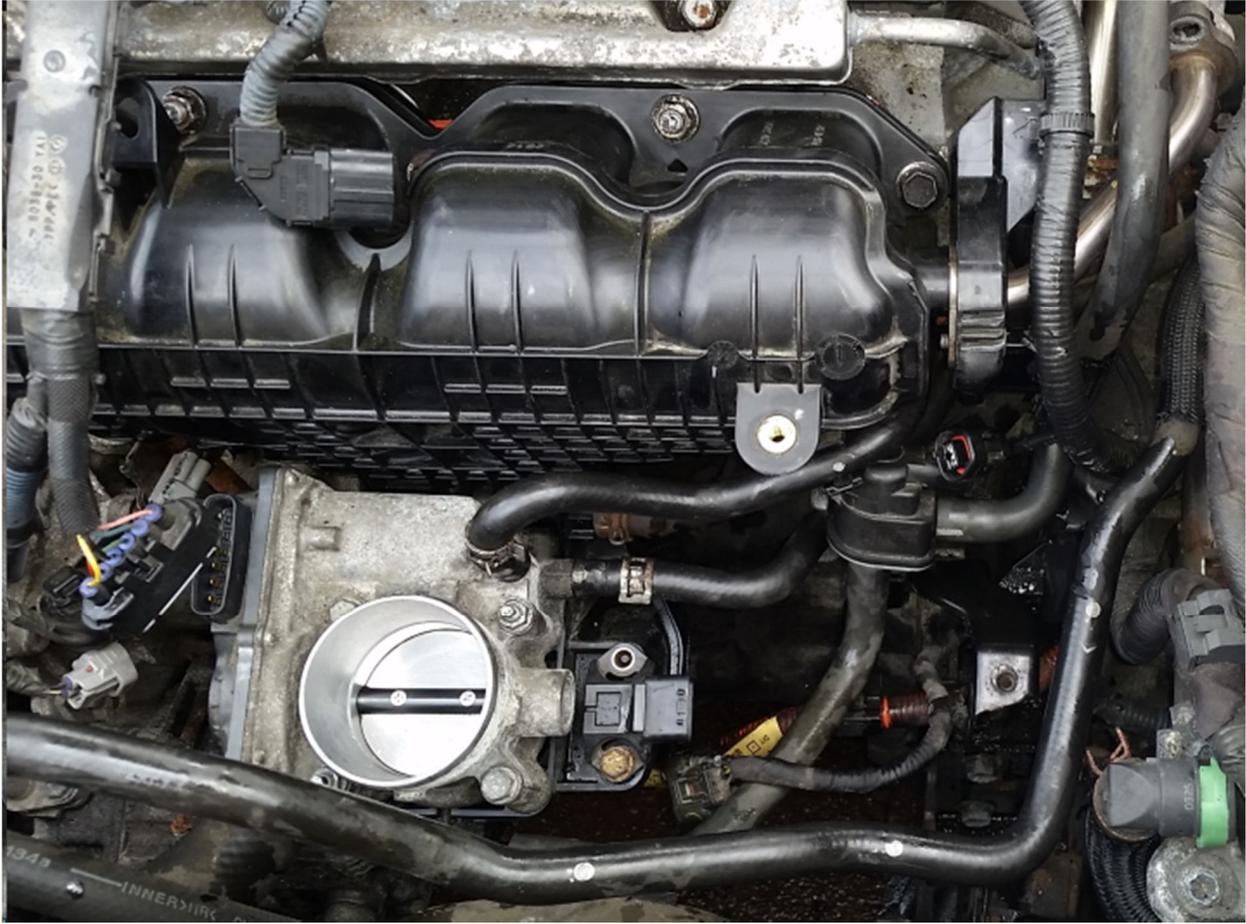
Muck under the Throttle Body... flowing like a river (Prius.2)



Carbon Deposits in the Intake Manifold EGR Inlet – Dryer / Sootier deposits (Prius.2)



Carbon deposits clogging intake manifold (Prius.2)



Reassembly almost complete....