How to Add Flex fuel capability to a Non-flex fuel vehicle
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This will allow you to run any mix of E85 and pump gas. The sensor tells the ECM the ethanol content and adjusts the timing and fueling on the fly. You will need to make sure your fuel pump and injectors are up to the task.

Basic tools:
-5/8" wrench
-11/16" wrench
-3/4" wrench
-Fuel line removal tool

Step 1: Using the Fuel line Removal Tool, remove the stock line from the firewall to fuel rail

Step 2: Put Flex fuel sensor with adapter coupler on line at firewall. Make sure all piece are threaded tight.
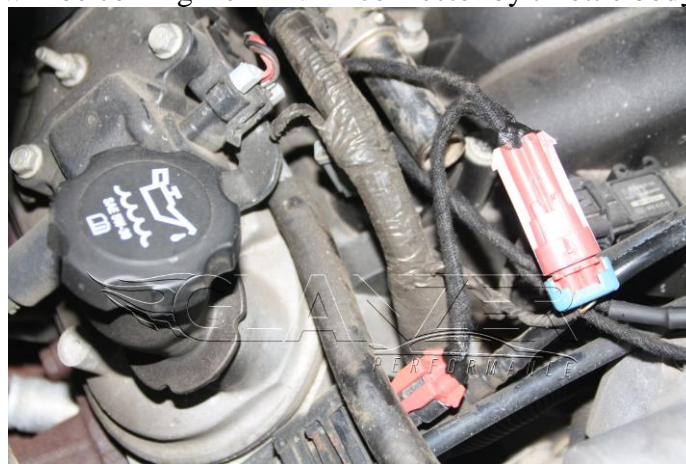
Step 3: Put -6 an Adapter on fuel rail to go to pre-assembled line in kit.

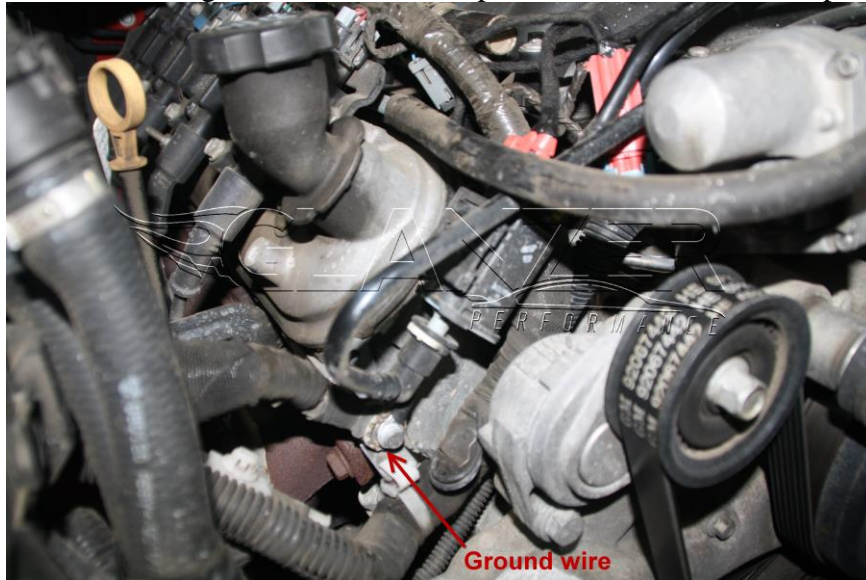Step 4: Put Fuel line on fuel sensor adapter and adapter on fuel rail.

Step 5: Plug harness into sensor and route to passenger side of intake then towards front of car. Power will be coming from EVAP connector by throttle body.

Step 6: Ground wire to the ground below the evap connector located on the passenger head.

Step 7: Take wire with ECM and find J1 plug located under fuse box. Disassemble the plug and place pin/wire through pin 40 on connector.

Take the cover off the connector and flip it around. You can then pull the flat pin cover off.
It will look something like this. The yellow wire is pin 40.
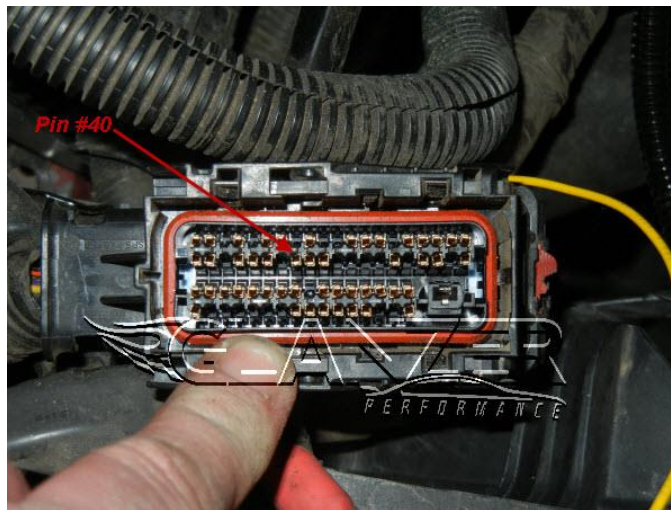
All done and wired up

Time to tell the PCM you added the sensor.

Engine>Fuel>Open&Closed Loop> Flex Fuel >Enabled
Engine>Fuel>Open&Closed Loop> Flex Fuel Sensor>Sensor
Engine>Fuel>Transient>Transient Fuel Mass Evaporation>Evaporation Factor Blend (copy from 2012 Holden 6.0L sedan file)
Engine>Fuel>Transient>Transient Fuel Mass gain>Impact Factor Blend (copy from 2012 Holden 6.0L sedan file)
Engine>Spark>Advance>Spark Correction>Flex Fuel Spark (copy from 2012 Holden 6.0L sedan file)
Engine Diagnostics>Airflow>Flex Fuel>Flex Fuel Sensor Diag>Enable
Engine Diagnostics>Airflow>Flex Fuel>Flex Fuel Diag delay >10sec
Engine Diagnostics>DTC's>P0169> SES enable & 1-MIL on Second Error
Engine Diagnostics>DTC's>P0178> SES enable & 1-MIL on Second Error
Engine Diagnostics>DTC's>P0179> SES enable & 1-MIL on Second Error

You have 2 PIDs to log:
- Alcohol % (SAE)
- Fuel Composition (Hz)

Some more good info.

Spark, the params of interest are:
- Flex Fuel Spark (this is multiplied by the below then added to spark). It can be positive or negative so you can do all kinds of interesting stuff.
- AFR Correction Mult vs. Composition (this is used for all gas/alcohol spark blending Flex FUel Spark and PE/COT Spark)
- typical numbers here are 0, 0.25, 0.5, 0.75, 1.0 (cals that are all 0's need to be fixed up)

Fuel params:
- open loop tables and PE tables on newer OS's blend between gas and alcohol tables using blend factor below
- blend f*actor 0 is gas table, 1 is alcohol, 0.5 is middle, you get the idea. (usually this has values in it, again fix if all 0's)
- Note: if your stoich table has a flex fuel cal in here you need to set it to something constant across the whole table (ie. gas numbers) otherwise as you change the freq, the stoich will change.
- obviously you need to be open loop for the fuel stuff to work.

KEEP IN MIND WITH STOCK 42# injectors RUNNING STRAIGHT e85 MAY CAUSE THE INJECTORS TO GO STATIC @WOT. Logging IDC "injector duty cycle" is a must
mix of e85 & gas you will be fine.

If you have any questions dont hesitate to ask or follow my facebook page at

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