



Engine Performance Project

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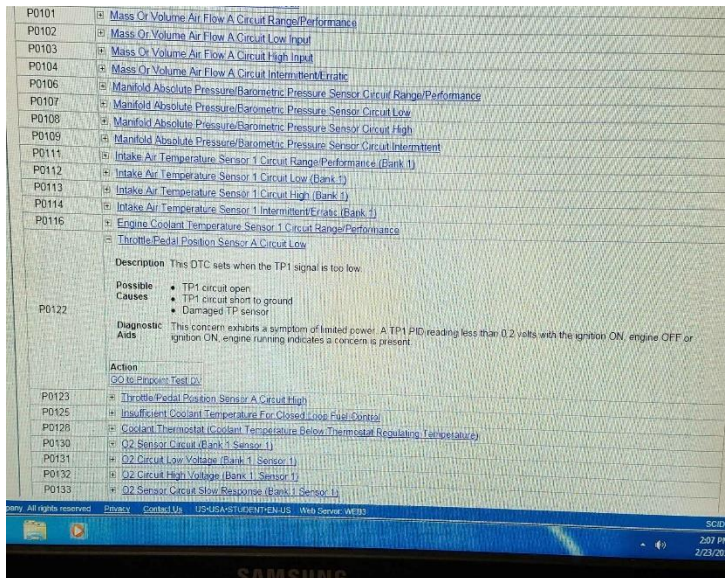
Vehicle: 2016 C-Max Hybrid/Energy

Vin: 1FADP5BU4GL102250

Concern: **Throttle response issue**

Vehicle came in with a throttle response issue. We started off by confirming customer concern and doing a visual inspection. As a result the throttle response on the throttle pedal wasn't reacting properly to the vehicle input, and during visual inspection there were no loose connections, or damaged wiring. There was no TSBs or SSMs on this vehicle for the concern.

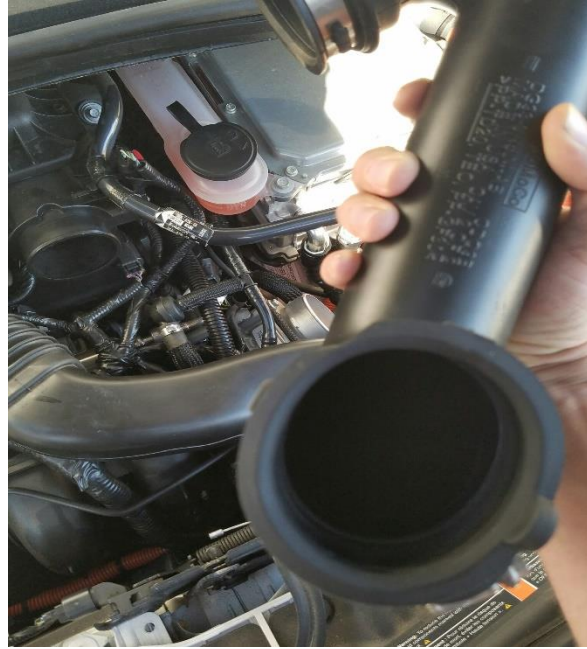
As we continued to do a self-test on the C-Max for all Commanded DTCs, many shown up but we decided to go off the most relevant to the concern: [P0122 Throttle/Pedal Position Sensor A Circuit Low] and continued to follow the pinpoint tests. To find the DTC code on PTS we had to go under PC/ED and choose [Powertrain DTC Charts and Descriptions] to get to the correct pinpoint test.



From there we went to pinpoint test **DV1**. It asked if there were any DTCs present, and from the list provided ours was not included, so we chose **[All Others Go To DV3]**.

DV3 shown us a Voltage table for the accelerator pedal fully released and applied asking if they were within specifications. Both were not is specifications so we went on to **DV4**.

DV4 asked if the Air Induction System between the Throttle Plate and Air Cleaner were free of debris. There was no restrictions or debris so we continued to **DV5**.



DV5 asked to check VREF Voltage to the TP Sensor. Is the voltage between 4.5v – 5.5v ?

ETCREF – PIN 5 [+]	ETCRTN – PIN 4 [-]
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Yes the voltage was within specification at 5v. So we moved on to **DV6**.

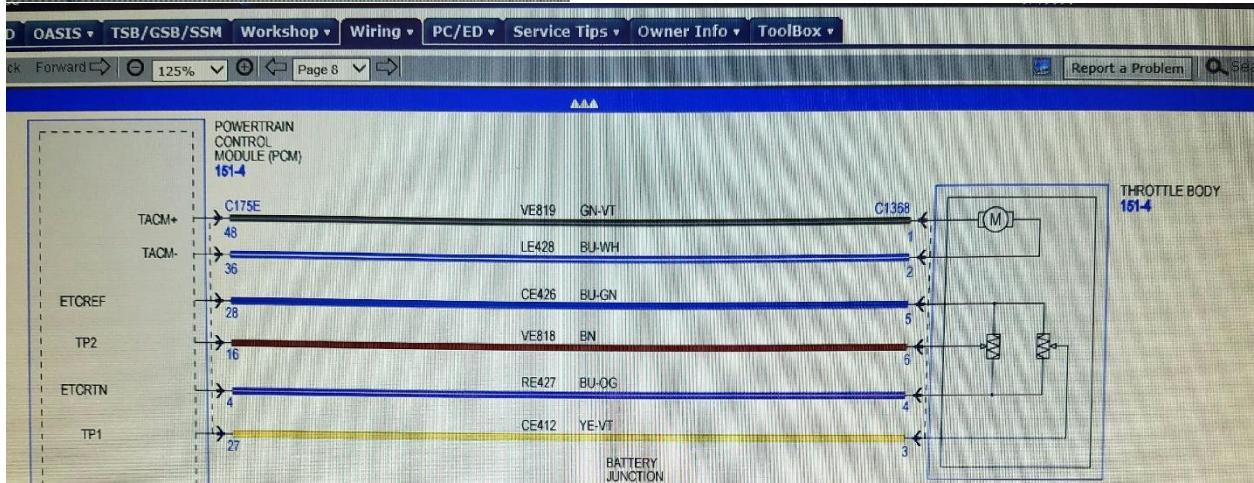
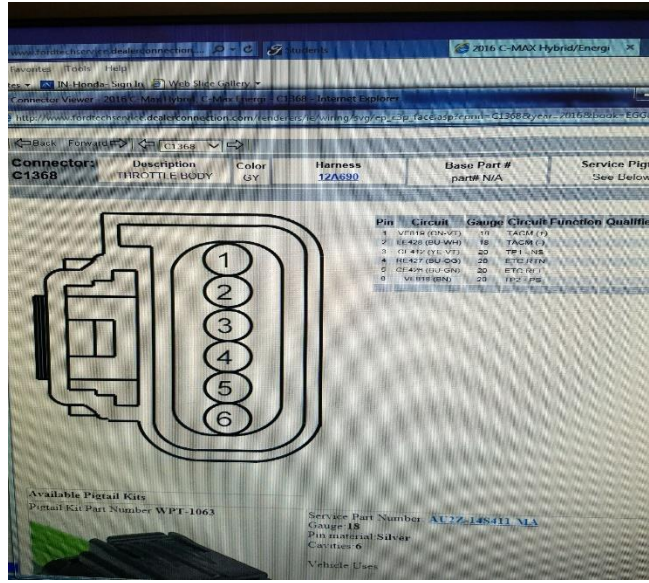
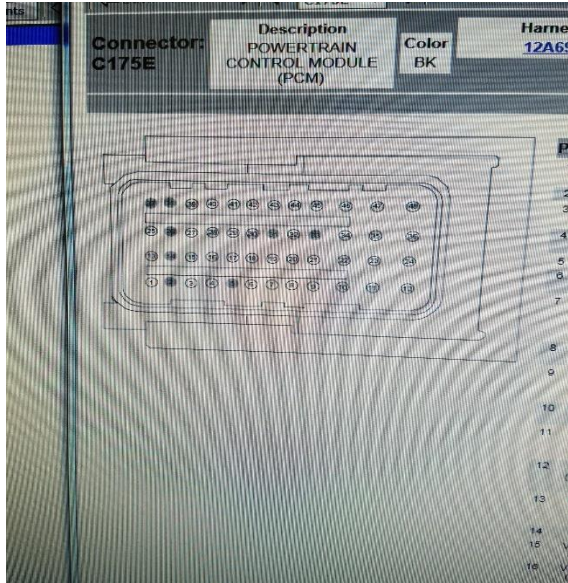


[In the Image how the connector is facing Pin 1 is the very top, and Pin 6 is the very bottom]

DV6 asked us to check the resistance of the TP Sensor, and if it was between 9k OHMS – 11k OHMS. It was not within at specification, we had high resistance at the connector. From there we racked the vehicle so we could check the wiring between the ETB [Electronic Throttle Body] and PCM [Powertrain Control Module]. We stopped following the pinpoint and went straight to the wiring diagrams for further information.



The PCM is located under the BJB [Battery Junction Box] in its own enclosure. The easiest way to access the PCM is to take off the left front tire and driver-side front wheel-well. From there you can take off the 5 bolts holding the cover in place to access the PCM connectors.



To find the diagram that we needed we went to [23-1 Electronic Engine Controls Pg.8]

ETCREF	PIN 28 to PIN 5	.6 OHMS	CE426 BU-GN
TP2	PIN 16 to PIN 6	.6 OHMS	VE818 BN
ETCRTN	PIN 4 to PIN 4	OPEN	RE427 BU-OG
TP1	PIN 27 to PIN 3	.6 OHMS	CE412 YE-VT

While conducting basic electrical testing [resistance checks] between the PCM and Throttle Body we found that the high resistance we found in the ETB connector was actually the ETCRTN wire being open. We repaired that circuit and retested finding that everything was functioning normally.