KB: Fuel Pump Driver Module

KB: Introduction

KB1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

Are DTCs P1233, P1234, P1235, P1236, P1237, or P1238 present?

Yes	No
For DTC P1233, GO to KB2. For DTC P1234, GO to KB34. For DTC P1235, GO to KB16. For DTC P1236, GO to KB46. For DTC P1237, GO to KB22. For DTC P1238, GO to KB52.	For all others, GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions.

KB2 DTC P1233: IS DTC P1233 PRESENT IN THE KOEO SELF-TEST?

Note: The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1233 applies to the FPDM mounted on the driver side of the luggage compartment.

- Carry out the KOEO self-test.

Is DTC P1233 present?

Yes	No
GO to KB3.	For a no start (engine cranks), DISREGARD the DTC at this time. RETURN to Section 3 Symptom Charts and continue as directed. After repairing the no start, DIAGNOSE the intermittent causes of P1233, GO to KB15. For all others, GO to KB15.

KB3 DOES THE ENGINE START?

Note: The Mustang 5.4L starts with 1 FPDM disabled.

Does the engine start?

Yes	No
For Mustang 5.4L, GO to KB4. For all others, GO to KB11.	VERIFY the IFS switch is set (button pressed). If OK, GO to KB4.

KB4 CHECK THE VOLTAGE AND GROUND CIRCUITS TO THE FPDM

- FPDM connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-) FPDM Connector, Harness Side
VPWR Fuel - Pin 5	PWRGND - Pin 3

Is the voltage greater than 10 V?

Yes	No
GO to KB11 .	GO to KB5 .

KB5 CHECK THE VOLTAGE TO THE FPDM

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-)
VPWR Fuel - Pin 5	Ground

Is the voltage greater than 10 V?

Yes	No
REPAIR the open circuit. The FPDM ground circuit is open. CLEAR the DTCs. REPEAT the self-test.	GO to KB6 .

KB6 CHECK THE B+ VOLTAGE TO THE FPDM POWER SUPPLY RELAY

- Ignition OFF.
- FPDM PWR Relay connector disconnected.
- Measure the voltage between:

(+) FPDM PWR Relay Connector, Harness Side	(-)
B+	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB7 .	A B+ circuit concern is present. CHECK the condition of the related fuse/fuse links. If OK, REPAIR the open circuit. If the fuse/fuse link is damaged, CHECK the circuit for a short to ground before installing a new fuse/fuse link. CLEAR the DTCs. REPEAT the self-test.

KB7 CHECK THE VPWR VOLTAGE TO THE FPDM POWER SUPPLY RELAY

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM PWR Relay Connector, Harness Side	(-)
VPWR	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB8 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB8 CHECK FOR GROUND TO THE FPDM POWER SUPPLY RELAY

- Measure the resistance between:

(+) FPDM PWR Relay Connector, Harness Side	(-)
GND	Ground

Is the resistance less than 5 ohms?

Yes	No
GO to KB9 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB9 CHECK THE VPWR FUEL CIRCUIT FOR AN OPEN CIRCUIT IN THE HARNESS

- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-) FPDM PWR Relay Connector, Harness Side
VPWR Fuel - Pin 5	VPWR Fuel

Is the resistance less than 5 ohms?

Yes	No
INSTALL a new FPDM relay. CLEAR the DTCs. REPEAT the self-test.	GO to KB10 .

KB10 ISOLATE THE OPEN IN THE FPDM CIRCUIT

- IFS Switch connector disconnected.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-) IFS Switch Connector, Harness Side
VPWR Fuel - Pin 5	VPWR Fuel - B - Pin 1

- Measure the resistance between:

(+) FPDM PWR Relay Connector, Harness Side	(-) IFS Switch Connector, Harness Side
VPWR Fuel	VPWR Fuel - A - Pin 2

Is the resistance less than 5 ohms?

Yes	No
INSTALL a new IFS switch. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. VERIFY the IFS switch is set (button pressed). CLEAR the DTCs. REPEAT the self-test.	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB11 CHECK THE FPM CIRCUIT FOR AN OPEN CIRCUIT IN THE HARNESS

- FPDM connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-) PCM Connector, Harness Side
FPM - Pin 1	FPM

Is the resistance less than 5 ohms?

Yes	No
GO to KB12 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB12 CHECK THE FPM CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-)
FPM - Pin 1	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB13 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB13 CHECK THE FPM CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- Ignition OFF.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-)
FPM - Pin 1	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to KB14 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB14 CHECK FOR FPM OUTPUT FROM THE FPDM

Note: It is OK for the voltage to cycle below this range and then return within range.

- FPDM connector connected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) PCM Connector, Harness Side	(-)
FPM	Ground

Is the voltage between 0.02 - 1 V?

Yes	No
GO to KB60 .	INSTALL a new FPDM. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB15 CHECK THE CIRCUITS THAT MAY CAUSE AN INTERMITTENT LOSS OF VOLTAGE TO THE FPDM

Note: Be aware that P1233 could be set if the IFS switch is tripped then reset.

Note: With no concern present, the FPDM sends a 50% duty cycle (all OK) to the PCM on the FPM circuit. Depending on the scan tool type, the FPM PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM PID.
- Observe the FPM PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the PWRGND circuit to the FPDM
  - Shake, wiggle, and bend the VPWR fuel circuit to the FPDM
  - Shake, wiggle, and bend the FPM circuit between the FPDM and the PCM
  - Shake, wiggle, and bend the B+ and ground circuits to the FPDM power supply relay
  - Lightly tap on the IFS switch to simulate road shock
  - Lightly tap on the FPDM to simulate road shock
  - Lightly tap on the FPDM power supply relay to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KB16 DTC P1235: IS DTC P1235 PRESENT IN THE KOEO SELF-TEST?

Note: The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1235 applies to the FPDM mounted on the driver side of the luggage compartment.

Note: For ETC applications, check if ETC DTC P2105 is present. An ETC system concern could cause P1235, and should be diagnosed first.

- Carry out the KOEO self-test.

Is DTC P1235 present?

Yes	No
GO to KB17 .	GO to KB21 .

KB17 CHECK THE FPC CIRCUIT FOR AN OPEN IN THE HARNESS

- FPDM connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) FPDM Connector, Harness Side
FPC	FPC - Pin 6

Is the resistance less than 5 ohms?

Yes	No
GO to KB18 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB18 CHECK THE FPC CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- FPDM2 connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-)
FPC - Pin 6	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB19 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB19 CHECK THE FPC CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-)
FPC - Pin 6	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to KB20 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB20 CHECK THE FPC CIRCUIT IN THE FPDM

- FPDM connector connected.
- FPDM2 connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) PCM Connector, Harness Side	(-)
FPC	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB60 .	INSTALL a new FPDM. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB21 CHECK THE FPC CIRCUIT FOR AN INTERMITTENT OPEN OR SHORTS

Note: With no concern present, the FPDM sends a 50% duty cycle (all OK) to the PCM on the FPM circuit. Depending on the scan tool type, the FPM PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM PID.
- Observe the FPM PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the FPC circuit between FPDM and the PCM
  - Lightly tap on the FPDM to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KB22 DTC P1237: IS DTC P1237 PRESENT IN THE KOEO SELF-TEST?

Note: The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1237 applies to the FPDM mounted on the driver side of the luggage compartment.

- Carry out the KOEO self-test.

Is DTC P1237 present?

Yes	No
GO to KB23 .	DTC P1237 is possibly intermittent, GO to KB29 .

KB23 DOES THE ENGINE START?

Note: The Mustang 5.4L starts with 1 FPDM disabled.

- FPDM2 connector disconnected.

Does the engine start?

Yes	No
GO to KB32 .	GO to KB24 .

KB24 CHECK THE FPPWR, FPRTN AND INTERNAL FUEL PUMP CIRCUIT RESISTANCE

- Ignition OFF.
- FPDM connector disconnected.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-) FPDM Connector, Harness Side
FPPWR - Pin 4	FPRTN - Pin 2

Is the resistance less than 10 ohms?

Yes	No
GO to KB25 .	ISOLATE the concern, GO to KB28 .

KB25 CHECK THE FPRTN CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-)
FPRTN - Pin 2	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB26 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB26 CHECK THE FPPWR CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- FP connector disconnected.
- Measure the resistance between:

(+) FPDM Connector, Harness Side	(-)
FPPWR - Pin 4	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to KB27 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB27 CHECK FOR VOLTAGE TO FP

- FPDM connector connected.
- FP connector disconnected.
- Ignition ON, engine OFF.
- Access the PCM and control the FP PID.
- Command the FP PID ON.
- Measure the voltage between:

(+) FP Connector, Harness Side	(-) FP Connector, Harness Side
FPPWR	FPRTN

Is the voltage greater than 10 V with the PID commanded ON?

Yes	No
INSTALL a new FP. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. CLEAR the DTCs. REPEAT the self-test.	VERIFY the vehicle battery was at a proper charge during the test. VERIFY the pump ON command did not time out before the voltage check was made. REPEAT as necessary. If OK, INSTALL a new FPDM. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB28 ISOLATE THE OPEN CIRCUIT

- FP connector disconnected.
- Measure the resistance between:

(+) FP Connector, Harness Side	(-) FPDM Connector, Harness Side
FPPWR	FPPWR - Pin 4
FPRTN	FPRTN - Pin 2

- Measure the resistance between:

(+) FP Connector, Component Side	(-) FP Connector, Component Side
FPPWR	FPRTN

Is the resistance less than 10 ohms?

Yes	No
Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .	REPAIR the open circuit. If the open is internal to the pump, INSTALL a new FP. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. CLEAR the DTCs. REPEAT the self-test.

KB29 VERIFY THE DTC P1237 IS INTERMITTENT

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM PID.

Is the FPM PID 75% (or varying between 250% and 400%)?

Yes	No
A concern is present. GO to KB23 .	CHECK for an intermittent concern, GO to KB30 .

KB30 CHECK THE FPPWR AND FPRTN CIRCUIT FOR AN INTERMITTENT OPEN OR SHORTS

Note: With no concern present, the FPDM sends a 50% duty cycle (all OK) to the PCM on the FPM circuit. Depending on the scan tool type, the FPM PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM PID.
- Observe the FPM PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the FPPWR and FPRTN circuits between the FPDM and the FP
  - Lightly tap on the FP and FPDM to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	GO to KB31 .

KB31 CHECK THE FPPWR CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

Note: The lamp turns on when a concern is present.

- Ignition OFF.
- FPDM connector disconnected.

- Connect a non-powered test lamp between:

Point A FPDM Connector, Harness Side	Point B FPDM Connector, Harness Side
FPPWR - Pin 4	VPWR Fuel - Pin 5

- Ignition ON, engine OFF.
- Observe the test lamp for an indication of a concern. Shake, wiggle, and bend the FPPWR circuit between the FPDM and the FP.

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KB32 CHECK THE FPPWR CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- FPDM connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-)
FPPWR - Pin 4	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB33 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB33 CHECK THE FPRTN CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- FPDM connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM Connector, Harness Side	(-) FPDM Connector, Harness Side
VPWR Fuel - Pin 5	FPRTN - Pin 2

Is the voltage less than 1 V?

Yes	No
INSTALL a new FPDM. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB34 DTC P1234: IS DTC P1234 PRESENT IN THE KOEO SELF-TEST?

Note: The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1234 applies to the FPDM2 mounted on the passenger side of the luggage compartment.

- Carry out the KOEO self-test.

Is DTC P1234 present?

Yes	No
GO to KB35 .	The PCM is now receiving a signal from FPDM2. One possible cause of DTC P1234 is that the IFS switch was tripped, then reset. GO to KB45 .

KB35 CHECK THE VOLTAGE AND GROUND CIRCUITS TO THE FPDM2

- FPDM2 connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM2 Connector, Harness Side	(-) FPDM2 Connector, Harness Side
VPWR Fuel 2 - Pin 5	PWRGND - Pin 3

Is the voltage greater than 10 V?

Yes	No
To check the FPM2 circuit, GO to KB41 .	GO to KB36 .

KB36 CHECK THE POWER TO FPDM2

- Measure the voltage between:

(+) FPDM2 Connector, Harness Side	(-)
VPWR Fuel 2 - Pin 5	Ground

Is the voltage greater than 10 V?

Yes	No
REPAIR the open circuit. The FPDM2 ground circuit is open. CLEAR the DTCs. REPEAT the self-test.	There is no voltage to the FPDM2. GO to KB37 .

KB37 CHECK THE B+ VOLTAGE TO THE FPDM2 POWER SUPPLY RELAY

- Ignition OFF.
- FPDM2 PWR Relay connector disconnected.
- Measure the voltage between:

(+) FPDM2 PWR Relay Connector, Harness Side	(-)

B+ - Pin 3	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB38 .	A B+ circuit concern is present. CHECK the condition of the related fuse/fuse links. If OK, REPAIR the open circuit. If the fuse/fuse link is damaged, CHECK the circuit for a short to ground before installing a new fuse/fuse link. CLEAR the DTCs. REPEAT the self-test.

KB38 CHECK THE VPWR VOLTAGE TO THE FPDM2 POWER SUPPLY RELAY

- Measure the voltage between:

(+) FPDM2 PWR Relay Connector, Harness Side	(-)
VPWR - Pin 1	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB39 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB39 CHECK FOR GROUND TO THE FPDM2 POWER SUPPLY RELAY

- Ignition OFF.
- Measure the resistance between:

(+) FPDM2 PWR Relay Connector, Harness Side	(-)
GND - Pin 2	Ground

Is the resistance less than 5 ohms?

Yes	No
GO to KB40 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB40 CHECK THE VPWR FUEL 2 CIRCUIT FOR AN OPEN CIRCUIT IN THE HARNESS

- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-) FPDM2 PWR Relay Connector, Harness Side
VPWR Fuel 2 - Pin 5	VPWR Fuel 2 - Pin 5

Is the resistance less than 5 ohms?

Yes	No
INSTALL a new FPDM2 PWR relay. CLEAR the	

DTCs. REPEAT the self-test.	GO to KB45 .

KB41 CHECK THE FPM2 CIRCUIT FOR AN OPEN CIRCUIT IN THE HARNESS

- Ignition OFF.
- FPDM2 connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-) PCM Connector, Harness Side
FPM2 - Pin 1	FPM2

Is the resistance less than 5 ohms?

Yes	No
GO to KB42 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB42 CHECK THE FPM2 CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM2 Connector, Harness Side	(-)
FPM2 - Pin 1	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB43 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB43 CHECK THE FPM2 CIRCUIT FOR A SHORT TO GROUND IN THE HARNESS

- Ignition OFF.
- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-)
FPM2 - Pin 1	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to KB44 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB44 CHECK FOR FPM2 OUTPUT FROM THE FPDM2

Note: It is OK for the voltage to cycle below this range and then return within range.

- FPDM2 connector connected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) PCM Connector, Harness Side	(-)
FPM2	Ground

Is the voltage between 0.02 - 1 V?

Yes	No
GO to KB60 .	INSTALL a new FPDM2. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB45 CHECK CIRCUITS THAT MAY CAUSE AN INTERMITTENT LOSS OF VOLTAGE SUPPLY TO THE FPDM2

Note: Be aware that P1234 could be set if the IFS switch is tripped then reset.

Note: With no concern present, the FPDM2 sends a 50% duty cycle (all OK) to the PCM on the FPM2 circuit. Depending on the scan tool type, the FPM2 PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM2 PID.
- Observe the FPM2 PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the PWRGND circuit to the FPDM2
  - Shake, wiggle, and bend the VPWR fuel 2 circuit to the FPDM2
  - Shake, wiggle, and bend the FPM2 circuit between the FPDM2 and the PCM
  - Shake, wiggle, and bend the B+ and ground circuits to the FPDM2 power supply relay
  - Lightly tap on the IFS switch to simulate road shock
  - Lightly tap on the FPDM2 to simulate road shock
  - Lightly tap on the FPDM2 power supply relay to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KB46 DTC P1236: IS DTC P1236 PRESENT IN THE KOEO SELF-TEST?

- The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1236 applies to the FPDM2 mounted on the passenger side of the luggage compartment.
- Carry out the KOEO self-test.

Is DTC P1236 present?

Yes	No

GO to KB47 .	GO to KB51 .

KB47 CHECK THE FPC CIRCUIT FOR AN OPEN IN THE HARNESS

- Ignition OFF.
- FPDM2 connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) FPDM2 Connector, Harness Side
FPC	FPC - Pin 6

Is the resistance less than 5 ohms?

Yes	No
GO to KB48 .	REPAIR the open circuit. CLEAR the DTCs. REPEAT the self-test.

KB48 CHECK THE FPC CIRCUIT FOR A SHORT TO POWER IN THE HARNESS

- FPDM connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM2 Connector, Harness Side	(-)
FPC - Pin 6	Ground

Is the voltage less than 1 V?

Yes	No
GO to KB49 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB49 CHECK THE FPC CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-)
FPC - Pin 6	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to KB50 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB50 CHECK THE FPC CIRCUIT IN THE FPDM2

- FPDM2 connector connected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) PCM Connector, Harness Side	(-)
FPC	Ground

Is the voltage greater than 10 V?

Yes	No
GO to KB60 .	INSTALL a new FPDM2. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB51 CHECK THE FPC CIRCUIT FOR AN INTERMITTENT OPEN OR SHORTS

Note: With no concern present, the FPDM2 sends a 50% duty cycle (all OK) to the PCM on the FPM2 circuit. Depending on the scan tool type, the FPM2 PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM2 PID.
- Observe the FPM2 PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the FPC circuit between FPDM2 and the PCM
  - Lightly tap on the FPDM2 to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .

KB52 DTC P1238: IS DTC P1238 PRESENT IN THE KOEO SELF-TEST?

Note: The Mustang 5.4L is equipped with 2 FPDMs. The DTC P1238 applies to the FPDM2 mounted on the passenger side of the luggage compartment.

- Carry out the KOEO self-test.

Is DTC P1238 present?

Yes	No
GO to KB53 .	CHECK for an intermittent concern, GO to KB59 .

KB53 CHECK THE FP2PWR, FP2RTN AND INTERNAL FUEL PUMP CIRCUIT RESISTANCE

- Ignition OFF.
- FPDM2 connector disconnected.
- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-) FPDM2 Connector, Harness Side
FP2PWR - Pin 4	FP2RTN - Pin 2

Is the resistance less than 10 ohms?

Yes	No
GO to KB54 .	ISOLATE the concern, GO to KB58 .

KB54 CHECK THE FP2PWR AND FP2RTN CIRCUIT(S) FOR A SHORT TO VOLTAGE IN THE HARNESS

- Ignition OFF.
- FP connector disconnected. Refer to the Wiring Diagrams Manual for schematic and connector information.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FPDM2 Connector, Harness Side	(-)
FP2PWR - Pin 4	Ground
FP2RTN - Pin 2	Ground

Are the voltages less than 1 V?

Yes	No
GO to KB55 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB55 CHECK THE FP2PWR AND FP2RTN CIRCUIT(S) FOR A SHORT TO GROUND IN THE HARNESS

- Ignition OFF.
- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-)
FP2PWR - Pin 4	Ground
FP2RTN - Pin 2	Ground

Are the resistances greater than 10K ohms?

Yes	No
GO to KB56 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB56 CHECK FOR A SHORT BETWEEN THE FP2PWR AND FP2RTN CIRCUITS

- Measure the resistance between:

(+) FPDM2 Connector, Harness Side	(-) FPDM2 Connector, Harness Side
FP2PWR - Pin 4	FP2RTN - Pin 2

Is the resistance greater than 10K ohms?

Yes	No
GO to KB57 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

KB57 CHECK FOR VOLTAGE TO THE FP

- FPDM2 connector connected.
- Ignition ON, engine OFF.
- Access the PCM and control the FP PID.
- Command the FP PID ON.
- Measure the voltage between:

(+) FP Connector, Harness Side	(-) FP Connector, Harness Side
FP2PWR	FP2RTN

Is the voltage greater than 10 V with the PID commanded ON?

Yes	No
INSTALL a new FP. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. CLEAR the DTCs. REPEAT the self-test.	VERIFY the vehicle battery was at a proper charge during the test. VERIFY the pump ON command did not time out before the voltage check was made. REPEAT as necessary. If OK, INSTALL a new FPDM2. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls. CLEAR the DTCs. REPEAT the self-test.

KB58 ISOLATE THE OPEN CIRCUIT

- FP connector disconnected. Refer to the Wiring Diagrams Manual for schematic and connector information.
- Measure the resistance between:

(+) FP Connector, Harness Side	(-) FPDM2 Connector, Harness Side
FP2PWR	FP2PWR - Pin 4
FP2RTN	FP2RTN - Pin 2

- Measure the resistance between:

(+) FP Connector, Component Side	(-) FP Connector, Component Side
FP2PWR	FP2RTN

Is the resistance less than 10 ohms?

Yes	No
Unable to duplicate or identify the concern at this time. GO to Pinpoint Test Z .	REPAIR the open circuit. If the open is internal to the pump, INSTALL a new FP. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. CLEAR the DTCs. REPEAT the self-test.

KB59 CHECK THE FP2PWR AND FP2RTN CIRCUIT FOR AN INTERMITTENT OPEN OR SHORTS

Note: With no concern present, the FPDM2 sends a 50% duty cycle (all OK) to the PCM on the FPM2 circuit. Depending on the scan tool type, the FPM2 PID may display 50%, or a random value that is fluctuating between 85% and 115%.

- Ignition ON, engine OFF.
- Access the PCM and monitor the FPM2 PID.
- Observe the FPM2 PID for an indication of a concern while carrying out the following:
  - Shake, wiggle, and bend the FP2PWR and FP2RTN circuits between the FPDM2 and the FP
  - Lightly tap on the FP and FPDM2 to simulate road shock

Is a concern present?

Yes	No
ISOLATE the concern and REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	GO to Pinpoint Test Z .

KB60 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
  - pushed out pins
  - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test and verify the concern is still present.

Is the concern still present?

Yes	No
INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) , Programming the VID Block for a Replacement PCM.	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.