

DD: Fuel Pressure, Fuel Rail Pressure (FRP) And Fuel Rail Pressure Temperature (FRPT) Sensors

← [DD: Introduction](#)

DD1 CHECK FOR DTCS

Are DTCs P0087, P0088, P0181, P0182, P0183, P018B, P018C, P018D, P0192 or P0193 present?

Yes	No
For DTCs P0181, P0182 or P0183, GO to DD13 .	RETURN to Section 3 , Symptom Charts for further direction.
For DTCs P018B, P018C or P018D, GO to DD2 .	
For all others, GO to DD8 .	

DD2 CHECK THE VREF AND SIGRTN CIRCUITS FOR AN OPEN

- Ignition OFF.
- For F-150 3.5L GTDI,
- FRPT Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FRPT Sensor Connector, Harness Side	(-) FRPT Sensor Connector, Harness Side
VREF	SIGRTN

- For all others,
- Fuel Pressure Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) Fuel Pressure Sensor Connector, Harness Side	(-) Fuel Pressure Sensor Connector, Harness Side
VREF - Pin 3	SIGRTN - Pin 2

Is the voltage between 4.5 - 5.5 V?

Yes	No
GO to DD3 .	GO to Pinpoint Test C .

DD3 CHECK THE LOW PRESSURE CIRCUITS FOR AN OPEN

- Ignition OFF.
- PCM connector disconnected.
- For F-150 3.5L GTDI,
- Measure the resistance between:

(+) FRPT Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
FRP-PFI	FRP-PFI

- For all others,
- Measure the resistance between:

(+) Fuel Pressure Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
FLP - Pin 1	FLP

Is the resistance less than 5 ohms?

Yes	No
GO to DD4 .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

DD4 CHECK THE LOW PRESSURE CIRCUITS FOR A SHORT TO GROUND

- For F-150 3.5L GTDI,
- Measure the resistance between:

(+) FRPT Sensor Connector, Harness Side	(-)
FRP-PFI	Ground

- For all others,
- Measure the resistance between:

(+) Fuel Pressure Sensor Connector, Harness Side	(-)
FLP - Pin 1	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to DD5 .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

DD5 CHECK THE LOW PRESSURE CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.
- For F-150 3.5L GTDI,
- Measure the voltage between:

(+) FRPT Sensor Connector, Harness Side	(-)
FRP-PFI	Ground

- For all others,
- Measure the voltage between:

(+) Fuel Pressure Sensor Connector, Harness Side	(-)
FLP - Pin 1	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	For DTC P018B, GO to DD7 . For all others, GO to DD6 .

DD6 CHECK THE LOW PRESSURE CIRCUITS FOR AN INTERMITTENT CONCERN

- Ignition OFF.
- For F-150 3.5L GTDI,
- FRPT Sensor connector connected.
- PCM connector connected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the FLP_V (VOLT) PID.
- While observing the PID, carry out the following:
 - Tap on the sensor to simulate road shock
 - Wiggle the sensor connector
 - Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM
- Check the connector for damage or corrosion.
- For all others,
- Fuel Pressure Sensor connector connected.
- PCM connector connected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the FLP_V (VOLT) PID.
- While observing the PID, carry out the following:
 - Tap on the sensor to simulate road shock
 - Wiggle the sensor connector
 - Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM
- Check the connector for damage or corrosion.

Is a concern present?

--	--

Yes	No
REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new sensor in question. REFER to the fuel system WARNING information at the beginning of Pinpoint Test HC. GO to Pinpoint Test HC . REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. Clear the PCM DTCs. REPEAT the self-test.

DD7 COMPARE THE FLP PID TO THE MECHANICAL GAUGE

Note: The vehicle may exhibit a long crank until the fuel system is pressurized.

- Ignition OFF.
- Relieve the fuel pressure. Refer to the Workshop Manual Section 310-00, Fuel System for the Fuel System Pressure Release procedure.
- Mechanical fuel pressure gauge connected.
- Disable the fuel pump.
- Ignition ON, engine OFF.
- Monitor the mechanical gauge.
- Access the PCM and monitor the FLP (PRESS) PID.
- Compare the FLP PID value to the mechanical gauge.
- Ignition OFF.
- Pressurize the fuel system. Refer to the Workshop Manual Section 310-00, Fuel System for the Fuel System Pressure Release procedure to pressurize the fuel system.
- Ignition ON, engine running.
- Allow the fuel pressure to stabilize.
- Ignition OFF.
- Ignition ON, engine OFF.
- Compare the FLP PID value to the mechanical gauge.

Are the FLP PID values within 153 kPa (22 psi) of the mechanical gauge readings?

Yes	No
The system is operating correctly at this time.	GO to Pinpoint Test Z .

DD8 CHECK THE VREF AND SIGRTN CIRCUITS FOR AN OPEN

- Ignition OFF.
- For Mustang 5.2L,
- FRPT Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FRPT Sensor Connector, Harness Side	(-) FRPT Sensor Connector, Harness Side
---	---

VREF	SIGRTN
------	--------

- For all others,
- FRP Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) FRP Sensor Connector, Harness Side	(-) FRP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	No
GO to DD9 .	GO to Pinpoint Test C .

DD9 CHECK THE FRP CIRCUIT FOR AN OPEN

- Ignition OFF.
- PCM connector disconnected.
- For Mustang 5.2L,
- Measure the resistance between:

(+) FRPT Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
FRP	FRP

- For all others,
- Measure the resistance between:

(+) FRP Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
FRP	FRP

Is the resistance less than 5 ohms?

Yes	No
GO to DD10 .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

DD10 CHECK THE FRP CIRCUIT FOR A SHORT TO GROUND

- For Mustang 5.2L,
- Measure the resistance between:

(+) FRPT Sensor Connector, Harness Side	(-)
FRP	Ground

- For all others,
- Measure the resistance between:

(+) FRP Sensor Connector, Harness Side	(-)
FRP	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to DD11 .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

DD11 CHECK THE FRP CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.
- For Mustang 5.2L,
- Measure the voltage between:

(+) FRPT Sensor Connector, Harness Side	(-)
FRP	Ground

- For all others,
- Measure the voltage between:

(+) FRP Sensor Connector, Harness Side	(-)
FRP	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	For DTCs P0087 or P0088, GO to Pinpoint Test Z . For all others, GO to DD12 .

DD12 CHECK THE FRP CIRCUIT FOR AN INTERMITTENT CONCERN

- Ignition OFF.
- PCM connector connected.
- For Mustang 5.2L,
- FRPT Sensor connector connected.
- For all others,
- FRP Sensor connector connected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the FRP (VOLT) PID.
- While observing the PID, carry out the following:

- Tap on the sensor to simulate road shock
- Wiggle the sensor connector
- Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM
- Check the connector for damage or corrosion.

Is a concern present?

Yes	No
REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new sensor in question. REFER to the fuel system WARNING information at the beginning of Pinpoint Test HC. GO to Pinpoint Test HC . REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. Clear the PCM DTCs. REPEAT the self-test.

DD13 CHECK THE VREF AND SIGRTN CIRCUITS FOR AN OPEN

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

(+) FRPT Sensor Connector, Harness Side	(-) FRPT Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	No
GO to DD14 .	GO to Pinpoint Test C .

DD14 CHECK THE FRT CIRCUIT FOR AN OPEN

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

(+) FRPT Sensor Connector, Harness Side	(-) PCM Connector, Harness Side
FRT	FRT

Is the resistance less than 5 ohms?

Yes	No
GO to DD15 .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

DD15 CHECK THE FRT CIRCUIT FOR A SHORT TO GROUND

- Measure the resistance between:

(+) FRPT Sensor Connector, Harness Side	(-)
FRT	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to DD16 .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

DD16 CHECK THE FRT CIRCUIT FOR A SHORT TO VOLTAGE

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

(+) FRPT Sensor Connector, Harness Side	(-)
FRT	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	For DTC P0181, GO to Pinpoint Test Z . For all others, GO to DD17 .

DD17 CHECK THE FRT CIRCUIT FOR AN INTERMITTENT CONCERN

- Ignition OFF.
- PCM connector connected.
- FRPT Sensor connector connected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the FRT_V (VOLT) PID.
- While observing the PID, carry out the following:
 - Tap on the sensor to simulate road shock
 - Wiggle the sensor connector
 - Wiggle, shake, and bend small sections of the wiring harness while working from the sensor to the PCM
- Check the connector for damage or corrosion.

Is a concern present?

Yes	No

REPAIR as necessary.

Clear the PCM DTCs. REPEAT the self-test.

INSTALL a new FRPT sensor.

REFER to the fuel system WARNING information at the beginning of Pinpoint Test HC. GO to Pinpoint Test [HC](#). REFER to the Workshop Manual Section 303-14, Electronic Engine Controls.

Clear the PCM DTCs. REPEAT the self-test.
