

RL: Fuel Vaporizer System

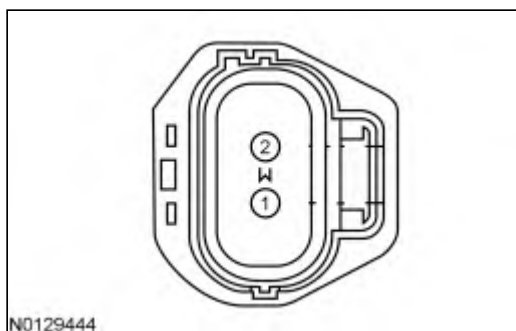
Note: Regeneration may occur during normal operation. During regeneration, diagnostic procedures may display biased values. If a regeneration occurs during diagnostic procedures, allow the process to complete before continuing diagnostics.

This pinpoint test is intended to diagnose the following:

- fuel vaporizer system fuel pump
- fuel vaporizer system glow plug
- harness circuits: GND, VGPPWR, VGPRC, VPC and VPWR
- PCM (12A650)

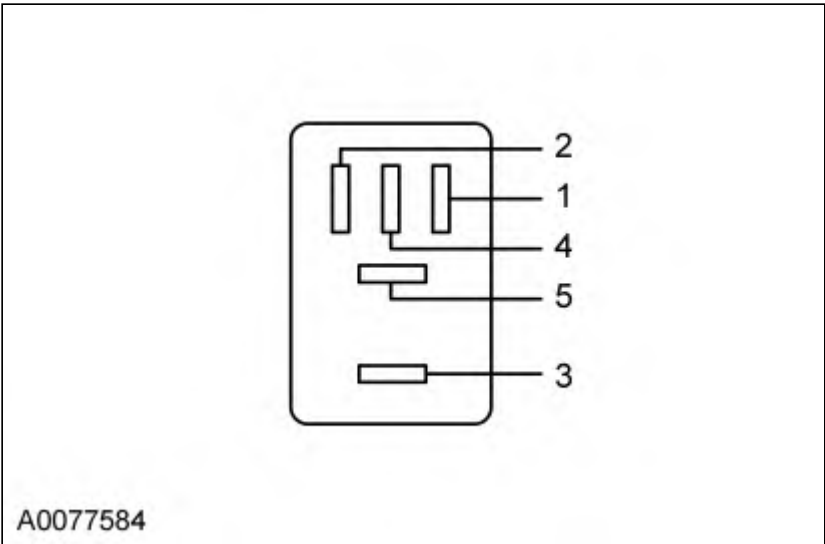
Fuel Vaporizer System Fuel Pump Assembly Connector

Pin	Circuit
2	VPC (Vaporizer Pump Control)
1	VPWR (Vehicle Power)

Fuel Vaporizer System Glow Plug Assembly Connector

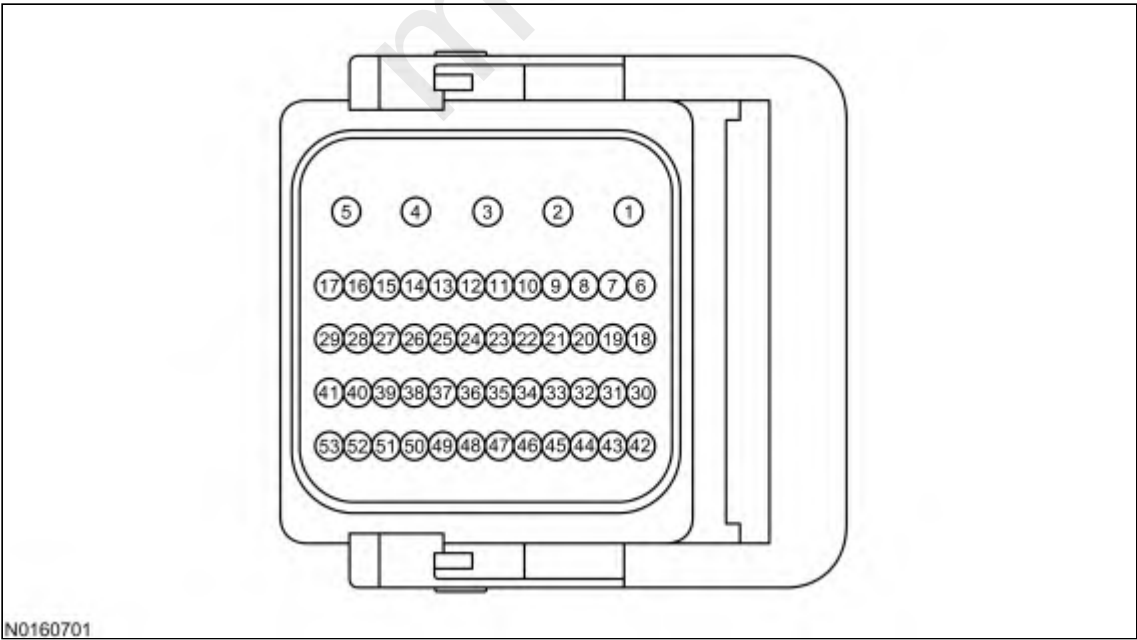
Pin	Circuit
1	GND (Ground)
2	VGPPWR (Vaporizer Glow Plug Power)

Fuel Vaporizer System Glow Plug Relay Connector



Pin	Circuit
5	VGPPWR (Vaporizer Glow Plug Power)
2	VGPRC (Vaporizer Glow Plug Relay Control)
1, 3	VPWR (Vehicle Power)

Powertrain Control Module-T (PCM-T) Connector



Pin	Circuit
2	VPC (Vaporizer Pump Control)
26	VGPRM (Vaporizer Glow Plug Relay Monitor)
28	VGPRC (Vaporizer Glow Plug Relay Control)

RL1 PRELIMINARY DIAGNOSIS

Are DTCs P0420, P20CC, P20D7, P20D9, P20DA, P24A0, P2698, P269B, P269D, P269E or P26A0 present?

Yes	For DTC P2698, GO to RL2 . For DTCs P0420, P24A0, P269B, P269D, P269E or P26A0, GO to RL3 . For all others, GO to RL11 .
No	RETURN to Section 3, Symptom Charts for further direction.

RL2 CARRY OUT A VISUAL INSPECTION

- Visually inspect the fuel vaporizer system glow plug nozzle for damage or fuel leaks.

Is a concern present?

Yes	INSTALL a new Fuel Vaporizer System Glow Plug assembly. REFER to the Workshop Manual Section 309-00, Exhaust System. Clear the PCM DTCs. REPEAT the self-test.
No	GO to RL3 .

RL3 CHECK THE FUEL VAPORIZER SYSTEM GLOW PLUG RESISTANCE

- Ignition OFF.
- Fuel Vaporizer System Glow Plug Assembly connector disconnected.
- Measure the resistance between:

(+) Fuel Vaporizer System Glow Plug Assembly Connector, Component Side	(-) Fuel Vaporizer System Glow Plug Assembly Connector, Component Side
VGPPWR - Pin 2	GND - Pin 1

Is the resistance between 0 Ohm - 2 ohms?

Yes	GO to RL4 .
No	INSTALL a new Fuel Vaporizer System Glow Plug assembly. REFER to the Workshop Manual Section 309-00, Exhaust System. Clear the PCM DTCs. REPEAT the self-test.

RL4 CHECK THE VPWR VOLTAGE TO THE FUEL VAPORIZER SYSTEM GLOW PLUG RELAY

- Ignition OFF.
- Fuel Vaporizer System Glow Plug Relay connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side	(-)
VPWR - Pin 1, 3	Ground

Is the voltage greater than 10.5 V?

Yes	GO to RL5 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

RL5 CHECK THE FUEL VAPORIZER SYSTEM GLOW PLUG RELAY

- Carry out the fuel vaporizer system glow plug relay component test. Refer to the Wiring Diagrams Cell 149 Component Testing.

Is a concern present?

Yes	INSTALL a new Fuel Vaporizer System Glow Plug relay. Clear the PCM DTCs. REPEAT the self-test.
No	GO to RL6 .

RL6 CHECK THE VGPRC CIRCUIT FOR AN OPEN

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

(+) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side	(-) PCM-T Connector, Harness Side
VGPRC - Pin 2	VGPRC - Pin 28

Is the resistance less than 5 ohms?

Yes	GO to RL7 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

RL7 CHECK THE VGPRC CIRCUIT FOR A SHORT TO GROUND

- Measure the resistance between:

(+) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side	(-)
VGPRC - Pin 2	Ground

Is the resistance greater than 10K ohms?

Yes	GO to RL8 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

RL8 CHECK THE VGPRC CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.

- Measure the voltage between:

(+) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side	(-)
VGPRC - Pin 2	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to RL9 .

RL9 CHECK THE VGPPWR AND VGPRM CIRCUITS FOR AN OPEN

- Fuel Vaporizer System Glow Plug Relay connector disconnected.
- Measure the resistance between:

(+) Fuel Vaporizer System Glow Plug Assembly Connector, Harness Side	(-) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side
VGPPWR - Pin 2	VGPPWR - Pin 5

- Measure the resistance between:

(+) PCM-T Connector, Harness Side	(-) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side
VGPRM - Pin 26	VGPPWR - Pin 5

Are the resistances less than 5 ohms?

Yes	GO to RL10 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

RL10 CHECK THE VGPPWR CIRCUIT FOR A SHORT TO VOLTAGE

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

(+) Fuel Vaporizer System Glow Plug Relay Connector, Harness Side	(-)
VGPPWR - Pin 5	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	For DTC P2698, GO to RL14 . For DTC P0420, GO to RA4 . For DTC P24A0, GO to RC11 .

For all others, INSTALL a new Fuel Vaporizer System Glow Plug assembly. REFER to the Workshop Manual Section 309-00, Exhaust System. Clear the PCM DTCs. REPEAT the self-test.
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RL11 CHECK THE VPWR VOLTAGE TO THE FUEL VAPORIZER SYSTEM FUEL PUMP

- Ignition OFF.
- Fuel Vaporizer System Fuel Pump Assembly connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) Fuel Vaporizer System Fuel Pump Assembly Connector, Harness Side	(-)
VPWR - Pin 1	Ground

Is the voltage greater than 10.5 V?

Yes	GO to RL12 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

RL12 CHECK THE FUEL VAPORIZER SYSTEM FUEL PUMP RESISTANCE

- Ignition OFF.
- Measure the resistance between:

(+) Fuel Vaporizer System Fuel Pump Assembly Connector, Component Side	(-) Fuel Vaporizer System Fuel Pump Assembly Connector, Component Side
VPWR - Pin 1	VPC - Pin 2

Is the resistance between 3.5 - 3.9 ohms?

Yes	GO to RL13 .
No	INSTALL a new Fuel Vaporizer System Fuel Pump assembly. REFER to the Workshop Manual Section 309-00, Exhaust System. Clear the PCM DTCs. REPEAT the self-test.

RL13 CHECK THE VPC CIRCUIT FOR AN OPEN

- PCM-T connector connected.
- Measure the resistance between:

(+) Fuel Vaporizer System Fuel Pump Assembly Connector, Harness Side	(-) PCM-T Connector, Harness Side
VPC - Pin 2	VPC - Pin 2

Is the resistance less than 5 ohms?

Yes	GO to RL14 .

No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.
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RL14 CHECK THE VPC CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Fuel Vaporizer System Glow Plug Relay connector disconnected.
- Measure the resistance between:

(+) Fuel Vaporizer System Fuel Pump Assembly Connector, Harness Side	(-)
VPC - Pin 2	Ground

Is the resistance greater than 10K ohms?

Yes	For DTC P2698, the system is operating correctly at this time. Clear the PCM DTCs. REPEAT the self-test. For all others, GO to RL15 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

RL15 CHECK THE VPC CIRCUIT FOR A SHORT TO VOLTAGE

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

(+) Fuel Vaporizer System Fuel Pump Assembly Connector, Harness Side	(-)
VPC - Pin 2	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	INSTALL a new Fuel Vaporizer System Fuel Pump assembly. REFER to the Workshop Manual Section 309-00, Exhaust System. Clear the PCM DTCs. REPEAT the self-test.

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