<- Back | Forward ->

Document ID# 725389
2002 Chevrolet Camaro

Fuel System Diagnosis

Circuit Description

The powertrain control module (PCM) will turn ON the in-tank fuel pump, with the ignition ON. The in-tank fuel pump will remain ON as long as the engine is cranking or running, and the PCM is receiving ignition reference pulses. If the PCM does not detect any ignition reference pulses, the PCM turns the fuel pump OFF 2 seconds after the ignition is turned ON.

The in-tank fuel pump is an electric pump that is attached to the fuel sender assembly. The fuel pump is designed to provide fuel at a pressure above the pressure that is needed by the fuel injectors. A fuel pressure regulator, located in the fuel tank, keeps the fuel available to the fuel injectors at a regulated pressure. Unused fuel is returned to the fuel tank by a separate fuel return pipe.

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step verifies that the fuel pump is operating.

4. This step tests for an internal fuel leak. If the fuel pressure drops during this test, then an internal loss of pressure is indicated.

7. This step tests for a loss of fuel pressure between the fuel feed pipe shut off adapter and the fuel pump.

11. This step determines if the fuel pressure regulator, or the fuel pump, is the cause of the low fuel pressure. If the pressure rises above the specified value, the fuel pump is OK.

13. This step verifies that a circuit condition is not the cause of a fuel pressure concern. Inspect all fuel pump electrical circuits thoroughly.

Step	Action	Values	Yes	No
	Schematic Reference: Engine Controls Schematics			
1	Did you perform the Diagnostic System Check-Engine Controls?	--	Go to Step 2	Go to Diagnostic System Check - Engine Controls
	Important: Inspect the fuel system for damage, or external leaks, before proceeding with this diagnostic.			

2	1. Turn ON the ignition, with the engine OFF. 2. Use a scan tool in order to command the fuel pump ON. Does the fuel pump operate?	--	Go to Step 3	Go to Fuel Pump Electrical Circuit Diagnosis

3	**Important:** Verify there is adequate fuel in the fuel tank before proceeding with this diagnostic.
	
	1. Turn OFF the ignition.
	2. Turn OFF all of the accessories.
	
	    Caution: Wrap a shop towel around the fuel pressure connection in order to reduce the risk of fire and personal injury. The towel will absorb any fuel leakage that occurs during the connection of the fuel pressure gage. Place the towel in an approved container when the connection of the fuel pressure gage is complete.
	
	3. Install the J 34730-1A fuel pressure gage.
	4. Place the bleed hose of the fuel pressure gage into an approved gasoline container.
	5. Turn ON the ignition, with the engine OFF.
	6. Use a scan tool in order to command the fuel pump ON.
	7. Bleed the air out of the fuel pressure gage.
	
	    Important:
	    • The fuel pump may need to be commanded to ON a few times in order to obtain the highest possible fuel pressure.
	    • Do not start the engine.
	
	8. Observe the fuel pressure gage, with the fuel pump commanded ON.
	
	Is the fuel pressure within the specified value?
		380-410 kPa (55-60 psi)	Go to Step 4	Go to Step 9

4	**Important:** The fuel pressure may vary slightly when the fuel pump stops running. After the fuel pump stops running, the fuel pressure should stabilize and remain constant. Monitor the fuel pressure gage for 1 minute. Does the fuel pressure drop more than the specified value?	34 kPa (5 psi)	Go to Step 7	Go to Step 5
5	1. Relieve the fuel pressure to the first specified value. 2. Monitor the fuel pressure gage for 1 minute. Does the fuel drop more than the second specified value?	69 kPa (10 psi) 14 kPa	Go to	

		(2 psi)	Step 17	Go to Step 6
6	1. Operate the vehicle within the conditions of the customers concern. 2. Use a scan tool in order to monitor the fuel related parameters. Do any of the scan tool parameters indicate a lean condition?	--	Go to Step 12	Go to Symptoms - Engine Controls
7	1. Turn OFF the ignition. 2. Relieve the fuel pressure. Refer to Fuel Pressure Relief Procedure . 3. Disconnect the fuel feed pipe from the fuel rail. Refer to Quick Connect Fitting(s) Service (Metal Collar) . 4. Install the J 37287 fuel pipe shut-off adapter between the fuel pipe and the fuel rail. 5. Open the valve on the fuel feed pipe shut-off adapter. 6. Use a scan tool in order to command the fuel pump ON. 7. Bleed the air from the fuel pressure gage. 8. Close the fuel feed pipe shut-off valve. 9. Monitor the fuel pressure gage for 1 minute. Does the fuel pressure remain constant?	--	Go to Step 8	Go to Step 15
8	1. Turn OFF the ignition. 2. Relieve the fuel pressure. Refer to Fuel Pressure Relief Procedure . 3. Open the valve in the fuel feed pipe shut-off valve. 4. Disconnect the steel fuel return pipe at the nylon rear return pipe. 5. Install the J 37287 between the steel fuel return pipe and the rear nylon return pipe. 6. Open the valve in the fuel return pipe shut-off adapter. 7. Turn ON the ignition, with the engine OFF. 8. Use a scan tool in order to command the fuel pump ON. 9. Bleed the air from the fuel pressure gage. 10. Close the fuel return pipe shut-off valve. 11. Monitor the fuel pressure gage for 1 minute. Does the fuel pressure remain constant?	--	Go to Step 16	Go to Step 17
9	Is the fuel pressure above the specified value?	410 kPa (60 psi)	Go to Step 10	Go to Step 11
10	Inspect the fuel return pipe and T-connector for a restriction. Did you find and correct the condition?	--	Go to Step 18	Go to Step 16
	1. Turn OFF the ignition. 2. Relieve the fuel pressure. Refer to Fuel Pressure Relief Procedure . 3. Disconnect the steel fuel return pipe at the nylon rear			

11	return pipe. 4. Install the J 37287 between the steel fuel return pipe and the rear nylon return pipe. 5. Open the valve in the fuel pipe shut-off adapter. 6. Turn ON the ignition, with the engine OFF. 7. Use a scan tool in order to command the fuel pump ON. 8. Bleed the air from the fuel system. 9. Monitor the fuel pressure gauge. **Notice:** DO NOT allow the fuel pressure to exceed 517 kPa (75 psi). Excessive pressure may damage the fuel system. 10. Slowly close the valve in the fuel pipe shut-off adapter. 11. Use a scan tool in order to command the fuel pump ON. Does the fuel pressure rise above the specified value?	410 kPa (60 psi)	Go to Step 16	Go to Step 12
12	Inspect the following for a restriction: • Fuel filter • Fuel feed pipe Did you repair the condition?	--	Go to Step 18	Go to Step 13
13	Inspect the harness connectors and ground circuits of the fuel pump for poor connections. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	--	Go to Step 18	Go to Step 14

14	1. Remove the fuel sender assembly. Refer to Fuel Sender Assembly Replacement .
	2. Inspect the following items:
	  - The fuel pump flex hose for damage
	  - The in tank fuel pump harness connectors for poor connections
	  - The fuel strainer for a restriction
	  - Contaminates in the fuel tank
	
	Did you find and correct the condition?
		--	Go to Step 18	Go to Step 17

	1. Turn OFF the ignition. 2. Raise the fuel rail, with the fuel lines connected. Refer to Fuel Rail Assembly Replacement . 3. Turn ON the ignition, with the engine OFF.			

15	4. Use a scan tool in order to command the fuel pump ON. 5. Locate and replace the leaking fuel injector. Refer to Fuel Injector Replacement . Is the replacement complete?	--	Go to Step 18	--
16	Replace the fuel pressure regulator. Refer to Fuel Pressure Regulator Replacement . Did you complete the replacement?	--	Go to Step 18	--
17	Replace the fuel pump. Refer to Fuel Sender Assembly Replacement . Did you complete the replacement?	--	Go to Step 18	--
18	Operate the system in order to verify the repair. Did you correct the condition?	--	System OK	Go to Step 3