DTC P0455 EVAP CONTROL SYSTEM

On Board Diagnosis Logic

This diagnosis detects a very large leak (fuel filler cap fell off etc.) in EVAP system between the fuel tank and EVAP canister purge volume control solenoid valve.

CAUTION:

- Use only a genuine NISSAN fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the MIL may come on.
- If the fuel filler cap is not tightened properly, the MIL may come on.
- Use only a genuine NISSAN rubber tube as a replacement.

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>Trouble diagnosis name</th>
<th>DTC detecting condition</th>
<th>Possible cause</th>
</tr>
</thead>
</table>
| P0455 0455 | EVAP control system gross leak detected | EVAP control system has a very large leak such as fuel filler cap fell off, EVAP control system does not operate properly. | - Fuel filler cap remains open or fails to close.
- Incorrect fuel tank vacuum relief valve
- Incorrect fuel filler cap used
- Foreign matter caught in fuel filler cap.
- Leak is in line between intake manifold and EVAP canister purge volume control solenoid valve.
- Foreign matter caught in EVAP canister vent control valve.
- EVAP canister or fuel tank leaks
- EVAP purge line (pipe and rubber tube) leaks
- EVAP purge line rubber tube bent.
- Loose or disconnected rubber tube
- EVAP canister vent control valve and the circuit
- EVAP canister purge volume control solenoid valve and the circuit
- Fuel tank temperature sensor
- O-ring of EVAP canister vent control valve is missing or damaged.
- EVAP control system pressure sensor
- Refueling EVAP vapor cut valve
- ORVR system leaks |
DTC Confirmation Procedure

CAUTION:
Never remove fuel filler cap during the DTC Confirmation Procedure.

NOTE:
- Make sure that EVAP hose are connected to EVAP canister purge volume control solenoid valve properly.
- If DTC Confirmation Procedure has been previously conducted, always turn ignition switch OFF and wait at least 10 seconds before conducting the next test.

TESTING CONDITION:
- Perform “DTC WORK SUPPORT” when the fuel level is between 1/4 to 3/4 full, and vehicle is placed on flat level surface.
- Open engine hood before conducting the following procedure.

WITH CONSULT-II
1. Tighten fuel filler cap securely until ratcheting sound is heard.
2. Turn ignition switch ON.
3. Turn ignition switch OFF and wait at least 10 seconds.
4. Turn ignition switch ON and select “DATA MONITOR” mode with CONSULT-II.
5. Make sure that the following conditions are met.
   COOLANT TEMP/S: 0 - 70°C (32 - 158°F)
   INT/A TEMP SE: 0 - 60°C (32 - 140°F)
6. Select “EVAP SML LEAK P0442/P1442” of “EVAPORATIVE SYSTEM” in “DTC WORK SUPPORT” mode with CONSULT-II.
   Follow the instruction displayed.

NOTE:
If the engine speed cannot be maintained within the range displayed on the CONSULT-II screen, go to EC-81, "Basic Inspection".

7. Make sure that OK is displayed.
   If NG is displayed, select “SELF-DIAG RESULTS” mode with CONSULT-II and make sure that “EVAP GROSS LEAK [P0455]” is displayed. If it is displayed, refer to EC-316, “Diagnostic Procedure”.
   If P0442 is displayed, perform Diagnostic Procedure for DTC P0442, EC-277.

WITH GST
NOTE:
Be sure to read the explanation of Driving Pattern on EC-62 before driving vehicle.
1. Start engine.
2. Drive vehicle according to EC-62, "Driving Pattern".
3. Stop vehicle.
4. Select MODE 1 with GST.
   - If SRT of EVAP system is not set yet, go to the following step.
   - If SRT of EVAP system is set, the result will be OK.
5. Turn ignition switch OFF and wait at least 10 seconds.
   It is not necessary to cool engine down before driving.
7. Drive vehicle again according to EC-62, "Driving Pattern".
8. Stop vehicle.
9. Select MODE 3 with GST.
   - If P0455 is displayed on the screen, go to EC-316, "Diagnostic Procedure".
   - If P0442 is displayed on the screen, go to Diagnostic Procedure, for DTC P0442, EC-277.
   - If P0441 is displayed on the screen, go to Diagnostic Procedure for DTC P0441, EC-271.
   - If P0441, P0442 and P0455 are not displayed on the screen, go to the following step.
10. Select MODE 1 with GST.
    - If SRT of EVAP system is set, the result will be OK.
    - If SRT of EVAP system is not set, go to step 6.

**Diagnostic Procedure**

### 1. CHECK FUEL FILLER CAP DESIGN

1. Turn ignition switch OFF.
2. Check for genuine NISSAN fuel filler cap design.
   OK or NG
   - OK >> GO TO 2.
   - NG >> Replace with genuine NISSAN fuel filler cap.

### 2. CHECK FUEL FILLER CAP INSTALLATION

Check that the cap is tightened properly by rotating the cap clockwise.

OK or NG
- OK >> GO TO 3.
- NG >> 1. Open fuel filler cap, then clean cap and fuel filler neck threads using air blower.
  2. Retighten until ratcheting sound is heard.

### 3. CHECK FUEL FILLER CAP FUNCTION

Check for air releasing sound while opening the fuel filler cap.

OK or NG
- OK >> GO TO 5.
- NG >> GO TO 4.
4. CHECK FUEL TANK VACUUM RELIEF VALVE

1. Wipe clean valve housing.
2. Check valve opening pressure and vacuum.
   
   **Pressure:** 15.3 - 20.0 kPa  
   (0.156 - 0.204 kg/cm², 2.22 - 2.90 psi)
   
   **Vacuum:** -6.0 to -3.3 kPa  
   (-0.061 to -0.034 kg/cm², -0.87 to -0.48 psi)

   **CAUTION:**  
   Use only a genuine fuel filler cap as a replacement. If an incorrect fuel filler cap is used, the MIL may come on.

   OK or NG
   
   OK >> GO TO 5.
   NG >> Replace fuel filler cap with a genuine one.

5. CHECK EVAP PURGE LINE

Check EVAP purge line (pipe, rubber tube, fuel tank and EVAP canister) for cracks, improper connection or disconnection.  
Refer to **EC-622, "EVAPORATIVE EMISSION SYSTEM"**.

OK or NG

OK >> GO TO 6.
NG >> Repair or reconnect the hose.

6. CLEAN EVAP PURGE LINE

Clean EVAP purge line (pipe and rubber tube) using air blower.

   >> GO TO 7.

7. CHECK EVAP CANISTER VENT CONTROL VALVE

Check the following.

- EVAP canister vent control is installed properly.  
  Refer to **EC-626, "Removal and Installation"**
- EVAP canister vent control valve.  
  Refer to **EC-296, "Component Inspection"**

OK or NG

OK >> GO TO 8.
NG >> Repair or replace EVAP canister vent control valve and O-ring.
8. INSTALL THE PRESSURE PUMP

To locate the EVAP leak, install EVAP service port adapter and pressure pump to EVAP service port securely.

NOTE:
Improper installation of the EVAP service port adapter to the EVAP service port may cause leaking.

9. CHECK FOR EVAP LEAK

With CONSULT-II

1. Turn ignition switch ON.
2. Select “EVAP SYSTEM CLOSE” of “WORK SUPPORT” mode with CONSULT-II.
3. Touch “START” and apply pressure into the EVAP line until the pressure indicator reaches the middle of the bar graph.

   NOTE:
   ● Never use compressed air or a high pressure pump.
   ● Do not exceed 4.12 kPa (0.042 kg/cm², 0.6 psi) of pressure in the system.

4. Using EVAP leak detector, locate the EVAP leak. For the leak detector, refer to the instruction manual for more details. Refer to EC-623, "EVAPORATIVE EMISSION LINE DRAWING".

OK or NG

OK  >> GO TO 11.
NG  >> Repair or replace.
10. CHECK FOR EVAP LEAK

Without CONSULT-II

1. Turn ignition switch OFF.
2. Apply 12 volts DC to EVAP canister vent control valve. The valve will close. (Continue to apply 12 volts until the end of test.)
3. Pressurize the EVAP line using pressure pump with 1.3 to 2.7 kPa (10 to 20 mmHg, 0.39 to 0.79 inHg), then remove pump and EVAP service port adapter.

**NOTE:**
- Never use compressed air or a high pressure pump.
- Do not exceed 4.12 kPa (0.042 kg/cm², 0.6 psi) of pressure in the system.

4. Using EVAP leak detector, locate the EVAP leak. For the leak detector, refer to the instruction manual for more details. Refer to EC-623, "EVAPORATIVE EMISSION LINE DRAWING".

**OK or NG**
- OK >> GO TO 12.
- NG >> Repair or replace.

11. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE OPERATION

With CONSULT-II

1. Disconnect vacuum hose to EVAP canister purge volume control solenoid valve at EVAP service port.
2. Start engine.
3. Perform “PURG VOL CONT/V” in “ACTIVE TEST” mode.
4. Touch “Qu” on CONSULT-II screen to increase “PURG VOL CONT/V” opening to 100%.
5. Check vacuum hose for vacuum when revving engine up to 2,000 rpm.

**Vacuum should exist.**

**OK or NG**
- OK >> GO TO 14.
- NG >> GO TO 13.
12. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE OPERATION

**Without CONSULT-II**
1. Start engine and warm it up to normal operating temperature.
2. Stop engine.
3. Disconnect vacuum hose to EVAP canister purge volume control solenoid valve at EVAP service port.
4. Start engine and let it idle for at least 80 seconds.
5. Check vacuum hose for vacuum when revving engine up to 2,000 rpm.

   **Vacuum should exist.**

   OK or NG
   - **OK** >> GO TO 15.
   - **NG** >> GO TO 13.

13. CHECK VACUUM HOSE

Check vacuum hoses for clogging or disconnection. Refer to **EC-623, "EVAPORATIVE EMISSION LINE DRAWING"**.

   OK or NG
   - **OK** (With CONSULT-II) >> GO TO 14.
   - **OK** (Without CONSULT-II) >> GO TO 15.
   - **NG** >> Repair or reconnect the hose.

14. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

**With CONSULT-II**
1. Start engine.
2. Perform "PURG VOL CONT/V" in "ACTIVE TEST" mode with CONSULT-II. Check that engine speed varies according to the valve opening.

   OK or NG
   - **OK** >> GO TO 16.
   - **NG** >> GO TO 15.

<table>
<thead>
<tr>
<th>ACTIVE TEST</th>
<th>MONITOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PURG VOL CONT/V</td>
<td>XXX %</td>
</tr>
<tr>
<td>ENG SPEED</td>
<td>XXX rpm</td>
</tr>
<tr>
<td>A/F ALPHA-B1</td>
<td>XXX %</td>
</tr>
</tbody>
</table>

15. CHECK EVAP CANISTER PURGE VOLUME CONTROL SOLENOID VALVE

Refer to **EC-289, "Component Inspection"**.

   OK or NG
   - **OK** >> GO TO 16.
   - **NG** >> Replace EVAP canister purge volume control solenoid valve.

16. CHECK FUEL TANK TEMPERATURE SENSOR

Refer to **EC-230, "Component Inspection"**.

   OK or NG
   - **OK** >> GO TO 17.
   - **NG** >> Replace fuel level sensor unit.
17. CHECK EVAP CONTROL SYSTEM PRESSURE SENSOR

Refer to EC-305, "Component Inspection".

OK or NG

OK >> GO TO 18.
NG >> Replace EVAP control system pressure sensor.

18. CHECK EVAP/ORVR VAPOR LINE

Check refueling EVAP/ORVR line between EVAP canister and fuel tank for clogging, kink, looseness and improper connection. For location, refer to EC-627, "ON BOARD REFUELING VAPOR RECOVERY (ORVR)".

OK or NG

OK >> GO TO 19.
>> Repair or replace hoses and tubes.

19. CHECK SIGNAL LINE AND RECIRCULATION LINE

Check signal line and recirculation line between filler neck tube and fuel tank for clogging, kink, cracks, looseness and improper connection.

OK or NG

OK >> GO TO 20.
>> Repair or replace hoses, tubes or filler neck tube.

20. CHECK REFUEILING EVAP VAPOR CUT VALVE

Refer to EC-630, "Component Inspection".

OK or NG

OK >> GO TO 21.
>> Replace refueling EVAP vapor cut valve with fuel tank.

21. CHECK INTERMITTENT INCIDENT

Refer to EC-140, "TROUBLE DIAGNOSIS FOR INTERMITTENT INCIDENT".

>> INSPECTION END