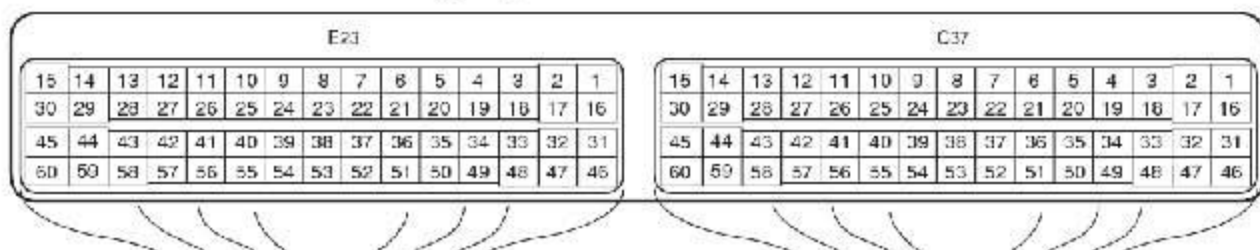
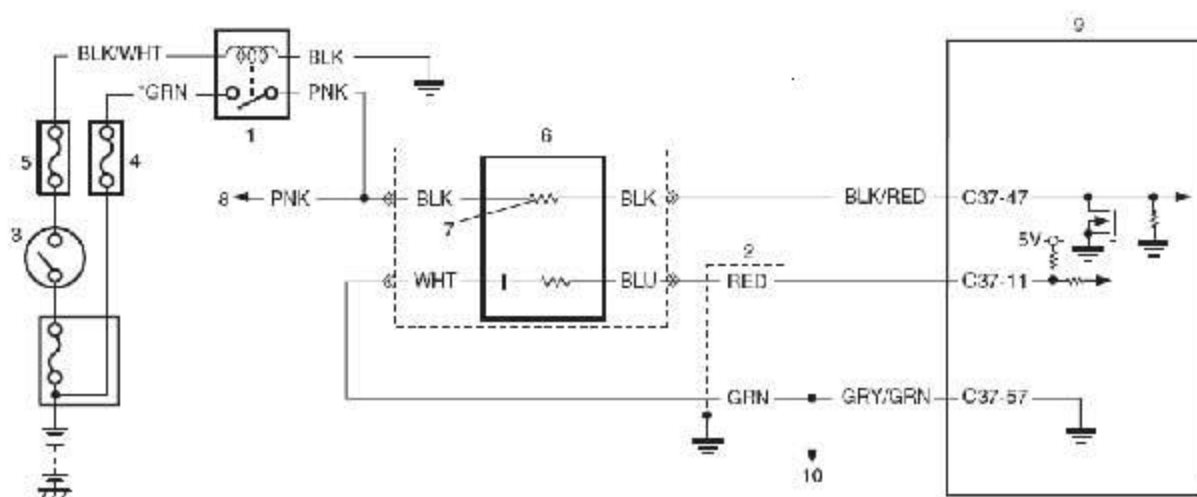


DTC P0037 / P0038: HO2S Heater Control Circuit Low / High (Sensor-2)

Wiring Diagram



1. HO2S heater relay	4. "O2 HTR" fuse	7. Heater	10. To other sensors
2. Shield wire	5. "IG COIL" fuse	8. To A/F sensor heater	*: For M16 engine
3. Ignition switch	6. HO2S-2	9. ECM	

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
<p>P0037: HO2S-2 circuit voltage is lower than specification for more than specified time continuously even though control duty ratio of HO2S-2 heater is less than 75% with engine running. (Heater control duty pulse is not detected in its monitor signal) (2 driving cycle detection logic)</p>	<ul style="list-style-type: none"> • HO2S-2 heater • HO2S-2 heater circuit • ECM
<p>P0038: HO2S-2 circuit voltage is higher than specification for more than specified time continuously even though control duty ratio of HO2S-2 heater is more than 25% with engine running. (Heater control duty pulse is not detected in its monitor signal) (2 driving cycle detection logic)</p>	

DTC Confirmation Procedure

- 1) With ignition switch turned OFF, connect scan tool.
- 2) Turn ON ignition switch and clear DTC using scan tool.
- 3) Start engine and warm up to normal operating temperature.
- 4) Run engine at idle speed for 1 min.
- 5) Check DTC and pending DTC.

NOTE

Before this trouble shooting is performed, read the precautions for DTC troubleshooting referring to "Precautions For DTC Troubleshooting: ".

Step	Action	Yes	No
1	Was "Engine and Emission Control System Check" performed?	Go to Step 2.	Go to "Engine and Emission Control System Check: ".

Step	Action	Yes	No
2	<p>HO2S-2 heater circuit check</p> <p>1) Disconnect connector from HO2S-2 with ignition switch turned OFF.</p> <p>2) Check for proper connection to HO2S-2 connector.</p> <p>3) If connection are OK, measure voltage between heater power terminal of HO2S-2 connector and vehicle body ground with ignition switch turned ON.</p> <p>Is measured voltage 10 – 14 V?</p>	Go to Step 9.	Go to Step 3.
3	<p>HO2S heater fuse check</p> <p>1) Check for "O2 HTR" fuse (1) blown.</p> <p>Is "O2 HTR" fuse in good condition?</p>	Go to Step 5.	Go to Step 4.
4	<p>A/F sensor and HO2S heater resistance check</p> <p>1) Disconnect connector from A/F sensor with ignition switch turned OFF.</p> <p>2) Check heater resistance of A/F sensor and HO2S referring to "Air Fuel Ratio (A/F) Sensor On-Vehicle Inspection: in Section 1C" and "Heated Oxygen Sensor (HO2S-2) Heater On-Vehicle Inspection: in Section 1C".</p> <p>Are A/F sensor heater and HO2S heater in good condition?</p>	Go to Step 6.	Replace defective sensor.
5	<p>HO2S heater relay power circuit check</p> <p>1) Remove integration relay No.2 (for J20 engine) (1) or HO2S heater relay (for M16 engine) (2) with ignition switch turned OFF.</p> <p>2) Check for proper connection to relay connector.</p> <p>3) If connection are OK, measure voltage between each relay power terminal of relay connector and vehicle body ground with ignition switch tuned ON</p>	Go to Step 6.	Power circuit is open.

Step	Action	Yes	No
6	Check HO2S heater relay 1) Check integration relay No.2 (for J20 engine) or HO2S heater relay (for M16 engine) referring to "Control Relay Inspection: in Section 1C". Is it in good condition?	Go to Step 7.	Replace relay.
7	HO2S-2 heater circuit check 1) Measure insulation resistance between heater terminals of HO2S-2 connector. Is measured resistance infinity?	Go to Step 8.	Repair or replace short wire.
8	HO2S heater relay circuit check 1) Measure wire resistance between coil ground terminal of relay connector and vehicle body ground.	Output wire of relay connector is open or short to ground.	Repair or replace defective circuit.
9	Is measured resistance lower than 1 Ω ? HO2S-2 heater check 1) Check heater resistance of HO2S-2 referring to "Heated Oxygen Sensor (HO2S-2) Heater On-Vehicle Inspection: in Section 1C". Is HO2S-2 heater in good condition?	Go to Step 10.	Replace HO2S-2.
10	HO2S heater control circuit check 1) Disconnect connector from ECM with ignition switch turned OFF. 2) Check for proper connection of HO2S-2 heater circuit terminal to ECM connector. 3) If connection are OK, measure wire resistance of sensor heater control circuit at ECM connector between ECM to HO2S-2. Is measured wire resistance lower than 1 Ω ?	Go to Step 11.	Repair or replace defective wire circuit.
11	HO2S-2 heater circuit check 1) Measure insulation resistance between control terminal of HO2S-2 heater at ECM connector and vehicle body ground. Is measured resistance infinity?	Substitute a known good ECM and recheck.	Repair or replace short wire.