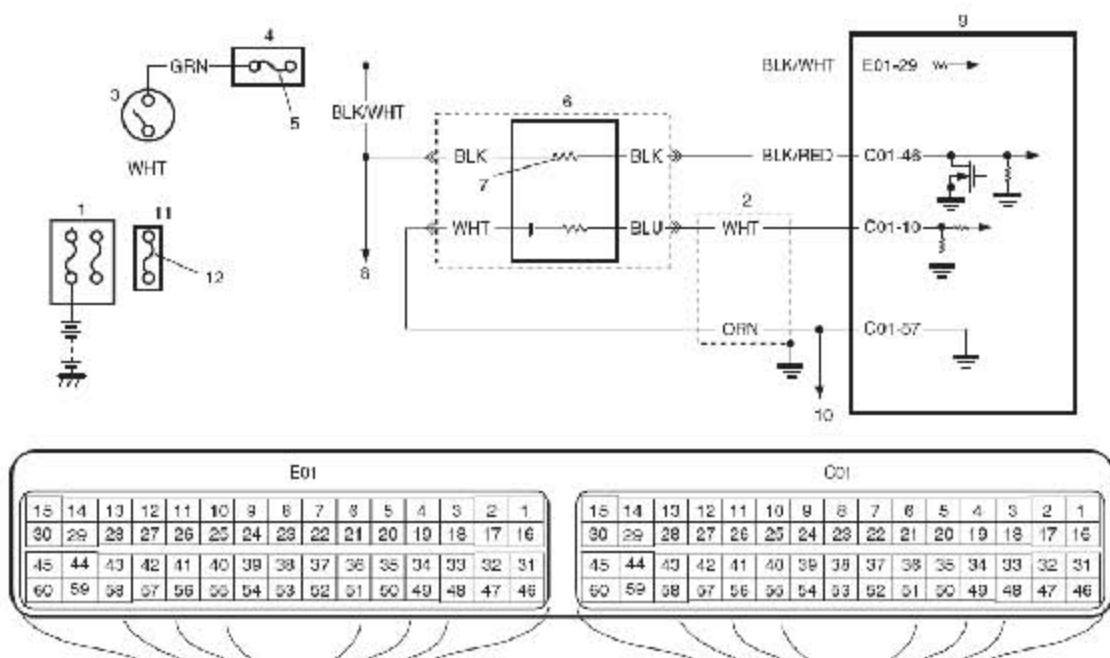


P0031 / P0032: HO2S Heater Control Circuit Low / High (Sensor-1)



1. Main fuse box	4. Junction block assembly	7. Heater	10. To HO2S-2
2. Shield wire	5. "IG COIL" fuse	8. To HO2S-2 heater	11. Individual circuit fuse box No.1
3. Ignition switch	6. HO2S-1	9. ECM	12. "IGN" fuse

DTC Detecting Condition and Trouble Area

DTC detecting condition	Trouble area
Voltage of HO2S-1 heater is more than specified value or lower than specified value for 5 seconds even through its control duty ratio is within 25 – 75%. (2 driving cycle detection logic)	<ul style="list-style-type: none"> • HO2S-1 heater circuit • HO2S-1 heater • ECM

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. or more.
- 5) Check DTC and pending DTC.

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".
2	HO2S-1 heater power circuit check 1) Disconnect connector from HO2S-1 with ignition switch turned OFF. 2) Check for proper connection to HO2S-1 at "BLK/WHT" and "BLK/RED" wire terminals. 3) If wire and connection are OK, measure voltage between "BLK/WHT" wire terminal and engine ground with ignition switch turned ON. Is voltage over 10 V?	Go to Step 3.	"BLK/WHT" wire is open circuit or shorted to ground circuit.
3	HO2S-1 heater power circuit check 1) Disconnect connectors from ECM with ignition switch turned OFF. 2) Measure resistance between "BLK/WHT" wire terminal of HO2S-1 connector and "E01-29" terminal of ECM connector. Is resistance below 5 Ω ?	Go to Step 4.	"BLK/WHT" wire is high resistance circuit.
4	HO2S-1 heater drive circuit check 1) Measure resistance between "C01-46" terminal of ECM connector and vehicle body ground. Is resistance infinity?	Go to Step 5.	"BLK/RED" wire is shorted to ground circuit.

Step	Action	Yes	No
5	HO2S-1 heater drive circuit check 1) Turn ON ignition switch. 2) Measure voltage between "C01-46" terminal of ECM connector and vehicle body ground. Is voltage 0 V?	Go to Step 6.	"BLK/RED" wire is shorted to power circuit.
6	HO2S-1 heater drive circuit check 1) Connect connector to HO2S-1 with ignition switch turned OFF. 2) Turn ON ignition switch. 3) Measure voltage between "C01-46" terminal of ECM connector and vehicle body ground with connector disconnected from ECM. Is voltage over 10 V?	Go to Step 7.	"BLK/RED" wire is open circuit.
7	HO2S-1 heater check 1) Disconnect HO2S-1 connector with ignition switch turned OFF. 2) Check HO2S-1 heater resistance referring to "Heated Oxygen Sensor (HO2S-1 and HO2S-2) Heater On-Vehicle Inspection (If Equipped) in Section 1C". Is resistance within specified value range?	Go to Step 8.	Replace HO2S-1.
8	HO2S-1 heater power circuit check 1) Connect connector to HO2S-1 with ignition switch turned OFF. 2) Measure resistance between "E01-29" and "C01-46" terminals of ECM connector. Is resistance below 12 Ω ?	HO2S-1 heater circuit is OK. Substitute a known-good ECM and recheck.	"BLK/WHT", "BLK/RED" and / or "BLK" wire is high resistance circuit.