

2006 Hyundai Truck Tucson V6-2.7L

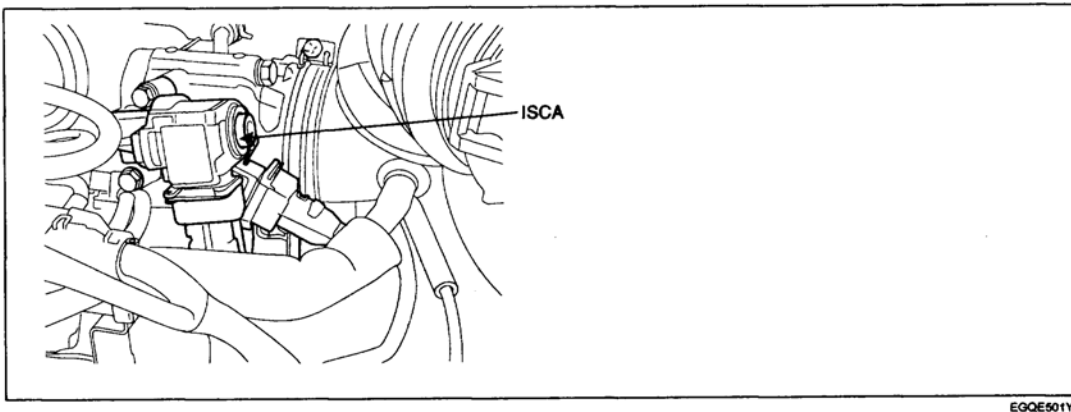
Vehicle > ALL Diagnostic Trouble Codes (DTC) > Testing and Inspection > P Code Charts

P1507

DTC P1507 IDLE CHARGE ACTUATOR SIGNAL LOW OF COIL #2

Component Location

COMPONENT LOCATION EA6BE468



GENERAL DESCRIPTION

The Idle Speed Control Actuator (ISCA) is installed on the intake manifold and controls the intake airflow that is bypassed around the throttle plate to keep constant engine speed when the throttle valve is dosed. The function of the ISCA is to maintain idle speed according to various engine loads and conditions, and also to provide additional air during starting. The ISCA consists of an opening coil, a dosing coil, and a permanent magnet. Based on information from various sensor, the ECM controls both coils by grounding their control circuits. According to the control signals from the ECM, the valve rotor rotates to control the by pass airflow into the engine.

DTC DESCRIPTION

ECM sets DTC P1507 if the ECM detects that the ISCA(OPEN) control circuit is open or short to ground.

DTC Detecting Condition

DTC DETECTING CONDITION E20FEDE0

ITEM	DETECTING CONDITION	POSSIBLE CAUSE
DTC Strategy	● Driver stage check	● Open or short to ground in power supply circuit of the ISCA ● Open or short to ground in power supply circuit of the main relay ● Contact resistance in connectors ● ISCA
Enable Conditions	● Battery voltage >10V	
Threshold Value	● Open or short to ground	
Diagnostic Time	● 0.5 sec.	

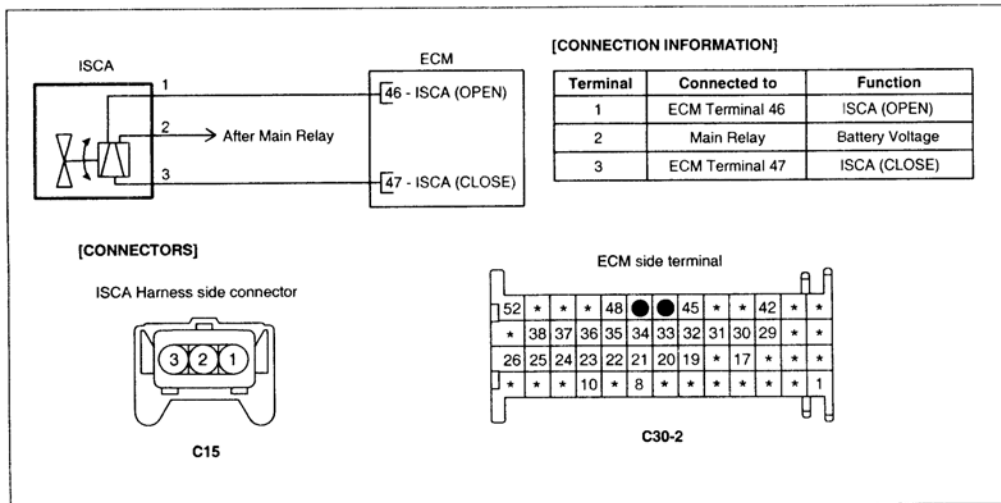
Specification

SPECIFICATION ED8247A1

SPECIFICATION	
Opening Coil	Closing Coil
15~16.2Ω	17~18.2 Ω

Signal Waveform

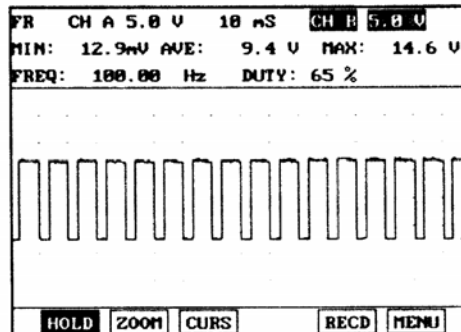
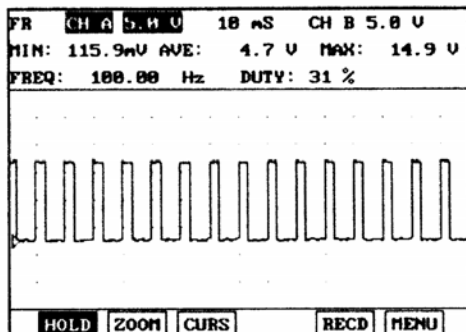
SIGNAL WAVEFORM EFBB9E89



A150510

Signal Waveform

SIGNAL WAVEFORM E05D712A

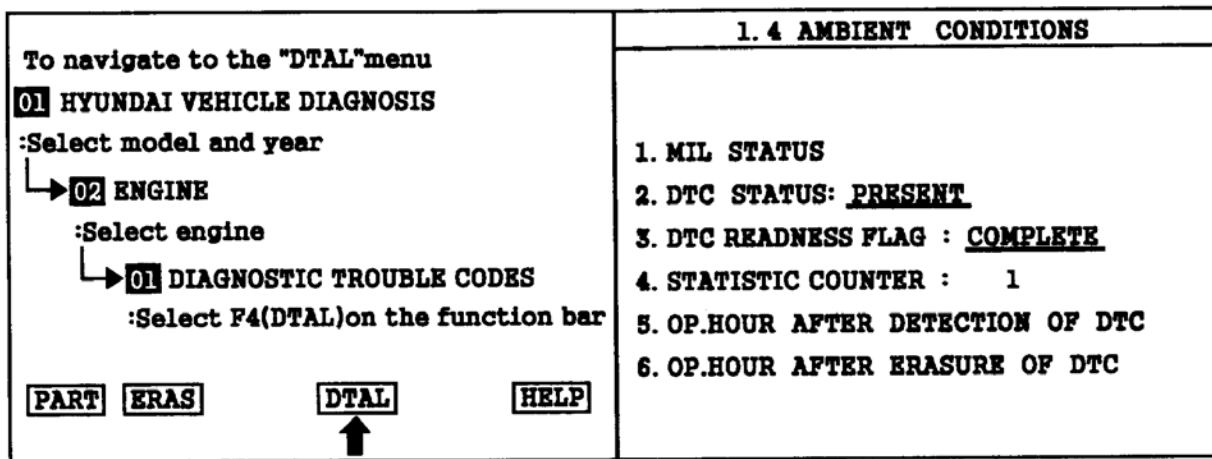


SIGNAL WAVEFORM

The above waveforms are the voltage signals generated when the ISCA operates. This ISCA is a duty type and the time opened determines the duty amount. The left side is the waveform of the ISCA Opening coil during idle. The right side is the waveform of the ISCA Closing coil during idle.

MONITOR DTC STATUS

1. Connect scan tool and select "Diagnostic Trouble Codes(DTCs)" mode.
2. Press F4(DTAL) to select DTC information from the DTCs menu.
3. Confirm that "DTC Readiness Flag" indicates "Complete". If not, drive the vehicle within conditions noted in the freeze frame data or enable conditions



4. Read "DTC Status" parameter.
5. Is parameter displayed "History(Not Present) fault"?
 - History (Not Present) fault: DTC occurred but has been cleared.
 - Present fault: DTC is occurring at present time.

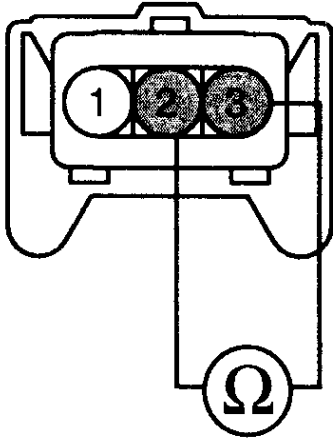
YES: Fault is intermittent caused by poor contact in the sensor's and/or ECM's connector or was repaired and ECM memory was not cleared. Thoroughly check connectors for loose or poor connections, bending, corrosion, contamination, deterioration, or damage. Repair or replace as necessary and go to "Verification of Vehicle Repair" procedure.

NO: Go to "Component Inspection" procedure.

COMPONENT INSPECTION

1. Ignition "OFF".
2. Disconnect ISCA connector.

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1. ISCA(Opening)
2. Battery Voltage
3. ISCA (Closing)

3. Measure resistance between terminals 2 and 3 of the actuator connector(Component side).

Specification : **17-18.2 Ohms**

4. Is resistance within the specification?

YES: Go to next step as below.

NO: Check ISCA for contamination, deterioration, or damage. Substitute with a known-good ISCA and check for proper operation. If the problem is corrected, replace ISCA and then go to "Verification of Vehicle Repair" procedure.

TERMINAL AND CONNECTOR INSPECTION

1. Many malfunctions in the electrical system are caused by poor harness(es) and terminals. Faults can also be caused by interference from other electrical systems, and mechanical or chemical damage.
2. Thoroughly check connectors for looseness, poor connection, bending, corrosion, contamination, deterioration, or damage.
3. Has a problem been found?

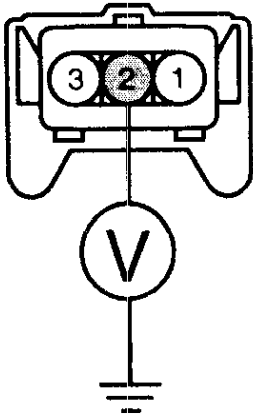
YES: Repair as necessary and go to "Verification of Vehicle Repair" procedure.

NO: Go to "Power Supply Circuit Inspection" procedure.

POWER SUPPLY CIRCUIT INSPECTION

1. Ignition "OFF".
2. Disconnect ISCA connector.
3. Ignition "ON" & Engine "OFF".

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1. ISCA(Opening)
2. Battery Voltage
3. ISCA (Closing)

4. Measure voltage between terminal 2 of the ISCA harness connector and chassis ground.

Specification : Approx. B+

5. Is voltage within the specification?

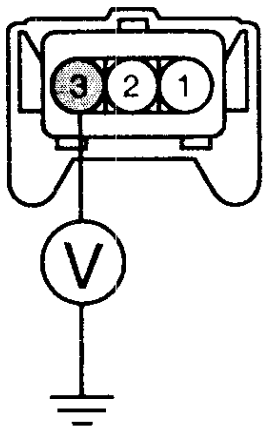
YES: Go to "Signal Circuit Inspection" procedure.

NO: Check for an open or short to ground in the power supply circuit between the ISCA and fuel pump relay.
Repair as necessary and go to "Verification of Vehicle Repair" procedure

SIGNAL CIRCUIT INSPECTION

1. Ignition "ON" & Engine "OFF".

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1. ISCA(Opening)
2. Battery Voltage
3. ISCA (Closing)

2. Measure voltage between terminal 3 of the ISCA harness connector and chassis ground.

Specification : Approx. **0.5-0.6 V**

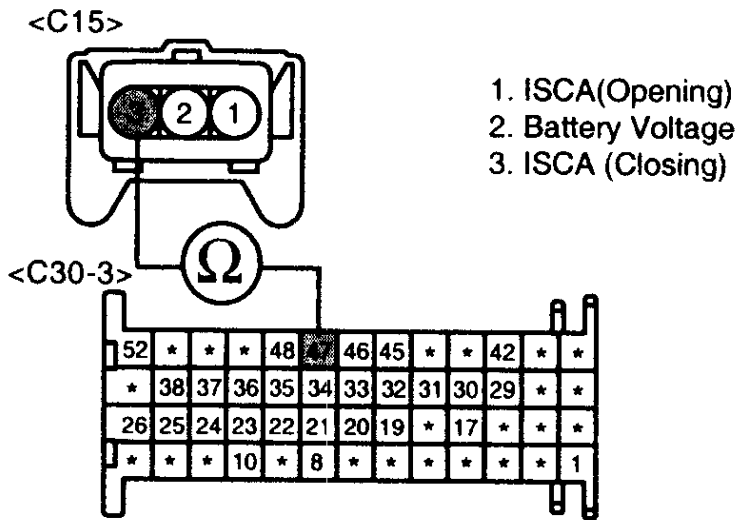
3. Is voltage within the specification?

YES: Thoroughly check connectors for loose or poor connections, bending, corrosion, contamination, deterioration, or damage Repair or replace as necessary and go to "Verification of Vehicle Repair" procedure

NO: Go to next step as below.

4. Check for open in signal harness

1. Ignition "OFF".



2. Measure resistance between terminals 3 of the ISCA harness connector and 47 of the ECM harness connector.

Specification : Approx. **0 Ohm**

3. Is resistance within the specification?

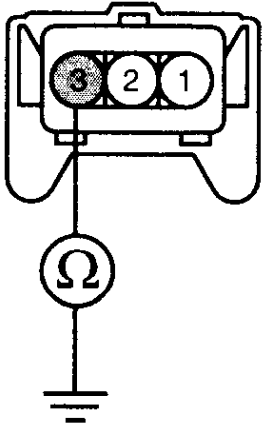
YES: Go to next step as below.

NO: Repair as necessary and go to "Verification of Vehicle Repair" procedure.

5. Check for short to ground in signal harness.

1. Ignition "OFF".

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1. ISCA(Opening)
2. Battery Voltage
3. ISCA (Closing)

2. Measure resistance between terminal 3 of the ISCA harness connector and chassis ground.

Specification : Infinite

3. Is resistance within the specification?

YES: Check for poor connection between ECM and component, backed out terminal, improper mating, broken locks or poor terminal to wire connection. Repair as necessary and go to "Verification of Vehicle Repair" procedure

NO: Repair open or short in harness and go to "Verification of Vehicle Repair" procedure.

VERIFICATION OF VEHICLE REPAIR

After a repair, it is essential to verify that the fault has been corrected.

1. Connect scan tool and select "Diagnostic Trouble Codes(DTCs)" mode.
2. Press F4(DTAL) and confirm that "DTC Readiness Flag" indicates "Complete". If not, drive the vehicle within conditions noted in the freeze frame data or enable conditions.
3. Read "DTC Status" parameter.
4. Is parameter displayed "History(Not Present) fault"?

YES: System performing to specification at this time. Clear the DTC

NO: Go to the applicable troubleshooting procedure.