DU: Intake Air Temperature 2 (IAT2) Sensor

DU: Introduction

DU1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

Are DTCs P0097, P0098, P0127, P1114, or P1115 present?

Yes	No
For DTCs P0097 or P1114, GO to DU4. For DTCs P0098 or P1115, GO to DU2. For DTC P0127, GO to DU6.	For all others, GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions.

DU2 CHECK FOR AN OPPOSITE SIGNAL TO THE PCM

- The DTC indicates the sensor signal is greater than the self-test maximum.
- IAT2 Sensor connector disconnected.
- Ignition ON, engine OFF.
- Connect a 5 amp fused jumper wire between the following:

Point A IAT2 Sensor Connector, Harness Side	Point B IAT2 Sensor Connector, Harness Side
IAT2 - Pin 1	SIGRTN - Pin 2

- Access the PCM and monitor the IAT2 PID.

Is the voltage less than 0.2 V?

Yes	No
INSTALL a new IAT2 sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.	GO to DU3.

DU3 CHECK THE SENSOR SIGNAL FOR A SHORT TO VREF

- Ignition OFF.
- Remove the jumper wire(s).
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) PCM Connector, Harness Side
IAT2 - Pin E27	VREF - Pin B40, E57

Is the resistance greater than 10K ohms?

Yes	No
GO to DU10.	REPAIR the short circuit to VREF. CLEAR the

	DTCs. REPEAT the self-test.

DU4 DTC P1114: SIMULATE AN OPPOSITE SIGNAL TO THE PCM

- The DTC indicates the sensor signal is less than the self-test minimum.
- IAT2 Sensor connector disconnected.
- Ignition ON, engine OFF.
- Access the PCM and monitor the IAT2 PID.

Is the voltage greater than 4.2 V?

Yes	No
INSTALL a new IAT2 sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.	GO to DU5 .

DU5 CHECK THE SENSOR SIGNAL FOR A SHORT TO GROUND

- Ignition OFF.
- PCM connector disconnected.
- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) PCM Connector, Harness Side
IAT2 - Pin E27	SIGRTN - Pin B41, E58, T41

- Measure the resistance between:

(+) PCM Connector, Harness Side	(-) 12 Volt Vehicle Battery
IAT2 - Pin E27	Negative terminal

Is the resistance greater than 10K ohms?

Yes	No
GO to DU10 .	REPAIR the short circuit. CLEAR the DTCs. REPEAT the self-test.

DU6 DTC P0127: CHECK CHARGE AIR COOLER PUMP (CAC) OPERATION

- Enter output test mode. Refer to Section 2, Output Test Mode (OTM) .
- Command the outputs ON.
- Command the outputs OFF.
- Exit output test mode.

Does the CAC pump run?

Yes	No
GO to DU7 .	DIAGNOSE the CAC pump. GO to KP9 .

DU7 CHECK THE CHARGE AIR COOLER (CAC) SYSTEM

- Check the CAC system for low fluid level, cracked, blocked or misrouted coolant lines, cracked or blocked heat exchanger.

Is a concern present?

Yes	No
REFER to the Workshop Manual Section 303-03B, Supercharger Cooling, to DIAGNOSE a loss of coolant. REPAIR as necessary. CLEAR the DTCs. REPEAT the self-test.	GO to DU8 .

DU8 SIMULATE THE HIGH IAT2 SIGNAL TO THE PCM

- Ignition ON, engine OFF.
- Access the PCM and monitor the IAT2 PID.
- Observe the PID while disconnecting the IAT2 sensor.

Is the voltage greater than 4.2 V?

Yes	No
GO to DU9 .	GO to DU10 .

DU9 SIMULATE THE LOW IAT2 SIGNAL TO THE PCM

- Ignition OFF.
- IAT2 Sensor connector disconnected.
- Connect a 5 amp fused jumper wire between the following:

Point A IAT2 Sensor Connector, Harness Side	Point B IAT2 Sensor Connector, Harness Side
IAT2 - Pin 1	SIGRTN - Pin 2

- Ignition ON, engine OFF.
- Access the PCM and monitor the IAT2 PID.

Is the voltage less than 0.2 V?

Yes	No
CONNECT the sensor and GO to Section 6 , Reference Values. COMPARE the IAT2 PID to reference values under different road test conditions. If the sensor is not in range, INSTALL a new IAT2 sensor. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls. CLEAR the DTCs. REPEAT the self-test.	GO to DU10 .

DU10 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
  - pushed out pins
  - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test and verify the concern is still present.

Is the concern still present?

Yes	No
INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) , Programming the VID Block for a Replacement PCM.	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.