Service Bulletin

Mazda North American Operations
Irvine, CA 92618-2922

Subject:	**Bulletin No:** 01-025/13
MIL ON WITH DTC P0139	**Last Issued:** 08/22/2013

APPLICABLE MODEL(S)/VINS

2010 Mazda5

DESCRIPTION

Some vehicles may experience the MIL on with DTC P0139 (HO2S circuit malfunction) stored in PCM memory.

The PCM:

1. Monitors for a time-out malfunction (when HO2S remains above 0.2V for longer than a specified period of time during fuel cut control).
2. Measures the amount of time from when conditions are met until HO2S output voltage drops below 0.2V.
3. Determines a HO2S timeout malfunction when the detected time is more than 4 seconds for 2 of 3 times.

This may be caused by carbon forming inside the Electric Throttle Body (ETB) which:

1. Reduces the air intake amount during deceleration (with fuel cut).
2. Allows fuel to remain around the HO2S.
3. Causes detection of P0139 (HO2S time-out fail).

Customers having this concern should have their vehicle repaired using the following repair procedure.

REPAIR PROCEDURE

1. Verify customer concern.
2. Perform the following Diagnosis Procedure to determine if P0139 is caused by carbon accumulation in the throttle body. If the diagnosis results indicate carbon accumulation, clean the throttle body according to the following Cleaning Procedure.

   NOTE: If the engine idle speed drops, DTC P0841 (malfunction within the ATF pressure circuit) may be detected. If this happens, clear the DTC. Since the A/T oil pump speed drops if the engine idle speed drops, the ATF pressure decrease causes the DTC detection.
3. Repeat steps 3 and 4 of the Diagnosis Procedure to confirm the engine idle condition when the “test mode” is ON.

4. After cleaning the throttle body, make sure to perform ETB and idle learnings.

   NOTE: The learnings are reset if the “test mode” is on.

   a. ETB Learning

      Repeat the ignition ON and OFF 3-5 times as follows:
      Ignition ON (no engine start) for 15 seconds -> <- Ignition OFF for 15 seconds.

      NOTE: This is to let the PCM learn the throttle valve fully closed position.

   b. Idle Learning

      1) Warm up the engine until the cooling fan starts (engine coolant temperature is 90 °C (194°F) or more).
      2) Keep the engine at idle for more than one minute at each of the following modes:

1	N-range (Neutral) + No loads (no A/C and no electrical loads)
2	N-range (Neutral) + Electrical loads (Headlights and rear defroster on)
3	N-range (Neutral) + A/C on
4	N-range (Neutral) + A/C on and Electrical loads (Headlights and rear defroster on)
5	D-range (for A/T) + No loads (no A/C and no electrical loads)
6	D-range (for A/T) + Electrical loads (Headlights and rear defroster on)
7	D-range (for A/T) + A/C on
8	D-range (for A/T) + A/C on and Electrical loads (Headlights and rear defroster on)

5. Verify repair. Confirm that the engine idle is stable and within the specification. If not, inspect according to the Workshop Manual.

Diagnosis Procedure for P0139 (HO2S time-out fail) using M-MDS

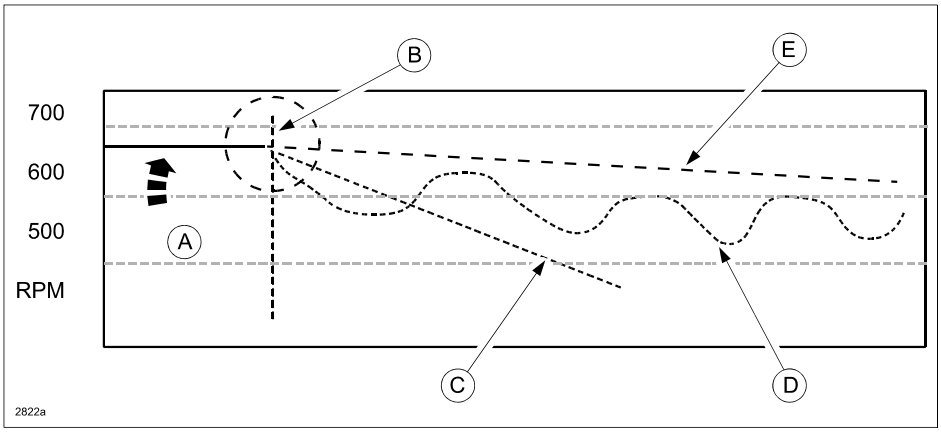
1. Connect the M-MDS (IDS) to the DLC-2.
2. After the vehicle is identified, select the following items from the initialization screen of the IDS.
   a. Select “DataLogger.”
   b. Select “Modules.”
   c. Select “PCM.”

3. Select the following simulation items from the PID table, then select tick.

ARPMDES	Target engine speed		ECT	Engine coolant temperature
EQ RAT11	A/F sensor		LOAD	Absolute engine load
MAF	Mass airflow sensor		MAP	Manifold absolute pressure
RPM	Engine speed		SPARKADV	Ignition timing
Test	Test mode		TP1	Throttle valve position No. 1
TP2	Part Name			

4. Warm up the engine (engine coolant temperature is 85 °C (185°F) or more), and leave it at idle with no load applied (in Park or Neutral with A/C, P/S, and all electrical loads off).
5. Keep a record of the engine idle speed when the “test mode” is ON for 15 seconds and then when the “test mode” is OFF without a break. Capture the data as a session file.
6. Check the engine idle condition when the “test mode” is ON.
   Idle speed: 650-750 rpm
   - The engine speed drops for more than 100 rpm, or the engine speed is unstable and flunctuates between 500-700 rpm -> The concern is caused by carbon accumulation in the throttle body. Clean the throttle body according to the following procedure.
   - The engine speed is stable within the specification -> The concern is not caused by carbon accumulation in the throttle body. Diagnosis for other concerns according to the Workshop Manual.

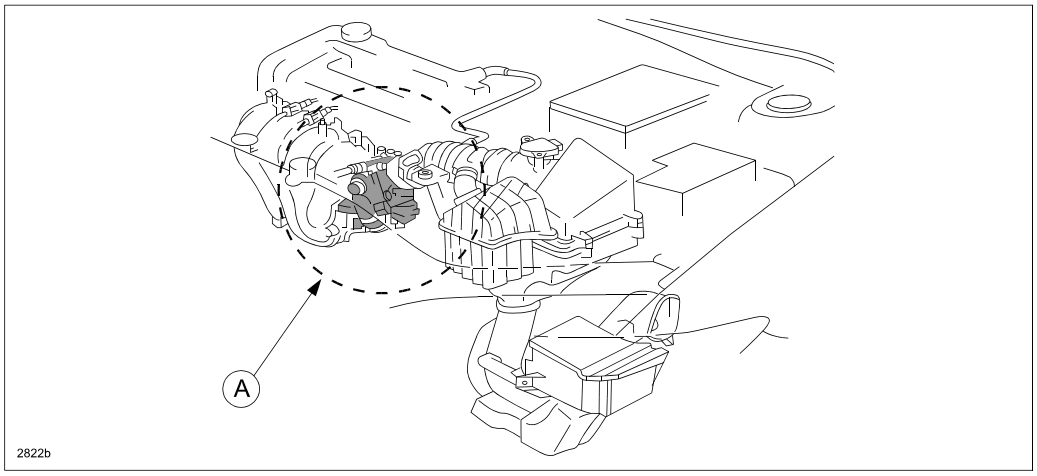
   Chart for making decision of carbon accumulation in the throttle body.



A	Engine at idle (warmed-up with no loads)
B	Start of test mode
C	Sample 1: No Good - RPM decreases
D	Sample 2: No Good - RPM is unstable
E	Sample 3: Good - RPM is within spec

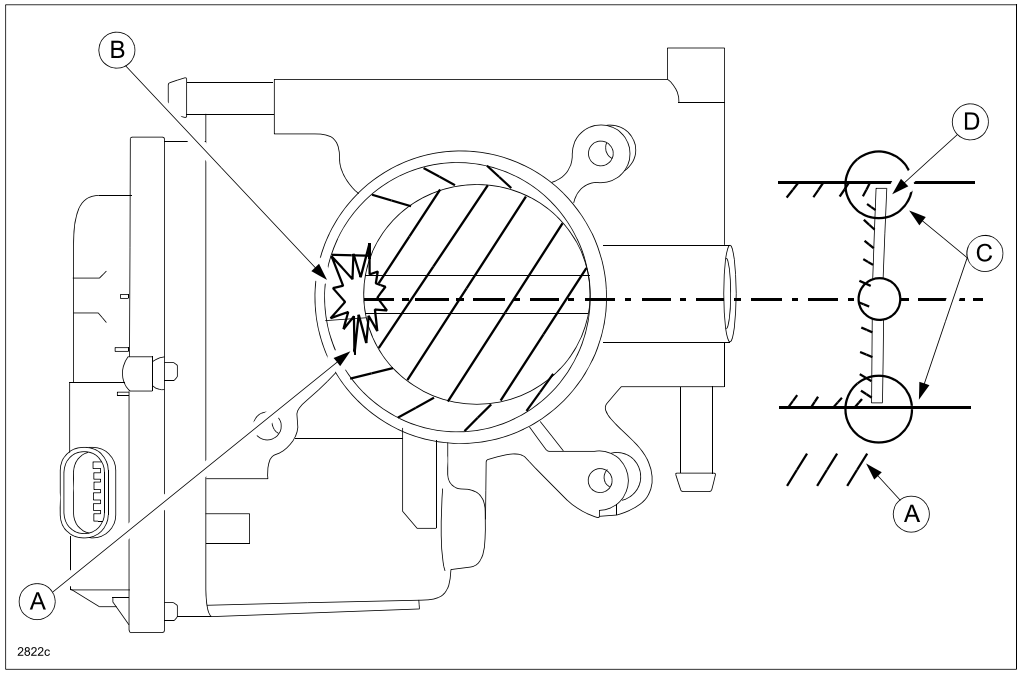
Cleaning Procedure to clean carbon off the throttle body

1. Remove the intake air duct.
2. Disconnect the connector (without removing the water hose).
3. Remove the throttle body (A) from the intake manifold.



4. Spray carbon blaster on a clean soft cloth and wipe the area indicated (A = area to clean). Carbon accumulates at the edges (C) of the throttle valve (D).

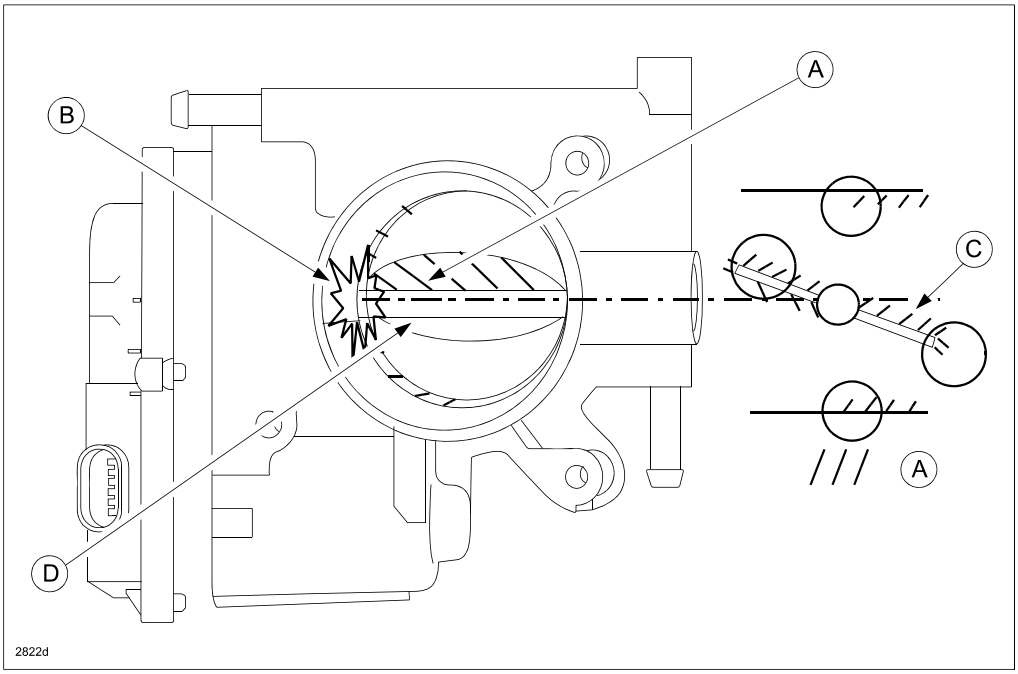
   CAUTION: DO NOT spray carbon blaster directly on the throttle body valve shaft (B). The rubber part at the throttle body shaft bearing will be damaged if it is exposed to the carbon blaster.



5. Turn over the throttle body.
6. Clean the lower stream side of the throttle body.

7. Open the throttle valve (C) to clean. Spray carbon blaster on a clean soft cloth and wipe the area indicated (A = area to clean).

   CAUTION:
   - DO NOT spray carbon blaster directly on the throttle body valve shaft (B). The rubber part at the throttle body shaft bearing will be damaged if it is exposed to the carbon blaster.
   - Be careful to not pinch your fingers with the throttle valve as it returns by spring force (D).



8. Install the removed parts in the reverse order.

   NOTE: Use new gaskets as they cannot be re-used.

PART(S) INFORMATION

Part Number	Description	Qty.	Notes
L3G2-13-655	Throttle Body Gasket	1	Replacement parts.
0000-77-A86	Engine Cleaner (Carbon Blaster)	1	Quantity 1 = 1 can of engine cleaner when ordered through eMDCS.

WARRANTY INFORMATION

NOTE:

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under Mazda's New Vehicle Warranty term. It will also be covered under CA Emissions Warranty, where applicable.
- Additional diagnostic time cannot be claimed for this repair.

Warranty Type	A
Symptom Code	6X
Damage Code	93
DTC	P0139
Part Number Main Cause	7777-SP-J14
Quantity	0
Operation Number / Labor Hours:	XXJADXRX / 1.0 Hrs.