

2012 - Mazda6 - Engine

NO.10 LOW IDLE/ STALLS DURING DECELERATION [MZR 2.5]

10	LOW IDLE/STALLS DURING DECELERATION
DESCRIPTION	• Engine stops unexpectedly at beginning of deceleration or recovery from deceleration.
POSSIBLE CAUSE	• ECT sensor malfunction • Improper operation of magnetic clutch • Vacuum leakage • Air leakage from intake air system • Engine mount looseness • PCM DTC is stored. • Improper operation of drive-by-wire control system • Improper operation of EVAP control system • Erratic signal to PCM ▪ APP sensor malfunction ▪ TP sensor malfunction ▪ MAF sensor malfunction ▪ VSS malfunction • Improper load signal input ▪ Refrigerant pressure sensor malfunction ▪ Evaporator temperature sensor malfunction ▪ Climate control unit malfunction ▪ Communication error between climate control unit and instrument cluster ▪ Communication error between instrument cluster and PCM ▪ CPP switch malfunction (MTX) ▪ Neutral switch malfunction (MTX)

- TR switch malfunction (ATX)
- Communication error between TCM and PCM (ATX)

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	VERIFY IF MALFUNCTION INCLUDES ROUGH IDLING • Does the engine idle roughly?	Yes	Go to the symptom troubleshooting "NO.8 ENGINE RUNS ROUGH/ROLLING IDLE". (See NO.8 ENGINE RUNS ROUGH/ ROLLING IDLE [MZR 2.5] .)
		No	Go to the next step.
2	DETERMINE IF MALFUNCTION CAUSE IS A/ C SYSTEM OR OTHER • Turn off the A/C switch and fan switch. • Does the magnetic clutch engage?	Yes	Go to the symptom troubleshooting "NO.24 A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY." (See NO.24 A/ C IS ALWAYS ON OR A/ C COMPRESSOR RUNS CONTINUOUSLY [MZR 2.5] .)
		No	Go to the next step.
3	INSPECT RELATED PART CONDITION • Verify the following: ▪ Proper routing of and no damage to the vacuum lines ▪ No air leakage from the intake air system • Are all items normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results. Repeat Step 3.
4	VERIFY PCM DTC • Retrieve any DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5] .) • Are there any DTCs	Yes	Go to the appropriate DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	Go to the next step.

	displayed?		
5	INSPECT DRIVE-BY-WIRE CONTROL SYSTEM OPERATION - Perform the drive-by-wire control system operation inspection. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [MZR 2.5].) - Does the drive-by-wire control system function properly?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results.
6	DETERMINE IF MALFUNCTION CAUSE IS EVAP CONTROL SYSTEM OR OTHER CAUTION: - While performing this step, always operate the vehicle in a safe and lawful manner. - Disconnect the vacuum hose between purge solenoid valve and intake manifold from the purge solenoid valve side. - Plug the open end of the vacuum hose. - Drive the vehicle. - Does the engine condition improve?	Yes	Inspect the EVAP control system. Repair or replace the malfunctioning part according to the inspection results.
		No	Go to the next step.
7	VERIFY CURRENT INPUT SIGNAL STATUS CAUTION: - While performing this step, always operate the vehicle in a safe and lawful manner. - When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD capturing	Yes	Go to the next step.
		No	APP1, APP2 PIDs are not specified: - Inspect if the output signal APP sensor changes smoothly. (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [MZR 2.5].) TP REL PID is not specified: - Inspect if the output signal TP sensor changes smoothly. (See THROTTLE POSITION (TP) SENSOR INSPECTION [MZR 2.5].)

	function and inspect later. - Access the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) ▪ APP1 ▪ APP2 ▪ TP REL ▪ MAF ▪ VSS - Do the PIDs indicate correct values under the trouble condition? (See PCM INSPECTION [MZR 2.5].)		MAF PID is not specified: - Inspect for an intermittent open circuit of MAF sensor and the related wiring harness. (See MASS AIR FLOW (MAF) SENSOR INSPECTION [MZR 2.5].) VSS PID is not specified: - Inspect for an intermittent open circuit in the VSS and related wiring harness. (See VEHICLE SPEED SENSOR (VSS) INSPECTION [FS5A-EL].) Repair or replace the malfunctioning part according to the inspection result.
8	VERIFY CURRENT INPUT SIGNAL STATUS - Access and monitor the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) ▪ AC_REQ ▪ COLP ▪ CPP (MTX) ▪ CPP/PNP (MTX) ▪ TR (ATX) - Are all PID values normal? (See PCM INSPECTION [MZR 2.5].)	Yes	MTX: - Go to the next step. ATX: - Inspect the TCC operation. (See NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEEDS OR STOPPING [FS5A-EL].)
		No	AC_REQ PID is not specified: - Inspect the following: - A/C switch, evaporator temperature sensor and fan switch (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER].) (See EVAPORATOR TEMPERATURE SENSOR

**INSPECTION
[MANUAL AIR
CONDITIONER] .)**

- Communication between climate control unit and instrument cluster (Full-auto air conditioner)
- Communication between instrument cluster and PCM
- Short to ground in wiring harness between instrument cluster terminal 1A and climate control unit terminal 1L (Manual air conditioner)

COLP PID is not specified:

- Inspect the refrigerant pressure sensor.

(See **REFRIGERANT PRESSURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER] .)**

(See **REFRIGERANT PRESSURE SENSOR INSPECTION [MANUAL AIR CONDITIONER] .)**

CPP PID is not specified:

- Inspect the CPP switch (MTX).

(See **CLUTCH PEDAL POSITION (CPP) SWITCH INSPECTION [MZR 2.5] .)**

CPP/ PNP PID:

- Inspect the neutral switch (MTX).

(See **NEUTRAL SWITCH INSPECTION [MZR 2.5] .)**

TR PID:

			Inspect the TR switch (ATX). (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [FS5A-EL] .) Repair or replace the malfunctioning part according to the inspection results.
9	• Verify test results. ▪ If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [MZR 2.5] .) ▪ If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. • If vehicle is repaired, troubleshooting completed. • If vehicle is not repaired or additional diagnostic information is not available, reprogram the PCM if a later calibration is available. Retest.		

2012 - Mazda6 - Engine

NO.10 LOW IDLE/ STALLS DURING DECELERATION [MZR 2.5]

10	LOW IDLE/STALLS DURING DECELERATION
DESCRIPTION	• Engine stops unexpectedly at beginning of deceleration or recovery from deceleration.
POSSIBLE CAUSE	• ECT sensor malfunction • Improper operation of magnetic clutch • Vacuum leakage • Air leakage from intake air system • Engine mount looseness • PCM DTC is stored. • Improper operation of drive-by-wire control system • Improper operation of EVAP control system • Erratic signal to PCM ▪ APP sensor malfunction ▪ TP sensor malfunction ▪ MAF sensor malfunction ▪ VSS malfunction • Improper load signal input ▪ Refrigerant pressure sensor malfunction ▪ Evaporator temperature sensor malfunction ▪ Climate control unit malfunction ▪ Communication error between climate control unit and instrument cluster ▪ Communication error between instrument cluster and PCM ▪ CPP switch malfunction (MTX) ▪ Neutral switch malfunction (MTX)

- TR switch malfunction (ATX)
- Communication error between TCM and PCM (ATX)

Diagnostic procedure

STEP	INSPECTION	RESULTS	ACTION
1	VERIFY IF MALFUNCTION INCLUDES ROUGH IDLING • Does the engine idle roughly?	Yes	Go to the symptom troubleshooting "NO.8 ENGINE RUNS ROUGH/ROLLING IDLE". (See NO.8 ENGINE RUNS ROUGH/ ROLLING IDLE [MZR 2.5] .)
		No	Go to the next step.
2	DETERMINE IF MALFUNCTION CAUSE IS A/ C SYSTEM OR OTHER • Turn off the A/C switch and fan switch. • Does the magnetic clutch engage?	Yes	Go to the symptom troubleshooting "NO.24 A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY." (See NO.24 A/ C IS ALWAYS ON OR A/ C COMPRESSOR RUNS CONTINUOUSLY [MZR 2.5] .)
		No	Go to the next step.
3	INSPECT RELATED PART CONDITION • Verify the following: ▪ Proper routing of and no damage to the vacuum lines ▪ No air leakage from the intake air system • Are all items normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results. Repeat Step 3.
4	VERIFY PCM DTC • Retrieve any DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5] .) • Are there any DTCs	Yes	Go to the appropriate DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	Go to the next step.

	displayed?		
5	INSPECT DRIVE-BY-WIRE CONTROL SYSTEM OPERATION - Perform the drive-by-wire control system operation inspection. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [MZR 2.5].) - Does the drive-by-wire control system function properly?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results.
6	DETERMINE IF MALFUNCTION CAUSE IS EVAP CONTROL SYSTEM OR OTHER CAUTION: - While performing this step, always operate the vehicle in a safe and lawful manner. - Disconnect the vacuum hose between purge solenoid valve and intake manifold from the purge solenoid valve side. - Plug the open end of the vacuum hose. - Drive the vehicle. - Does the engine condition improve?	Yes	Inspect the EVAP control system. Repair or replace the malfunctioning part according to the inspection results.
		No	Go to the next step.
7	VERIFY CURRENT INPUT SIGNAL STATUS CAUTION: - While performing this step, always operate the vehicle in a safe and lawful manner. - When the M-MDS is used to observe monitor system status while driving, be sure to have another technician with you, or record the data in the M-MDS using the PID/DATA MONITOR AND RECORD capturing	Yes	Go to the next step.
		No	APP1, APP2 PIDs are not specified: - Inspect if the output signal APP sensor changes smoothly. (See ACCELERATOR PEDAL POSITION (APP) SENSOR INSPECTION [MZR 2.5].) TP REL PID is not specified: - Inspect if the output signal TP sensor changes smoothly. (See THROTTLE POSITION (TP) SENSOR INSPECTION [MZR 2.5].)

	function and inspect later. - Access the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) ▪ APP1 ▪ APP2 ▪ TP REL ▪ MAF ▪ VSS - Do the PIDs indicate correct values under the trouble condition? (See PCM INSPECTION [MZR 2.5].)		MAF PID is not specified: - Inspect for an intermittent open circuit of MAF sensor and the related wiring harness. (See MASS AIR FLOW (MAF) SENSOR INSPECTION [MZR 2.5].) VSS PID is not specified: - Inspect for an intermittent open circuit in the VSS and related wiring harness. (See VEHICLE SPEED SENSOR (VSS) INSPECTION [FS5A-EL].) Repair or replace the malfunctioning part according to the inspection result.
8	VERIFY CURRENT INPUT SIGNAL STATUS - Access and monitor the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) ▪ AC_REQ ▪ COLP ▪ CPP (MTX) ▪ CPP/PNP (MTX) ▪ TR (ATX) - Are all PID values normal? (See PCM INSPECTION [MZR 2.5].)	Yes	MTX: - Go to the next step. ATX: - Inspect the TCC operation. (See NO.25 ENGINE STALLS WHEN DRIVING AT SLOW SPEEDS OR STOPPING [FS5A-EL].)
		No	AC_REQ PID is not specified: - Inspect the following: - A/C switch, evaporator temperature sensor and fan switch (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER].) (See EVAPORATOR TEMPERATURE SENSOR

**INSPECTION
[MANUAL AIR
CONDITIONER] .)**

- Communication between climate control unit and instrument cluster (Full-auto air conditioner)
- Communication between instrument cluster and PCM
- Short to ground in wiring harness between instrument cluster terminal 1A and climate control unit terminal 1L (Manual air conditioner)

COLP PID is not specified:

- Inspect the refrigerant pressure sensor.

(See **REFRIGERANT PRESSURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER] .)**

(See **REFRIGERANT PRESSURE SENSOR INSPECTION [MANUAL AIR CONDITIONER] .)**

CPP PID is not specified:

- Inspect the CPP switch (MTX).

(See **CLUTCH PEDAL POSITION (CPP) SWITCH INSPECTION [MZR 2.5] .)**

CPP/ PNP PID:

- Inspect the neutral switch (MTX).

(See **NEUTRAL SWITCH INSPECTION [MZR 2.5] .)**

TR PID:

			Inspect the TR switch (ATX). (See TRANSAXLE RANGE (TR) SWITCH INSPECTION [FS5A-EL] .) Repair or replace the malfunctioning part according to the inspection results.
9	• Verify test results. ▪ If normal, return to diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [MZR 2.5] .) ▪ If malfunction remains, inspect related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. • If vehicle is repaired, troubleshooting completed. • If vehicle is not repaired or additional diagnostic information is not available, reprogram the PCM if a later calibration is available. Retest.		