

Technical Service Bulletin

Mazda North American Operations
Irvine, CA 92618-2922

**Subject:**

**LACK OF POWER / CHECK ENGINE LIGHT ON WITH DTC P0638:00
AND/OR P2112:00 AT LOW TEMPERATURES**

Bulletin No.: 01-001/20

Last Issued: 01/09/2020

BULLETIN NOTES

This bulletin supersedes the previously issued bulletin(s) listed below. The changes are noted in Red text.

Previous TSBs:	Date(s) Issued:
01-001/18	01/24/2018 and 08/09/2018

APPLICABLE MODEL(S)/VINS

2016-2018 CX-9 vehicles with VINs lower than JM3TC*****220639 (produced before Jan. 8, 2018)

DESCRIPTION

After parking the vehicle in temperatures below freezing, some customers may experience a lack of power with the check engine light on and DTCs P0638:00 and/or P2112:00 stored in memory.

- P0638:00: Throttle valve actuator control range/performance problem (one drive cycle DTC)
- P2112:00: Throttle valve actuator motor current range/performance problem (one drive cycle DTC)

This concern may be caused by condensation in the intake manifold entering the throttle valve. After parking the vehicle in temperatures below freezing, the throttle valve may become frozen in the stand-by position, resulting in the symptoms listed above.

To prevent this concern, the control logic of the PCM has been modified to avoid freezing the throttle valve by moving the valve at a certain time after the ignition has been turned off.

NOTE: With this modification, the main relay may stay on up to 90 minutes after the ignition switch is turned off. The "BATTERY INSPECTION" area in the Workshop Manual will be modified to properly check for battery parasitic draw after this modification.

NOTE: This Service Information is most likely applicable if the concern can be resolved by turning the ignition switch on/off when the vehicle is parked in a warmer location, such as a shop or garage.

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

REPAIR PROCEDURE

1. Check if DTCs P0638:00 and/or P2112:00 are stored in memory.

- If Yes, proceed to the next step.
- If No, this Service Information is not applicable. Diagnose and repair the vehicle according to the instruction on MGSS online.

2. Using the table below, determine if the DTCs were stored due to ETB icing.

NOTE: If all of three (3) items in the freeze frame data are within the ranges shown below, the concern is most likely due to ETB icing.

Intake air temperature	IAT1	Under 32 degrees F (0 C)
Throttle opening	ETB	0 - 25%
Engine coolant temperature	ECT	Under 176 degrees F (80 C)

- If Yes, proceed to the next step.
- If No, this Service Information is not applicable. Diagnose and repair the vehicle according to the instruction on MGSS online.

3. Refer to the "**CALIBRATION INFORMATION**" table below. Is the PCM calibration file older than the one shown in the table?

- If Yes, proceed to "**PCM REPROGRAMMING**" to reprogram the PCM to the latest calibration.
- If No, proceed to "**CUSTOMER INFORMATION**" below.

PCM REPROGRAMMING:

ATTENTION: READ ALL NOTES AND CAUTIONS BEFORE REPROGRAMMING PCM!

CAUTION:

- **IF IDS DOES NOT HAVE SUFFICIENT BATTERY POWER, THE REPROGRAMMING WILL FAIL.**
- **PCM DAMAGE MAY OCCUR IF THE CORRECT BATTERY CHARGER SETTING IS NOT USED.**

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- **SET THE BATTERY MANAGEMENT SYSTEM TO "POWER SUPPLY MODE" DURING PCM REPROGRAMMING.**
- **POWER SUPPLY MODE** will maintain proper battery voltages during PCM reprogramming.
- If a different charger is used, **MAKE SURE IT DOES NOT EXCEED 20 AMPS. IF IT EXCEEDS 20 AMPS, IT COULD DAMAGE THE PCM.**
- The charger **MUST** be connected directly to the vehicle battery.
- It is **NOT** necessary to remove any fuses or relays during PCM reprogramming when the IDS screen prompts you to do so. You may accidentally stop power to one of the PCM terminals and **CAUSE THE PCM TO BE BLANKED**, or you may receive error messages during the IDS reprogramming procedure.
- Start/Stop button vehicles: **DO NOT** press the start/stop button during the reprogramming process.

BEFORE REPROGRAMMING PCM:**NOTES:**

- Verify the current PCM file name in the vehicle by log view screen. If it's the same as shown in the chart(s) below (or a later one), you do not need to reprogram the PCM.
- Always update the IDS tool first, then follow on-screen instructions to download the needed calibration file for PCM reprogramming.
- If the vehicle exhibits any trouble codes or driveability symptoms, diagnose and repair using MGSS **BEFORE** attempting to reprogram the PCM.
- When reprogramming a PCM, IDS will always display the "latest" calibration P/N available for that vehicle. If any calibration has been revised/updated to contain new information for a new service concern, it will also contain all previously released calibrations.
- Confirm the DLC cable is in good condition before attempting to reprogram the PCM.

PCM REPROGRAMMING:

1. Reboot the IDS to clear memory before reprogramming.
2. Using the latest IDS Software available, reprogram the PCM to the latest calibration (refer to "Calibration Information" table) by following the "Module Reprogramming" procedure.
3. Verify the file name matches with the Calibration chart(s) below.
4. Clear all DTCs.
5. Start the engine and confirm that no warning lights stay on.
6. Record the customers radio presets from the infotainment system.
7. Disconnect the negative battery cable and wait at least 30 seconds to reset the fuel control learning data.
8. Re-connect the negative battery cable.
9. Re-enter the customers presets into the infotainment system.

AFTER REPROGRAMMING PCM:**NOTES:**

- IDS shows the calibration part numbers after programming the PCM.
- If any DTCs should remain after performing DTC erase, diagnose the DTC0 using MGSS online instructions and submit a warranty claim according to the normal warranty procedure.
- Be aware that PCM calibration part numbers and file names listed in any Service Bulletin may change due to future releases of IDS software, and additional revisions made to those calibrations for service related concerns.

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CUSTOMER INFORMATION (to be shared with the customer as necessary):

A possible cause for this concern is that condensation in the intake manifold enters the throttle valve and cause it to become frozen. This most likely would occur if the vehicle is parked in temperatures below freezing. If the throttle valve becomes frozen, it cannot move freely and the engine may suffer from a lack of power.

To avoid this concern, allow the engine to warm up for five (5) minutes after start-up (or keep warming up the engine until the "blue" low engine coolant temperature indicator light turns off in the instrument cluster). Either way, this will help to melt the ice from the throttle valve and restore proper engine operation.

CALIBRATION INFORMATION

Model Year	Drive	File name
2016-17	2WD	PYFL-188K2-N
	AWD	PYFM-188K2-N
2018	2WD	PYD7-188K2-D
	AWD	PYD8-188K2-D

NOTE: It is not necessary to order a replacement PCM for this repair procedure.

WARRANTY INFORMATION**NOTE:**

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under Fed. Emission Warranty (long term).
- Additional diagnostic time cannot be claimed for this repair.

Warranty Type	A
Symptom Code	6X
Damage Code	9W

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Part Number Main Cause	5555-RP-PCM
Quantity	0
Operation Number / Labor Hours:	XXP14XFX / 0.3 Hrs.

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