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Subject: 2011-2013 CX-9 - ENGINE SURGE AND/OR SHIFT SHOCK	Bulletin No: 05-001/14
	Last Issued: 11/18/2014

BULLETIN NOTE

- This bulletin supersedes the previous bulletin 05-001/14, issued 01/21/14 and 04/30/14. The REPAIR PROCEDURE has been revised.
- Changes are noted below in Red beside the change bar.

APPLICABLE MODEL(S)/VINS

2011-2013 CX-9 vehicles with VINs lower than JM3TB*****424854 (produced before July 17, 2013)

DESCRIPTION

Some vehicles may experience one or more of the following concerns:

- Engine surging concern when the vehicle is driven up hill with the cruise control ON.
- Shift shock when shifting from N, R or from P to D.
- Shift shock when down shifting from 5 to 4.

Engine Surge cause: Due to an inadequate control logic of the TCM, the throttle valve repeats ON and OFF before obtaining enough driving force to maintain the set speed on an up hill road. The TCM control logic has been optimized to eliminate engine surge as of Jan. 15, 2013 vehicle production (VIN: JM3TB*****410765).

Shift Shock cause: Inadequate learning of hydraulic pressure leakage by the TCM may occur depending on production variation of the seal ring inside the transaxle. In this case, correction of the hydraulic pressure during shifting operation is not properly performed causing a shift shock. The TCM control logic has been optimized to eliminate shift shock as of Jul. 17, 2013 vehicle production (VIN: JM3TB*****424854).

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

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools/equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership. Mazda North American Operations reserves the right to alter the specifications and contents of this bulletin without obligation or advance notice. All rights reserved. No part of this bulletin may be reproduced in any form or by any means, electronic or mechanical---including photocopying and recording and the use of any kind of information storage and retrieval system ---without permission in writing.

REPAIR PROCEDURE

1. Verify customer concern.
2. Perform Log Viewer to verify the FILENAME of the TCM installed in the vehicle.
 - If the TCM installed in the vehicle is found below (with a D, E or F suffix), it **CANNOT BE REPROGRAMMED** and will need to be replaced with the latest "H" level suffix TCM. Contact the MASH Hotline at (888) 832-8477, (option 2) for TCM replacement authorization; **proceed to Step 6 after TCM replacement.**
 - If the TCM installed in the vehicle is not found below, **proceed to Step 3 to reprogram the TCM.**

Spec.	TCM FILENAMEs That Cannot Be Reprogrammed
2WD	AWB0-18ZB3-D or AWB0-18ZB3-E or AWB0-18ZB3-F
4WD	AWB1-18ZB3-D or AWB1-18ZB3-E or AWB1-18ZB3-F

3. Reboot the IDS to clear memory before reprogramming.
4. Using IDS 88.02 or later software, reprogram the TCM to the latest calibration (refer to "Calibration Information" table) by following the "Module Reprogramming" procedure.

NOTE:

- TCM reprogramming takes approx.10 minutes longer than PCM reprogramming.
 - Always update the IDS tool first, then follow on-screen instructions to download the needed calibration file for TCM reprogramming.
 - It is not necessary to remove any fuses or relays during TCM reprogramming when the IDS screen prompts you to do so. You may accidentally stop power to one of the TCM terminals and cause the TCM to be blanked, or you may receive error messages during the IDS reprogramming procedure.
 - IDS shows the calibration part numbers after programming the TCM.
 - Be aware that TCM 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.
 - When reprogramming a TCM, 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/issue, it will also contain all previously released calibrations.
 - **When performing this procedure, we recommend using the "Power Supply" mode in the Battery Management System to keep the vehicle battery up to capacity. If a different charger is used, make sure it does not exceed 20 AMPS. If it exceeds 20 AMPS, it could damage the VCM.**
5. After performing the TCM reprogramming procedure, verify the repair by starting the engine and making sure there are no MIL illumination or abnormal warning lights present.

NOTE:

- If any DTCs should remain after performing DTC erase, diagnose the DTCs using MS3 online instructions or Workshop Manual section 05-02.
- After TCM reprogramming, it is no longer necessary to road test the vehicle to "relearn" KAM (Keep Alive Memory).

6. Perform the “**INITIAL LEARNING PROCEDURE**” found below.

WARNING: When performing initial learning, be aware of other vehicles, people, and other impediments in order to avoid an accident.

NOTE: While self-learning control gradually reduces shock during normal driving, initial learning is performed to initially learn a certain number of driving conditions.

INITIAL LEARNING PROCEDURE:

a. **WARM-UP:**

Increase the ATF temperature by leaving the engine at idling or city driving. Verify that the ATF temperature is between 66 - 110 °C {151 - 230 °F}. If the ATF temperature is outside this range, work to bring it inside the range.

CAUTION: Do not raise the ATF temperature by stalling the engine.

NOTE: If the ATF temperature is not between 66 - 110 °C {151 - 230 °F}, initial learning cannot be performed. Before learning, inspect for variable shift shock.

b. **GARAGE SHIFT MODE:**

With the vehicle standing still, depress the brake pedal and keep the selector lever in N position for 3 seconds. Then, shift the selector lever from the N position into D position, and maintain this condition for 3 seconds. Repeat this procedure 5 times. Then repeat it again 5 times in R position.

c. **INSPECT LEARNING RESULTS:**

Verify that variable speed shock and shift shock have decreased compared to the conditions before learning.

7. **(For TCM Replacement Only):** Perform the “**TCM NEUTRAL POSITION LEARNING**” procedure according to MS3 online or the Workshop Manual (section 05-17 TCM NEUTRAL POSITION LEARNING [AY6A-EL, AY6AX-EL]).

8. Verify the repair.

NOTE: A small number of vehicles may not respond to the TCM reprogramming procedure and may continue to exhibit N-D shift shock. If N-D shift shock remains, perform the “**GEAR SHIFT CONTROL LEARNING**” steps below.

WARNING: Be sure to perform these steps on a safe road. **DO NOT** perform these steps on a highway, freeway or anywhere traffic exists.

Step	GEAR SHIFT CONTROL LEARNING
1	Place the gear shifter in the “D” position.
2	Open the accelerator pedal to between 25 - 30% until 6th gear and 50 mph (or higher) is reached.
3	Release the accelerator pedal and coast, bringing the vehicle to a complete stop within 60 seconds.
4	Repeat Steps 2 and 3, ten (10) times to complete the gear shift control learning process.

CALIBRATION INFORMATION

Spec.	File Name (after reprogramming)
2WD	AWB0-18ZB3-H
4WD	AWB1-18ZB3-H

PART(S) INFORMATION

NOTE: If the TCM installed in the vehicle is found below (with a D, E or F suffix), it **CANNOT BE REPROGRAMMED** and will need to be replaced with the latest "H" level suffix TCM. Contact the MASH Hotline at (888) 832-8477, option 2 for authorization to replace the TCM.

Spec.	TCM FILENAMES That Cannot Be Reprogrammed
2WD	AWB0-18ZB3-D or AWB0-18ZB3-E or AWB0-18ZB3-F
4WD	AWB1-18ZB3-D or AWB1-18ZB3-E or AWB1-18ZB3-F

WARRANTY INFORMATION

NOTE:

- This warranty information applies only to verified customer complaints on vehicles eligible for warranty repair.
- This repair will be covered under the Federal Emission Control Warranty (long term).

TCM REPLACEMENT:

Warranty Type	A
Symptom Code	08
Damage Code	9W
Part Number Main Cause	AWB0-18-9E1 (2WD) or AWB1-18-9E1 (4WD)
Quantity	1 (TCM Replacement)
Operation Number / Labor Hours	XXK63XRX / 0.5 Hrs. (includes TCM Neutral Position Learning)

**TCM REPROGRAMMING FOR ENGINE SURGE:
2011-2013 CX-9 VIN: JM3TB*****300001 - 410765 (PROD. BEFORE JAN. 15, 2013):**

Warranty Type	A
Symptom Code	08
Damage Code	9W
Part Number Main Cause	5555-RP-TCM
Quantity	0
Operation Number / Labor Hours	XXJDEXFX / 0.3 Hrs.

**TCM REPROGRAMMING FOR SHIFT SHOCK:
2011-2013 CX-9 VIN: JM3TB*****300001 - 424854 (PROD. BEFORE JULY 17, 2013):**

Warranty Type	A
Symptom Code	26
Damage Code	9W
Part Number Main Cause	5555-RP-TCM
Quantity	0
Operation Number / Labor Hours	XXJDGAFX / 0.3 Hrs.

NOTE: Claim “TCM Reprogramming For Engine Surge” or “TCM Reprogramming For Shift Shock”, but **DO NOT** claim both.

GEAR SHIFT CONTROL LEARNING:

Warranty Type	A
Symptom Code	08
Damage Code	9W
Part Number Main Cause	5555-RP-TCM
Quantity	0
Operation Number / Labor Hours	XXKAXRX / 0.5 Hrs.

NOTE: If “GEAR SHIFT CONTROL LEARNING” is performed, retain copies of Mode 6 Data Logger and punch time at your dealer.