Troubleshooting - PMCI-2 ECU engine brake control

General

Table 1 shows the pins for switching the engine brake solenoids on/off within the engine. These solenoids are powered with battery voltage. When the component is active, battery voltage must be measured across the V(+) and V(-) pins. When the solenoid is inactive, 0 V should be measured across the V(+) and V(-) pins and both V(+) and V(-) pins should measure 0 V to the negative battery connection. The switches for these components are on the supply side of the circuit inside the PMCI-2 electronic unit.

Engine brake voltage must only be measured using the breakout harness. Not using the breakout harness might result in open circuit DTCs. These DTCs should be cleared immediately after verifying injector output.

Table 1. Detailed information for PMCI-2 ECU engine brake outputs

Description	ECN	PMCI-2 connector A pins		Breakout harness	
		V (+)	V (-)	V (+)	V (-)
MX Engine Brake solenoid valve cylinder 1	B411	17	18	25	26
MX Engine Brake solenoid valve cylinder 2	B412	16	15	21	22
MX Engine Brake solenoid valve cylinder 3	B413	24	23	32	31
MX Engine Brake solenoid valve cylinder 4	B414	21	22	28	27
MX Engine Brake solenoid valve cylinder 5	B415	13	14	24	23
MX Engine Brake solenoid valve cylinder	B416	20	19	29	30

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Step-by-step troubleshooting - PMCI-2 ECU engine brake control

Step 1 - Check with DAVIE

Step 1A - Check for DTCs	
Action 1. Check for engine brake DTCs	
Are there any engine brake related DTCs present?	
YES	NO
	PMCI-2 ECU Engine brake control troubleshooting not necessary.
Go to step 1B	Repair complete

Step 1B- Activate the engine brake solenoids	
Action 1. Run the DAVIE engine brake test.	
Do all engine brake solenoids respond with a clicking sound when activated?	
YES	NO
PMCI-2 ECU engine brake control OK	
Go to step 3A.	Go to step 2A.

Step 2 - Check components

Step 2A - Check engine brake activation voltage
Action 1. Switch the ignition OFF. 2. Connect the breakout box. 3. Switch the ignition ON. 4. Run DAVIE engine brake test and activate each engine brake one-by-one, while each time measuring the voltage on that particular engine brake control circuit (Use table 1 above for troubleshooting).

Is 12 V present on each activated engine brake circuit?	
YES	NO
PMCI-2 ECU engine brake control works OK.	Proceed only with the engine brake control circuit(s) that is not powered.
Go to step 3A.	Go to step 2B

Step 2B- Define cause engine brake failure	
Action 1. Measure voltage across the V(+) and V(-) pins of all engine brake solenoid circuits. 2. Measure voltage across the V(+) and the negative battery connection of all engine brake solenoid circuits.	
Is 3.5 V measured?	
YES	NO
The wiring circuit between the engine brake control (+) and the return wire (-) is interrupted.	Control driver might be switched OFF due to circuit overload.
Go to step 2C	Go to step 2D

Step 2C - Check wiring	
Action 1. Check wiring and solenoid for interruption.	
Interruption discovered?	
YES	NO
Repair wiring or replace the solenoid.	
Go to step 3A.	Go to step 3A.

Step 2D - Define cause of the deactivated engine brake control circuit	
Action 1. Check the wiring and solenoid for short circuit to earth or supply.	
Defective wiring or solenoid found?	
YES	NO
Repair wiring or replace solenoid.	

Go to step 3A.	Go to step 3A.

Step 3 - Reset the DTCs.

Step 3A - Reset the DTCs.	
Action ■ Reset the DTCs. ■ If DTCs are still active, troubleshoot the active DTCs.	
DTCs reset?	
YES	NO
	Restart troubleshooting steps.
Repair complete	Go to 1A

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