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2016 MAZDA CX-3 OEM Service and Repair Workshop Manual

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Step	Inspection		Action
		No	Inspect the INTERIOR1 15 A fuse, ROOM 25 A fuse and HAZARD 25 A fuse. • Any fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between the following: • MAIN 200 A fuse– Front body control module (FBCM) terminal 2A • MAIN 200 A fuse– Front body control module (FBCM) terminal 1A • MAIN 200 A fuse– Front body control module (FBCM) terminal 1B • MAIN 200 A fuse– Front body control module (FBCM) terminal 3K • MAIN 200 A fuse– Front body control module (FBCM) terminal 3L **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. • Replace the fuse. • Any fuse is damaged: — Replace the fuse. • All fuses are normal: — Refer to the wiring diagram and verify whether or not there

DTC U3003:17 [FRONT BODY CONTROL MODULE (FBCM)]

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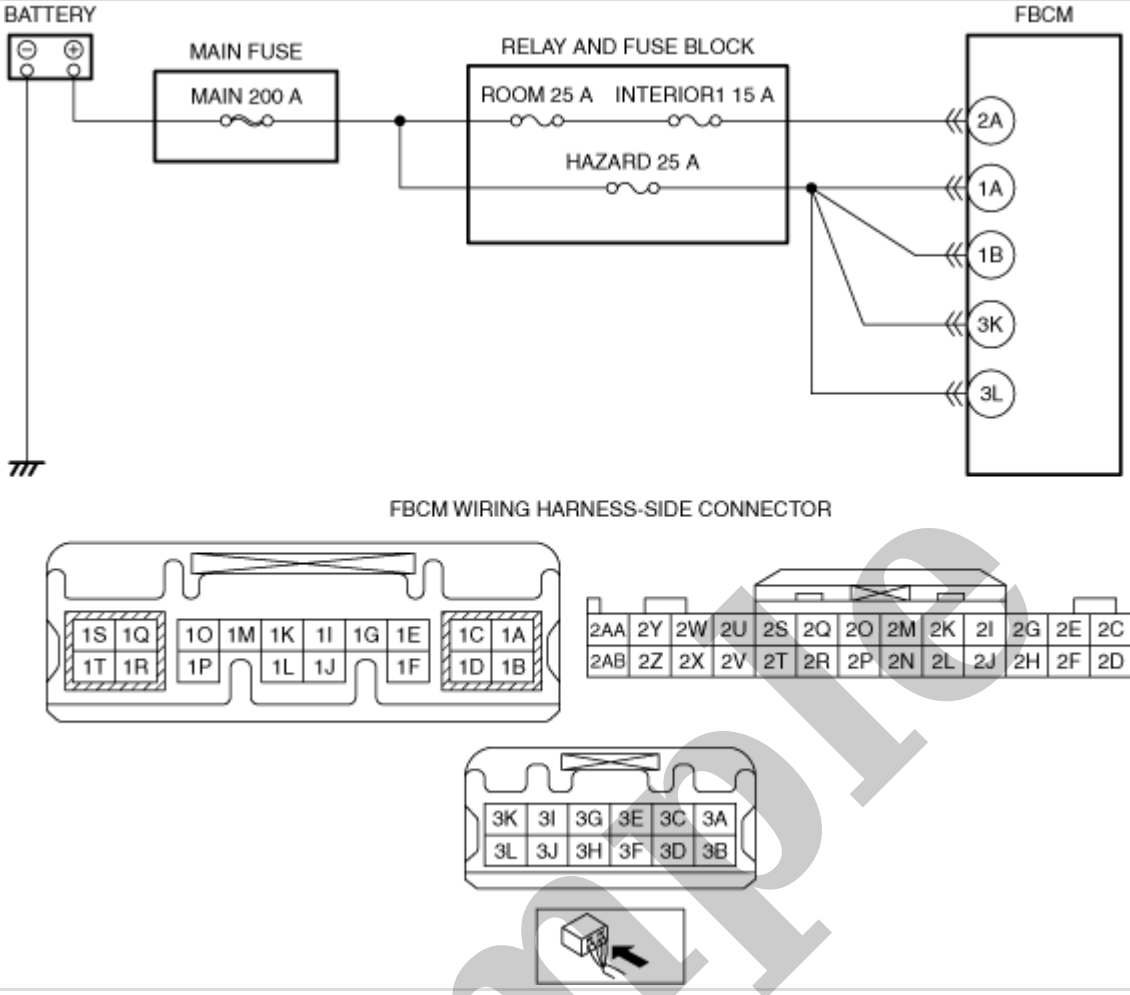
Description	**Front body control module (FBCM) power supply voltage high input**
Detection condition	• Front body control module (FBCM) power supply circuit voltage of 14.2 V or more is detected for 10 s or more with the ignition switched ON (engine off or on).
Fail-safe	Not applicable
Possible cause	• DTCs are stored in the PCM. • Battery malfunction • Generator malfunction • Front body control module (FBCM) malfunction
System wiring diagram	Not applicable

Diagnostic Procedure

Step	Inspection		Action
1	**VERIFY FRONT BODY CONTROL MODULE (FBCM) DTCs AGAIN** • Clear the DTC for the front body control module (FBCM) using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on) and wait for 10 s or more. • Retrieve the front body control module (FBCM) DTCs using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is the same DTC displayed?	Yes	Go to the next step.
		No	Go to Step 6.
2	**VERIFY PCM DTCs** • Retrieve the PCM DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Are any DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [PCM (SKYACTIV-D 2.2)].) (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)
		No	Go to the next step.

Description	Front body control module (FBCM) power supply voltage mismatch



Diagnostic Procedure

Step	Inspection		Action
1	**VERIFY FRONT BODY CONTROL MODULE (FBCM) DTCs AGAIN** • Clear the DTC for the front body control module (FBCM) using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on) and wait for 5 s or more. • Retrieve the front body control module (FBCM) DTCs using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is the same DTC displayed?	Yes	Go to the next step.
		No	Go to Step 5.

Step	Inspection		Action
		No	Inspect the INTERIOR1 15 A fuse, ROOM 25A fuse and HAZARD 25 A fuse. • Any fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between the following: • MAIN 200 A fuse—Front body control module (FBCM) terminal 2A • MAIN 200 A fuse—Front body control module (FBCM) terminal 1A • MAIN 200 A fuse—Front body control module (FBCM) terminal 1B • MAIN 200 A fuse—Front body control module (FBCM) terminal 3K • MAIN 200 A fuse—Front body control module (FBCM) terminal 3L If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to ground. • Replace the fuse. • Any fuse is damaged: — Replace the fuse. • All fuses are normal: — Refer to the wiring diagram and verify whether or not there is a common connector between the following: • Battery positive terminal—Front body control module (FBCM) terminal 2A • Battery positive terminal—Front body control module (FBCM) terminal 1A • Battery positive terminal—Front body control module (FBCM) terminal 1B • Battery positive terminal—Front body control module (FBCM) terminal 3K • Battery positive terminal—Front body control module (FBCM) terminal 3L If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit.

PID/DATA MONITOR TABLE [FRONT BODY CONTROL MODULE (FBCM)]

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–: Not applicable

PID	Unit/Operation	Data contents	Data read/use method	Module control terminal
ABK_CS_BG	Off/On	**Note** **• It is displayed, however, if an accessory part is installed, it cannot be used.**		
ABK_CS_KEY	Off/On	Keyless entry system answer-back signal input status • Off: Keyless entry system answer-back signal is not received. • On: Keyless entry system answer-back signal is received.	Answer-back request signal input for keyless entry system from rear body control module (RBCM)	2I, 2K (CAN)
ABK_HD_CS_R	Off/On	**Note** **• It is displayed, however, if an accessory part is installed, it cannot be used.**		
ABK_HN_CS_R	Off/On	**Note** **• It is displayed, however, if an accessory part is installed, it cannot be used.**		
ABK_HN_KEY	Off/On	Keyless entry system horn answer-back signal input status • Off: Keyless entry system horn answer-back signal is not received. • On: Keyless entry system horn answer-back signal is received.	Keyless entry system horn answer-back request signal input from rear body control module (RBCM)	2I, 2K (CAN)
BAT_TMP	°C, °F	**Note** **• Displays in the M-MDS but it does not operate.**		
BG_ALARM_CS *1	Off/On	Theft-deterrent system alarm signal input status • Off: Hazard warning light flashing request signal is not received • On: Hazard warning light flashing request signal is received	Theft-deterrent system alarm request signal input from rear body control module (RBCM) **Note** **• Operates only if the ignition is switched off.**	2I, 2K (CAN)
BLWR_MT_RY	Off/On	Blower motor relay output signal status • Off: Blower relay is off. • On: Blower relay is on.	–	2Z (Blower motor relay control)

PID	Unit/Operation	Data contents	Data read/use method	Module control terminal
H/L_SW_TNS	Off/On	Light switch position (TNS (parking lights)) status via CAN signal from start stop unit • Off: Light switch TNS (parking lights) signal is not received. • On: Light switch TNS (parking lights) signal is received.	–	2I, 2K (CAN)
H/L_TNS	Off/On	Light switch (TNS (parking lights)) output signal • Off: TNS (parking lights) is turned off. • On: TNS (parking lights) is turned on.	–	–
HAZARD_LMP	Off/On	Hazard light output signal • Off: Hazard light is turned off. • On: Hazard light is turned on.	–	–
HAZARD_SW	Off/On/Unknown	Hazard switch input signal from start stop unit • Off: Hazard warning switch is off. • On: Hazard warning switch is on. • Unknown: Hazard warning switch on/off is not determined.	–	2I, 2K (CAN)
HBC_CS *4	Off/On/Invalid	High beam control (HBC) system control signal input from forward sensing camera (FSC) • Off: High beam control (HBC) system signal is not received. • On: High beam control (HBC) system signal is received. • Invalid: High beam control (HBC) system signal has error.	–	2I, 2K (CAN)
HBC_ST *4	Off/On	Operation status of high beam control (HBC) system • Off: High beam control (HBC) system is not operated. • On: High beam control (HBC) system is operated.	Control status of high beam control (HBC) system of front body control module (FBCM) by signal from forward sensing camera (FSC)	2I, 2K (CAN)
HEAT_CS_R	Off/On	Note • It is displayed, however, if an accessory part is installed, it cannot be used.		
IG_ST	Off/On	Ignition switch status • Off: IG1 is off. • On: IG1 is on.	–	2I, 2K (CAN)
L_OFF_AUTO *3	Off/On	Operation status of lights off function by auto-light function • Off: TNS (parking lights) or headlight off control by auto light off system is not operated. • On: TNS (parking lights) or headlight off control by auto light off system is operated.	If the lights are turned off by the auto-light function (ignition is switched off), the value becomes On.	–
L_OFF_BS	Off/On	Note • Displays in the M-MDS but it does not operate.		

PID	Unit/Operation	Data contents	Data read/use method	Module control terminal
WAS_MT_RY_F	Off/On	Windshield washer motor relay operation signal • Off: Windshield washer motor relay is off. • On: Windshield washer motor relay is on.	–	3F (Windshield washer motor control)
WAS_MT_RY_R	Off/On	Rear washer motor relay operation signal • Off: Rear washer motor relay is off. • On: Rear washer motor relay is on.	–	3H (Rear window washer motor control)
WASHER_F	Off/On	Windshield washer switch input signal from start stop unit • Off: Windshield washer switch is off. • On: Windshield washer switch is on.	–	2I, 2K (CAN)
WASHER_R	Off/On	Rear washer switch input signal from start stop unit • Off: Rear wiper and washer switch is not in rear washer position. • On: Rear wiper and washer switch is in rear washer position.	–	2I, 2K (CAN)
WIP_CS_RLS *3	Off/Single_Wipe/F_Wiper_LOW/F_Wiper_HI/Failure	Auto wiper input signal from auto light sensor/humidity sensor/rain sensor • Off: Wiper operation signal is not received from rain sensor. • Single_Wipe: Signal to operate wiper once is received from rain sensor. • F_Wiper_LOW: Signal to operate wiper at low speed is received from rain sensor. • F_Wiper_HI: Signal to operate wiper at high speed is received from rain sensor. • Failure: Communication with rain sensor is failed.	–	2G (LIN)
WIP_F	OFF/LOW/HI/INT / AUTO	Windshield wiper switch input signal from start stop unit • OFF: Windshield wiper switch is in OFF position. • LOW: Windshield wiper switch is in LO position. • HI: Windshield wiper switch is in HI position. • INT / AUTO: Windshield wiper switch is in INT or AUTO position.	–	2I, 2K (CAN)
WIP_F_INT_L	%	Displays the windshield wiper intermittent interval time input signal from start stop unit.	–	2I, 2K (CAN)
WIP_F_MST	Stop/Move	Windshield wiper stop position signal input • Stop: Windshield wipers stop at normal position • Move: Windshield wipers do not stop at normal position	If windshield wipers are operating, Move-Stop is repeated.	2AA (Autostop switch signal)

ACTIVE COMMAND MODES TABLE [FRONT BODY CONTROL MODULE (FBCM)]

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Simulation item	Unit/Operation	Data contents	Output part name	Operation condition
DEFOG_R_ST	Off/On	• Off: Stops rear window defogger. • On: Operates rear window defogger.	Filament	Ignition switched ON (engine off or on)
ESS_ST	Off/On	• Off: Stops emergency signal system (ESS). • On: Operates emergency signal system (ESS).	Front body control module (FBCM)	Ignition switched ON (engine off or on)
F_FOG_LMP *1	Off/On	• Off: Turns off front fog light. • On: Illuminates front fog light.	Front fog light	Ignition switched ON (engine off or on)
H/L	OFF/DRL/TNS/H/L_LOW/H/L_HI	• Off: Turns off headlight. • DRL: Illuminates running light. • TNS: Illuminates TNS (parking lights). • H/L_LOW: Illuminates headlight LO. • H/L_HI: Illuminates headlight HI.	• Headlight LO/HI • Parking light • Taillight • License plate light • Running light	Ignition switched ON (engine off or on)
H/L_CLN_RY	Off/On	Note • Displays in the M-MDS but it does not operate.		
HAZARD_LMP	Off/On	• Off: Turns off hazard warning light. • On: Flashes hazard warning light.	• Front turn light • Side turn light • Rear turn light	Ignition switched ON (engine off or on)
PTC_HEAT_ST	0%/10%/20%/30%/40%/50%/60%/70%/80%	Note • Displays in the M-MDS but it does not operate.		
WAS_MT_RY_F	Off/On	• Off: Turns front washer motor relay off. • On: Turns front washer motor relay on.	Front body control module (FBCM)	Ignition switched ON (engine off or on)
WAS_MT_RY_R	Off/On	• Off: Turns rear washer motor relay off. • On: Turns rear washer motor relay on.	Front body control module (FBCM)	Ignition switched ON (engine off or on)

*1:With front fog light

Step	Inspection		Action
6	**INSPECT AUTO LIGHT SENSOR/HUMIDITY SENSOR/RAIN SENSOR CIRCUIT FOR SHORT TO OPEN CIRCUIT** • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Verify that the auto light sensor/humidity sensor/rain sensor and front body control module (FBCM) connectors are disconnected. • Inspect the wiring harness for continuity between auto light sensor/humidity sensor/rain sensor terminal C (wiring harness-side) and front body control module (FBCM) terminal 2G (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between auto light sensor/humidity sensor/rain sensor terminal C and front body control module (FBCM) terminal 2G. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 8.
7	**VERIFY IF MALFUNCTIONING LOCATION IS AUTO LIGHT SENSOR/HUMIDITY SENSOR/RAIN SENSOR DEPENDING ON REPEATABILITY** • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the front body control module (FBCM) using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on) and wait for 3 s or more. • Retrieve the front body control module (FBCM) DTCs using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is the same DTC displayed?	Yes	Go to the next step.
		No	Replace the auto light sensor/humidity sensor/rain sensor, then go to the next step. (See RAIN SENSOR REMOVAL/INSTALLATION.)
8	**VERIFY THAT REPAIRS HAVE BEEN COMPLETED** • Always reconnect all disconnected connectors. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Clear the DTC for the front body control module (FBCM) using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • Switch the ignition ON (engine off or on) and wait for 3 s or more. • Retrieve the front body control module (FBCM) DTCs using the M-MDS. (See DTC INSPECTION [FRONT BODY CONTROL MODULE (FBCM)].) • Is the same DTC displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the front body control module (FBCM). (See FRONT BODY CONTROL MODULE (FBCM) REMOVAL/INSTALLATION.) Go to the next step.
		No	Go to the next step.
9	**VERIFY IF OTHER DTCs DISPLAYED** • Are any other DTCs displayed?	Yes	Repair or replace the malfunctioning part according to the applicable DTC troubleshooting. (See DTC TABLE [FRONT BODY CONTROL MODULE (FBCM)].)
		No	DTC troubleshooting completed.