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2016 MAZDA BT-50 OEM Service and Repair Workshop Manual

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Step	Inspection		Action
2	**INSPECT FRONT BODY CONTROL MODULE (FBCM) CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Disconnect the front body control module (FBCM) connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 5.
3	**INSPECT FRONT BODY CONTROL MODULE (FBCM) IG2 POWER SUPPLY OUTPUT CIRCUIT FOR SHORT TO GROUND** • Verify that the front body control module (FBCM) connector is disconnected. • Inspect for continuity between front body control module (FBCM) terminal 1C (wiring harness-side) and body ground. • Is there continuity?	Yes	Go to the next step.
		No	Go to Step 5.
4	**INSPECT IG2 POWER SUPPLY OUTPUT CIRCUIT RELATED PARTS** • Inspect the following parts: — Climate control unit (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) (See CLIMATE CONTROL UNIT INSPECTION [MANUAL AIR CONDITIONER].) — A/C relay (See RELAY INSPECTION.) — PTC heater (See PTC (POSITIVE TEMPERATURE COEFFICIENT) HEATER INSPECTION.) — Rear seat warmer control unit (With rear seat warmer) (See REAR SEAT WARMER CONTROL UNIT INSPECTION.) • Are all parts normal?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following: • Climate control unit—Front body control module (FBCM) terminal 1C • A/C relay—Front body control module (FBCM) terminal 1C • PTC heater—Front body control module (FBCM) terminal 1C • Rear seat warmer control unit—Front body control module (FBCM) terminal 1C (With seat warmer) **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. Go to the next step.
		No	Repair or replace the malfunctioning part, then go to the next step. (See CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].) (See CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [MANUAL AIR CONDITIONER].) (See RELAY LOCATION.) (See PTC (POSITIVE TEMPERATURE COEFFICIENT) HEATER REMOVAL/INSTALLATION.) (See REAR SEAT WARMER CONTROL UNIT REMOVAL/INSTALLATION.)

Step	Inspection		Action
2	INSPECT TNS RELAY • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Remove the TNS relay. (See RELAY LOCATION.) • Inspect the TNS relay. (See RELAY INSPECTION.) • Is the TNS relay normal?	Yes	Go to the next step.
		No	Replace the TNS relay, then go to Step 5. (See RELAY LOCATION.)
3	INSPECT FRONT BODY CONTROL MODULE (FBCM) CONNECTOR CONDITION • Disconnect the front body control module (FBCM) connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 5.
4	INSPECT FOR SHORT TO GROUND IN TNS RELAY CONTROL CIRCUIT • Verify that the TNS relay is removed. • Verify that the front body control module (FBCM) connector is disconnected. • Inspect for continuity between front body control module (FBCM) terminal 1I (wiring harness-side) and body ground. • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between TNS relay terminal E and front body control module (FBCM) terminal 1I. 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. Go to the next step.
		No	Go to the next step.
5	VERIFY THAT REPAIRS HAVE BEEN COMPLETED • Always reconnect all disconnected connectors. • Reconnect 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)].) • Operate the light switch to the TNS position. • 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.
6	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.

DTC B13D2:12 [FRONT BODY CONTROL MODULE (FBCM)]

SM2898966

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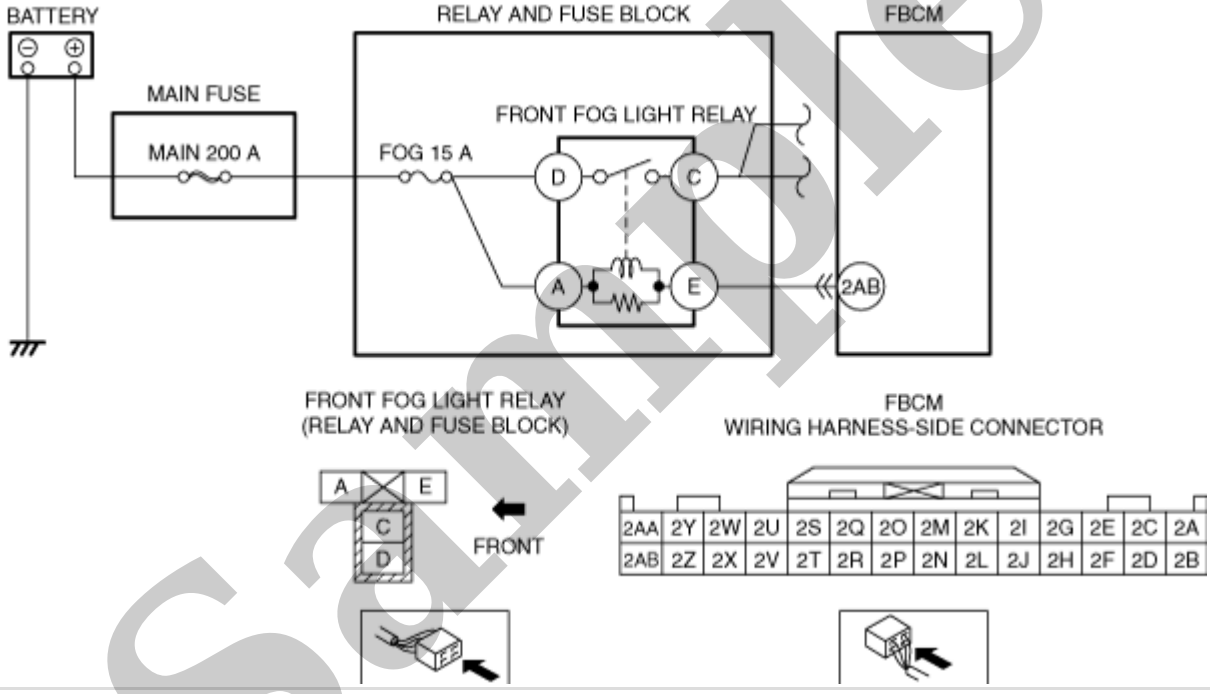
Description	**Front fog light relay circuit malfunction**
Detection condition	• Front body control module (FBCM) detects a short to power supply in the front fog light relay circuit with the ignition switched ON (engine off or on).
Fail-safe	Not applicable
Possible cause	• Front fog light relay malfunction • Front body control module (FBCM) connector or terminal malfunction • Short to power supply in wiring harness between front fog light relay terminal E and front body control module (FBCM) terminal 2AB • Front body control module (FBCM) malfunction



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)].) • Operate the light switch to the HEAD position and the fog light switch to the F.FOG position. • 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.

Step	Inspection		Action
2	**INSPECT HEADLIGHT LO RELAY No.1** • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Remove the headlight LO relay No.1. (See RELAY LOCATION.) • Inspect the headlight LO relay No.1. (See RELAY INSPECTION.) • Is the headlight LO relay No.1 normal?	Yes	Go to the next step.
		No	Replace the headlight LO relay No.1, then go to Step 5. (See RELAY LOCATION.)
3	**INSPECT FRONT BODY CONTROL MODULE (FBCM) CONNECTOR CONDITION** • Disconnect the front body control module (FBCM) connector. • Inspect the connector engagement and connection condition and inspect the terminals for damage, deformation, corrosion, or disconnection. • Is the connector normal?	Yes	Go to the next step.
		No	Repair or replace the connector, then go to Step 5.
4	**INSPECT FOR SHORT TO POWER SUPPLY IN HEADLIGHT LO RELAY No.1 CONTROL CIRCUIT** • Verify that the headlight LO relay No.1 is removed. • Verify that the front body control module (FBCM) connector is disconnected. • Reconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Switch the ignition ON (engine off or on). • Measure the voltage at the front body control module (FBCM) terminal 2V (wiring harness-side). • Is the voltage 0 V?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between headlight LO relay No.1 terminal A and front body control module (FBCM) terminal 2V. **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 power supply. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to power supply. Go to the next step.
5	**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)].) • Operate the light switch to the HEAD position. • 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.
6	**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.

Step	Inspection		Action
6	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)].) • Operate the light switch to the OFF position. • 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.
7	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.

Step	Inspection		Action
5	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)].) • Operate the rear window defogger by pushing the rear window defogger switch. • 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.
6	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.

Step	Inspection		Action
6	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)].) • 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.
7	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.

DTC U3000:49 [FRONT BODY CONTROL MODULE (FBCM)]

SM2898983

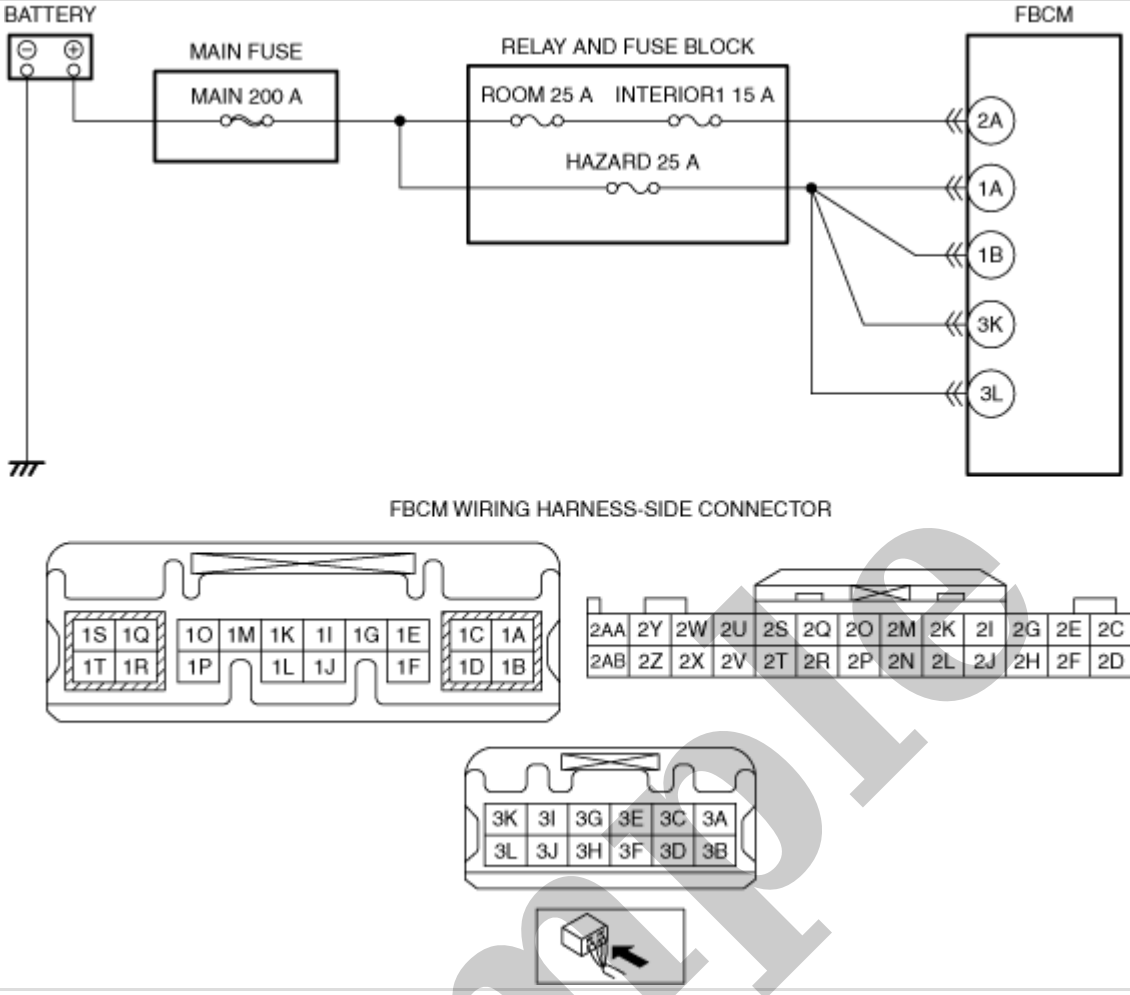
id0902p201140

Description	Front body control module (FBCM) internal malfunction
Detection condition	• Front body control module (FBCM) detects the internal malfunction.
Fail-safe	Not applicable
Possible cause	• Front body control module (FBCM) malfunction
System wiring diagram	Not applicable

Diagnostic Procedure

Step	Inspection		Action
1	VERIFY IF MALFUNCTIONING LOCATION IS FRONT BODY CONTROL MODULE (FBCM) DEPENDING ON REPEATABILITY • Clear the DTC for the front body control module (FBCM) using the M-MDS. (See CLEARING DTC [FRONT BODY CONTROL MODULE (FBCM)].) • 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	Replace the front body control module (FBCM), then go to the next step. (See FRONT BODY CONTROL MODULE (FBCM) REMOVAL/INSTALLATION.)
		No	Go to the next step.
2	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.

Description	Front body control module (FBCM) power supply voltage (B+ power supply) low input



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 8.