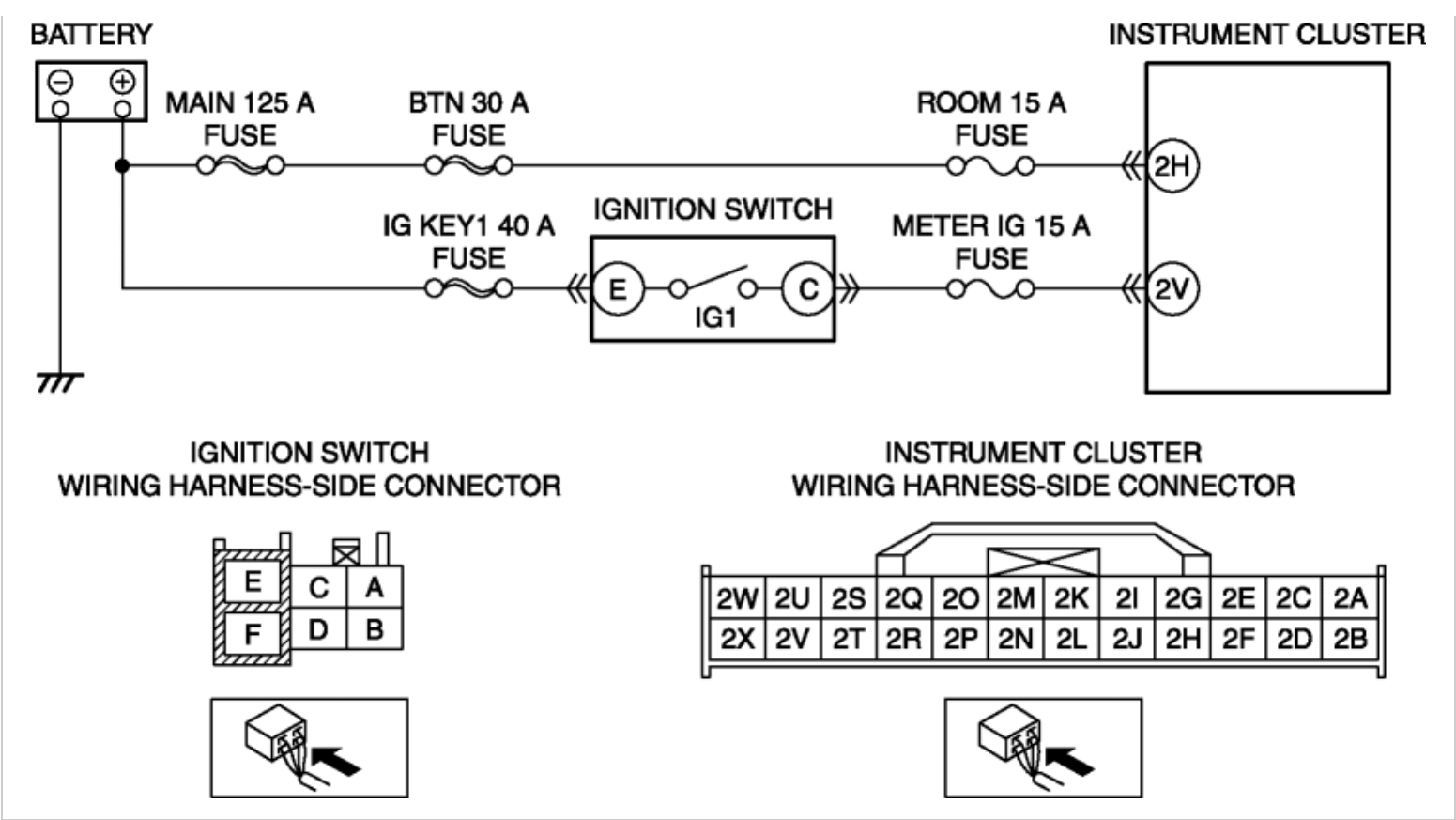


2012 - Mazda6 - Body and Accessories

DTC U3003:16 [INSTRUMENT CLUSTER]

Vehicles With Keyless Entry System

DESCRIPTION	Instrument cluster power supply voltage is low
DETECTION CONDITION	Instrument cluster power supply voltage less than 10 V
POSSIBLE CAUSE	• Fuse malfunction • Battery malfunction • Generator malfunction • Connector or terminal malfunction • Ignition switch malfunction • Open circuit in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Open circuit in the wiring harness between battery positive terminal and ignition switch terminal E • Short to ground in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Short to ground in the wiring harness between battery positive terminal and ignition switch terminal E • Short to ground in the wiring harness between ignition switch terminal C and instrument cluster terminal 2V • Open circuit in the wiring harness between ignition switch terminal C and instrument cluster terminal 2V • Instrument cluster malfunction



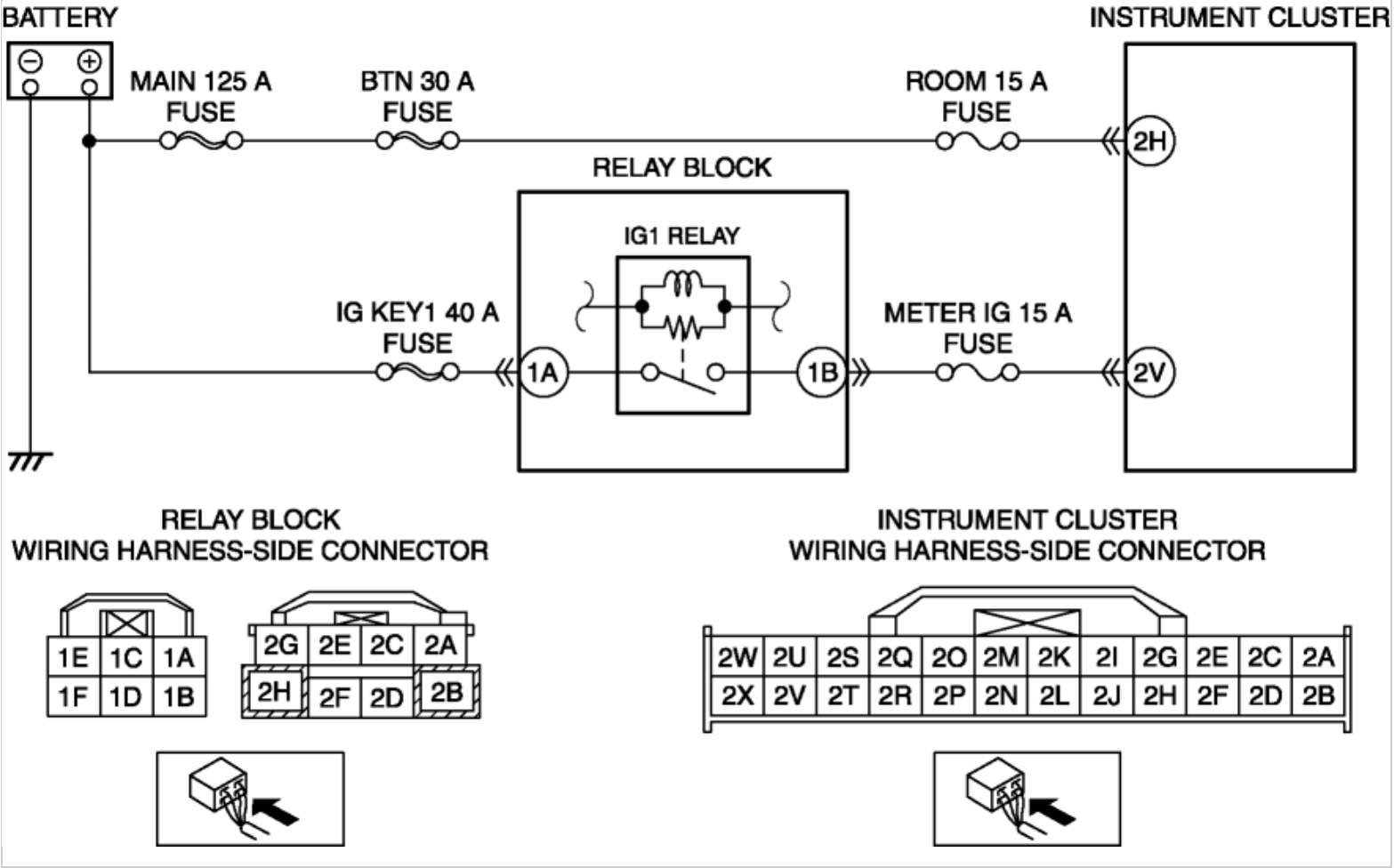
Diagnostic Procedure

Step	Inspection	Action
1	PERFORM PCM DTC INSPECTION - Perform the PCM DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Are any DTCs present?	YesGo to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .) (See DTC TABLE [MZI 3.7 V6] .)
		NoGo to the next step.
2	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove and inspect the following fuses: - MAIN 125 A fuse - BTN 30 A fuse - ROOM 15 A fuse - IG KEY1 40 A fuse - METER IG 15 A fuse - Are there any malfunction?	YesReplace the malfunctioning fuse, then go to Step 11.
		NoGo to the next step.

3	INSPECT BATTERY - Inspect the battery. (See BATTERY INSPECTION [MZR 2.5].) (See BATTERY INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Recharge or replace the battery, then go to Step 11. (See BATTERY RECHARGING [MZR 2.5].) (See BATTERY RECHARGING [MZI 3.7 V6].) (See BATTERY REMOVAL/ INSTALLATION [MZR 2.5].) (See BATTERY REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.
4	INSPECT GENERATOR - Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) (See GENERATOR INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5].) (See GENERATOR REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.
5	INSPECT IGNITION SWITCH CONNECTOR CONDITION - Disconnect the ignition switch connector. - Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). - Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11. No Go to the next step.
6	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION - Disconnect the instrument cluster connector. - Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). - Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11. No Go to the next step.
7	INSPECT IGNITION SWITCH - Inspect the ignition switch. (See IGNITION SWITCH INSPECTION [WITHOUT ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) - Is there any malfunction?	Yes Replace the ignition switch, then go to Step 11. (See IGNITION SWITCH REMOVAL/ INSTALLATION [WITHOUT ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) No Go to the next step.
8	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - Install the fuses. - Reconnect the negative battery cable.	Yes Go to the next step. No Repair or replace the wiring harness for a possible short to ground or open circuit, then go to Step 11.

	• Switch the ignition to ON. • Measure the voltage between following terminals and body ground: ▪ Instrument cluster terminal 2H (wiring harness-side) ▪ Ignition switch terminal E (wiring harness-side) • Is the voltage B+ ?		
9	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND • Switch the ignition to off. • Inspect for continuity between ignition switch terminal C (wiring harness-side) and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to ground, then go to Step 11.
		No	Go to the next step.
10	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between ignition switch terminal C (wiring harness-side) and instrument cluster terminal 2V (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING COMPLETED • Switch the ignition to off. • Make sure reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from the instrument cluster memory using the M-MDS. (See CLEARING DTC [INSTRUMENT CLUSTER].) • Perform the instrument cluster DTC inspection using the M-MDS. (See DTC INSPECTION [INSTRUMENT CLUSTER].) • Is the same DTC present?	Yes	Replace the instrument cluster, then go to the next step. (See INSTRUMENT CLUSTER REMOVAL/ INSTALLATION .)
		No	Go to the next step.
12	VERIFY THAT NO OTHER DTCs ARE RECORDED • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [INSTRUMENT CLUSTER] .)
		No	DTC troubleshooting completed.

DESCRIPTION	Instrument cluster power supply voltage is low
DETECTION CONDITION	Instrument cluster power supply voltage less than 10 V
POSSI BLE CAUSE	• Fuse malfunction • Battery malfunction • Generator malfunction • Connector or terminal malfunction • Relay block malfunction • Open circuit in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Open circuit in the wiring harness between battery positive terminal and relay block terminal 1A • Short to ground in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Short to ground in the wiring harness between battery positive terminal and relay block terminal 1A • Short to ground in the wiring harness between relay block terminal 1B and instrument cluster terminal 2V • Open circuit in the wiring harness between relay block terminal 1B and instrument cluster terminal 2V • Instrument cluster malfunction



Diagnostic Procedure

Step	Inspection	Action
1	PERFORM PCM DTC INSPECTION - Perform the PCM DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Are any DTCs present?	YesGo to the applicable DTC inspection. (See DTC TABLE [MZR 2.5].) (See DTC TABLE [MZI 3.7 V6].) NoGo to the next step.
2	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove and inspect the following fuses: - MAIN 125 A fuse - BTN 30 A fuse - ROOM 15 A fuse - IG KEY1 40 A fuse - METER IG 15 A fuse	YesReplace the malfunctioning fuse, then go to Step 11. NoGo to the next step.

	• Are there any malfunction?		
3	INSPECT BATTERY • Inspect the battery. (See BATTERY INSPECTION [MZR 2.5].) (See BATTERY INSPECTION [MZI 3.7 V6].) • Is there any malfunction?	Yes Recharge or replace the battery, then go to Step 11. (See BATTERY RECHARGING [MZR 2.5] .) (See BATTERY RECHARGING [MZI 3.7 V6] .) (See BATTERY REMOVAL/ INSTALLATION [MZR 2.5] .) (See BATTERY REMOVAL/ INSTALLATION [MZI 3.7 V6] .)	
		No Go to the next step.	
4	INSPECT GENERATOR • Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) (See GENERATOR INSPECTION [MZI 3.7 V6].) • Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5] .) (See GENERATOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)	
		No Go to the next step.	
5	INSPECT RELAY BLOCK CONNECTOR CONDITION • Disconnect the relay block connector. • Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). • Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11.	
		No Go to the next step.	
6	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION • Disconnect the instrument cluster connector. • Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). • Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11.	
		No Go to the next step.	
7	INSPECT RELAY BLOCK • Inspect the relay block. (See RELAY BLOCK INSPECTION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) • Is there any malfunction?	Yes Replace the relay block, then go to Step 11. (See RELAY BLOCK REMOVAL/ INSTALLATION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	
		No Go to the next step.	
8	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT • Install the fuses.	Yes Go to the next step.	
		No Repair or replace the wiring harness for a possible short to ground or open circuit, then go to Step 11.	

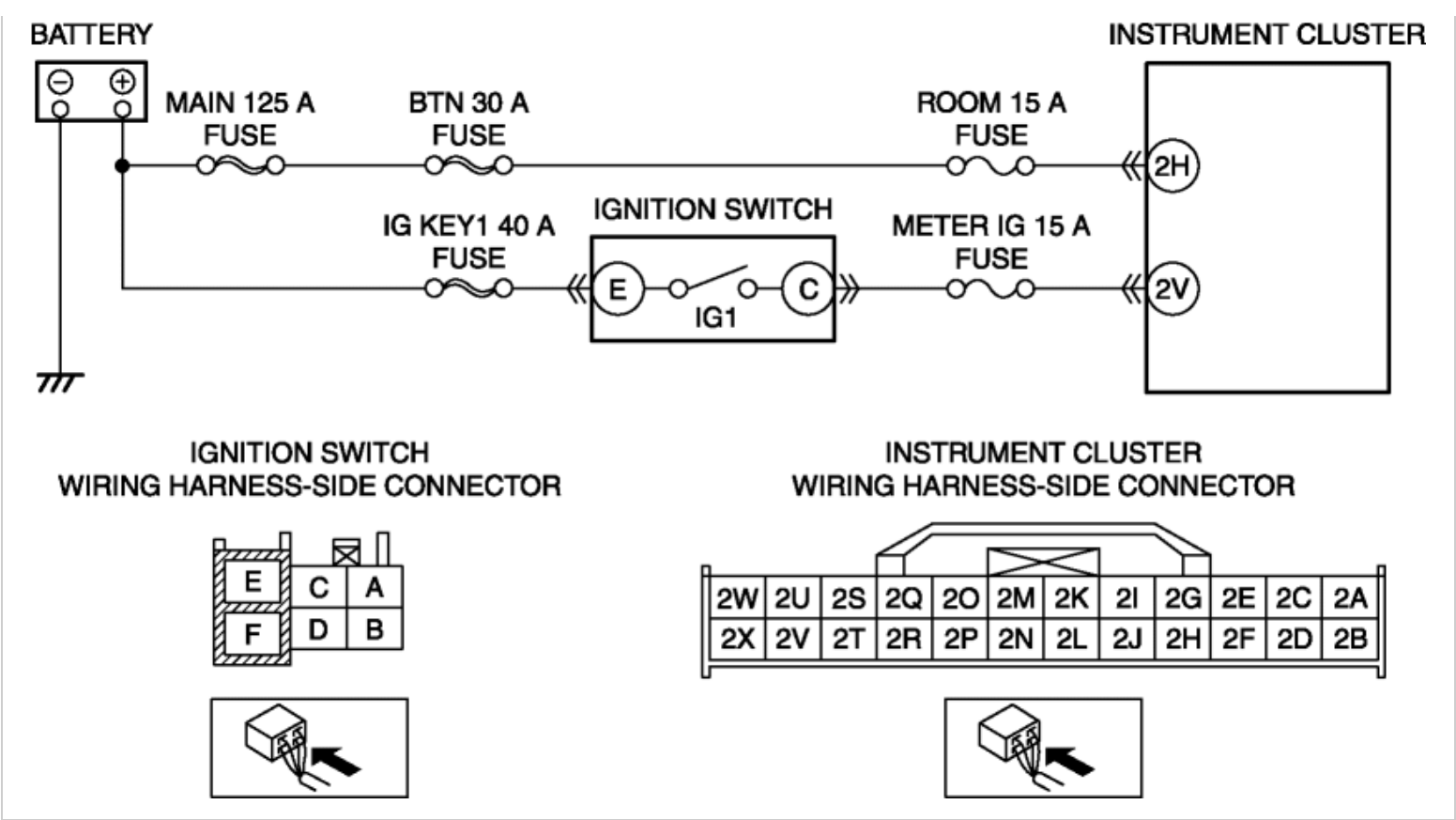
	- Reconnect the negative battery cable. - Switch the ignition to ON. - Measure the voltage between following terminals and body ground: - Instrument cluster terminal 2H (wiring harness-side) - Relay block terminal 1A (wiring harness-side) - Is the voltage B+ ?		
9	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND - Switch the ignition to off. - Inspect for continuity between relay block terminal 1B (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to ground, then go to Step 11.
		No	Go to the next step.
10	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between relay block terminal 1B (wiring harness-side) and instrument cluster terminal 2V (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING COMPLETED - Switch the ignition to off. - Make sure reconnect the disconnected connectors. - Reconnect the negative battery cable. - Clear the DTC from the instrument cluster memory using the M-MDS. (See CLEARING DTC [INSTRUMENT CLUSTER].) - Perform the instrument cluster DTC inspection using the M-MDS. (See DTC INSPECTION [INSTRUMENT CLUSTER].) - Is the same DTC present?	Yes	Replace the instrument cluster, then go to the next step. (See INSTRUMENT CLUSTER REMOVAL/ INSTALLATION .)
		No	Go to the next step.
12	VERIFY THAT NO OTHER DTCs ARE RECORDED Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [INSTRUMENT CLUSTER] .)
		No	DTC troubleshooting completed.

2012 - Mazda6 - Body and Accessories

DTC U3003:16 [INSTRUMENT CLUSTER]

Vehicles With Keyless Entry System

DESCRIPTION	Instrument cluster power supply voltage is low
DETECTION CONDITION	Instrument cluster power supply voltage less than 10 V
POSSIBLE CAUSE	• Fuse malfunction • Battery malfunction • Generator malfunction • Connector or terminal malfunction • Ignition switch malfunction • Open circuit in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Open circuit in the wiring harness between battery positive terminal and ignition switch terminal E • Short to ground in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Short to ground in the wiring harness between battery positive terminal and ignition switch terminal E • Short to ground in the wiring harness between ignition switch terminal C and instrument cluster terminal 2V • Open circuit in the wiring harness between ignition switch terminal C and instrument cluster terminal 2V • Instrument cluster malfunction



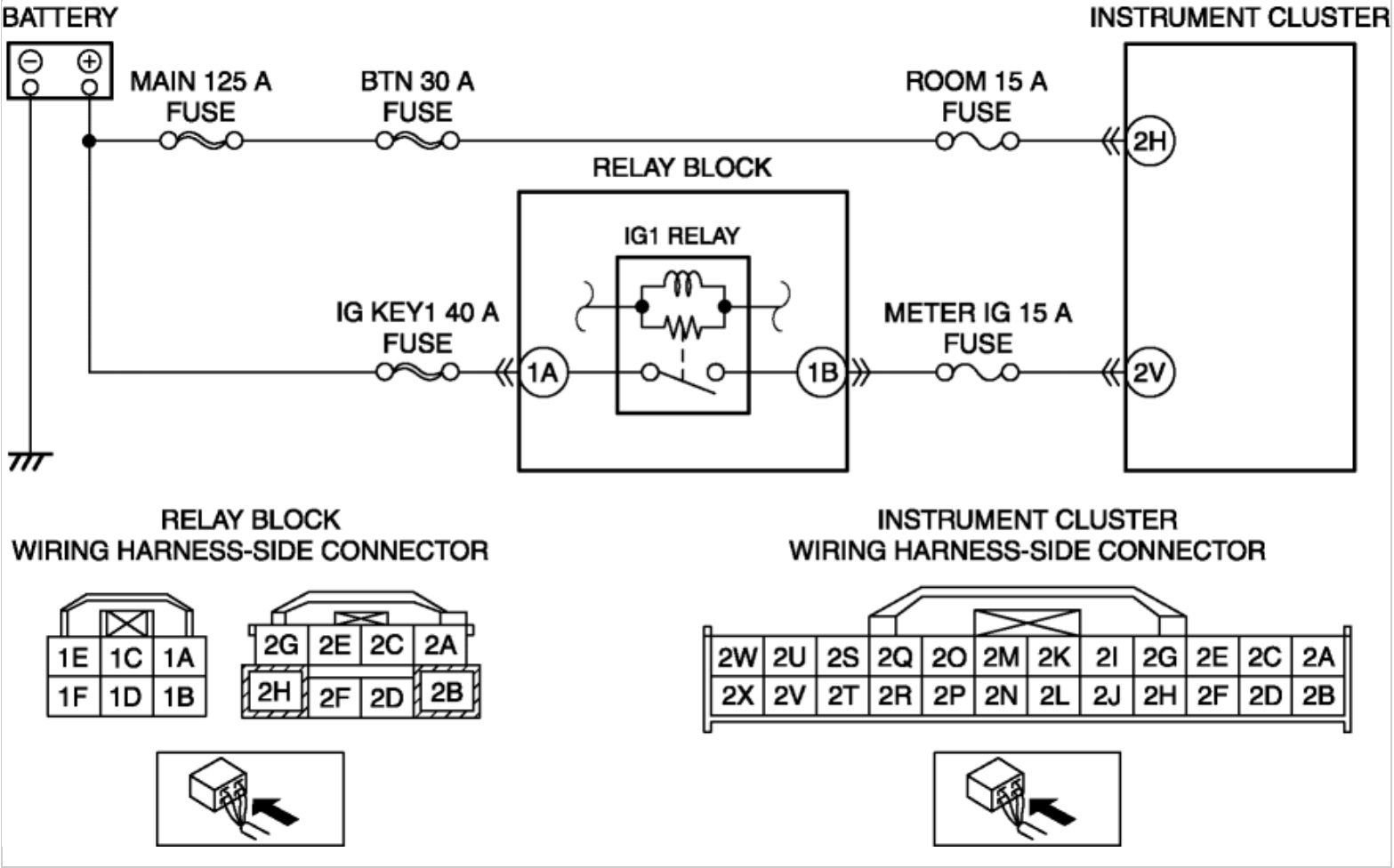
Diagnostic Procedure

Step	Inspection	Action
1	PERFORM PCM DTC INSPECTION - Perform the PCM DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Are any DTCs present?	Yes Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .) (See DTC TABLE [MZI 3.7 V6] .)
		No Go to the next step.
2	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove and inspect the following fuses: - MAIN 125 A fuse - BTN 30 A fuse - ROOM 15 A fuse - IG KEY1 40 A fuse - METER IG 15 A fuse - Are there any malfunction?	Yes Replace the malfunctioning fuse, then go to Step 11.
		No Go to the next step.

3	INSPECT BATTERY - Inspect the battery. (See BATTERY INSPECTION [MZR 2.5].) (See BATTERY INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Recharge or replace the battery, then go to Step 11. (See BATTERY RECHARGING [MZR 2.5].) (See BATTERY RECHARGING [MZI 3.7 V6].) (See BATTERY REMOVAL/ INSTALLATION [MZR 2.5].) (See BATTERY REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.
4	INSPECT GENERATOR - Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) (See GENERATOR INSPECTION [MZI 3.7 V6].) - Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5].) (See GENERATOR REMOVAL/ INSTALLATION [MZI 3.7 V6].) No Go to the next step.
5	INSPECT IGNITION SWITCH CONNECTOR CONDITION - Disconnect the ignition switch connector. - Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). - Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11. No Go to the next step.
6	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION - Disconnect the instrument cluster connector. - Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). - Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11. No Go to the next step.
7	INSPECT IGNITION SWITCH - Inspect the ignition switch. (See IGNITION SWITCH INSPECTION [WITHOUT ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) - Is there any malfunction?	Yes Replace the ignition switch, then go to Step 11. (See IGNITION SWITCH REMOVAL/ INSTALLATION [WITHOUT ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) No Go to the next step.
8	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT - Install the fuses. - Reconnect the negative battery cable.	Yes Go to the next step. No Repair or replace the wiring harness for a possible short to ground or open circuit, then go to Step 11.

	• Switch the ignition to ON. • Measure the voltage between following terminals and body ground: ▪ Instrument cluster terminal 2H (wiring harness-side) ▪ Ignition switch terminal E (wiring harness-side) • Is the voltage B+ ?		
9	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND • Switch the ignition to off. • Inspect for continuity between ignition switch terminal C (wiring harness-side) and body ground. • Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to ground, then go to Step 11.
		No	Go to the next step.
10	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT • Inspect for continuity between ignition switch terminal C (wiring harness-side) and instrument cluster terminal 2V (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING COMPLETED • Switch the ignition to off. • Make sure reconnect the disconnected connectors. • Reconnect the negative battery cable. • Clear the DTC from the instrument cluster memory using the M-MDS. (See CLEARING DTC [INSTRUMENT CLUSTER].) • Perform the instrument cluster DTC inspection using the M-MDS. (See DTC INSPECTION [INSTRUMENT CLUSTER].) • Is the same DTC present?	Yes	Replace the instrument cluster, then go to the next step. (See INSTRUMENT CLUSTER REMOVAL/ INSTALLATION .)
		No	Go to the next step.
12	VERIFY THAT NO OTHER DTCs ARE RECORDED • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [INSTRUMENT CLUSTER] .)
		No	DTC troubleshooting completed.

DESCRIPTION	Instrument cluster power supply voltage is low
DETECTION CONDITION	Instrument cluster power supply voltage less than 10 V
POSSIBLE CAUSE	• Fuse malfunction • Battery malfunction • Generator malfunction • Connector or terminal malfunction • Relay block malfunction • Open circuit in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Open circuit in the wiring harness between battery positive terminal and relay block terminal 1A • Short to ground in the wiring harness between battery positive terminal and instrument cluster terminal 2H • Short to ground in the wiring harness between battery positive terminal and relay block terminal 1A • Short to ground in the wiring harness between relay block terminal 1B and instrument cluster terminal 2V • Open circuit in the wiring harness between relay block terminal 1B and instrument cluster terminal 2V • Instrument cluster malfunction



Diagnostic Procedure

Step	Inspection	Action
1	PERFORM PCM DTC INSPECTION - Perform the PCM DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [MZR 2.5].) (See ON-BOARD DIAGNOSTIC TEST [MZI 3.7 V6].) - Are any DTCs present?	YesGo to the applicable DTC inspection. (See DTC TABLE [MZR 2.5].) (See DTC TABLE [MZI 3.7 V6].) NoGo to the next step.
2	INSPECT FUSE - Switch the ignition to off. - Disconnect the negative battery cable. - Remove and inspect the following fuses: - MAIN 125 A fuse - BTN 30 A fuse - ROOM 15 A fuse - IG KEY1 40 A fuse - METER IG 15 A fuse	YesReplace the malfunctioning fuse, then go to Step 11. NoGo to the next step.

	• Are there any malfunction?		
3	INSPECT BATTERY • Inspect the battery. (See BATTERY INSPECTION [MZR 2.5].) (See BATTERY INSPECTION [MZI 3.7 V6].) • Is there any malfunction?	Yes Recharge or replace the battery, then go to Step 11. (See BATTERY RECHARGING [MZR 2.5] .) (See BATTERY RECHARGING [MZI 3.7 V6] .) (See BATTERY REMOVAL/ INSTALLATION [MZR 2.5] .) (See BATTERY REMOVAL/ INSTALLATION [MZI 3.7 V6] .)	
		No Go to the next step.	
4	INSPECT GENERATOR • Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) (See GENERATOR INSPECTION [MZI 3.7 V6].) • Is there any malfunction?	Yes Replace the generator, then go to Step 11. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5] .) (See GENERATOR REMOVAL/ INSTALLATION [MZI 3.7 V6] .)	
		No Go to the next step.	
5	INSPECT RELAY BLOCK CONNECTOR CONDITION • Disconnect the relay block connector. • Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). • Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11.	
		No Go to the next step.	
6	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION • Disconnect the instrument cluster connector. • Inspect the connector for poor connection (such as damaged/pulled-out pins, and corrosion). • Is there any malfunction?	Yes Repair or replace the connector or terminal, then go to Step 11.	
		No Go to the next step.	
7	INSPECT RELAY BLOCK • Inspect the relay block. (See RELAY BLOCK INSPECTION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM].) • Is there any malfunction?	Yes Replace the relay block, then go to Step 11. (See RELAY BLOCK REMOVAL/ INSTALLATION [WITH ADVANCED KEYLESS ENTRY AND PUSH BUTTON START SYSTEM] .)	
		No Go to the next step.	
8	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT • Install the fuses.	Yes Go to the next step.	
		No Repair or replace the wiring harness for a possible short to ground or open circuit, then go to Step 11.	

	- Reconnect the negative battery cable. - Switch the ignition to ON. - Measure the voltage between following terminals and body ground: - Instrument cluster terminal 2H (wiring harness-side) - Relay block terminal 1A (wiring harness-side) - Is the voltage B+ ?		
9	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND - Switch the ignition to off. - Inspect for continuity between relay block terminal 1B (wiring harness-side) and body ground. - Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to ground, then go to Step 11.
		No	Go to the next step.
10	INSPECT INSTRUMENT CLUSTER POWER SUPPLY CIRCUIT FOR OPEN CIRCUIT - Inspect for continuity between relay block terminal 1B (wiring harness-side) and instrument cluster terminal 2V (wiring harness-side). - Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
11	VERIFY TROUBLESHOOTING COMPLETED - Switch the ignition to off. - Make sure reconnect the disconnected connectors. - Reconnect the negative battery cable. - Clear the DTC from the instrument cluster memory using the M-MDS. (See CLEARING DTC [INSTRUMENT CLUSTER].) - Perform the instrument cluster DTC inspection using the M-MDS. (See DTC INSPECTION [INSTRUMENT CLUSTER].) - Is the same DTC present?	Yes	Replace the instrument cluster, then go to the next step. (See INSTRUMENT CLUSTER REMOVAL/ INSTALLATION .)
		No	Go to the next step.
12	VERIFY THAT NO OTHER DTCs ARE RECORDED Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [INSTRUMENT CLUSTER] .)
		No	DTC troubleshooting completed.

