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2011 MAZDA RX-8 OEM Service and Repair Workshop Manual

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DTC INSPECTION [ELECTRIC PARKING BRAKE CONTROL MODULE]

SM2898048

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CMDTC Self Test

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select “Self Test”.

(2)Select “All CMDTCs”.

3.Verify the DTC according to the directions on the screen.

• If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection after recording the snapshot data.

4.After completion of repairs, clear all DTCs stored in the electric parking brake control module. (See CLEARING DTC [ELECTRIC PARKING BRAKE CONTROL MODULE].)

ODDTC Self Test

1.Connect the M-MDS to the DLC-2.

2.After the vehicle is identified, select the following items from the initialization screen of the M-MDS.

(1)Select “Self Test”.

(2)Select “Modules”.

(3)Select “EPB”.

3.Verify the DTC according to the directions on the screen.

• If any DTCs are displayed, perform troubleshooting according to the corresponding DTC inspection after recording the snapshot data.

4.After completion of repairs, clear all DTCs stored in the electric parking brake control module. (See CLEARING DTC [ELECTRIC PARKING BRAKE CONTROL MODULE].)

Snapshot data item	Unit		Data contents	Data read/use method	Corresponding data monitor items
TOTAL_DIST	km	Miles	Accumulated total traveled distance from completion of vehicle until electric parking brake control module detects DTC (Odometer value in instrument cluster)	The total traveled distance from which the electric parking brake control module detects DTCs to the present can be calculated by performing the following procedure. 1. Verify the odometer value in the instrument cluster. 2. Verify the snapshot data item TOTAL_DIST. 3. Subtract 2 from 1.	–
TOTAL_TIME	hh:mm:ss *2		Accumulated total elapsed time since vehicle completion until electric parking brake control module detects a DTC **Note** **• When the ROOM fuse is removed, and the ignition is switched off, the time is not included in the elapsed time.**	The elapsed time from which the electric parking brake control module detects DTCs to the present can be calculated by performing the following procedure. 1. Verify the instrument cluster PID item TOTAL_TIME. 2. Verify the snapshot data item TOTAL_TIME. 3. Subtract 2 from 1.	TOTAL_TIME *1
VPWR	V		Electric parking brake control module power supply voltage	–	VPWR
VSPD	KPH	MPH	Vehicle speed	–	–
VSPD_STATUS	Stop/0-10km/h/Over10km/h/FAIL		Vehicle speed status	• The electric parking brake control module constantly receives the vehicle speed sent via CAN communication from the instrument cluster. • If a DTC is detected, the electric parking brake control module records the vehicle speed when the DTC was detected, and it is displayed in the M-MDS.	SPEEDOMTR *1

***1:Instrument cluster PID (See PID/DATA MONITOR TABLE [INSTRUMENT CLUSTER].)**

***2:The seconds may be indicated after the decimal point.**

DTC TABLE [ELECTRIC PARKING BRAKE CONTROL MODULE]

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×: Applicable−: Not applicable

DTC No.	Electric parking brake warning light	Description	Fail-safe	Drive cycle	Self test type*1	Memory function	Page
C1020:68	ON	Error signal received from DSC HU/CM	−	−	C	×	(See DTC C1020:68 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C1128:29	ON	Electric parking brake switch circuit malfunction	×	−	C, D	×	(See DTC C1128:29 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C1128:2A	ON	Electric parking brake switch circuit malfunction	×	−	C	×	(See DTC C1128:2A [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C1128:4A	ON	Electric parking brake switch circuit malfunction	×	−	C, D	×	(See DTC C1128:4A [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C112A:77	ON	Incorrect electric parking brake motor gear unit position	−	−	C	×	(See DTC C112A:77 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:07	ON	Mechanical problem of electric parking brake motor gear unit (RH)	−	−	C	×	(See DTC C2005:07 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:11	ON	Electric parking brake motor gear unit (RH) circuit malfunction	−	−	C, D	×	(See DTC C2005:11 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:12	ON	Electric parking brake motor gear unit (RH) circuit malfunction	−	−	C, D	×	(See DTC C2005:12 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:13	ON	Electric parking brake motor gear unit (RH) circuit malfunction	−	−	C, D	×	(See DTC C2005:13 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:19	ON	Electric parking brake motor gear unit (RH) circuit malfunction	−	−	C, D	×	(See DTC C2005:19 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
C2005:71	ON	Electric parking brake motor gear unit (RH) sticking	−	−	C	×	(See DTC C2005:71 [ELECTRIC PARKING BRAKE CONTROL MODULE].)

DTC No.	Electric parking brake warning light	Description	Fail-safe	Drive cycle	Self test type*1	Memory function	Page
U3000:1C	ON	Electric parking brake control module power supply voltage monitor error	–	–	C, D	×	(See DTC U3000:1C [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3000:1D	ON	Electric parking brake control module internal malfunction	–	–	C, D	×	(See DTC U3000:1D [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3000:53	ON	Maintenance mode switching	–	–	C	×	(See DTC U3000:53 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3000:54	ON	Electric parking brake motor gear unit position learning not completed	–	–	C	×	(See DTC U3000:54 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3001:04	ON	Electric parking brake control module internal malfunction	–	–	C	×	(See DTC U3001:04 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3003:16	ON	Electric parking brake control module low power supply voltage input	–	–	C, D	×	(See DTC U3003:16 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3003:17	ON	Electric parking brake control module high power supply voltage input	–	–	C, D	×	(See DTC U3003:17 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3006:01	ON	Electric parking brake control module low power supply voltage input	–	–	C, D	×	(See DTC U3006:01 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U3007:01	ON	Electric parking brake control module low power supply voltage input	–	–	C, D	×	(See DTC U3007:01 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
U300A:62	ON	Ignition switch status mismatch	–	–	C	×	(See DTC U300A:62 [ELECTRIC PARKING BRAKE CONTROL MODULE].)

*1:C: CMDTC self test, D: ODDTC self test

Step	Inspection	Results	Action
3	**INSPECT ELECTRIC PARKING BRAKE CONTROL MODULE CONNECTOR CONDITION** • Disconnect the electric parking brake switch 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 7.
4	**INSPECT ELECTRIC PARKING BRAKE SWITCH CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the electric parking brake switch and electric parking brake control module connectors are disconnected. • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Switch the ignition ON (engine off or on). • Measure the voltage at the following terminals (wiring harness-side): — Electric parking brake switch terminal C — Electric parking brake switch terminal E — Electric parking brake switch terminal G — Electric parking brake switch terminal H • 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 the following terminals: • Electric parking brake switch terminal C–Electric parking brake control module terminal 2K • Electric parking brake switch terminal E–Electric parking brake control module terminal 2Q • Electric parking brake switch terminal G–Electric parking brake control module terminal 2L • Electric parking brake switch terminal H–Electric parking brake control module terminal 1W **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 Step 7.
5	**INSPECT ELECTRIC PARKING BRAKE SWITCH CIRCUIT FOR OPEN CIRCUIT** • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Verify that the electric parking brake switch and electric parking brake control module connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Electric parking brake switch terminal C–Electric parking brake control module terminal 2K — Electric parking brake switch terminal E–Electric parking brake control module terminal 2Q — Electric parking brake switch terminal G–Electric parking brake control module terminal 2L — Electric parking brake switch terminal H–Electric parking brake control module terminal 1W • 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 the following terminals: • Electric parking brake switch terminal C–Electric parking brake control module terminal 2K • Electric parking brake switch terminal E–Electric parking brake control module terminal 2Q • Electric parking brake switch terminal G–Electric parking brake control module terminal 2L • Electric parking brake switch terminal H–Electric parking brake control module terminal 1W **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 7.

Step	Inspection	Results	Action
2	**INSPECT ELECTRIC PARKING BRAKE SWITCH** • Visually verify the electric parking brake switch for the following. — Interference with surrounding parts — Foreign matter penetration in movable parts • Is the electric parking brake switch normal?	Yes	Go to the next step.
		No	**Interference with surrounding parts:** • Install the electric parking brake switch correctly. (See ELECTRIC PARKING BRAKE SWITCH REMOVAL/INSTALLATION.) — If the malfunction recurs, replace the electric parking brake switch. (See ELECTRIC PARKING BRAKE SWITCH REMOVAL/INSTALLATION.) • Go to the next step. **Foreign matter has penetrated movable parts:** • Remove the foreign matter, then go to the next step.
3	**VERIFY THAT REPAIRS HAVE BEEN COMPLETED** • Clear the DTC for the electric parking brake control module using the M-MDS. (See CLEARING DTC [ELECTRIC PARKING BRAKE CONTROL MODULE].) • Perform the following procedure 3 times or more. — Pull up the electric parking brake switch to operate the electric parking brake. — Press down the electric parking brake switch to release the electric parking brake. • Retrieve the electric parking brake control module DTCs using the M-MDS. (See DTC INSPECTION [ELECTRIC PARKING BRAKE CONTROL MODULE].) • Is the same DTC displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the electric parking brake control module. (See ELECTRIC PARKING BRAKE CONTROL MODULE REMOVAL/INSTALLATION.) Go to the next step.
		No	Go to the next step.
4	**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 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
		No	DTC troubleshooting completed.

Step	Inspection	Results	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 electric parking brake control module using the M-MDS. (See CLEARING DTC [ELECTRIC PARKING BRAKE CONTROL MODULE].) • Perform the following procedure 3 times or more. — Pull up the electric parking brake switch to operate the electric parking brake. — Press down the electric parking brake switch to release the electric parking brake. • Retrieve the electric parking brake control module DTCs using the M-MDS. (See DTC INSPECTION [ELECTRIC PARKING BRAKE CONTROL MODULE].) • Is the same DTC displayed?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the electric parking brake control module. (See ELECTRIC PARKING BRAKE CONTROL MODULE 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 [ELECTRIC PARKING BRAKE CONTROL MODULE].)
		No	DTC troubleshooting completed.

DTC C2005:11 [ELECTRIC PARKING BRAKE CONTROL MODULE]

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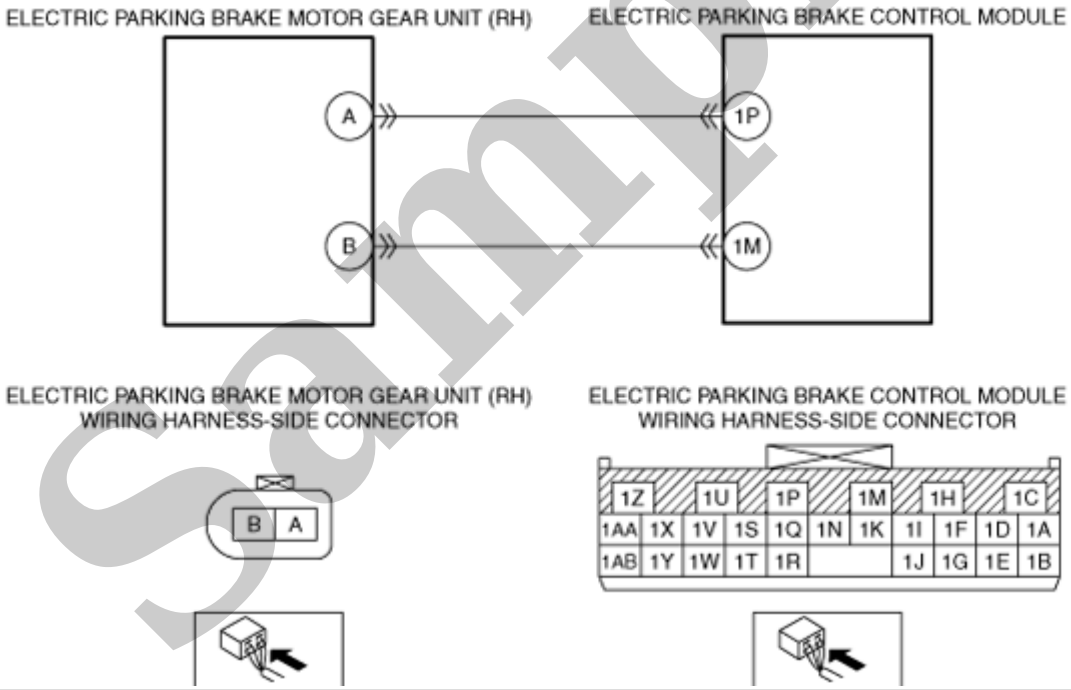
Description	**Electric parking brake motor gear unit (RH) circuit malfunction**
Detection condition	• Electric parking brake control module detects a short to ground in the electric parking brake motor gear unit (RH) circuit.
Fail-safe	Not applicable
Possible cause	• Electric parking brake motor gear unit (RH) connector or terminal malfunction • Electric parking brake control module connector or terminal malfunction • Short to ground in wiring harness between the following terminals: — Electric parking brake motor gear unit (RH) terminal A—Electric parking brake control module terminal 1P — Electric parking brake motor gear unit (RH) terminal B—Electric parking brake control module terminal 1M • Electric parking brake motor gear unit (RH) malfunction • Electric parking brake control module malfunction



Diagnostic Procedure