Your Ultimate Source for OEM Repair Manuals

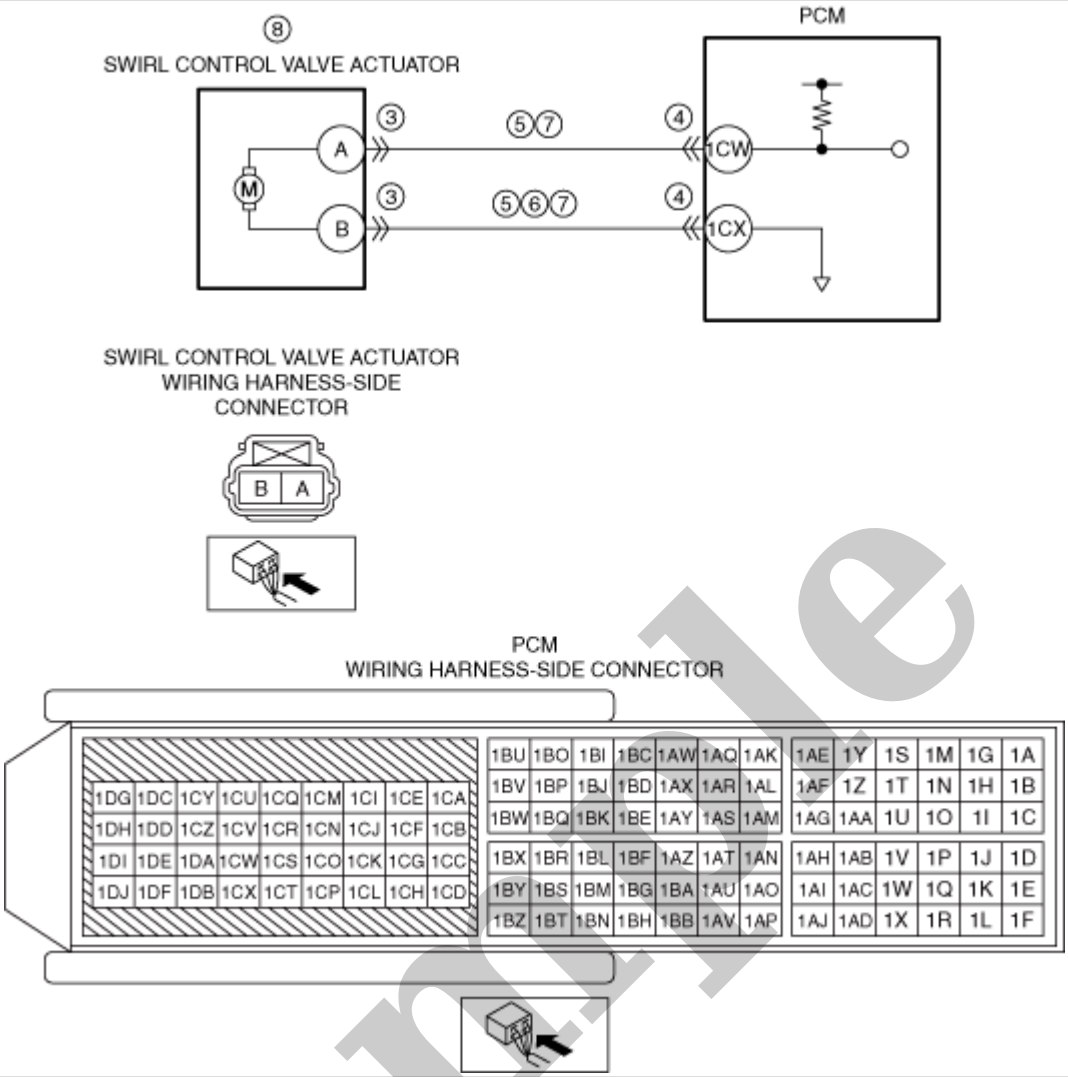
FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

1996 MAZDA RX-7 (FD) OEM Service and Repair Workshop Manual

Go to manual page

STEP	INSPECTION	RESULTS	ACTION
3	**VERIFY RELATED REPAIR INFORMATION AVAILABILITY** • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
4	**INSPECT THROTTLE BODY CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the throttle body connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 10.
		No	Go to the next step.
5	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 10.
		No	Go to the next step.
6	**INSPECT THROTTLE VALVE ACTUATOR CIRCUIT FOR SHORT TO GROUND** • Verify that the throttle body and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Throttle body terminal E — Throttle body terminal F • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Throttle body terminal E—PCM terminal 1CQ • Throttle body terminal F—PCM terminal 1CR **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 Step 10.
		No	Go to the next step.
7	**INSPECT THROTTLE VALVE ACTUATOR CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the throttle body and PCM connectors are disconnected. • Switch the ignition ON (engine off). **Note** **• Another DTC may be stored by the PCM detecting an open circuit.** • Measure the voltage at the following terminals (wiring harness-side): — Throttle body terminal E — Throttle body terminal F • 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: • Throttle body terminal E—PCM terminal 1CQ • Throttle body terminal F—PCM terminal 1CR **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 10.

DTC P2008:00	Swirl control valve actuator control circuit open



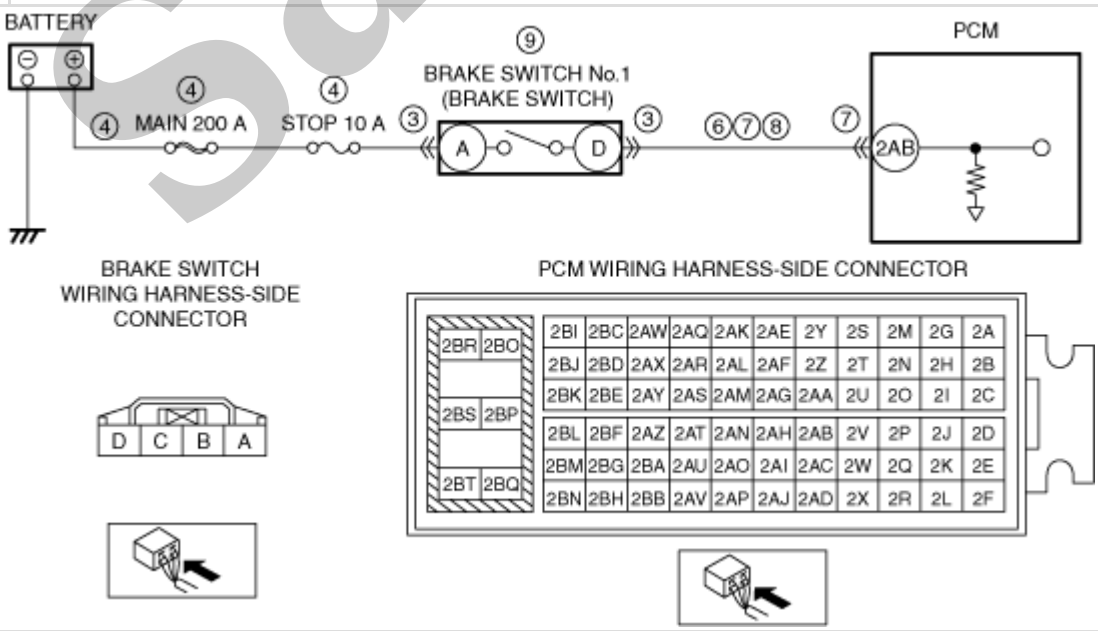
Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION OR SERVICE INFORMATION AVAILABILITY • Verify related Service Bulletins, on-line repair information, or Service Information availability. • Is any related Information available?	Yes	Perform repair or diagnosis according to the available information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.

DTC P0703:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM2896773

id0102s970650

DTC P0703:00	Brake switch input circuit problem
DETECTION CONDITION	• The brake switch does not switch even though the vehicle is stopped 8 times repeatedly from a vehicle speed of 30 km/h {19 mph} or more. Diagnostic support note • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition in two consecutive drive cycles or in one drive cycle while the DTC for the same malfunction has been stored in the PCM. • PENDING CODE is available if the PCM detects the above malfunction condition during first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	Caution • Inspect the brake switch with it installed to the brake pedal, otherwise the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one. • Brake switch connector or terminals malfunction • Short to ground or open circuit in brake switch No.1 power supply circuit: — Short to ground in wiring harness between MAIN 200 A fuse and brake switch terminal A — MAIN 200 A fuse and/or STOP 10 A fuse malfunction — Open circuit in wiring harness between battery positive terminal and brake switch terminal A • Short to ground in wiring harness between brake switch terminal D and PCM terminal 2AB • PCM connector or terminals malfunction • Short to power supply in wiring harness between brake switch terminal D and PCM terminal 2AB • Open circuit in wiring harness between brake switch terminal D and PCM terminal 2AB • Brake switch No.1 malfunction • PCM malfunction
	

Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
		No	Inspect the MAIN 200 A fuse and STOP 10 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between MAIN 200 A fuse and brake switch terminal A. **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 malfunctioning fuse. • If the fuse is damaged: — Replace the malfunctioning fuse. • If all fuses are normal: — Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and brake switch terminal A. **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 10.

DTC P0402:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM3511155

id0102s915520

Note

• To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	**EGR flow excessive detected**	
DETECTION CONDITION	Determination conditions	• When the following condition is met, the EGR volume is higher than the specification for the target value for a continuous specified time.
	Preconditions	• If any of the following conditions is met: — Mass air flow after the EGR valve is close: 3.0 g {0.11 oz} or more — Engine speed: 1,600 rpm or less — Purge control: not active — Fuel injection control: during fuel cut — The following DTCs are not detected: • Intake valve timing control system: P0010:00, P0011:00, and P0012:00 • CKP sensor and intake CMP sensor: P0016:00 • TP sensor: P0122:00, P0123:00, and P2135:00 • ECT sensor: P0116:00, P0117:00, and P0118:00 • MAP sensor: P0069:00, P0107:00, and P0108:00 • EGR valve control system: P0405:00, P0406:00, P0487:00 and P0488:00 • MAF sensor: P0101:00, P0102:00, and P0103:00
	Drive cycle	• 2
	Self test type	• CMDTC self test
	Sensor used	• EGR valve • MAF sensor • MAP sensor
FAIL-SAFE FUNCTION	• Not applicable	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• The following vehicle conditions differ depending on the type of malfunction — Illuminates the check engine light	
POSSIBLE CAUSE	• Erratic signal to PCM — MAF sensor signal malfunction — MAP sensor signal malfunction — Input signal part connector or terminals malfunction — Input signal part related circuit malfunction • EGR valve malfunction (stuck open) • PCM malfunction	

System Wiring Diagram

• Not applicable

STEP	INSPECTION		ACTION
6	PURPOSE: VERIFY CONNECTOR CONNECTIONS • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) PCM: — MAF — MAP — MAP_V • When the following parts are shaken, does the PID value include a PID item which has changed? — MAF sensor — MAP sensor — PCM	Yes	Repair or replace the applicable connector parts. Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 2.
		No	Go to Troubleshooting Diagnostic Procedure to perform the procedure from Step 1.

Troubleshooting Diagnostic Procedure

Intention of troubleshooting procedure

• Step 1

— Perform a unit inspection of the EGR valve.

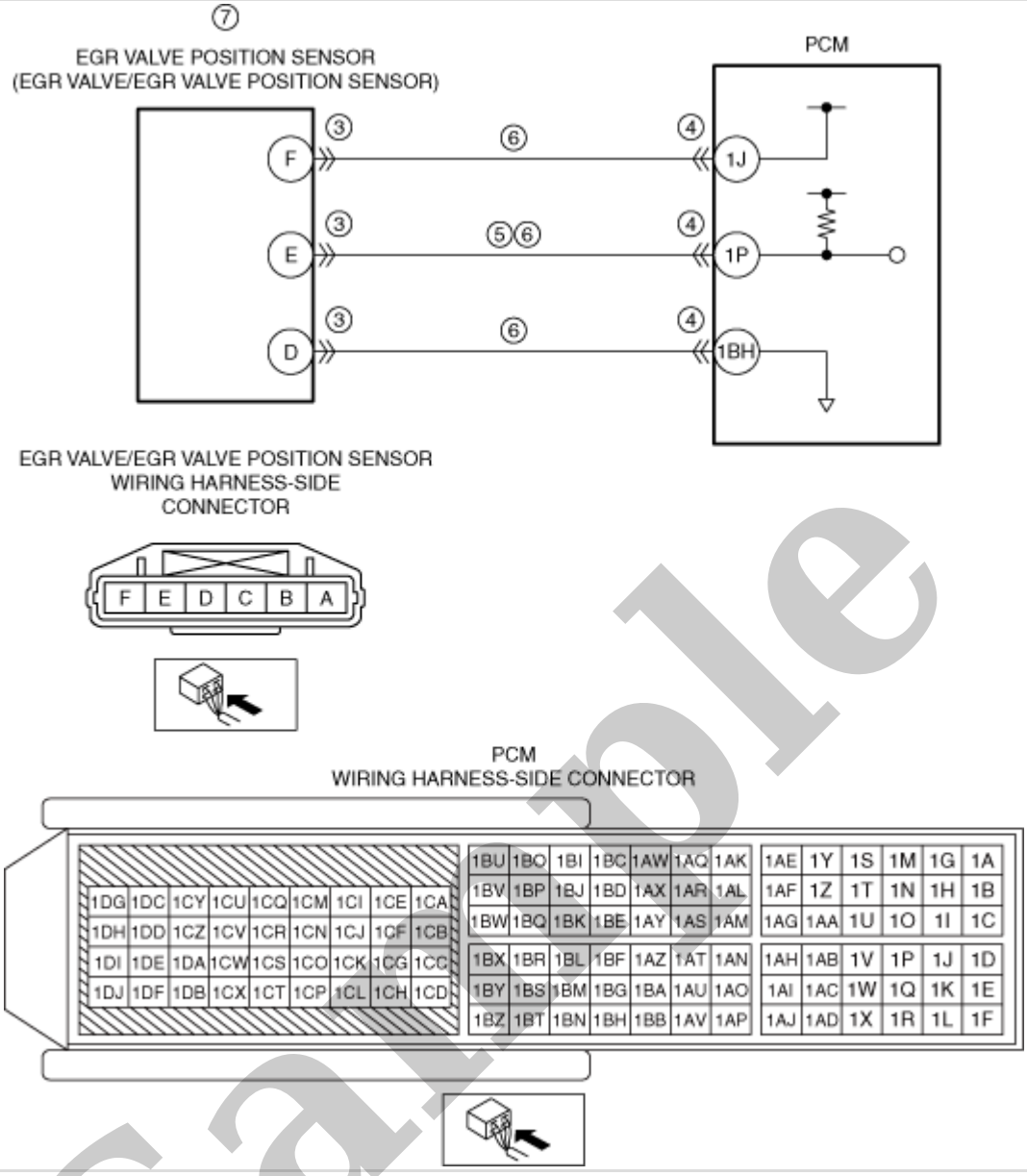
• Step 2–3

— Verify that the primary malfunction is resolved and there are no other malfunctions.

STEP	INSPECTION		ACTION
1	PURPOSE: DETERMINE INTEGRITY OF EGR VALVE • Inspect the EGR valve. (See EGR VALVE INSPECTION [SKYACTIV-G (WITH EGR COOLER)].) • Is there any malfunction?	Yes	Replace the EGR valve, then go to the next step. (See EGR VALVE REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)
		No	Go to the next step.
2	PURPOSE: PERFORM DTC INSPECTION AND VERIFY IF MALFUNCTIONING PART IS PCM • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Is the PENDING CODE for this DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
3	PURPOSE: VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
2	**VERIFY RELATED REPAIR INFORMATION AVAILABILITY** • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT EGR VALVE/EGR VALVE POSITION SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the EGR valve/EGR valve position sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 8.
		No	Go to the next step.
4	**INSPECT EGR VALVE POSITION SENSOR CIRCUIT FOR SHORT TO GROUND** • Verify that the EGR valve/EGR valve position sensor connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — EGR valve/EGR valve position sensor terminal F — EGR valve/EGR valve position sensor terminal E • Is there continuity?	Yes	Disconnect the PCM connector and inspect the wiring harness for short to ground. • If the short to ground circuit could be detected in the wiring harness: — Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • EGR valve/EGR valve position sensor terminal F–PCM terminal 1J • EGR valve/EGR valve position sensor terminal E–PCM terminal 1P **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. • If the short to ground circuit could not be detected in the wiring harness: — Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) Go to Step 8.
		No	Go to the next step.
5	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 8.
		No	Go to the next step.

DTC P0406:00	EGR valve position sensor circuit high input



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.

DTC P0504:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

SM2896670

id0102s915560

DTC P0504:00	Brake switch circuit problem
DETECTION CONDITION	• The condition in which the brake switch No.1 and No.2 signals are both on or off continues for 3 s or more and the condition is repeated 5 times. **Diagnostic support note** • This is a continuous monitor (other). • The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	**Caution** **• Inspect the brake switch with it installed to the brake pedal, otherwise the brake switch may not operate normally. If the brake switch is removed from the brake pedal, replace the brake switch with a new one.** • Brake switch connector or terminals malfunction • Short to ground or open circuit in brake switch No.1 power supply circuit — Short to ground in wiring harness between MAIN 200 A fuse and brake switch terminal A — MAIN 200 A fuse and/or STOP 10 A fuse malfunction — Open circuit in wiring harness between battery positive terminal and brake switch terminal A • Open circuit in wiring harness between brake switch terminal B and body ground • Short to ground in wiring harness between the following terminals: — Brake switch terminal D—PCM terminal 2AB — Brake switch terminal C—PCM terminal 2P • PCM connector or terminals malfunction • Short to power supply in wiring harness between the following terminals: — Brake switch terminal D—PCM terminal 2AB — Brake switch terminal C—PCM terminal 2P • Open circuit in wiring harness between the following terminals: — Brake switch terminal D—PCM terminal 2AB — Brake switch terminal C—PCM terminal 2P • Brake switch malfunction • PCM malfunction