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2012 MAZDA RX-8 OEM Service and Repair Workshop Manual

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STEP	INSPECTION	ACTION	
3	VERIFY DTC TROUBLESHOOTING COMPLETED • Clear the DTC using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Perform the following procedure to ensure that the DTC has been resolved: 1. Drive the vehicle for 1 s or more under the following condition: • Vehicle speed: 16 km/h {9.9 mph} or more • Perform the DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No	DTC troubleshooting completed.

Sample

Sample

STEP	INSPECTION	ACTION	
3	VERIFY DTC TROUBLESHOOTING COMPLETED • Clear the DTC using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Perform the following procedure to ensure that the DTC has been resolved: 1. Switch the ignition ON (engine off or on). • Perform the DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No	DTC troubleshooting completed.

Sample

STEP	INSPECTION		ACTION
5	INSPECT SELECTOR LEVER COMPONENT GROUND CIRCUIT FOR OPEN CIRCUIT • Verify that the selector lever component connector is disconnected. • Inspect for continuity between selector lever component terminal H (wiring harness-side) and body ground. • 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 selector lever component terminal H and body ground. 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 11.
6	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION • Disconnect the instrument cluster 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 11.
		No	Go to the next step.
7	INSPECT SELECTOR LEVER COMPONENT CIRCUIT FOR SHORT TO GROUND • Verify that the selector lever component and instrument cluster connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Selector lever component terminal E — Selector lever component terminal C — Selector lever component 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: • Selector lever component terminal E–Instrument cluster terminal H • Selector lever component terminal C–Instrument cluster terminal F • Selector lever component terminal F–Instrument cluster terminal G 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 11.
		No	Go to the next step.

DTC P0842:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898339

id0502o982260

DTC P0842:00	Oil pressure switch No.1 (Oil pressure switch B) stuck on
DETECTION CONDITION	• Under the following conditions, oil pressure switch No.1 stuck-on detected by combination of gear ratio malfunction and oil pressure switch pattern malfunction: — Engine is running. — ATF temperature is 20 °C {68 °F} or more. — There is no difference between vehicle speed signal from DSC HU/CM and output shaft speed sensor signal. — Turbine/input shaft speed sensor and output shaft speed sensor DTC is not recorded.
FAIL-SAFE FUNCTION	• Limits engine torque. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• Oil pressure switch No.1 malfunction • TCM malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY DTC OUTPUT STATUS • Is the DTC P1738:00 also present?	Yes	Go to the applicable DTC inspection. (See DTC P1738:00 [TCM (GW6A-EL, GW6AX-EL)] .)
		No	Go to the next step.
2	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	Go to the next step.
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.

STEP	INSPECTION		ACTION
4	VERIFY THAT DTC IS PRESENT • Clear the DTC using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Perform the following procedure to ensure that the DTC has been resolved: 1. Start the engine. 2. Verify that the ATF temperature is 20 °C (68 °F) or more. • Perform the DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Is the DTC P0843:00 present?	Yes	Replace the oil pressure switch B, then go to the next step. (See OIL PRESSURE SWITCH REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL] .)
		No	DTC troubleshooting completed.
5	RE-PERFORM ON-BOARD DIAGNOSTIC TEST • Perform the following procedure to ensure that the DTC has been resolved: 1. Start the engine. 2. Verify that the ATF temperature is 20 °C (68 °F) or more. • Perform the on-board diagnostic test. (See ON-BOARD DIAGNOSTIC TEST MODE [TCM (GW6A-EL, GW6AX-EL)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No	DTC troubleshooting completed.

STEP	INSPECTION	ACTION	
7	INSPECT TCM POWER SUPPLY CIRCUIT • Always reconnect all disconnected connectors. • Access the PID VPWR using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM PID/DATA MONITOR INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Is the PID value B+?	Yes	Go to the next step.
		No	Inspect the AT 15 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between AT 15 A fuse and TCM 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 fuse. • If the fuse is deteriorated: — Replace the malfunctioning fuse. • If the fuse is normal: — Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and TCM 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 the next step.

Sample

DTC P0735:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898344

id0502o982510

DTC P0735:00	5GR incorrect ratio
DETECTION CONDITION	• In D position, 5GR, the following phenomenon occurs: — There is difference between turbine/input shaft speed and output shaft speed sensor speed for 230 to 1,980 ms (varies with ATF temperature and ECT) during shift-up. — There is difference between turbine/input shaft speed and output shaft speed sensor speed for 1,500 to 3,900 ms (varies with ATF temperature) while driving without shifting.
FAIL-SAFE FUNCTION	• Inhibits malfunctioning gear. • Limits engine torque. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• ATF is less than specified value • Clutch burnt • Shift solenoid malfunction • ATF leakage from clutch circuit • Control valve body malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY DTC OUTPUT STATUS • Are any the following DTCs displayed? — P0746:00, - P0751:00, P0752:00, - P0756:00, P0757:00, - P0761:00, P0762:00, - P0766:00, P0767:00, - P0771:00, P0772:00, - P1738:00, P1784:00	Yes Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No Go to the next step.
2	INSPECT ATF LEVEL • Inspect the ATF level. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [GW6A-EL, GW6AX-EL].) • Is there any malfunction?	Yes Adjust the ATF level to the specification, then go to the next step. (See AUTOMATIC TRANSAXLE FLUID (ATF) ADJUSTMENT [GW6A-EL, GW6AX-EL] .)
		No Go to the next step.