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1998 MAZDA Xedos 9 OEM Service and Repair Workshop Manual

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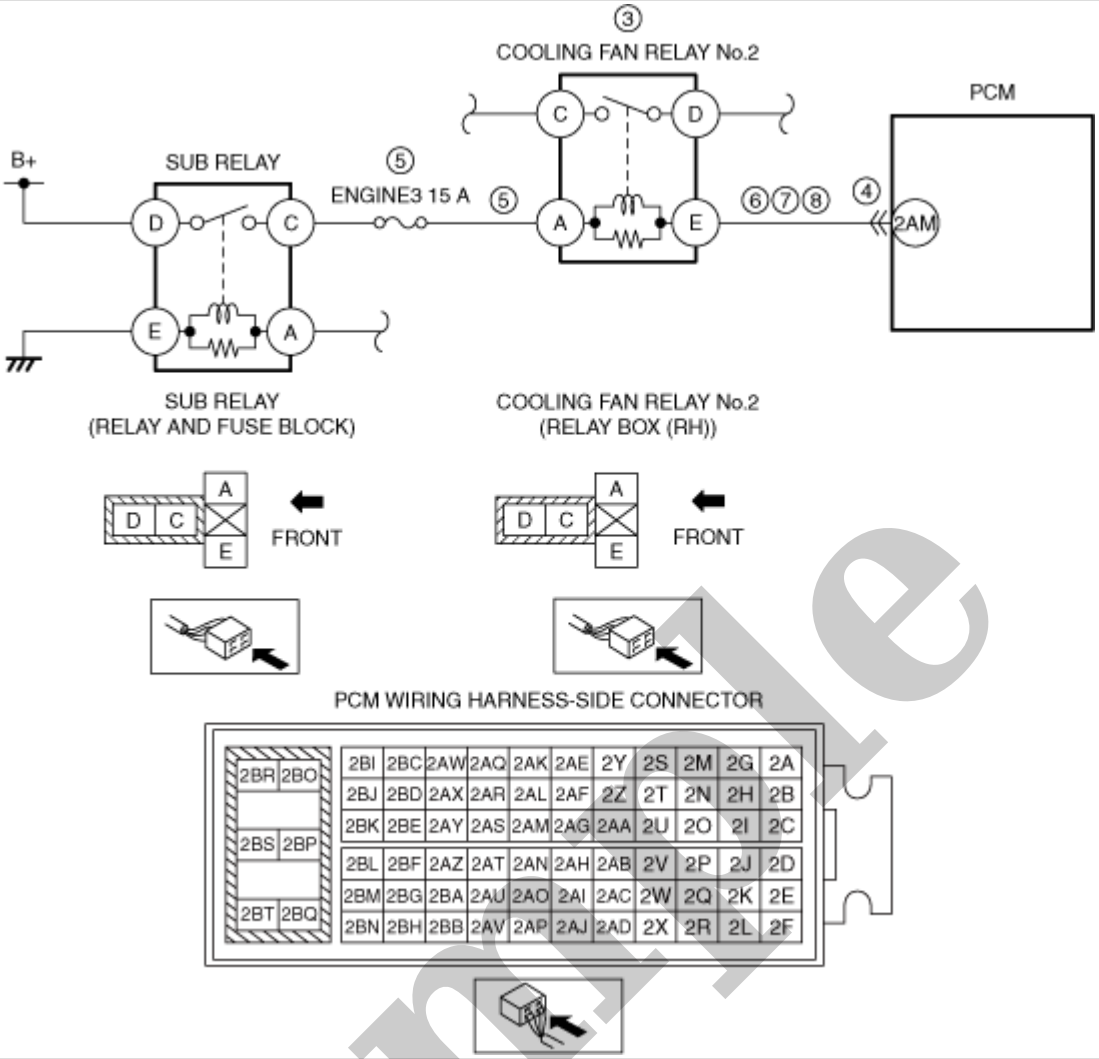
DTC P0480:00	Cooling fan relay No.2 control circuit malfunction



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 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	RESULTS	ACTION
10	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT 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 COOLING FAN RELAY No.1 AND No.3 • Switch the ignition off. • Remove the cooling fan relay No.1 and No.3. (See RELAY LOCATION.) • Inspect the cooling fan relay No.1 and No.3. (See RELAY INSPECTION.) • Is there any malfunction?	Yes	Replace the cooling fan relay No.1 and/or No.3, then go to Step 9.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
9	VERIFY DTC TROUBLESHOOTING COMPLETED • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
10	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

DTC U0336:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

SM2897024

id0102t390150

DTC U0336:00	SAS control module error
DETECTION CONDITION	• When any of the following conditions is met: — CAN communication line malfunction between SAS control module and PCM — SAS control module internal malfunction **Diagnostic support note** • This is a continuous monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• CAN drive error (SAS control module or PCM) • CAN communication line malfunction between SAS control module and PCM — SAS control module terminal 3Q−Front body control module (FBCM) terminal 2K — SAS control module terminal 3S−Front body control module (FBCM) terminal 2I — Front body control module (FBCM) terminal 2P−PCM terminal 2S — Front body control module (FBCM) terminal 2N−PCM terminal 2T • SAS control module connector or terminals malfunction • PCM connector or terminals malfunction • SAS control module malfunction • PCM malfunction

DTC U0284:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

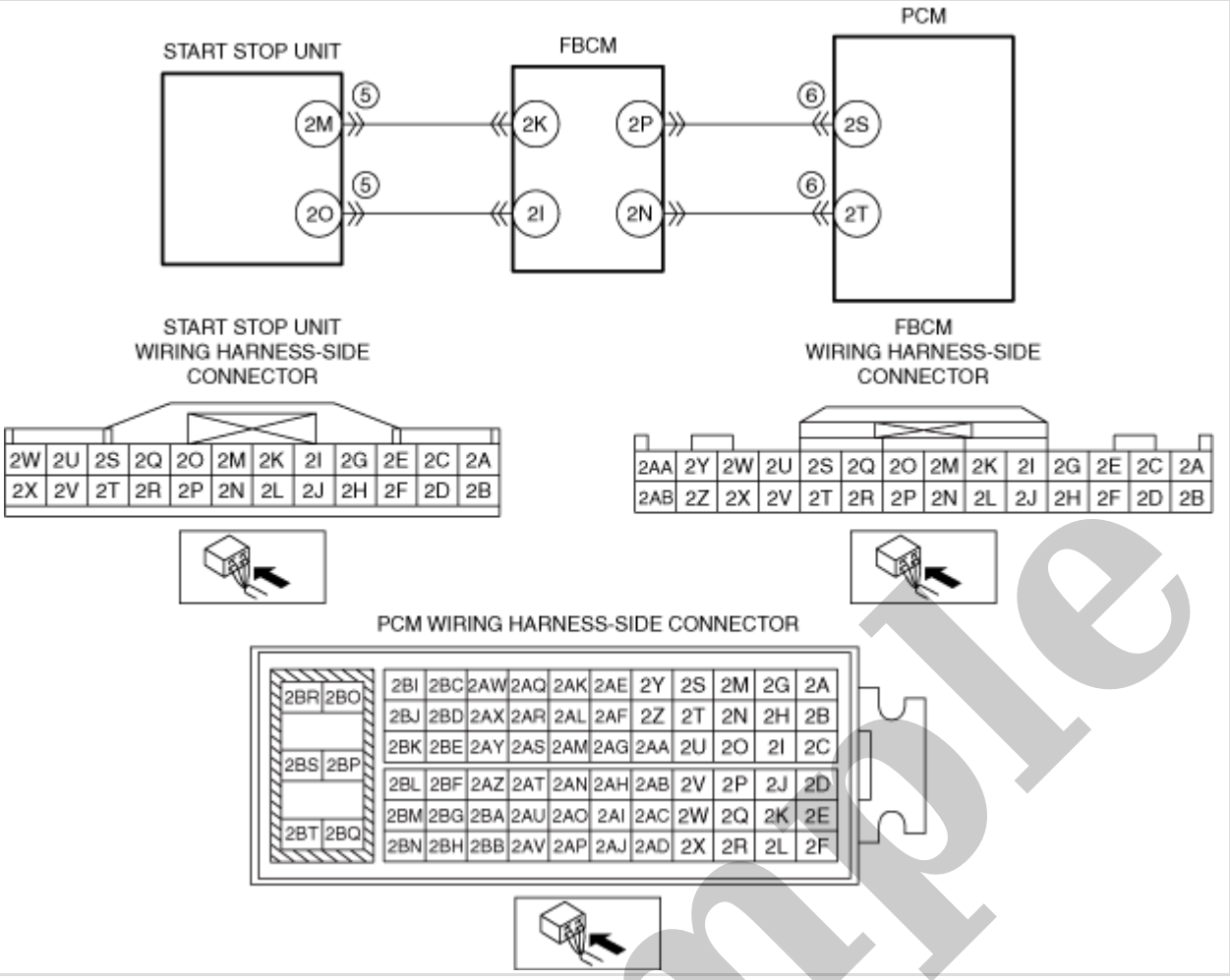
SM2897027

id0102t391040

DTC U0284:00	**LIN communication system: Communication error between active air shutter and PCM**
DETECTION CONDITION	• PCM detects a communication error between the PCM and active air shutter. **Diagnostic support note** • This is an intermittent monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• LIN communication line malfunction between active air shutter and PCM • Active air shutter connector or terminals malfunction • Short to ground or open circuit in active air shutter power supply circuit — Short to ground in wiring harness between ENGINE3 15 A fuse and active air shutter terminal A — ENGINE3 15 A fuse malfunction — Open circuit in wiring harness between sub relay terminal C and active air shutter terminal A • Open circuit in wiring harness between active air shutter terminal D and body ground • PCM connector or terminals malfunction • Short to ground in wiring harness between active air shutter terminal C and PCM terminal 2Y • Short to power supply in wiring harness between active air shutter terminal C and PCM terminal 2Y • Open circuit in wiring harness between active air shutter terminal C and PCM terminal 2Y • Active air shutter malfunction • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
5	**INSPECT ACTIVE AIR SHUTTER GROUND CIRCUIT FOR OPEN CIRCUIT** • Verify that the active air shutter connector is disconnected. • Switch the ignition off. • Inspect for continuity between active air shutter terminal D (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 active air shutter terminal D 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:** • Inspect for the following: — Open circuit between active air shutter and body ground — Loose or lifting ground point • Repair or replace the malfunctioning part. Go to Step 11.
6	**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 11.
		No	Go to the next step.
7	**INSPECT ACTIVE AIR SHUTTER LIN COMMUNICATION LINE FOR SHORT TO GROUND** • Verify that the active air shutter and PCM connectors are disconnected. • Inspect for continuity between active air shutter terminal C (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 active air shutter terminal C and PCM terminal 2Y. **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.
8	**INSPECT ACTIVE AIR SHUTTER LIN COMMUNICATION LINE FOR SHORT TO POWER SUPPLY** • Verify that the active air shutter 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 active air shutter terminal C (wiring harness-side). • Is the voltage 0 V?	Yes	Go to the next step.
		No	**If there is no common connector:** Refer to the wiring diagram and verify whether or not there is a common connector between active air shutter terminal C and PCM terminal 2Y. **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. • Repair or replace the wiring harness which has a short to power supply. Go to Step 11.

DTC U0338:00	Start stop unit error



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 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	VERIFY DTC FOR MODULE COMMUNICATION • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any other PENDING CODEs and/or DTCs present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
1	**IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA** • Is the DTC P0506:00 on FREEZE FRAME DATA?	Yes	Go to the next step.
		No	Go to the troubleshooting procedure for DTC on FREEZE FRAME DATA. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
2	**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 FREEZE FRAME DATA/snapshot data on the repair order.	–	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.
4	**VERIFY RELATED PENDING CODE AND/OR DTC** • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any other PENDING CODEs and/or DTCs present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	Go to the next step.
5	**INSPECT A/C MAGNETIC CLUTCH OPERATION** • Turn the A/C switch off. • Is the magnetic clutch still on?	Yes	Perform the symptom troubleshooting "A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY". (See A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY [FULL-AUTO AIR CONDITIONER].) (See A/C IS ALWAYS ON OR A/C COMPRESSOR RUNS CONTINUOUSLY [MANUAL AIR CONDITIONER].)
		No	Go to the next step.
6	**INSPECT DRIVE-BY-WIRE CONTROL SYSTEM MALFUNCTION** • Perform the Drive-by-wire Control System Inspection. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 12.
		No	Go to the next step.
7	**INSPECT PURGE SOLENOID VALVE** • Perform the Purge Control System Inspection. (See ENGINE CONTROL SYSTEM OPERATION INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to Step 12. (See PURGE SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)
		No	Go to the next step.
8	**INSPECT AIR CLEANER ELEMENT** • Remove the air cleaner element with the engine is running. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Does the engine speed increase?	Yes	Clean or replace the air cleaner element, then go to Step 12. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)
		No	Go to the next step.