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1998 MAZDA 626 (Mk.4) Hatchback OEM Service and Repair Workshop Manual

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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	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 (WITH 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 (WITH CYLINDER DEACTIVATION))].)
		No	Go to the next step.
4	VERIFY START STOP UNIT DTC • Perform the start stop unit DTC inspection using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [START STOP UNIT].)
		No	Go to the next step.
5	INSPECT START STOP UNIT CONNECTOR CONDITION • Switch the ignition off. • Disconnect the start stop unit 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 7.
		No	Go to the next step.
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 the next step.
		No	Go to the next step.
7	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 (WITH CYLINDER DEACTIVATION))].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITH 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 (WITH CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
8	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
8	INSPECT AIR CLEANER ELEMENT • Remove the air cleaner element with the engine is running. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].) • 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 (WITHOUT EGR COOLER)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)
		No	Go to the next step.
9	INSPECT THROTTLE BODY PASSAGE • Visually inspect the throttle body passage. • Is the throttle body passage dirty and/or restricted?	Yes	Clean or replace the throttle body passage, then go to Step 12. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)
		No	Go to the next step.
10	INSPECT ENGINE COMPRESSION • Inspect the engine compression. (See COMPRESSION INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • Are compression pressures within specification?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results, then go to Step 12.
11	INSPECT GENERATOR CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY • Apply the electrical load (such as blower fan, rear window defogger, or headlight). • Does the engine speed increase?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part according to the inspection results, then go to the next step.
12	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 (WITH CYLINDER DEACTIVATION))].) • Start the engine and warm it up completely. • Depress the brake pedal for 14 s or more. • Perform the KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))].) • Is the PENDING CODE and/or DTC 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.
13	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
3	**INSPECT ACTIVE AIR SHUTTER CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the active air shutter 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.
4	**INSPECT ACTIVE AIR SHUTTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the active air shutter connector is 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 A (wiring harness-side). • Is the voltage B+?	Yes	Go to the next step.
		No	Inspect the ENGINE3 15 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between ENGINE3 15 A fuse and active air shutter 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 damaged: — Replace the fuse. • If the fuse is normal: — Refer to the wiring diagram and verify whether or not there is a common connector between sub relay terminal C and active air shutter 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 11.

DTC U0298:00 [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))]

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DTC U0298:00	CAN/LIN communication system: DC-DC converter information communication error with front body control module (FBCM)
DETECTION CONDITION	• PCM detects a DC-DC converter information communication error from front body control module (FBCM). 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	• Inhibits engine-stop by operating the i-stop function.
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Flashes i-stop warning light (amber).
POSSIBLE CAUSE	• Communication line malfunction between DC-DC converter and front body control module (FBCM) • Communication line malfunction between front body control module (FBCM) and PCM • DC-DC converter connector or terminals malfunction • Short to ground or open circuit in DC-DC converter power supply circuit — Short to ground in wiring harness between DCDC 50 A fuse and DC-DC converter terminal L — DCDC 200 A fuse malfunction — Open circuit in wiring harness between battery positive terminal and DC-DC converter terminal L • Short to ground or open circuit in DC-DC converter power supply circuit — Short to ground in wiring harness between C/U IG1 15 A fuse and DC-DC converter terminal H — C/U IG1 15 A fuse malfunction — Open circuit in wiring harness between IG1 relay terminal C and DC-DC converter terminal H • Front body control module (FBCM) connector or terminals malfunction • Short to ground in wiring harness between DC-DC converter terminal C and front body control module (FBCM) terminal 2H • Open circuit in wiring harness between DC-DC converter terminal C and front body control module (FBCM) terminal 2H • PCM connector or terminals malfunction • Short to ground in wiring harness between the following terminals: — Front body control module (FBCM) terminal 2P—PCM terminal 1H — Front body control module (FBCM) terminal 2N—PCM terminal 1L • Open circuit in wiring harness between the following terminals: — Front body control module (FBCM) terminal 2P—PCM terminal 1H — Front body control module (FBCM) terminal 2N—PCM terminal 1L • DC-DC converter malfunction • Front body control module (FBCM) malfunction • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
5	**INSPECT DC-DC CONVERTER POWER SUPPLY CIRCUIT FOR SHORT TO GROUND OR OPEN CIRCUIT** • Verify that the DC-DC converter connector is disconnected. • Measure the voltage at the DC-DC converter terminal L (wiring harness-side). • Is the voltage B+?	Yes	Go to the next step.
		No	Inspect the DCDC 200 A fuse. • If the fuse is blown: — Refer to the wiring diagram and verify whether or not there is a common connector between DCDC 200 A fuse and DC-DC converter terminal L. **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 damaged: — Replace the 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 DC-DC converter terminal L. **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 15.

STEP	INSPECTION	RESULTS	ACTION
12	**INSPECT FRONT BODY CONTROL MODULE (FBCM) CIRCUIT FOR OPEN CIRCUIT** • Verify that the DC-DC converter, front body control module (FBCM) and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Front body control module (FBCM) terminal 2P−PCM terminal 1H — Front body control module (FBCM) terminal 2N−PCM terminal 1L • 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: • Front body control module (FBCM) terminal 2P−PCM terminal 1H • Front body control module (FBCM) terminal 2N−PCM terminal 1L **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 15.
13	**INSPECT DC-DC CONVERTER** • Inspect the DC-DC converter. (See DC-DC CONVERTER INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Replace the DC-DC converter, then go to Step 15. (See DC-DC CONVERTER REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
		No	Go to the next step.
14	**INSPECT FRONT BODY CONTROL MODULE (FBCM)** • Inspect the front body control module (FBCM). (See FRONT BODY CONTROL MODULE (FBCM) INSPECTION.) • Is there any malfunction?	Yes	Replace the front body control module (FBCM), then go to the next step. (See FRONT BODY CONTROL MODULE (FBCM) REMOVAL/INSTALLATION.)
		No	Go to the next step.
15	**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 (WITH CYLINDER DEACTIVATION))].) • Start the engine. • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH 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 (WITH CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
16	**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
11	**INSPECT EXHAUST CMP SENSOR CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the exhaust CMP 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 16.
		No	Go to the next step.
12	**INSPECT EXHAUST CMP SENSOR FOR FOREIGN MATTER** • Visually inspect the exhaust CMP sensor for foreign matter. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • Is there any foreign matter on the exhaust CMP sensor?	Yes	Remove the foreign matter from the exhaust CMP sensor, then go to Step 16.
		No	Go to the next step.
13	**INSPECT EXHAUST CMP SENSOR PULSE WHEEL** • Visually inspect the exhaust CMP sensor pulse wheel. • Is there any damage or scratching on the exhaust CMP sensor pulse wheel?	Yes	Replace the exhaust CMP sensor pulse wheel, then go to Step 16.
		No	Go to the next step.
14	**INSPECT EXHAUST CMP SENSOR** • Reconnect all disconnected connectors. • Inspect the exhaust CMP sensor. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Replace the exhaust CMP sensor, then go to Step 16. (See CAMSHAFT POSITION (CMP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)
		No	Go to the next step.
15	**INSPECT PCM CONNECTOR CONDITION** • Switch the ignition off. • 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 the next step.
		No	Go to the next step.
16	**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 (WITH CYLINDER DEACTIVATION))].) • Start the engine and warm it up completely. • 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.
17	**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.

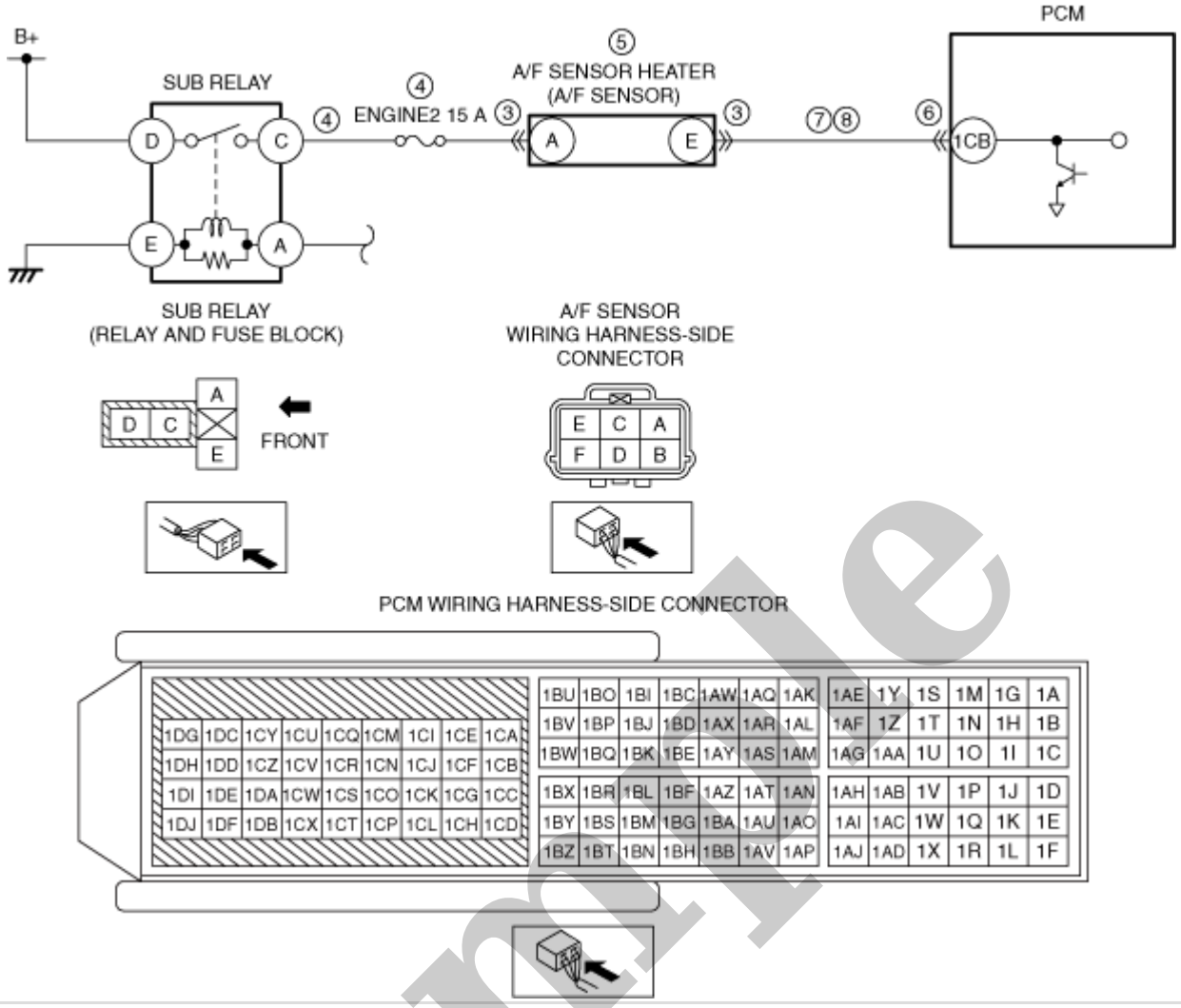
DTC U0151:00	CAN communication: communication error to SAS control module
DETECTION CONDITION	• Communication error between the PCM and SAS control module continues for 5 s or more. Diagnostic support note • This is a continuous monitor (other). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Not applicable
POSSIBLE CAUSE	• CAN communication line malfunction between PCM and SAS control module • SAS control module malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

DTC U0155:00	CAN communication: communication error to instrument cluster
DETECTION CONDITION	• Communication error between the PCM and instrument cluster continues for 5 s or more. 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	• CAN communication line malfunction between PCM and instrument cluster • Instrument cluster malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

DTC U0214:00	CAN communication: communication error to start stop unit
DETECTION CONDITION	• Communication error between the PCM and start stop unit continues for 5 s or more. 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 communication line malfunction between PCM and start stop unit • Start stop unit malfunction • PCM malfunction
SYSTEM WIRING DIAGRAM	• Not applicable

DTC U023A:00	CAN communication: communication error to forward sensing camera (FSC)
DETECTION CONDITION	• Communication error between the PCM and forward sensing camera (FSC) continues for 5 s or more. 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	• The smart city brake support (SCBS) function is cancelled. (with smart city brake support (SCBS))

DTC P0053:00	A/F sensor heater resistance



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD FREEZE FRAME DATA/SNAPSHOT DATA AND DIAGNOSTIC MONITORING TEST RESULTS 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 and DIAGNOSTIC MONITORING TEST RESULTS (A/F sensor heater, HO2S heater related) 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.