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.

1992 MAZDA MX-3 OEM Service and Repair Workshop Manual

Go to manual page

STEP	INSPECTION	RESULTS	ACTION
4	VERIFY INSTRUMENT CLUSTER DTC • Perform the instrument cluster DTC inspection using the M-MDS. (See DTC INSPECTION [INSTRUMENT CLUSTER].) • Are any DTCs present?	Yes	DTC U0100:00 is displayed: • CAN communication line can be considered the cause. — Repair or replace the wiring harness between PCM and instrument cluster, then go to Step 7. DTC other than U0100:00 is displayed: • Go to the applicable DTC inspection. (See DTC TABLE [INSTRUMENT CLUSTER].)
		No	Go to the next step.
5	INSPECT INSTRUMENT CLUSTER CONNECTOR CONDITION • Switch the ignition off. • 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 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 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • 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 2.5T].) 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 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
4	VERIFY SAS CONTROL MODULE DTC • Perform the SAS control module DTC inspection using the M-MDS. (See DTC INSPECTION [SAS CONTROL MODULE (STANDARD DEPLOYMENT CONTROL SYSTEM - MEXICO SPEC.)].) (See DTC INSPECTION [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SAS CONTROL MODULE (STANDARD DEPLOYMENT CONTROL SYSTEM - MEXICO SPEC.)].) (See DTC TABLE [SAS CONTROL MODULE (TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.)].)
		No	Go to the next step.
5	INSPECT SAS CONTROL MODULE CONNECTOR CONDITION • Switch the ignition off. • Disconnect the SAS control module connector. (See SAS CONTROL MODULE REMOVAL/INSTALLATION [STANDARD DEPLOYMENT CONTROL SYSTEM - MEXICO SPEC.].) (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.].) • 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 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • 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 2.5T].) 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 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

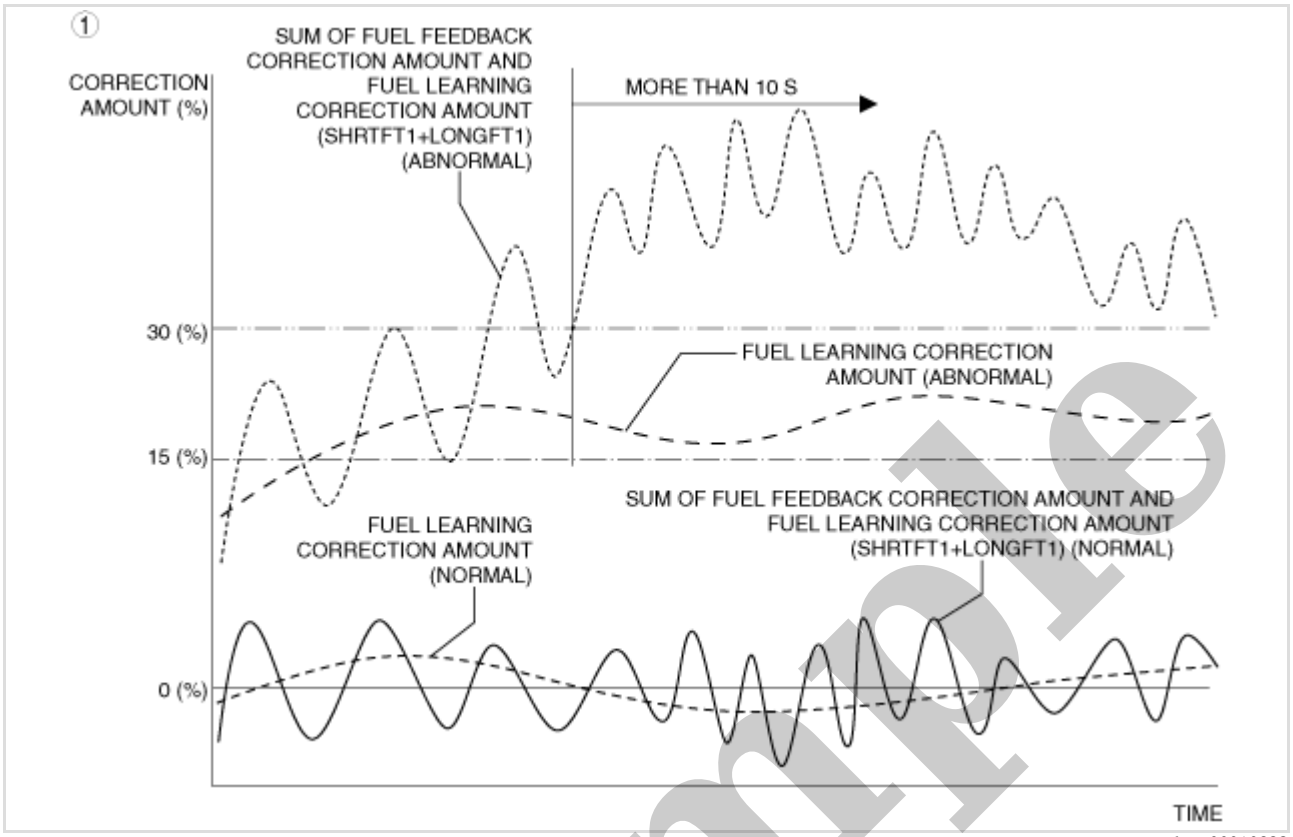
STEP	INSPECTION	RESULTS	ACTION
4	VERIFY START STOP UNIT DTC • Perform the start stop unit DTC inspection using the M-MDS. (See DTC INSPECTION [START STOP UNIT].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [START STOP UNIT].)
		No	Go to the next step.
5	INSPECT START 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 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • 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 2.5T].) 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 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
10	INSPECT ENGINE COMPRESSION • Inspect the engine compression. (See COMPRESSION INSPECTION [SKYACTIV-G 2.5T].) • 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 2.5T)].) • 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 2.5T)].) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • 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 2.5T].) 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 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

feedback correction amount has a "Fuel feedback correction amount" for the air/fuel ratio and a "Fuel learning correction amount" fo fuel injector deterioration over time.

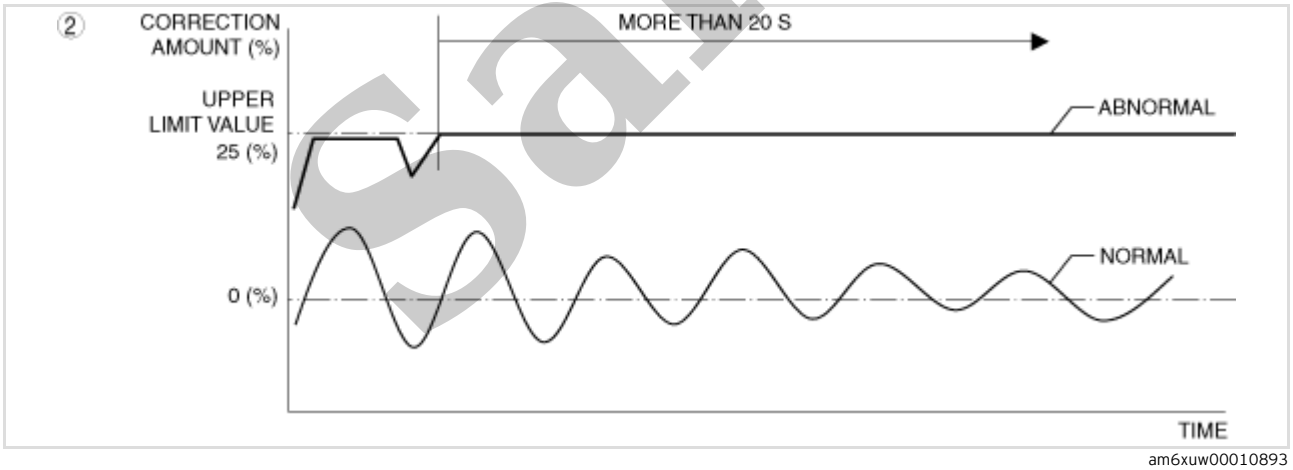
• "Fuel feedback correction amount (SHRTFT1)" and "Fuel learning correction amount (LONGFT1)" can be verified from the M-MDS PID item.

1. The sum of the fuel feedback correction amount (SHRTFT1) and the fuel learning correction amount (LONGFT1) is the specified value (30%) or more, and 10 s or more have elapsed with the fuel learning correction amount (LONGFT1) at the specified value (15%) or more. Engine coolant temperature: 0−45 °C {32−113 °F}, 60 °C {140 °F} or more



am6xuw00010892

2. Fuel learning correction amount (LONGFT1) at specified value (25%) or more. Engine coolant temperature: 0−45 °C {32−113 °F}, 60 °C {140 °F} or more



am6xuw00010893

Repeatability Verification Procedure

1. Warm up the engine to allow the engine coolant temperature to reach 80 °C {176 °F} or more.
2. Start the engine and leave it idling for 1 min.

Note

• Match the engine coolant temperature in the recorded FREEZE FRAME DATA/snapshot data, the vehicle speed, and engine speed values to the best extent possible while driving the vehicle.

3. Try to reproduce the malfunction by driving the vehicle for 5 min based on the values in the FREEZE FRAME DATA/snapshot data.

Item	Applicable component	Unit/Condition	Engine condition	Other condition
INJ_1	Fuel injector No.1	OFF	• Under the following conditions: — Ignition is switched ON (engine off) — Idle	**Warning** **• Do not use the simulation function while the vehicle is being driven. Stopping the fuel ejection causes the engine to stall which may cause the brakes to not function.**
INJ_2	Fuel injector No.2	OFF	• Under the following conditions: — Ignition is switched ON (engine off) — Idle	
INJ_3	Fuel injector No.3	OFF	• Under the following conditions: — Ignition is switched ON (engine off) — Idle	
INJ_4	Fuel injector No.4	OFF	• Under the following conditions: — Ignition is switched ON (engine off) — Idle	

Function Inspection Using M-MDS

STEP	INSPECTION	RESULTS	ACTION
1	**PURPOSE: 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.
2	**PURPOSE: IDENTIFY TRIGGER DTC FOR FREEZE FRAME DATA** • Is the DTC P0171:00 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 2.5T)].)
3	**PURPOSE: 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.

STEP	INSPECTION	RESULTS	ACTION
11	PURPOSE: VERIFY MAP SENSOR • Start the engine and idle it. • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) — MAP — MAP_V • Are all items normal?	Yes	Go to the next step.
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 12.
12	PURPOSE: VERIFY INTAKE VALVE TIMING • Start the engine and idle it. • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) — VT_IN_ACT — VT_IN_DES • Depress the accelerator pedal to increase the engine speed. • Does the monitor value of the PID item VT_IN_ACT conform to the VT_IN_DES PID value?	Yes	Go to the next step.
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 14.
13	PURPOSE: VERIFY EXHAUST VALVE TIMING • Start the engine and idle it. • Access the following PIDs using the M-MDS: (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) — VT_EX_ACT — VT_EX_DES • Perform the following: 1. Warm up the engine to allow the engine coolant temperature to reach 80 °C {176 °F} or more. 2. Shift to D position and rapidly accelerate the vehicle to 50 km/h {31 mph} (to operate hydraulic variable valve timing control). 3. Decelerate to idling. 4. Shift to D position and rapidly accelerate the vehicle to 50 km/h {31 mph} again. • Does the monitor value of the PID item VT_EX_ACT conform to the VT_EX_DES PID value?	Yes	Go to the next step.
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 17.
14	PURPOSE: VERIFY A/F SENSOR • Access the O2S11 PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Is the O2S11 PID value normal?	Yes	Go to the next step.
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 18.
15	PURPOSE: VERIFY DTC • Switch the ignition off, then ON (engine off). • Retrieve the PCM DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].) Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 1.
		No	Go to the Troubleshooting Diagnostic Procedure to perform the procedure from Step 1.

Troubleshooting Diagnostic Procedure

Intention of troubleshooting procedure

STEP	INSPECTION	RESULTS	ACTION
17	PURPOSE: DETERMINE INTEGRITY OF OCV • Inspect the OCV. (See OIL CONTROL VALVE (OCV) INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the OCV, then go to Step 20. (See OIL CONTROL VALVE (OCV) REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
18	PURPOSE: DETERMINE INTEGRITY OF A/F SENSOR • Inspect the A/F sensor. (See AIR FUEL RATIO (A/F) SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the A/F sensor, then go to Step 20. (See AIR FUEL RATIO (A/F) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
19	PURPOSE: VERIFY IF MALFUNCTION RELATED TO EMISSION SYSTEM AFFECTS HO2S SIGNAL • Verify the exhaust gas leakage from the exhaust system. (between A/F sensor and HO2S) • Is there any malfunction?	Yes	Repair or replace the malfunctioning part according to the inspection results, then go to the next step.
		No	Go to the next step.
20	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • 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 2.5T].)
		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. (The check engine light may be illuminated depending on the malfunction conditions.) • 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))