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.

2002 MAZDA Xedos 9 OEM Service and Repair Workshop Manual

Go to manual page

STEP	INSPECTION	RESULTS	ACTION
22	Verify the test results. • If normal, return to the diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [SKYACTIV-G 2.5T].) • If the malfunction remains, inspect the related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. — If the vehicle is repaired, troubleshooting is completed. — If the vehicle is not repaired or additional diagnostic information is not available, reprogram the PCM if a later calibration is available. Retest.		

STEP	INSPECTION	RESULTS	ACTION
1	**VERIFY PCM DTC** • Retrieve PCM DTCs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [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	Go to the next step.
2	**INSPECT COMMUNICATION LINE BETWEEN PCM AND INSTRUMENT CLUSTER** • Inspect for a short or open circuit between the following terminals: — Instrument cluster terminal B −Active driving display terminal J — Instrument cluster terminal D −Active driving display terminal L — Active driving display terminal I−Front body control module (FBCM) terminal 2K — Active driving display terminal K−Front body control module (FBCM) terminal 2I — Front body control module (FBCM) terminal 2P−PCM terminal 1H (With EGR cooler) — Front body control module (FBCM) terminal 2N−PCM terminal 1L (With EGR cooler) — Front body control module (FBCM) terminal 2P−PCM terminal 2S (Without EGR cooler) — Front body control module (FBCM) terminal 2N−PCM terminal 2T (Without EGR cooler) • Is the wiring harness normal?	Yes	Inspect the instrument cluster. (See INSTRUMENT CLUSTER INSPECTION.) • If there is any malfunction: — Repair or replace the malfunctioning part according to the inspection results, then go to the next step. (See INSTRUMENT CLUSTER REMOVAL/INSTALLATION.)
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Instrument cluster terminal B−Active driving display terminal J • Instrument cluster terminal D−Active driving display terminal L • Active driving display terminal I−Front body control module (FBCM) terminal 2K • Active driving display terminal K−Front body control module (FBCM) terminal 2I • Front body control module (FBCM) terminal 2P−PCM terminal 1H (With EGR cooler) • Front body control module (FBCM) terminal 2N−PCM terminal 1L (With EGR cooler) • Front body control module (FBCM) terminal 2P−PCM terminal 2S (Without EGR cooler) • Front body control module (FBCM) terminal 2N−PCM terminal 2T (Without EGR cooler) **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 or open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground or open circuit. Go to the next step.
3	Verify the test results. • If normal, return to the diagnostic index to service any additional symptoms. (See SYMPTOM DIAGNOSTIC INDEX [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) • If the malfunction remains, inspect the related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. — If the vehicle is repaired, troubleshooting is completed. — If the vehicle is not repaired or additional diagnostic information is not available, reprogram the PCM if a later calibration is available. Retest.		

CONTROL SYSTEM DEVICE AND CONTROL RELATIONSHIP CHART [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM2897111

id0103q580020

×: Applicable

Item	MAIN RELAY CONTROL	DRIVE-BY-WIRE CONTROL	HYDRAULIC VARIABLE VALVE TIMING CONTROL	ELECTRIC VARIABLE VALVE TIMING CONTROL	FUEL INJECTION CONTROL SYSTEM	FUEL PUMP CONTROL	HIGH PRESSURE FUEL PUMP CONTROL	ELECTRONIC SPARK ADVANCE CONTROL	PURGE CONTROL
Input device									
APP sensor No.1, No.2		×	×		×			×	
TP sensor No.1, No.2		×			×				
MAF sensor		×	×	×	×		×	×	
IAT sensor No.1		×		×	×			×	
IAT sensor No.2		×		×	×			×	
MAP sensor		×		×	×			×	
CKP sensor		×	×	×	×	×	×	×	
Intake CMP sensor		×		×	×			×	
Exhaust CMP sensor		×	×		×		×	×	
ECT sensor		×			×		×	×	
Fuel pressure sensor		×			×	×	×		
BARO sensor		×		×	×	×			

FOREWORD [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)]

SM2897112

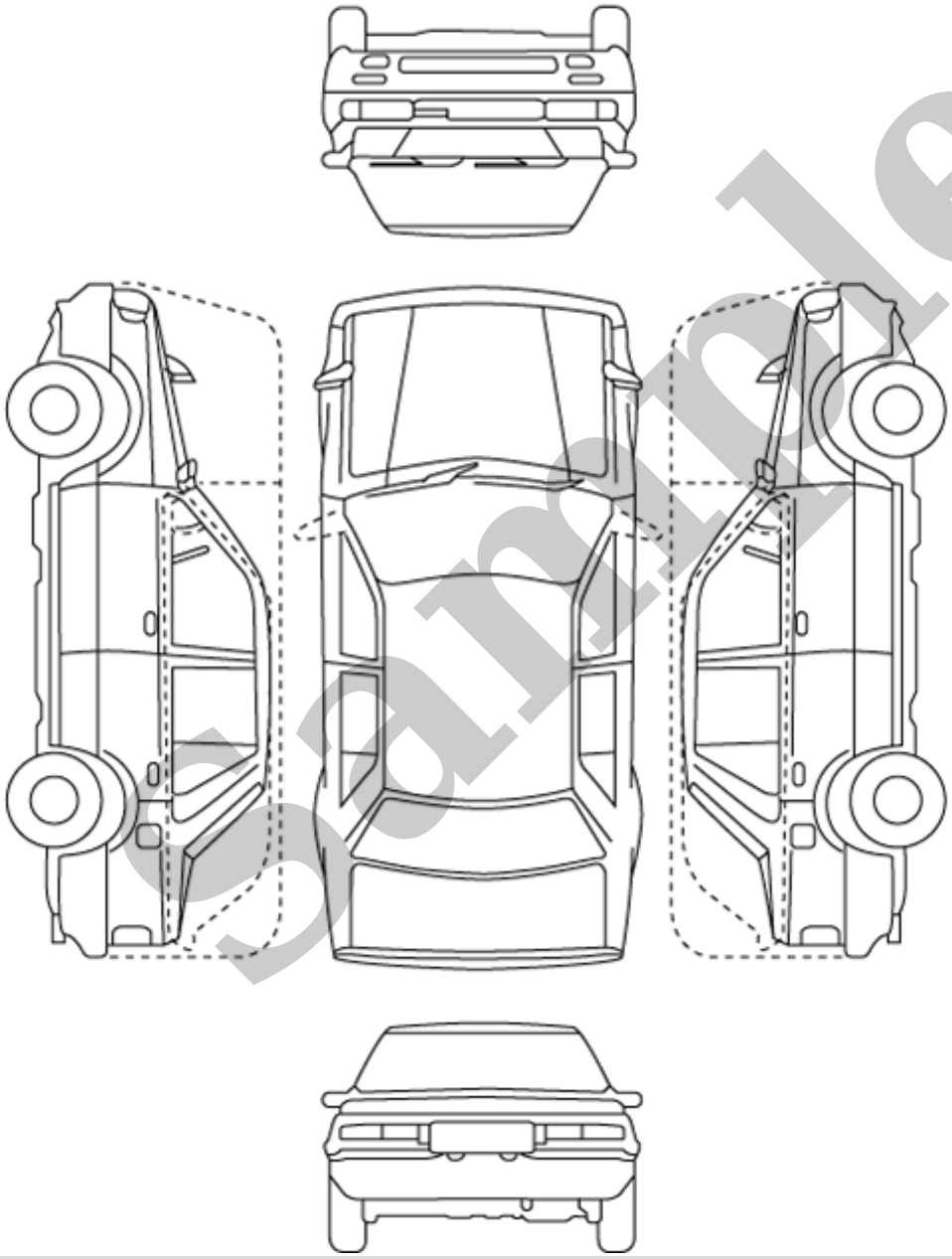
id0103q580030

• If there is any vehicle malfunction complaint lodged by a customer, perform malfunction diagnosis according to the troubleshooting procedure.

Troubleshooting Procedure

Dealer name:	Vehicle body number:	Odometer reading:
Vehicle-in date:	Estimated repair completion date:	Person in-charge:
Subject (Content):		
Audio memory		

	1	2	3	4	5	6	Fuel level
FM1							E F
FM2							
AM							



ac5wzw00003824

Action for Non-repeatable Malfunction

• If the malfunction does not recur, verify the malfunction cause by performing the following actions:

— Based on the repair order form, attempt to drive the vehicle or perform tests to replicate the malfunction, record the data at that time, and detect the malfunction cause.

X: Applied

Troubleshooting item	Possible factor	Engine or transaxle mounts are improperly installed	Cooling fan or condenser fan seals improper	Fuel quality	Improper engine oil viscosity	Improper valve timing	Oil leakage	Improper oil or fluid level	Coolant leakage	Electric variable valve timing system malfunction	Hydraulic variable valve timing system malfunction	Engine overheating	Air cleaner element clogged or restricted	Air leakage from intake-air system (loose tubes, cracks, gaskets breakage)	Air suction in intake-air system	Intake-air system restriction
1	Blown fuses															
2	Check engine light illuminates									X	X					
3	Will not crank															
4	Hard to start/long crank/erratic start/erratic crank			X		X							X	X		X
5	Engine stalls-after start/at idle			X						X	X	X		X		X
6	Cranks normally but will not start			X		X						X	X	X		X
7	Engine oil warning light illuminated/message related to engine hydraulic pressure malfunction indicated in display				X		X	X								
8	Engine runs rough/rolling idle			X		X						X		X		X
9	Fast idle/runs on									X	X			X		
10	Low idle/stalls during deceleration					X								X		X
11	Engine stalls/quits, engine runs rough, misses, buck/jerk, hesitation/stumble, surges			X		X						X	X			X
12	Lack/loss of power-acceleration/cruise			X		X				X	X	X	X	X		X
13	Knocking/pinging-acceleration/cruise			X								X		X		
14	Poor fuel economy				X			X								
15	Emission compliance			X		X						X	X	X		
16	High oil consumption/leakage				X		X									
17	Cooling system concerns-overheating								X							
18	Cooling system concerns-runs cold															
19	Exhaust smoke						X		X				X	X		
20	Fuel odor (in engine compartment)															
21	Engine noise							X								
22	Vibration concerns (engine)	X	X													
23	Sulfuric smell occurs			X												
24	Spark plug condition															
25	Fuel refill concerns															
26	Fuel filling shut off concerns															
27	No cylinder deactivation											X				
—	ATX related troubleshooting item	(See SYMPTOM TROUBLESHOOTING ITEM TABLE [FW6A-EL, FW6AX-EL].)														

ac5uuw00011447

X: Applied

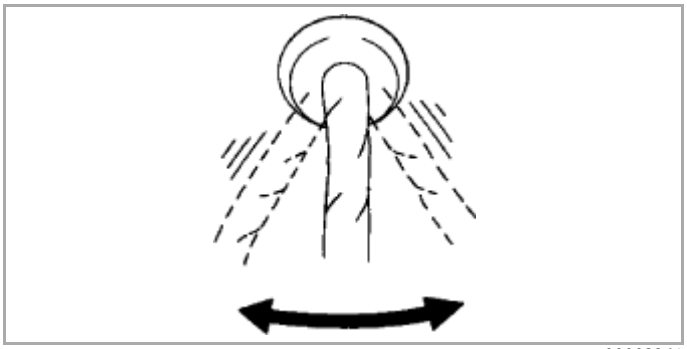
Troubleshooting item		Possible factor: Constant voltage supply circuit malfunction	Main relay malfunction (mechanically or electrically)	No battery power supply to PCM	Poor PCM ground or vehicle ground (open)	Electrical connector disconnection	Oil pressure switch or related circuit malfunction	ECT sensor or related circuit malfunction	Transaxle range sensor malfunction	Brake switch or related circuit malfunction	A/F sensor or HO2S or related circuit malfunction	IAT sensor No.1 (integrated in MAF sensor/ IAT sensor No.1) or related circuit malfunction	IAT sensor No.2 (integrated in MAP sensor/ IAT sensor No.2) or related circuit malfunction	Fuel pressure sensor or related circuit malfunction	MAP sensor or related circuit malfunction
1	Blown fuses														
2	Check engine light illuminates					X		X		X	X	X		X	X
3	Will not crank		X		X										
4	Hard to start/long crank/erratic start/erratic crank				X			X			X			X	X
5	Engine stalls-after start/at idle			X	X	X		X			X			X	X
6	Cranks normally but will not start			X	X	X		X			X			X	
7	Engine oil warning light illuminated/message related to engine hydraulic pressure malfunction indicated in display						X								
8	Engine runs rough/rolling idle					X		X			X			X	X
9	Fast idle/runs on							X			X				
10	Low idle/stalls during deceleration							X		X	X			X	X
11	Engine stalls/quits, engine runs rough, misses, buck/jerk, hesitation/stumble, surges		X					X			X	X		X	X
12	Lack/loss of power-acceleration/cruise							X			X	X		X	X
13	Knocking/pinging-acceleration/cruise											X	X	X	X
14	Poor fuel economy							X				X		X	X
15	Emission compliance							X			X	X		X	X
16	High oil consumption/leakage														
17	Cooling system concerns-overheating														
18	Cooling system concerns-runs cold														
19	Exhaust smoke							X			X	X		X	X
20	Fuel odor (in engine compartment)														
21	Engine noise														
22	Vibration concerns (engine)														
23	Sulfuric smell occurs														
24	Spark plug condition							X			X				
25	Fuel filling shut off concerns														
26	Fuel refill concerns														
27	No cylinder deactivation														
—	ATX related troubleshooting item	(See SYMPTOM TROUBLESHOOTING ITEM TABLE [FW6A-EL, FW6AX-EL].)													

ac5uuw00011450

X: Applied

	Possible factor / Troubleshooting item	Instrument cluster malfunction	Driver-side buckle switch malfunction	Door latch switch or liftgate latch switch malfunction	Bonnet latch switch malfunction	Battery malfunction (deterioration)	Ambient temperature sensor malfunction	ABS wheel-speed sensor malfunction	Steering angle sensor malfunction	Driver-side air mix actuator malfunction	Climate control unit malfunction	Keyless antenna malfunction	Engine oil contamination	Improper tire air pressure	Engine operation time is longer than traveled distance	Amount of fuel injection increases
1	Blown fuses															
2	Check engine light illuminates	X														
3	Will not crank	X														
4	Hard to start/long crank/erratic start/erratic crank															
5	Engine stalls-after start/at idle															
6	Cranks normally but will not start															
7	Engine oil warning light illuminated/message related to engine hydraulic pressure malfunction indicated in display	X														
8	Engine runs rough/rolling idle															
9	Fast idle/runs on															
10	Low idle/stalls during deceleration															
11	Engine stalls/quits, engine runs rough, misses, buck/jerk, hesitation/stumble, surges															
12	Lack/loss of power-acceleration/cruise															
13	Knocking/pinging-acceleration/cruise															
14	Poor fuel economy												X	X	X	X
15	Emission compliance															
16	High oil consumption/leakage															
17	Cooling system concerns-overheating	X														
18	Cooling system concerns-runs cold	X														
19	Exhaust smoke															
20	Fuel odor (in engine compartment)															
21	Engine noise															
22	Vibration concerns (engine)															
23	Sulfuric smell occurs															
24	Spark plug condition															
25	Fuel filling shut off concerns															
26	Fuel refill concerns															
27	No cylinder deactivation															
—	ATX related troubleshooting item	(See SYMPTOM TROUBLESHOOTING ITEM TABLE [FW6A-EL, FW6AX-EL].)														

ac5uuw00011453



acxuuw00002361

Inspection Method for Sensor Connectors or Wires

1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off).

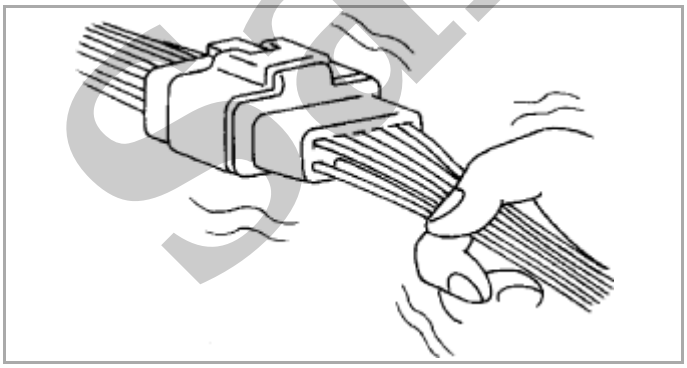
Note

- **If the engine starts and runs, perform the following steps during idling.**

3.Access the PIDs for the switch you are inspecting.

4.Slightly shake each connector or wiring harness vertically and horizontally while monitoring the PID.

- If the PID value is unstable, check for poor connection.



am5ezw00006536

Inspection Method for Sensors

1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off).