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2013 MAZDA 3 MPS / MAZDASPEED3 OEM Service and Repair Workshop Manual

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NO KICKDOWN [FW6A-EL, FW6AX-EL]

SM2898379

id05031710160

TROUBLESHOOTING ITEM	No kickdown
DESCRIPTION	• Does not downshift when accelerator pedal is fully depressed within kickdown range.
POSSIBLE CAUSE	1. Signal malfunction — APP sensor malfunction

Diagnostic procedure

Step	Inspection	Results	Action
1	INSPECT SIGNAL PARTS FOR MALFUNCTION • Inspect the value at the following PCM PID using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))] .) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION))] .) — APP (APP sensor) • Is there any malfunction?	Yes	Repair or replace any malfunctioning parts according to the inspection result.
		No	Symptom troubleshooting is completed.

MALFUNCTIONING
VEHICLE ARRIVES

VERIFY REPAIR ORDER AND SYMPTOM.

ACCURATELY VERIFY CUSTOMER COMPLAINT
IN REPAIR ORDER FORM.

PERFORM DTC INSPECTION.

INSPECT FOR ANY DTCs USING M-MDS.

PERFORM THE ON-BOARD
DIAGNOSTIC TEST MODE

PERFORM INSPECTION FOR DTCs OUTPUT BEFORE AND AFTER
PERFORMING ON-BOARD DIAGNOSTIC TEST MODE.

VERIFY TECHNICAL SERVICE BULLETINS.

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.

NO

DOES
MALFUNCTION
RECUR?

NO

SEE ACTION FOR NON-REPEATABLE MALFUNCTION.

YES

VERIFY MALFUNCTION SYMPTOM.

VERIFY MALFUNCTION SYMPTOM ON ACTUAL VEHICLE.

PERFORM CAN MALFUNCTION DIAGNOSIS.

SEE "CAN MALFUNCTION DIAGNOSIS FLOW"*1 AND PERFORM
DIAGNOSIS FOR CAN RELATED MALFUNCTION.

ARE ANY DTCs
OUTPUT?

YES

SEE ON-BOARD DIAGNOSIS SYSTEM AND PERFORM
DTC TROUBLESHOOTING.

NO

SYMPTOM
TROUBLESHOOTING

USE M-MDS FUNCTIONS ON THE
RIGHT TO PERFORM DIAGNOSIS
EFFICIENTLY.

PID/DATA MONITOR
INSPECTION

USE M-MDS DATA MONITOR FUNCTION TO
PERFORM INSPECTION WHILE MONITORING
INPUT/OUTPUT SIGNALS.

ACTIVE COMMAND
MODES INSPECTION

USE M-MDS SIMULATION FUNCTION TO INSPECT
FOR INCOMPLETE ELECTRICAL CIRCUIT OR
VALVE STICKING WHILE OPERATING EACH
OUTPUT PART WITH THE IGNITION SWITCHED ON.

VERIFY MALFUNCTION IS REPAIRED.

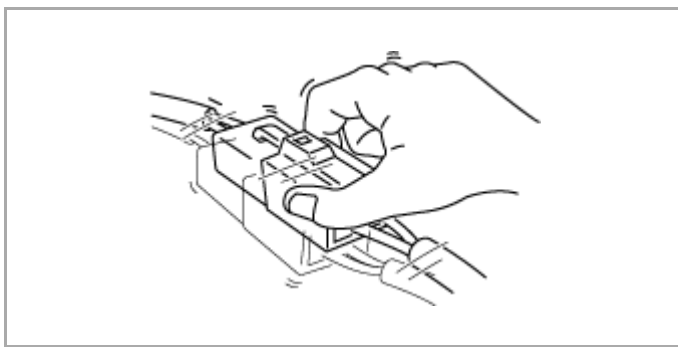
SERVICE
COMPLETED

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*1:(See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-A (SKYACTIV-G 2.5T, SKYACTIV-D 2.2)]**.) (See **CONTROLLER AREA NETWORK (CAN) MALFUNCTION DIAGNOSIS FLOW [TYPE-B]**.)

Repair Order Form

—Shake the wiring harness or connector of the electrical component which is suspected to be the cause of the malfunction, and inspect for occurrence of any malfunction or DTCs.

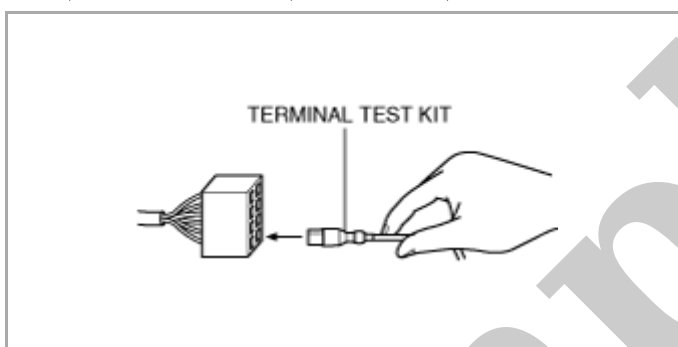


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—Inspect the female terminals on the connector of the electric component which is suspected to be the cause of the malfunction for poor connection. (See **ELECTRICAL SYSTEM**)

Note

•Tool used (Reference): terminal test kit (49US-15-KIT)



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QUICK DIAGNOSIS CHART [GW6A-EL, GW6AX-EL]

SM2898397

id05032010040

		X: APPLIED															
VEHICLE DOES NOT MOVE IN D, M OR R POSITION																X	X
VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED																X	
EXCESSIVE CREEP				X													
NO CREEP AT ALL				X													
LOW MAXIMUM SPEED AND POOR ACCELERATION		X	X		X					X							
NO SHIFTING		X	X					X	X	X	X	X					
DOES NOT SHIFT TO 5GR OR 6GR		X	X					X	X	X	X						
ABNORMAL SHIFTING		X	X	X				X	X	X	X	X					
FREQUENT SHIFTING										X	X						
SHIFT POINT IS HIGH OR LOW		X						X	X	X	X	X					
NO KICKDOWN										X							
ENGINE FLARES UP OR SLIPS WHEN UPSHIFTING OR DOWNSHIFTING		X	X							X							X
JUDDER UPON TORQUE CONVERTER CLUTCH (TCC) OPERATION		X								X		X					
EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION		X		X	X					X				X			X
SLOW ENGAGING AFTER OPERATING SELECTOR LEVER FROM N TO D POSITION													X			X	
EXCESSIVE SHIFT SHOCK IS FELT WHEN UPSHIFTING AND DOWNSHIFTING					X					X				X			X
EXCESSIVE SHIFT SHOCK ON TORQUE CONVERTER CLUTCH (TCC)		X		X						X		X					X
NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN ALL POSITIONS					X						X	X					
NOISE OCCURS AT IDLE WHEN VEHICLE IS STOPPED IN D, M OR R POSITION					X							X					
TRANSAXLE OVERHEATS		X	X							X	X					X	X
ENGINE STALLS WHEN SHIFTED TO D, M OR R POSITION					X							X					X
STARTER DOES NOT WORK					X	X											
GEAR POSITION INDICATION DOES NOT ILLUMINATE IN M POSITION								X							X		
GEAR POSITION INDICATION ILLUMINATES IN P, R, N AND D POSITIONS								X									
MANUAL SHIFT MODE INDICATION DOES NOT ILLUMINATE IN M POSITION/MANUAL SHIFT MODE INDICATION ILLUMINATES IN D POSITION								X									
ATF SEEPING FROM AUTOMATIC TRANSAXLE													X	X			
ITEM SYMPTOM CAUSE OF TROUBLE	ECT SENSOR MALFUNCTION																
	CKP SENSOR MALFUNCTION																
	MAF SENSOR MALFUNCTION																
	NOT WITHIN IDLE SPEED SPECIFICATION																
	ENGINE CONTROL SYSTEM MALFUNCTION																
	IMMOBILIZER SYSTEM OPERATING OR SYSTEM MALFUNCTION																
	INSTRUMENT CLUSTER MALFUNCTION																
	BARO SENSOR MALFUNCTION																
	IAT SENSOR MALFUNCTION																
	LOW-G (XY) SENSOR MALFUNCTION																
	APP SENSOR MALFUNCTION																
	BRAKE SWITCH MALFUNCTION																
	OIL PUMP MALFUNCTION																
	TORQUE CONVERTER OPERATING MALFUNCTION																
	PARKING MECHANISM MALFUNCTION																
	MANUAL SHAFT STUCK																
	SEALING DETERIORATION AND DAMAGE												X				
	INCORRECT INSTALLATION OF												X				
	ATX EXTERNAL PART																
	POOR INSTALLATION OR WORN OF																
	ENGINE MOUNT, SUSPENSION																
	ATF MALFUNCTION																
	OIL COOLER MALFUNCTION																
	CONTROL VALVE BODY MALFUNCTION																
	TCC PISTON MALFUNCTION																
	INSUFFICIENT TCM LEARNING																

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VEHICLE MOVES IN P POSITION, OR PARKING GEAR DOES NOT DISENGAGE WHEN P IS DISENGAGED [GW6A-EL, GW6AX-EL]

SM2898399

id05032010060

TROUBLESHOOTING ITEM	Vehicle moves in P position, or parking gear does not disengage when P is disengaged
DESCRIPTION	• Vehicle rolls when on a downward slope in P position. • Vehicle does not move in D, M and R position when accelerator pedal is depressed, and engine remains in stalled condition.
POSSIBLE CAUSE	1. Parking mechanism malfunction

Diagnostic procedure

Step	Inspection	Results	Action
1	INSPECT PARKING MECHANISM FOR MALFUNCTION • When the vehicle is stopped on a flat, level road and the engine is off, does the vehicle move when pushed? (In D, N or R position with the brake pedal released.)	Yes	Symptom troubleshooting is completed.
		No	Replace the parking mechanism. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6A-EL (SKYACTIV-G 2.5T)] .) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6A-EL (SKYACTIV-D 2.2)] .) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6AX-EL (SKYACTIV-G 2.5T)] .) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6AX-EL (SKYACTIV-D 2.2)] .)

LOW MAXIMUM SPEED AND POOR ACCELERATION [GW6A-EL, GW6AX-EL]

SM2898402

id05032010090

TROUBLESHOOTING ITEM	Low maximum speed and poor acceleration
DESCRIPTION	• Vehicle acceleration is poor at start. • Delayed acceleration when accelerator pedal is depressed while driving.
POSSIBLE CAUSE	• Engine control system malfunction • Signal malfunction — APP sensor malfunction — CKP sensor malfunction — MAF sensor malfunction

Diagnostic procedure

Step	Inspection	Results	Action
1	INSPECT ENGINE CONTROL SYSTEM FOR MALFUNCTION • Perform the symptom troubleshooting "LACK/LOSS OF POWER-ACCELERATION/CRUISE". (See NO.17 LACK/LOSS OF POWER-ACCELERATION/CRUISE [SKYACTIV-D 2.2].) (See NO.12 LACK/LOSS OF POWER-ACCELERATION/CRUISE [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Repair or replace any malfunctioning parts according to the inspection result.
		No	Go to the next step.
2	INSPECT SIGNAL PARTS FOR MALFUNCTION • Inspect the value at the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) — APP (APP sensor) — MAF (MAF sensor) — RPM (CKP sensor) • Is there any malfunction?	Yes	Repair or replace any malfunctioning parts according to the inspection result.
		No	Explain to the customer that the vehicle is not malfunctioning and they should keep an eye on it.

DOES NOT SHIFT TO 5GR OR 6GR [GW6A-EL, GW6AX-EL]

SM2898404

id05032010110

TROUBLESHOOTING ITEM	Does not shift to 5GR or 6GR
DESCRIPTION	• Vehicle does not upshift from 4GR to 5GR or 5GR to 6GR even though vehicle speed is increased. • At a vehicle speed range where the transaxle should shift up to 5GR and 6GR gears in D position based on the shift pattern, the transaxle does not shift to 5GR and 6GR gears by gradually releasing the accelerator pedal.
POSSIBLE CAUSE	1. Signal malfunction — APP sensor malfunction — BARO sensor malfunction — CKP sensor malfunction — ECT sensor malfunction — IAT sensor No.1 malfunction — MAF sensor malfunction 2. Low-G (XY) sensor (built into SAS control module) malfunction Note • When driving on high-altitude roads, the TCM determines that the driving mode is the AAS mode, and may change to a different shift timing from the normal timing. • When SPORT mode is selected, a gear lower than NORMAL mode is selected, and the gear is maintained for a longer period of time. (SKYACTIV-G 2.5T) • If the engine coolant temperature is low, a gear lower than when in normal mode is selected.

Diagnostic procedure

Step	Inspection	Results	Action
1	INSPECT SIGNAL PARTS FOR MALFUNCTION • Inspect the value at the following PCM PIDs using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) — APP (APP sensor) — BARO (BARO sensor) — ECT (ECT sensor) — IAT (IAT sensor No.1) — MAF (MAF sensor) — RPM (CKP sensor) • Is there any malfunction?	Yes	Repair or replace any malfunctioning parts according to the inspection result.
		No	Go to the next step.

Step	Inspection	Results	Action
2	VERIFY IF MALFUNCTION CAUSE IS LOW-G (XY) SENSOR • Is there any malfunction?	Yes	Replace the SAS control module. (See SAS CONTROL MODULE REMOVAL/INSTALLATION [TWO-STEP DEPLOYMENT CONTROL SYSTEM - US/CANADA/ISRAEL SPEC.] .) (See SAS CONTROL MODULE REMOVAL/INSTALLATION [STANDARD DEPLOYMENT CONTROL SYSTEM - MEXICO SPEC.] .)
		No	Symptom troubleshooting is completed.

Sample

Sample