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2013 MAZDA 6/Atenza Wagon OEM Service and Repair Workshop Manual

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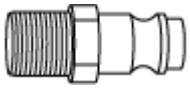
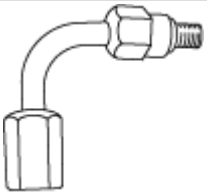
MECHANICAL SYSTEM TEST [FW6A-EL, FW6AX-EL]

SM2898437

id0517h211830

Special Service Tool (SST)

49 D019 907 Oil pressure gauge (Part of 49 D019 9A2)		49 D019 908 Gauge (Part of 49 D019 9A2)		49 D019 909 Hose (Part of 49 D019 9A2)	
49 D019 910 Adapter (Part of 49 D019 9A2)		49 D019 911 Adapter (Part of 49 D019 9A2)		49 D019 913 Adapter (Part of 49 D019 9A2)	

Replacement Part

Square head plug Quantity: 1 Location of use: Automatic transaxle

Mechanical System Test Preparation

1.Apply the parking brake firmly, and set the wheel blocks for both the front and rear wheels.

2.Inspect the engine coolant level. (See ENGINE COOLANT LEVEL INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See ENGINE COOLANT LEVEL INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

3.Inspect the engine oil level. (See ENGINE OIL LEVEL INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See ENGINE OIL LEVEL INSPECTION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

4.Inspect the ATF level. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [FW6A-EL, FW6AX-EL].)

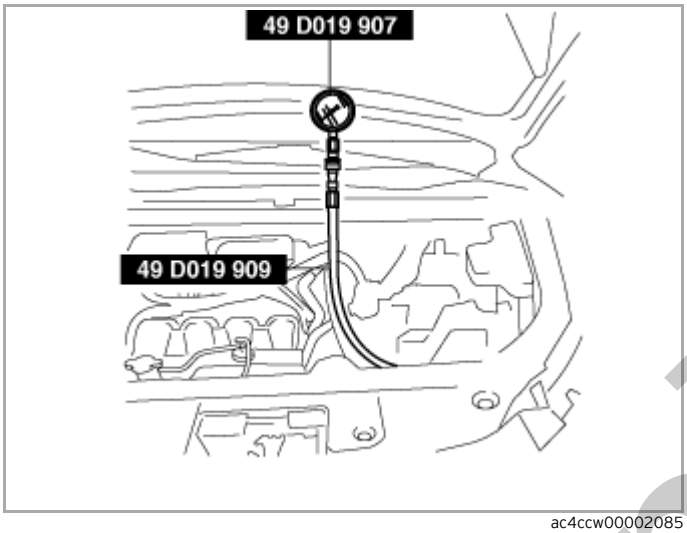
5.Inspect the ignition timing. (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

6.Inspect the idle speed. (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

11.Measure the line pressures while idling in the M (1st gear) and R positions using the same procedure.

12.Stop the engine.

13.Change the low-pressure gauge (49 D019 908) to the high-pressure gauge (49 D019 907).



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14.Start the engine.

15.Measure the line pressure while stalling in D position.

(1)Strongly depress the brake pedal with the left foot.

(2)Shift the selector lever to the D position.

Caution

• To prevent damage to the transaxle, measure the line pressure while stalling (Step (3) –(4)) within 5 s.

(3)Slowly depress the accelerator pedal fully with the right foot all the way down.

(4)Read the line pressure quickly while stalling, and remove the right foot from the accelerator pedal.

(5)Shift the selector lever to the N position and idle for 1 min or more.

16.Measure the line pressure while stalling for positions other than D in the same procedure.

• If there is any malfunction, one of the following causes may have occurred.

(5)Shift the selector lever to the N position and idle for 1 min or more.

5.Measure the stall speed in the M (1st gear) and R positions using the same procedure.

• If there is any malfunction, one of the following causes may have occurred.

Condition		Possible cause	
Higher than specification	Higher in R, D, and M (1GR) position	Line pressure is low	• Oil pump wear • ATF leakage from oil pump, control valve body, and transaxle case • Pressure regulator valve sticking • TR control valve sticking • Pressure control solenoid operation malfunction
		• Low and reverse brake slippage, and damage of one-way clutch	
	Higher in D and M (1GR) position	• Low clutch slippage • One-way clutch damage	
	Higher in R position	Perform road test to determine whether problem is in R-3-5 brake or low and reverse brake • Engine brake operates in M (1GR) position — R-3-5 brake slippage • Engine braking does not operate in M (1GR) position — Low and reverse brake slippage	
Lower than specification	Lower in R, D, and M (1GR) position	• Engine malfunction • One-way clutch slippage in torque converter	

Stall speed

Measurement conditions	Standard value (rpm)
R position	1,700–2,200
D position	2,200–2,900
M position	

Time Lag Test

1.Perform the mechanical system test preparation. (See Mechanical System Test Preparation.)

2.Apply the parking brake firmly, and set the wheel blocks for both the front and rear wheels.

3.Start the engine.

4.Measure the time lag from the N position to the D position.

(1)Shift the selector lever from the N position to the D position with the brake pedal depressed.

(2)Measure the time until the shift shock is felt firmly after shifting.

• If there is any malfunction, refer to symptom troubleshooting and verify the malfunction symptom.

(1)Depress the accelerator pedal and start the vehicle, and verify that the gears shift from 1st to 2nd, 2nd to 3rd, 3rd to 4th, 4th to 5th, and 5th to 6th. In addition, verify that the vehicle speed corresponds to the shift point when shifting.

(2)Release the accelerator pedal while driving in 6th gear, and verify that the gears shift from 6th to 5th, 5th to 4th, 4th to 3rd, 3rd to 2nd, and 2nd to 1st. In addition, verify that the vehicle speed corresponds to the shift point when shifting.

Note

• When the accelerator pedal is fully released quickly, shifting is not performed according to the shift pattern because the gear being used may be maintained.
• When decelerating by strongly depressing the brake pedal, shifting is not performed according to the shift pattern because the shift-down point may be at high vehicle speed.

(3)Kickdown while driving in 6th, 5th, 4th, 3rd, and 2nd gears, and verify that the gears shift from 6th to 5th, 5th to 4th, 4th to 3rd, 3rd to 2nd, and 2nd to 1st.

(4)Verify that the shift shock is minimal, shifting is smooth and timely, and there is no abnormal noise or slip.

Shift point

US, Canada and Israel (2WD)

Position/mode		Accelerator pedal depression amount	Shift	Vehicle speed (km/h {MPH})
D	NORMAL	8/8	$D_1 \rightarrow D_2$	46–56 {29–34}
			$D_2 \rightarrow D_3$	82–99 {51–61}
			$D_3 \rightarrow D_4$	115–139 {71.5–86.3}
			$D_4 \rightarrow D_5$	164–200 {102–124}
			$D_5 \rightarrow D_6$	232–282 {145–175}
		25% (APP)	$D_1 \rightarrow D_2$	20–23 {13–14}
			$D_2 \rightarrow D_3$	29–35 {19–21}
			$D_3 \rightarrow D_4$	40–48 {25–29}
			$D_4 \rightarrow D_5$	63–77 {40–47}
			$D_5 \rightarrow D_6$	82–99 {51–61}
		0/8	$D_6 \rightarrow D_5$	65–78 {41–48}
			$D_5 \rightarrow D_4$	39–46 {25–28}
			$D_4 \rightarrow D_3$	28–33 {18–20}
			$D_3 \rightarrow D_2$	12–14 {7.5–8.6}
			$D_2 \rightarrow D_1$	6.0–7.2 {4.0–4.4}

US, Canada and Israel (AWD)

(1)While the vehicle is stopped or the vehicle speed is 10 km/h {6.2 mph} or less, operate the selector lever toward + to shift to 2nd gear.

(2)Verify that the gear is fixed in 2nd gear.

(3)Release the accelerator pedal while driving and verify that the engine braking operates.

(4)Perform the shift operation while driving and verify that the gears can be shifted.

P Position Test

1.Park the vehicle on a gentle slope and shift the selector lever to the P position.

2.Release the brake and verify that the vehicle does not move.

- If there is any malfunction, inspect the parking mechanism in the transaxle.

AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [FW6A-EL, FW6AX-EL]

SM2898440

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Replacement Part

Washer Quantity: 1 Location of use: Drain plug

Oil and Chemical Type

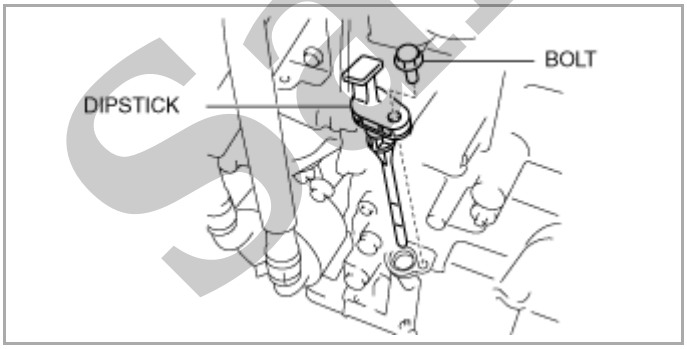
ATF Type: ATF A7 (with EGR cooler)	ATF Type: ATF FZ (without EGR cooler)

Warning

• Do not perform the servicing while the ATF is hot. Otherwise, it could cause severe burns or serious injury.

1.Remove the front under cover No.2. (See FRONT UNDER COVER No.2 REMOVAL/INSTALLATION.)

2.Remove the dipstick securing bolt.



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3.Remove the dipstick.

4.Remove the drain plug and washer, and drain the ATF.

OIL SEAL (CONTROL VALVE BODY) REPLACEMENT [FW6A-EL, FW6AX-EL]

SM2898441

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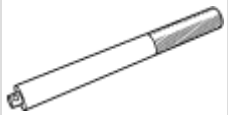
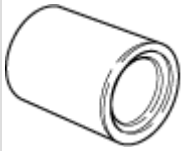
Special Service Tool (SST)

49 F027 003 Handle		49 G030 796 Body (Part of 49 G030 795)		49 U034 204 Dust boot installer	

Replacement Part

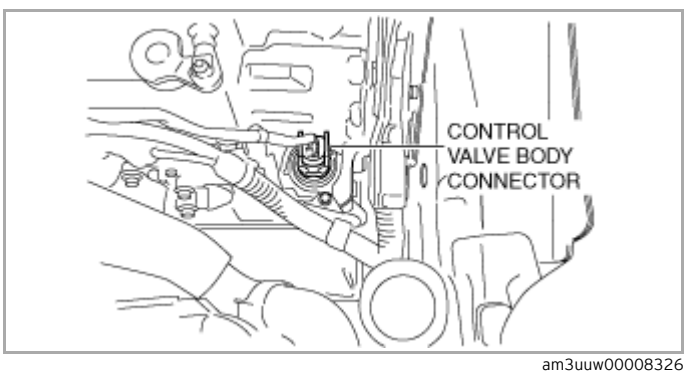
Oil seal Quantity: 1 Location of use: control valve body	Hose clamp Quantity: 1 Location of use: control valve body

1.Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)

2.Remove the following parts as a single unit. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)].)(See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)

- Air cleaner cover
- Air cleaner element
- Fresh-air duct
- Air cleaner case
- Air hose
- Resonance chamber

3.Disconnect the control valve body connector.



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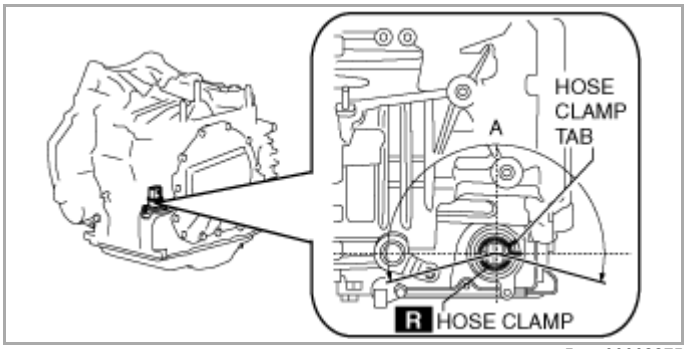
Caution



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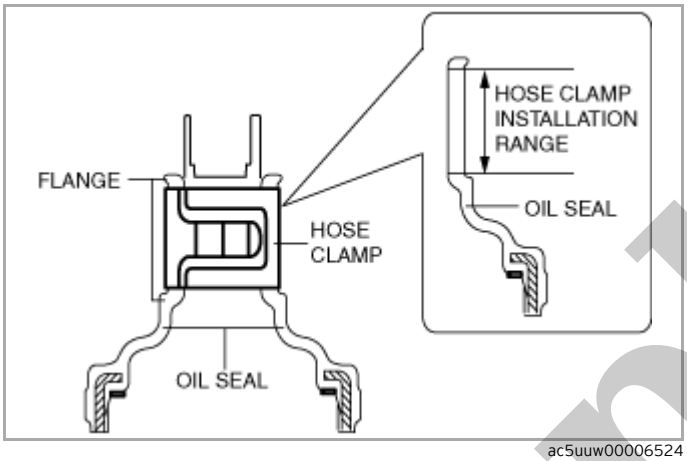
A: 210°

• Install the hose clamp so that it does not interfere with the top and bottom flanges of the oil seal to maintain the waterproofing integrity.



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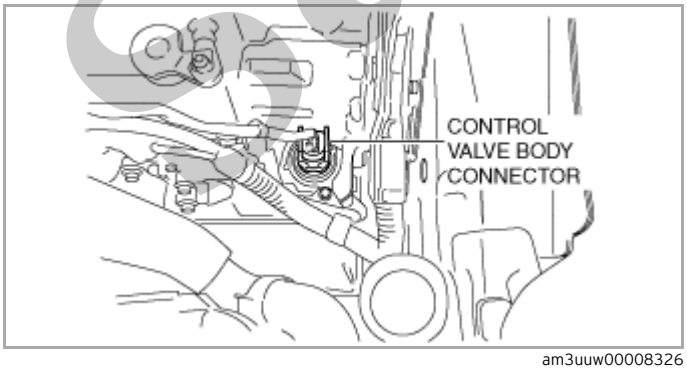
10.Connect the control valve body connector.

Caution

• Make sure that your hand does not touch the terminal as the connector terminal could be damaged.
• Verify that there is no fluid or foreign matter adhering to the connector before connecting the connector.
• Insert the connector straight as the connector terminal could be damaged.
• Rotate the connector lever until a click is heard.



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11.Install the following parts as a single unit. (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITHOUT EGR COOLER)].) (See INTAKE-AIR SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G (WITH EGR COOLER)].)

• Air cleaner cover
• Air cleaner element
• Fresh-air duct
• Air cleaner case