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2014 MAZDA 6/Atenza Wagon OEM Service and Repair Workshop Manual

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Step	Inspection		Action
19*	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE • Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Switch the ignition ON (engine off or on). • Measure voltage at the following terminals (wiring harness-side). — Climate control unit terminal 2F (RECIRCULATE mode motor drive signal) — Climate control unit terminal 2H (FRESH mode motor drive signal) • Are voltages approx. 0 V?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between climate control unit terminal and air intake actuator terminal. 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 power supply. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to power supply. Go to Step 23.
20*	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GROUND BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE • Switch the ignition off. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Climate control unit terminal 2F (RECIRCULATE mode motor drive signal) — Climate control unit terminal 2H (FRESH mode motor drive signal) • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between climate control unit terminal and air intake actuator terminal. 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. Go to Step 23.
		No	Go to the next step.
21	INSPECT AIR INTAKE ACTUATOR • Inspect air intake actuator. (See AIR INTAKE ACTUATOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is air intake actuator normal?	Yes	Replace the climate control unit. (See CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].) Go to Step 23.
		No	Replace the air intake actuator. (See AIR INTAKE ACTUATOR REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].) Then go to Step 23.
22	INSPECT AIR INTAKE LINK • Inspect air intake links. (See AIR INTAKE ACTUATOR REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].) — Is grease on link? — Are links securely and properly installed? — Are links free of obstructions and hindrances? • Are the above items normal?	Yes	Inspect the air intake doors. (See BLOWER UNIT DISASSEMBLY/ASSEMBLY.) • If any doors are cracked or damaged, replace them. • If any doors are not installed securely and properly. Install them in proper positions. • If there are any obstructions, remove them. Go to the next step.
		No	Apply grease to links. If any links are damaged, replace malfunctioning part. Then go to the next step.
23	VERIFY THAT MALFUNCTION SYMPTOM DOES NOT RECUR AFTER REPAIR • Does the malfunction disappear?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs.

Step	Inspection		Action
9	CHECK REFRIGERATION SYSTEM FOR OVERCHARGE OR AIR CONTAMINATION • Is the low side line hot to the touch?	Yes	Recover refrigerant. Evacuate system for one hour. Refill with correct amount of refrigerant, and go to Step 22.
		No	Recover refrigerant, evacuate for 15 minutes, refill with correct amount and go to Step 22.
10	CHECK TO SEE WHETHER MALFUNCTION IS IN EXPANSION VALVE OR ELSEWHERE • Compare the refrigerant pressure of the low pressure side with the high pressure side at Step 2. • Is there little difference between the high pressure side and low pressure side readings (refer to graph in REFRIGERANT PRESSURE CHECK procedure)? (See REFRIGERANT PRESSURE CHECK .)	Yes	Replace the expansion valve. After performing the following servicing, go to Step 22. • Adjust the compressor oil to the specified level. • After discharging, charge with new refrigerant to the specified level.
		No	Go to the next step.
11	INSPECT AIR MIX DOOR RELATED PART INSTALLATION • Measure the voltages at the following terminals (wiring harness-side) when the temperature control dials are set to MAX COLD and MAX HOT. — Climate control unit terminal 2K — Climate control unit terminal 2I • Are voltages normal?	Yes	Adjust the compressor oil to the specified amount, then go to Step 22. (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5] .) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T] .) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2] .)
		No	• Inspect the air mix link, air mix crank, and air mix rod of the A/C unit correctly and securely installed to their positions. (See A/C UNIT REMOVAL/INSTALLATION .) • Repair or install correctly for suspect part according to inspection result, then go to Step 22.
12	INSPECT BLOWER UNIT FOR BLOCKAGE • Is the blower unit intake and air filter clogged? (See AIR FILTER INSPECTION .)	Yes	Remove the cause of the clogging. Replace the air filter if it is clogged. (See AIR FILTER REMOVAL/INSTALLATION .) Then go to Step 22.
		No	Go to the next step.
13	CHECK TO SEE WHETHER MALFUNCTION IS REFRIGERANT LINE LEAKAGE OR ELSEWHERE • Verify if there is gas leakage from the system hoses using the gas leak tester. • Is there gas leakage?	Yes	• If there is leakage from a system hose connection area, go to Step 15. • If there is leakage other than from a system hose connection area, go to Step 17.
		No	Go to the next step.
14	VISUALLY INSPECT REFRIGERANT LINE • Is a system hose crushed?	Yes	Replace the crushed system hose. (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-G 2.5] .) (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-G 2.5T] .) (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-D 2.2] .) After performing the following servicing, go to Step 22. • Adjust the compressor oil to the specified level. • After discharging, charge with new refrigerant to the specified level.
		No	Go to Step 21.

NO COOL AIR [FULL-AUTO AIR CONDITIONER]

SM2898596

id0703c170090

Description	• Magnetic clutch does not operate
Possible cause	• Front body control module (FBCM) DTC is stored • Airflow mode system malfunction • Blower system malfunction • A/C compressor malfunction • CAN communication malfunction • PCM A/C cut control system malfunction • Refrigerant pressure sensor malfunction • Evaporator temperature sensor malfunction • Magnetic clutch malfunction • A/C 7.5 A fuse malfunction • A/C relay malfunction • Improper refrigerant charging amount

• When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, check to make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

Diagnostic procedure

Step	Inspection		Action
1	INSPECT AIR BLOW OUT • Does air blow out?	Yes	Go to the next step.
		No	Go to Step 1 of the following troubleshooting. • INSUFFICIENT AIR (OR NO AIR) BLOWN FROM VENTS [FULL-AUTO AIR CONDITIONER] • AMOUNT OF AIR BLOWN FROM VENTS DOES NOT CHANGE [FULL-AUTO AIR CONDITIONER]
2	INSPECT A/C COMPRESSOR OPERATION • Start engine. • Turn A/C switch and fan switch on. • Does A/C compressor operate?	Yes	Go to Step 1 of the following troubleshooting. • AIR FROM VENTS NOT COLD ENOUGH [FULL-AUTO AIR CONDITIONER]
		No	Go to the next step.

Step	Inspection	Action	
10	INSPECT FUSE • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Remove the A/C 7.5 A fuse. • Is the fuse normal?	Yes	Go to the next step.
		No	If the fuse is blown: • Refer to the wiring diagram and verify whether or not there is a common connector between A/C 7.5 A fuse and climate control unit terminal. 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. Then go to Step 15.
11	INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C RELAY OR ELSEWHERE • Is the A/C relay normal?	Yes	Go to the next step.
		No	Replace the A/C relay, then go to Step 15. (See RELAY LOCATION.)

NOISE WHILE OPERATING A/C SYSTEM [FULL-AUTO AIR CONDITIONER]

SM2898597

id0703c170100

Description	• Noise from magnetic clutch, A/C compressor, hose or refrigerant line
Possible cause	• Magnetic clutch operation noise • A/C compressor vane noise • A/C compressor slippage noise • Hose or refrigerant line interference noise

*:If there is gas leakage, air enters the A/C system. The desiccant within the receiver/drier absorbs the moisture from the air and becomes saturated. If the A/C system is used in this condition, the inside of the A/C compressor will begin to rust due to this moisture which may cause lock up or noise to occur. Therefore, replacement of the receiver/drier is necessary.

Diagnostic procedure

Step	Inspection	Action
1	INSPECT A/C COMPRESSOR VANE FOR NOISE • Is there a jingling, popping, beeping, or buzzing sound (A/C compressor vane noise)?	Yes Go to Step 5.
		No Go to the next step.
2	INSPECT A/C COMPRESSOR FOR SLIPPAGE NOISE • Is there a squeaking or whirling sound (A/C compressor slippage noise)?	Yes Go to Step 14.
		No Go to the next step.
3	INSPECT A/C COMPRESSOR FOR INTERFERENCE NOISE • Is there a rattling or vibrating sound (interference noise)?	Yes Go to Step 18.
		No Go to the next step.
4	INSPECT MAGNETIC CLUTCH FOR OPERATION NOISE • Is there a clicking sound (magnetic clutch operation noise)?	Yes Adjust clearance between pressure plate of magnetic clutch and A/C compressor pulley, then go to Step 19. (See MAGNETIC CLUTCH ADJUSTMENT [SKYACTIV-G 2.5].) (See MAGNETIC CLUTCH ADJUSTMENT [SKYACTIV-G 2.5T].) (See MAGNETIC CLUTCH ADJUSTMENT [SKYACTIV-D 2.2].)
		No Condition is normal. (Recheck malfunction symptoms.)
5	INSPECT A/C COMPRESSOR FOR PERIOD NOISE OCCURS • Is noise heard continuously for more than 3 s after A/C compressor turns on?	Yes Go to the next step.
		No Condition is normal. (Noise occurs for 2–3 s immediately after A/C compressor turns on.)
6	INSPECT IDLE SPEED • Inspect idle speed. (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See ENGINE TUNE-UP [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) (See ENGINE TUNE-UP [SKYACTIV-G 2.5T].) (See ENGINE TUNE-UP [SKYACTIV-D 2.2].) • Is it normal?	Yes Go to the next step.
		No Follow the repair instructions indicated in the “ENGINE” section, then go to Step 19.
7	INSPECT REFRIGERANT AMOUNT • Inspect refrigerant amount. (See REFRIGERANT CHARGING.) • Is it normal?	Yes Go to Step 10.
		No Go to the next step.

Step	Inspection	Action	
12	VERIFY IF MALFUNCTION IS SOMEWHERE IN A/C SYSTEM OR ELSEWHERE Is compressor oil whitish and mixed with water?	Yes	Replace entire A/C system (excluding heater), then go to Step 19. (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5].) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-G 2.5].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See EXPANSION VALVE REMOVAL/INSTALLATION.) (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-G 2.5].) (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See REFRIGERANT LINE REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Go to the next step.
13	INSPECT A/C COMPRESSOR OIL Is compressor oil darker than normal and contaminated with aluminum chips?	Yes	Replace A/C compressor and condenser, then go to Step 19. (Since A/C compressor may be worn and receiver/drier may be restricted, replacement of receiver/drier is necessary.) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5].) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See A/C COMPRESSOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-G 2.5].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) (See CONDENSER REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)
		No	Condition is normal. Recheck malfunction symptoms.

DUAL A/C CONTROL DOES NOT OPERATE [FULL-AUTO AIR CONDITIONER]

SM2898598

id0703c170110

Description	• Driver or passenger side temperature control dial does not operate individually • Temperature control operates normally except for dual A/C control function
Possible cause	• Air mix door malfunction (driver or passenger-side) • Air mix actuator malfunction (driver or passenger-side) • Open or short circuit in wiring or poor connection between climate control unit and air mix actuator (driver or passenger-side) • Climate control unit malfunction

• When performing an asterisked (*) troubleshooting inspection, shake the wiring harness and connectors while doing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions. If there is a problem, inspect to make sure connectors, terminals and wiring harness are connected correctly and undamaged.

Diagnostic procedure

Step	Inspection	Action
1	VERIFY SYMPTOM • Turn on the A/C. • Perform the dual A/C control function for driver and passenger side individually. • Is it either the temperature control on driver side or passenger side?	Yes Go to the next step.
		No Go to Step 12.
2	INSPECT TO SEE WHETHER MALFUNCTION IS IN AIR MIX DOOR OR ELSEWHERE • Turn on the A/C. • Change temperature control on the suspected side while in dual mode. • Does the air mix door on the suspect side move smoothly?	Yes Go to Step 8.
		No Go to the next step.
3	INSPECT AIR MIX ACTUATOR • Inspect the air mix actuator on the suspect side. (See AIR MIX ACTUATOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is the air mix actuator normal?	Yes Go to the next step.
		No Replace the air mix actuator on the suspected side, then go to Step 15. (See AIR MIX ACTUATOR REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].)

Step	Inspection		Action
10*	INSPECT AIR MIX ACTUATOR (POSITION SENSOR) CIRCUIT FOR OPEN CIRCUIT - Air mix actuator and climate control unit connectors are disconnected. - Inspect for continuity between the following terminals (wiring harness-side): Driver-side - Climate control unit terminal 2K–air mix actuator terminal F - Climate control unit terminal 1C–air mix actuator terminal G - Climate control unit terminal 1Q–air mix actuator terminal E Passenger-side - Climate control unit terminal 2I–air mix actuator terminal F - Climate control unit terminal 1C–air mix actuator terminal E - Climate control unit terminal 1Q–air mix actuator terminal G - 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 climate control unit terminal and air mix actuator terminal. 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.
11*	INSPECT AIR MIX ACTUATOR (POSITION SENSOR) CIRCUIT FOR SHORT TO POWER SUPPLY - Air mix actuator and climate control unit connectors are disconnected. - Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) - Switch the ignition ON (engine off or on). - Measure the voltage at the following terminals (wiring harness-side): Driver-side - Climate control unit terminal 2K Passenger-side - Climate control unit terminal 2I - Is the voltage 0 V?	Yes	Replace the climate control unit, then go to Step 15. (See CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].)
		No	Refer to the wiring diagram and verify whether or not there is a common connector between climate control unit terminal and air mix actuator terminal. 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 power supply. - Repair or replace the malfunctioning part. If there is no common connector: - Repair or replace the wiring harness which has a short to power supply. Go to Step 15.

A/C DOES NOT WORK SUFFICIENTLY [FULL-AUTO AIR CONDITIONER]

SM3066009

id0703c170380

DESCRIPTION	• A/C compressor magnetic clutch does not engage when A/C switch is turned on.
POSSIBLE CAUSE	• PCM, instrument cluster or climate control unit DTC is stored • Refrigerant pressure sensor No.1 malfunction • Refrigerant pressure sensor No.2 malfunction • Improper refrigerant charging amount • Seized A/C compressor • Evaporator temperature sensor malfunction • Open or short circuit in wiring harness between the following terminals: — Evaporator temperature sensor terminal B–Climate control unit terminal 1E — Evaporator temperature sensor terminal A–Climate control unit terminal 1Q • Instrument cluster malfunction (Does not receive A/C request signal from climate control unit or transmit it to PCM) • Climate control unit malfunction (A/C switch malfunction or climate control unit does not determine A/C request or transmit A/C request signal) • Open circuit in wiring harness between magnetic clutch and body ground • A/C relay stuck open • Open circuit in wiring harness between the following terminals: — Front body control module (FBCM) terminal 1C–A/C relay terminal A — Battery positive terminal–A/C relay terminal C — A/C relay terminal D–Magnetic clutch terminal A — A/C relay terminal E–PCM terminal 2AF (SKYACTIV-G 2.5) — A/C relay terminal E–PCM terminal 2BB (SKYACTIV-G 2.5T) — A/C relay terminal E–PCM terminal 2BE (SKYACTIV-D 2.2)