

2012 - Mazda6 - HVAC

NO.4 AIR INTAKE MODE FROM VENT DOES NOT CHANGE [FULL-AUTO AIR CONDITIONER]

4	Air intake mode from vent does not change.
DESCRIPTION	Air intake mode does not change when switching REC/FRESH mode.
POSSIBLE CAUSE	- Air intake actuator malfunction - Air intake door malfunction

- 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, inspect to make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT AIR INTAKE ACTUATOR - Inspect the air intake actuator. - Is the air intake actuator normal?	Yes Go to the next step.
		No Replace the air intake actuator, then go to Step 9.
2*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR, WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE - Switch the ignition to ON. - Measure the voltages at the following climate control unit terminals. - Terminal 1N (24-pin, FRESH motor drive signal) - Terminal 1L (24-pin, RECIRCULATE motor drive signal)	Yes Go to the next step.
		No Go to Step 4.

	(See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) Are voltages normal?		
3*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) - Measure the voltages at the following air intake actuator terminals. - Terminal A (FRESH motor drive signal) - Terminal B (RECIRCULATE motor drive signal) - Are voltages as shown below? - Terminal A: approx. 0.5 V during RECIRCULATE and approx. 10 V during FRESH - Terminal B: approx. 10 V during RECIRCULATE and approx. 0.5 V during FRESH	Yes	Go to Step 7.
		No	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.
4	INSPECT TO SEE WHETHER MALFUNCTION IS IN AIR INTAKE ACTUATOR OR ELSEWHERE - Disconnect the air intake actuator connector. - Measure the voltages at the following climate control unit terminals. - Terminal 1N (FRESH motor drive signal) - Terminal 1L (RECIRCULATE motor drive signal) (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) - Are voltages normal?	Yes	Inspect the air intake actuator, then go to Step 9.
		No	Go to the next step.
5	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE	Yes	Go to the next step.
		No	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.

	• Disconnect the climate control unit connector. • Measure the voltages at the following climate control unit terminals. ▪ Terminal 1N (FRESH motor drive signal) ▪ Terminal 1L (RECIRCULATE motor drive signal) • Are voltages approx. 0 V?		
6	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 to off. • Inspect for continuity at the following terminals between the climate control unit and ground. ▪ Terminal 1N (FRESH motor drive signal) ▪ Terminal 1L (RECIRCULATE motor drive signal) • Is there continuity?	Yes	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.
		No	Go to the next step.
7	INSPECT AIR INTAKE LINK • Inspect the air intake links. ▪ Is there grease on link? ▪ Are the links securely and properly installed? ▪ Are the links free of obstructions and hindrances? • Are the above items normal?	Yes	Go to the next step.
		No	Apply grease to the links. If any the links are damaged, replace the air intake actuator, then go to Step 9.
8	INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR AIR INTAKE DOOR • Inspect the blower unit air intake door. ▪ Is the door free of obstructions, cracks, and damage? ▪ Are the doors securely and properly installed?	Yes	Replace the climate control unit, then go to the next step.
		No	Remove obstruction, or install the doors in the proper position. If any doors are cracked or damaged, replace them, then go to the next step.

	• Are the above items normal?		
9	CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECUR AFTER REPAIR • Does the air intake mode change smoothly?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs.

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- 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, inspect to make sure connectors, terminals and wiring harnesses are connected correctly and undamaged.

Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT AIR INTAKE ACTUATOR - Inspect the air intake actuator. - Is the air intake actuator normal?	Yes Go to the next step.
		No Replace the air intake actuator, then go to Step 9.
2*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR, WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE - Switch the ignition to ON. - Measure the voltages at the following climate control unit terminals. - Terminal 1N (24-pin, FRESH motor drive signal) - Terminal 1L (24-pin, RECIRCULATE motor drive signal)	Yes Go to the next step.
		No Go to Step 4.

	(See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) Are voltages normal?		
3*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR INTAKE ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) - Measure the voltages at the following air intake actuator terminals. - Terminal A (FRESH motor drive signal) - Terminal B (RECIRCULATE motor drive signal) - Are voltages as shown below? - Terminal A: approx. 0.5 V during RECIRCULATE and approx. 10 V during FRESH - Terminal B: approx. 10 V during RECIRCULATE and approx. 0.5 V during FRESH	Yes	Go to Step 7.
		No	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.
4	INSPECT TO SEE WHETHER MALFUNCTION IS IN AIR INTAKE ACTUATOR OR ELSEWHERE - Disconnect the air intake actuator connector. - Measure the voltages at the following climate control unit terminals. - Terminal 1N (FRESH motor drive signal) - Terminal 1L (RECIRCULATE motor drive signal) (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) - Are voltages normal?	Yes	Inspect the air intake actuator, then go to Step 9.
		No	Go to the next step.
5	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND AIR INTAKE ACTUATOR) OR ELSEWHERE	Yes	Go to the next step.
		No	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.

	• Disconnect the climate control unit connector. • Measure the voltages at the following climate control unit terminals. ▪ Terminal 1N (FRESH motor drive signal) ▪ Terminal 1L (RECIRCULATE motor drive signal) • Are voltages approx. 0 V?		
6	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 to off. • Inspect for continuity at the following terminals between the climate control unit and ground. ▪ Terminal 1N (FRESH motor drive signal) ▪ Terminal 1L (RECIRCULATE motor drive signal) • Is there continuity?	Yes	Repair the wiring harness between the climate control unit and air intake actuator, then go to Step 9.
		No	Go to the next step.
7	INSPECT AIR INTAKE LINK • Inspect the air intake links. ▪ Is there grease on link? ▪ Are the links securely and properly installed? ▪ Are the links free of obstructions and hindrances? • Are the above items normal?	Yes	Go to the next step.
		No	Apply grease to the links. If any the links are damaged, replace the air intake actuator, then go to Step 9.
8	INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR AIR INTAKE DOOR • Inspect the blower unit air intake door. ▪ Is the door free of obstructions, cracks, and damage? ▪ Are the doors securely and properly installed?	Yes	Replace the climate control unit, then go to the next step.
		No	Remove obstruction, or install the doors in the proper position. If any doors are cracked or damaged, replace them, then go to the next step.

	• Are the above items normal?		
9	CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECUR AFTER REPAIR • Does the air intake mode change smoothly?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs.