

2012 - Mazda6 - HVAC

NO.1 INSUFFICIENT AIR (OR NO AIR) BLOWN FROM VENTS [FULL-AUTO AIR CONDITIONER]

1	Insufficient air (or no air) blown from vents
DESCRIPTION	• Problem with each vent and/or duct. • Airflow mode does not change.
POSSIBLE CAUSE	• Malfunction in airflow mode actuator • Malfunction in VENT mode system • Malfunction in HEAT mode system • Malfunction in DEFROSTER mode system • Malfunction in rear vent system

- 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 CLIMATE CONTROL UNIT POWER SUPPLY FUSE FOR B+ SIGNAL • Is the climate control unit power supply fuse for B+ signal normal?	Yes Go to the next step.
		No Inspect for short to GND in blown fuse circuit Repair or replace as necessary. Install appropriate amperage fuse.
2*	INSPECT TO SEE WHETHER MALFUNCTION (OPEN CIRCUIT) IS IN B+ SIGNAL WIRING HARNESS (BETWEEN FUSE BLOCK AND CLIMATE CONTROL UNIT) OR ELSEWHERE	Yes Go to the next step.
		No Repair wiring harness between fuse block and climate control unit, then

	• Disconnect the climate control unit connector (24-pin). • Switch the ignition to ON. • Measure the voltage at climate control unit harness-side connector (24-pin) terminal 1E (B+ signal). • Is the voltage approx. 12V?	go to Step 20.
3*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND GND) OR ELSE ELSEWHERE • Climate control unit connector (24-pin) disconnected. • Verify that continuity between climate control unit harness-side connector (24-pin) terminal 1D and GND. • Is there continuity?	Yes Go to the next step
		No Repair wiring harness between climate control unit and GND. Inspect GND point condition. Then go to Step 20.
4*	INSPECT TO SEE WHETHER MALFUNCTION IS IN BLOWER UNIT OR AIR MIX ACTUATOR • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2A and 2C (12-pin) when temperature controls dial at MAX HOT and MAX COLD. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER] .) • Is voltage normal?	Yes Go to Step 16.
		No Go to the next step.
5*	INSPECT TO SEE WHETHER MALFUNCTION IS IN POSITION OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2B (12-pin) when airflow mode change to VENT and DEFROSTER. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER] .) • Are voltages normal?	Yes Go to Step 8.
		No Go to the next step.

6*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY OR SHORT TO BATTERY POWER OR GND) IS IN POSITION SENSOR POWER SUPPLY (CLIMATE CONTROL UNIT TERMINAL 2K) OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2K (12-pin). • Is voltage approx. 5V?	YesGo to the next step.	NoRepair wiring harness between climate control unit terminal 2K and follows: • Airflow mode actuator terminal F • Driver side air mix actuator terminal D • Passenger side air mix actuator terminal F • Rear vent actuator terminal F Then go to Step 20.
7*	INSPECT TO SE WHETHER MALFUNCTION (LACK OF CONTINUITY OR OPEN) IS IN POSITION SENSOR GND (CLIMATE CONTROL UNIT TERMINAL 2L) OR ELSEWHERE • Measure voltage at climate control unit terminal 2L (12-pin) • Is voltage below 1.0V?	YesGo to Step 11.	NoRepair wiring harness between climate control unit terminal 2L and follows: • Airflow mode actuator terminal D • Driver side air mix actuator terminal F • Passenger side air mix actuator terminal D • Rear vent actuator terminal D Then go to Step 20.
8*	INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO POWER) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR ELSEWHERE • Is climate control unit terminal 2B voltage approx. 12V, at Step 5?	YesRepair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E. Then go to Step 20.	NoGo to the next step.
9*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR ELSEWHERE	YesGo to next step.	NoRepair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E.

	• Switch the ignition off. • Disconnect climate control unit and airflow mode actuator connectors. • Verify continuity between climate control unit terminal 2B (12-pin) and airflow mode actuator terminal E at harness-side connector. • Is there continuity?		Then go to Step 20.
10*	INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO GND) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR POSITION SENSOR COMMON (POWER SUPPLY OR GND) HARNESS • Verify continuity between climate control unit harness-side connector terminal 2B (12-pin) and GND. • Is there continuity?	Yes	Repair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E. Then go to Step 20.
		No	Inspection and repair for open circuit following: • Between airflow mode actuator terminal F and junction point to each air mix actuator, rear vent actuator (position sensor power supply). • Between airflow mode actuator terminal D and junction point to each air mix actuator, rear vent actuator (position sensor GND). Then go to Step 20.
11*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIRFLOW MODE ACTUATOR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at the following terminals of climate control unit. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) ▪ Terminal 1K (24-pin,	Yes	Go to the next step.
		No	Go to Step 13.

	DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Are voltages okay?		
12*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIRFLOW MODE ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) • Measure voltage at the following terminals of climate control unit. ▪ Terminal 1K (DEFROSTER mode motor drive signal) ▪ Terminal 1M (VENT mode motor drive signal) • Are voltages as shown below? ▪ DEFROSTER mode motor drive signal: approx. 10V during DEFROSTER mode and approx. 0.5V during VENT mode ▪ VENT mode motor drive signal: approx. 0.5V during DEFROSTER mode and approx. 10V during VENT mode.	Yes	Go to Step 17.
		No	Repair wiring harness between climate control unit and airflow mode actuator. Then go to Step 20.
13*	INSPECT TO SEE WHETHER MALFUNCTION IS IN AIRFLOW MODE ACTUATOR OR ELSEWHERE • Disconnect the airflow mode actuator. • Measure voltage at the following terminals of climate control unit. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) ▪ Terminal 1K (24-pin, DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Are voltage okay?	Yes	Go to Step 16.
		No	Go to the next step.

14*	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND FLOW MODE ACTUATOR) OR ELSEWHERE • Disconnect the climate control unit connector. • Measure voltage at the following terminal of the climate control unit harness-side connector. ▪ Terminal 1K (24-pin, DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Are voltages approx. 0V?	Yes	Go to the next step.
		No	Repair wiring between climate control unit and airflow mode actuator. Then go to the Step 20.
15*	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GND BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) OR ELSEWHERE • Switch the ignition to off. • Verify that continuity at the following harness-side connector terminals between climate control unit and GND. ▪ Terminal 1K (24-pin, DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Is there continuity?	Yes	Repair wiring harness between climate control unit and airflow mode actuator. Then go to the Step 20.
		No	Go to the next step.
16	INSPECT AIRFLOW MODE ACTUATOR • Inspect airflow mode actuator. (See AIRFLOW MODE ACTUATOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is airflow mode actuator normal?	Yes	Go to the next step.
		No	Replace the airflow mode actuator. (See AIRFLOW MODE ACTUATOR REMOVAL/ INSTALLATION [FULL-AUTO AIR CONDITIONER] .) Then go to the Step 20.
17	INSPECT AIRFLOW MODE LINK • Inspect airflow mode links. ▪ Is grease on link?	Yes	Go to the next step.
		No	Apply grease to links. If any links are damaged, replace

	Are links securely and properly installed? ▪ Are links free of obstructions and hindrances? • Are above items okay?		malfunctioning part. Then go to the Step 20.
18	INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR AIRFLOW MODE DOOR • Inspect blower unit airflow mode door. ▪ Is door free of obstructions, cracks and damage? ▪ Are door securely and properly installed? • Are above items okay?	Yes	Go to the next step.
		No	Remove the obstruction, or install door in proper position. If any doors are cracked or damaged, replace them. Then go to the Step 20.
19	VERIFY THAT DUCTS INSTALLATION CONDITION • Are following ducts installed properly? ▪ Dashboard ducts ▪ Defroster ducts	Yes	Inspect ducts for clogging, deformity, and air leakage, then go to the next step.
		No	Install the suspected ducts properly, then go to the next step.
20	CONFIRM THAT MALFUNCTION SYMPTOM DOES NOT RECUR AFTER REPAIR • Does air blow out?	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs.

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POSSIBLE CAUSE	• Malfunction in airflow mode actuator • Malfunction in VENT mode system • Malfunction in HEAT mode system • Malfunction in DEFROSTER mode system • Malfunction in rear vent system

- 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 CLIMATE CONTROL UNIT POWER SUPPLY FUSE FOR B+ SIGNAL • Is the climate control unit power supply fuse for B+ signal normal?	Yes Go to the next step.
		No Inspect for short to GND in blown fuse circuit Repair or replace as necessary. Install appropriate amperage fuse.
2*	INSPECT TO SEE WHETHER MALFUNCTION (OPEN CIRCUIT) IS IN B+ SIGNAL WIRING HARNESS (BETWEEN FUSE BLOCK AND CLIMATE CONTROL UNIT) OR ELSEWHERE	Yes Go to the next step.
		No Repair wiring harness between fuse block and climate control unit, then

	• Disconnect the climate control unit connector (24-pin). • Switch the ignition to ON. • Measure the voltage at climate control unit harness-side connector (24-pin) terminal 1E (B+ signal). • Is the voltage approx. 12V?	go to Step 20.
3*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND GND) OR ELSE ELSEWHERE • Climate control unit connector (24-pin) disconnected. • Verify that continuity between climate control unit harness-side connector (24-pin) terminal 1D and GND. • Is there continuity?	Yes Go to the next step
		No Repair wiring harness between climate control unit and GND. Inspect GND point condition. Then go to Step 20.
4*	INSPECT TO SEE WHETHER MALFUNCTION IS IN BLOWER UNIT OR AIR MIX ACTUATOR • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2A and 2C (12-pin) when temperature controls dial at MAX HOT and MAX COLD. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER] .) • Is voltage normal?	Yes Go to Step 16.
		No Go to the next step.
5*	INSPECT TO SEE WHETHER MALFUNCTION IS IN POSITION OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2B (12-pin) when airflow mode change to VENT and DEFROSTER. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER] .) • Are voltages normal?	Yes Go to Step 8.
		No Go to the next step.

6*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY OR SHORT TO BATTERY POWER OR GND) IS IN POSITION SENSOR POWER SUPPLY (CLIMATE CONTROL UNIT TERMINAL 2K) OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at climate control unit terminal 2K (12-pin). • Is voltage approx. 5V?	YesGo to the next step.	NoRepair wiring harness between climate control unit terminal 2K and follows: • Airflow mode actuator terminal F • Driver side air mix actuator terminal D • Passenger side air mix actuator terminal F • Rear vent actuator terminal F Then go to Step 20.
7*	INSPECT TO SE WHETHER MALFUNCTION (LACK OF CONTINUITY OR OPEN) IS IN POSITION SENSOR GND (CLIMATE CONTROL UNIT TERMINAL 2L) OR ELSEWHERE • Measure voltage at climate control unit terminal 2L (12-pin) • Is voltage below 1.0V?	YesGo to Step 11.	NoRepair wiring harness between climate control unit terminal 2L and follows: • Airflow mode actuator terminal D • Driver side air mix actuator terminal F • Passenger side air mix actuator terminal D • Rear vent actuator terminal D Then go to Step 20.
8*	INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO POWER) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR ELSEWHERE • Is climate control unit terminal 2B voltage approx. 12V, at Step 5?	YesRepair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E. Then go to Step 20.	NoGo to the next step.
9*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR ELSEWHERE	YesGo to next step.	NoRepair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E.

	• Switch the ignition off. • Disconnect climate control unit and airflow mode actuator connectors. • Verify continuity between climate control unit terminal 2B (12-pin) and airflow mode actuator terminal E at harness-side connector. • Is there continuity?		Then go to Step 20.
10*	INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO GND) IS IN WIRING HARNESS (AIRFLOW MODE POSITION SIGNAL) OR POSITION SENSOR COMMON (POWER SUPPLY OR GND) HARNESS • Verify continuity between climate control unit harness-side connector terminal 2B (12-pin) and GND. • Is there continuity?	Yes	Repair wiring harness between climate control unit terminal 2B and airflow mode actuator terminal E. Then go to Step 20.
		No	Inspection and repair for open circuit following: • Between airflow mode actuator terminal F and junction point to each air mix actuator, rear vent actuator (position sensor power supply). • Between airflow mode actuator terminal D and junction point to each air mix actuator, rear vent actuator (position sensor GND). Then go to Step 20.
11*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIRFLOW MODE ACTUATOR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) OR ELSEWHERE • Switch the ignition to ON. • Measure voltage at the following terminals of climate control unit. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) ▪ Terminal 1K (24-pin,	Yes	Go to the next step.
		No	Go to Step 13.

	DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Are voltages okay?		
12*	INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIRFLOW MODE ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) • Measure voltage at the following terminals of climate control unit. ▪ Terminal 1K (DEFROSTER mode motor drive signal) ▪ Terminal 1M (VENT mode motor drive signal) • Are voltages as shown below? ▪ DEFROSTER mode motor drive signal: approx. 10V during DEFROSTER mode and approx. 0.5V during VENT mode ▪ VENT mode motor drive signal: approx. 0.5V during DEFROSTER mode and approx. 10V during VENT mode.	Yes	Go to Step 17.
		No	Repair wiring harness between climate control unit and airflow mode actuator. Then go to Step 20.
13*	INSPECT TO SEE WHETHER MALFUNCTION IS IN AIRFLOW MODE ACTUATOR OR ELSEWHERE • Disconnect the airflow mode actuator. • Measure voltage at the following terminals of climate control unit. (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) ▪ Terminal 1K (24-pin, DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Are voltage okay?	Yes	Go to Step 16.
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		No	Repair wiring between climate control unit and airflow mode actuator. Then go to the Step 20.
15*	INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GND BETWEEN CLIMATE CONTROL UNIT AND AIRFLOW MODE ACTUATOR) OR ELSEWHERE • Switch the ignition to off. • Verify that continuity at the following harness-side connector terminals between climate control unit and GND. ▪ Terminal 1K (24-pin, DEFROSTER mode motor drive signal) ▪ Terminal 1M (24-pin, VENT mode motor drive signal) • Is there continuity?	Yes	Repair wiring harness between climate control unit and airflow mode actuator. Then go to the Step 20.
		No	Go to the next step.
16	INSPECT AIRFLOW MODE ACTUATOR • Inspect airflow mode actuator. (See AIRFLOW MODE ACTUATOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is airflow mode actuator normal?	Yes	Go to the next step.
		No	Replace the airflow mode actuator. (See AIRFLOW MODE ACTUATOR REMOVAL/ INSTALLATION [FULL-AUTO AIR CONDITIONER] .) Then go to the Step 20.
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	Are links securely and properly installed? ▪ Are links free of obstructions and hindrances? • Are above items okay?		malfunctioning part. Then go to the Step 20.
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		No	Recheck malfunction symptoms, then repeat from Step 1 if the malfunction recurs.