NO.4 NO TEMPERATURE CONTROL WITH CLIMATE CONTROL UNIT [FULL-AUTO AIR CONDITIONER]

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4	No temperature control with climate control unit
DESCRIPTION	• Temperature does not change when operating temperature dial • Malfunction in A/C unit and/or climate control unit air mix system • Malfunction in driver and/or passenger side air mix actuator or related wiring harness
POSSIBLE CAUSE	• A/C unit air mix link, air mix crank, air mix rod, malfunction • Climate control unit rack-and-pinion, malfunction • A/C unit air mix door malfunction • Heater piping malfunction

Diagnostic procedure

STEP	INSPECTION		ACTION
1	**INSPECT COOLANT TEMPERATURE** • Is the coolant sufficiently warmed up?	Yes	Go to the next step.
		No	Warm up the engine, then go to Step 20.
2*	**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, then go to Step 20.
3*	**INSPECT TO SEE WHETHER MALFUNCTION (OPEN CIRCUIT) IS IN B+ SIGNAL WIRING HARNESS (BETWEEN FUSE BLOCK AND CLIMATE CONTROL UNIT) OR ELSEWHERE**. • Disconnect the climate control unit connector (24-pin). • Switch the ignition ON (engine off or on). • Measure voltage at climate control unit harness-side connector (24-pin) terminal 1E (B+ signal). • Is the voltage **approx. 12V?**	Yes	Go to the next step.
		No	Repair wiring harness for open between fuse block and climate control unit, then go to Step 20.
4*	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND GND) OR ELSEWHERE** • Climate control unit connector (24-pin) disconnected. • Verify that continuity between climate control unit harness-side connector (24-pin) terminal 1W and GND. • Is the continuity?	Yes	Go to the next step.
		No	Repair wiring harness for lack of continuity between climate control unit and GND. Inspect GND point condition. Then go to Step 20.
5*	**INSPECT TO SEE WHETHER MALFUNCTION IS IN BLOWER UNIT OR AIR MIX ACTUATOR** • Reconnect the disconnected climate control unit connector. • Switch the ignition ON (engine off or on). • Measure the voltage at climate control unit terminal 1N and 1P (24-pin) when temperature control 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.
6*	**INSPECT TO SEE WHETHER MALFUNCTION IS IN POSITION SENSOR OR ELSEWHERE** • Switch the ignition ON (engine off or on). • Measure voltage at climate control unit terminal 1R (24-pin) when airflow mode change to DEF and VENT (See CLIMATE CONTROL UNIT INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is voltage normal?	Yes	Go to Step 9.
		No	Go to the next step.

STEP	INSPECTION		ACTION
7*	**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 1H) OR ELSEWHERE** • Switch the ignition ON (engine off or on). • Measure voltage at climate control unit terminal 1H (24-pin). • Is voltage **approx. 5V?**	Yes	Go to the next step.
		No	Repair wiring harness for lack of continuity or short circuit between climate control unit terminal 1H and follows: • Driver side air mix actuator terminal G (L.H.D.) / E (R.H.D.) • Passenger side air mix actuator terminal E (L.H.D.) / G (R.H.D.) • Airflow mode actuator terminal B Then go to Step 20.
8*	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY OR OPEN) IS IN POSITION SENSOR GND (CLIMATE CONTROL UNIT TERMINAL 1X) OR ELSEWHERE** • Measure voltage at climate control unit terminal 1X (24-pin). • Is the voltage **below. 1.0V?**	Yes	Go to Step 12.
		No	Repair wiring harness for lack of continuity or open between climate control unit terminal 1X and follows: • Driver side air mix actuator terminal E (L.H.D.) / G (R.H.D.) • Passenger side air mix actuator terminal G (L.H.D.) / E (R.H.D.) • Airflow mode actuator terminal A Then go to Step 20.
9	**INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO POWER) IS IN WIRING HARNESS (AIR MIX POSITION SIGNAL) OR ELSEWHERE** • Is climate control unit terminal 1N and 1P voltage **approx. 12V,** at Step 5?	Yes	Repair wiring harness for short to power supply between climate control unit terminal 1N and 1P and each side air mix actuator terminal F. Then go to Step 20.
		No	Go to the next step.
10*	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN WIRING HARNESS (AIR MIX POSITION SIGNAL) OR ELSEWHERE** • Switch the ignition off. • Disconnect the climate control unit and air mix actuator connectors. • Verify continuity between climate control unit terminal 1N and 1P (24-pin) and each side air mix actuator terminal F at harness-side connector. • Is there continuity?	Yes	Go to the next step.
		No	Repair wiring harness for lack of continuity between climate control unit terminal 1N and 1P and each side air mix actuator terminal F. Then go to Step 20.
11*	**INSPECT TO SEE WHETHER MALFUNCTION (SHORT TO GND) IS IN WIRING HARNESS (AIR MIX POSITION SIGNAL) OR POSITION SENSOR COMMON (POWER SUPPLY OR GND) HARNESS** • Climate control unit and air mix actuators connectors disconnected. • Verify continuity between climate control unit harness-side connector terminal 1N and 1P (24-pin) and GND. • Is there continuity?	Yes	Repair wiring harness for short to GND between climate control unit terminal 1N and 1P and each side air mix actuator terminal F. Then go to Step 20.
		No	Inspect and repair for open circuit following: • Between driver side air mix actuator terminal G (L.H.D.) / E (R.H.D.) and junction point to airflow mode actuator (position sensor power supply). • Between passenger side air mix actuator terminal E (L.H.D.) / G (R.H.D.) and junction point to airflow mode actuator (position sensor power supply). • Between driver side air mix actuator terminal E (L.H.D.) / G (R.H.D.) and junction point to airflow mode actuator (position sensor GND). • Between passenger side air mix actuator terminal G (L.H.D.) / E (R.H.D.) and junction point to airflow mode actuator (position sensor GND). Then go to Step 20.

STEP	INSPECTION		ACTION
12*	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN AIR MIX ACTUATOR OR WIRING HARNESS (BETWEEN CLIMATE CONTROL UNIT AND AIR MIX ACTUATOR)** • Disconnect the air mix actuators connectors. • Measure voltage at the following terminals of air mix actuator. **L.H.D.** — Terminal C (driver-side)/B (passenger-side) (COLD motor drive signal) — Terminal B (driver-side)/C (passenger-side) (HOT motor drive signal) **R.H.D.** — Terminal B (driver-side)/C (passenger-side) (COLD motor drive signal) — Terminal C (driver-side)/B (passenger-side) (HOT motor drive signal) • Are voltage s as shown below? — COLD motor drive signal: **approx. 10V** during COLD and **approx. 0.5V** during HOT — HOT motor drive signal: **approx. 0.5V** during COLD and **approx. 10V** during HOT	Yes	Go to Step 16.
		No	Go to the next step.
13*	**INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO B+ BETWEEN CLIMATE CONTROL UNIT AND AIR MIX ACTUATOR) OR ELSEWHERE** • Air mix actuators connectors disconnected. • Disconnect the climate control unit connector. • Measure voltage at the following terminals of the climate control unit harness-side connector. **Driver-side: (L.H.D.)** — Terminal 2G (12-pin, COLD motor drive signal) — Terminal 2E (12-pin, HOT motor drive signal) **Passenger-side: (L.H.D.)** — Terminal 2H (12-pin, COLD motor drive signal) — Terminal 2F (12-pin, HOT motor drive signal) **Driver-side: (R.H.D.)** — Terminal 2H (12-pin, COLD motor drive signal) — Terminal 2F (12-pin, HOT motor drive signal) **Passenger-side: (R.H.D.)** — Terminal 2G (12-pin, COLD motor drive signal) — Terminal 2E (12-pin, HOT motor drive signal) • Are voltages **approx. 0V?**	Yes	Go to the next step.
		No	Repair wiring harness for short to B+ between climate control unit and air mix actuator. Then go to Step 20.

STEP	INSPECTION		ACTION
14*	**INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (SHORT TO GND BETWEEN CLIMATE CONTROL UNIT AND AIR MIX ACTUATOR) OR ELSEWHERE** • Air mix actuators connectors disconnected. • Switch the ignition off. • Verify that continuity at the following harness-side connector terminals between climate control unit and GND. **Driver-side: (L.H.D.)** — Terminal 2G (12-pin, COLD motor drive signal) — Terminal 2E (12-pin, HOT motor drive signal) **Passenger-side: (L.H.D.)** — Terminal 2H (12-pin, COLD motor drive signal) — Terminal 2F (12-pin, HOT motor drive signal) **Driver-side: (R.H.D.)** — Terminal 2H (12-pin, COLD motor drive signal) — Terminal 2F (12-pin, HOT motor drive signal) **Passenger-side: (R.H.D.)** — Terminal 2G (12-pin, COLD motor drive signal) — Terminal 2E (12-pin, HOT motor drive signal) • Is there continuity?	Yes	Repair wiring harness for short to GND between climate control unit and air mix actuator. Then go to Step 20.
		No	Go to the next step.
15	**INSPECT TO SEE WHETHER MALFUNCTION IS IN WIRING HARNESS (LACK OF CONTINUITY OR OPEN BETWEEN CLIMATE CONTROL UNIT AND AIR MIX ACTUATOR) OR ELSEWHERE** • Air mix actuators connectors disconnected. • Switch the ignition off. • Verify that continuity at the following harness-side connector terminals between climate control unit and each air mix actuator. **L.H.D.** Driver-side air mix actuator: — Terminal C—climate control unit terminal 2G (12-pin, COLD motor drive signal) — Terminal B—climate control unit terminal 2E (12-pin, HOT motor drive signal) Passenger-side air mix actuator: — Terminal B—climate control unit terminal 2H (12-pin, COLD motor drive signal) — Terminal C—climate control unit terminal 2F (12-pin, HOT motor drive signal) **R.H.D.** Driver-side air mix actuator: — Terminal B—climate control unit terminal 2H (12-pin, COLD motor drive signal) — Terminal C—climate control unit terminal 2F (12-pin, HOT motor drive signal) Passenger-side air mix actuator: — Terminal C—climate control unit terminal 2G (12-pin, COLD motor drive signal) — Terminal B—climate control unit terminal 2E (12-pin, HOT motor drive signal) • Is there continuity?	Yes	Repair wiring harness for lack of continuity or open between climate control unit and air mix actuator. Then go to Step 20.
		No	Go to the next step.

STEP	INSPECTION		ACTION
16	**INSPECT AIR MIX ACTUATOR** • Inspect the air mix actuator. (See AIR MIX ACTUATOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is air mix actuator normal?	Yes	Go to the next step.
		No	Replace the suspected side air mix actuator. Then go to 20. (See AIR MIX ACTUATOR REMOVAL/INSTALLATION [FULL-AUTO AIR CONDITIONER].)
17	**INSPECT AIR MIX LINK** • Inspect air mix links for each-side. — Is grease on link? — Are links securely and properly installed? — Are links free of obstructions and hindrances? • Are above items okay?	Yes	Go to the next step.
		No	Apply grease to links. If any links are damaged. Replace malfunctioning part. Then go to Step 20.
18	**INSPECT TO SEE WHETHER MALFUNCTION IS IN CLIMATE CONTROL UNIT OR AIR MIX DOOR ELSEWHERE** • Inspect A/C unit and each-side air mix door. — Is door free of unit and obstruction, and damage? — Are doors 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 door are cracked, replace them. Then go to the next step.
19	**INSPECT HEATER LINES** • Inspect heater lines for followings: — Is heater piping free if damage and cracks? — Are heater piping connections free of engine coolant leakage? — Are heater piping installation points on A/C unit free of engine coolant leakage? • Are above items okay?	Yes	Replace the climate control unit. Then go to the next step. (See CLIMATE CONTROL UNIT REMOVAL/ INSTALLATION [FULL-AUTO AIR CONDITIONER].)
		No	If heater piping connections is loosed, tighten connections with specified torque. Repair or replace heater piping. Then go to the next step.
20	**VERIFY THAT MALFUNCTION SYMPTOM OCCURS AFTER REPAIR** • Does the unit operate in every temperature setting?	Yes	Trouble shooting completed. Explain repairs customer.
		No	Recheck malfunction symptoms, then repeat from Step1 if the malfunction recurs.