NO.7 NO COOL AIR [MANUAL AIR CONDITIONER]

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7	No cool air
DESCRIPTION	• Magnetic clutch does not operate
POSSIBLE CAUSE	• Malfunction in PCM A/C cut control system • Open or short circuit in wiring harness between evaporator temperature sensor and climate control unit • Malfunction in evaporator temperature sensor (internal circuit malfunction) • Malfunction in climate control unit • Malfunction in refrigerant pressure sensor • Malfunction in PCM (A/C signal) • Malfunction in PCM (IG1 signal) • Malfunction in A/C compressor • Malfunction in A/C relay • Malfunction in evaporator temperature sensor • Malfunction in front body control module (FBCM) • Improper refrigerant charging amount • Open circuit in wiring harness between front body control module (FBCM) and climate control unit • Malfunction in CAN communication

- 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	**CHECK MALFUNCTION SYMPTOMS** **Note** • Without i-stop, go to the next step. • Is malfunctions occur in only when operating the i-stop?	Yes	Perform the i-stop troubleshooting. (See FOREWORD [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See FOREWORD [SKYACTIV-D 2.2].)
		No	Go to the next step.
2	**INSPECT FUSE** • Are A/C relay power supply fuses okay?	Yes	Go to the next step.
		No	Replace fuse, then go to Step 16. If fuse burns out immediately, go to the next step.
3	**INSPECT AIR BLOW OUT** • Does air blow out?	Yes	Go to the next step.
		No	Go to Step 1 of troubleshooting indexes No.1 and 2.
4	**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 troubleshooting index No.6.
		No	Go to the next step.
5	**INSPECT FOR DTC IN PCM AND FRONT BODY CONTROL MODULE (FBCM)** • Inspect for DTCs related to the PCM and front body control module (FBCM) on-board diagnostic system. • Are any DTCs displayed?	Yes	Go to appropriate inspection procedure.
		No	Go to the next step.
6	**DETERMINE IF MALFUNCTION CAUSE IS A/C REQUEST SIGNAL OR A/C RELAY OPERATIONAL MALFUNCTION** • Access PCM PID ACCS using the M-MDS. • Start the engine and idle it. • Turn the PID ACCS to ON from OFF using the M-MDS simulation function. • Is the A/C magnetic clutch engaged?	Yes	Go to the next step.
		No	Go to Step 11.
7*	**SIGNAL INSPECTION FROM EVAPORATOR TEMPERATURE SENSOR TO CLIMATE CONTROL UNIT** • Remove the climate control unit. • Reconnect the climate control unit connector. • Measure the climate control unit terminal H voltage. (See CLIMATE CONTROL UNIT INSPECTION [MANUAL AIR CONDITIONER].) • Is the voltage within the specified?	Yes	Go to Step 9.
		No	Go to the next step.

STEP	INSPECTION		ACTION
8	**INSPECT EVAPORATOR TEMPERATURE SENSOR** • Inspect the evaporator temperature sensor. (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [MANUAL AIR CONDITIONER].) • Is the evaporator temperature sensor normal?	Yes	Inspect and repair for open or short circuit between evaporator temperature sensor and climate control unit.
		No	Replace the evaporator temperature sensor. (See A/C UNIT DISASSEMBLY/ASSEMBLY.)
9	**INSPECT REFRIGERANT PRESSURE SENSOR** • Inspect refrigerant pressure sensor. (See REFRIGERANT PRESSURE SENSOR INSPECTION [MANUAL AIR CONDITIONER].) • Is the refrigerant pressure sensor normal?	Yes	Go to the next step.
		No	Repair or replace malfunctioning part according to inspection result, then go to Step 17.
10	**CONTINUITY INSPECTION BETWEEN CLIMATE CONTROL UNIT AND INSTRUMENT CLUSTER** • Inspect for open or short circuit between climate control unit terminal K and front body control module (FBCM) terminal 2J. Is there any open or short circuit detected?	Yes	Repair for open or short circuit.
		No	Replace the climate control unit.(A/C switch malfunction or climate control unit does not determine A/C request or transmit the A/C request signal.) (See CLIMATE CONTROL UNIT REMOVAL/INSTALLATION [MANUAL AIR CONDITIONER].)
11	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN A/C CONTROL SIGNAL CIRCUIT (BETWEEN A/C RELAY AND PCM) OR ELSEWHERE** • Does cool air blow out when terminal E of A/C relay connector (A/C control signal) is grounded?	Yes	Release short, then go to the next step.
		No	Go to Step 13.
12*	**INSPECT TO SEE WHETHER MALFUNCTION (LACK OF CONTINUITY) IS IN PCM OR WIRING HARNESS (BETWEEN A/C RELAY AND PCM)** • Test voltage at the A/C relay control signal terminal of PCM. • Is voltage **approx. 12 V**?	Yes	Inspect PCM, then go to Step 17.
		No	Repair wiring harness between A/C relay and PCM, then go to Step 17.
13*	**INSPECT TO SEE WHETHER MALFUNCTION IS IN MAGNETIC CLUTCH OR ELSEWHERE** • Test voltage at the following terminal of magnetic clutch. — Terminal A (magnetic clutch operation signal) • Is voltage **approx. 12 V**?	Yes	Go to the next step.
		No	Go to Step 15.
14	**INSPECT MAGNETIC CLUTCH CLEARANCE** • Inspect the magnetic clutch clearance. (See MAGNETIC CLUTCH ADJUSTMENT [MANUAL AIR CONDITIONER].) • Is the magnetic clutch clearance normal?	Yes	Inspect and repair the magnetic clutch, then go to Step 17. (See MAGNETIC CLUTCH INSPECTION [MANUAL AIR CONDITIONER].)
		No	Adjust the magnetic clutch clearance, then go to Step 17. (See MAGNETIC CLUTCH ADJUSTMENT [MANUAL AIR CONDITIONER].)
15	**INSPECT WIRING HARNESS BETWEEN FUSE BLOCK AND A/C RELAY FOR LACK OF CONTINUITY** • Test voltages at following terminals of A/C relay. — Terminal A (A/C relay control signal) — Terminal C (A/C control signal) • Are voltages **approx. 12 V**?	Yes	Go to the next step.
		No	Repair wiring harness between fuse block and A/C relay, then go to Step 17.
16	**INSPECT TO SEE WHETHER MALFUNCTION IS IN A/C RELAY OR WIRING HARNESS (BETWEEN A/C RELAY AND MAGNETIC CLUTCH)** • Test voltage at the following terminal of A/C relay. — Terminal D (magnetic clutch operation signal) • Is voltage **approx. 12 V**?	Yes	Inspect wiring harness between A/C relay and magnetic clutch. • If above wiring harness is OK, go to the next step. • If above wiring harness malfunctions, repair wiring harness, then go to the next step.
		No	Replace A/C relay, then go to the next step.

STEP	INSPECTION		ACTION
17	**CONFIRM THAT MALFUNCTION SYMPTOMS DO NOT RECUR AFTER REPAIR** • Does cool air blow out? (Are the results of refrigerant system performance test okay?)	Yes	Troubleshooting completed. Explain repairs to customer.
		No	Recheck malfunction symptoms, then repeat from Step 1 if malfunction recurs.