NO.7 NO COOL AIR [FULL-AUTO 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 • 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) • Malfunction in instrument cluster • Malfunction in CAN communication • 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	**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 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.
3	**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.
4	**INSPECT FOR DTC IN PCM, CLIMATE CONTROL UNIT, AND INSTRUMENT CLUSTER** • Inspect for DTCs related to the PCM, climate control unit, and instrument cluster on-board diagnostic system. • Are any DTCs displayed?	Yes	Go to appropriate inspection procedure.
		No	Go to the next step.
5	**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.
6	**DETERMINE IF MALFUNCTION CAUSE IS A/C PRESSURE SENSOR SIGNAL OR ELSEWHERE** • Access climate control unit PID AC_PRES. • Monitor the AC_PRES PID while turning on and off the air conditioner by switching the control panel. • Is the PID normal? (See PID/DATA MONITOR DISPLAY [FULL-AUTO AIR CONDITIONER].)	Yes	Go to Step 8.
		No	Go to the next step.

STEP	INSPECTION		ACTION
7	**INSPECT TO SEE MALFUNCTION IS IN REFRIGERANT PRESSURE SENSOR OR A/C SYSTEM** • Inspect the refrigerant pressure sensor. (See REFRIGERANT PRESSURE SENSOR INSPECTION [FULL-AUTO AIR CONDITIONER].) • Is the refrigerant pressure sensor normal?	Yes	Inspect for following and repair or replace if necessary. • Refrigerant charging amount • A/C compressor for seizure Then go to Step 17.
		No	Repair or replace malfunctioning part according to inspection result, then go to Step 17.
8	**DETERMINE IF MALFUNCTION CAUSE IS EVAPORATOR TEMPERATURE SENSOR OPERATIONAL SIGNAL OR ELSEWHERE** • Access climate control unit PID EVA_TMP_SEN. • Monitor the EVA_TMP_SEN PID while turning on and off the air conditioner by switching the control panel. • Is the PID normal? (See PID/DATA MONITOR DISPLAY [FULL-AUTO AIR CONDITIONER].)	Yes	Go to Step 10.
		No	Go to the next step.
9	**INSPECT EVAPORATOR TEMPERATURE SENSOR** • Inspect the evaporator temperature sensor. (See EVAPORATOR TEMPERATURE SENSOR INSPECTION [FULL-AUTO 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. Then go to Step 17.
		No	Replace the evaporator temperature sensor, then go to Step 17. (See A/C UNIT DISASSEMBLY/ASSEMBLY.)
10	**DETERMINE IF MALFUNCTION CAUSE IS INSTRUMENT CLUSTER OR CAN COMMUNICATION SIGNAL** • Verify the information panel indication of A/C system while turning on and off the air conditioner by switching the control panel. • Does the information panel indicate properly?	Yes	Replace the instrument cluster.(Instrument cluster does not receive A/C request signal from climate control unit or transmit it to PCM.) (See INSTRUMENT CLUSTER REMOVAL/ INSTALLATION.) Then go to Step 17.
		No	Repair or replace malfunctioning part according to inspection result, then go to Step 17.
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 the 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 thermal protector. — Terminal A (magnetic clutch operation signal) • Is voltage **approx. 12 V**?	Yes	Inspect magnetic clutch, then go to Step 17.
		No	Go to the next step.
14	**INSPECT FUSE** • Are A/C relay power supply fuses okay?	Yes	Go to the next step.
		No	Replace fuse, then go to Step 17. If fuse burns out immediately, go to the next step.

STEP	INSPECTION		ACTION
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 the 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 the A/C relay, then go to the next step.
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.