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## HEATER, VENTILATION AND AIR CONDITIONING

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### Abbreviation

AAS	Active Adaptive Shift
ABS	Antilock Brake System
ABDC	After Bottom Dead Center
ACC	Accessories
ALC	Auto Level Control
ALR	Automatic Locking Retractor
ATDC	After Top Dead Center
ATF	Automatic Transaxle Fluid
ATX	Automatic Transaxle
BBDC	Before Bottom Dead Center
BDC	Bottom Dead Center
BTDC	Before Top Dead Center
CAN	Controller Area Network
CCM	Comprehensive Component Monitor
CKP	Crankshaft Position
CM	Control Module
CMDTC	Continuous Memory Diagnostic Trouble Code
CMP	Camshaft Position
CPU	Central Processing Unit
DC	Drive Cycle
DEF	Defroster
DSC	Dynamic Stability Control
EBD	Electronic Brakeforce Distribution
EEPROM	Electrically Erasable Programmable Read-Only Memory
ELR	Emergency Locking Retractor
EPS	Electric Power Steering
ESS	Emergency Stop signal System
EX	Exhaust
FBCM	Front Body Control Module
FSC	Forward Sensing Camera
GPS	Global Positioning System
HBC	High Beam Control
HF/TEL	Hands-Free Telephone
HI	High
HS	High Speed
HU	Hydraulic Unit
IDS	Integrated Diagnostic Software
IG	Ignition
IN	Intake
INT	Intermittent
KOEO	Key On Engine Off
KOER	Key Off Engine Running
LCD	Liquid Crystal Display
LDWS	Lane Departure Warning System
LED	Light Emitting Diode
LF	Left Front
LH	Left Hand
L.H.D.	Left Hand Drive
LO	Low
LR	Left Rear
M	Motor
MAX	Maximum
MIN	Minimum
MS	Middle speed
MTX	Manual Transaxle
NVH	Noise, Vibration, Harshness
OCV	Oil Control Valve
ODDTC	On-demand Diagnostic Trouble Code
PAD	Passenger Air Bag Deactivation

PCV	Positive Crankcase Ventilation
PDS	Portable Diagnostic Software
PID	Parameter Identification
POWER MOS FET	Power Metal Oxide Semiconductor Field Effect Transistor
PSD	Power Sliding Door
P/W CM	Power Window Control Module
PTC	Positive Temperature Coefficient
RBCM	Rear Body Control Module
RDS	Radio Data System
REC	Recirculate
RES	Rear Entertainment System
RF	Right Front
RH	Right Hand
R.H.D.	Right Hand Drive
RR	Right Rear
SAS	Sophisticated Air Bag Sensor
SST	Special Service Tool
SW	Switch
TCS	Traction Control System
TDC	Top Dead Center
TFT	Transaxle Fluid Temperature
TNS	Tail Number Side Lights
TPMS	Tire Pressure Monitoring System
VBC	Variable Boost Control
VENT	Ventilation
W/M	Workshop Manual
1GR	First Gear
2GR	Second Gear
2WD	2-Wheel Drive
3GR	Third Gear
4GR	Fourth Gear
4WD	4-Wheel Drive
5GR	Fifth Gear
6GR	Sixth Gear

## Outline

- Integrated A/C unit adopted.
- Sub-cooling system to multi-flow condenser adopted.
- PTC heater adopted. (with PTC heater)
- Water pump adopted. (with water pump)
- Refrigerant pressure sensor adopted in which refrigerant pressure is changed into a linear electric signal and precise information is transmitted.
- The climate control unit with built-in the display panel is adopted.
- HFO-1234yf has been adopted as the new refrigerant. HFO-1234yf refrigerant has little effect on global warming. (with HFO-1234yf)

## Specifications

### Basic System

Item		Specification
Heating capacity		(kW {kcal/h}) 5.530 {4,755}
Cooling capacity		(kW {kcal/h}) 5.000 {4,299}
Refrigerant	Type	HFO-1234yf HFC-134a
	Regular amount (approx. quantity)	(g {oz}) 475—525 {16.8—18.5} (SKYACTIV-G 2.0, SKYACTIV-G 2.5 (HFO-1234yf)) 445—495 {15.7—17.4} (SKYACTIV-D 2.2 (HFO-1234yf)) 465—515 {16.5—18.1} (HFC-134a)

Item		Specification
A/C compressor	Type	Swash plate
	Discharge capacity (ml {cc, fl oz})	135 {135, 4.56} (SKYACTIV-G 2.0, SKYACTIV-G 2.5) 160 {160, 5.41} (SKYACTIV-D 2.2)
	Max. allowable speed (rpm)	8,500 (SKYACTIV-G 2.0, SKYACTIV-G 2.5) 8,000 (SKYACTIV-D 2.2)
	Lube oil Type	FD46XG
	Lube oil Sealed volume (approx. quantity) (ml {cc, fl oz})	100 {100, 3.38}
Condenser	Type	Multiflow (sub-cooling type)
	Radiated heat (kW {kcal/h})	7.150 {6,148} (SKYACTIV-G 2.0, SKYACTIV-G 2.5 (HFO-1234yf)) 7.350 {6,320} (SKYACTIV-G 2.0, SKYACTIV-G 2.5 (HFC-134a)) 6.700 {5,761} (SKYACTIV-D 2.2)
	Receiver/drier capacity (ml {cc, fl oz})	170 {170, 5.75}
	Desiccant	Synthetic zeolite
Expansion valve	Type	External equalizing type
Evaporator	Type	Multi-flow type
Temperature control		Reheat full air mix type

#### Note

- The refrigerant used for the refrigerant system differs depending on the country. When draining or adding the refrigerant, verify the appropriate refrigerant type and specified amount of refrigerant from the caution label.

### Control System

#### Full-auto air conditioner

Item		Specification
Airflow volume (during heater operation)	Blower motor (m <sup>3</sup> /h)	310
Electricity consumption (during heater operation)	Blower motor (W)	150
Heating capacity (SKYACTIV-D 2.2)	PTC heater (kW {kcal/h})	1.0 {860}
Electricity consumption (during heater operation) (SKYACTIV-D 2.2)	PTC heater (W)	1,000
Airflow volume (during air conditioner operation)	Blower motor (m <sup>3</sup> /h)	475
Electricity consumption (during air conditioner operation)	Blower motor (W)	200
	Magnetic clutch (W)	40
Magnetic clutch clearance	(mm {in})	0.35—0.65 {0.014—0.025}
Fan type	Blower motor	Sirocco fan
Refrigerant pressure sensor	Type	Capacitance type
	Sensor operation	(See REFRIGERANT PRESSURE SENSOR [FULL-AUTO AIR CONDITIONER].)
Sensor	Solar radiation sensor	Photodiode
	Ambient temperature sensor	Thermistor
	Cabin temperature sensor	
	Evaporator temperature sensor	
	Heater core temperature sensor*	
Actuator	Air intake actuator	Mechanical lock type
	Air mix actuator	Potentiometer type
	Airflow mode actuator	

\* : With i-stop

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## Control System

### Manual air conditioner

Item		Specification
Airflow volume (during heater operation)	Blower motor (m <sup>3</sup> /h)	310
Electricity consumption (during heater operation)	Blower motor (W)	150
Heating capacity (SKYACTIV-D 2.2)	PTC heater (kW {kcal/h})	1.0 {860}
Electricity consumption (during heater operation) (SKYACTIV-D 2.2)	PTC heater (W)	1,000
Airflow volume (during air conditioner operation)	Blower motor (m <sup>3</sup> /h)	475
Electricity consumption (during air conditioner operation)	Blower motor (W)	200
	Magnetic clutch (W)	40
Magnetic clutch clearance	(mm {in})	0.35—0.65 {0.014—0.025}
Fan type	Blower motor	Sirocco fan
Refrigerant pressure sensor	Type	Capacitance type
	Sensor operation	(See REFRIGERANT PRESSURE SENSOR [FULL-AUTO AIR CONDITIONER].)
Sensor	Ambient temperature sensor	Thermistor
	Evaporator temperature sensor	
Actuator	Air intake actuator	Mechanical lock type