

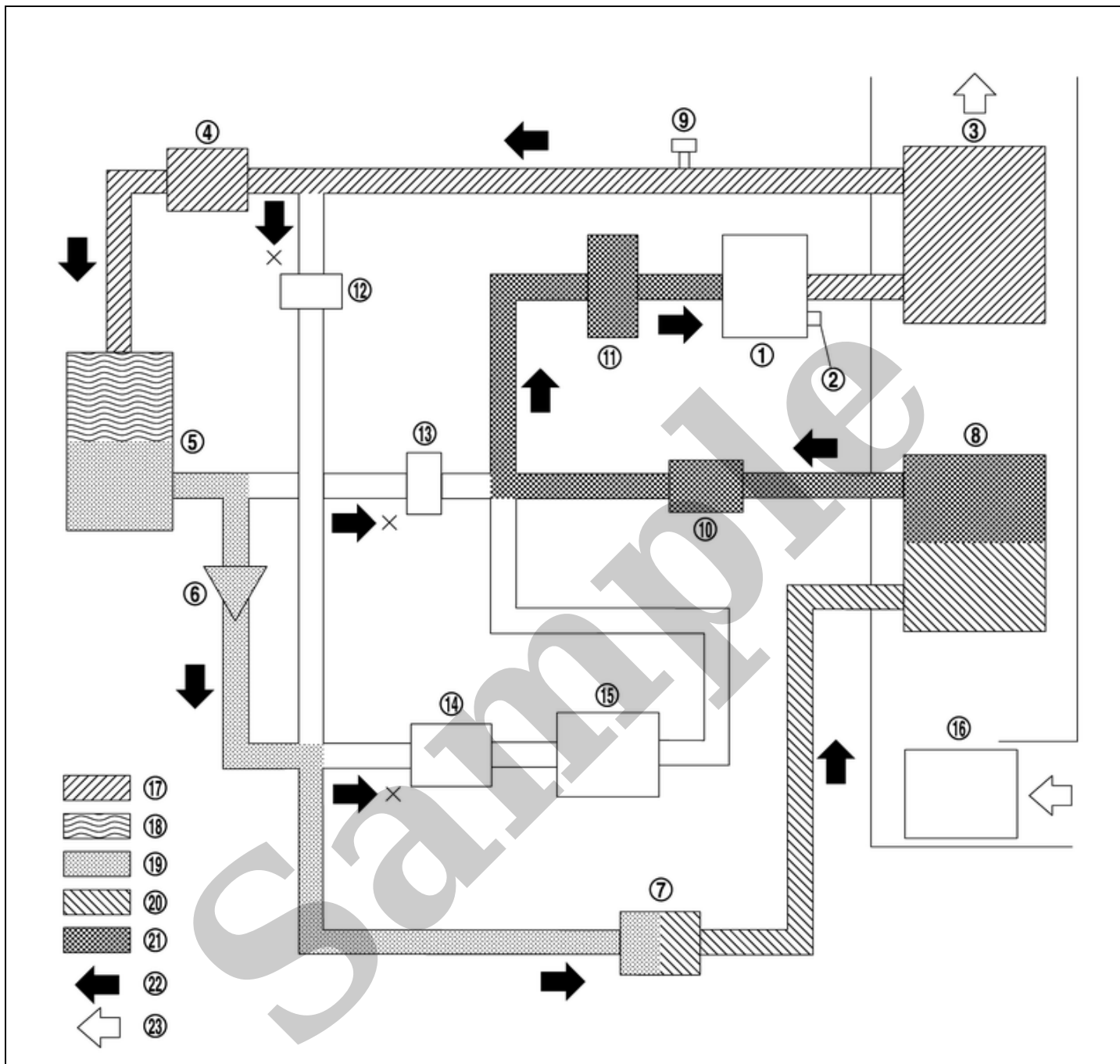
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NISSAN Versa 2023 Manual Service and Repair Workshop Guide

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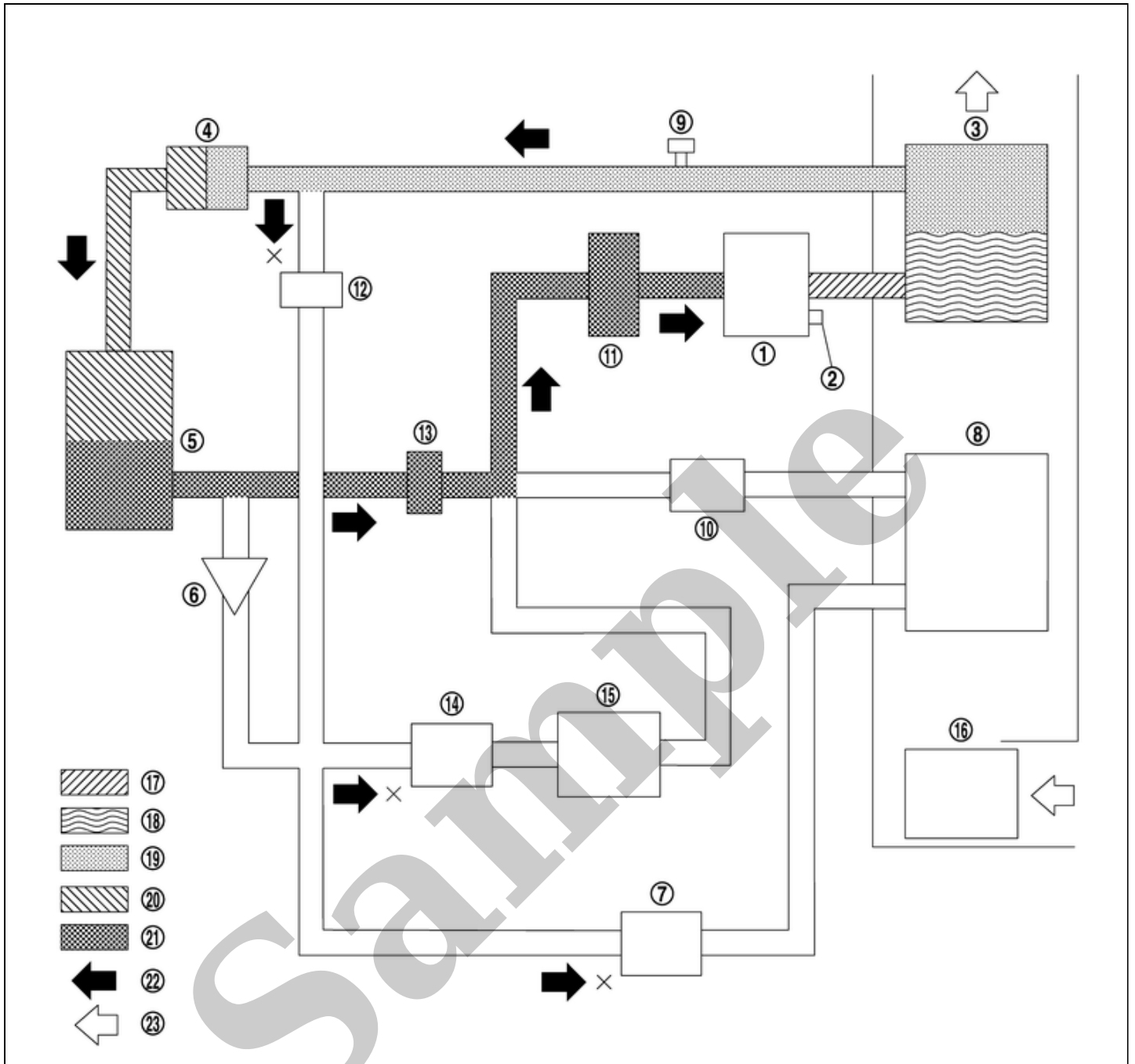
COOLER MODE



SIEMD-7216088-03-000397768

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	Blower motor	⑰	High-pressure gas	⑱	Gas-liquid two phase in high pressure
⑲	High-pressure liquid	⑳	Gas-liquid two phase in low pressure	㉑	Low-pressure gas
㉒	Refrigerant flow	㉓	Wind flow		

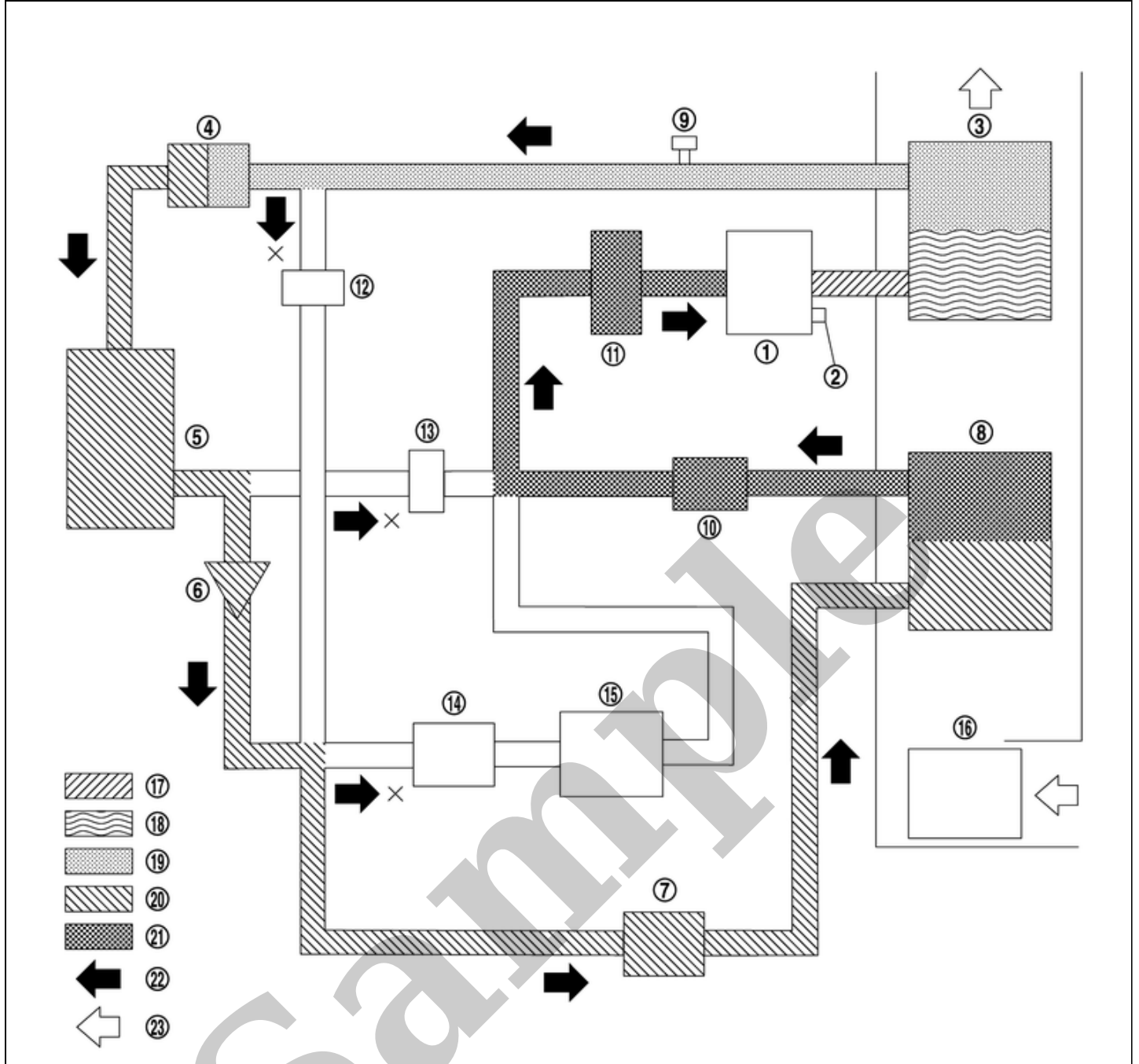
HEATER MODE



SIEMD-7216088-01-000397769

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	High-pressure liquid	⑰	High-pressure gas	⑱	Gas-liquid two phase in high pressure
⑲	High-pressure liquid	⑳	Gas-liquid two phase in low pressure	㉑	Low-pressure gas
㉒	Refrigerant flow	㉓	Wind flow		

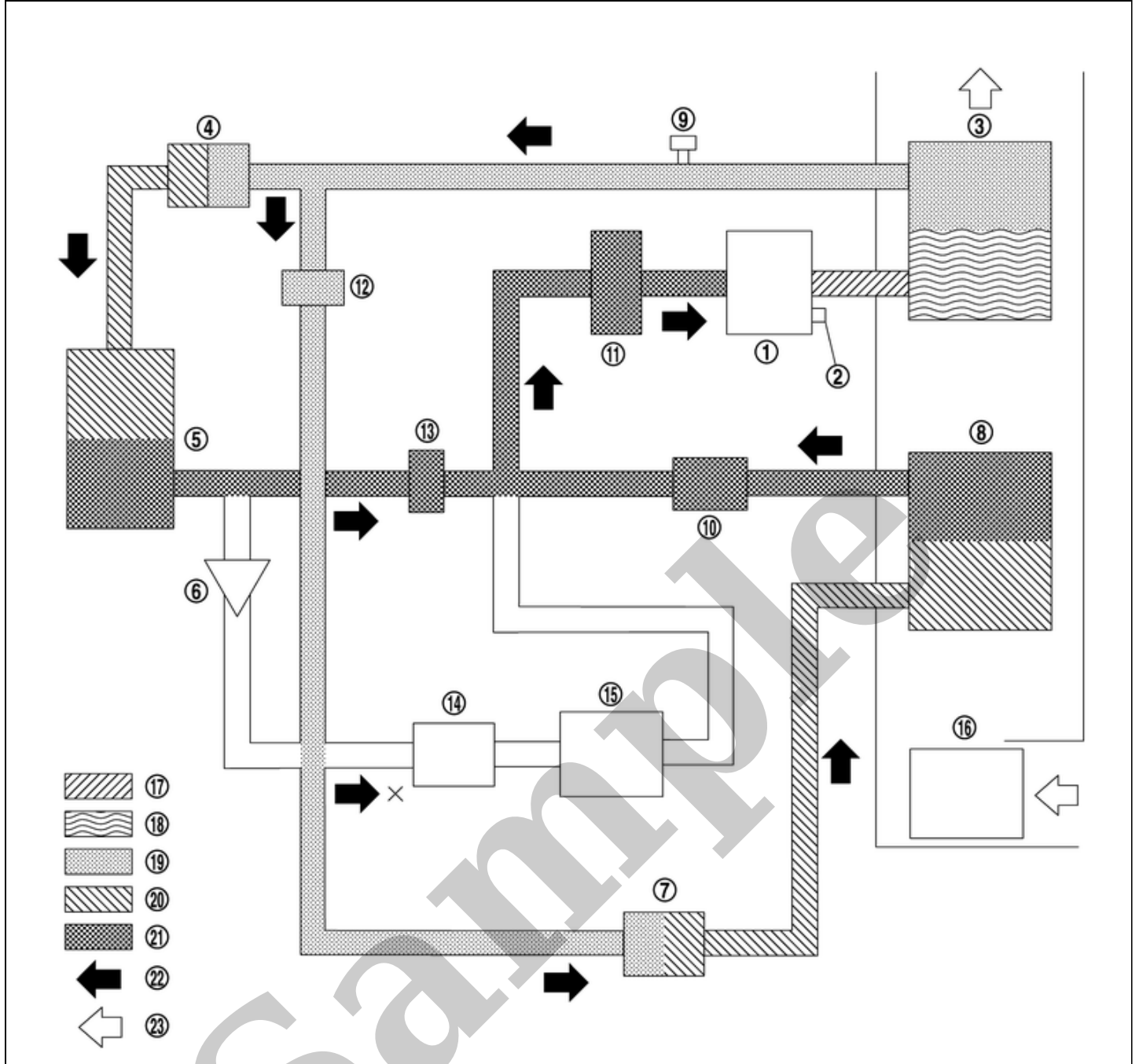
SERIES OPERATION MODE OF DEHUMIDIFYING AND HEATING



SIEMD-7216088-04-000397770

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	High-pressure liquid	⑰	High-pressure gas	⑱	Gas-liquid two phase in high pressure
⑲	High-pressure liquid	⑳	Gas-liquid two phase in low pressure	㉑	Low-pressure gas
㉒	Refrigerant flow	㉓	Wind flow		

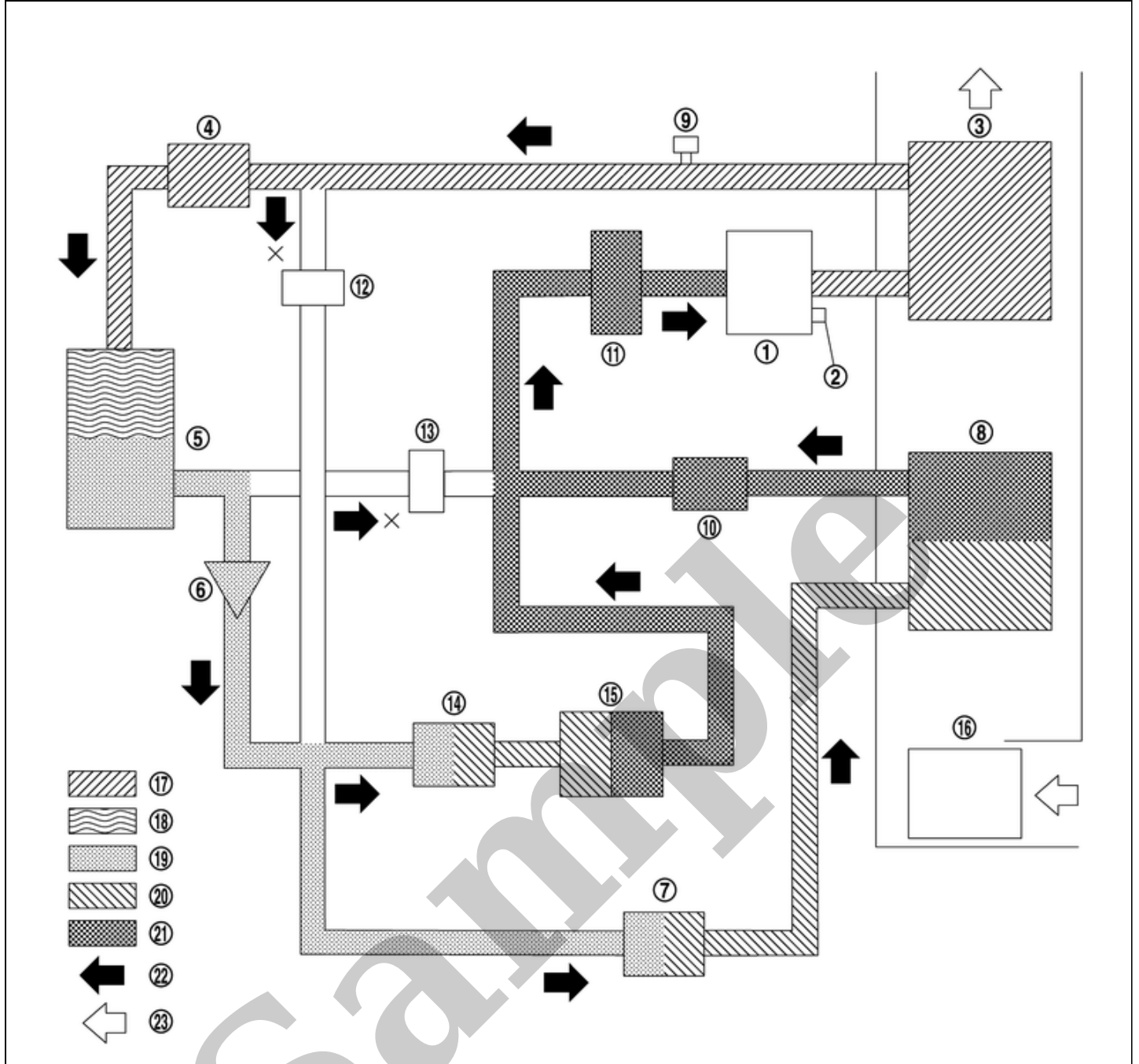
PARALLEL OPERATION MODE OF DEHUMIDIFYING AND HEATING



SIEMD-7216088-05-000397771

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	Blower motor	⑰	High-pressure gas	⑱	Gas-liquid two phase in high pressure
⑲	High-pressure liquid	⑳	Gas-liquid two phase in low pressure	㉑	Low-pressure gas
㉒	Refrigerant flow	㉓	Wind flow		

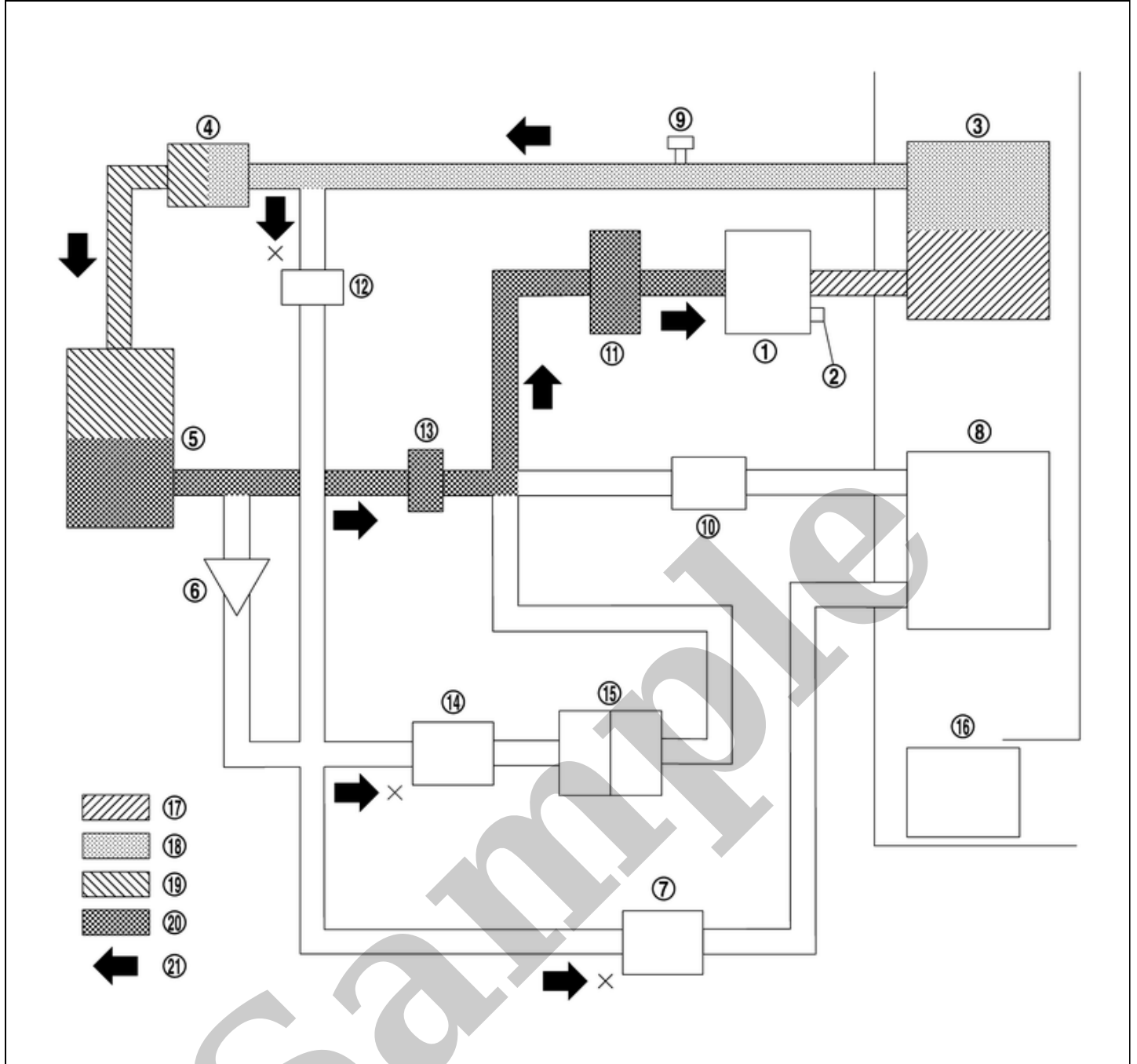
COOLING + HIGH VOLTAGE BATTERY COOLING MODE



SIEMD-7216088-06-000397772

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	Blower motor	⑰	High-pressure gas	⑱	Gas-liquid two phase in high pressure
⑲	High-pressure liquid	⑳	Gas-liquid two phase in low pressure	㉑	Low-pressure gas
㉒	Refrigerant flow	㉓	Wind flow		

DEICE MODE



SIEMD-7216088-02-000397773

①	Electric compressor	②	Pressure relief valve	③	Inner condenser
④	Electric expansion valve (heater)	⑤	Condenser	⑥	Check valve
⑦	Electric expansion valve (cooler)	⑧	Evaporator	⑨	Refrigerant pressure sensor
⑩	Evaporator pressure regulator	⑪	Accumulator	⑫	High pressure refrigerant channel switching valve
⑬	Low pressure refrigerant channel switching valve	⑭	Expansion valve (battery chiller)	⑮	Battery coolant chiller
⑯	Blower motor	⑰	High-pressure gas	⑱	High-pressure liquid
⑲	Gas-liquid two phase in low pressure	⑳	Low-pressure gas	㉑	Refrigerant flow

REFRIGERANT CYCLE

Refrigerant Flow

- The cooler mode path of refrigerant flow is through the electric compressor, inner condenser, electric expansion valve (heater), condenser, electric expansion valve (cooler), evaporator, evaporator pressure regulator, accumulator, and then it returns to the electric compressor.
- The heater mode path of refrigerant flow is through the electric compressor, inner condenser, electric expansion valve (heater), condenser, low pressure refrigerant channel switching valve, accumulator, and then it returns to the electric compressor.
- The series operation mode of dehumidifying and heating path of refrigerant flow is through the electric compressor, inner condenser, electric expansion valve (heater), condenser, electric expansion valve (cooler), evaporator, evaporator pressure regulator, accumulator, and then it returns to the electric compressor.
- The flow of refrigerant during parallel operation mode of dehumidifying and heating flows through two paths at the same time. One goes through electric compressor, inner condenser, electric expansion valve (heater), condenser, low pressure refrigerant channel switching valve, accumulator, and then it returns to electric compressor. Other goes through electric compressor, inner condenser, high pressure refrigerant channel switching valve, electric expansion valve (cooler), evaporator, evaporator pressure regulator, accumulator, and then it returns electric compressor.
- The flow of refrigerant during cooling + high voltage battery cooling mode flows through two paths at the same time. One goes through electric compressor, inner condenser, electric expansion valve (heater), condenser, expansion valve (battery chiller), battery coolant chiller, accumulator, and then it returns to electric compressor. Other goes through electric compressor, inner condenser, electric expansion valve (heater), condenser, electric expansion valve (cooler), evaporator, evaporator pressure regulator, accumulator, and then it returns to electric compressor.
- The deice mode path of refrigerant flow is through the electric compressor, inner condenser, electric expansion valve (heater), condenser, low pressure refrigerant channel switching valve, accumulator, and then it returns to the electric compressor.

Evaporator Cryoprotective Protection Control

Refer to [Electric Compressor Control](#).

REFRIGERANT SYSTEM PROTECTION

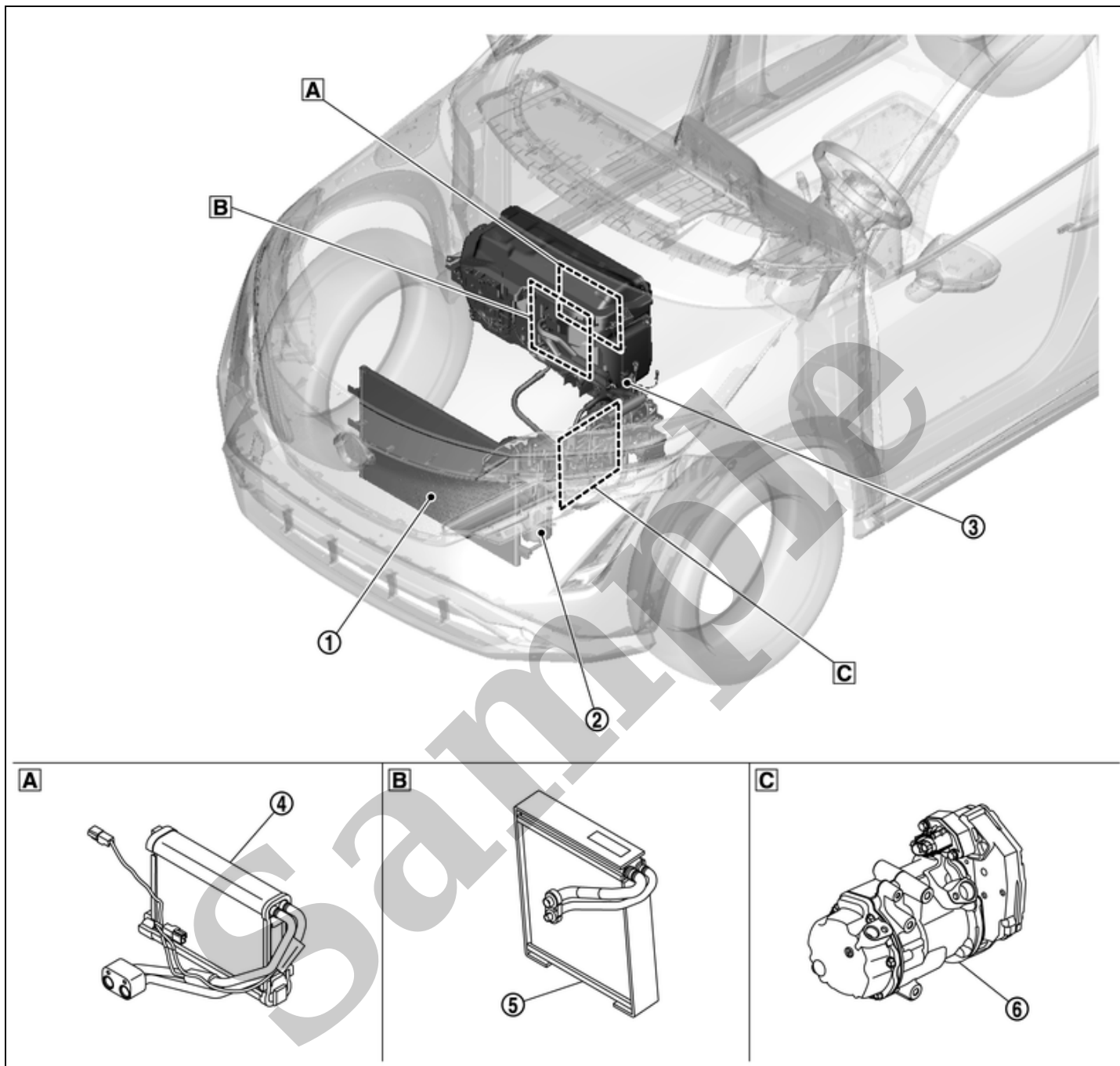
Refrigerant Pressure Sensor

- The refrigerant system is protected from significant high pressure and low pressure by the refrigerant pressure sensor that is installed at the condenser outlet.
- The refrigerant pressure sensor outputs a signal to the VCM.
- If the A/C auto amp., judges that there is a malfunction (the conditions shown below) in the cooler cycle based on the refrigerant pressure sensor detection value sent from VCM via CAN communications, it stops operation of the electric compressor.

Pressure Relief Valve

- The refrigerant system is protected from significant high pressure by the pressure relief valve that is installed in the electric compressor.
- If the pressure in the cooler cycle is excessively increased [3,430 kPa (34.3 bar, 35 kg/cm², 497.4 psi) or more], the pressure relief valve opens, releasing refrigerant into the atmosphere.

COMPONENT PARTS LOCATION



SIEMD-6897040-01-000376618

A	Built-in A/C unit assembly	B	Built-in A/C unit assembly	C	Lower left side in the motor room
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COMPONENT PARTS DESCRIPTION

No.	Location	DESCRIPTION
①	Condenser	<ul style="list-style-type: none"> Cools the high-temperature high-pressure refrigerant discharged from the compressor to change it to liquid refrigerant when cooling is operating. Causes fine mist liquid refrigerant to evaporate and changing it into gas refrigerant, by using the air blown from the cooling fan when heating is operating.
②	Accumulator	For preventing refrigerant in flow to the compressor, separates gas refrigerant and liquid refrigerant and collects the liquid refrigerant temporarily.

No.	Location	DESCRIPTION
③	Refrigerant pressure sensor	Refer to Refrigerant Pressure Sensor .
④	Inner condenser	Cools the high-temperature high-pressure refrigerant discharged from the compressor to change in to liquid refrigerant. The air blown from the blower motor is heated by the condensation heat.
⑤	Evaporator	The misty liquid refrigerant causes evaporation and turns into gas by the air blown from blower motor. Cool the air by vaporization heat at this time.
⑥	Electric compressor	Performs the intake, compression, and discharge of refrigerant, and circulates the refrigerant in the cooler cycle.

Sample