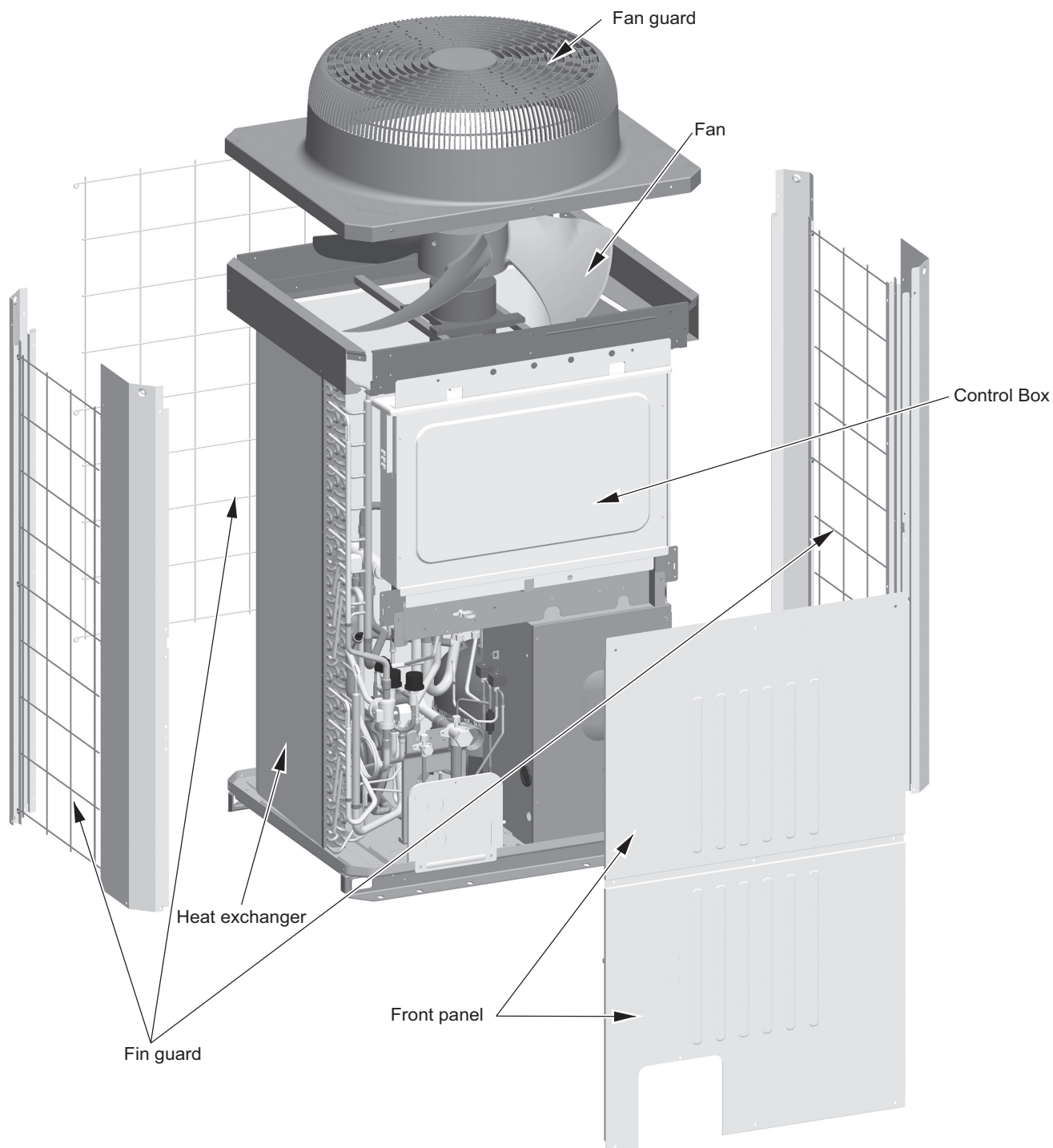


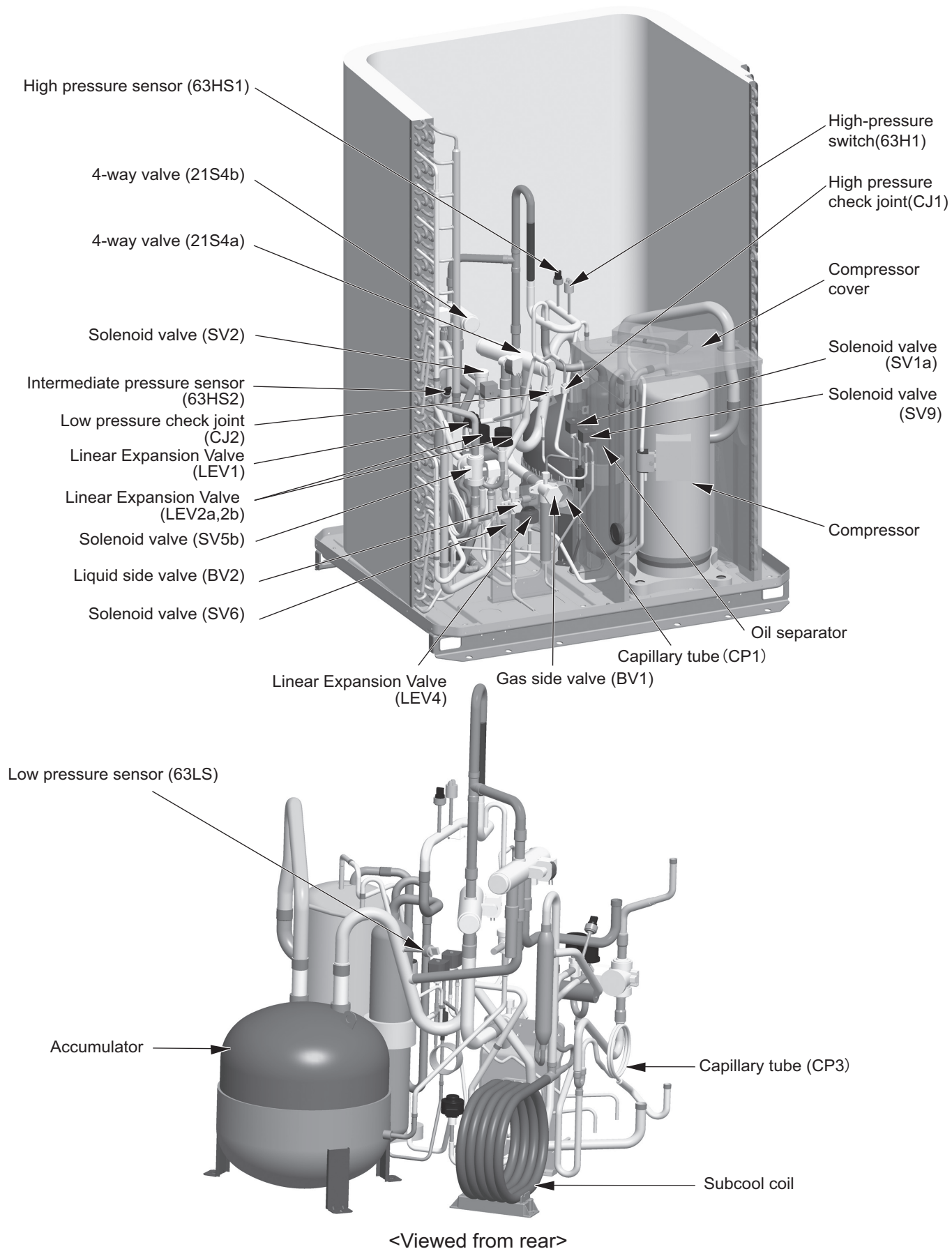
[1] Outdoor Unit Components and Refrigerant Circuit

1. PUHY-HP200, HP250YHM-A

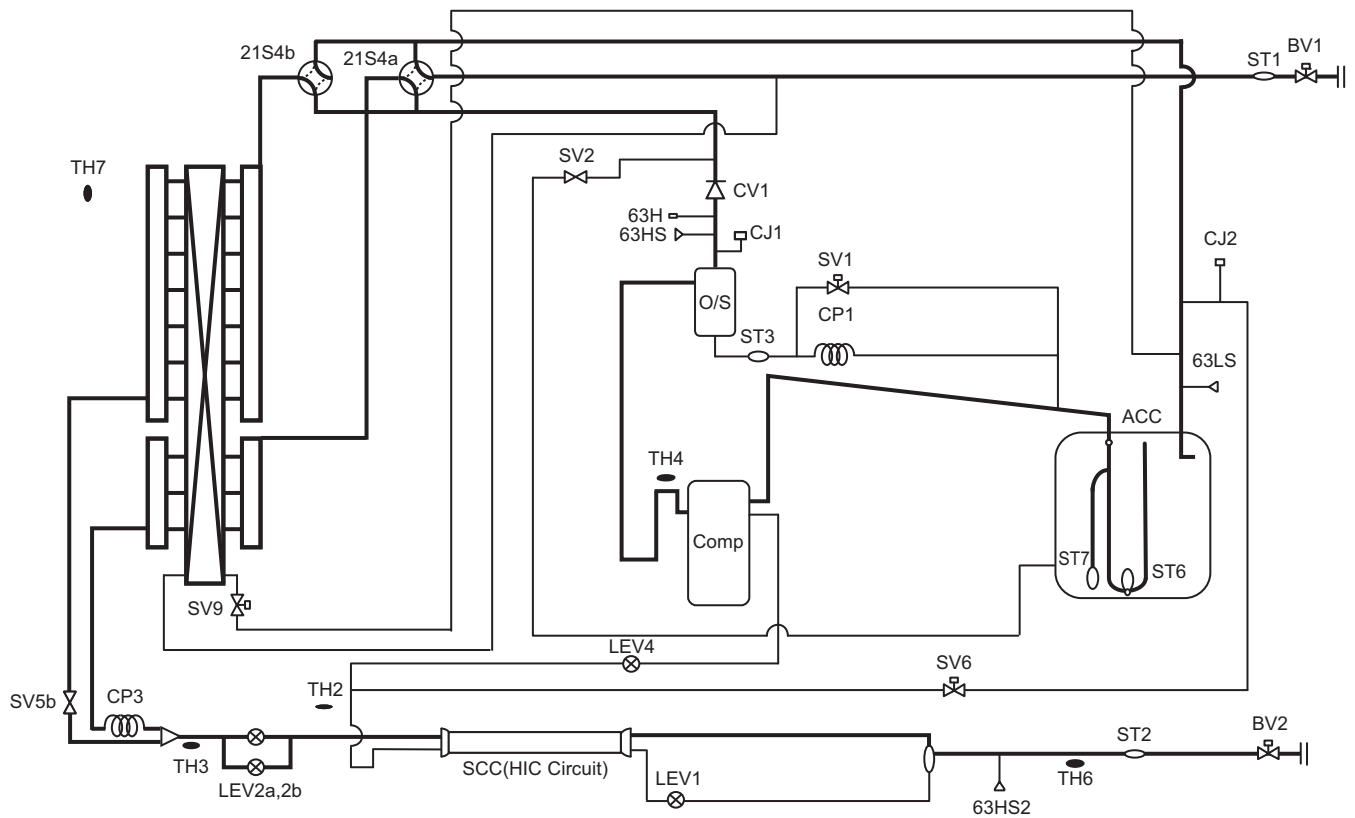
(1) Front view of a outdoor unit



(2) Refrigerant circuit

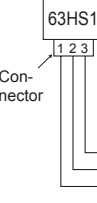
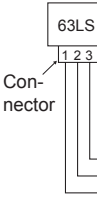


(1) PUHY-HP200, HP250 models



[2] Principal Parts and Functions

1. Outdoor unit

Part name	Symbols (functions)	Notes	Usage	Specifications	Check method
Compressor	MC1 (Comp1)		Adjusts the amount of circulating refrigerant by adjusting the operating frequency based on the operating pressure data	Low-pressure shell scroll compressor Wirewound resistance 20°C[68°F] : 0.161ohm	
High pressure sensor	63HS1		1) Detects high pressure 2) Regulates frequency and provides high-pressure protection	 <p>Pressure 0~4.15 MPa [601psi] Vout 0.5~3.5V 0.071V/0.098 MPa [14psi] Pressure [MPa] =1.38 x Vout [V]-0.69 Pressure [psi] =(1.38 x Vout [V] - 0.69) x 145 1 GND (Black) 2 Vout (White) 3 Vcc (DC5V) (Red)</p>	
Intermediate pressure sensor	63HS2		Detects intermediate pressure during heating operation and controls LEV2a and 2b		
Low pressure sensor	63LS		1) Detects low pressure 2) Provides low-pressure protection	 <p>Pressure 0~1.7 MPa [247psi] Vout 0.5~3.5V 0.173V/0.098 MPa [14psi] Pressure [MPa] =0.566 x Vout [V] - 0.283 Pressure [psi] =(0.566 x Vout [V] - 0.283) x 145 1 GND (Black) 2 Vout (White) 3 Vcc (DC5V) (Red)</p>	
Pressure switch	63H1		1) Detects high pressure 2) Provides high-pressure protection	4.15MPa[601psi] OFF setting	

Part name	Symbols (functions)	Notes	Usage	Specifications	Check method
Thermistor	TH4 (Discharge)		1) Detects discharge air temperature 2) Provides high-pressure protection	Degrees Celsius $R_{120} = 7.465k\Omega$ $R_{25/120} = 4057$ $R_t = 7.465 \exp \{ 4057 (\frac{1}{273+t} - \frac{1}{393}) \}$	Resistance check
	TH2		LEV 1 is controlled based on the TH2, TH3, and TH6 values.	Degrees Celsius $R_0 = 15k\Omega$ $R_{0/80} = 3460$ $R_t = 15 \exp \{ 3460 (\frac{1}{273+t} - \frac{1}{273}) \}$	Resistance check
	TH3 (Pipe temperature)		1) Controls frequency 2) Controls defrosting during heating operation 3) Detects subcool at the heat exchanger outlet and controls LEV1 based on HPS data and TH3 data	0°C[32°F] :15kohm 10°C[50°F] :9.7kohm 20°C[68°F] :6.4kohm 25°C[77°F] :5.3kohm 30°C[86°F] :4.3kohm 40°C[104°F] :3.1kohm	Resistance check
	TH7 (Outdoor temperature)		1) Detects outdoor air temperature 2) Controls fan operation		
	TH6		Controls LEV1 based on TH2, TH3, and TH6 data.		
	THHS Inverter heat sink temperature		Controls inverter cooling fan based on THHS temperature	Degrees Celsius $R_{50} = 17k\Omega$ $R_{25/120} = 4016$ $R_t = 17 \exp \{ 4016 (\frac{1}{273+t} - \frac{1}{323}) \}$	
	THBOX Control box internal temperature detection			0°C[32°F] :161kohm 10°C[50°F] :97kohm 20°C[68°F] :60kohm 25°C[77°F] :48kohm 30°C[86°F] :39kohm 40°C[104°F] :25kohm	

Part name	Symbols (functions)	Notes	Usage	Specifications	Check method
Solenoid valve	SV1a Discharge-suction bypass		1) High/low pressure bypass at start-up and stopping, and capacity control during low-load operation 2) High-pressure-rise prevention	AC220-240V Open while being powered/ closed while not being powered	Continuity check with a tester
	SV2		High/low pressure bypass at heating startup in low temperature or at resuming operation after the completion of the defrost cycle		
	SV5b		Controls outdoor unit heat exchanger capacity		
	SV6		Changes bypass flow path from liquid pipe (or 2-phase liquid pipe) on the outdoor unit		
	SV9		1) High/low pressure bypass at heating startup in low temperature or at resuming operation after the completion of the defrost cycle 2) Capacity control during low-load heating operation		
Linear expansion valve	LEV1 (SC control)		Adjusts the amount of bypass flow from the liquid pipe on the outdoor unit during cooling	DC12V Opening of a valve driven by a stepping motor 0-480 pulses (direct driven type)	Same as indoor LEV The resistance value differs from that of the indoor LEV. (Refer to the section "LEV Troubleshooting." (page 191))
	LEV2a LEV2b (Refrigerant flow adjustment)		Adjusts refrigerant flow during heating	DC12V Opening of a valve driven by a stepping motor 60 - 2000 pulses	Same as indoor LEV
	LEV4		Opening and closing control of injection circuit	DC12V Degree of stepping motor valve closing 0 - 460 pulses (direct driven type)	Same as LEV1
Heater	CH11		Heats the refrigerant in the compressor	Cord heater AC220 - 240V CH11: 1280ohm (240V)	Resistance check
4-way valve	21S4a		Changeover between heating and cooling	AC220 - 240V Dead: cooling cycle Live: heating cycle	Continuity check with a tester
	21S4b		1) Switches between heating and cooling 2) Controls outdoor unit heat exchanger capacity	AC220 - 240V When not powered: cooling cycle Outdoor unit heat exchanger capacity at 100% When powered: cooling cycle Outdoor unit heat exchanger capacity at 50% or heating cycle	