

# TOSHIBA

FILE NO. A90-0031

## SERVICE MANUAL

# AIR-CONDITIONER

**SPLIT TYPE, HEAT PUMP  
COOLING ONLY**

### 2 WAY CASSETTE TYPE

RAV-104TUH-1-PE

RAV-134TUH-1-PE/RAV-134AH-PE

RAV-164TUH-1-PE/RAV-164AH-PE

RAV-134TU-1-PE/RAV-134A-PE

RAV-164TU-1-PE/RAV-164A-PE



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## SUMMARY

The units referred to within this Manual conform with the protection requirements of Directives 89/336/EEC Electromagnetic Compatibility and 73/23/EEC Low Voltage.

Operating conditions of units are as follows:

OUTDOOR TEMPERATURE	-2 to 43°C (COOL) -10 to 21°C (HEAT)
ROOM TEMPERATURE	18 to 32°C (COOL) 15 to 29°C (HEAT)
ROOM HUMIDITY	LESS THAN 80% (COOL)

**Note 1:** Cooling Capacity is based on the following temperature conditions:  
Indoor air inlet temperature 27°C DB, 19°C WB.  
Outdoor air inlet temperature 35°C DB.

**Note 2:** Heating Capacity is based on the following temperature conditions:  
Indoor air inlet temperature 20°C DB.  
Outdoor air inlet temperature 7°C DB, 6°C WB.

**Note 3:** For details on Control Circuits, refer to Service Manual A90-9925.

**Note 4:** Metric/Imperial pipe conversion:

Diameter (mm)	6.4	9.5	12.7	15.9	19	22
Nominal Diameter (inch)	1/4	3/8	1/2	5/8	3/4	7/8

# 1. SPECIFICATIONS

Item	Model	RAV-104TUH-1-PE	
Cooling capacity	kW	2.5	
Heating capacity	kW	2.8	
Power source	Phase	1	
	V	220-240	
	Hz	50	
Power consumption	kW	0.07	
Power factor	%	93	
Running current	A	0.33	
Starting current	A	0.6	
Operating noise (SPL)	Indoor Unit (High/Med/Low)	40/36/34	
Refrigerant	Name of Refrigerant	R407C	
Interconnection pipe	Larger side size	mm	ø12.7
	Coupler style		Flare
	Smaller side size	mm	ø6.4
	Coupler style		Flare
Condensate drain pipe diameter	mm	ø25.5 (OD)	
Appearance colour		Grey (galvanized steel & thermal insulation)	
Dimensions	Height	mm	190
	Width	mm	910
	Depth	mm	480
Net weight	kg	23	
Heat exchanger type		Finned tube	
Indoor fan type		Transverse flow fan	
Air volume	m <sup>3</sup> /hr	550	
Fan motor output	W	7 x 2	
Ceiling Panel Model		<b>RBC-U134PG(W)-E</b>	
Appearance Colour		Silky white (Munsell 2.9Y8.9/0.8)	
Dimensions	Height	mm	25
	Width	mm	1,050
	Depth	mm	550
Net Weight	kg	4.5	
Air Filter		Washable	

Specifications are subject to change without notice

# 1. SPECIFICATIONS

Item	Model	RAV-134TUH-1-PE		RAV-164TUH-1-PE	
Cooling capacity	kW	3.6		4.5	
Heating capacity	kW	4.2		5.0	
Power source	Phase	1		1	
	V	220-240		220-240	
	Hz	50		50	
Power consumption	kW	COOLING	HEATING	COOLING	HEATING
		2.0	2.15	2.2	2.2
Power factor	%	88	90	90	89
Running current	A	9.9	10.4	10.6	10.7
Starting current	A	60		60	
Operating noise (SPL)	Indoor Unit (High, Med, Low)	dB(A)		41/37/35	
	Outdoor Unit	dB(A)		50	
Refrigerant	Name of Refrigerant	R407C		R407C	
	Charge Volume	kg		1.05	
	Add. Volume (20-30m)	g/m		1.2	
Refrigerant control		Capillary tube & Expansion valve		Capillary tube & Expansion valve	
Interconnection pipe	Larger side size	mm	ø12.7	ø12.7	
	Coupler style		Flare	Flare	
	Smaller side size	mm	ø6.4	ø6.4	
	Coupler style		Flare	Flare	
	Standard length	m	7.5	7.5	
	Maximum actual pipe length (of one way)	m	30	30	
	Maximum height difference				
	If Indoor Unit higher	m	15	15	
If Outdoor Unit higher	m	30	30		
Condensate drain pipe diameter	mm	ø25.5 (OD)		ø25.5 (OD)	
INDOOR UNIT Model		<b>RAV-134TUH-1-PE</b>		<b>RAV-164TUH-1-PE</b>	
Appearance colour		Grey (galvanized steel & thermal insulator)		Grey (galvanized steel & thermal insulator)	
Dimensions	Height	mm	190	190	
	Width	mm	910	910	
	Depth	mm	480	480	
Net weight	kg	23		23	
Heat exchanger type		Finned tube		Finned tube	
Indoor fan type		Transverse flow fan		Transverse flow fan	
Air volume	m <sup>3</sup> /h	700		750	
Fan motor output	W	7 x 2		7 x 2	
OUTDOOR UNIT Model		<b>RAV-134AH-PE</b>		<b>RAV-164AH-PE</b>	
Appearance colour		Bronze white (Munsell 6Y7.5/1)		Bronze white (Munsell 6Y7.5/1)	
Dimensions	Height	mm	740	740	
	Width	mm	880	880	
	Depth	mm	310	310	
Net weight	kg	61		61	
Heat exchanger type		Finned tube		Finned tube	
Outdoor fan type		Propeller fan		Propeller fan	
Air flow volume	m <sup>3</sup> /h	2,700		2,700	
Fan motor output	W	39		39	
Compressor	Model	PG330X3F-4LS		PG350X3F-4LS	
	Output	kW		1.5	
Protective device		High pressure switch, fuse, crankcase heater, inner overload relay, bi-metal thermostat			
CEILING PANEL model		<b>RBC-U134PG(W)-E</b>		<b>RBC-U134PG(W)-E</b>	
Appearance colour		Silky white (Munsell 2.9Y8.9/0.8)		Silky white (Munsell 2.9Y8.9/0.8)	
Dimensions	Height	mm	25	25	
	Width	mm	1,050	1,050	
	Depth	mm	550	550	
Net weight	kg	4.5		4.5	
Air filter		Washable		Washable	

Specifications are subject to change without notice

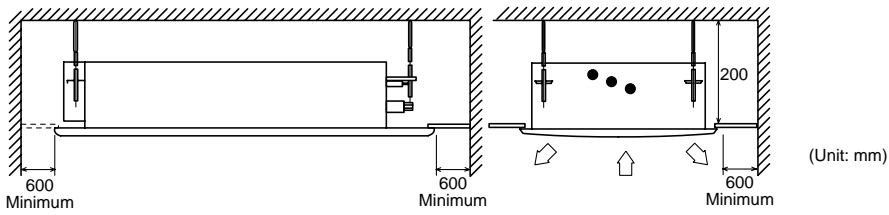
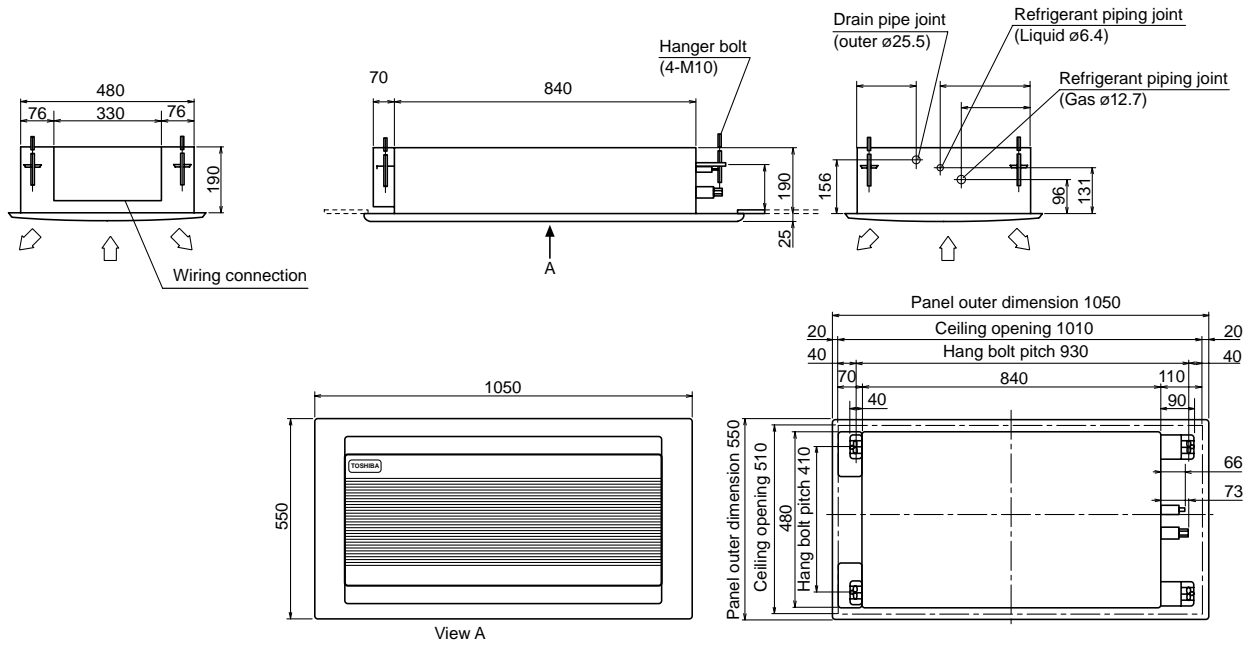
# 1. SPECIFICATIONS

Item	Model	RAV-134TU-1-PE	RAV-164TU-1-PE
Cooling capacity	kW	3.6	4.5
Power source	Phase	1	1
	V	220-240	220-240
	Hz	50	50
		COOLING	COOLING
Power consumption	kW	2.0	2.2
Power factor	%	88	90
Running current	A	9.9	10.6
Starting current	A	60	60
Operating noise (SPL)	Indoor Unit (High, Med, Low)	dB(A)	40/36/34
	Outdoor Unit	dB(A)	50
Refrigerant	Name of Refrigerant	R407C	R407C
	Charge Volume	kg	1.05
	Add. Volume (20-30m)	g/m	35
Refrigerant control		Capillary tube	Capillary tube
Interconnection pipe	Larger side size	mm	ø12.7
	Coupler style		Flare
	Smaller side size	mm	ø6.4
	Coupler style		Flare
	Standard length	m	7.5
	Maximum actual pipe length (of one way)	m	30
	Maximum height difference		
	If Indoor Unit higher	m	15
If Outdoor Unit higher	m	30	
Condensate drain pipe diameter	mm	ø25.5 (OD)	ø25.5 (OD)
INDOOR UNIT Model		<b>RAV-134TU-1-PE</b>	<b>RAV-164TU-1-PE</b>
Appearance colour		Grey (galvanized steel & thermal insulator)	Grey (galvanized steel & thermal insulator)
Dimensions	Height	mm	190
	Width	mm	910
	Depth	mm	480
Net weight	kg	23	23
Heat exchanger type		Finned tube	Finned tube
Indoor fan type		Transverse flow fan	Transverse flow fan
Air volume	m <sup>3</sup> /h	700	750
Fan motor output	W	7 x 2	7 x 2
OUTDOOR UNIT Model		<b>RAV-134A-PE</b>	<b>RAV-164A-PE</b>
Appearance colour		Bronze white (Munsell 6Y7.5/1)	Bronze white (Munsell 6Y7.5/1)
Dimensions	Height	mm	740
	Width	mm	880
	Depth	mm	310
Net weight	kg	58	58
Heat exchanger type		Finned tube	Finned tube
Outdoor fan type		Propeller fan	Propeller fan
Air flow volume	m <sup>3</sup> /h	2,700	2,700
Fan motor output	W	39	39
Compressor	Model	PG330X3F-4LS	PG350X3F-4LS
	Output	kW	1.5
Protective device		fuse, crankcase heater	
CEILING PANEL model		<b>RBC-U134PG(W)-E</b>	<b>RBC-U134PG(W)-E</b>
Appearance colour		Silky white (Munsell 2.9Y8.9/0.8)	Silky white (Munsell 2.9Y8.9/0.8)
Dimensions	Height	mm	25
	Width	mm	1,050
	Depth	mm	550
Net weight	kg	4.5	4.5
Air filter		Washable	Washable

Specifications are subject to change without notice

## 2. CONSTRUCTION VIEWS

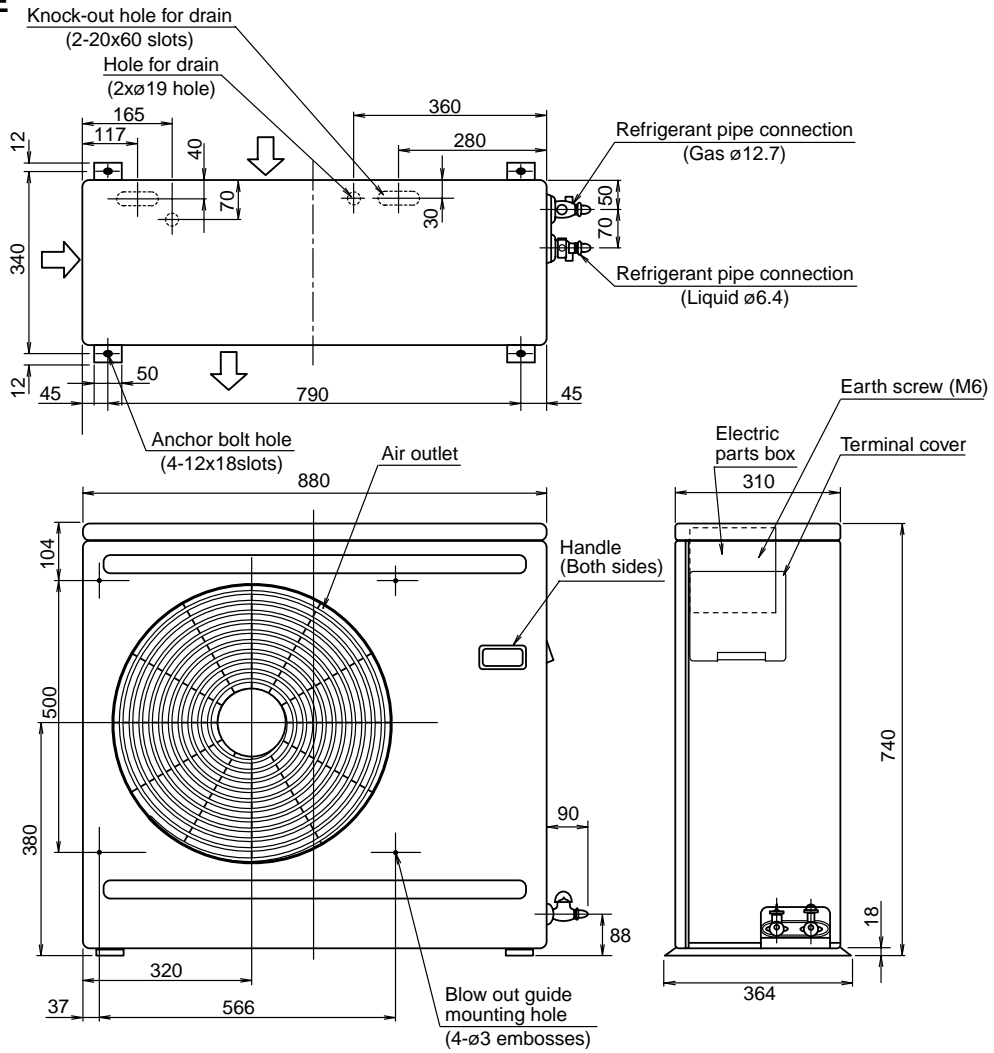
### 2.1 Indoor Unit RAV-104TUH-1-PE RAV-134TUH-1-PE RAV-164TUH-1-PE RAV-134TU-1-PE RAV-164TU-1-PE



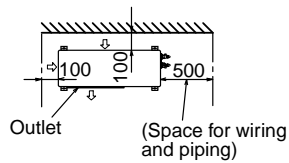
Space required for service and installation

## 2. CONSTRUCTION VIEWS

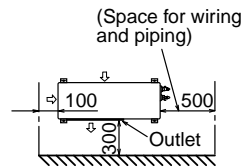
### 2.2 Outdoor Unit RAV-134AH-PE RAV-164AH-PE RAV-134A-PE RAV-164A-PE



#### Space required for service



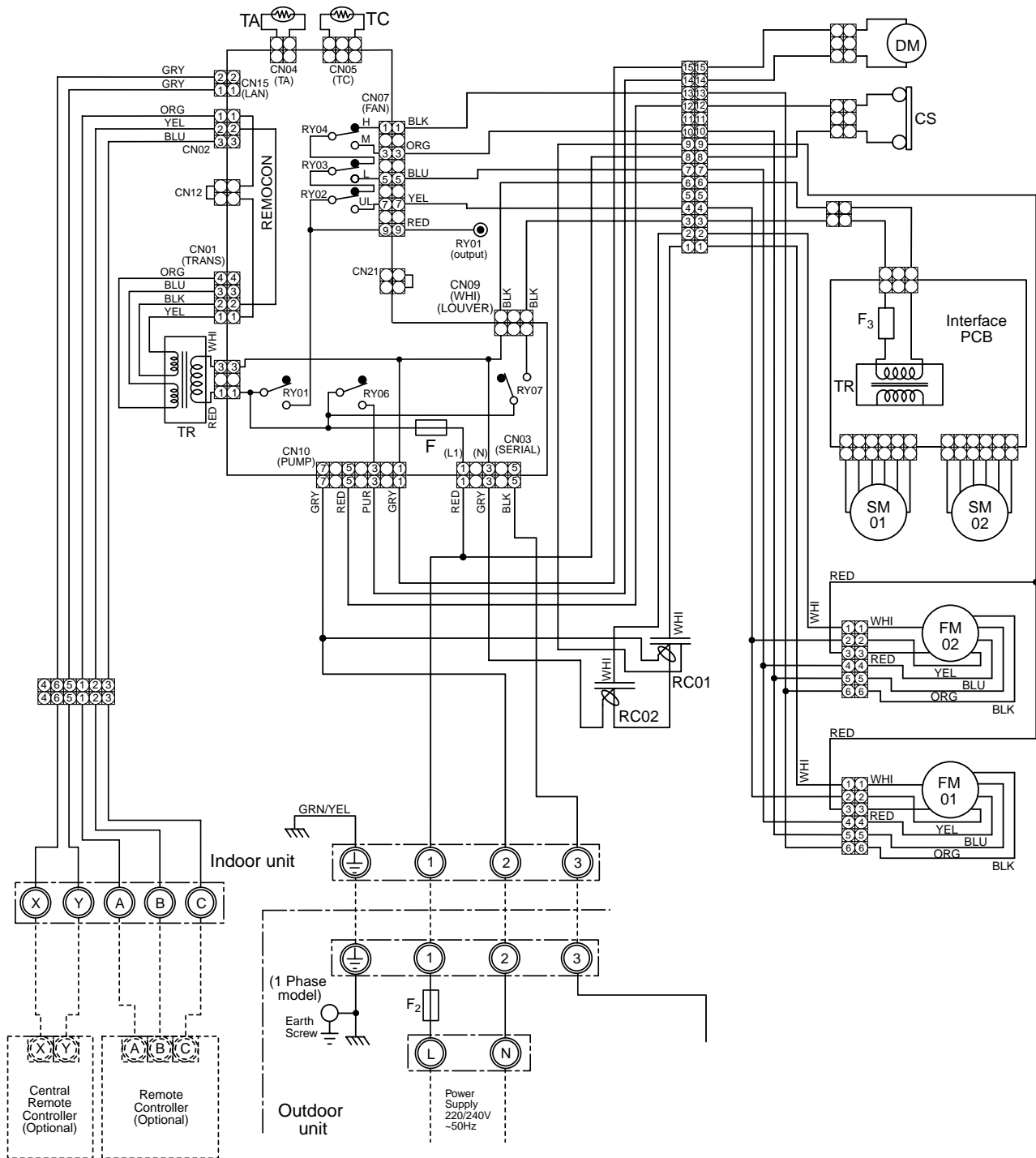
When installed with the inlet facing the wall



When installed with the outlet facing the wall

### 3. WIRING DIAGRAMS

#### 3.1 RAV-104TUH-1-PE RAV-134TUH-1-PE RAV-164TUH-1-PE



○ Shows terminal block and figures show terminal numbers.  
Broken lines show wiring at site.

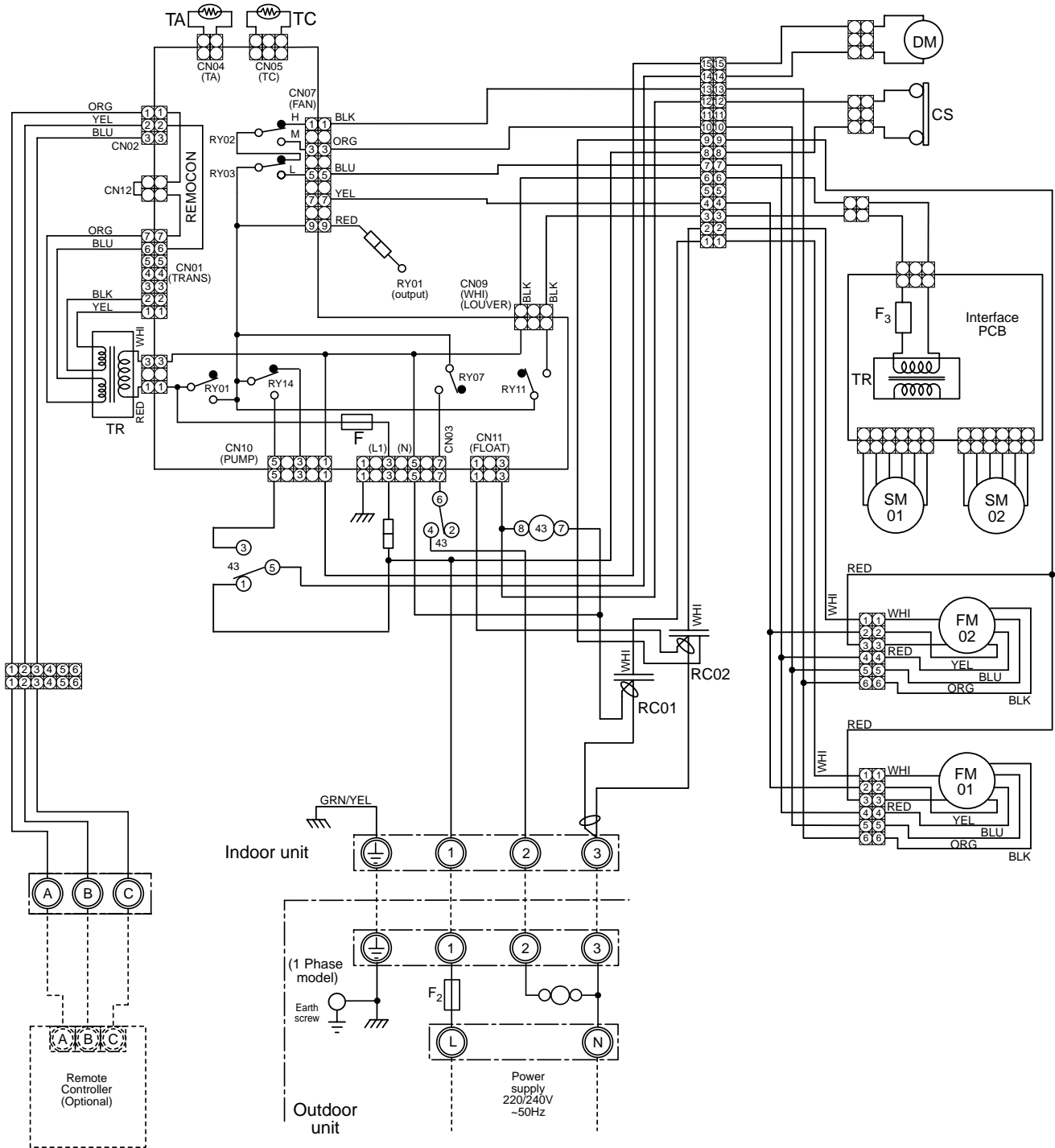
Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
FM01, 02	Fan Motor	F	Fuse (PCB)
RC01,02	Running Capacitor	F3	Fuse (Interface) PCB
TR	Transformer	DM	Drain Pump
TA	Sensor	SM01, 02	Stepper Motor
TC	Sensor	CS	Float Switch
RY01~RY07	Relay		



### 3. WIRING DIAGRAMS

#### 3.2 RAV-134TU-1-PE RAV-164TU-1-PE



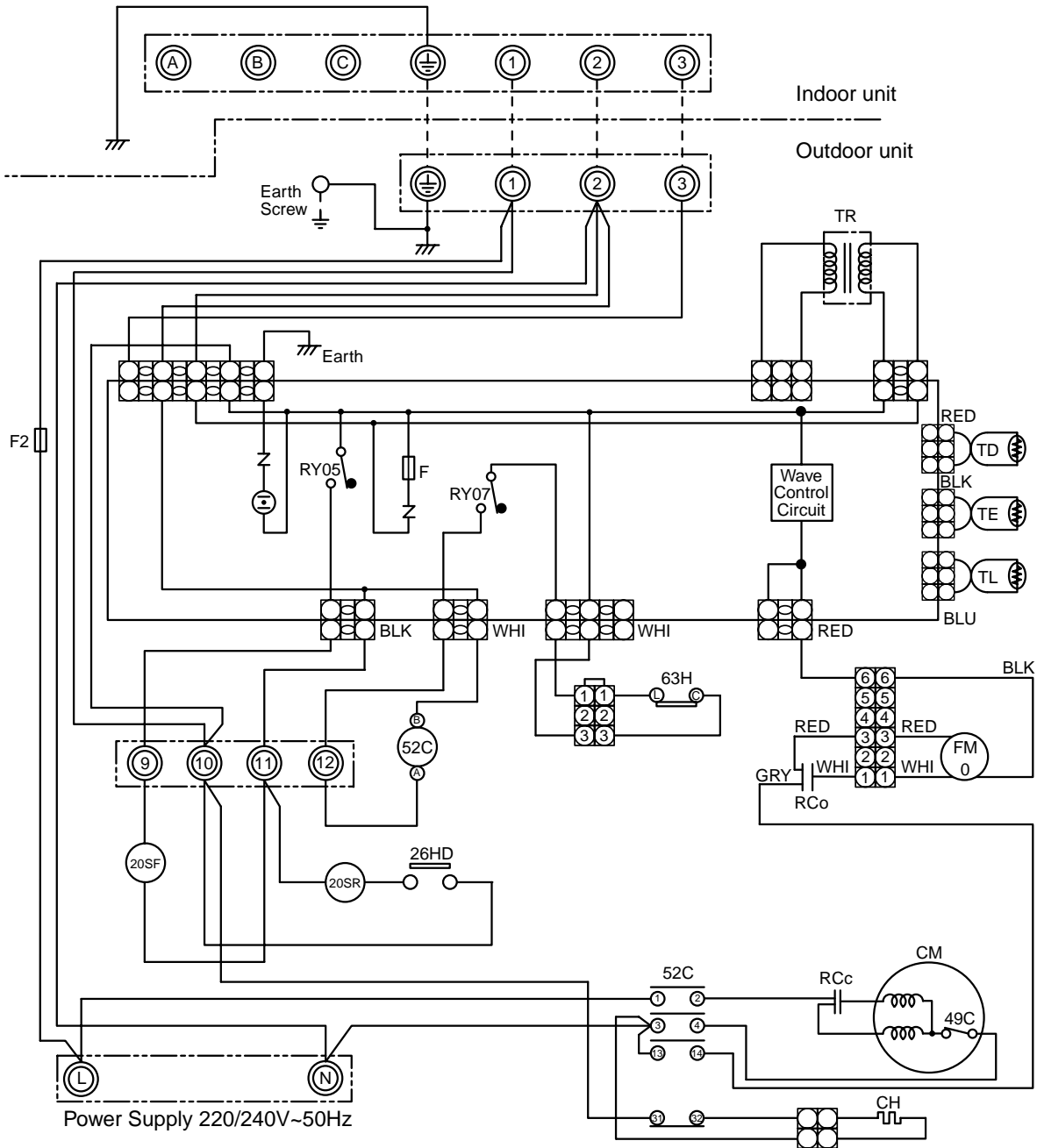
○ Shows terminal block and figures show terminal numbers.  
Broken lines show wiring at site.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
FM01, 02	Fan Motor	F	Fuse (PCB)
RC01, 02	Running Capacitor	F3	Fuse (Interface) PCB
TR	Transformer	DM	Drain Pump
TA	Sensor	SM01, 02	Stepper Motor
TC	Sensor	CS	Float Switch
RY01~RY14	Relay	43	Relay

### 3. WIRING DIAGRAMS

#### 3.3 RAV-134AH-PE RAV-164AH-PE



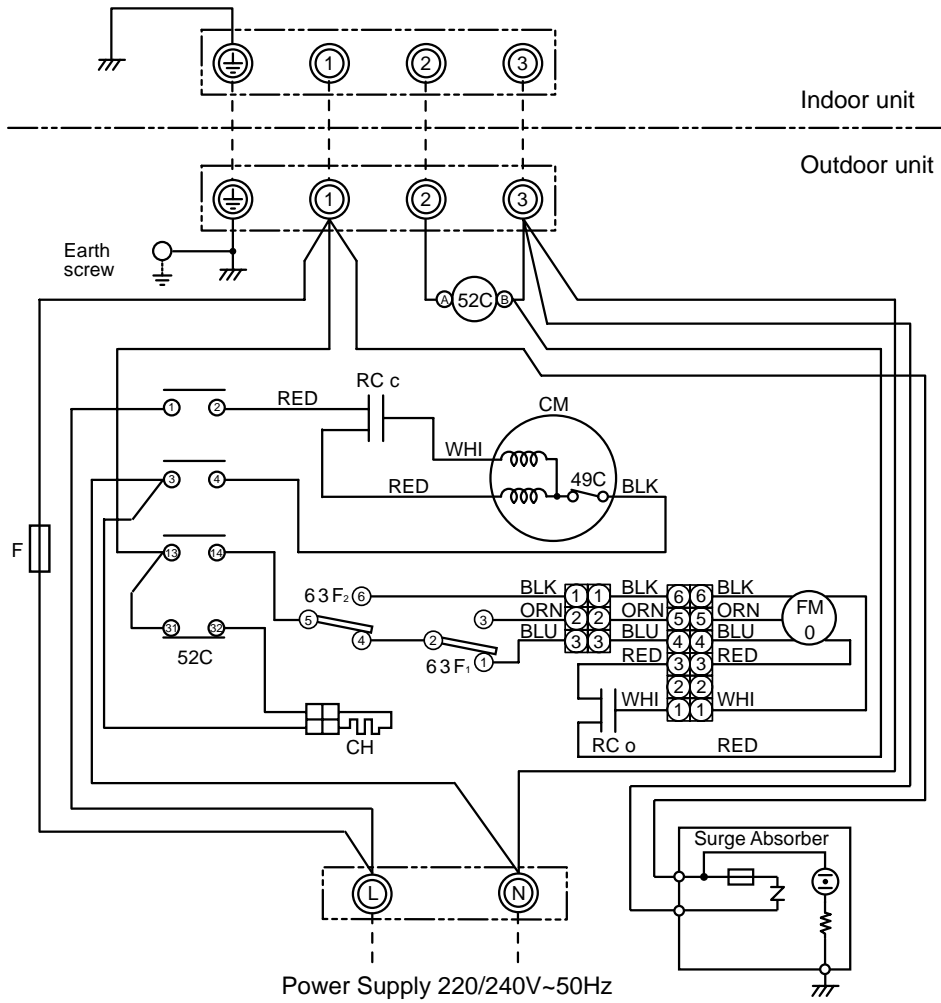
⊙ Shows terminal block and figures show terminal numbers. Broken lines show wiring at site.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name	Symbol	Name
20SF	Solenoid coil (4 way valve)	CM	Compressor	F2	Fuse (T5A)
RY05, 07	Relay	52C	Magnetic contactor	63H	High pressure switch
49C	Inner overload relay	FMo	Fan motor	CH	Crankcase heater
20SR	Solenoid coil (2 way valve)	TL	Sensor	F	Fuse (on PCB)
RCc	Running capacitor (compressor)	TE	Sensor	TR	Transformer
RCo	Running capacitor (fan motor)	26HD	Bimetal thermostat	TD	Sensor (Dummy)

### 3. WIRING DIAGRAMS

#### 3.4 RAV-134A-PE RAV-164A-PE



⊙ Shows terminal block and figures show terminal numbers. Broken lines show wiring at site.

Do not operate the units with the magnetic contactor pushed in.

Symbol	Name	Symbol	Name
49C	Inner overload relay	CM	Compressor
RCc	Running capacitor (compressor)	52C	Magnetic contactor
RCo	Running capacitor (fan motor)	FMo	Fan Motor
F	Fuse (T5A)	CH	Crankcase heater
63F1, 2	Pressure Switch (2 Stage)		

## 4. SPECIFICATIONS OF ELECTRICAL PARTS

### 4.1 RAV-104TUH-1-PE

No	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor (x2)	PAF-230-7-4	Output (rated) 7W, 4 pole, 230V, 1 Phase, 50Hz						
2	Running capacitor for indoor fan motor (x2)	EVM45M504UF	AC 450V, 0.5 $\mu$ F						
3	Transformer (Indoor Unit)	ST-10568	AC 187-264V						
4	Stepper motor (x2)	MP35EA2	DC 12V, 80mNm						
5	Drain pump	PJV-0764	AC 230V, 0.2A						
6	Float switch	FS-085-003B	AC 230V, 0.5A						
7	Sensor for room temperature		Maximum input	$^{\circ}$ C	15	20	25	30	40
			38mA	k $\Omega$	16.1	12.6	10.0	8.0	5.2
8	Indoor Unit sensor for heat exchanger temperature		Maximum input	$^{\circ}$ C	-12	10			
				15.5mA	k $\Omega$	67.5	21.3		

### 4.2 RAV-134TUH-1-PE

No	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor (x2)	PAF-230-7-4	Output (rated) 7W, 4 pole, 230V, 1 Phase, 50Hz						
2	Running capacitor for indoor fan motor (x2)	EEP2H105HQA105	AC 500V, 1.0 $\mu$ F						
3	Transformer (Indoor Unit)	ST-10568	AC 187-264V						
4	Stepper motor (x2)	MP35EA2	DC 12V, 80mNm						
5	Drain pump	PJV-0764	AC 230V, 0.2A						
6	Float switch	FS-085-003B	AC 230V, 0.5A						
7	Sensor for room temperature		Maximum input	$^{\circ}$ C	15	20	25	30	40
			38mA	k $\Omega$	16.1	12.6	10.0	8.0	5.2
8	Indoor Unit sensor for heat exchanger temperature		Maximum input	$^{\circ}$ C	-12	10			
				15.5mA	k $\Omega$	67.5	21.3		

### 4.3 RAV-164TUH-1-PE

No	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor (x2)	PAF-230-7-4	Output (rated) 7W, 4 pole, 230V, 1 Phase, 50Hz						
2	Running capacitor for indoor fan motor (x2)	EEP2H105HQA105	AC 500V, 1.0 $\mu$ F						
3	Transformer (Indoor Unit)	ST-10568	AC 187-254V						
4	Stepper motor (x2)	MP35EA2	DC 12V, 80mNm						
5	Drain pump	PJV-0764	AC 230V, 0.2A						
6	Float switch	FS-085-003B	AC 230V, 0.5A						
7	Sensor for room temperature		Maximum input	$^{\circ}$ C	15	20	25	30	40
			38mA	k $\Omega$	16.1	12.6	10.0	8.0	5.2
8	Indoor Unit sensor for heat exchanger temperature		Maximum input	$^{\circ}$ C	-12	10			
				15.5mA	k $\Omega$	67.5	21.3		

## 4. SPECIFICATIONS OF ELECTRICAL PARTS

### 4.4 RAV-134TU-1-PE

No	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor (x2)	PAF-230-7-4	Output (rated) 7W, 4 pole, 230V, 1 Phase, 50Hz						
2	Running capacitor for indoor fan motor (x2)	EEP2H105HQA105	AC 500V, 1.0μF						
3	Transformer (Indoor Unit)	ST-9586	AC 187-264V						
4	Stepper motor (x2)	MP35EA2	DC 12V, 80mNm						
5	Drain pump	PJV-0764	AC 230V, 0.2A						
6	Float switch	FS-085-003B	AC 230V, 0.5A						
7	Sensor for room temperature		Maximum input 38mA	°C	15	20	25	30	40
				kΩ	16.1	12.6	10.0	8.0	5.2
8	Indoor Unit sensor for heat exchanger temperature		Maximum input 15.5mA	°C	-12	10			
				kΩ	67.5	21.3			
9	Relay	LY2F-L	AC 240V, 2ab						

### 4.5 RAV-164TU-1-PE

No	PARTS NAME	TYPE	SPECIFICATIONS						
1	Indoor unit fan motor (x2)	PAF-230-7-4	Output (rated) 7W, 4 pole, 230V, 1 Phase, 50Hz						
2	Running capacitor for indoor fan motor (x2)	EEP2H105HQA105	AC 500V, 1.0μF						
3	Transformer (Indoor Unit)	ST-9586	AC 187-264V						
4	Stepper motor (x2)	MP35EA2	DC 12V, 80mNm						
5	Drain pump	PJV-0764	AC 230V, 0.2A						
6	Float switch	FS-085-003B	AC 230V, 0.5A						
7	Sensor for room temperature		Maximum input 38mA	°C	15	20	25	30	40
				kΩ	16.1	12.6	10.0	8.0	5.2
8	Indoor Unit sensor for heat exchanger temperature		Maximum input 15.5mA	°C	-12	10			
				kΩ	67.5	21.3			
9	Relay	LY2F-L	AC 240V, 2ab						

## 4. SPECIFICATIONS OF ELECTRICAL PARTS

### 4.6 RAV-134AH-PE

No	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	PG330X3F-4LS	Output (rated) 1.5kW, 2 pole, 220/240V, 1 Phase, 50Hz			
2	Outdoor unit fan motor	SMF-230-39N-2	Output (rated) 39W, 6 pole, 230V, 1 Phase, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 $\mu$ F			
4	Magnetic contactor	FMCa-1S-02	AC 220-240V, 50Hz			
5	High pressure switch	ACB-2TB04W	Tripping pressure 30kgf/cm <sup>2</sup> G Resetting pressure 23kgf/cm <sup>2</sup> G			
6	Solenoid coil for four-way valve	CHV-AC240V	AC 220-240V			
7	Crankcase heater		AC 240V, 28W			
8	Sensor for defrosting		Maximum input 15.5mA	°C	-12	10
				k $\Omega$	67.5	21.3
9	Fuse		T5A			
10	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C	-12	10
				k $\Omega$	67.5	21.3
11	Solenoid coil for two-way valve	NEV AC 240V	AC 220-240V, 50Hz			
12	Running capacitor for compressor	MT-44MP456W	AC 440V, 45 $\mu$ F			
13	Transformer (Outdoor Unit)	FT-67	AC 187-264V			
14	Bimetal thermostat	CS-12A	Tripping temperature: 110°C Resetting temperature: 90°C			

## 4. SPECIFICATIONS OF ELECTRICAL PARTS

### 4.7 RAV-164AH-PE

No	PARTS NAME	TYPE	SPECIFICATIONS			
1	Compressor	PG350X3F-4LS	Output (rated) 1.5kW, 2 pole, 220/240V, 1 Phase, 50Hz			
2	Outdoor unit fan motor	SMF-230-39N-2	Output (rated) 39W, 6 pole, 230V, 1 Phase, 50Hz			
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 $\mu$ F			
4	Magnetic contactor	FMCa-1S-02	AC 220-240V, 50Hz			
5	High pressure switch	ACB-2TB04W	Tripping pressure 30kgf/cm <sup>2</sup> G Resetting pressure 23kgf/cm <sup>2</sup> G			
6	Solenoid coil for four-way valve	CHV-AC240V	AC 220-240V			
7	Crankcase heater		AC 240V, 28W			
8	Sensor for defrosting		Maximum input 15.5mA	°C	-12	10
				k $\Omega$	67.5	21.3
9	Fuse		T5A			
10	Sensor for cooling operation in low ambient temperature		Maximum input 15.5mA	°C	-12	10
				k $\Omega$	67.5	21.3
11	Solenoid coil for two-way valve	NEV AC 240V	AC 220-240V, 50Hz			
12	Running capacitor for compressor	MT-44MP456W	AC 440V, 45 $\mu$ F			
13	Transformer (Outdoor Unit)	FT-67	AC 187-264V			
14	Bimetal thermostat	CS-12A	Tripping temperature: 110°C Resetting temperature: 90°C			

## 4. SPECIFICATIONS OF ELECTRICAL PARTS

### 4.8 RAV-134A-PE

No	PARTS NAME	TYPE	SPECIFICATIONS
1	Compressor	PG330X3F-4LS	Output (rated) 1.5kW, 2 pole, 220/240V, 1 Phase, 50Hz
2	Outdoor unit fan motor	SMF-230-39N-3	Output (rated) 39W, 6 pole, 230V, 1 Phase, 50Hz
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 $\mu$ F
4	Magnetic contactor	FMCa-1S-02	AC 220-240V, 50Hz
5	Pressure switch (2-Stage)	STB-X602	Tripping pressure 19kgf/cm <sup>2</sup> G, 21kgf/cm <sup>2</sup> G Resetting pressure 13kgf/cm <sup>2</sup> G, 15kgf/cm <sup>2</sup> G
6	Crankcase heater		AC 240V, 28W
7	Fuse		T5A
8	Running capacitor for compressor	MT-44MP456W	AC 440V, 45 $\mu$ F

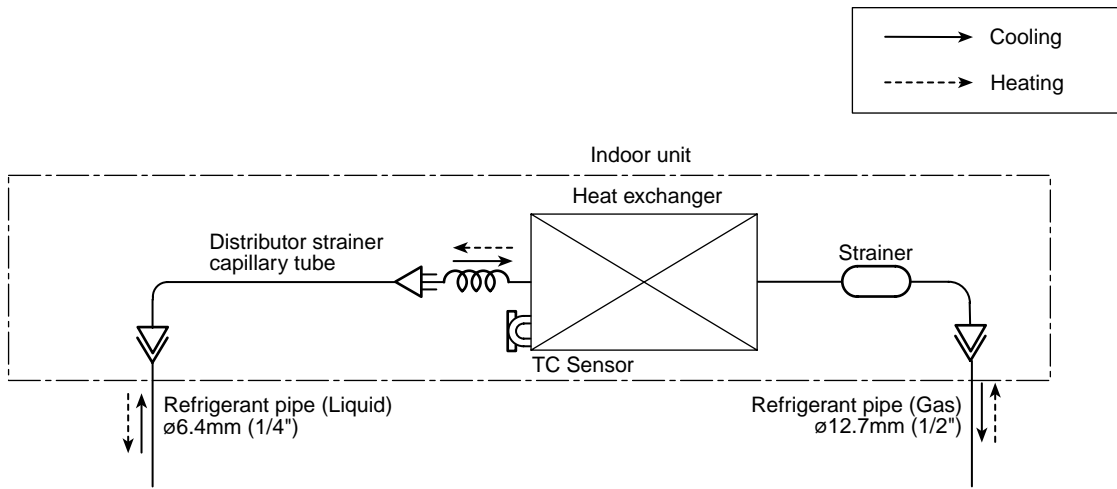
### 4.9 RAV-164A-PE

No	PARTS NAME	TYPE	SPECIFICATIONS
1	Compressor	PG350X3F-4LS	Output (rated) 1.5kW, 2 pole, 220/240V, 1 Phase, 50Hz
2	Outdoor unit fan motor	SMF-230-39N-3	Output (rated) 39W, 6 pole, 230V, 1 Phase, 50Hz
3	Running capacitor for outdoor fan motor	EEP2G405HQA114	AC 400V, 4 $\mu$ F
4	Magnetic contactor	FMCa-1S-02	AC 220-240V, 50Hz
5	Pressure switch (2-Stage)	STB-X603	Tripping pressure 21kgf/cm <sup>2</sup> G, 23kgf/cm <sup>2</sup> G Resetting pressure 15kgf/cm <sup>2</sup> G, 17kgf/cm <sup>2</sup> G
6	Crankcase heater		AC 240V, 28W
7	Fuse		T5A
8	Running capacitor for compressor	MT-44MP456W	AC 440V, 45 $\mu$ F



## 5. REFRIGERANT PIPING DIAGRAMS

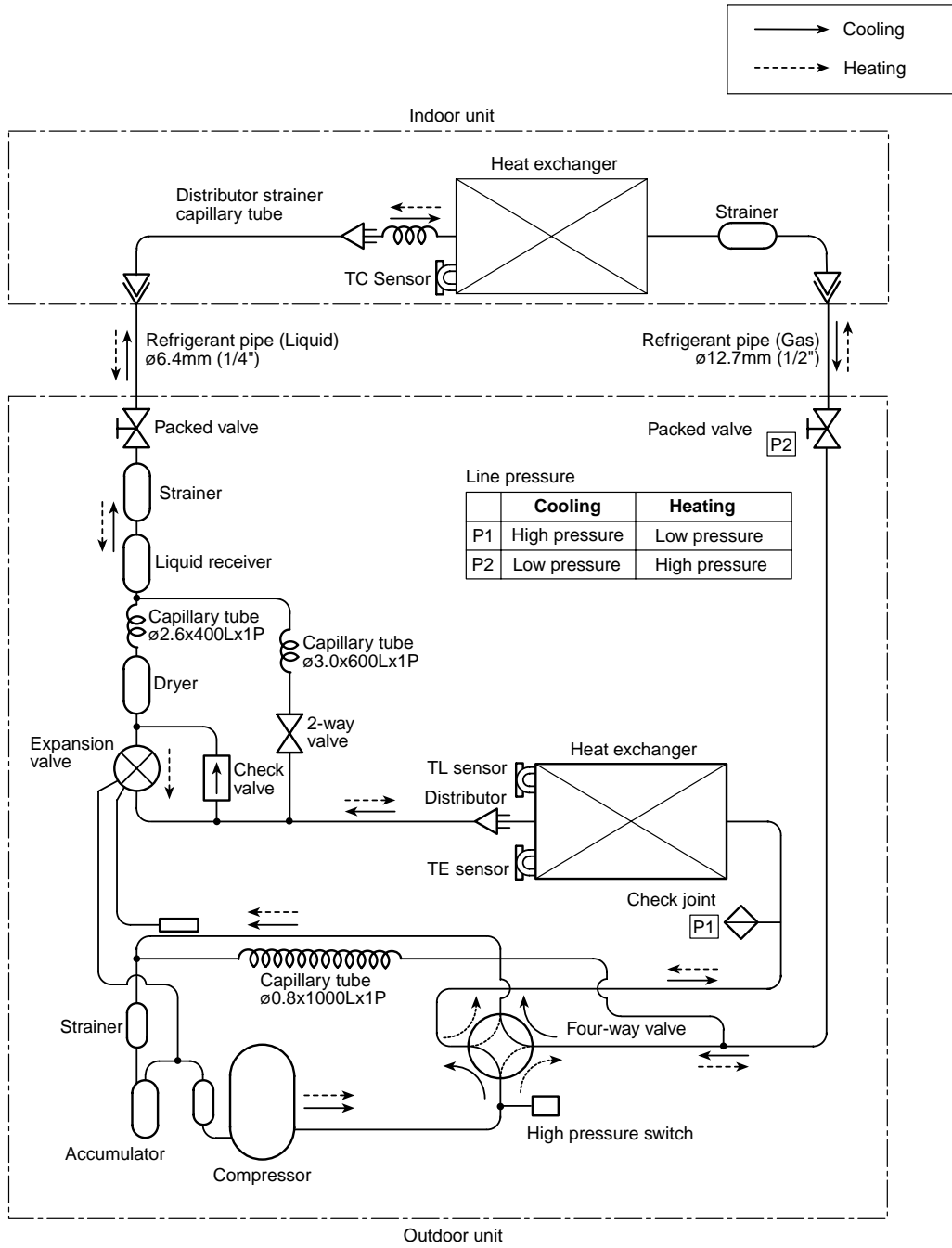
### 5.1 Indoor Unit RAV-104TUH-1-PE



## 5. REFRIGERANT PIPING DIAGRAMS

**5.1 Indoor Unit**  
RAV-134TUH-1-PE

**Outdoor Unit**  
RAV-134AH-PE

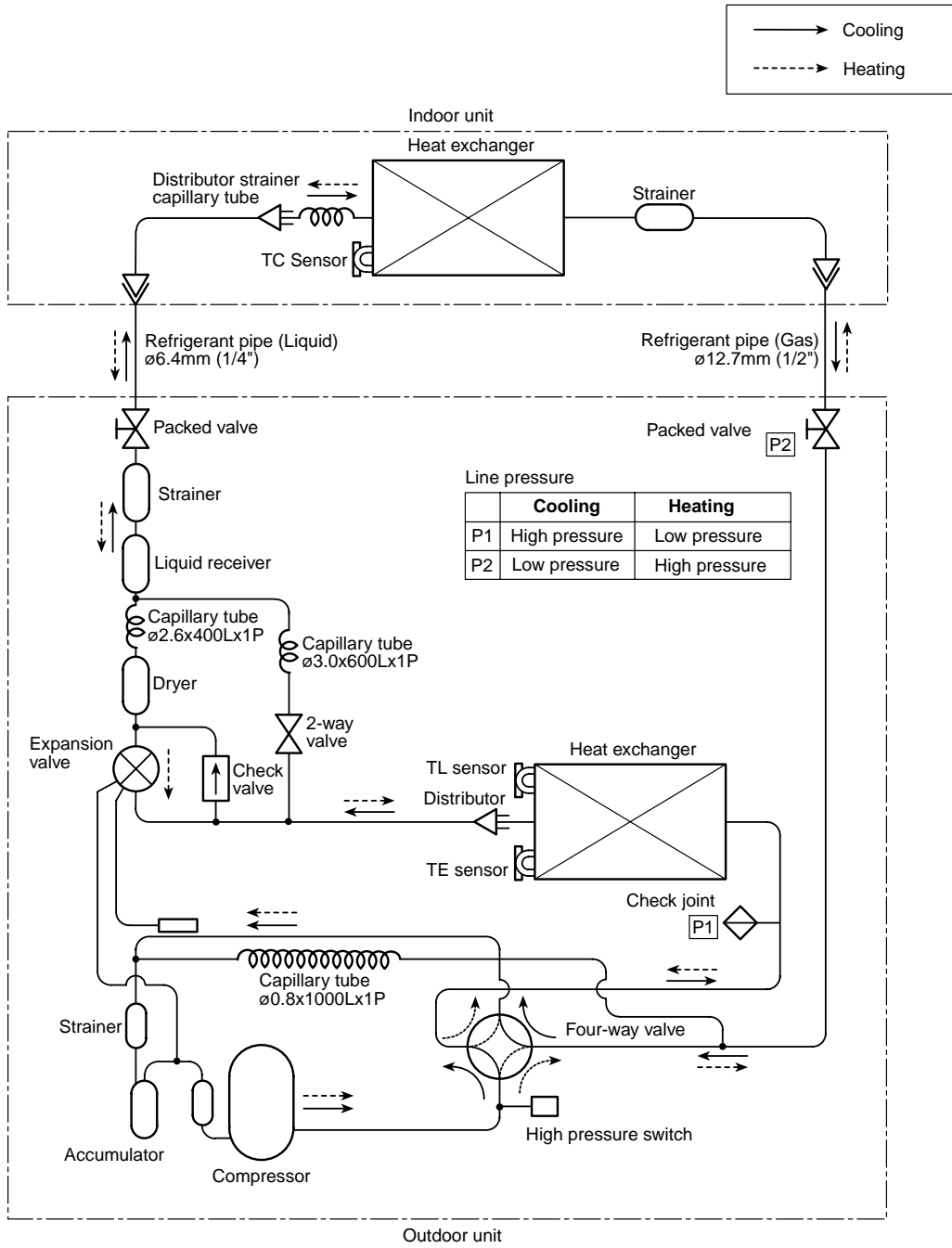


INDOOR UNIT		OUTDOOR UNIT			
Model	Capillary	Model	Main Capillary	Bypass Capillary	Cooling Bypass Capillary
RAV-134TUH-1-PE	IDø2.4x300Lx2P	RAV-134AH-PE	IDø2.6x400Lx1P	IDø0.8x1000Lx1P	IDø3x600Lx1P

## 5. REFRIGERANT PIPING DIAGRAMS

**5.2 Indoor Unit**  
RAV-164TUH-1-PE

**Outdoor Unit**  
RAV-164AH-PE

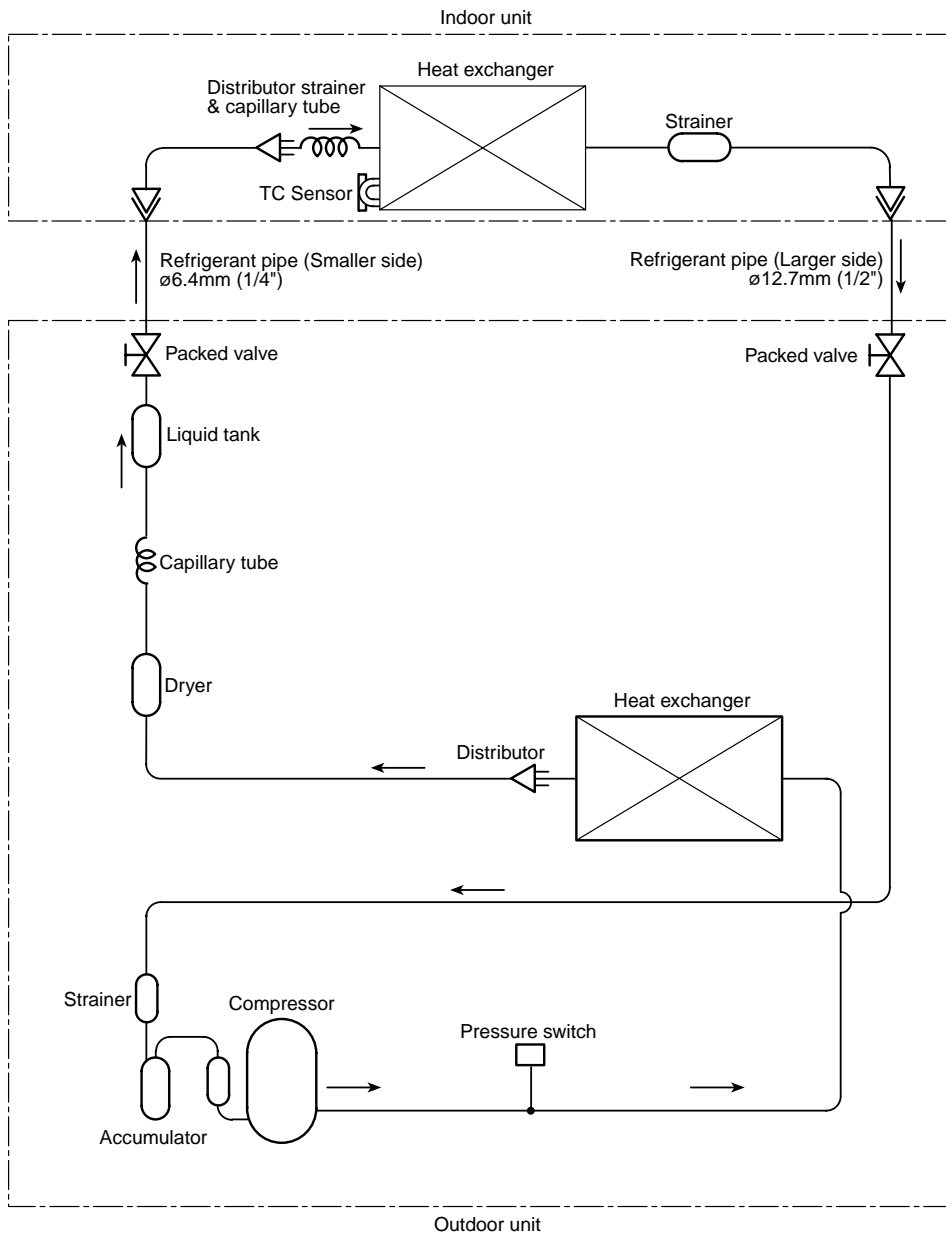


INDOOR UNIT		OUTDOOR UNIT			
Model	Capillary	Model	Main Capillary	Bypass Capillary	Cooling Bypass Capillary
RAV-164TUH-1-PE	IDø2.2x200Lx2P	RAV-164AH-PE	IDø2.6x400Lx1P	IDø0.8x1000Lx1P	IDø3x600Lx1P

## 5. REFRIGERANT PIPING DIAGRAMS

**5.3 Indoor Unit**  
RAV-134TU-1-PE

**Outdoor Unit**  
RAV-134A-PE

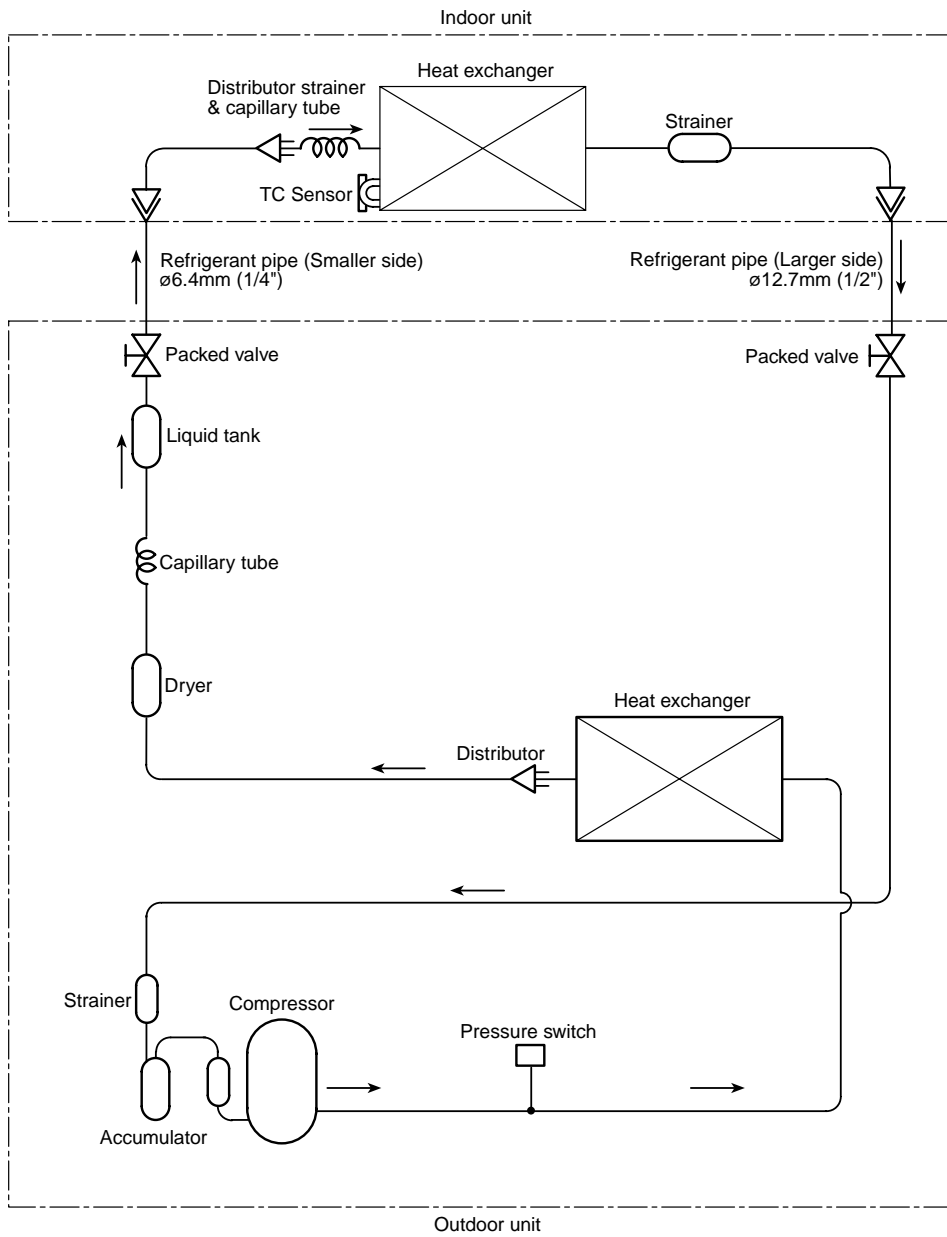


INDOOR UNIT		OUTDOOR UNIT		
Model	Capillary	Model	Main Capillary	Bypass Capillary
RAV-134TU-1-PE	IDø2.4x300Lx2P	RAV-134A-PE	IDø2.6x400Lx1P	—————

## 5. REFRIGERANT PIPING DIAGRAMS

**5.4 Indoor Unit**  
RAV-164TU-1-PE

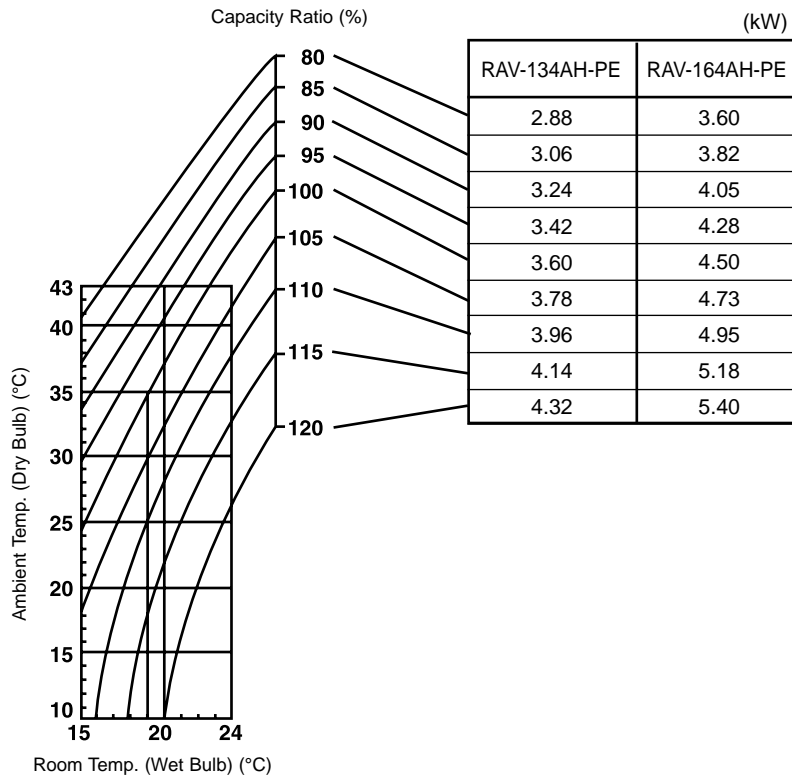
**Outdoor Unit**  
RAV-164A-PE



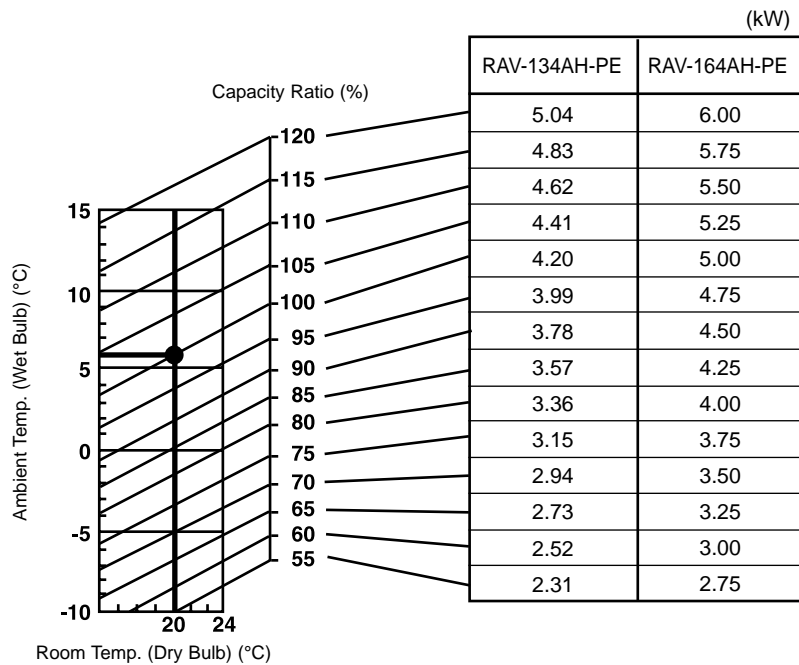
INDOOR UNIT		OUTDOOR UNIT		
Model	Capillary	Model	Main Capillary	Bypass Capillary
RAV-164TU-1-PE	IDø2.2x200Lx2P	RAV-164A-PE	IDø2.6x400Lx1P	—————

## 6. PERFORMANCE CHARACTERISTICS

### 6.1 Cooling capacity

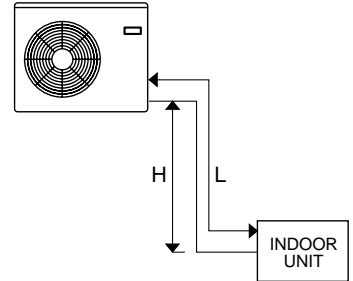
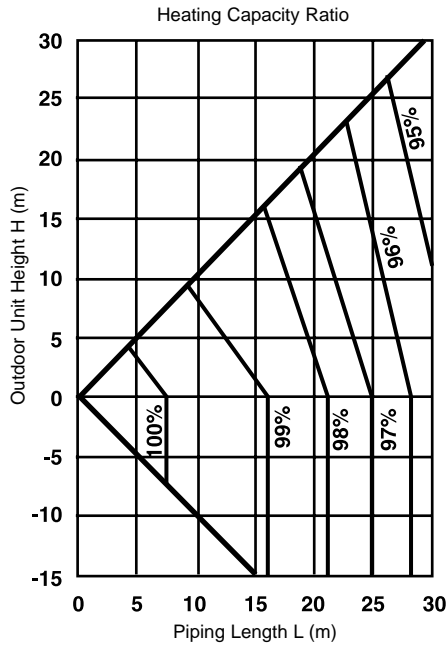
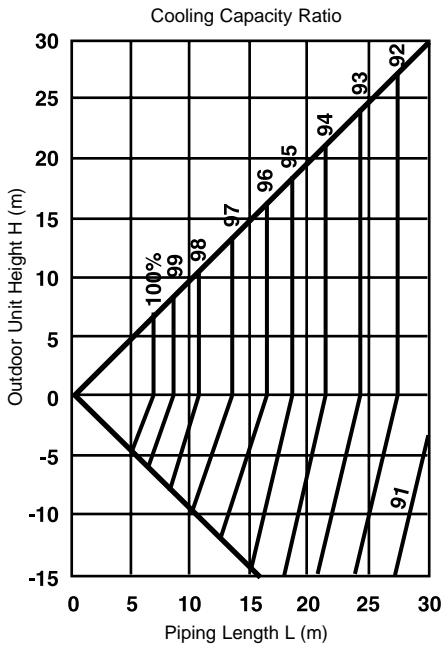


### 6.2 Heating capacity

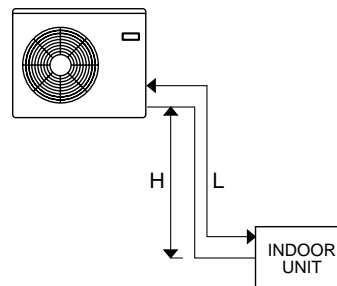
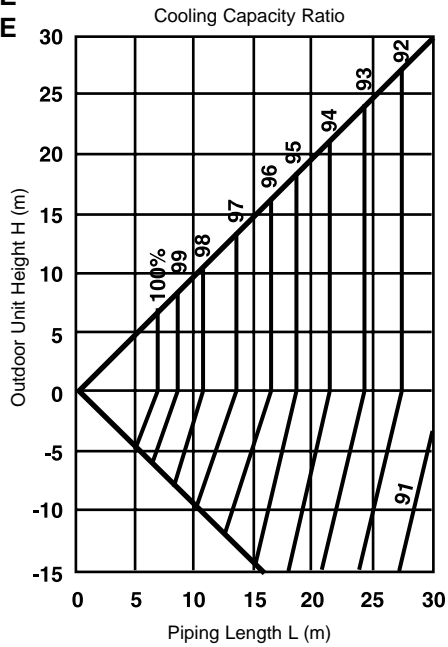


## 6. PERFORMANCE CHARACTERISTICS

### 6.3 Cooling capacity RAV-134AH-PE RAV-164AH-PE



### 6.4 Cooling capacity RAV-134A-PE RAV-164A-PE



## 6. PERFORMANCE CHARACTERISTICS

### 6.5 Piping Length/Additional Refrigerant Volume

- ! The amount of refrigerant put into the outdoor unit at the factory is sufficient to fill up to 20m of refrigerant pipework.
- ! If the length of the refrigerant pipework is 20m or less, addition of refrigerant at the installation site is unnecessary.
- ! If the length of the pipework exceeds 20m, extra refrigerant must be added. Refer to the table below for details of the extra amounts.
- ! Overcharge or undercharge of refrigerant in the outdoor unit will cause malfunction of the compressor.

The prescribed amount of the replenishment of the refrigerant is shown in the table below:

MODEL (RAV-)	Additional amount of refrigerant to add at installation site (kg)±50g							Recharge amount if unit is reclaimed (kg)±50g							
	Less than 20m	Less than 25m	Less than 30m	Less than 35m	Less than 40m	Less than 45m	Less than 50m	Less than 5m	Less than 20m	Less than 25m	Less than 30m	Less than 35m	Less than 40m	Less than 45m	Less than 50m
134AH-PE	Filled at Factory	0.18	0.35	—	—	—	—	0.79	1.05	1.23	1.4	—	—	—	—
164AH-PE		0.18	0.35	—	—	—	—	0.94	1.2	1.38	1.55	—	—	—	—
134A-PE		0.18	0.35	—	—	—	—	0.79	1.05	1.23	1.4	—	—	—	—
164A-PE		0.18	0.35	—	—	—	—	0.94	1.2	1.38	1.55	—	—	—	—

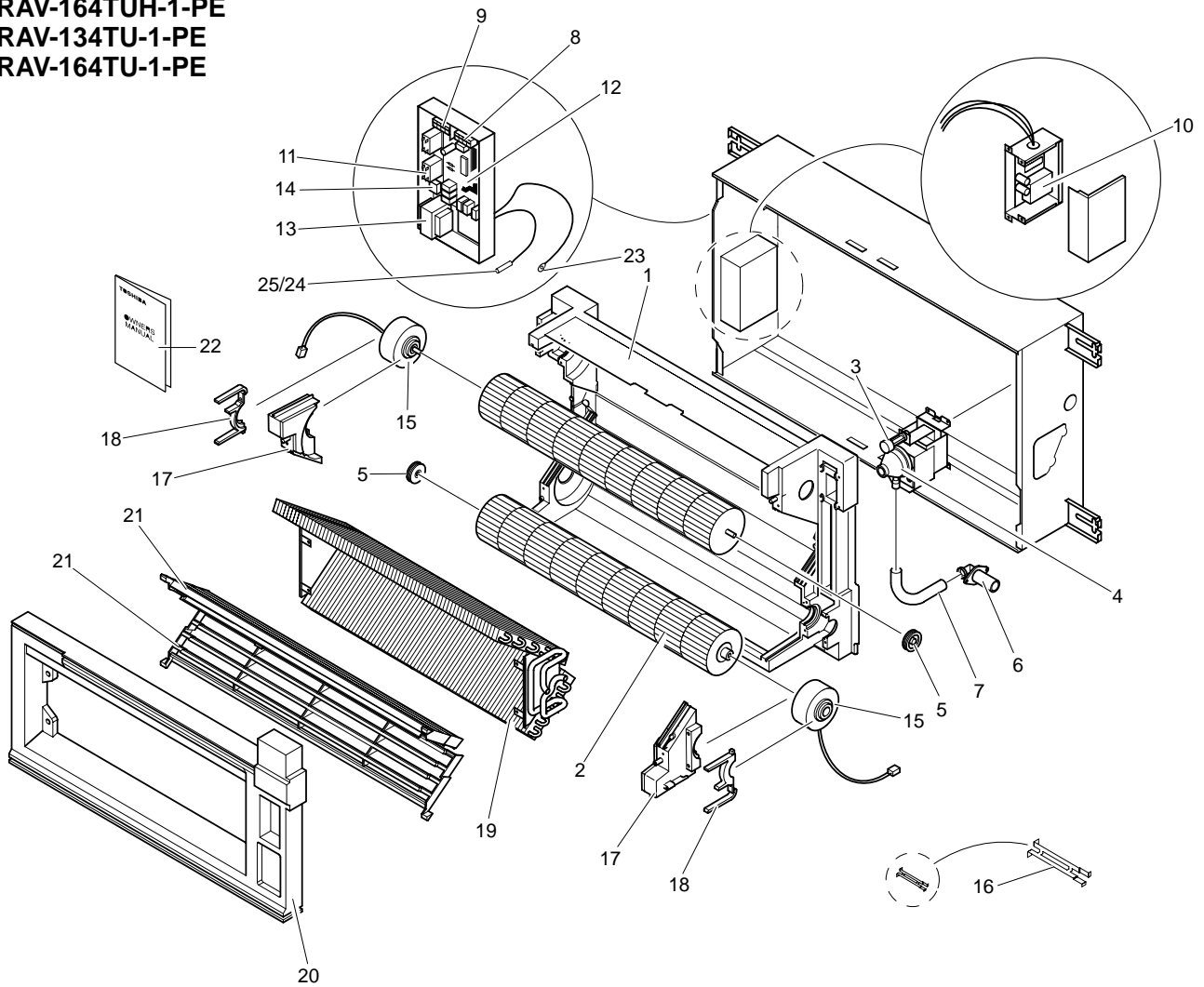
**! ADD ONLY R407C REFRIGERANT TO THESE UNITS**



## 7. EXPLODED VIEWS AND PARTS LISTS

### 7.1 Indoor Unit

**RAV-104TUH-1-PE**  
**RAV-134TUH-1-PE**  
**RAV-164TUH-1-PE**  
**RAV-134TU-1-PE**  
**RAV-164TU-1-PE**

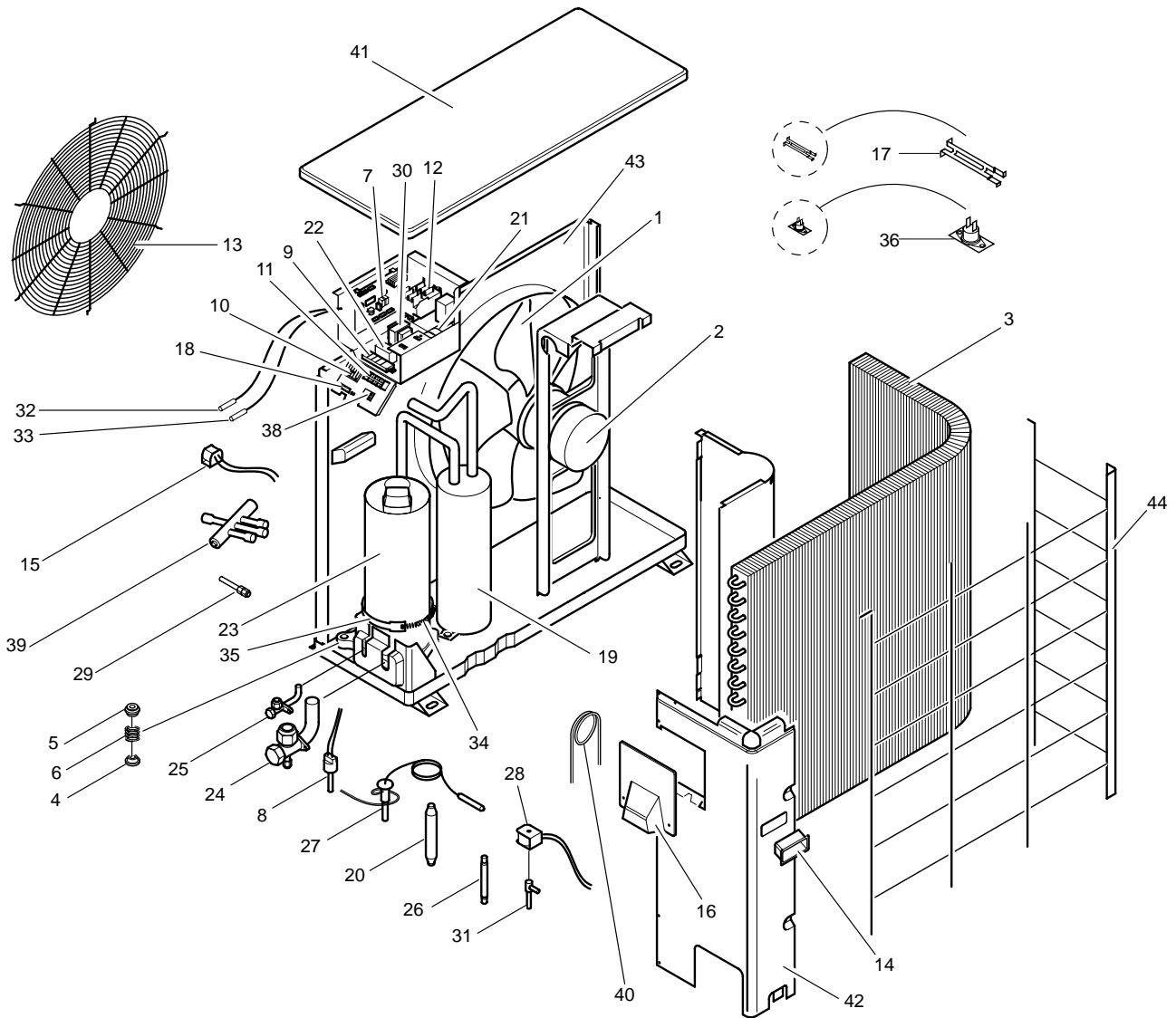


Ref No.	Part No.	Description	Model
1	43A22007	Blower Base Assembly	All
2	43020288	Fan-C-F	All
3	43A51002	Float Switch	All
4	43A70008	Pump Assembly	All
5	43020253	Bearing	All
6	43071019	Drain Connection	All
7	43A70009	Drain Hose	All
8	43A60010	Terminal ABC XY	All
9	43A60001	Terminal 1, 2, 3	All
10	43A69008	Interface PC Board	All
11	37555721	MF Capacitor	RAV-104TUH-1-PE
11	43155100	MF Capacitor	RAV-134/164TU/1-PE
12	43A69010	PC Board (AI)	RAV-104/134/164TUH-1-PE
12	43A69005	ASM Cont PC IN	RAV-134/164TU-1-PE
13	43A58004	Transformer (AI)	RAV-104/134/164TUH-1-PE
13	43A58002	Transformer	RAV-134/164TU-1-PE

Ref No.	Part No.	Description	Model
14	43154141	Relay – LY2F-L	RAV-134/164TU-1-PE
15	43A21014	Fan Motor (PAF-230-7-4)	All
16	43A50006	Sensor Holder	All
17	43A22008	Motor Band L	All
18	43A22009	Motor Band R	All
19	43A44060	Refrigeration Assembly	RAV-104TUH-1-PE
19	43A44061	Refrigeration Assembly	RAV-134TU/1-PE
19	43A44062	Refrigeration Assembly	RAV-164TU/1-PE
20	43A72010	Drain Pan	All
21	43A83001	Drain Guide Assembly	All
22	43A88011	Owner Manual	All
23	43150118	Sensor – Room Temperature	RAV-134/164TU-1-PE
23	43A50008	Sensor – Room Temperature	RAV-104/134/164TUH-1-PE
24	43A50004	Sensor – Heat Exchanger	All
25	43A35005	TC Adapter	RAV-104/134/164TUH-1-PE

## 7. EXPLODED VIEWS AND PARTS LISTS

### 7.2 Outdoor Unit RAV-134AH-PE RAV-164AH-PE

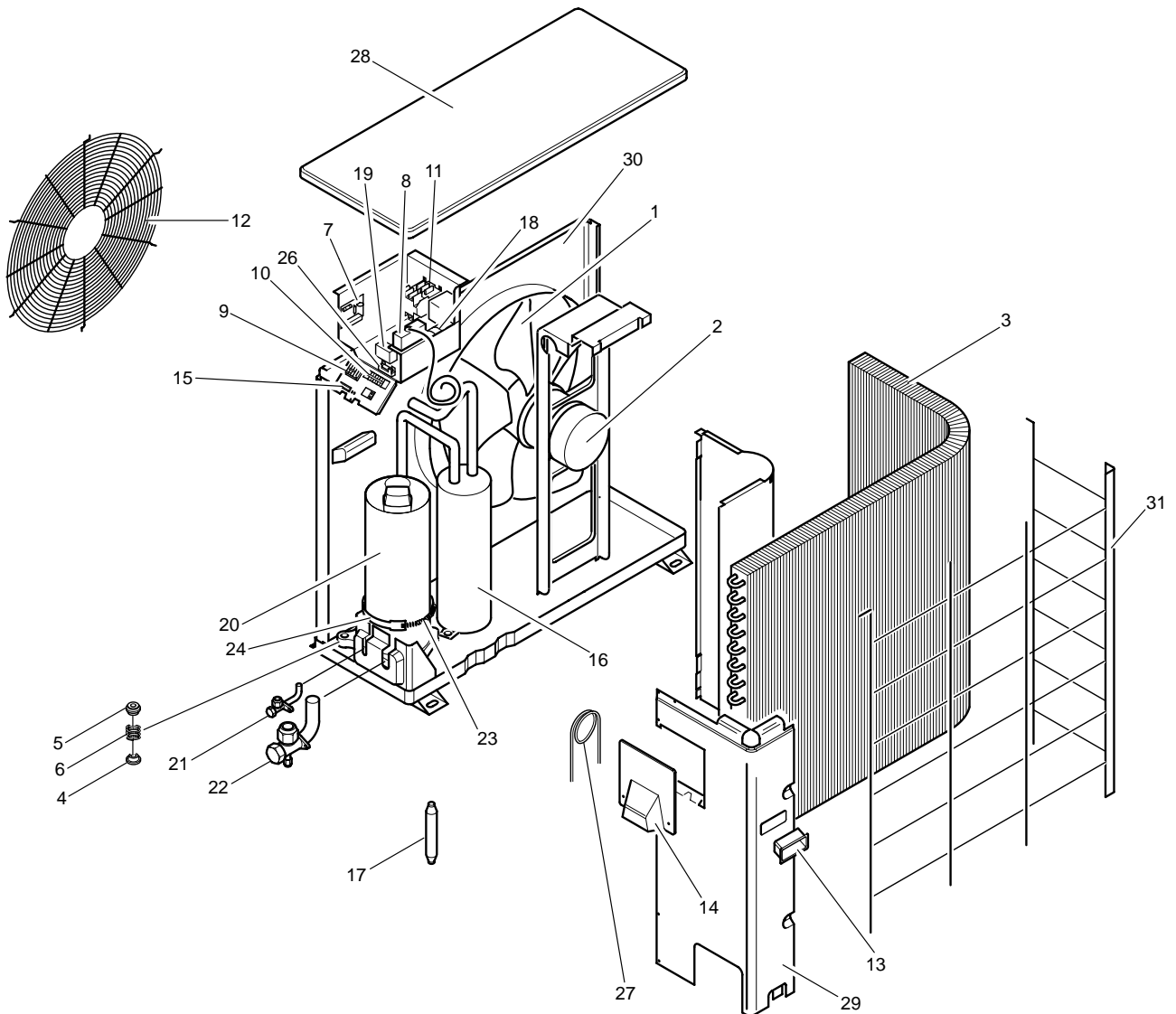


Ref No.	Part No.	Description	Model
1	43120156	Propeller Fan	All
2	43A21003	Fan Motor	All
3	43A43016	Condenser	All
4	43049132	Base Spring, B	All
5	43149212	Base Spring, A	All
6	43149198	Spring Buffer	All
7	43A69011	PC Board	All
8	43A49001	High Pressure Switch	All
9	43060479	Terminal Block, 4P	All
10	43A60003	Terminal Block, 2P	All
11	43A60001	Terminal Block, 4P	All
12	43152334	Magnetic Contactor	All
13	43A19001	Fan Guard	All
14	43119368	Hanger	All
15	43A46004	Solenoid Coil	All
16	43162027	Cover, Electrical Parts	All
17	43107215	Sensor Holder	All
18	43A63001	Cord Clamp	All
19	43148105	Accumulator	All
20	43A45004	Dryer	All
21	43155115	MF Capacitor – Compressor	All
22	43155080	MF Capacitor – Fan	All

Ref No.	Part No.	Description	Model
23	43A41506	Comp – PG330X3F-4LS	RAV-134AH-PE
23	43A41507	Comp – PG350X3F-4LS	RAV-164AH-PE
24	43146406	Packed Valve (12.7mm)	All
25	43A46013	Packed Valve (6.35mm)	All
26	43A46015	Check Joint	All
27	43A46014	Expansion Valve	All
28	43A46016	Coil, 2-Way Valve	All
29	43146283	Check Valve	All
30	43A58003	Transformer Power	All
31	43046151	2-Way Valve	All
32	43A50001	Sensor – Heat Exchanger (TL)	All
33	43A19001	Sensor – Heat Exchanger (TC)	All
34	43193063	Spring	All
35	43157167	Heater, Crankcase	All
36	43150122	Thermostat, Bi-metal	All
38	43A60006	Fuse T5A	All
39	43146418	4-Way Valve	All
40	43A47037	Cap Form	All
41	43A91016	ASM Roof Plate	All
42	43A91019	ASM Side Cabinet	All
43	43A91017	ASM Air-Out Cabinet	All
44	43A91023	Fin-Guard (back)	All

## 7. EXPLODED VIEWS AND PARTS LISTS

### 7.3 Outdoor Unit RAV-134A-PE RAV-164A-PE

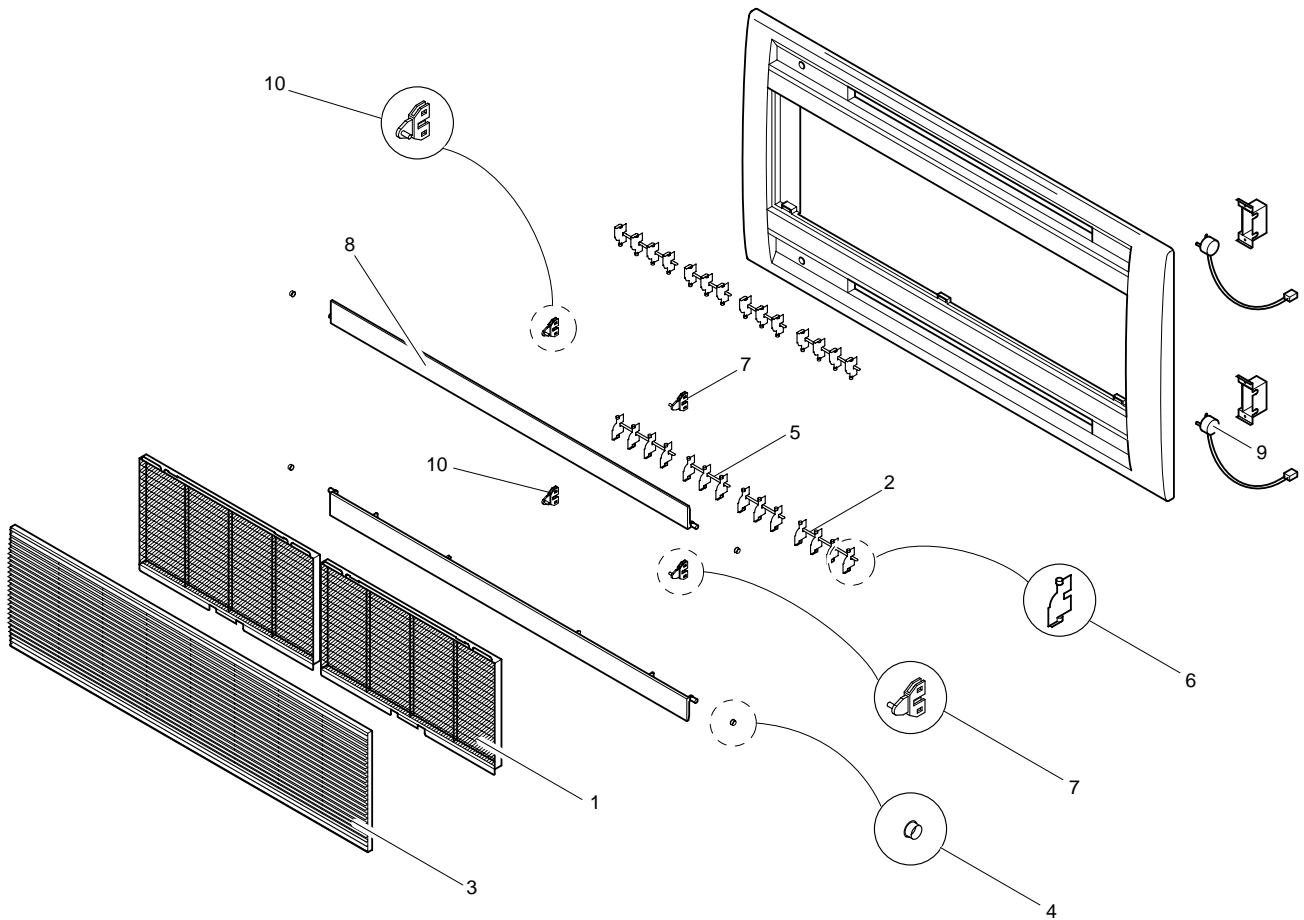


Ref No.	Part No.	Description	Model
1	43120156	Propellor Fan	All
2	43A21012	Fan Motor	All
3	43A43016	Condensor	All
4	43049132	Base Spring, B	All
5	43149212	Base Spring, A	All
6	43149198	Spring Buffer	All
7	43169584	Surge Absorber	All
8	43A49003	Pressure Switch (2 stage)	All
9	43A60003	Terminal Block, 2P	All
10	43A60001	Terminal Block, 4P	All
11	43152334	Magnetic Contactor	All
12	43A19001	Fan Guard	All
13	43119368	Hanger	All
14	43162027	Cover, Electrical Parts	All
15	43A63001	Cord Clamp	All
16	43148105	Accumulator	All

Ref No.	Part No.	Description	Model
17	43A45001	Dryer	All
18	43155115	MF Capacitor - Compressor	All
19	43155080	MF Capacitor - Fan	All
20	43A41506	Comp - PG330X3F-4LS	RAV-134A-PE
20	43A41507	Comp - PG350X3F-4LS	RAV-164A-PE
21	43146406	Packed Valve (12.7mm)	All
22	43A46013	Packed Valve (6.35mm)	All
23	43193063	Spring	All
24	43157167	Heater, Crankcase	All
26	43A60006	Fuse T5A	All
27	43A47041	Capi Form	All
28	43A91016	ASM Roof Plate	All
29	43A91019	ASM Side Cabinet	All
30	43A91017	ASM Air-Out Cabinet	All
31	43A91023	Fin-Guard (back)	All

## 7. EXPLODED VIEWS AND PARTS LISTS

### 7.4 Ceiling Panel RBC-U134PG(W)-E



Ref No	Part No.	Description
1	43080392	Filter
2	43007108	Plate Connect (Long)
3	43009504	ASM-Grille-Out
4	43007107	Bushing
5	43007109	Plate Connect (Short)

Ref No	Part No.	Description
6	43009503	Grille-L-R
7	43007124	Support Plate
8	43009499	ASM-Grille-Out
9	43421531	ASM-Motor
10	43007125	Support Plate



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