

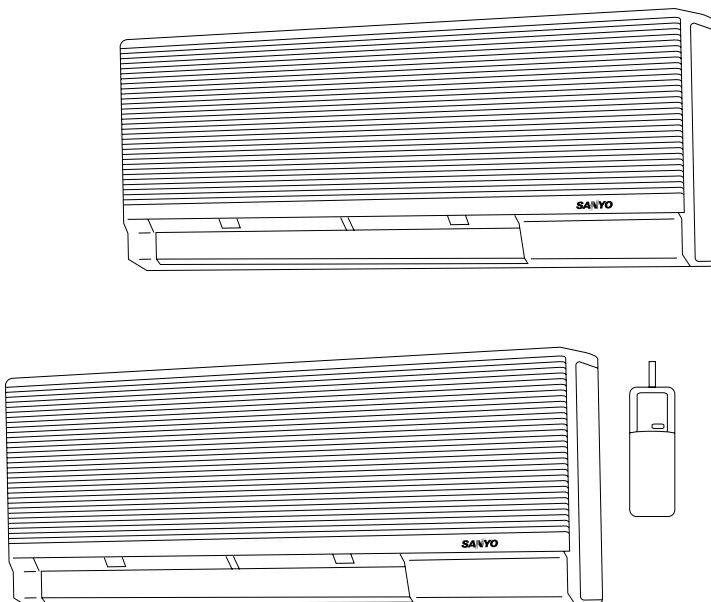
# SERVICE MANUAL (Basic Information)

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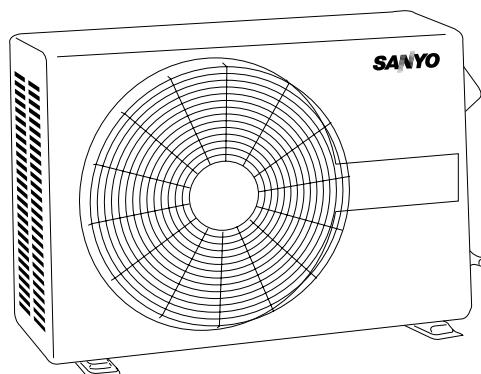
**CMH1822 / KMH0922 (×2)**

## SPLIT SYSTEM AIR CONDITIONER

Indoor Unit

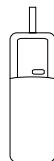


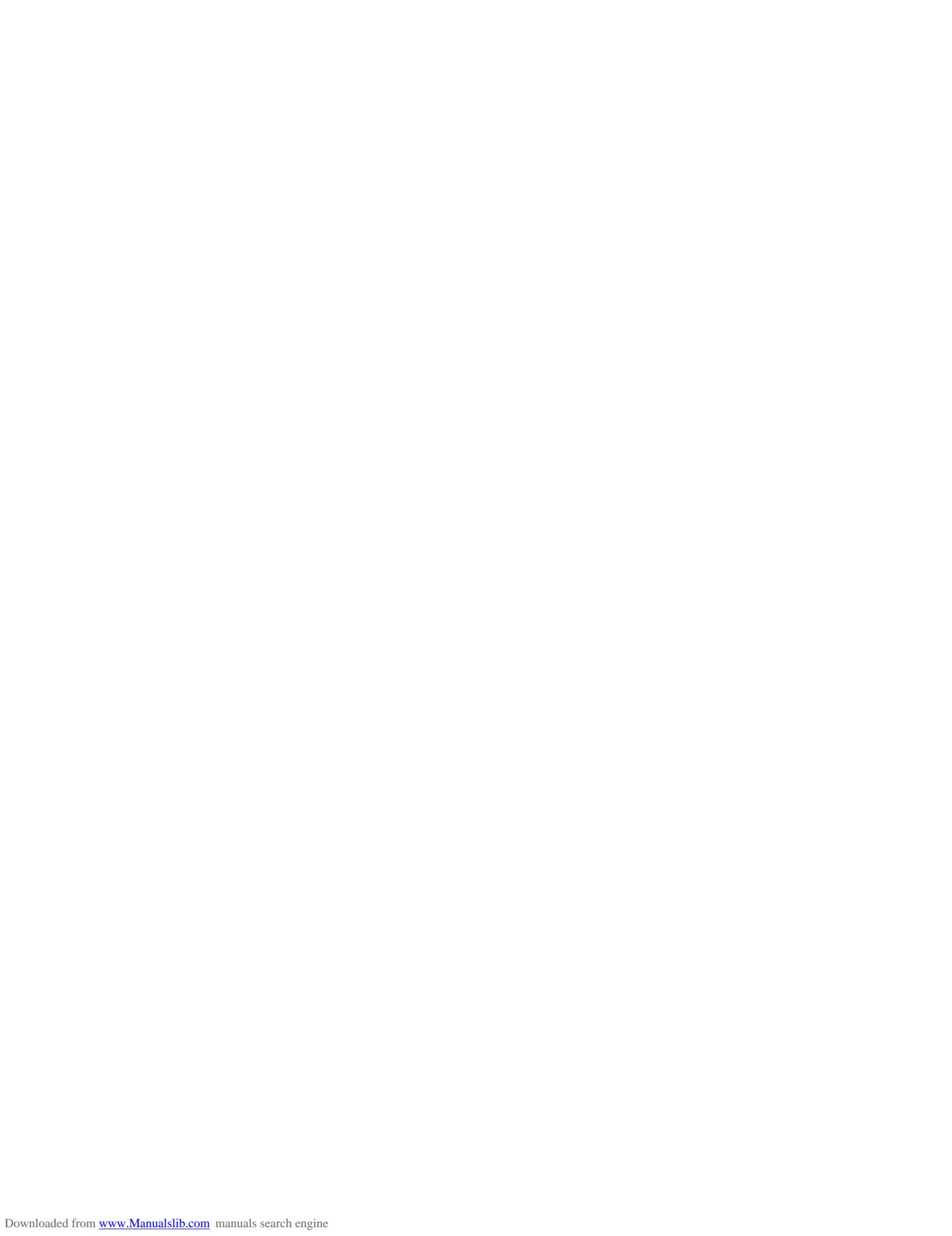
Outdoor Unit



**CMH1822**

**KMH0922**





# **SERVICE MANUAL**

**CMH1822 / KMH0922 (×2)**

**(Basic Information)**

# **IMPORTANT!**

## **Please Read Before Starting**

This air conditioning system meets strict safety and operating standards. As the installer or service person, it is an important part of your job to install or service the system so it operates safely and efficiently.

### **For safe installation and trouble-free operation, you must:**

- Carefully read this instruction booklet before beginning
- Follow each installation or repair step exactly as shown
- Observe all local, state, and national electrical codes
- Pay close attention to all danger, warning, and caution notices given in this manual



This symbol warns of an immediate hazard which will result in severe personal injury or death.



This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.



This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

### **If Necessary, Get Help**

These instructions are all you need for most installation sites and maintenance conditions. If you require help for a special problem, contact our sales/service outlet or your certified dealer for additional instructions.

### **In Case of Improper Installation**

The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

## **SPECIAL PRECAUTIONS**

### **When Wiring**

**ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIAN SHOULD ATTEMPT TO WIRE THIS SYSTEM.**

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring. Improper connections and inadequate grounding can cause **accidental injury or death**.
- **Ground the unit** following local electrical codes.

- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.

### **When Transporting**

Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminum fins on the air conditioner can cut your fingers.

### **When Installing...**

#### **...In a Ceiling or Wall**

Make sure the ceiling/wall is strong enough to hold the unit's weight. It may be necessary to construct a strong wood or metal frame to provide added support.

#### **...In a Room**

Properly insulate any tubing run inside a room to prevent "sweating" that can cause dripping and water damage to walls and floors.

#### **...In Moist or Uneven Locations**

Use a raised concrete pad or concrete blocks to provide a solid, level foundation for the outdoor unit. This prevents water damage and abnormal vibration.

#### **...In an Area with High Winds**

Securely anchor unit down with bolts and metal frame. Provide a suitable air baffle.

#### **...In a Snowy Area (for Heat Pump-type Systems)**

Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

### **When Connecting Refrigerant Tubing**

- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them, then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

#### **NOTE:**

Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion the refrigerant tubing for your particular model is specified as either "narrow" or "wide" rather than as "liquid" or "gas."

### **When Servicing**

- Turn the power OFF at the main power box (mains) before opening the unit to check or repair electrical parts.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after you finish, remembering to check that no scraps or bits of wiring have been left inside the unit being serviced.

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## 1. OPERATING RANGE

**CMH1822 / KMH0922 (×2)**

Temperature	Indoor Air Intake Temp.	Outdoor Air Intake Temp.
Maximum	95°F DB / 71°F WB	115°F DB
Minimum	67°F DB / 57°F WB	67°F DB



## 2. SPECIFICATIONS

### Unit Specifications

Model No.		Outdoor unit Applicable indoor unit					
		CMH1822 KMH0922					
Performance	No. of indoor units		1 unit (Cooling)	1 unit (Heating)	2 units (Cooling)		
	Capacity	BTU/h kW	8,800 / 8,700 2.58 / 2.55	10,000 / 9,800 2.93 / 2.87	16,800 / 16,300 4.92 / 4.78		
Electrical Rating	Phase, Frequency	Hz	Single, 60	Single, 60	Single, 60		
	Voltage rating	V	230 / 208	230 / 208	230 / 208		
	Available voltage range	V	187 to 253	187 to 253	187 to 253		
	Running amperes	A	4.1 / 4.3	4.1 / 4.3	8.2 / 8.7		
	Power input	W	900 / 870	900 / 870	1,820 / 1,780		
	Power factor	%	95 / 97	95 / 97	95 / 97		
	Starting amperes	A	27	27	27 × 2		
	S. E. E. R. (H. S. P. F.)	BTU/Wh	10.0 / 10.0 (7.0 / 7.0)	10.0 / 10.0 (7.0 / 7.0)	10.0 / 10.0 (7.0 / 7.0)		
	Fan speeds		1				
	Compressor ... number		Rotary ... 2				
Features	Refrigerant amount charged at shipment	lbs. (kg)	R-22: 2.34 (1.06) × 2				
	Refrigerant control		Capillary tube				
	Operation sound (Outdoor unit)	dB-A	54				
	Refrigerant tubing connections		Flare type				
	Max. allowable tubing length at shipment	ft. (m)	33 (10)				
	Limit of tubing length	ft. (m)	50 (15)				
	Limit of elevation difference between the 2 units	ft. (m)	23 (7)				
	Refrigerant tube o.d.	Narrow tube Wide tube	in. (mm)	1/4 (6.35) 3/8 (9.52)			
	Refrigerant tube kit			Optional			
	Height	in. (mm)	24-13/16 (630)				
Dimensions & Weight	Width	in. (mm)	32-11/16 (830)				
	Depth	in. (mm)	12-13/32 (315)				
	Net weight	lbs. (kg)	134 (60.8)				
	Shipping volume	cu. ft. (cu. m)	10.3 (0.96)				
	Shipping weight (Approx.)	lbs. (kg)	140.8 (64)				

DATA SUBJECT TO CHANGE WITHOUT NOTICE.

**Remarks:** Rating conditions are:

- Cooling: Outside air temperature 95°F DB/75°F WB  
 Indoor unit entering air temperature 80°F DB/67°F WB  
 Heating: Outside air temperature 47°F DB/43°F WB  
 Indoor unit entering air temperature 70°F DB

## Applicable Indoor Unit

Model No.		KMH0922	
Type		Wall-mounted	
Performance	Capacity	BTU/h kW	Cooling 8,800 / 8,700 2.58 / 2.55
	Air circulation (High) Moisture removal (High)	cu. ft./min. pints/h	Heating 10,000 / 9,800 2.93 / 2.87 220 / 210 2.2
Electrical Rating	Phase, Frequency	Hz	Single, 60
	Voltage rating	V	230 / 208
Features	Available voltage range	V	187 to 253
	Heat element	kW – HSPF	— 1.0 / 0.82 – 6.6 / 6.6
Dimensions & Weight	Controls	Microprocessor	
	Control unit	Remote control unit	
	Temperature control	IC thermostat	
	Timer	ON/OFF 12-hours	
	Fan speeds	3	
	Air deflector	Horizontal / Vertical	
	Air filter	Washable, easy access	
	Operation sound	Hi / Me / Lo	dB-A 40 / 35 / 30
	Refrigerant tubing connections	Flare type	
	Refrigerant tube o.d.	Narrow tube Wide tube	in. (mm) 1/4 (6.35) 3/8 (9.52)
	Refrigerant tube kit	Optional	
	Accessories	Mounting bracket	
	Height	in. (mm) 13-19/32 (345)	
	Width	in. (mm) 31-1/2 (800)	
	Depth	in. (mm) 7-3/32 (180)	
	Net weight	lbs. (kg) 24 (11)	
	Shipping volume	cu. ft. (cu. m) 3.3 (0.093)	
	Shipping weight	lbs. (kg) 29 (13)	

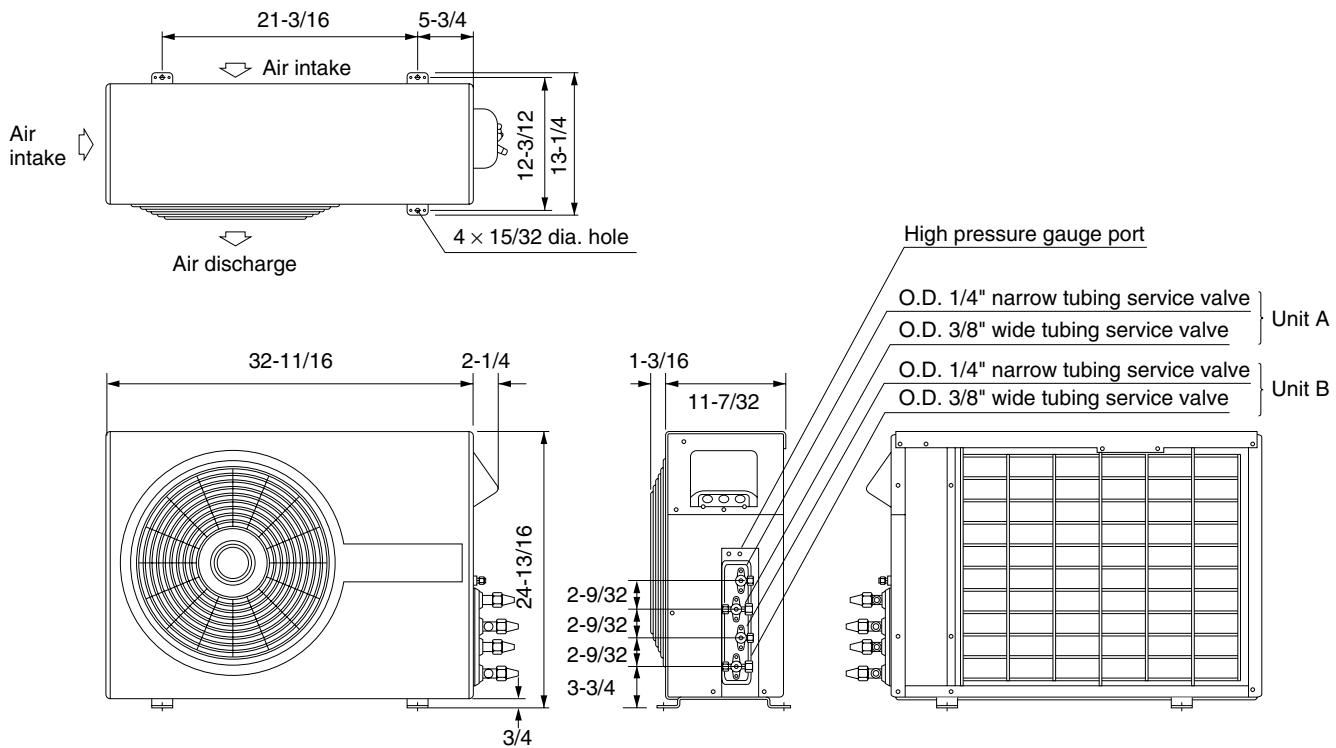
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**Remarks:** Rating conditions are:

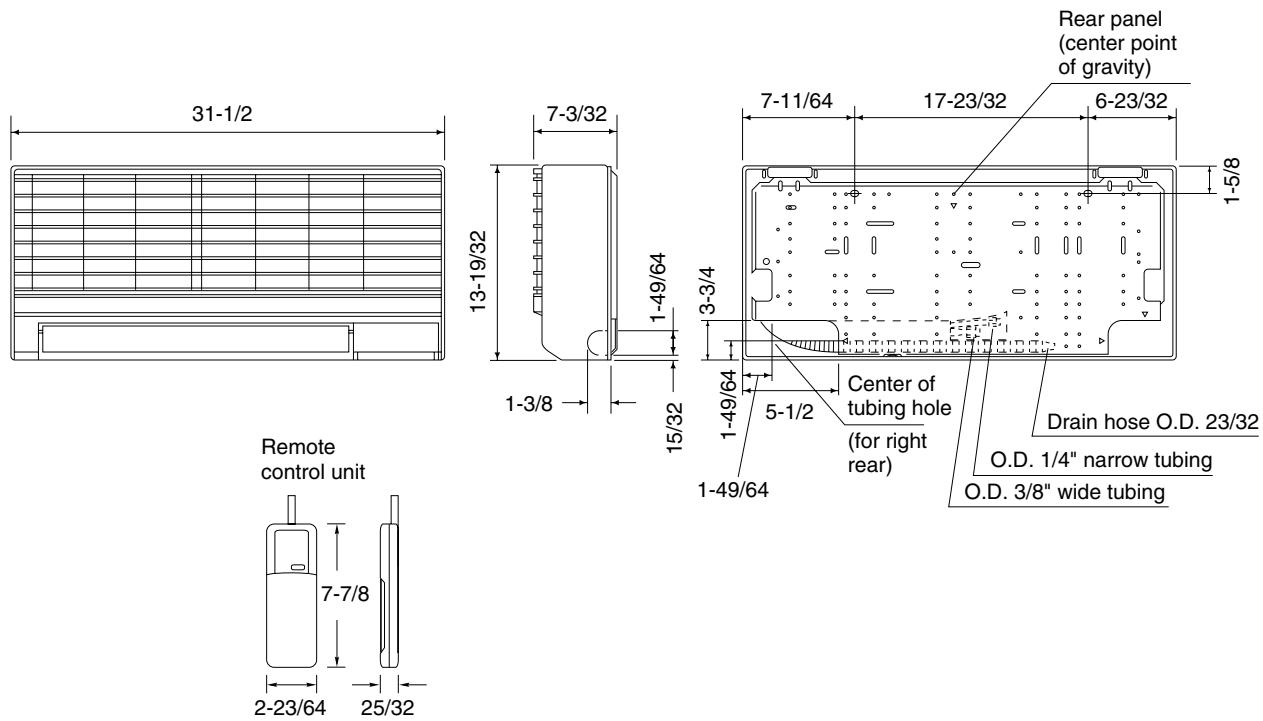
- Cooling: Outside air temperature 95°F DB/75°F WB  
Indoor unit entering air temperature 80°F DB/67°F WB
- Heating: Outside air temperature 47°F DB/43°F WB  
Indoor unit entering air temperature 70°F WB

### 3. DIMENSIONAL DATA

#### Outdoor Unit: CMH1822



#### Indoor Unit: KMH0922



## 4. COOLING CAPACITY

230V

CMH1822 / KMH0922 (x1)

Rating Capacity: 8,800 BTU/H			Air Flow Rate: 220 CFM									
Evaporator		Condenser										
Ent. Temp. °F/(°C)		Ambient Temp. °F/(°C)										
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)					
59 (15.0)		TC kW	8,710 0.62	8,320 0.67	7,920 0.73	7,470 0.79	6,860 0.87					
		SHC	6,200	5,990	5,790	5,560	5,260					
		SHC	6,940	6,740	6,530	6,300	6,000					
		SHC	7,720	7,510	7,310	7,080	6,780					
		SHC	8,460	8,250	7,920	7,470	6,860					
		SHC	8,710	8,320	7,920	7,470	6,860					
63 (17.2)		TC kW	9,010 0.62	8,730 0.68	8,390 0.74	7,930 0.81	7,300 0.89					
		SHC	5,260	5,120	4,960	4,740	4,460					
		SHC	6,000	5,860	5,700	5,490	5,200					
		SHC	6,780	6,640	6,480	6,260	5,970					
		SHC	7,520	7,380	7,220	7,000	6,720					
		SHC	8,260	8,120	7,960	7,740	7,300					
67 (19.4)		TC kW	9,260 0.63	9,110 0.69	*8,800 0.75	8,320 0.82	7,740 0.91					
		SHC	4,280	4,220	4,080	3,870	3,630					
		SHC	5,020	4,960	4,820	4,610	4,370					
		SHC	5,800	5,730	5,600	5,390	5,150					
		SHC	6,540	6,470	6,340	6,130	5,890					
		SHC	7,280	7,220	7,080	6,870	6,630					
71 (21.7)		TC kW	9,550 0.63	9,390 0.69	9,150 0.76	8,740 0.84	8,230 0.93					
		SHC	3,280	3,220	3,120	2,960	2,760					
		SHC	4,020	3,960	3,860	3,700	3,510					
		SHC	4,800	4,730	4,640	4,480	4,280					
		SHC	5,540	5,470	5,380	5,220	5,020					
		SHC	6,280	6,220	6,120	5,960	5,760					
75 (23.9)		TC kW	9,730 0.65	9,630 0.71	9,420 0.77	9,080 0.86	8,710 0.95					
		SHC	3,020	2,980	2,910	2,790	2,660					
		SHC	3,790	3,760	3,680	3,560	3,430					
		SHC	4,540	4,500	4,420	4,300	4,180					
		SHC	5,280	5,240	5,160	5,050	4,920					

TC: Total Cooling Capacity (BTU/H)

SHC: Sensible Heat Capacity (BTU/H)

kW: Compressor Input (kW)

**Remarks:** Rating conditions (\* mark) are: Outside ambient temperature 95°F DB

Indoor unit entering air temperature 80°F DB/67°F WB

## CMH1822 / KMH0922 (x1)

Rating Capacity: 8,700 BTU/H		Air Flow Rate: 210 CFM					
Evaporator		Condenser					
Ent. Temp. °F/(°C)		Ambient Temp. °F/(°C)					
WB	DB		75 (23.9)	85 (29.4)	95 (35.0)	105 (40.6)	115 (46.1)
		TC kW	8,610 0.61	8,220 0.66	7,830 0.72	7,390 0.78	6,790 0.86
59 (15.0)	72 (22.2) 76 (24.4) 80 (26.7) 84 (28.9) 88 (31.1)	SHC	6,090 6,800 7,550 8,260 8,610	5,880 6,590 7,340 8,050 8,220	5,680 6,390 7,130 7,830 7,830	5,450 6,160 6,910 7,390 7,390	5,150 5,860 6,610 6,790 6,790
		TC kW	8,910 0.61	8,630 0.67	8,290 0.73	7,840 0.80	7,220 0.88
63 (17.2)	72 (22.2) 76 (24.4) 80 (26.7) 84 (28.9) 88 (31.1)	SHC	5,180 5,890 6,630 7,350 8,060	5,040 5,750 6,500 7,210 7,930	4,870 5,590 6,330 7,050 7,760	4,660 5,370 6,120 6,830 7,550	4,370 5,090 5,830 6,550 7,220
		TC kW	9,150 0.62	9,000 0.68	*8,700 0.74	8,220 0.81	7,660 0.90
67 (19.4)	72 (22.2) 76 (24.4) 80 (26.7) 84 (28.9) 88 (31.1)	SHC	4,230 4,940 5,690 6,400 7,110	4,160 4,870 5,620 6,330 7,050	4,030 4,740 5,490 6,200 6,910	3,820 4,530 5,280 5,990 6,700	3,580 4,290 5,040 5,750 6,460
		TC kW	9,440 0.62	9,280 0.68	9,050 0.75	8,640 0.83	8,130 0.91
71 (21.7)	72 (22.2) 76 (24.4) 80 (26.7) 84 (28.9) 88 (31.1)	SHC	3,250 3,970 4,710 5,430 6,140	3,190 3,900 4,650 5,360 6,080	3,100 3,810 4,560 5,270 5,980	2,940 3,650 4,400 5,110 5,820	2,740 3,450 4,200 4,910 5,630
		TC kW	9,620 0.64	9,520 0.70	9,310 0.76	8,980 0.85	8,610 0.94
75 (23.9)	76 (24.4) 80 (26.7) 84 (28.9) 88 (31.1)	SHC	3,000 3,740 4,450 5,170	2,960 3,700 4,420 5,130	2,880 3,630 4,340 5,050	2,760 3,510 4,220 4,940	2,640 3,380 4,090 4,810

TC: Total Cooling Capacity (BTU/H)

SHC: Sensible Heat Capacity (BTU/H)

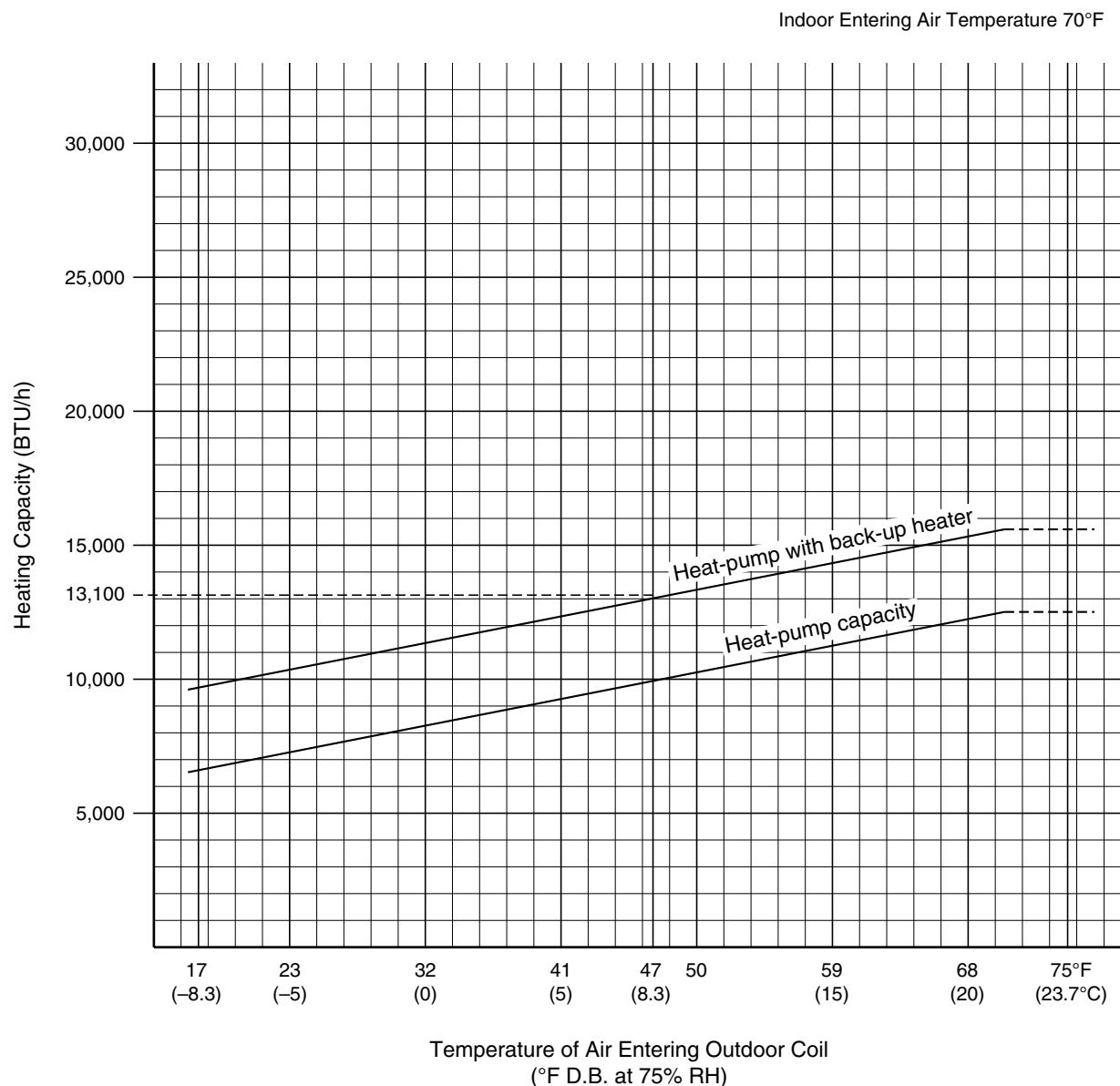
kW: Compressor Input (kW)

**Remarks:** Rating conditions (\* mark) are: Outside ambient temperature 95°F DB

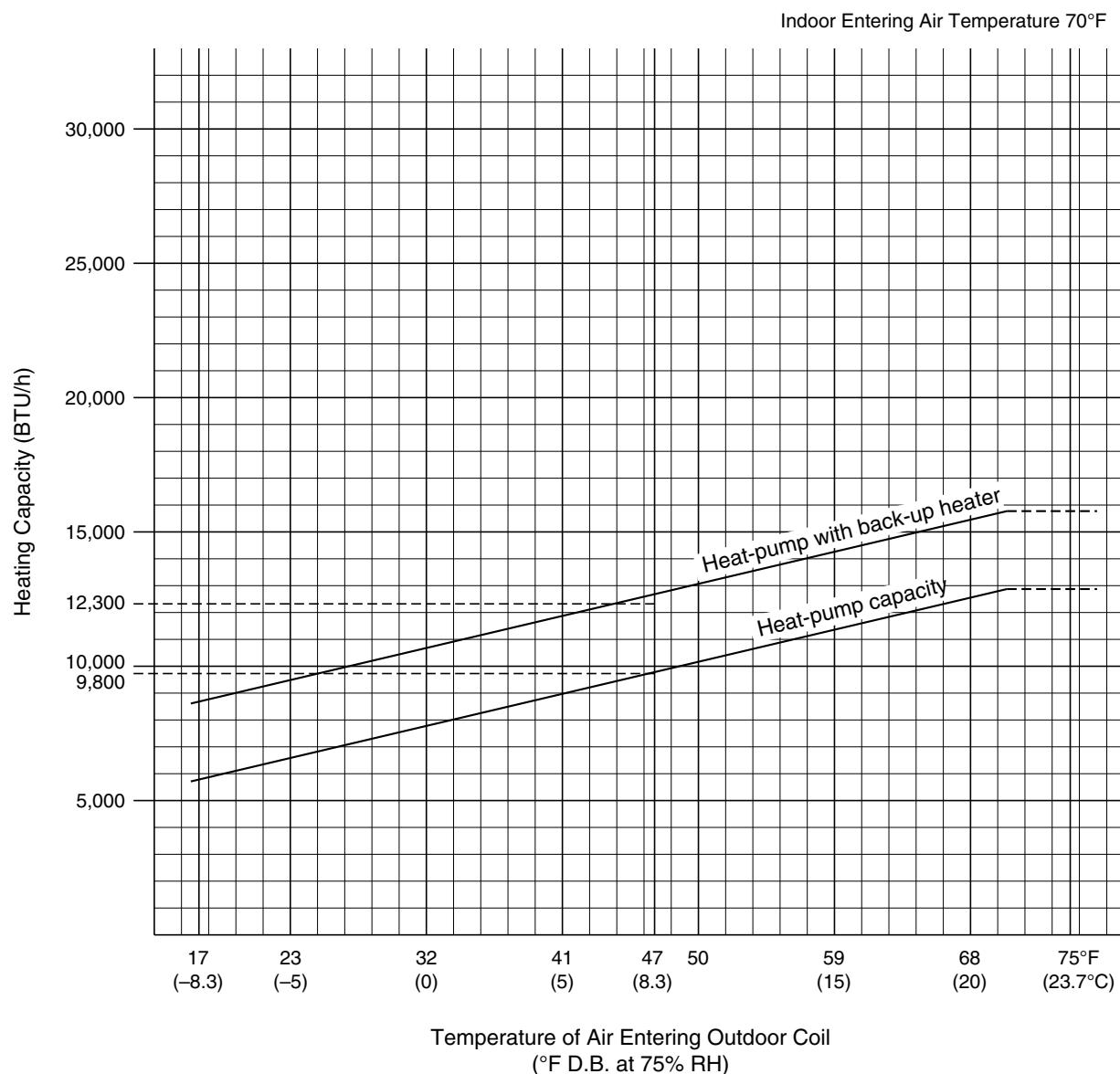
Indoor unit entering air temperature 80°F DB/67°F WB

## 5. HEATING CAPACITY

1 Phase 60Hz 230V Model Name: CMH1822 / KMH0922 (x1)

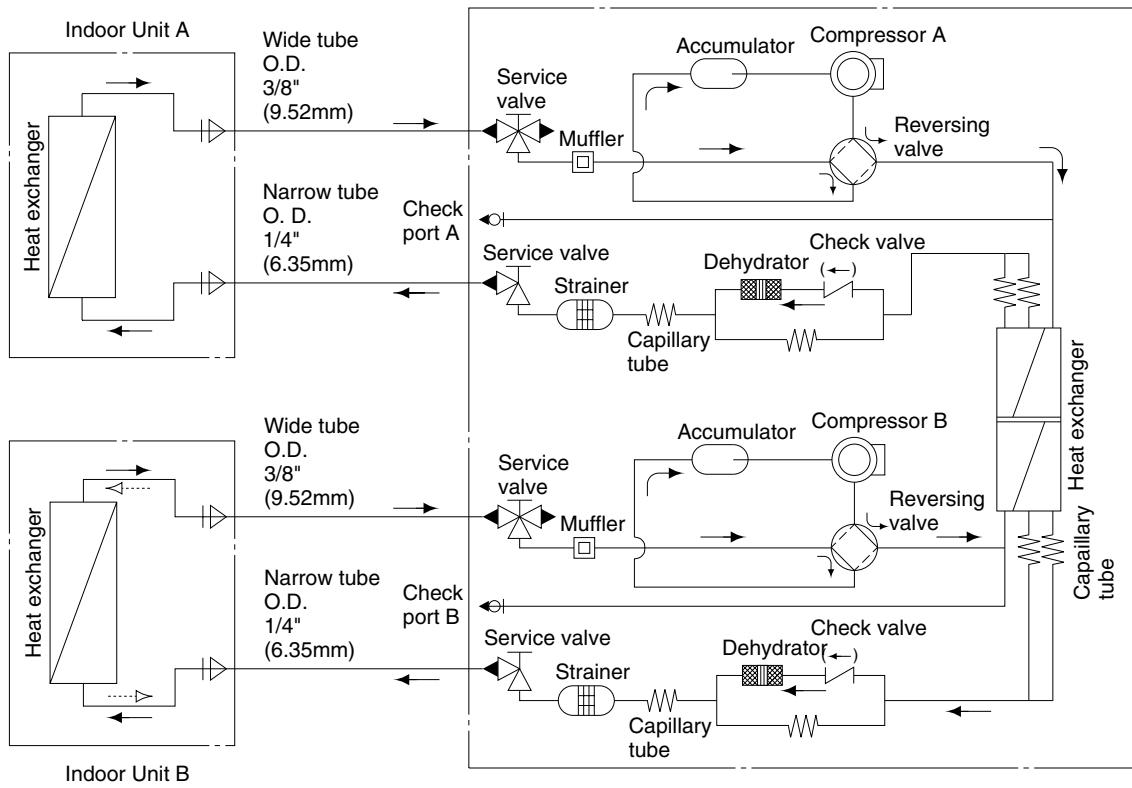


**1 Phase 60Hz 208V Model Name: CMH1822 / KMH0922 (x1)**

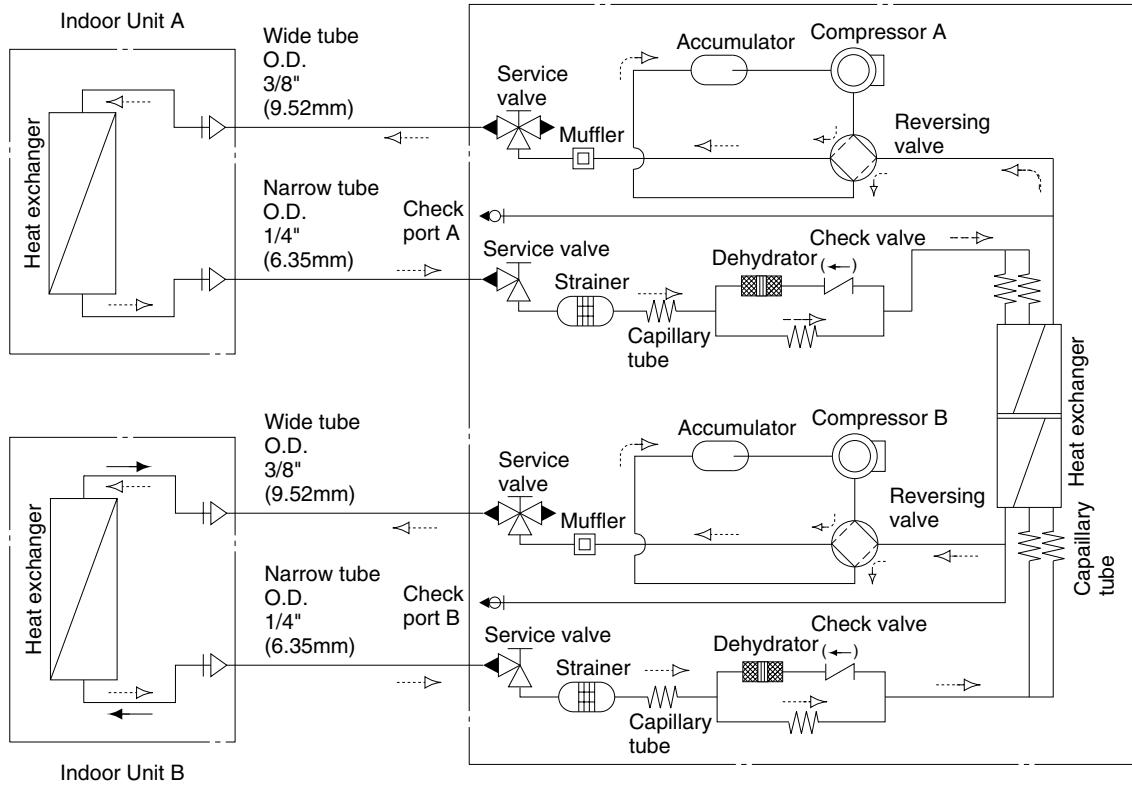


## 6. REFRIGERANT FLOW DIAGRAM

### Cooling Cycle



### Heating Cycle



## 7. ELECTRICAL DATA

### ● Electrical Characteristics

#### CMH1822 / KMH0922 (×1)

Performance at 230/208V – 1φ – 60Hz			Indoor Unit		Outdoor Unit		Complete Unit	
			Fan Motor	Max. Heat	Fan Motor	Compressor	Heat-pump	Max. Heat
Cooling	Rating Conditions	A	0.15 / 0.14	—	0.52 / 0.52	3.43 / 3.64	4.1 / 4.3	—
		W	34 / 29	—	116 / 104	750 / 737	900 / 870	—
Heating	Rating Conditions	A	0.15 / 0.14	4.35 / 3.93	0.52 / 0.52	3.43 / 3.64	4.1 / 4.3	8.45 / 8.23
		W	34 / 29	1,000 / 818	116 / 104	750 / 737	900 / 870	—
Locked-Rotor Amperes			A	0.19 / 0.18	—	0.71 / 0.64	27	—

**Remarks:** Rating conditions are:

- Cooling: Outside air temperature 95°F DB/75°F WB  
     Indoor unit entering air temperature 80°F DB/67°F WB  
 Heating: Outside air temperature 47°F DB/43°F WB  
     Indoor unit entering air temperature 70°F WB

#### CMH1822 / KMH0922 (×2)

Performance at 230/208V – 1φ – 60Hz			Indoor Unit		Outdoor Unit		Complete Unit	
			Fan Motor	Max. Heat	Fan Motor	Compressor	Heat-pump	Max. Heat
Cooling	Rating Conditions	A	0.30 / 0.28	—	0.52 / 0.52	7.38 / 7.90	8.2 / 8.7	—
		W	68 / 58	—	116 / 104	1,636 / 1,618	1,820 / 1,780	—
Heating	Rating Conditions	A	0.30 / 0.28	8.70 / 7.86	0.52 / 0.52	6.68 / 7.10	7.5 / 7.9	16.2 / 15.76
		W	68 / 58	2,000 / 1,636	116 / 104	1,456 / 1,428	1,640 / 1,590	3,640 / 3,226
Locked-Rotor Amperes			A	0.19 × 2 / 0.18 × 2	—	0.71 / 0.64	27 × 2	—

**Remarks:** Rating conditions are:

- Cooling: Outside air temperature 95°F DB/75°F WB  
     Indoor unit entering air temperature 80°F DB/67°F WB  
 Heating: Outside air temperature 47°F DB/43°F WB  
     Indoor unit entering air temperature 70°F WB

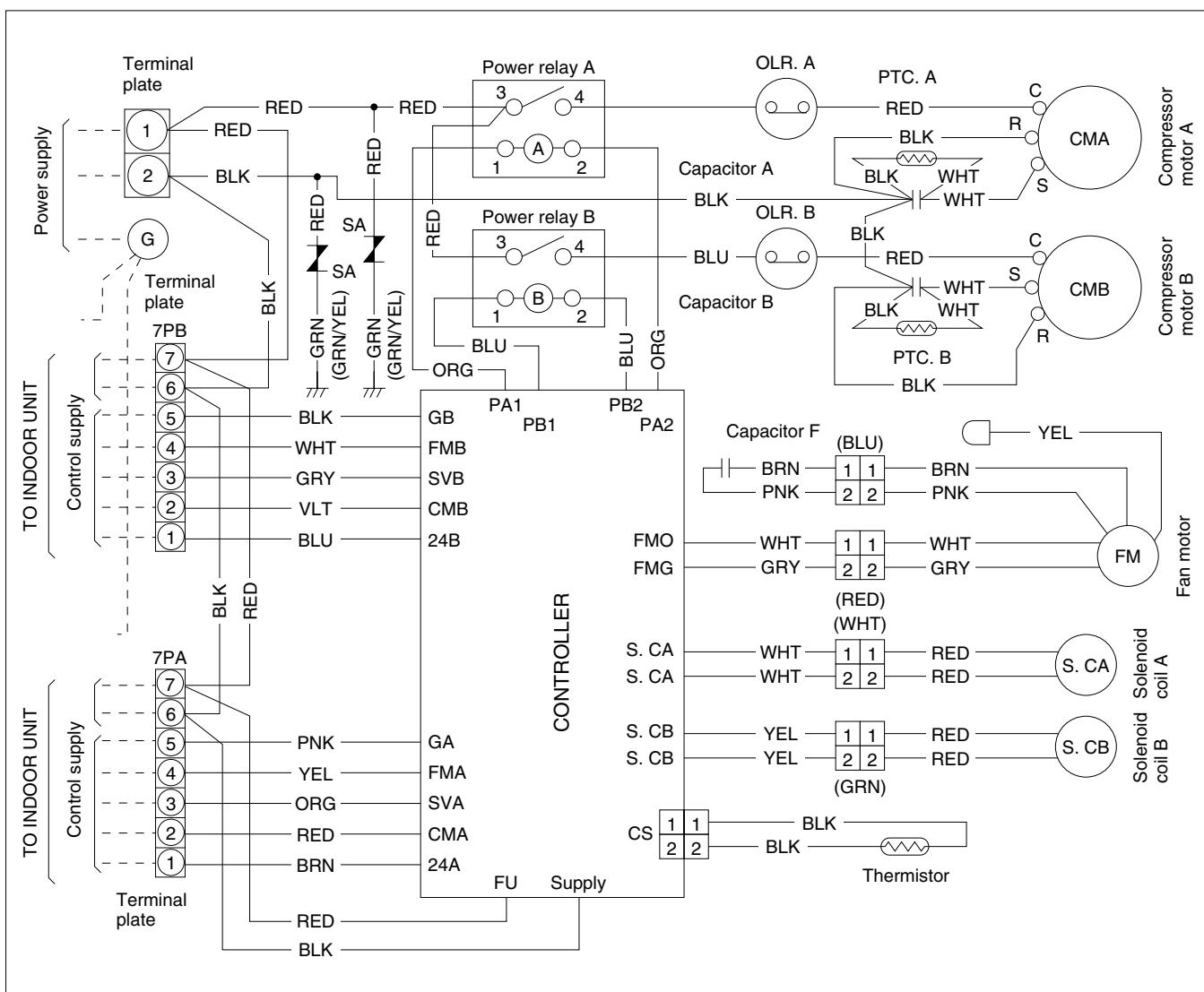
● Electrical Wiring Diagram

Outdoor Unit: CMH1822



**WARNING:**

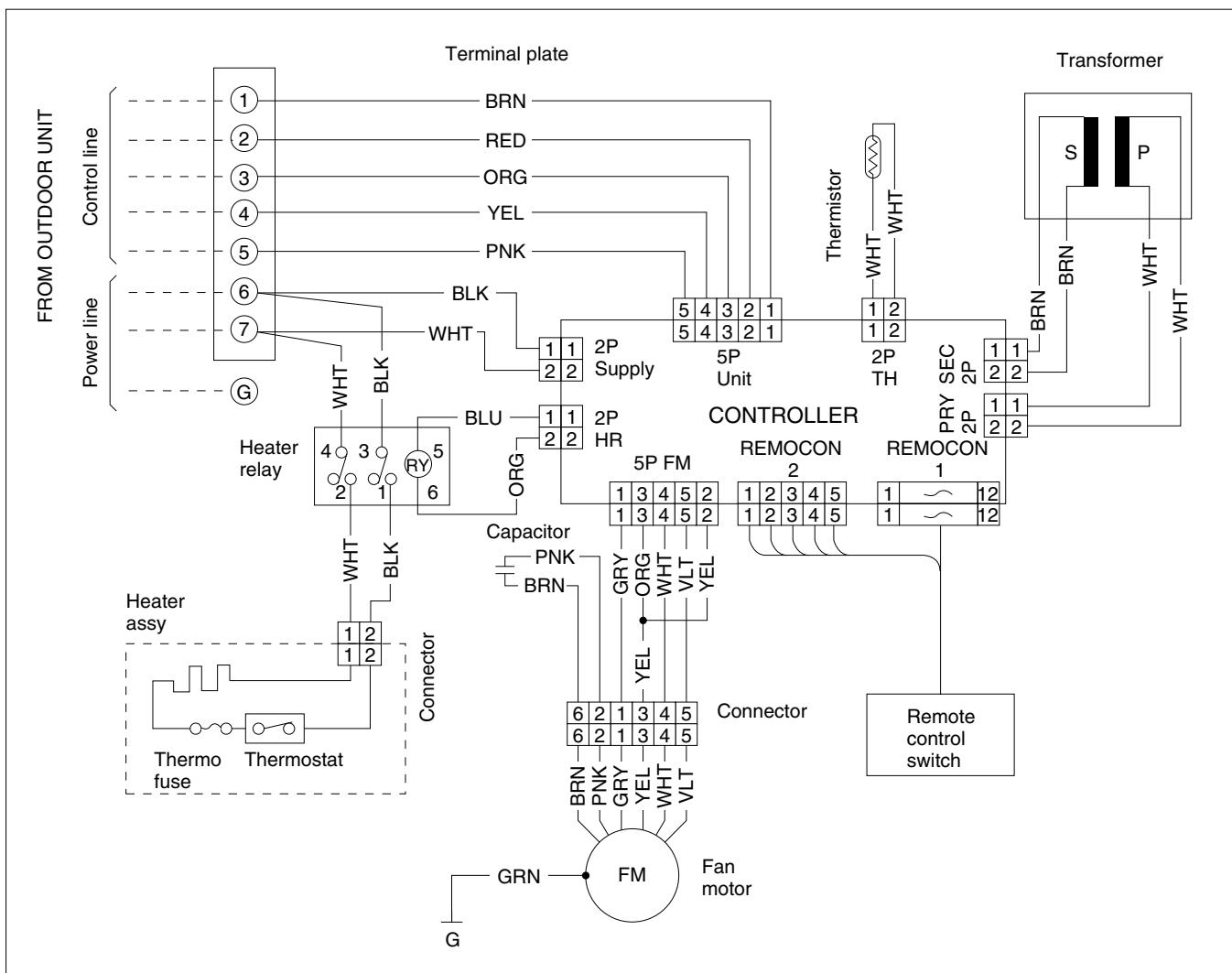
To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.





WARNING:

**To avoid electrical shock hazard, be sure to disconnect power before checking, servicing and/or cleaning any electrical parts.**



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