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Packaged Terminal Air Conditioner

SVC MANUAL(Exploded View)

CAUTION

Before Servicing the unit, read the safety precautions in General SVC manual.
Only for authorized service personnel.

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1. PREFACE

This SERVICE MANUAL provides various service information, including the mechanical and electrical parts, etc. This room air conditioner was manufactured and assembled under a strict quality control system. The refrigerant is charged at the factory. Be sure to read the safety precautions prior to servicing the unit.

1.1 SPECIFICATIONS

LP 12 0 C E M 1
12 34 5 6 7 8 9

Digits 1,2 - LG Packaged Terminal Air Conditioner
Digits 3,4 - Unit Cooling Capacity
07 = 7,000 Btu/h
09 = 9,000 Btu/h
12 = 12,000 Btu/h
15 = 15,000 Btu/h

Digit 6 - Product Type
C = Air Conditoner
H = Heat Pump
Digit 7- Electric Heat
E = Electric Heater
Digit 8 - D = Digital
M = Mechanical
Digit 9 - Electric Voltage
1 = 265V, 60Hz
None = 230V, 60Hz

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1.1.1 COOLING

Models			LYC073ATA02		LYH093ATA32		LYC123ATA32	
Cooling Capacity		kW	2.17	2.23	2.58	2.64	3.37	3.46
		Btu/h	7400	7600	8800	9000	11500	11800
Heating Capacity		kW	-	-	-	-	-	-
		Btu/h	-	-	-	-	-	-
Electric Heater Capacity		kW	2.5		3.5		3.5	
		Btu/h	8530		11940		11940	
Power Input	Cooling/Heating	W	590	610	750	770	1025	1055
Running Current	Cooling/Heating	A	3.0	2.8	3.8	3.5	5.2	4.8
Starting Current	Cooling/Heating	A	-/-	-/-	-/-	-/-	-/-	-/-
EER		W/W	3.68	3.66	3.44	3.43	3.29	3.28
		Btu/h.W	12.5	12.5	11.7	11.7	11.2	11.2
COP		W/W	-	-	-	-	-	-
Power Supply		Ø / V / Hz	1/208/60	1/230/60	1/208/60	1/230/60	1/208/60	1/230/60
Power Factor		%	94.6	94.7	94.9	95.7	94.8	95.6
Air Flow Rate	Indoor,Max	m^3/min(cfm)	9.5(335)		9.5(335)		11(390)	
	Outdoor,Max	m^3/min(cfm)	-		-		-	
Moisture Removal		l/h	0.9		1.2		1.5	
Sound Level	Indoor,H/M/L	dB(A)+3	45/-/43		45/-/43		49/-/47	
	Outdoor,Max	dB(A)+3	60/58		60/58		63/61	
Refrigerant & Charge		g(oz)	R22, 650(22.75)		R22, 790(27.9)		R22, 630(22.2)	
Compressor	Type		Rotary(Non Tropical)		Rotary(Non Tropical)		Rotary(Non Tropical)	
	Model		2R10S236A6G		QK125KBD		QK145KBA	
	Motor Type		PSC		PSC		PSC	
	Oil Type		Atmos M60 or SUNISO 4GDID		SUNISO 4GSI		SUNISO 4GSI	
	Oil Charge	cc	300		280		350	
	O.L.P Name		Internal		Internal		Internal	
Fan	Type(In/Out)		Cross Flow Fan / Axial Fan		Cross Flow Fan / Axial Fan		Cross Flow Fan / Axial Fan	
	Motor Type		4 POLES		4 POLES		4 POLES	
	Motor Output	W	50		50		50	
Power Supply Cable		No.*mm^2	3*2.1		3*2.1		3*2.1	
Dimension	W*H*D	mm	1066*406*505		1066*406*505		1066*406*505	
		inch	42*16*19-7/8		42*16*19-7/8		42*16*19-7/8	
Net Weight	Indoor	kg(lbs)	44.0(97)		44.1(97)		46.8(103)	
Tool Code(Chassis)			YA		YA		YA	
Functions	Temperature Control		Thermistor		Thermistor		Thermistor	
	Energy Saver Switch		O		O		O	
	Prefilter(washable/anti-fungus)		O		O		O	
	Plasma Filter		-		-		-	
	Steps, Fan/Cool/Heat		2/2/2		2/2/2		2/2/2	
	Airflow Direction Control(up&down)		Manual		Manual		Manual	
	Airflow Direction Control(left&right)		-		-		-	
	Remocon Type		-		-		-	
	Setting Temperature Range	Cooling	54°F~86°F(12.2°C~30°C)		54°F~86°F(12.2°C~30°C)		54°F~86°F(12.2°C~30°C)	
		Heating	54°F~86°F(12.2°C~30°C)		54°F~86°F(12.2°C~30°C)		54°F~86°F(12.2°C~30°C)	
	Auto Operation (Micom Control)		-		-		-	
	Panel Touch Type		Mechanical		Mechanical		Mechanical	
	Timer		12h, On/Off		12h, On/Off		12h, On/Off	
	Air Discharge		Rear		Rear		Rear	
	Air Ventilation		O		O		O	
	Deice Control(Defrost)		O		O		O	
	Hot Start		-		-		-	
	Look		L-Look		L-Look		L-Look	
	Cabinet Type(Chassis Type)		-		-		-	
	Special Function		Electric Heater		Electric Heater		Electric Heater	

Note:

O : Applied, - : No relation

* For circuit breaker rating, please conform to local standards wherever necessary.

❊ Some of functions are slightly different depending upon models.

❊ The specification may be subject to change without notice for purpose of improvement.

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1.1.2 HEATING

Models			LYH07EATA32	LYH09EATA22	LYC12EATA32
Cooling Capacity		kW	2.14	2.73	3.46
		Btu/h	7300	9300	11800
Heating Capacity		kW	1.82	2.35	-
		Btu/h	6200	8000	-
Electric Heater Capacity		kW	2.0	3.7	3.7
		Btu/h	6823	12623	12623
Power Input	Cooling/Heating	W	630 / 550	830 / 690	1,105 / -
Running Current	Cooling/Heating	A	2.5 / 2.2	3.3 / 2.7	4.4 / -
Starting Current	Cooling/Heating	A	-/-	-/-	-/-
EER		W/W	3.39	3	3
		Btu/h.W	11.6	11	11
COP		W/W	3.3	3	-
Power Supply		Ø / V / Hz	1/265/60	1/265/60	1/265/60
Power Factor		%	94.6 / 94.7	94.9 / 95.7	94.8 / 95.6
Air Flow Rate	Indoor,Max	m^3/min(cfm)	8.5(300)	8.5(300)	12.0(420)
	Outdoor,Max	m^3/min(cfm)	-	-	-
Moisture Removal		l/h	0.9	1.2	1.5
Sound Level	Indoor,H/M/L	dB(A)+3	45/-/43	45/-/43	49/-/47
	Outdoor,Max	dB(A)+3	60/58	60/58	63/61
Refrigerant & Charge		g(oz)	R22, 650(22.75)	R22, 790(27.9)	R22, 630(22.2)
Compressor	Type		Rotary(Non Tropical)	Rotary(Non Tropical)	Rotary(Non Tropical)
	Model		2R10S276A6C	2R13S276A6C	2P16S276A1A
	Motor Type		PSC	PSC	PSC
	Oil Type		ATMOS M60 or SUNISO 4GDID	ATMOS M60 or SUNISO 4GDID	ATMOS M60 or SUNISO 4GDID
	Oil Charge	cc	300	260	270
	O.L.P Name		Internal	Internal	Internal
Fan	Type(In/Out)		Cross Flow Fan / Axial Fan	Cross Flow Fan / Axial Fan	Cross Flow Fan / Axial Fan
	Motor Type		4 POLES	4 POLES	4 POLES
	Motor Output	W	50	50	50
Power Supply Cable		No.*mm^2	3*2.1	3*2.1	3*2.1
Dimension	W*H*D	mm	1066*406*505	1066*406*505	1066*406*505
		inch	42*16*19-7/8	42*16*19-7/8	42*16*19-7/8
Net Weight	Indoor	kg(lbs)	44.0(97)	44.1(97)	46.8(103)
Tool Code(Chassis)			YA	YA	YA
Functions	Temperature Control		Thermistor	Thermistor	Thermistor
	Energy Saver Switch		O	O	O
	Prefilter(washable/anti-fungus)		O	O	O
	Plasma Filter		-	-	-
	Steps, Fan/Cool/Heat		2/2/2	2/2/2	2/2/2
	Airflow Direction Control(up&down)		Manual	Manual	Manual
	Airflow Direction Control(left&right)		-	-	-
	Remocon Type		-	-	-
	Setting Temperature Range	Cooling	54°F~86°F(12.2°C~30°C)	54°F~86°F(12.2°C~30°C)	54°F~86°F(12.2°C~30°C)
		Heating	54°F~86°F(12.2°C~30°C)	54°F~86°F(12.2°C~30°C)	54°F~86°F(12.2°C~30°C)
	Auto Operation (Micom Control)		-	-	-
	Panel Touch Type		Mechanical	Mechanical	Mechanical
	Timer		12h, On/Off	12h, On/Off	12h, On/Off
	Air Discharge		Rear	Rear	Rear
	Air Ventilation		Åõ	Åõ	Åõ
	Deice Control(Defrost)		Åõ	Åõ	Åõ
	Hot Start		-	-	-
	Look		L-Look	L-Look	L-Look
	Cabinet Type(Chassis Type)		-	-	-
	Special Function		Electric Heater	Electric Heater	Electric Heater

Note:

O : Applied, - : No relation

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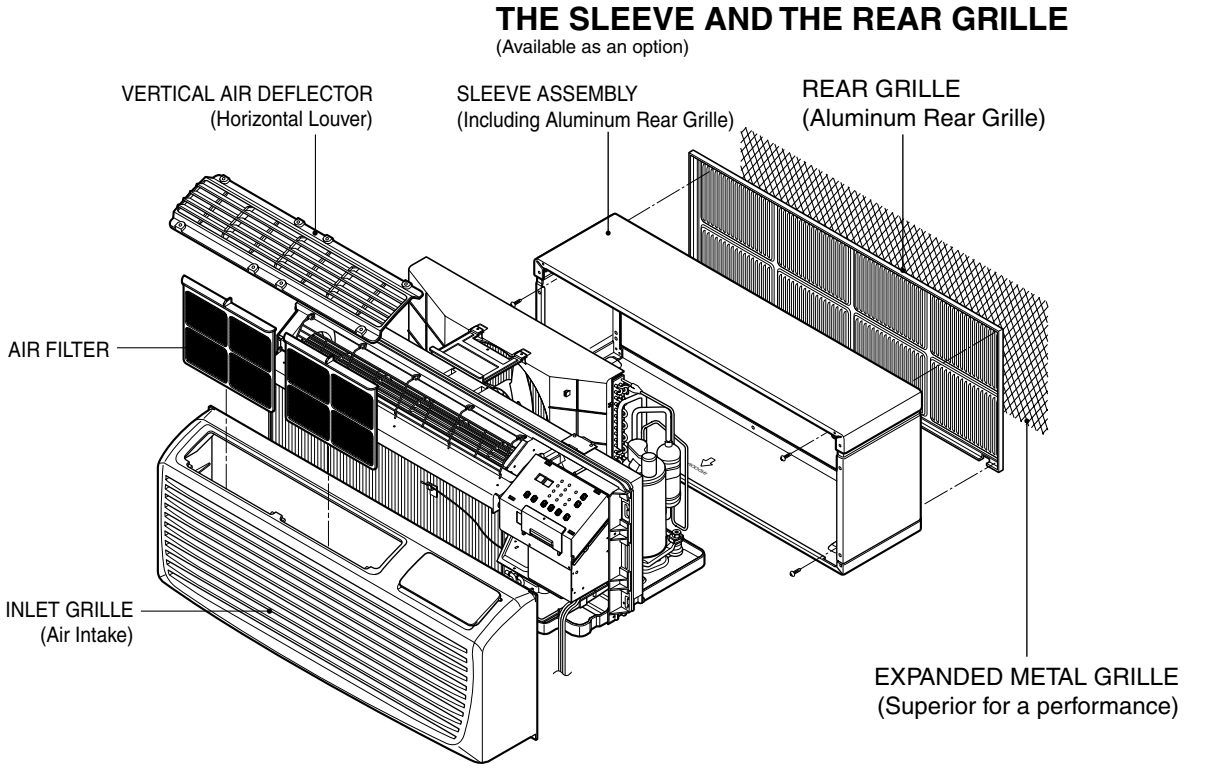
1.2 FEATURES AND BENEFITS

The PTAC has many features, some of which are different than those found on conventional PTAC units. The servicer must be familiar with these features in order to properly service the unit.



- **IIR** (Infinite Impulse Response)
  The IIR function senses the temperature several times per second and makes micro-adjustments several times per
- **Compressor Restart Delay**
  This feature extends the overall life of compressor by preventing the short-cycling of the air-conditioner. When the compressor restarts, LG PTAC is designed to give a minimum of three minutes to have a time of equalizing the refrigerant pressures for optimizing cycling.
- **Fan-Only Setting - High/Low**
  The fan can run at HIGH or LOW speed without COOLING or HEATING to provide air circulation and ventilation.
- **Indoor Fan Speed Selections - High/Low**
  The fan can run at HIGH or LOW speed for either COOLING or HEATING.
- **Two Fan motors**
  The unit has two fan motors to provide quiet operation and maximum efficiency.
- **LED Diagnostics**
  All units have this feature indicating the problem when the unit is not operating properly with easy-to-read diagnostics. For example, 1 blink every 2 seconds indicates compressor failure.

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- **Indoor Filters**
  The unit uses two indoor filters which slide in and cut easily. The filters may be cleaned by washing and brushing without removing the front grille.

- **Rotary Compressor**
  The unit uses a rotary compressor for quiet, reliable operation and long life.

- **2 Position Discharge Grille**
  The discharge grille can provide air flows upward at an angle of 40 off vertical or 15 degree off vertical. The angle is changed by removing the front grille and 4 screws that fasten the discharge grille to the front grille and rotating the louvers to an alternate position.

- **Indoor Room Freeze Protection**
  When the unit senses the room temperature falls to less than 40° F the unit activates the fan motor and either the electric resistance heater or the hydronic heater to prevent pipes or fixtures from freezing. This also overrides front desk control of the unit mounted or wall mounted controls.

- **Door Switch/Occupancy Sensor**
  The unit is capable of accommodating a field installed door switch and occupancy sensor to operate the energy management feature. For additional information, refer to the unit operation section.

- **Compressor Overload Protection**
  This feature prevents the damage of the compressor by sensing the indoor tube temperature in heating. If the indoor temperature is over 130˚ F, the outdoor fan will be switched off and back on when the temperature drops below 120˚ F.

- **Outdoor Air Temperature Switchover**
  This will effectively change the unit from heat pump mode to total electric resistance heat.

- **Temperature limits**
  The unit is programmed to provide both heating and cooling temperature limits by dip switches on control panel from 50˚ F to 90˚ F. Temperature limits help to prevent overheating and overcooling and reduce energy costs.

- **Condensate Drain Valve**
  The unit has a condensate drain valve to prevent water from collecting or freezing in the basepan.

- **Quick Heater Recovery**
  The unit is designed to operate the electric heater to warm the room to the temperature set point as soon as heat pump cycle is on in heating. This feature has an advantage of reducing the time to reach the set point and improving the temperature increase for better comfort.

- **Reverse Cycle Defrosting - (PTHDs only)**
  The unit will activate the reverse cycle defrost when the outdoor coil temperature has remained at a cold temperature to form the ice on the coil.This ice will reduce airflow though the coil and will also reduce the efficiency of unit. The LG PTHP will employ an active reverse cycle defrost function to melt the ice off the outdoor coil for insuring room comfort conditions and savings from extended operation.

- **High Temperature Heat Pump Operation Protection**
  The compressor will be switched off to prevent damage when the heat pump is operated in high outdoor temperatures.

- **Remote Thermostat Control**
  Each unit is built to be operated from any standard 4 or 5 wire remote-mounted thermostat, if desired. The unit has a built-in low voltage power source which can accommodate a large variety of thermostat choices-manual, auto changeover, or programmable. A remote thermostat can also be added to any installed unit.

- **Zone Sensor**
  Occupants enjoy ultimate comfort with consistent climate control. Attach an optional, inexpensive remote Zone Sensor to exactly match the functions of the PTAC without disabling any features.

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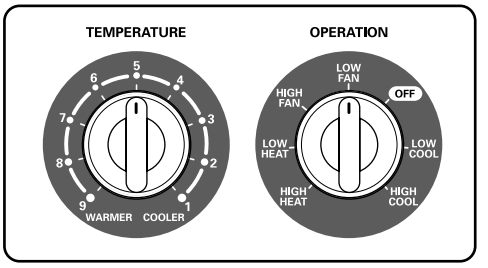
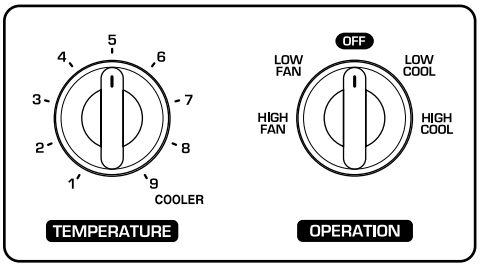
1.3 CONTROL LOCATIONS

• OPERATION



ELECTRIC HEATING MODEL



COOLING ONLY MODEL

TEMPERATURE CONTROL

Set the Thermostat control to the desired temperature mark 5 (the mid-point is a good starting position). If the room temperature is not satisfactory after a reasonable time, adjust the control to a cooler or warmer setting, as appropriate.

• VENTILATION

The ventilation lever is located to the lower left side of the unit.
The ventilation lever must be in the CLOSE position in order to maintain the best cooling conditions.
When fresh air is necessary in the room, set the ventilation lever to the OPEN position.
The damper is opened and outdoor air is drawn into the room. This will reduce the cooling or heating efficiency.

CAUTION

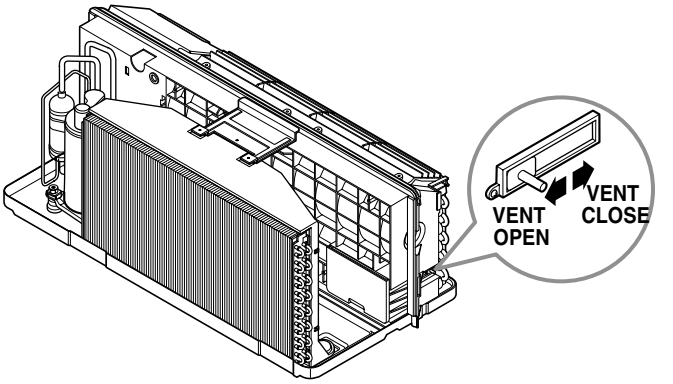
When the air conditioner has performed a cooling or heating operation and is turned off or set to the fan position, wait at least 3 minutes before resetting to the cooling operation.

NOTE

A slight heat odor may come from the unit when first switching to HEAT after the cooling season is over.
This odor, caused by fine dust particles on the heater, will disappear quickly. This is harmless.

OPERATION MODE SELECTOR

OFF	Turns air conditioner off.
LOW FAN	Low speed fan operation without cooling.
HIGH FAN	High speed fan operation without cooling.
LOW COOL	Cooling with the low speed fan operation.
HIGH COOL	Cooling with the high speed fan operation.
LOW HEAT	Heating with the low speed fan operation.
HIGH HEAT	Heating with the high speed fan operation.



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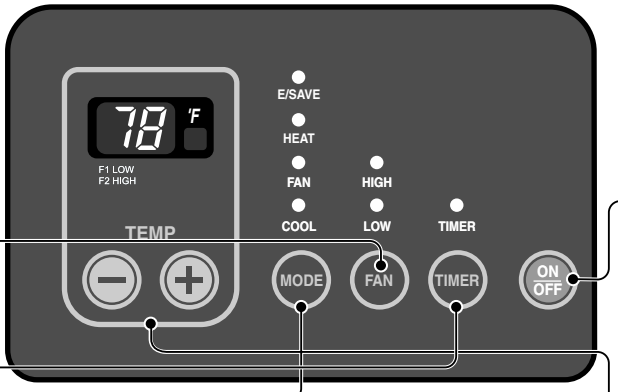
• ELECTRONIC CONTROLS

The controls will look like one of the following.

FAN SPEED

• Every time you push this button, it cycles through the settings as follows:
{High(F2) → Low(F1) → High(F2) → Low(F1)}



POWER

• To turn the air conditioner ON, push this button. To turn the air conditioner OFF, push the button again.
• This button takes priority over any other button.

MODE

- Push this button to cycle through the modes from COOL → FAN → HEAT→ COOL.

- COOL
  • Fan runs continually for normal cooling operation.

- ENERGY SAVER
  • The fan stops when the compressor stops cooling. Approximately every 3 minutes the fan will turn on and the unit will check the room air temperature to determine if cooling is needed.

- FAN
  • Fan operation without heating or cooling.

- HEAT
  • Fan runs continually for normal heating operation.

TEMPERATURE SETTING

• Use this button to automatically control the temperature of the room.
The temperature can be set within a range of 54° F to 86° F by increments of 2° F.
• The setting appears in the display.

TIMER

- SHUT-OFF TIME
  • You will usually use shut-off time while you sleep.
  • If unit is running, use Timer to set number of hours until shut-off.
  • For your sleeping comfort, once Time is set, the Temperature setting will raise 2° F after 30 minutes, and once again after another 30 minutes.
  • Push Timer to cycle through the settings from 1 Hour → 2 Hours → ... → 12 Hours maximum.

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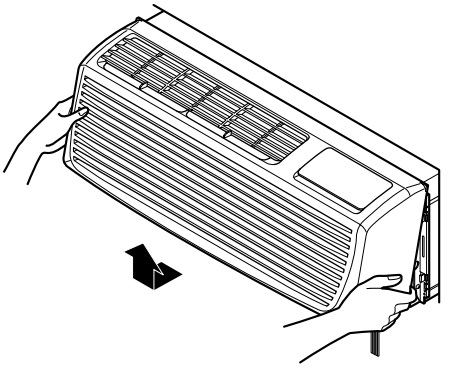
1.4 ADDITIONAL CONTROLS

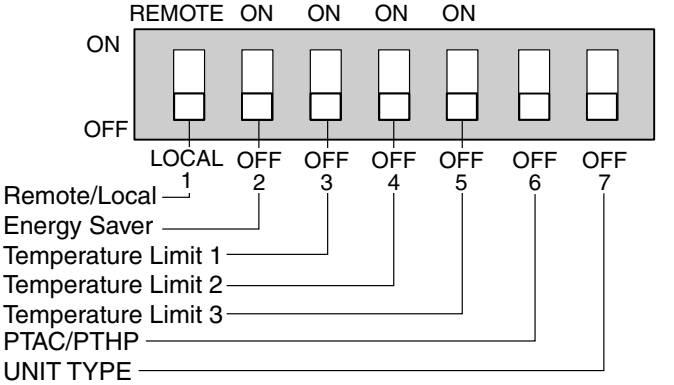
• REMOVING THE FRONT GRILLE

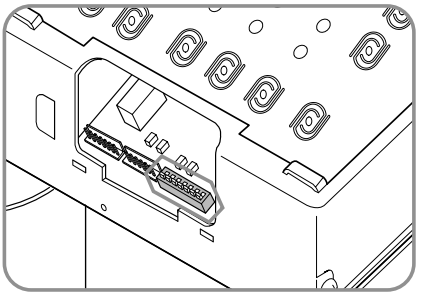
Additional controls are available after removing the front grille and option cover of control box.
To remove the front grille, pull out the bottom of front grille and then lift up.
To replace the front grille, place the tabs over the top of the unit and push the bottom of front grille until the clips snap into place.



• ADDITIONAL CONTROLS

The additional controls are located behind the option cover of control box. The standard settings will be in the OFF position. The authorized servicer has to check switches and ensure the switches are in the desired position.





• TEMPERATURE LIMITING

Temperature Limiting can save money by limiting the lowest temperature for cooling and the highest temperature for heating. The temperature limiting is controlled by switches #1 - #3.
This temperature limiting is not available with the Remote Wall Thermostat.

Temperature Limit #1	Temperature Limit #2	Temperature Limit #3	Cooling Operation		Heating Operation	
			Lowest Temp.	Highest Temp.	Lowest Temp.	Highest Temp.
OFF	OFF	OFF	54° F (12.2° C)	86° F (30.0° C)	54° F (12.2° C)	86° F (30.0° C)
ON	OFF	OFF	56° F (13.3° C)	86° F (30.0° C)	54° F (12.2° C)	84° F (28.9° C)
OFF	ON	OFF	58° F (14.4° C)	86° F (30.0° C)	54° F (12.2° C)	82° F (27.8° C)
ON	ON	OFF	60° F (15.5° C)	86° F (30.0° C)	54° F (12.2° C)	80° F (26.7° C)
OFF	OFF	ON	62° F (16.6° C)	86° F (30.0° C)	54° F (12.2° C)	78° F (25.5° C)
ON	OFF	ON	64° F (17.7° C)	86° F (30.0° C)	54° F (12.2° C)	76° F (24.4° C)
OFF	ON	ON	66° F (18.9° C)	86° F (30.0° C)	54° F (12.2° C)	74° F (23.3° C)
ON	ON	ON	68° F (20.0° C)	86° F (30.0° C)	54° F (12.2° C)	72° F (22.2° C)

#6	#7	Unit Type
OFF	OFF	Cooling+Electric Heater+Heat Pump
OFF	ON	Cooling+Electric Heater
ON	OFF	Heat Pump Only
ON	ON	Cooling Only

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• REMOVING THE FRONT GRILLE

Additional controls are available after removing the front grille and option cover of control box.
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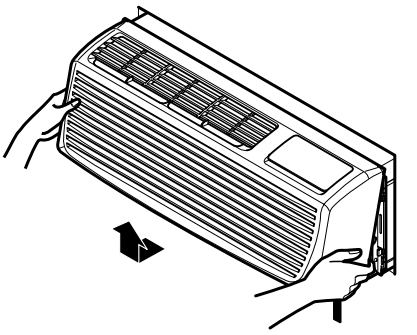
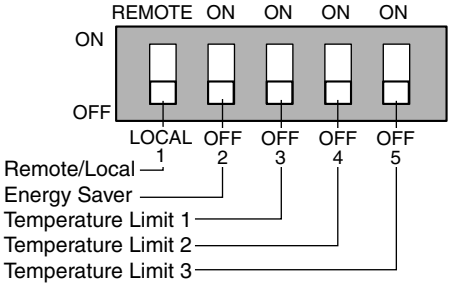
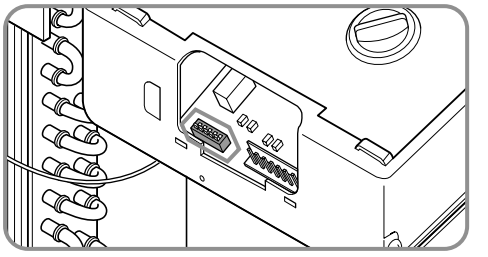


• ADDITIONAL CONTROLS

The additional controls are located behind the option cover of control box. The standard settings will be in the OFF position. The authorized service man has to check switches and ensure the switches are in the desired position.





• TEMPERATURE LIMITING

Temperature Limiting can save money by limiting the lowest temperature for cooling and the highest temperature for heating. The temperature limiting is controlled by dip switch #1 - #3.
This temperature limiting is not available with the Remote Wall Thermostat.

Temperature Limit #1	Temperature Limit #2	Temperature Limit #3	Cooling Operation		Heating Operation	
			Lowest Temp.	Highest Temp.	Lowest Temp.	Highest Temp.
OFF	OFF	OFF	54°F (12.2°C)	86°F (30.0°C)	54°F (12.2°C)	86°F (30.0°C)
ON	OFF	OFF	56°F (13.3°C)	86°F (30.0°C)	54°F (12.2°C)	84°F (28.9°C)
OFF	ON	OFF	58°F (14.4°C)	86°F (30.0°C)	54°F (12.2°C)	82°F (27.8°C)
ON	ON	OFF	60°F (15.5°C)	86°F (30.0°C)	54°F (12.2°C)	80°F (26.7°C)
OFF	OFF	ON	62°F (16.6°C)	86°F (30.0°C)	54°F (12.2°C)	78°F (25.5°C)
ON	OFF	ON	64°F (17.7°C)	86°F (30.0°C)	54°F (12.2°C)	76°F (24.4°C)
OFF	ON	ON	66°F (18.9°C)	86°F (30.0°C)	54°F (12.2°C)	74°F (23.3°C)
ON	ON	ON	68°F (20.0°C)	86°F (30.0°C)	54°F (12.2°C)	72°F (22.2°C)

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• REMOTE/LOCAL CONTROL

When remote/local switch #1 is on, it allow the unit to operate by the Remote Wall Thermostat.
The unit control by knobs are not available.

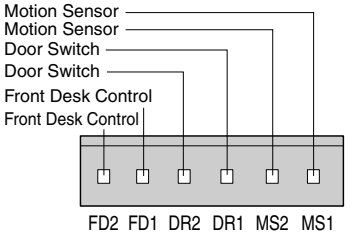
• ENERGY SAVER

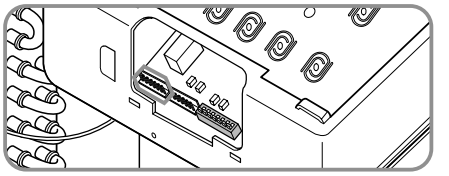
The energy saver switch #2 is on. This switch is set at cycle fan to provide continuous fan operation in cool or heat modes. When the switch is off the continuous fan allows continuous circulation of room air and make the more balanced temperature of the room. When the switch is on, the fan is on or off with the compressor or with the heater.

• FRONT DESK CONTROL

When the pair wire is connected to the connector FD2 and FD1, the unit can be turned ON or OFF with a switch located at the Front Desk Control panel. When the front desk switch is ON, the fan operates according to the setting without working compressor and heater. When the front desk switch is OFF, the unit can operate according to the setting of controls.

Wire # AWG	Maximum Length
#22	600 ft (180 m)
#20	900 ft (270 m)
#18	1500 ft (450 m)
#16	2000 ft (610 m)



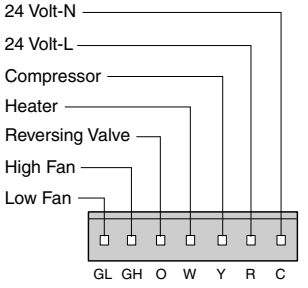


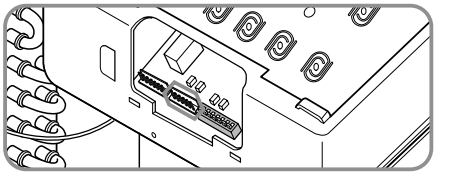
(Molex Housing Spec 396-06V)

• REMOTE WALL THERMOSTAT

When the wires are connected, the unit will be controlled by a remote wall thermostat.

The thermostat connections supply the 24 Volt AC. When you install the digital/electronic thermostat, you must set it to 24 Volt AC. See the installation Instruction in this manual for the Remote Wall Thermostat.

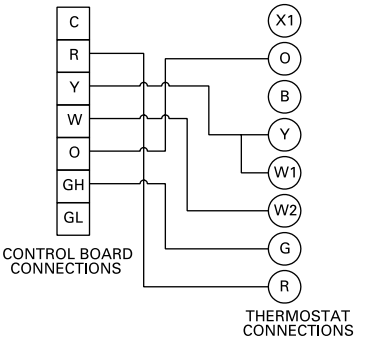




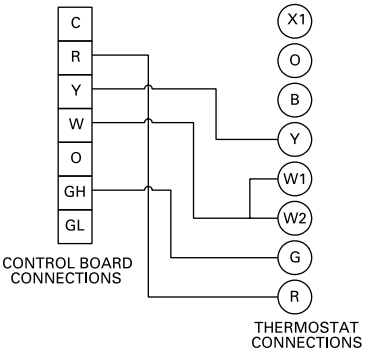
(Molex Housing Spec 396-07V)

Note: The following figures show wiring schematics for heat pump and straight cool units with electric heat, respectively.

Wiring Schematic for Remote Heat Pump



Wiring Schematic for Straight Cool Unit.



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• REMOTE/LOCAL CONTROL

When remote/local switch #1 is on, it allow the unit to operate by the control of Remote Wall Thermostat. The unit control by knobs are not available.

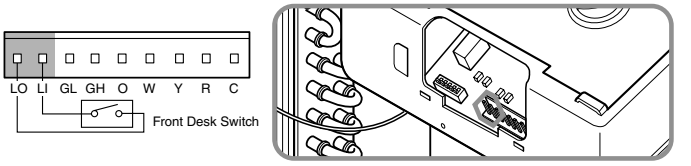
• ENERGY SAVER

The energy saver switch #2 is on. This switch is set at continuous fan to provide continuous fan operation in cool or heat modes. When the switch is off the continuous fan allows continuous circulation of room air and make the more balanced temperature of the room. When the switch is on the fan is on or off with the compressor or with the heater.

• FRONT DESK CONTROL

When the pair wire is connected to the connector LOand LI, the unit can be turned ON or OFF with a switch located at the Front Desk Control panel. When the front desk switch is ON, the fan operate according to the condition of setting without working compressor and heater. When the front desk switch is OFF, the unit can operate according to the setting of controls.

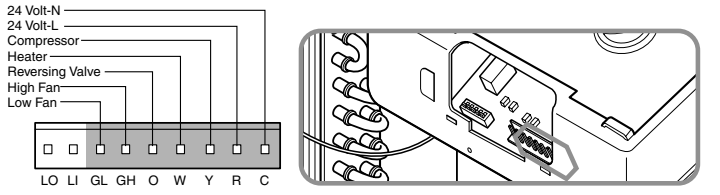
Wire # AWG	Maximum Length
#22	600ft(180m)
#20	900ft(270m)
#18	1500ft(450m)
#16	2000ft(610m)



• REMOTE WALL THERMOSTAT

When the wires are connected, the unit will be controlled by a remote wall thermostat.

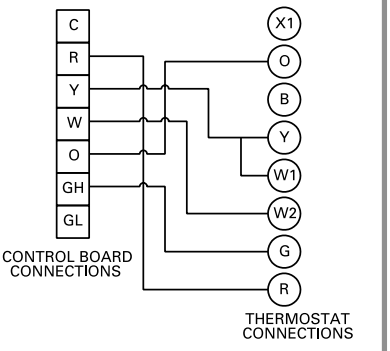
The thermostat connections supply the 24 Volt AC. When you install the digital / electronic thermostat, you must set it to the 24 Volt AC. See the installation Instruction in this manual for the Remote Wall Thermostat.



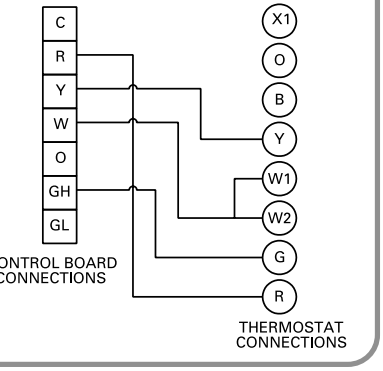
(Molex Housing Spec 396-09V)

Note: The following figures show wiring schematics for heat pump and straight cool units with electric heat, respectively.

Wiring Schematic for Remote Heat Pump



Wiring Schematic for Straight Cool Unit.



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2. DISASSEMBLY INSTRUCTIONS

— Before the following disassembly, POWER SWITCH is set to OFF and disconnected the power cord.

2.1 MECHANICAL PARTS

2.1.1 FRONT GRILLE

1. Remove the front grille. (See Figure 1)
2. To remove the front grille, pull out the bottom of the front grille and then lift up.
   Re-install the component by referring to the removal procedure.
3. To replace the front grille, place the tabs over the top of the unit and push the bottom of front grille until the clips snap into place.

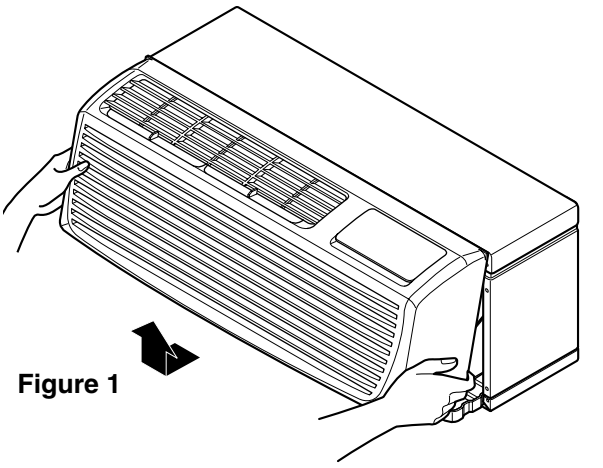
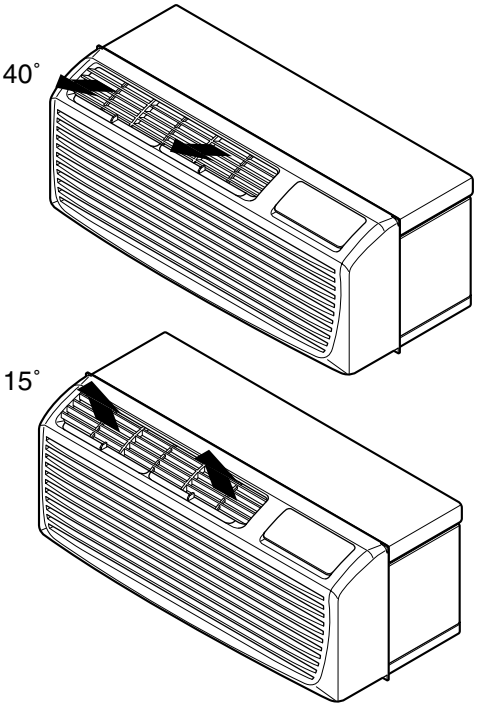


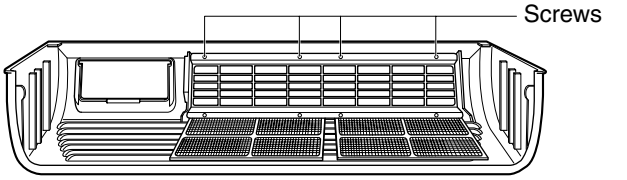
Figure 1

• This Room Air Conditioner (PTAC) discharges air from the top of the unit through reversible, 2-position discharge grille louvers. The unit is shipped from the factory with the discharge grille louvers at an angle of 40˚ off vertical. In the alternate position, the louvers will be at an angle of 15˚ off vertical.



To adjust air direction, remove the front grille. Remove the 4 screws that fasten the discharge grille to the front grille.

Flip the discharge grille 180°, then reattach the discharge grille to the front grille with 4 screws.



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2.1.2 CONTROL BOX

1. Remove the front grille. (Refer to section 2.1.1)
2. Remove the two screws which fasten the control box. (See Figure 2)
3. Pull the control box from the Air guide.

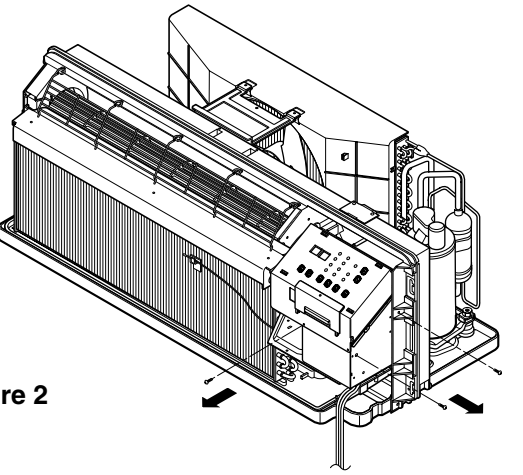

Figure 2

4. Remove the control box cover. (See Figure 3)
5. Disconnect wire housings on the control box.

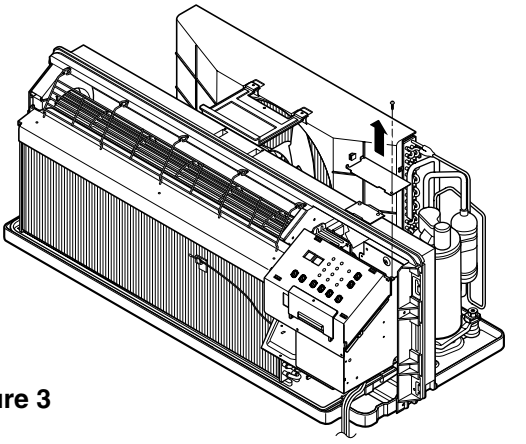

Figure 3

6. Pull the control box assembly out from the unit. (See Figure 4)
7. Re-install the components by referring to the removal procedure.

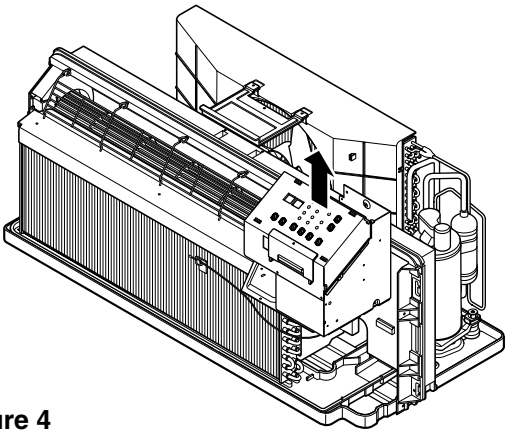

Figure 4

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2.2 AIR HANDLING PARTS

2.2.1 ELECTRIC HEATER (ELECTRIC HEATER MODEL ONLY)

1. Remove the front grille.(Refer to section 2.1.1)
2. Remove the control box assembly.
   (Refer to section 2.1.2)
3. Remove the 4 screws which fasten the Evaporator.
   (See Figure 5)

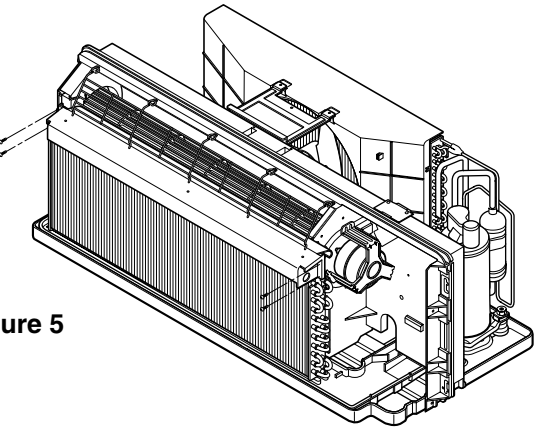

Figure 5

4. Remove the top cover assembly, net steel, brace.
   (See Figure 6)

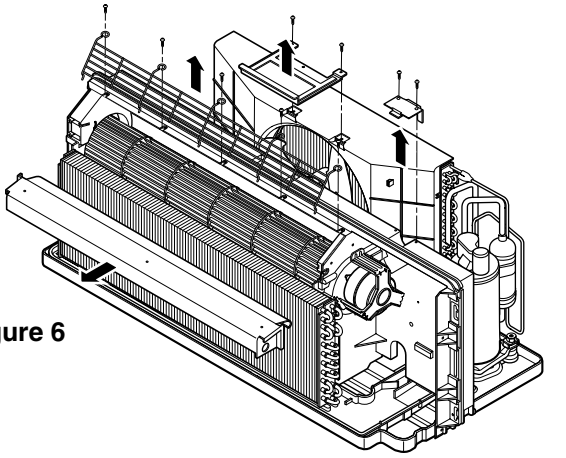

Figure 6

5. Remove the 6 screws which fasten the Air-guide.
6. Pull the Air-guide assembly out from the unit.
   (See Figure 7)

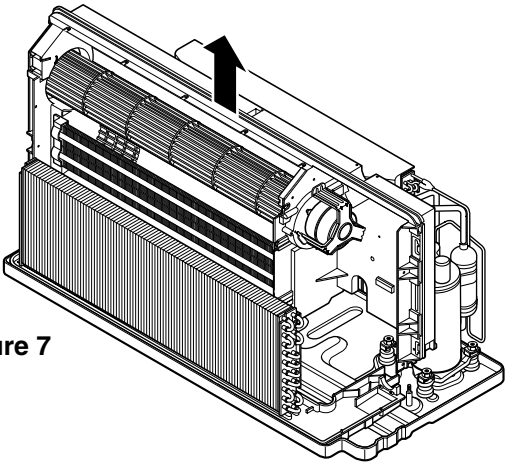

Figure 7

7. Remove the 2 screws which fasten the electric heater in the left hand side.
8. Pull the electric heater towards left for a while and then lift up vertically to disassemble it completely from Air guide.

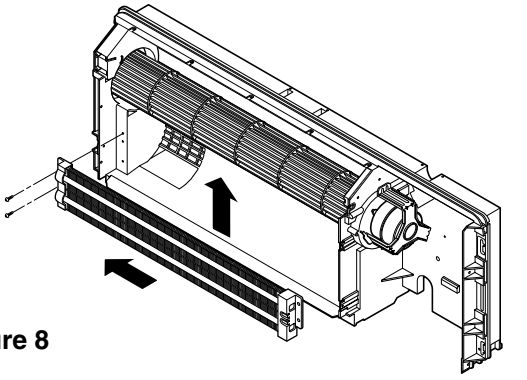

Figure 8

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2.2.2 CROSS FLOW FAN

1. Remove the front grille. (Refer to section 2.1.1)
2. Remove the control box assembly.
   (Refer to section 2.1.2)
3. Remove the Air-Guide Assembly from the unit.
   (Refer to section 2.2.1)
4. Loosen the screw on the cross flow fan.
   (See Figure 9)

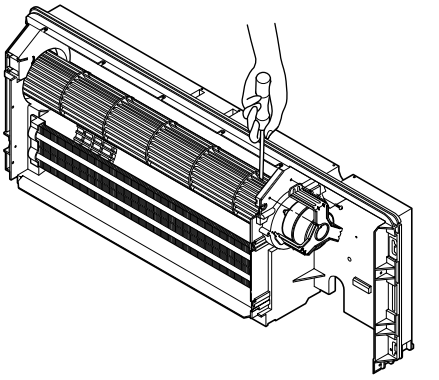

Figure 9

5. Remove the 4 screws which fasten the indoor motor and the earth wire. (See Figure 10)
6. Remove the supports on both sides.
7. Pull the cross flow fan out from the air-guide.
8. Re-install the components by referring to the removal procedure.

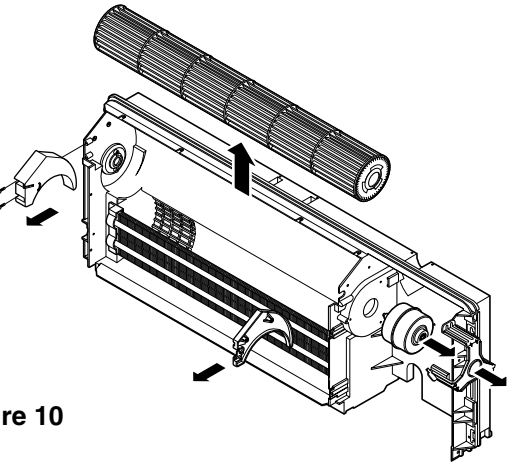

Figure 10

2.2.3 AXIAL FAN

1. Remove the brace.
2. Remove the 4 screws which fasten the condenser with the shroud and the basepan. (See Figure 11)
3. Remove the condenser sideways carefully.

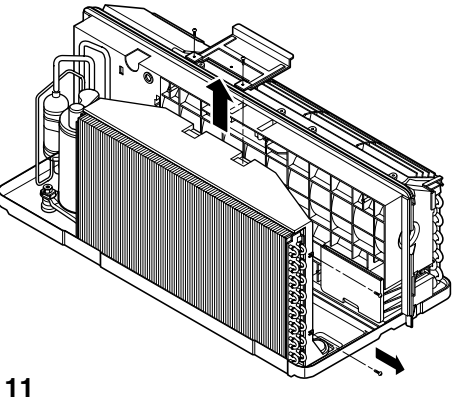

Figure 11

4. Remove the clamp which secures the fan with pliers.(See Figure 12)
5. Remove the axial fan.
6. Re-install the components by referring to the removal procedure.

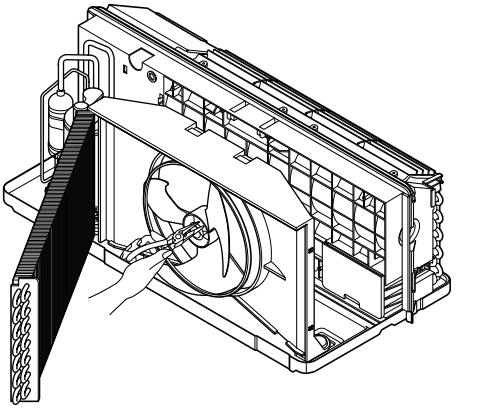

Figure 12

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2.2.4 SHROUD

1. Remove the axial fan. (Refer to section 2.2.3)
2. Remove the 4 screws which fasten the condenser with the shroud and the basepan. (See Figure 11)
3. Remove the shroud.
4. Re-install the component by referring to the removal procedure.

2.3. ELECTRICAL PARTS

2.3.1 OUTDOOR MOTOR

1. Remove the clamp cord and disconnect a wire housing in control box. (Refer to section 2.1.2)
2. Remove the axial fan. (Refer to section 2.2.3)
3. Remove the 2 screws which fasten the motor. (See Figure 12)
4. Remove the motor
5. Re-install the component by referring to the removal procedure, above.

2.3.2 INDOOR MOTOR (Refer to section 2.2.2)

2.3.3 COMPRESSOR

1. Discharge the refrigerant system using a refrigerant recovery system.
   If there is no valve to attach the recovery system, install one (such as a WATCO A-1) before venting the refrigerant. Leave the valve in place after servicing the system.
2. Disconnect the 3 leads from the compressor.
3. After purging the unit completely, unbraze the suction and discharge tubes at the compressor connections.
4. Remove the 3 nuts and the 3 washers which fasten the compressor. (See Figure 15)
5. Remove the compressor.
6. Re-instill the components by referring to the removal procedure, above.

2.3.4 CAPACITOR

1. Remove the control box. (Refer to section 2.1.2)
2. Remove 1 screw and disconnect the leads which connected to the box type capacitor. (See Figure 16)
3. Remove 1 screw and the clamp which fastens the can-type capacitor.
4. Disconnect all the leads of capacitor terminals.
5. Re-install the components by referring to the removal procedure, above.

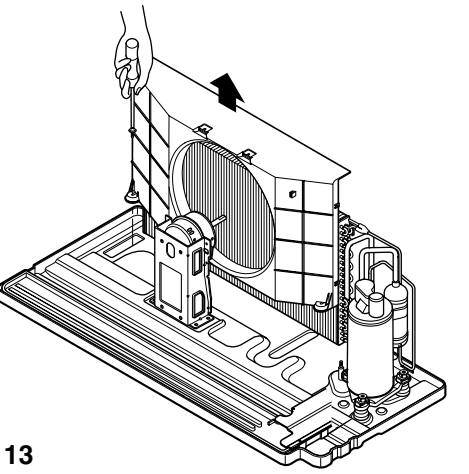

Figure 13

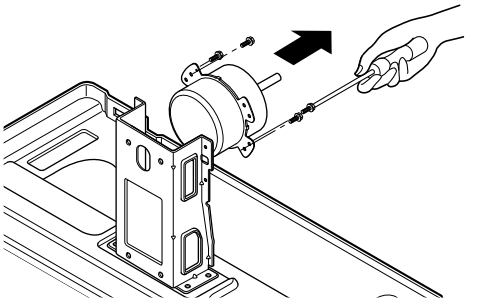

Figure 14

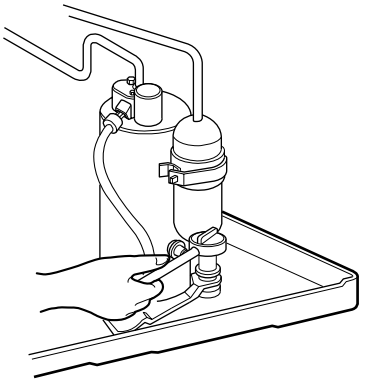

Figure 15

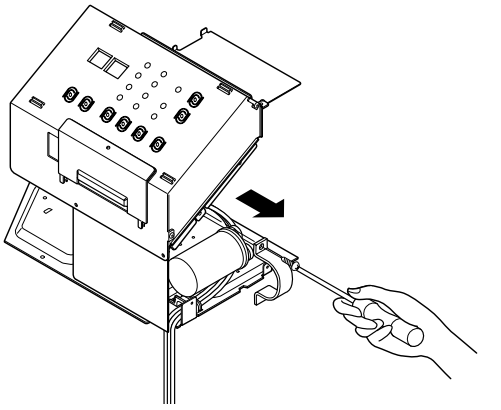

Figure 16

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2.3.5 POWER CORD

1. Remove the control box. (Refer to section 2.1.2)
2. Disconnect the grounding screw from the control box.
3. Disconnect 2 receptacles.
4. Remove a screw which fastens the clip cord.
5. Separate the power cord from the control box. (See Figure 17)
6. Re-install the component by referring to the removal procedure, above.
   (Use only one ground-marked hole ⏚ for ground connection.)
7. If the supply cord of this appliance is damaged, it must be replaced by an exact replacement part. (The special cord means the cord which has the same specification marked on the supply cord fitted to the unit.)

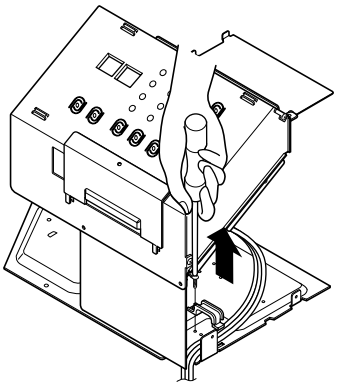
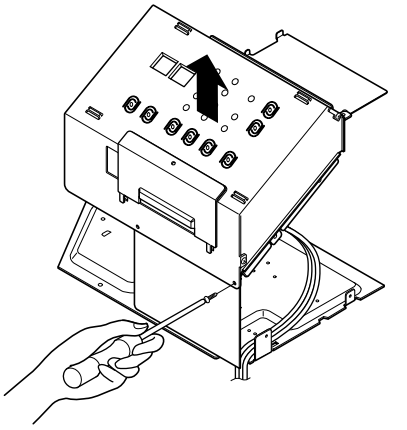


Figure 17

2.3.6 P.C.B.

1. Remove the escutcheon.
2. Remove the two knobs.
3. Remove the 2 screws which fasten P.C.B. cover.
4. Disconnect all the leads which connected to the P.C.B.
5. Remove the two screws which fasten the P.C.B. board.
6. Re-install the components by referring to the removal procedure, above.



WARNING

After servicing control box ,make sure that AC and DC wires are separated and tied up properly.

The wires should also be pressed a little downwards to prevent touching it to the display pcb.

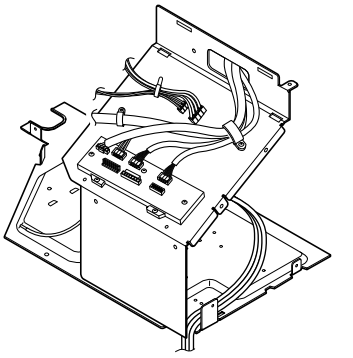


Figure 18

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2.4 REFRIGERATION CYCLE

CAUTION

Discharge the refrigerant system using a refrigerant recovery system.
If there is no valve to attach the recovery system, install one (such as a WATCO A-1) before venting the refrigerant. Leave the valve in place after servicing the system.

2.4.1 CONDENSER

1. Remove the brace and the shroud. (Refer to section 2.2.2)
2. Remove the 4 screws which fasten the shroud. (Refer to section 2.2.2)
3. Push forward the shroud and remove the 2 screws which fasten the condenser with the basepan.
4. After discharging the refrigerant completely, unbraze the interconnecting tube at the condenser connections.
5. Remove the condenser.
6. Re-install the components by referring to notes. (See Figure 19)

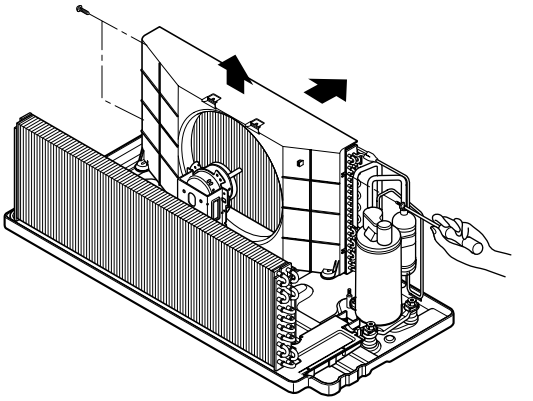

Figure 19

2.4.2 EVAPORATOR

1. Remove the front grille. (Refer to section 2.1.1)
2. Discharge the refrigerant completely.
3. Remove the control box assembly. (Refer to section 2.1.2)
4. Remove the 4 screws which fasten the evaporator at the left side and the right side.
5. Move the evaporator sideward carefully and then unbraze the interconnecting tube at the evaporator connectors.
6. Remove the evaporator.
7. Re-install the components by referring to notes. (See Figure 20)

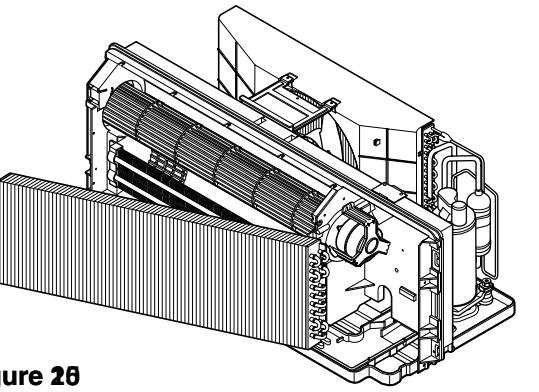

Figure 20

2.4.3 CAPILLARY TUBE

1. After discharging the refrigerant completely, unbraze the interconnecting tube at the capillary tube.
2. Remove the capillary tube.
3. Re-install the components by referring to notes.

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NOTES

— Replacement of the refrigeration cycle.

1. When replacing the refrigeration cycle, be sure to discharge the refrigerant system using a refrigerant recovery system.
   If there is no valve to attach the recovery system, install one (such as a WATCO A-1) before venting the refrigerant. Leave the valve in place after servicing the system.
2. After discharging the unit completely, remove the desired component, and unbraze the pinch-off tubes.
3. Solder service valves into the pinch-off tube ports, leaving the valves open.
4. Solder the pinch-off tubes with service valves.
5. Evacuate as follows.
   1) Connect the vacuum pump, as illustrated Figure 16 A.
   2) Start the vacuum pump, slowly open manifold valves A and B with two full turns counterclockwise and leave the valves closed. The vacuum pump is now pulling through valves A and B up to valve C by means of the manifold and entire system.

   CAUTION

   If high vacuum equipment is used, just crack valves A and B for a few minutes, then open slowly with the two full turns counterclockwise. This will keep oil from foaming and being drawn into the vacuum pump.

   3) Operate the vacuum pump for 20 to 30 minutes, until 600 microns of vacuum are obtained. Close valves A and B, and observe the vacuum gauge for a few minutes. A rise in pressure would indicate a possible leak or moisture remaining in the system. With valves A and B closed, stop the vacuum pump.
   4) Remove the hose from the vacuum pump and place it on the charging cylinder. See Figure 16 B. Open valve C.
      Discharge the line at the manifold connection.
   5) The system is now ready for final charging.
6. Recharge as follows :
   1) Refrigeration cycle systems are charged from the high-side. If the total charge cannot be put in the high-side, the balance will be put in the suction line through the access valve which you installed as the system was opened.
   2) Connect the charging cylinder as shown in Figure 16B.
      With valve C open, discharge the hose at the manifold connection.
   3) Open valve A and allow the proper charge to enter the system. Valve B is still closed.
   4) If more charge is required, the high-side will not take it. Close valve A.
   5) With the unit running, open valve B and add the balance of the charge.
      a. Do not add the liquid refrigerant to the low-side.
      b. Watch the low-side gauge; allow pressure to rise to 30 lbs.
      c. Turn off valve B and allow pressure to drop.
      d. Repeat steps B and C until the balance of the charge is in the system.
   6) When satisfied the unit is operating correctly, use the pinch-off tool with the unit still running and clamp on to the pinch-off tube. Using a tube cutter, cut the pinch-off tube about 2 inches from the pinch-off tool. Use sil-fos solder and solder pinch-off tube closed. Turn off the unit, allow it to set for a while, and then test the leakage of the pinch-off connection.

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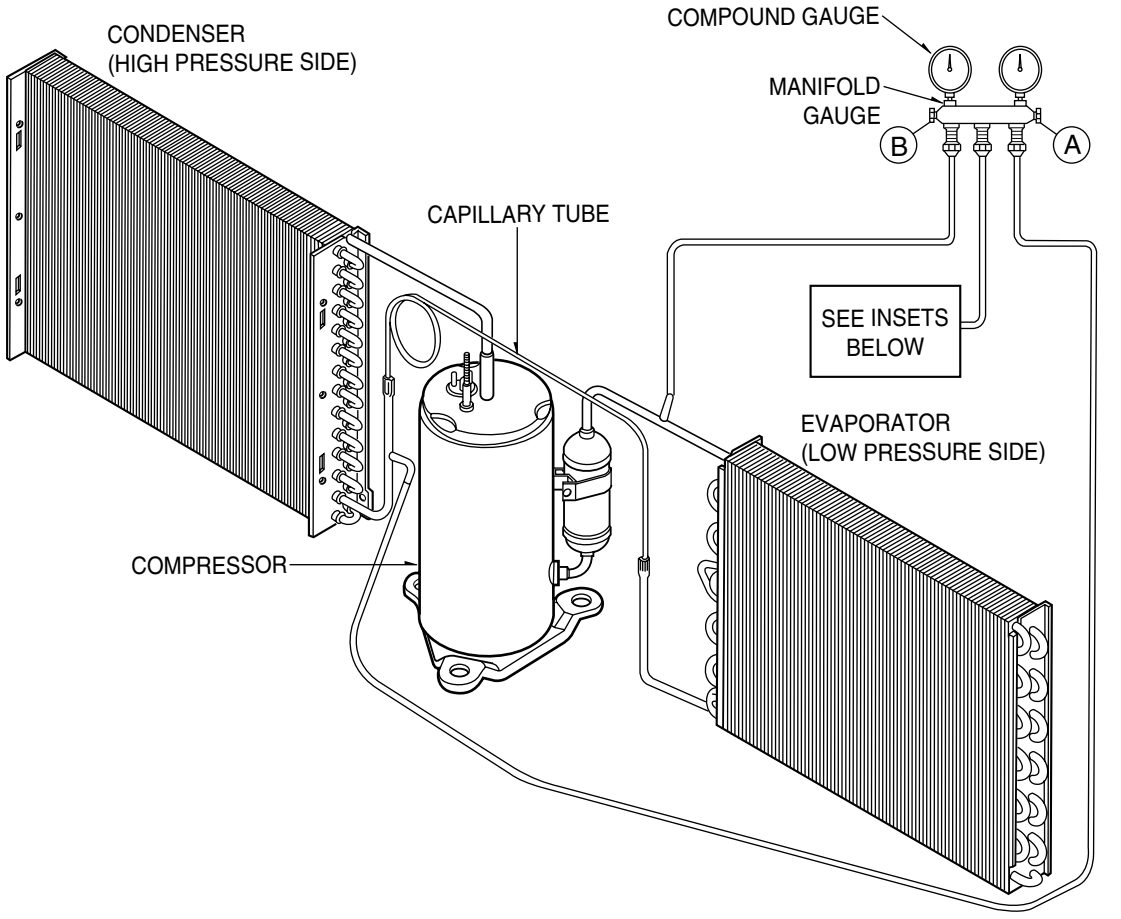
Equipment needed: Vacuum pump, charging cylinder, manifold gauge, brazing equipment. pinch-off tool capable of making a vapor-proof seal, leak detector, tubing cutter, hand tools to remove components, service valve.



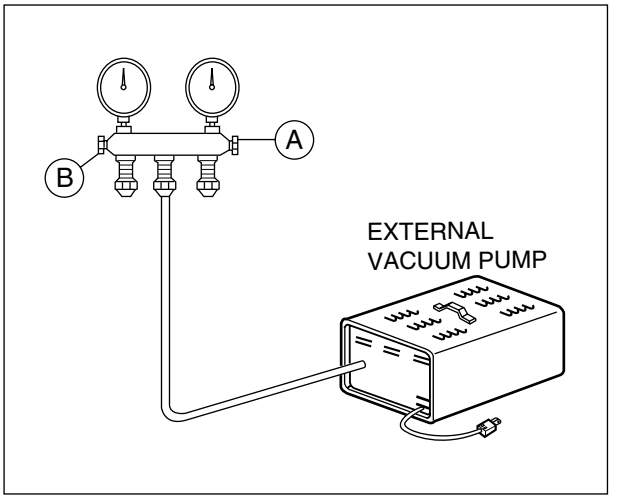


Figure 16 A-Pulling Vacuum

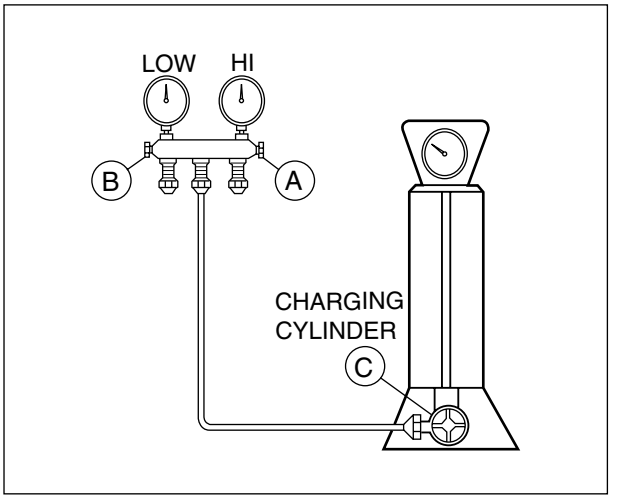


Figure 16 B-Charging

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3. INSTALLATION

3.1 HOW TO INSTALL THE UNIT

CAUTION

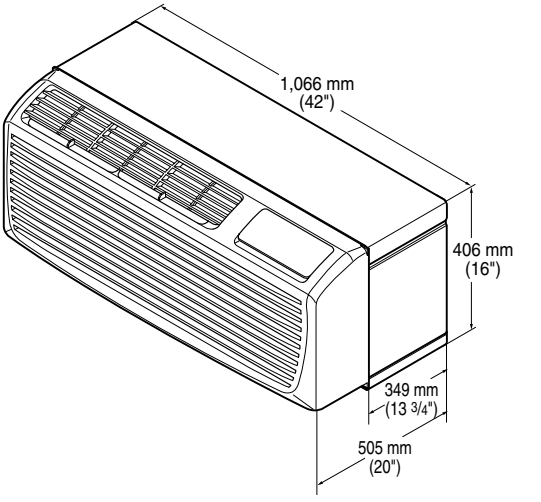
- There are sharp edges that can cause serious cuts.
- When lifting the air conditioner, it is HEAVY. Use 2 people to lift.

For existing sleeve, you should measure the wall sleeve dimensions.
Install the new air conditioner according to these installation instructions to achieve the best performence. All wall sleeves used to mount the new air conditioner must be in good structural condition and have a rear grille that securely attaches to the sleeve or the flange of the sleeve to secure the new air conditioner.

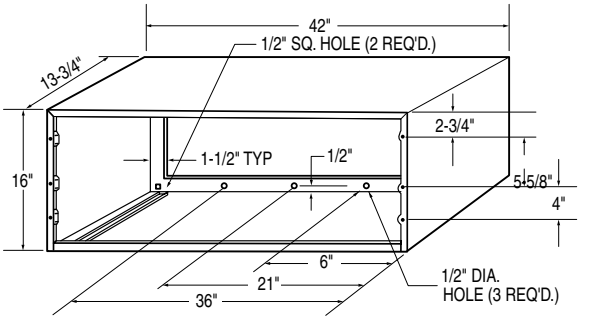
- To avoid vibration and noise, make sure the unit is installed securely and firmly.

When installing the sleeve, make certain there is nothing within 20" of the back that would interfere with heat radiation and exhaust air flow.

Dimension of air conditioner

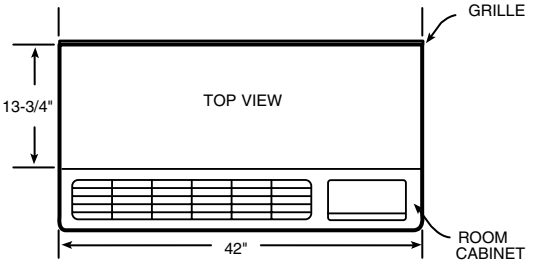


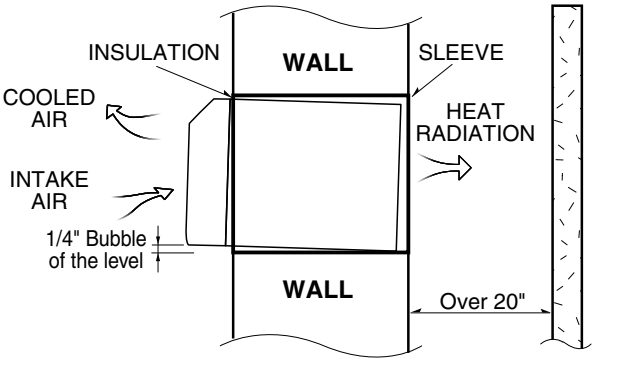
Dimension of sleeve assembly (optional)



Wall opening 16-1/4"x42-1/4"

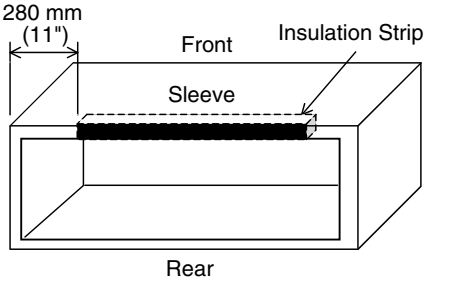
Recommended **Insulation strip must be attached to prevent the re-circulation of exhaust air to inward side from the either side of condenser space. The insulation strip is provided with the box. Refer to the diagram below.**





1) Take out the insulation strip from the upper packing.

2) Attach the insulation strip onto the rear upper side of the wall sleeve.
3) To improve unit energy efficiency, it is recommended the change of outside grille for an unit protection and an addition of a plastic rear grille. (This is optional.)
4) Insulation strip prevents the exhaust air from re-entering from either side of condenser space which may decrease the cooling efficiency of condenser.



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3.2 WALL SLEEVE INSTALLATION

3.2.1 Wall Case Installation Data

General

Generally, units are installed 3" to 5" above the floor (flush to finished floor installation is possible) as near to the center of the room as possible; underneath a window or a glass panel is typical. Normal installation of the wall case allows installation flexibility; from flush with the finished interior wall to a minimum of 1/4" of the wall case extending beyond the finished exterior of the building.
Special consideration must be given to installations where the wall case does not extend a minimum of 1/4" beyond the finished exterior wall.

Regardless of the installation, there are several things to consider when selecting a location for installing the unit. For instance, drapery location could interfere with air discharge, and placement of furniture may have an impact on the performance of the unit. The following information is intended to minimize installation problems and assure you of trouble-free installation.

Refer to page 20 for required wall opening dimensions. Minimum recommended interior and exterior case projection for standard wall thicknesses are shown in the drawings in this manual. The case may be installed flush with the finished indoor wall.

Mounting an outdoor grille or louver section to the building face may cause a space between the outdoor coil and the louver section. Air splitters, aligned with the ends of the outdoor coil, must be installed between the outdoor coil inlet and outlet air streams. Gaps between the outdoor coil and the louver section may allow condenser air recirculation and affect the operation of the unit. See page 40 for requirements for custom louver sections.

The wall case should be level from side to side and from level to 1/4 bubble tilt to the outdoors. The condensate disposal system in the unit is designed to dissipate the condensate water generated during cooling operation in accordance with ARI standards and actually uses this water for maximum unit efficiency. A level unit will also insure proper performance of the Internal Condensate Removal (ICR) system optional on heat pump units.

For new construction, early planning with the architect is necessary. Unit location, electrical connection locations, and wall openings of the proper dimensions are essential to avoid the necessity of rework, fillers, framing, moving electrical outlets, and other expensive modifications.

For existing construction it is important that carpentry, masonry and electrical work be performed by competent, qualified personnel. **Since installations in existing construction may involve removal of building material from the structure, locating the wall case must be done correctly.**

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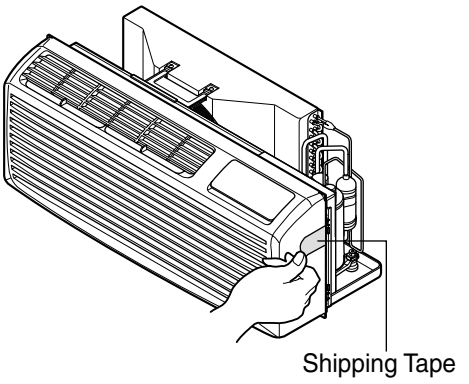
3.2.2 PREPARATION OF THE FRONT GRILLE

Carefully remove shipping tape from the front grille.



Brick, Frame, Stucco and Shingle Construction

For new construction, the opening for the wall case should be framed and the wall case inserted into the opening during construction. Lintels should be used when the building material is heavy and is not self supporting (such as brick). The wall case will fit an opening of six courses of standard brick or five courses of jumbo brick. Wall framing in this type construction is normally on 16" centers and the wall case will fit a framed opening spanning three 16" O.C. 2" x 4" stud spaces.

For existing construction the indoor and outdoor wall will need to be cut out, allowing for clearances of 1/8" on all sides of the wall case. Work should begin on the inside wall.
Cut the correct dimensions and mark (using drill holes) the outside wall from each corner of the inside cutout. Studding that interferes with the opening must be removed and a suitable frame constructed to secure the wall case and provide adequate support for case and chassis.

Preparation of the Wall Case for All Types of Construction

As shipped, the LG wall sleeve is ready for installation.
Do not remove the stiffener from inside the wall case or the weather closure panel from the outside face of the wall case until the outdoor grille and chassis are ready to be installed.

Installation of Wall Case in Wall Opening

1. Position the wall case into the wall. The room side edge of the wall case should be at least flush with the finished wall for line cord installations and permanent connection installations when no sub-base is used, and should project into the room at least 2-3/8" when a sub-base is used. If the minimum exterior dimensions are not met, refer to page 23.
   The outside edge of the wall case should extend at least 1/4" beyond the outside wall.
   This is necessary for proper caulking, to prevent sealing thedrain holes in the rear flange of the wall case, and to facilitate the installation of an accessory drain, if used.

The wall case should be level from side to side and from level to 1/4 bubble tilt to the outdoors. The condensate disposal system in the unit is designed to dissipate the condensate water generated during cooling operation in accordance with ARI standards and actually uses this water for maximum unit efficiency. A level unit will also insure proper performance of the Internal Condensate Removal (ICR) system optional on heat pump units.

2. The wall case should be secured to the wall at both sides. Use a minimum of two screws or other fastening device on each side. See Figure 2 page 24. Mark the wall case on each side 2" from the bottom and 2" from the top at a point where basic wall structure is located. Drill wall case and use fasteners appropriate for wall construction. All holes for fasteners in the side of the wall case must be at least 2" up from the bottom of the wall case. **Never locate screws or put other holes in the bottom of the wall case.**
   If the wall opening is greater than the case dimensions, spacers must be used on the sides between the wall case and the wall support structure to prevent distorting the wall case.
3. Caulk or gasket the entire opening on the outside between the wall case and exterior wall surface (4 sides) to provide total water and air seal.
4. Caulk or gasket room-side opening between wall case and interior wall surface (4 sides). Opening beneath or around the wall case can allow outdoor air to leak into the room resulting in increased operating costs and improper room temperature control.

Care should be taken in location of electrical supply entry in relationship to wall sleeve to assure access to receptacle or junction box once unit is installed.

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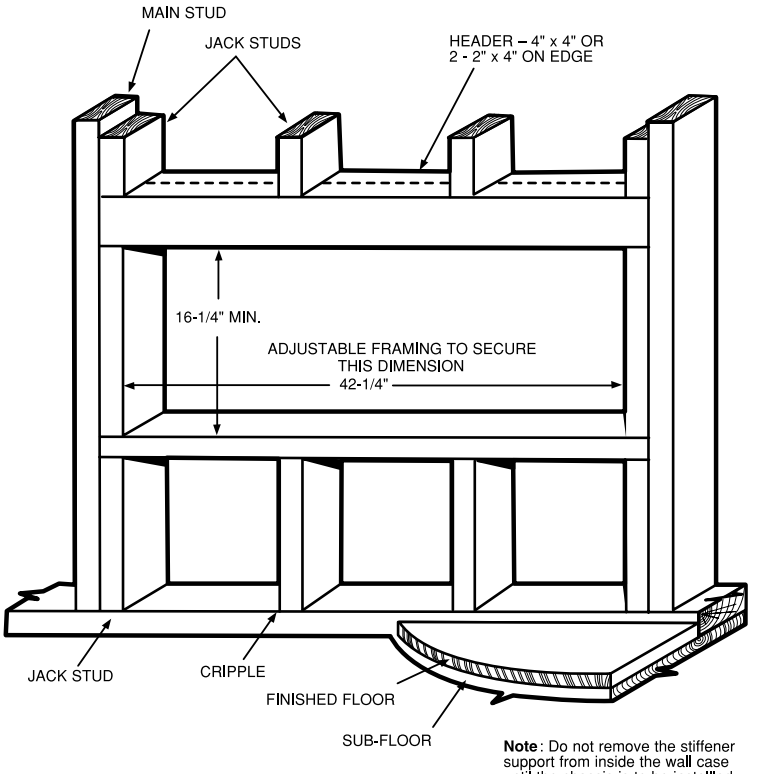
FRAMING FOR WALL CASE

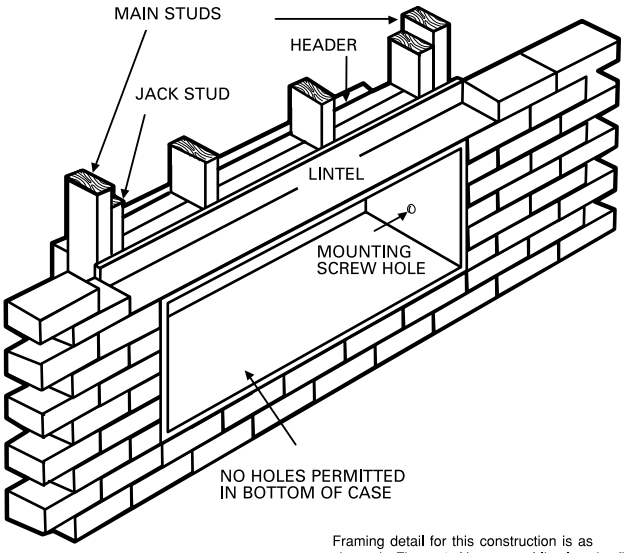
BRICK VENEER AND FRAME CONSTRUCTION



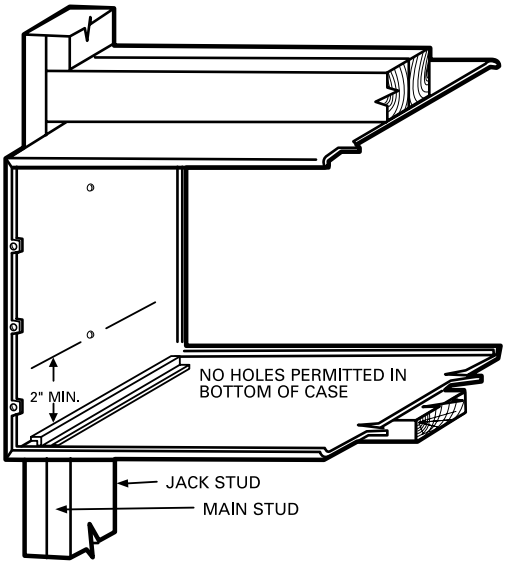
Note: Do not remove the stiffener support from inside the wall case until the chassis is to be installed.

Figure 1

FASTENING WALL CASE



Framing detail for this construction is as shown in Figure 1. Note use of lintel under first course of brick above theZoneline case. Do not use the case as alintel. Mounting screw holes shown are tobe made by the installer



Choice of attachment devices through both ends of case or thetop. Mounting screw holes and attachment devices by installer.

Figure 2

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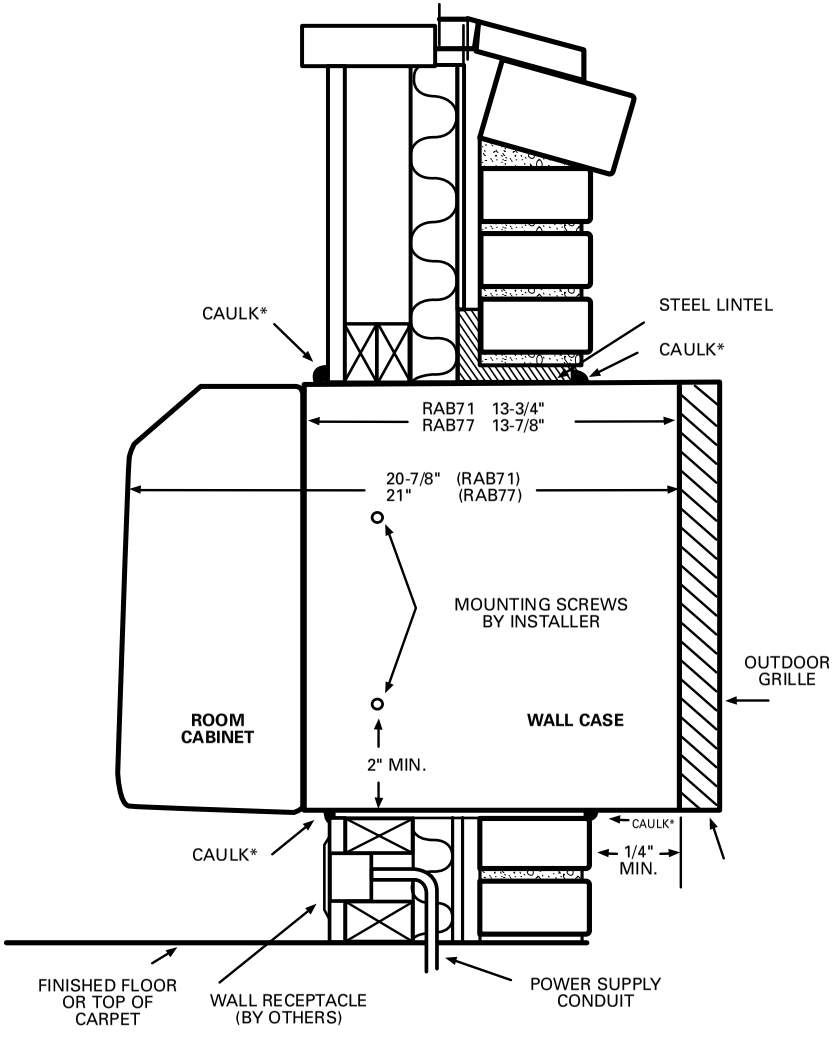
WALL SECTION – DETAILED SIDE VIEW

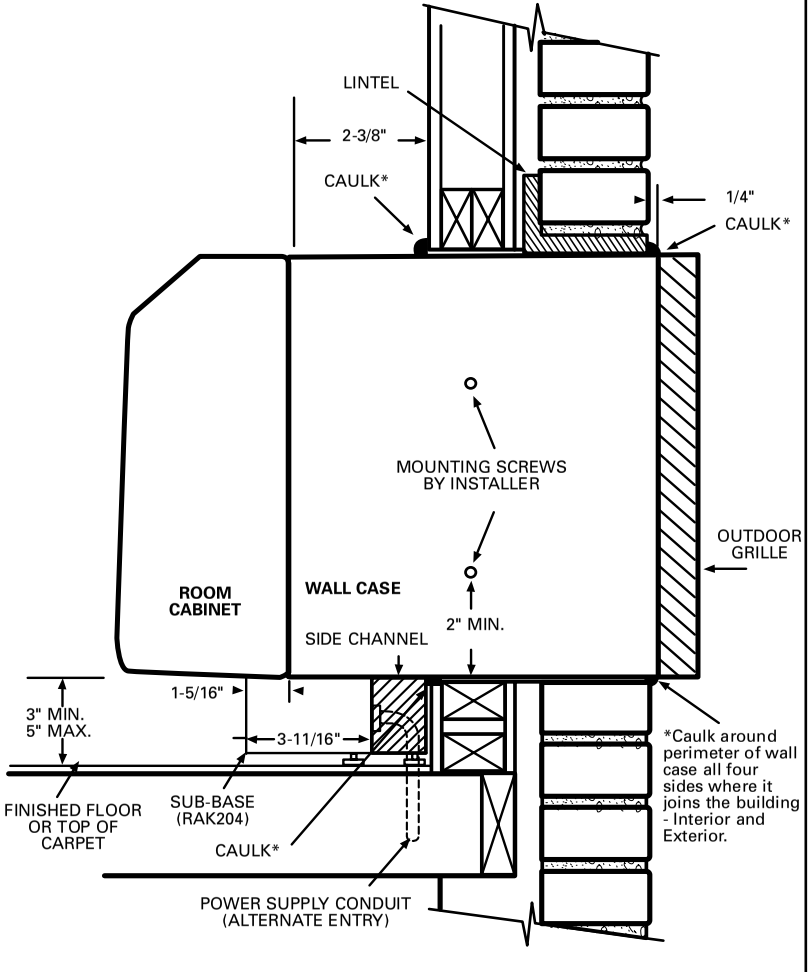
FRAME AND BRICK VENEER INSTALLATION

Cord Set Connected



*Caulk around perimeter of wall case all four sides where it joins the building - Interior and Exterior.

Sub-Base Connected



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3.2.3 UNIT INSTALLATION

1. Remove the shipping screw from the ventilation door. (See Figure 17)

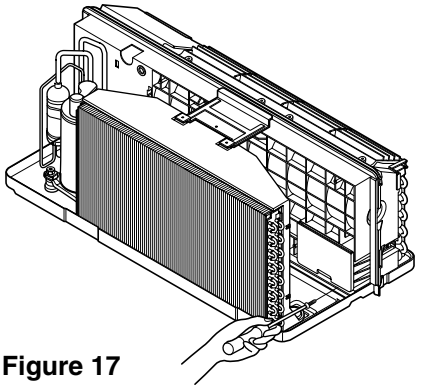

Figure 17

2. Remove the front gille by pulling it out at the bottom to release it, then lift it up along the unit top front. (See Figure 18)

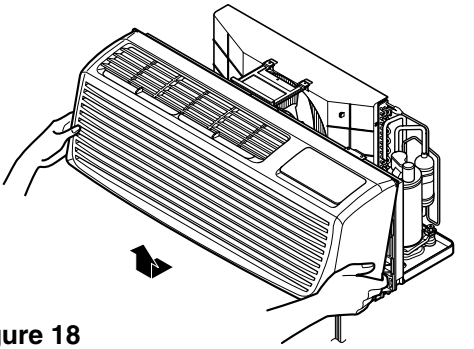

Figure 18

3. Slide the unit into the wall sleeve and secure with 6 screws through the unit flange holes. (See Figure 19)

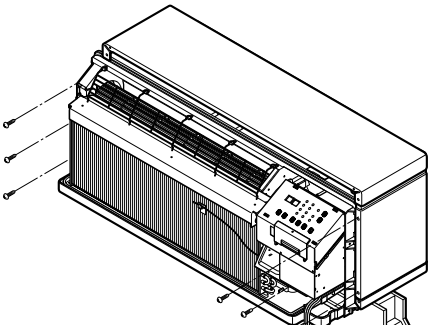

Figure 19

4. Reinstall the front grille by hooking the top over the unit top, then pushing it in at the bottom. (See Figure 20)

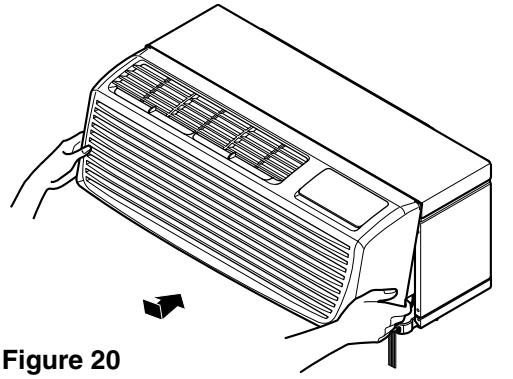

Figure 20

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3.3 ELECTRICAL REQUIREMENTS

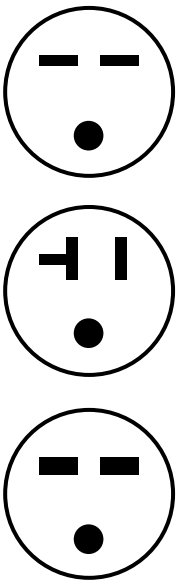
3.3.1 ELECTRICAL DATA (FOR 230/208V MODEL)

⚠ CAUTION

1. Do not use an extension cord with this unit.
2. When the unit is in the OFF position, the power supply to the electrical controls is still energized.
3. Disconnect the power to the unit before servicing the unit.
4. Remove the power cord from the wall receptacle.
5. Remove or turn off the protective device (fuses or circuit breaker).

Wirings including installation of the receptacle must comply with the NEC and local codes, local regulations.

FUSE- Use a time-delay fuse or circuit breaker. Refer to the nameplate for proper power supply requirements.



Tandem
15 A

Perpendicular
20 A

Large Tandem
30 A

230/208 volt receptacle configuration

3.3.2 ELECTRICAL SAFETY

IMPORTANT GROUNDING INSTRUCTIONS

The air conditioner has a three-prong grounding plug on its power supply cord which must be plugged into properly grounded three-prong wall receptacle for your protection against possible shock hazard.

FUSE – Use a time-delay fuse or circuit breaker. Refer to the nameplate for proper power supply requirements.

208, 230, and 208/230 VOLT UNITS

These units are equipped with a three-prong grounding plug on the power supply cord which must be plugged into a matching properly grounded three-prong wall receptacle for your protection against possible shock hazard. If such an outlet is not present, one must be installed by a qualified electrician in accordance with the National Electrical Code and local codes and ordinances.

NOTE: DO NOT USE AN EXTENSION CORD on 208, 230, and 208/230 Volt units.

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4. FIELD INSTALLED ACCESSORIES

Note: The installation and servicing of this equipment must be performed by qualifieed. experienced technicians

NOTICE:

Warnings and Cautions appear at appropriate sections throughout this manual. Read these carefully.

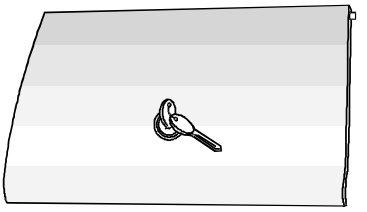
⚠ **WARNING** - Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION** - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

CAUTION –Indicates a situation that may result in equipment or property-damage-only accidents.

Control Panel Key Lock

Part No: AYCP101



Description

The Key Lock kit prevents tampering of the controls used to set temperatures and heating or cooling functions.

Receiving

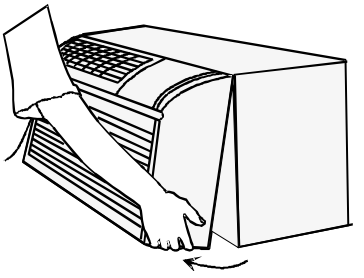
Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. Unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

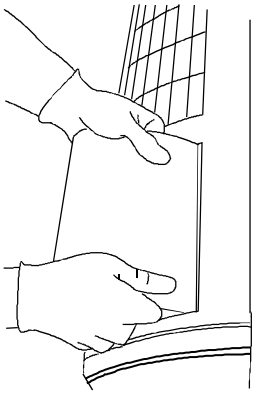
1. Remove front from unit by pulling bottom out and then lifting upward. (Figure 21)

Figure 21 - Remove Front



2. Remove existing door assembly by lifting door halfway and using both hands, bow door just enough for door hinge pins to slide out of mating holes. (Figure 22)

Figure 22 - Door Removal



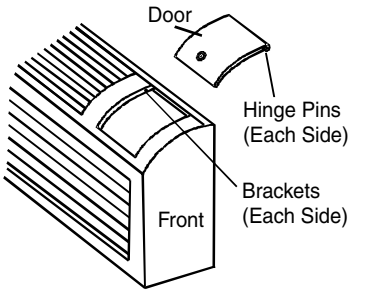
3. Install the new door assembly with the key lock by bowing the door with both hands and aligning the door hinge pins with their bracket in the front. (Figure 23)

Important Note:

Personal Risk Hazard Underwriter's Laboratories Inc. listed. For institutional use only where supervisory monitoring is available.

Any other use may increase the risk of personal injury or property damage.

Figure 23 - New Door Installation



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Condensate Disposal Pump Kit Installation

Part No: AYSB2101

Description

The internal condensate pump serves as a means for disposing of condensate generated during heat pump operation by transferring it to the indoor coil. The warm coil surface and the warm room air help in evaporation of the condensate while adding humidity to the room.
As with any equipment of this type, the addition of this kit will decrease the effective heating capacity of the unit. This kit is not intended for use in seacoast or corrosive environments.

NOTE:
Under extreme high humidity conditions, the internal condensate pump may not be able to dispose of all the condensate produced, and condensate would then drip from the outside of the wall sleeve. If this condensation is unacceptable, then a drain system (including factory approved drain kit for the wall sleeve) should be installed.

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. Unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

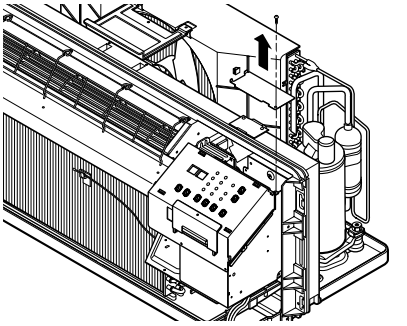
⚠ **WARNING**

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

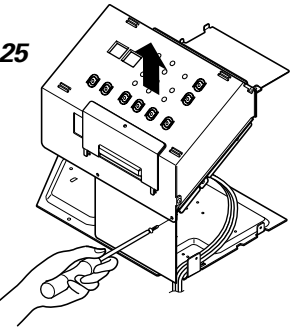
1. Remove front plastic cover by rotating bottom outward and then lifting up and out from chassis.
2. Unplug and remove the PTAC chassis from the wallsleeve. Movethe chassis where the front and back of the chassis can be easily accessed.
3. Remove the wire junction box cover by removing four screws and lifting up as shown in fig. 24

Figure 24



4. Remove and set aside the air discharge screen by unscrewing the 5 screws on the top.
5. Remove the one screws holding the control board cover as shown fig. 25.
   Remove the cover by lifting it up so its free from its hinges, and put aside.

Figure 25



6. Unplug the electric heater connecter located inside the wire junction box.

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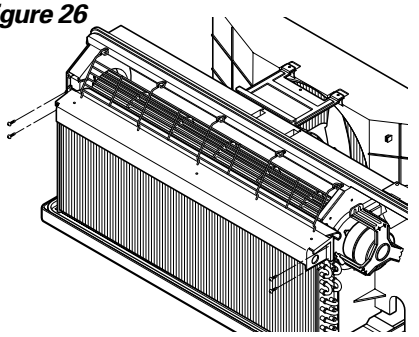
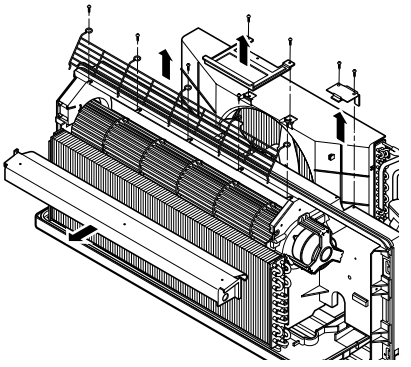
7. Remove the screw that attaches the electric heater wire to the side of the indoor fan housing.
8. Remove the 3 screws which fasten the top cover assembly.

Figure 26



9. Position water spraying plastic tube into the electric heater cover. Make sure that the three pairs(total of six) of plastic tongues snap into the corresponding metal slots of the heater frame as shown in fig. 27. Then install one of the three rubber elbows(ref. fig. 31) at the inlet of the spraying tube and through the rubber grommet.

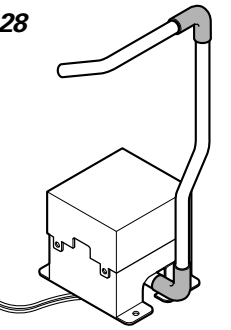
Figure 27



10. Place the top cover assembly back into the unit.

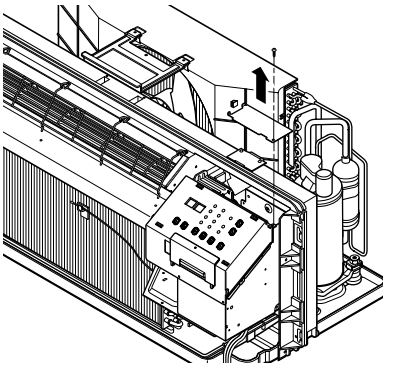
11. Install tube #1 and tube #2 (ref. fig. 31) on the pump assembly using the rubber elbows as shown in fig. 28.

Figure 28



12. Position pump assembly to the basepan as shown in fig. 29 and fasten the pump bracket to the basepan using the three screws provided.

Figure 29



13. Insert tube #2 of the pump assembly through the plastic grommet of the sheet metal partition as shown in fig. 30. Then connect the end of tube #2 to the plastic elbow coming out of the inlet of the spraying tube.

Figure 30

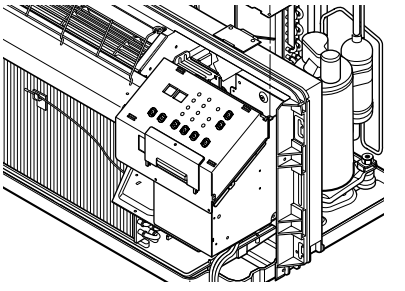


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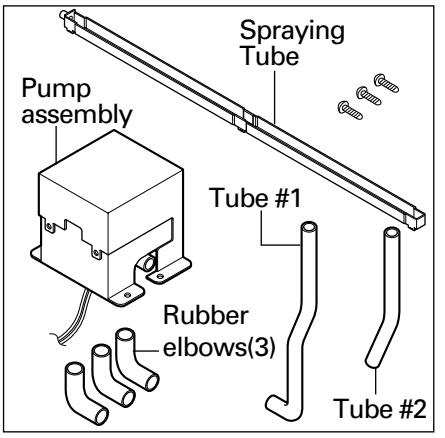
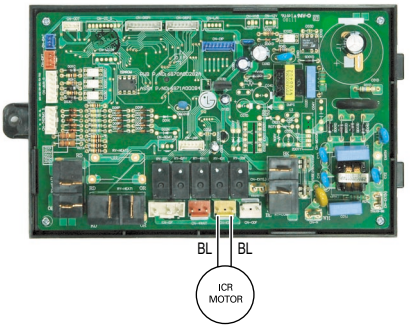
Figure 31



14. Connect the condensate pump to the ICR relay of the terminal of the board as shown in fig. fig 32 & 34 whichever is applicable Make sure to fasten the pump wire through the wire clip on the back side of the control barrier as shown in fig. 33

Figure 32



15. Assembly the unit back following the reverse order of disassembly.

NOTE: All tube should be inserted into rubber elbows by at least 1/2 inch

Figure 33

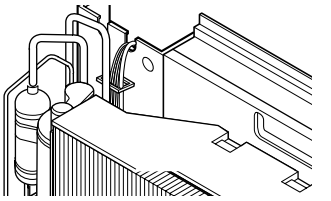
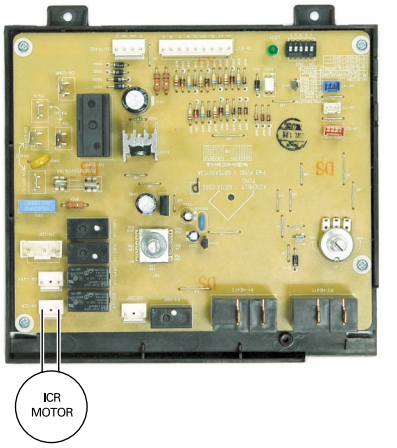


Figure 34



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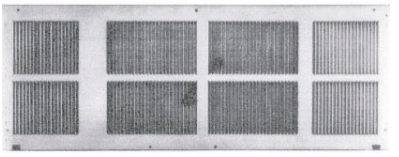
Architecture Grille Aluminum - Single Pack

Part No: AYAGALA01

Stamped Aluminum Grille



Architecture Grille

Description

Outdoor grilles are attached to the wall sleeve and exposed to the exterior wall. The grilles are an industry standard size of 42" x 16".

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. The unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

⚠ **WARNING**

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:

The unit OFF switch does not disconnect all electrical power to this unit.

Note:

A baffle kit must not be used with a stamped aluminum grille on any PTAC installation.

Stamped Aluminum Grille

1. Prepare the wall sleeve for installation of the grille by removing the cardboard stiffener and rear enclosure panel from the sleeve. These items may be removed from inside of the building.

Note:

The sleeve stiffener must be taken out before the rear sleeve enclosure panel can be removed from the sleeve.

2. Prepare the stamped aluminum grille for installation on the sleeve by inserting the six (6) plastic grommets into the square holes located near the outer edges of all four sides of the grille. With the grille positioned so the flanges of all four sides are in the up position, insert the grommets so the square end protrudes through the grille in the opposite direction from the flanges.
3. Turn the grille so it can be removed through the rear sleeve opening.
4. Install the stamped aluminum grille by aligning the guide pins located in the lower right and left hand corners of the grille with the corresponding holes in the rear of the wall sleeve.
5. Secure the grille by threading each of the screws into the plastic grommets.
6. Remove the wire handle (not shown in the picture) from the center of the grille prior to installing the chassis into the sleeve.

Note:

Be sure to keep a firm grip on wire handle and grille to prevent it from dropping and/or causing possible injury or property damage.

Architectural Grille

1. Remove the cardboard sleeve stiffener and the rear enclosure of the sleeve as described in Step 1 of the stamped aluminum grille instructions.
2. Turn the grille so it can be removed through the rear sleeve opening.
3. Install the grille by aligning the four screws supplied to their corresonding holes in the architectural grille.

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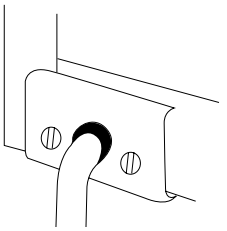
4. Secure the grille to the sleeve by tightening the four screws to their corresponding holes in the grille.
5. Remove the wire handle after the installation is complete.

Note:
The stamped aluminum grille includes 6 screws, washers, nuts, and plastic grommets. The architectural grille includes 4 screws.

Condensate Drain kit

Part No: AYDR101



Description

Condensate water will drain from the chassis into the sleeve during normal heat pump operation. This can also occur during times of high humidity when in cooling operation. Install either the outdoor or indoor drain kit components to control the condensate water where normal drainage from the wall sleeve is not possible or undesirable. See Figure 35 for all components of the drain kit.

⚠ **WARNING**

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/ tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

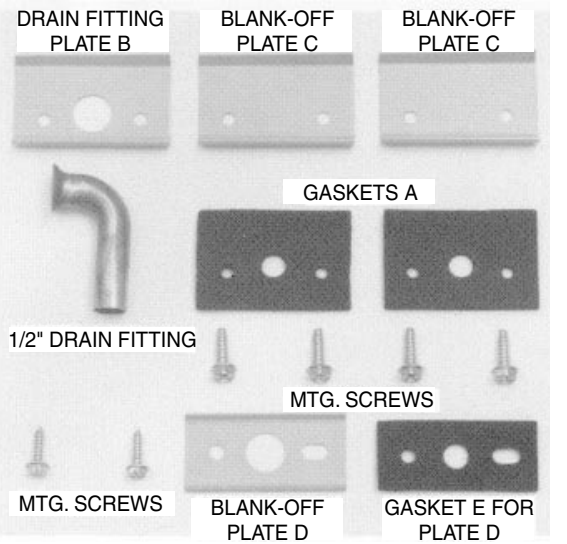
Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. The product must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

Figure 35 – Components of Drain Kits



Drain Installation

Note:
The optional drain kit serves only as a link between the unit and field-supplied condensate drain system.
Installing the kit without connecting it to a drainage system will result in inadequate condensate removal, possible leakage and corrosion.

Algaecide: Some algaecide products may cause damage to the unit basepan and therefore should not be used. Contact your sales representative when considering the use of a commercial algaecide. See Figure 35 for components of the drain kit.

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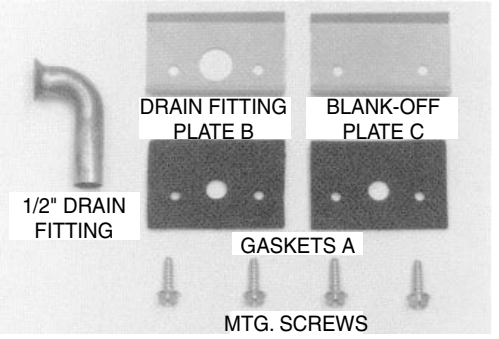
Figure 36 – Outdoor Drain Kit Installation



Outdoor Drain Kit Installation

Before installing the wall sleeve louvered condenser grille, it must be determined if the optional outdoor wall sleeve drain kit is to be installed. The drain kit will allow the condensate from the outdoor and indoor coils to be routed to a suitable area. The drain kit can be installed so the condensate can be drained from the right or left hand side of the wall sleeve. See Figure 36. See local codes for proper condensate disposal.

To install the outdoor drain components proceed as follows:

1. Remove the rear enclosure panel and the sleeve stiffener. These items may be removed from the inside of the building.
2. The drain fitting can be installed on the left or right hand side of the sleeve. (Illustration will be for a right hand installation.) Insert the drain fitting in the opening of gasket A and hole of plate B. Secure this assembly to the rear of the sleeve with two sheet metal screws into holes G provided in sleeve. See Figures 37 and 38.
3. Locate the other gasket A on the back of blank off plate C and secure the assembly to the left rear of wall sleeve with sheet metal screws provided. See Figure 39 for finished left hand side installation.

If the unit chassis is to be installed right away, install the condenser grille to wall sleeve with hardware provided. See condenser grille installation instructions.

If the unit chassis will not be installed right away, replace the rear enclosure panel in the wall sleeve. This will help protect the inside of the building from weather damage.

If a subbase is used, be sure the right hand subbase cover is removed before the chassis is installed in the sleeve. Slide the chassis into the wall sleeve until the chassis flanges contact the front edge of sleeve. Secure the chassis to the wall sleeve on each side with screws provided.

Re-install the cabinet front.

See the following pages for installation instructions of indoor drain kit.

Figure 37

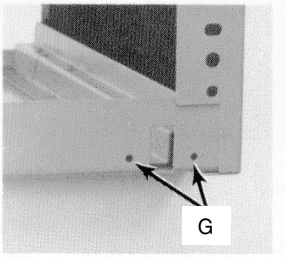


Figure 38

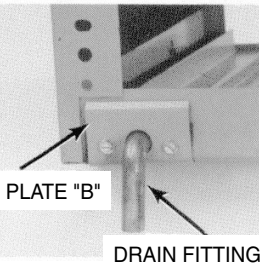


Figure 39

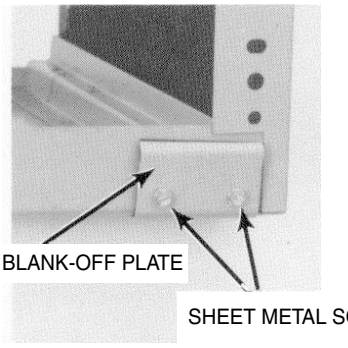
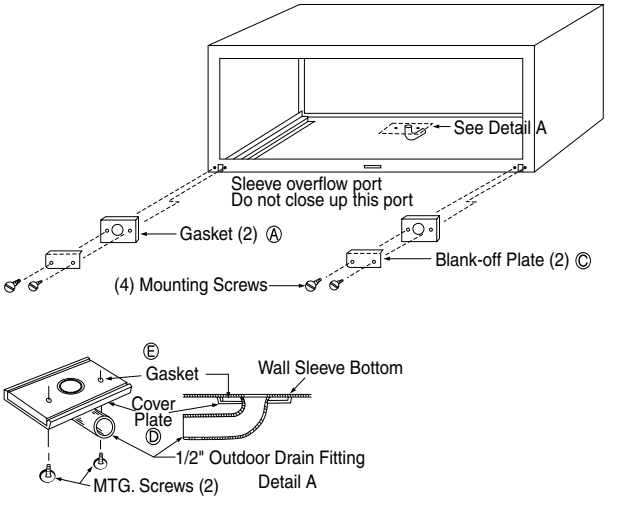


Figure 40



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Indoor Drain Kit Installation

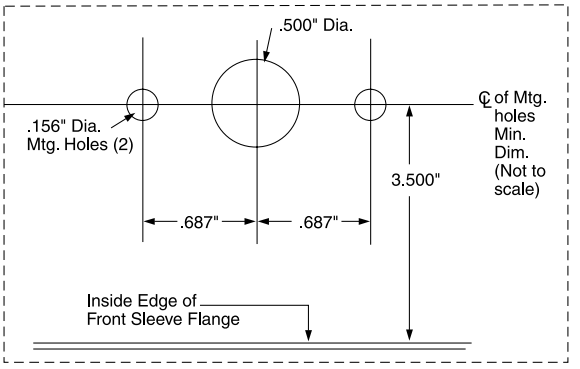
The internal drain is installed on the bottom of the wall sleeve when it is required to drain the condensate into a drain system inside of the building.
The components of the wall sleeve drain kit are shown in Detail A. Use components C (2), D, E, mounting screws (6) and the Outdoor drain fitting.

1. The components D, E, and drain fitting of the kit are mounted on the bottom of the wall sleeve prior to the installation of the sleeve. It may be located in a feasible area on the bottom of the sleeve which is inside of the room except when a subbase is used. When a subbase is installed, the drain may be a minimum of 3 1/2 " from the front flange of the wall sleeve. The minimum clearance should provide adequate clearance for the subbase, see Figures 40 and 41.
2. Cut out the template in the lower right hand corner of these instructions to locate the field drilled holes. (Two to mount the plate and one for the Outdoor drain fitting). See Detail A on how the components have to be installed after the holes are drilled in the bottom of the wall sleeve. If the drain fitting is not connected to an indoor drainage system immediately after the wall sleeve is installed, it must be plugged with a cork to prevent indoor water damage in case it rains.

An indoor tube or hose (furnished by others) must be installed on the drain fitting and interconnected to the drain system inside of the building.

Install the two blank-off plates C and gaskets A on the outdoor portion of the wall sleeve as shown in Figure 40. These components may be installed after the sleeve is secured in the wall opening just prior to the installation of the condenser grille and chassis.

Figure 41



Leveling Legs

Part No: AYLL101

Description

Leveling legs are designed to provide extra front support and leveling of the wall sleeve. Two leg assemblies are required per unit and are provided in each kit. Four screws are also provided with each kit for attachment to the wall sleeve. See Figure 42.

The leveling legs must be installed before the chassis is installed, but after the wall sleeve is in place.
Holes must be drilled in each side of the wall sleeve, below the duct package holes, for attachment to the wall sleeve.

Receiving

- Compare kit identification number with sales order to ensure that the correct kit has been received.
- Inspect the leveling legs for shipping damage. File damage claims with the delivering carrier immediately.

Installation

The installation and servicing of this equipment should be performed by qualified, experienced technicians.

WARNING

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

Checklist

The following is an abbreviated guide to leveling leg installation. Refer to appropriate areas for more detailed information.

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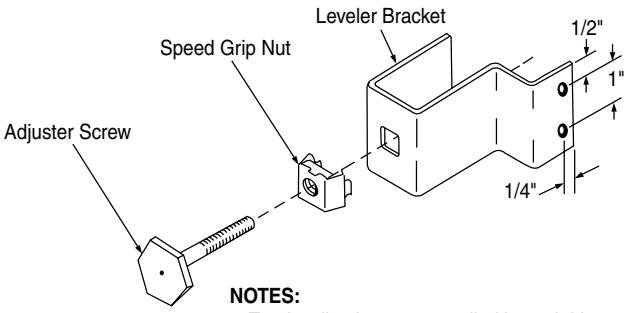
Leveling Leg Assembly

To install the leveling leg assembly, complete the following:

1. Drill two 1/8-inch holes in each side of the wall sleeve, as shown in Figure 43, using the leveling leg assembly as a template. Locations near the front of the sleeve provide more support.
2. Adjust the leveling legs to the approximate height needed and install them on either side of the wall sleeve, using the screws provided. Bottom of wall sleeve can be anywhere from three to five inches above the screw base. Caulk around screws to prevent water leaks.
3. Level the sleeve horizontally from side-to-side. Provide a slight slope (one-quarter bubble in the sight glass) toward the outside. Check the level again after the unit has been installed. Adjust the legs as needed.

Figure 43 - Leveling Leg Assembly

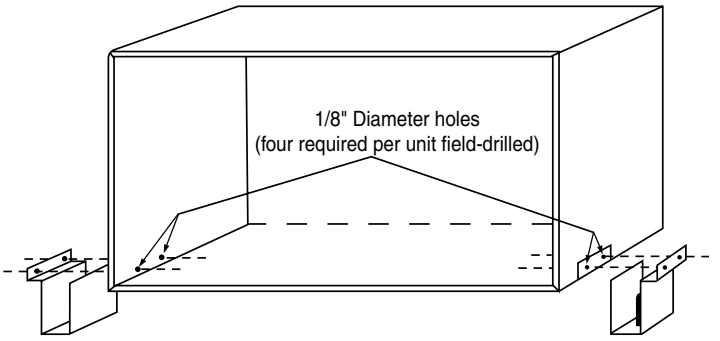


NOTES:
1. Two leveling legs are supplied in each kit.
2. One kit is required per unit.
3. Fout mounting screws are provided in each kit.

Installation on Wall Sleeve

1. Drill four 1/8-inch diameter holes in the wall sleeve, two on each side, using the leveling legs as a template. Caulk around screws to prevent water leaks.
2. Attach the legs to the wall sleeve, using the screws provided.
3. Adjust the leveling legs to level the wall sleeve from side to side and provide a slight pitch to the outside (one-quarter bubble in sight glass).

Figure 44 - Leveling Leg Installation on Wall Sleeve



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Hard Wire Kit

Part No: AYAGALA01

Description

Hard Wire Junction Box (Direct Wire Sub-Base) The hard wire junction box kit is used to hard wire the unit when it is not desirable to use the standard unit subbase or the unit power cord.
The junction box provides a protected enclosure for electrical connections as required by some electrical codes.
The hard wire junction box is intended to be mounted on the floor or the adjacent wall.

The junction box is furnished with approximately 2-1/2 feet of 1/2-inch flexible steel conduit and a metal box for securing the conduit to the unit cabinet at the incoming power opening.

An optional 230/208V or 265V power switch assembly is available for use with the hard wire junction box or subbase. The switch provides a POWER ON/OFF function at the unit as required by some electrical codes.
A replacement junction box cover plate is provided with each switch kit.
For additional information, refer to the Power Switch Installation Instructions.

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. Unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of this equipment should performed by qualified, experienced technicians.

Junction Box Kit Installation and Wiring Procedure

Electrical connections at the unit must be made after the unit chassis is installed in the wall sleeve. The installer must determine and supply the mounting components for attaching the junction box to the wall or door.

⚠ WARNING

Hazardous Voltage!

Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:

The unit OFF switch does not disconnect all electrical power to this unit.

CAUTION

Use Copper Conductors Only!

Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors may result in equipment damage.

Important Note:

All wiring must comply with applicable local and national codes. Types and location of disconnect switches must comply with all applicable codes.

1. Remove the cover plate from the junction box
2. Mount the junction box to the wall or floor within 28 inches (711 mm) of the lower right corner of the wall sleeve.
3. If a disconnect switch is to be used, make electrical connections to it and mount the switch in the junction box. Refer to the Power Switch Installation Instructions.
4. Remove control panel assembly by removing the two screws holding control panel in place. Rotate the panel forward.
5. Disconnect the power cord leads from all electrical connections including the ground wire.
6. Remove the power cord clamp and the power cord from the unit.
7. For 208/230-volt units, remove and discard the white lead from the wire assembly. For 265-volt units, remove and discard the red lead from the wire assembly.
8. Remove the retaining ring from the threaded portion of the straight conduit clamp. Insert the three wires into the metal box through one of the two openings in the box. Replace the hole cover grommet into the unused hole to prevent objects from entering the box.
9. Replace the retaining ring back on the conduit clamp inside the metal box and tighten the ring securely.
10. Insert the three wires extending from the metal box into the incoming power opening on the unit so that approximately 20 inches (508 mm) of the wires protrude through the opening.
11. Attach the metal box to the chassis with the two screws provided. See Figure 45.
12. Insert the wire tie into the 1/4-inch diameter hole located just above the incoming power opening. Tie all wires together securely with the wire tie. See Figure 46.

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208/230 Volt Units

1. Remove and discard the white lead from the wire assembly.
2. Connect the black lead to the line 2 terminal on the control board.
3. Connect the red lead to the common (C) terminal on the capacitor.
4. Connect the ground wire to the partition panel where the ground wire on the power cord was located.
   Use the supplied green ground screw.
5. Connect the red lead in the wire assembly at the junction box to the red lead of the field power source.
6. Connect the black lead in the wire assembly at the junction box to the black lead of the field power source.
7. Connect the ground wire of the field power source to the ground wire of the wire assembly at the junction box.
8. Install the junction box cover plate.
9. Reinstall the control panel assembly.

265 Volt Units

1. Remove and discard the red lead from the wire assembly .
2. Connect the black lead to the center terminal of the fuse holder.
3. Connect the white lead to the common (C) terminal on the capacitor.
4. Connect the ground wire to the partition panel where the ground wire on the power cord was located.
   Use the supplied green ground screw.
5. Connect the white lead of the wire assembly at the junction box to the white lead of the field power source.
6. Connect the black lead of the wire assembly at the junction box to the black lead of the field power source.
7. Connect the ground wire of the field power supply to the bare ground wire of the wire assembly at the junction box.
8. Install the junction box cover plate.
9. Reinstall the control panel assembly.

Figure 45 - Mounting Hard Wire Junction Box Kit

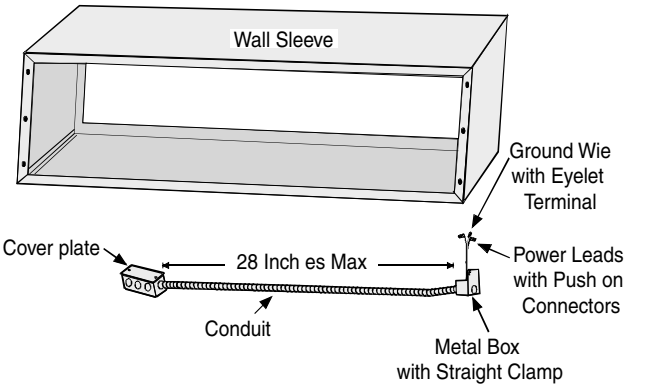


Figure 46 - Metal Box Location

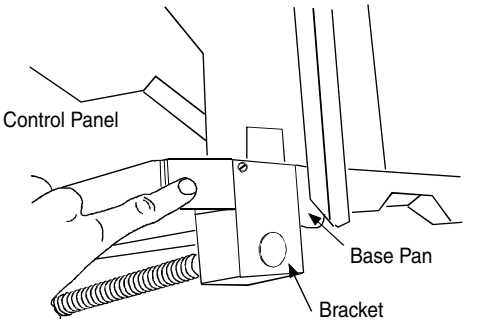
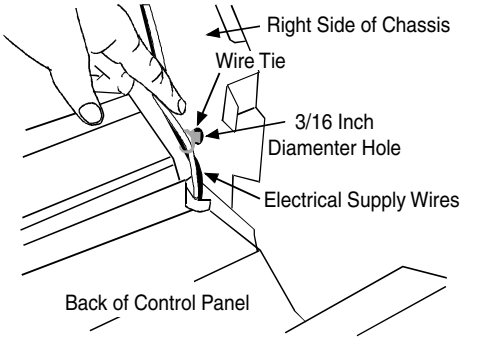


Figure 47 - Electrical Wiring Routing



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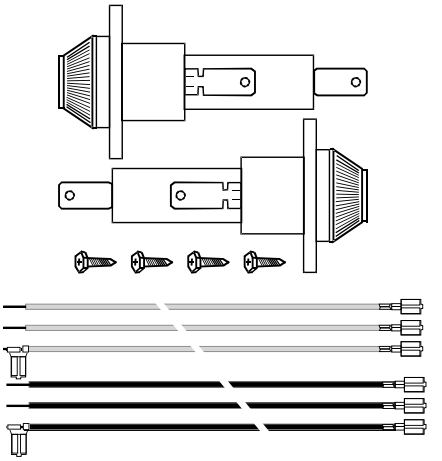
Fuse Holder Kit

Part No: AYFH1101



Description

This optional fuse holder kit can be installed directly in the chassis or in the optional subbase.
Fuse holder kits are available in 230/ 208 volt ratings. The installer should supply time delay fuses at 15, 20, 25, or 30 amps in accordance with the Maximum Overcurrent Protection as listed on the unit nameplate. Fuses may be purchased from the parts department.

Note:
The installation and servicing of this equipment must be performed by qualified, experienced technicians only.

⚠ **WARNING**

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/ tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

CAUTION

Use Copper Conductors Only!
Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors may result in equipment damage.

Important Note:
All wiring must comply with applicable local and national codes.
Type and location of fused disconnect switch(es) must comply with all applicable codes. Failure to follow these codes could result in overheating and equipment failure.

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. Unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

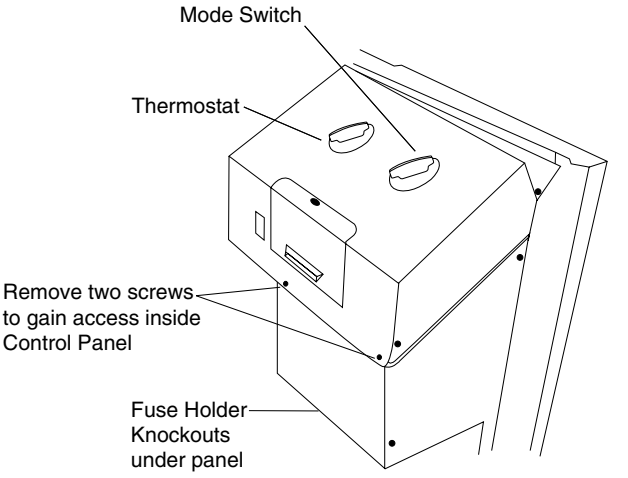
Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

Fuse Holder Kit Installation (Without Subbase)

1. Remove front by rotating bottom outward and then lifting up and out from chassis.

Figure 48 - Control Panel



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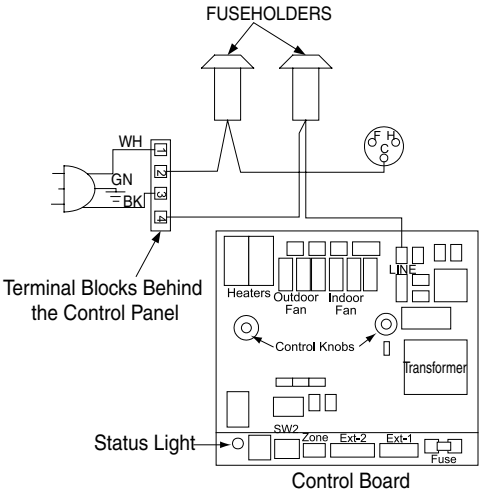
2. To gain access inside the control panel, after removing the knobs and escutcheon, remove the screws holding panel in position.
   Tilt control panel forward, being careful not to pinch any wires. (Figure 48)
3. As viewed from the front, remove both knockouts on the control panel.
4. Insert two fuse holders from the front. The fuse holders should be oriented so the quick-connect tabs are toward the center of the unit. Attach fuse holders using the screws and nuts provided. (Figure 48)
5. Remove both power cord leads, one lead from the capacitor and one from the electronic board.
6. Install one power cord lead on the center terminal of one fuse holder. (Figure 49)
7. Install the remaining power cord lead on the center terminal of the second fuse holder. (Figure 49)
8. Connect BK-10 wire from the side terminal of one fuse holder to the Line terminal on the electronic board. (Figure 48)
9. Connect RD-10 wire from the side terminal of the other fuse holder to the common (C) terminal on the capacitor. (Figure 49)
10. Tilt control panel back to original location, being careful not to pinch any wires. Align the control panel with the cover and screw panels into place with original screws. Replace escutcheon and control knobs.

Fuse Holder Kit Installation (With Subbase)

See previous section for installation in the control panel.

1. Remove both knockouts at the fuse holder location. (Figure 50)
2. Install the fuse holders using screws provided. The side connector tab on the fuse holders should be towards the left.
3. Connect a stripped BK-9 wire to the center of the quick-connect tab of the fuse holders. Wire nut the other end of this wire to the black field connection wire (TB1). (Figure 51)
4. Connect the other stripped BK-9 wire to the quick-connect tab on the side of the same fuse holder.
   Wire nut the other end to black subbase wire leading to receptacle. (Figure 51)

Figure 49 - Fuse Holder Diagram
Control Panel Installation



5. Connect the stripped RD-9 wire to the center quick-connect tab of the second fuse holder. Wire nut the other end to the red field connection wire (TB3). (Figure 51)
6. Connect the other stripped RD-9 wire to the quick-connect tab on the side of the second fuse holder.
   Wire nut other end to red subbase wire which leads to receptacle. (Figure 51)
7. Insert time delay fuses into the fuse holders. Size all fuses by the Maximum Overcurrent Protection shown on the nameplate. Also refer to the serial plate on the unit.

Figure 50 - Subbase (Left Side)

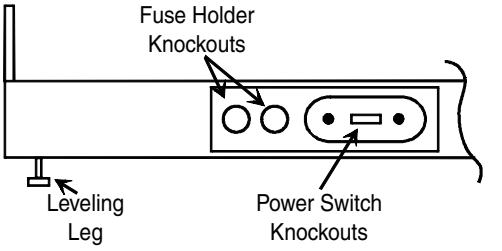
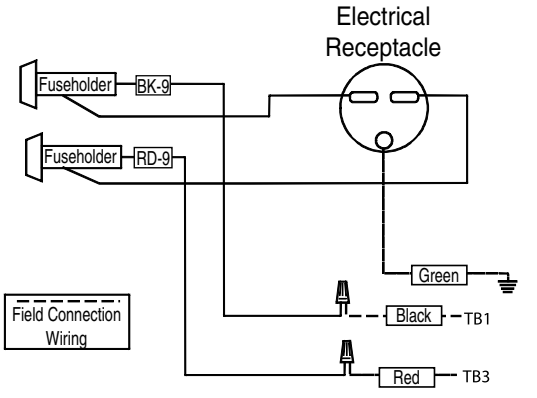


Figure 51 - Fuse Holder Diagram Subbase Installation



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Remote Escutcheon Kit

Part No: AYRE110

Description

This kit provides an attractive replacement escutcheon (see Figure 52). The kit allows the removal of control knobs and graphics, which are not required when a wall thermostat is used to control the unit.

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. The unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

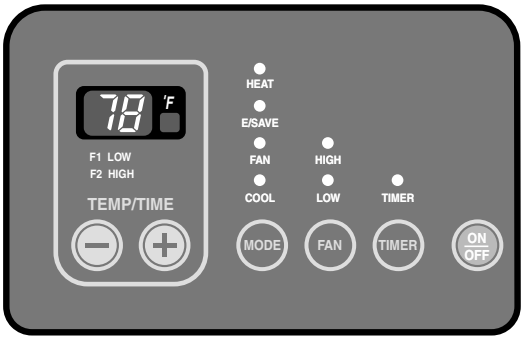
The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

⚠ **WARNING**

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/ tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

Figure 51—Standard Escutcheon



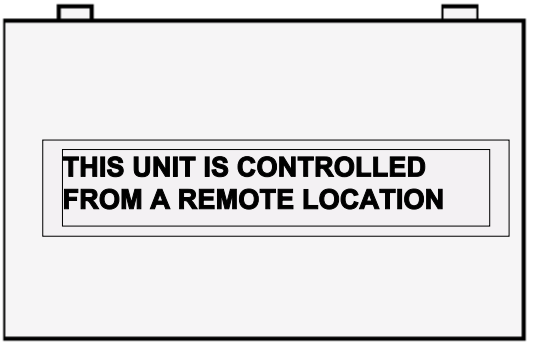
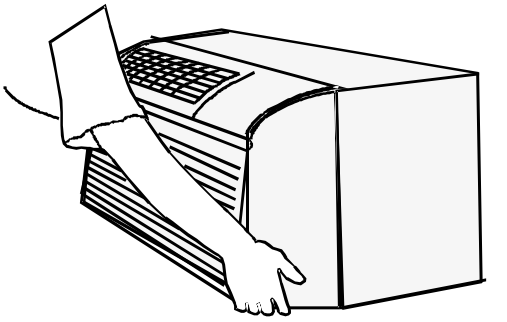
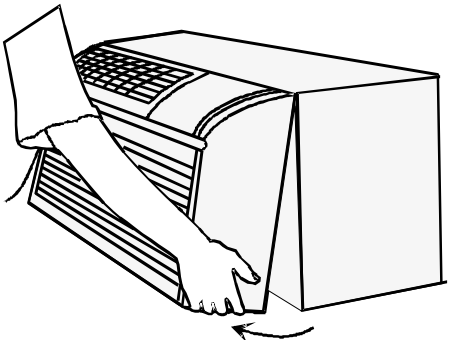


Figure 53



1. Grasp the cabinet front as shown in Figure 53.
2. Pull the bottom of the cabinet front away from the chassis until the retaining clips disengage as in Figure 54.
3. Lift the cabinet front off the chassis.
4. Lifting the front edge of the escutcheon, slide the tabs at the top of the escutcheon out of the retaining holes and remove the escutcheon. See Figure 55.

Figure 54



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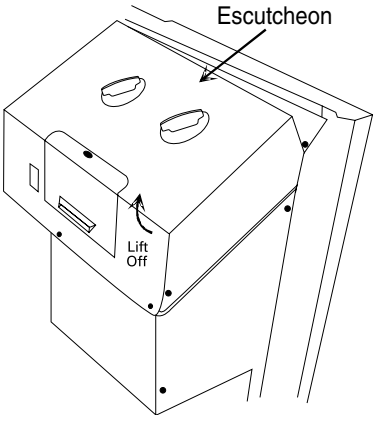
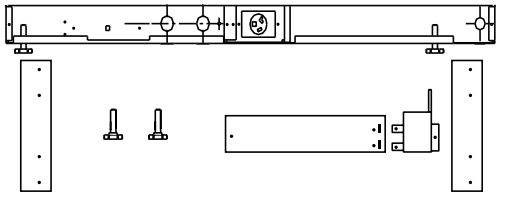
5. Replace the escutcheon with the one from this kit by inserting the tabs at the top of the escutcheon into the retaining holes and laying the escutcheon flat on the control panel.
6. Replace the front by reversing steps 1 through 4.
7. Store the control knobs and escutcheon just removed from the unit for possible reinstallation if the wall thermostat is no longer desired.

Figure 55



Subbase

Part No: AYSB1101 (230/208V 20A)
AYSB2101 (230/208V 30A)



Description

The subbase may be installed on the wall sleeve before or after installing the wall sleeve. The subbase is prewired. Electrical connections can be made on the left side after the access cover is removed. A grounding screw is provided.

Receiving

Upon receipt of the product, inspect the shipping carton for signs of visible damage. Report any damage or shortage to the carrier and note it on the delivery receipt. The unit must be stored in its original shipping carton in a dry, secure place prior to its installation and use.

Installation

The installation and servicing of the equipment referred to in this booklet should be performed by qualified, experienced technicians.

⚠ **WARNING**

Hazardous Voltage!
Disconnect all electric power, including remote disconnects before servicing. Follow proper lockout/ tagout procedures to ensure the power can not be inadvertently energized. Failure to disconnect power before servicing could result in death or serious injury.

Important Note:
The unit OFF switch does not disconnect all electrical power to this unit.

CAUTION

Use Copper Conductors Only!
Unit terminals are not designed to accept other types of conductors. Failure to use copper conductors may result in equipment damage.

Note:
When using a subbase, the wall sleeve must be installed a minimum of 3-1/4 inches (83 mm) above a finished floor and a minimum of 2-3/4 inches (70 mm) from a finished wall.

1. Remove parts B and C (Figure 57, next page) from the subbase and join together using two metal screws provided. This assembly now becomes the right front cover (Part F) of the subbase. (Figure 56, next page)
2. Position subbase under the front of the wall sleeve.
3. Align the back edge of the flange on cover A (Figure 57, next page) to front of the wall sleeve flange. (Figure 58, next page)
4. Drill four 1/8 inch holes in wall sleeve to line up with holes in subbase. (Figure 57, Location D, next page) Mount subbase to wall sleeve with four sheet metal screws provided with kit. (Figure 57, Location D, next page)
5. Remove the left front cover from the subbase. (Figure 57, Part A, next page)
6. Position skirting on each side of wall sleeve to prevent the entry of foreign materials. Trim skirting to desired length. Attach skirting with four sheet metal screws provided with kit. (Figure 57, Location E, next page)
7. Wire subbase for appropriate voltage (Figure 59, next page).

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Note:

The proper subbase must be ordered to obtain the correct electrical receptacle. (Figure 60)

8. After wiring is complete, mount covers A and F to the subbase with provided screws. (Figure 57)
9. When installing optional accessories to the subbase, refer to each installation instruction for that accessory.

Figure 55

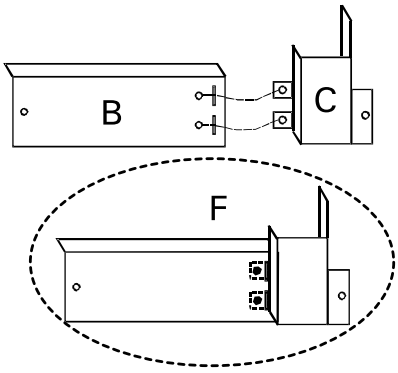

Figure 57 - Part/Location Identification

	Part/Location Identification
A	Left Front Cover
B	Right Front Cover
C	Front Cord Panel
D	Wall Sleeve Hole Location
E	Skirting Hole Location
F	Right Cover Assembly

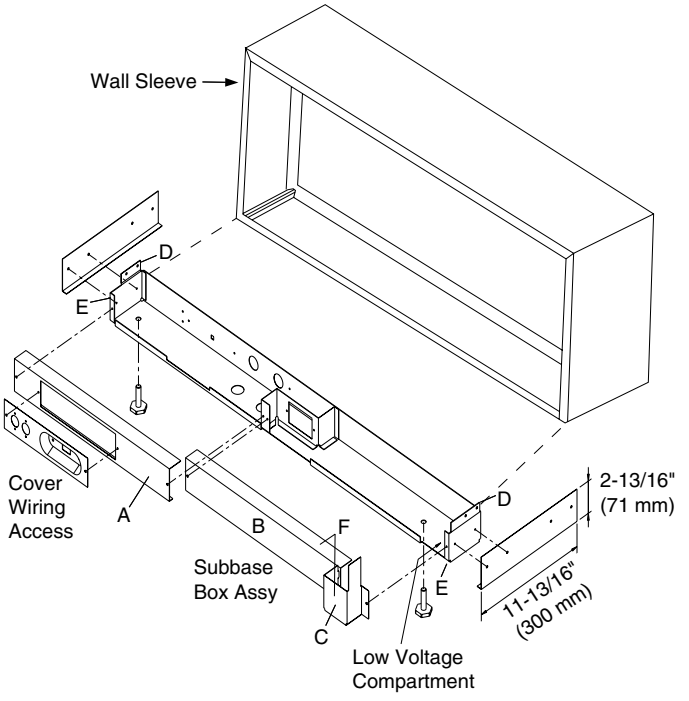

Figure 58 - Dimensions

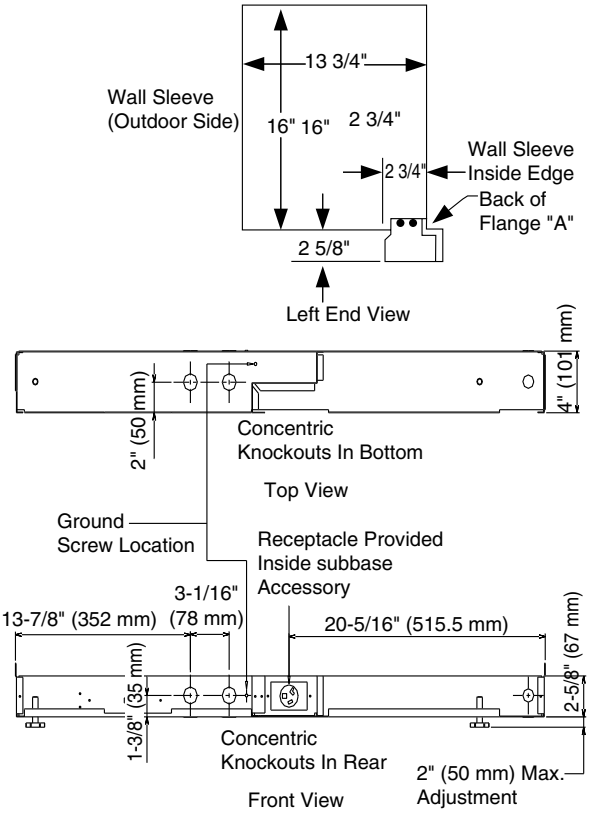

Figure 59 - Wiring Diagram

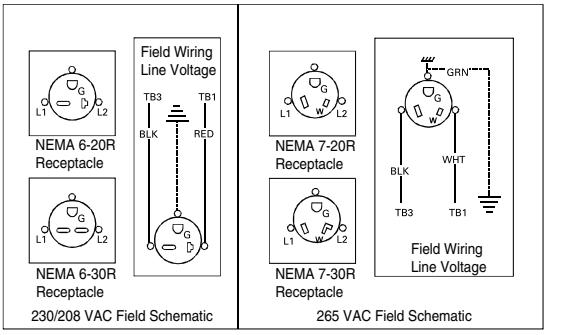

Figure 60 - NEMA Plug Configurations

Voltage	Unit Plug	Subbase Receptacle
230/208	NEMA6-15AMP	NEMA6-20AMP
265	NEMA7-20AMP	NEMA7-20AMP
230/208	NEMA6-20AMP	NEMA6-20AMP
265	NEMA7-20AMP	NEMA7-20AMP
230/208	NEMA6-30AMP	NEMA6-30AMP
265	NEMA7-30AMP	NEMA7-30AMP

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5. PERFORMANCE DATA

Air Conditioner Performance Data

	LP070CE*		LP090CE*		LP120CE*		LP150CE*	
Voltage (V)	208	230	208	230	208	230	208	230
Cooling Data								
Cooling Capacity (Btu/h)	7,400	7,600	8,800	9,000	11,500	11,800	14,100	14,300
Cooling Amps (A)	2.8	2.6	3.9	3.6	4.8	5.2	7.1	6.5
Cooling Power (W)	595	610	760	775	1045	1075	1470	1490
EER (Btuh/Watt)	12.5	12.5	11.6	11.6	11.0	11.0	9.6	9.6
Moisture Removal (Pts/h)	2.0	2.0	2.6	2.6	3.6	3.6	4.5	4.5
Airflow								
Indoor CFM (W et) @0.3ESP (Hi)	185	215	230	260	300	330	315	355
Indoor CFM (W et) @0.3ESP (Lo)	145	175	180	220	290	290	275	315
Indoor CFM (Dry) @0.3ESP (Hi)	210	240	250	250	320	350	350	390
Indoor CFM (Dry) @0.3ESP (Lo)	170	200	210	210	280	310	310	350

Heat Pump Performance Data

	LP070HE*		LP090HE*		LP120HE*		LP150HE*	
Voltage (V)	208	230	208	230	208	230	208	230
Cooling Data								
Cooling Capacity (Btu/h)	7,300	7,600	9,000	9,300	11,800	12,000	14,000	14,100
Cooling Amps (A)	3.0	2.8	4.1	3.8	5.6	5.1	6.5	7.1
Cooling Power (W)	600	625	820	845	1145	1165	1445	1455
EER (Btuh/Watt)	10.9	10.9	11.0	11.0	10.3	10.3	9.7	9.7
Moisture Removal (Pts/h)	2.0	2.0	2.6	2.6	3.6	3.6	4.5	4.5
Heat Pump Heating Data								
Heating Capacity (Btu/h)	6,200	6,400	8,000	8,200	10,600	10,800	13,300	13,500
Heating Amps (A)	2.6	2.4	3.4	3.1	3.4	3.1	6.0	5.5
Heating Power (W)	520	535	690	705	1000	1,020	1210	1235
COP (W/W)	3.5	3.5	3.4	3.4	3.1	3.1	3.2	3.2
Airflow								
Indoor CFM (W et) @0.3ESP (Hi)	195	225	240	270	310	340	315	355
Indoor CFM (W et) @0.3ESP (Lo)	155	185	190	230	270	300	275	315
Indoor CFM (Dry) @0.3ESP (Hi)	220	250	260	290	330	360	350	390
Indoor CFM (Dry) @0.3ESP (Lo)	180	210	220	250	290	330	310	350

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Cooling Wattage - Air Conditioners

Model		LP070CE*		LP090CE*		LP120CE*		LP150CE*	
Temperature									
Outdoor Air Dry Bulb	Return Air Wet Bulb	Total Wattage Input Min	Max	Total Wattage Input Min	Max	Total Wattage Input Min	Max	Total Wattage Input Min	Max
Rating Wattage		560	625	785	810	1045	1090	1045	1090
100	85	590	715	815	900	1050	1180	1080	1190
	80	585	720	820	905	1055	1180	1090	1205
	75	585	720	820	905	1060	1180	1100	1215
	70	585	720	820	905	1055	1180	1100	1220
	65	590	715	815	900	1050	1180	1095	1215
	60	580	710	805	890	1045	1175	1090	1205
	55	570	700	795	880	1030	1160	1070	1190
95	85	560	685	770	855	1000	1125	1025	1140
	80	565	690	775	860	1005	1130	1035	1150
	75	565	695	780	865	1005	1135	1035	1160
	70	565	690	775	860	1005	1130	1045	1165
	65	560	690	770	855	1000	1125	1040	1160
	60	555	680	765	850	990	1120	1030	1150
	55	540	670	765	835	980	1105	1020	1135
90	85	540	660	730	815	950	1070	965	1085
	80	540	665	735	820	950	1075	980	1095
	75	540	665	735	820	955	1080	990	1105
	70	540	665	735	820	950	1075	990	1105
	65	535	660	730	815	950	1070	990	1100
	60	525	660	720	805	940	1060	980	1095
	55	520	640	710	795	930	1055	965	1075
85	85	510	635	690	770	895	1020	915	1025
	80	515	640	690	775	900	1020	930	1040
	75	520	640	695	780	905	1030	936	1046
	70	515	640	690	775	900	1020	935	1050
	65	510	635	690	770	895	1020	930	1045
	60	505	625	680	765	890	1010	925	1035
	55	490	615	670	755	880	1000	907	1020
80	85	485	605	645	730	850	970	860	970
	80	490	610	650	735	850	970	870	985
	75	490	610	650	735	850	975	880	990
	70	490	610	650	735	850	970	885	990
	65	485	605	645	730	850	970	880	990
	60	475	600	635	720	940	960	870	980
	55	465	585	625	710	830	950	855	965

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Cooling Wattage - Heat Pumps

Model		LP070HE*		LP090HE*		LP120HE*		LP150HE*	
Temperature									
Outdoor Air Dry Bulb	Return Air Wet Bulb	Total W attage Input		Total W attage Input		Total W attage Input		Total W attage Input	
		Min	Max	Min	Max	Min	Max	Min	Max
Rating W attage		600	625	810	850	1120	1145	1430	1460
100	85	625	705	830	935	1120	1230	1445	1570
	80	620	710	835	940	1125	1235	1465	1590
	75	620	710	835	940	1130	1240	1475	1600
	70	620	710	835	940	1125	1240	1475	1600
	65	615	705	830	935	1120	1230	1470	1600
	60	605	695	820	925	1115	1230	1460	1580
	55	595	685	810	915	1100	1210	1440	1562
95	85	580	670	785	890	1070	1180	1375	1500
	80	585	675	790	890	1075	1190	1390	1520
	75	590	680	795	890	1075	1190	1410	1530
	70	585	675	790	890	1075	1190	1410	1530
	65	580	670	785	890	1070	1180	1400	1520
	60	575	675	780	880	1060	1170	1390	1515
	55	560	655	770	865	1050	1160	1370	1495
90	85	550	640	745	845	1020	1130	1305	1430
	80	555	645	750	850	1025	1135	1325	1445
	75	555	645	750	850	1025	1135	1335	1460
	70	555	645	750	850	1025	1125	1340	1460
	65	550	640	745	845	1020	1130	1335	1455
	60	540	630	735	835	1010	1120	1320	1440
	55	530	620	720	825	1000	1110	1260	1420
85	85	515	610	700	800	970	1080	1240	1360
	80	520	610	705	800	975	1085	1260	1380
	75	525	615	705	810	975	1085	1265	1390
	70	520	610	705	800	975	1085	1265	1395
	65	515	610	700	800	970	1080	1260	1390
	60	510	600	690	790	960	1070	1250	1375
	55	500	590	680	775	950	1060	1230	1355
80	85	485	575	655	755	920	1030	1170	1290
	80	490	580	660	760	925	1030	1185	1310
	75	490	480	660	760	925	1035	1195	1320
	70	490	580	660	760	920	1030	1200	1320
	65	485	575	655	755	920	1030	1195	1315
	60	475	565	650	745	910	1020	1180	1305
	55	465	555	635	735	900	1010	1160	1280

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Cooling change of temperature - Air Conditioners

Room Air Dry Bulb	Room Air Wet Bulb	LP070CE* Temperature Across Indoor Coil (Δ T)		LP090CE* Temperature Across Indoor Coil (Δ T)		LP120CE* Temperature Across Indoor Coil (Δ T)		LP150CE* Temperature Across Indoor Coil (Δ T)	
		Min	Max	Min	Max	Min	Max	Min	Max
	Rating Btu/h	7000	7600	9000	9300	11700	12000	14300	14600
	Rating CFM	185	225	230	260	300	330	315	355
	85	1	3	2	6	1	5	1	4
	80	8	13	11	14	9	13	8	12
90	75	19	22	19	22	18	22	16	20
	70	30	33	28	30	26	30	25	27
	80	4	9	7	11	5	10	5	8
	75	14	19	15	18	13	18	12	16
85	70	23	27	23	25	21	25	20	23
	65	34	36	31	33	29	33	28	30
	75	9	14	11	14	9	13	8	12
	70	18	21	18	20	15	20	15	18
80	65	26	29	24	27	23	26	21	24
	60	35	36	32	33	29	33	29	30
	70	12	16	13	16	10	15	10	14
	65	18	22	18	21	15	20	15	19
75	60	25	28	23	26	21	25	20	24
	55	31	34	28	31	26	30	26	28
	65	12	15	12	14	9	13	9	13
70	60	17	20	16	18	13	17	13	17
	55	22	24	20	22	18	21	17	21

Cooling Change of Temperature - Heat Pumps

		Model							
Room Air Dry Bulb	Room Air Wet Bulb	LP070HE* Temperature Across Indoor Coil (Δ T)		LP090HE* Temperature Across Indoor Coil (Δ T)		LP120HE* Temperature Across Indoor Coil (Δ T)		LP150HE* Temperature Across Indoor Coil (Δ T)	
		Min	Max	Min	Max	Min	Max	Min	Max
	Rating Btu/h	7300	7600	9300	9600	12300	12600	14300	14600
	Rating CFM	195	225	240	270	310	340	315	355
	85	1	3	2	6	1	5	1	4
	80	8	13	11	15	10	13	8	12
90	75	19	22	19	22	18	22	17	20
	70	30	33	29	30	26	30	25	28
	80	4	9	7	11	5	10	5	9
	75	14	19	15	18	14	18	12	16
85	70	23	27	23	25	21	25	21	23
	65	33	36	31	33	30	33	28	31
	75	9	14	11	15	10	13	8	12
	70	18	21	18	20	16	20	16	18
80	65	26	29	24	27	23	26	22	25
	60	35	36	32	33	30	33	29	31
	70	12	16	13	16	11	15	10	14
	65	18	22	18	21	16	20	16	19
75	60	24	28	23	26	21	25	21	24
	55	31	34	29	31	26	30	26	29
	65	12	15	12	15	10	13	9	13
70	60	17	20	16	18	14	17	13	17
	55	22	24	20	22	18	21	18	21

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Heating Change of Temperature - Heat Pumps

Room Air Dry Bulb	Room Air Wet Bulb	Model LP070HE* Temperature Across Indoor Coil (Δ T)		Model LP090HE* Temperature Across Indoor Coil (Δ T)		Model LP120HE* Temperature Across Indoor Coil (Δ T)		Model LP150HE* Temperature Across Indoor Coil (Δ T)	
		Min	Max	Min	Max	Min	Max	Min	Max
	Rating Btu/h	6200	6400	8200	8400	10900	11200	13300	13500
	Rating CFM	220	250	260	290	330	360	350	390
50	85	22	24	24	27	27	30	28	30
	80	23	24	25	28	28	31	29	31
	75	24	25	26	29	29	32	30	31
	70	26	27	28	30	31	34	32	33
	65	26	27	28	30	31	34	32	33
45	85	19	22	22	24	24	29	27	30
	80	20	23	23	25	25	29	28	31
	75	21	24	24	26	26	30	29	31
	70	22	24	24	27	27	31	30	32
	65	23	25	25	28	28	32	31	33
40	85	17	20	20	22	23	27	27	30
	80	18	21	21	23	23	28	28	31
	75	19	22	22	24	24	29	29	31
	70	20	23	23	24	25	29	30	32
	65	21	24	24	25	26	30	31	33
35	85	15	17	17	20	21	24	27	29
	80	16	18	18	21	22	25	28	30
	75	17	19	19	22	23	26	29	31
	70	18	20	20	23	23	27	30	31
	65	19	21	21	24	24	28	31	32

Cooling Ampere Chart - Air Conditioners

Cond Inlet Air Temperature	Model LP070CE* Amperage		Model LP090CE* Amperage		Model LP120CE* Amperage		Model LP150CE* Amperage	
	Min	Max	Min	Max	Min	Max	Min	Max
Rating Ampere	2.6	2.9	3.6	3.9	4.8	5.2	6.5	7.1
100	2.6	2.9	3.4	4.0	5.6	5.6	6.6	8.0
95	2.4	2.8	3.2	3.8	5.4	5.3	6.2	7.6
90	2.3	2.7	3.1	3.6	5.2	5.1	5.9	7.2
85	2.2	2.6	2.9	3.4	4.9	4.8	5.6	6.8
80	2.1	2.4	2.8	3.3	4.7	4.6	5.3	6.4

Cooling Ampere Chart - Heat Pumps

Cond Inlet Air Temperature	Model LP070HE* Amperage		Model LP090HE* Amperage		Model LP120HE* Amperage		Model LP150HE* Amperage	
	Min	Max	Min	Max	Min	Max	Min	Max
Rating Ampere	2.6	2.9	3.6	3.9	4.8	5.2	6.5	7.1
100	2.6	2.9	3.4	4.0	5.6	5.5	6.6	8.0
95	2.4	2.8	3.2	3.8	5.3	5.2	6.2	7.6
90	2.3	2.6	3.1	3.6	5.0	5.0	5.9	7.2
85	2.1	2.5	3.1	3.4	4.8	4.7	5.6	6.8
80	2.1	2.3	2.9	3.3	4.6	4.5	5.3	6.4

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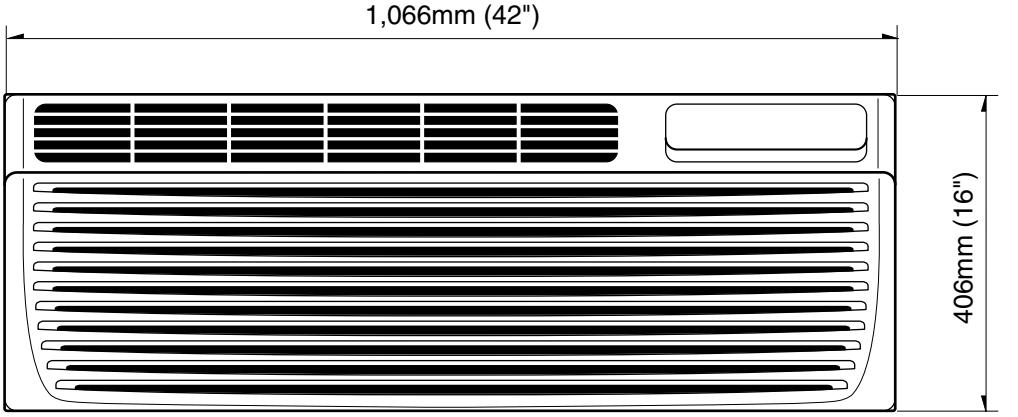
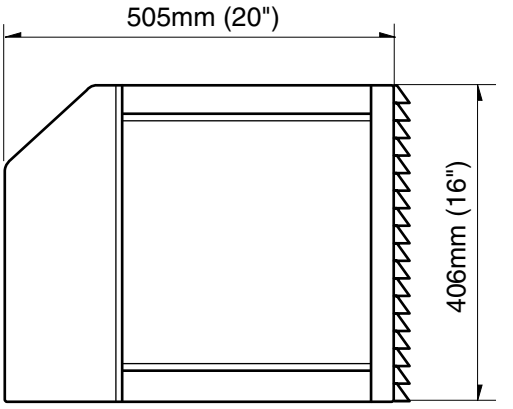
6. TROUBLESHOOTING GUIDE

6.1 OUTSIDE DIMENSIONS





6.2 PIPING SYSTEM

Following is a brief description of the important components and their functions in the refrigeration system.
Refer to Figure 61 to follow the refrigeration cycle and the flow of the refrigerant in the cooling cycle.

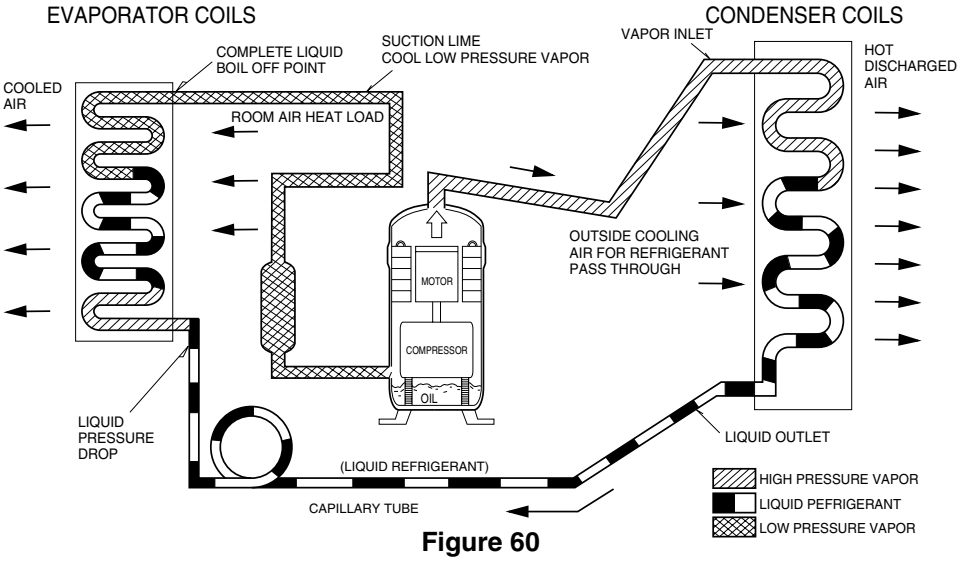


Figure 60

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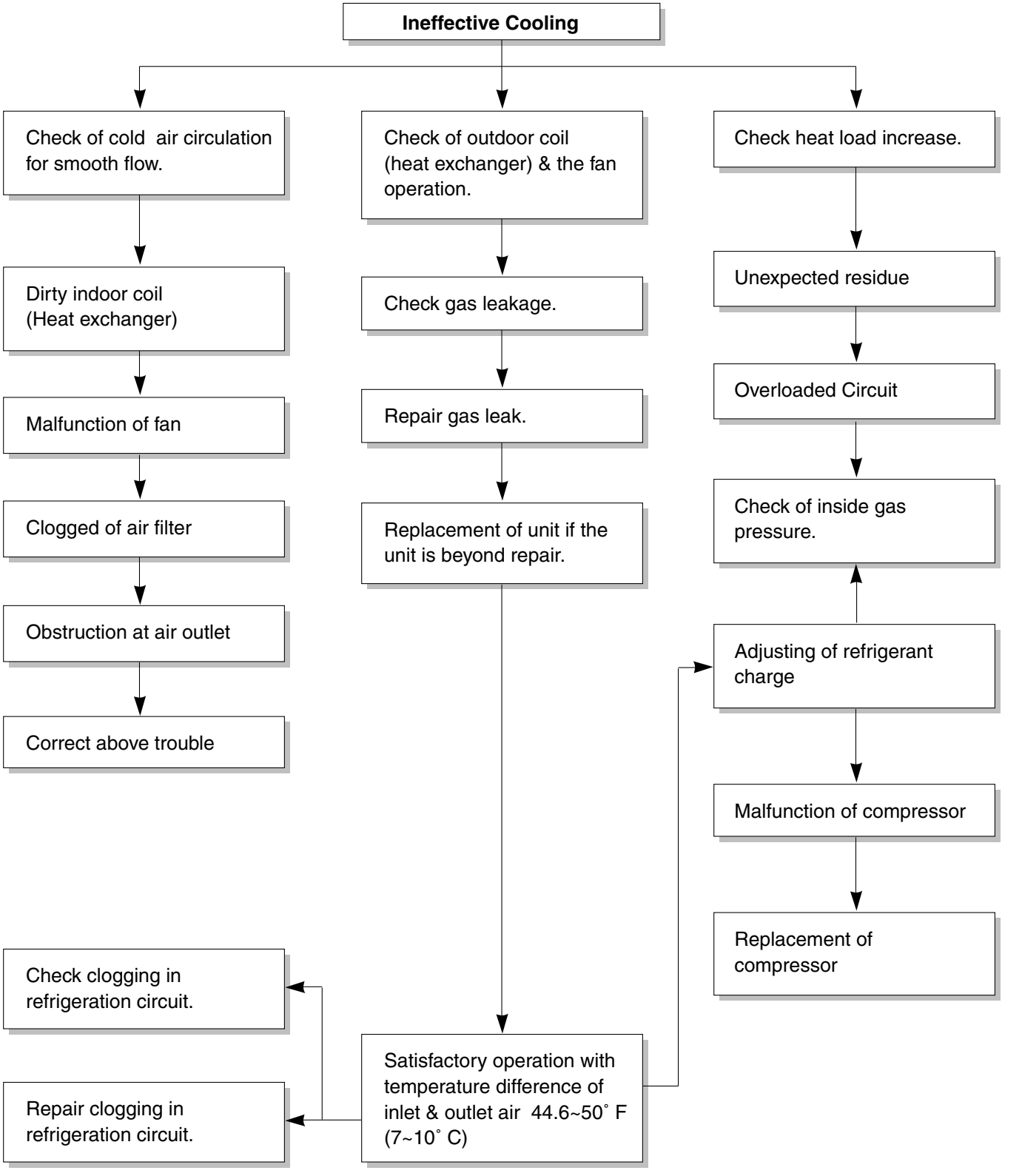
6.3 TROUBLESHOOTING GUIDE

In general, possible trouble is classified in two causes.
The one is Starting Failure which is caused from an electrical defect, and the other is Ineffective Air Conditioning caused by a defect in the refrigeration circuit and improper application.

Unit is running but cooling is ineffective



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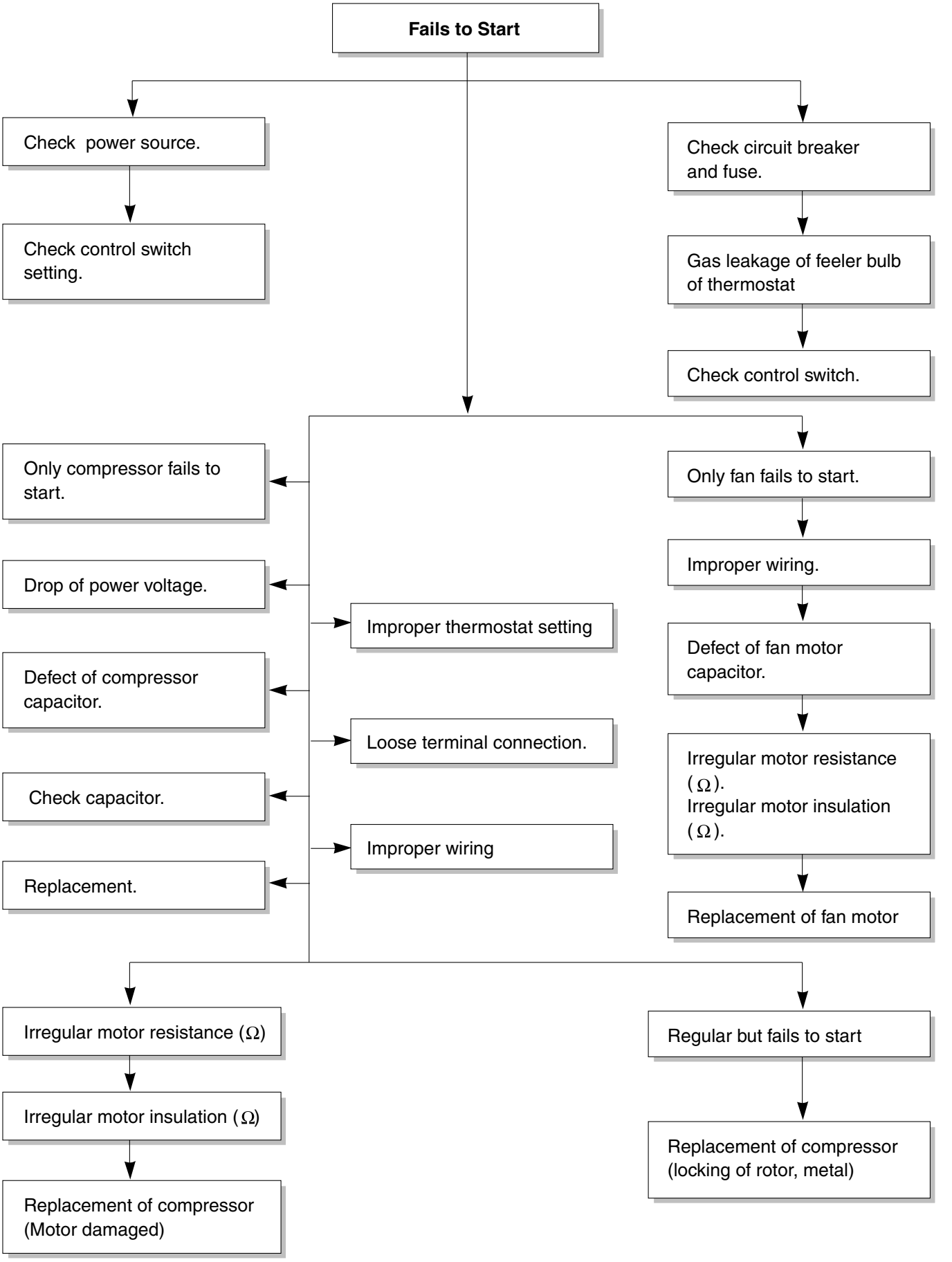

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COMPLAINT	CAUSE	REMEDY
Fan motor will not run.	No power	Check voltage at outlet. Correct if none.
	Power supply cord	Check voltage to rotary switch. If none, check power supply cord. Replace cord if circuit is open.
	Rotary switch	Check switch continuity. Refer to wiring diagram for terminal identification. Replace switch if defective.
	Wire disconnected or connection loose	Connect wire. Refer to wiring diagram for terminal identification. Repair or replace loose terminal.
	Capacitor (Discharge capacitor before testing.)	Test capacitor. Replace if not within ±10% of manufacturer's rating. Replace if shorted, open, or damaged.
	Will not rotate	Fan blade hitting shroud or cross flow fan hitting scroll. Realign assembly. Units using slinger ring condenser fans must have 1/4 to 5/16 inch clearance to the base. If it is hitting the base, shim up the bottom of the fan motor with mounting screw(s). Check fan motor bearings; if motor shaft will not rotate, replace the motor.
Fan motor runs intermittently	Revolves on overload.	Check voltage. See limits on this page. If not within limits, call an electrician. Test capacitor. Check bearings. Does the fan blade rotate freely? If not, replace fan motor. Pay attention to any change from high speed to low speed. If the speed does not change, replace the motor.
Fan motor noise.	Grommets	Check grommets; if worn or missing, replace them.
	Fan	If cracked, out of balance, or partially missing, replace it.
	Turbo fan	If cracked, out of balance, or partially missing, replace it.
	Loose set screw	Tighten it.
	Worn bearings	If knocking sounds continue when running or loose, replace the motor. If the motor hums or noise appears to be internal while running, replace motor.

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COMPLAINT	CAUSE	REMEDY
Compressor will not run, but fan motor runs.	Voltage	Check voltage. See the limits on the preceding. page. If not within limits, call an electrician.
	Wiring	Check the wire connections, if loose, repair or replace the terminal. If wires are off, refer to wiring diagram for identification, and replace. Check wire locations. If not per wiring diagram, correct.
	Rotary	Check for continuity, refer to the wiring diagram for terminal identification. Replace the switch if circuit is open.
	Thermostat	Check the position of knob If not at the coldest setting, advance the knob to this setting and restart unit. Check continuity of the thermostat. Replace thermostat if circuit is open.
	Capacitor (Discharge capacitor before servicing.)	Check the capacitor. Replace if not within ±10% of manufacturers rating. Replace if shorted, open, or damaged.
	Compressor	Check the compressor for open circuit or ground. If open or grounded, replace the compressor.
	Overload	Check the compressor overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool it, and retest.)

ROOM AIR CONDITIONER VOLTAGE LIMITS

NAME PLATE RATING	MINIMUM	MAXIMUM
208/230V	187V	253V

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COMPLAINT	CAUSE	REMEDY
Compressor cycles on overload.	Voltage	Check the voltage. See the limits on the preceding page. If not within limits, call an electrician.
	Overload	Check overload, if externally mounted. Replace if open. (If the compressor temperature is high, remove the overload, cool, and retest.)
	Fan motor	If not running, determine the cause. Replace if required.
	Condenser air flow restriction	Remove the cabinet. inspect the interior surface of the condenser; if restricted, clean carefully with a vacuum cleaner (do not damage fins) or brush. Clean the interior base before reassembling.
	Condenser fins (damaged)	If condenser fins are closed over a large area on the coil surface, head pressures will increase, causing the compressor to cycle. Straighten the fins or replace the coil.
	Capacitor	Test capacitor.
	Wiring	Check the terminals. If loose, repair or replace.
	Refrigerating system	Check the system for restriction.
Insufficient cooling or heating	Air filter	If restricted, clean of replace.
	Exhaust damper door	Close if open.
	Unit undersized	Determine if the unit is properly sized for the area to be cooled.
Excessive noise.	Cross flow fan	Check the set screw or clamp. If loose or missing, correct. If the blower or fan is hitting air guide, rearrange the air handling parts.
	Copper tubing	Carefully rearrange tubing not to contact, compressor, shroud, and barrier.

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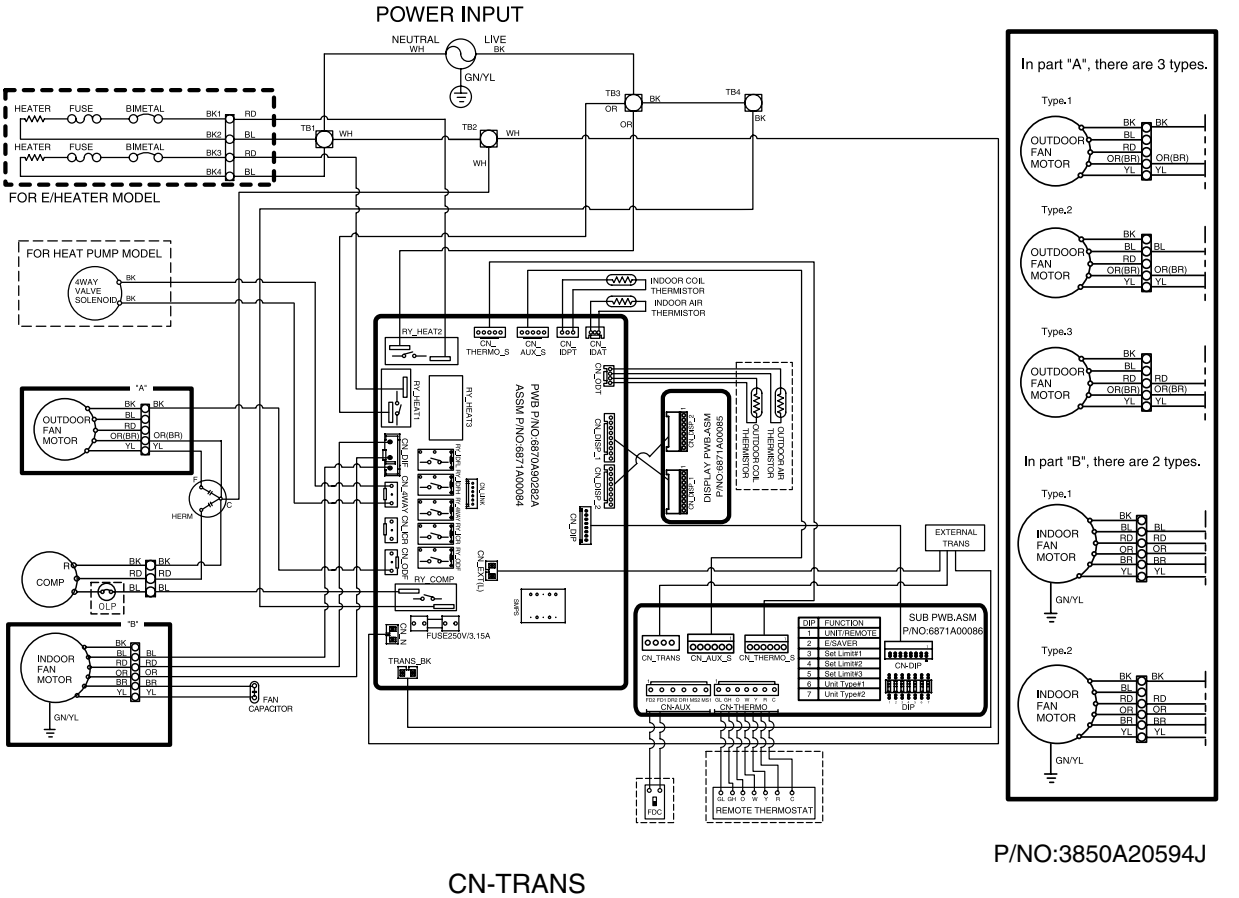
7. SCHEMATIC DIAGRAM



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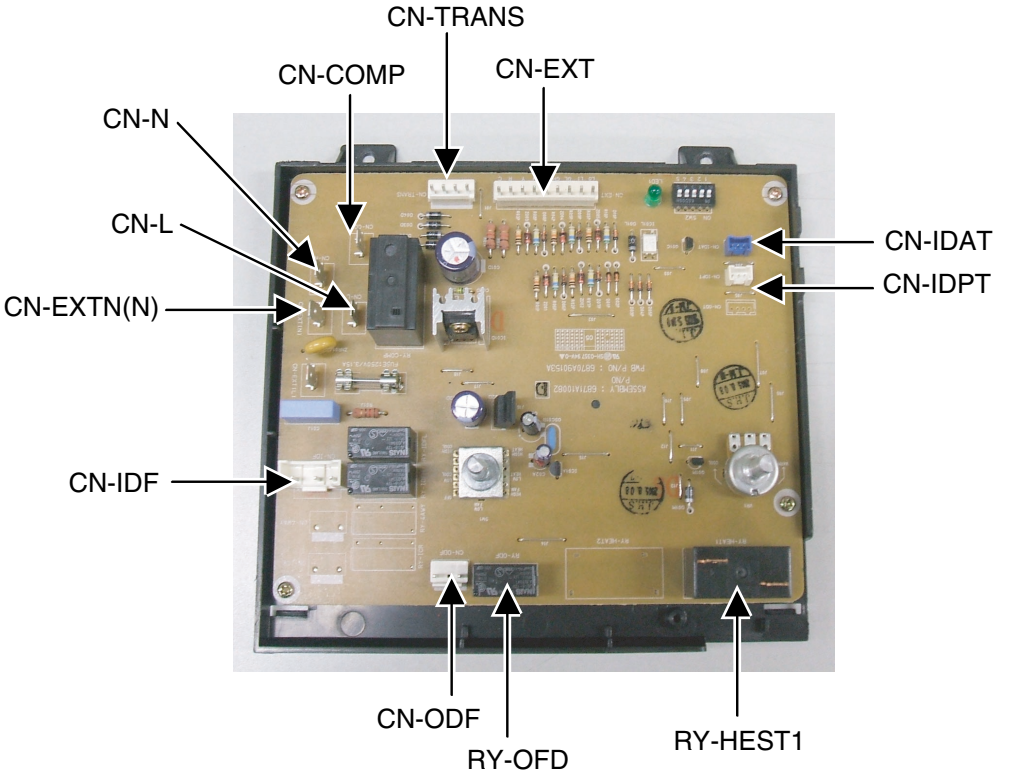

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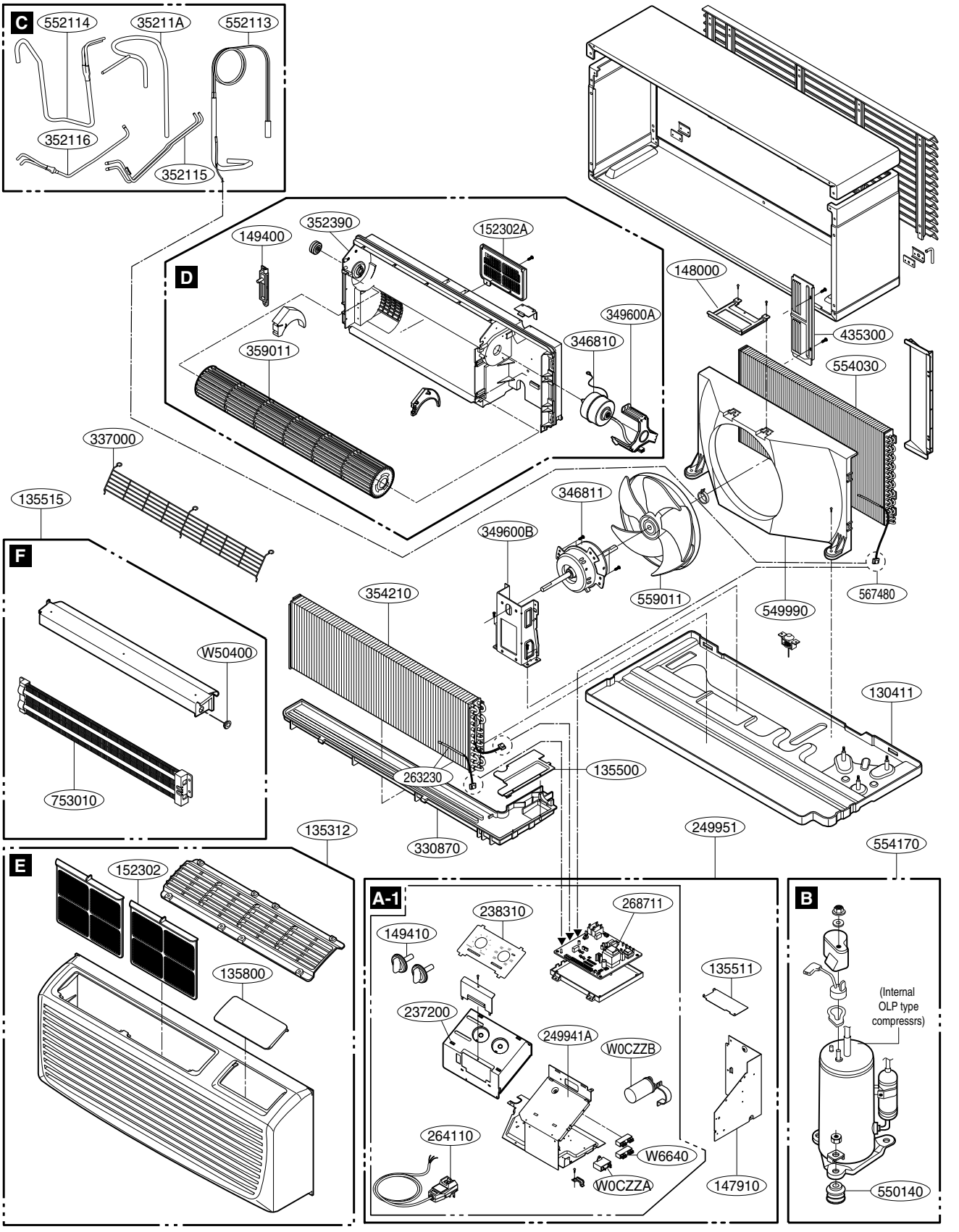
8. EXPLODED VIEW

8.1 MECHANICAL COOLING



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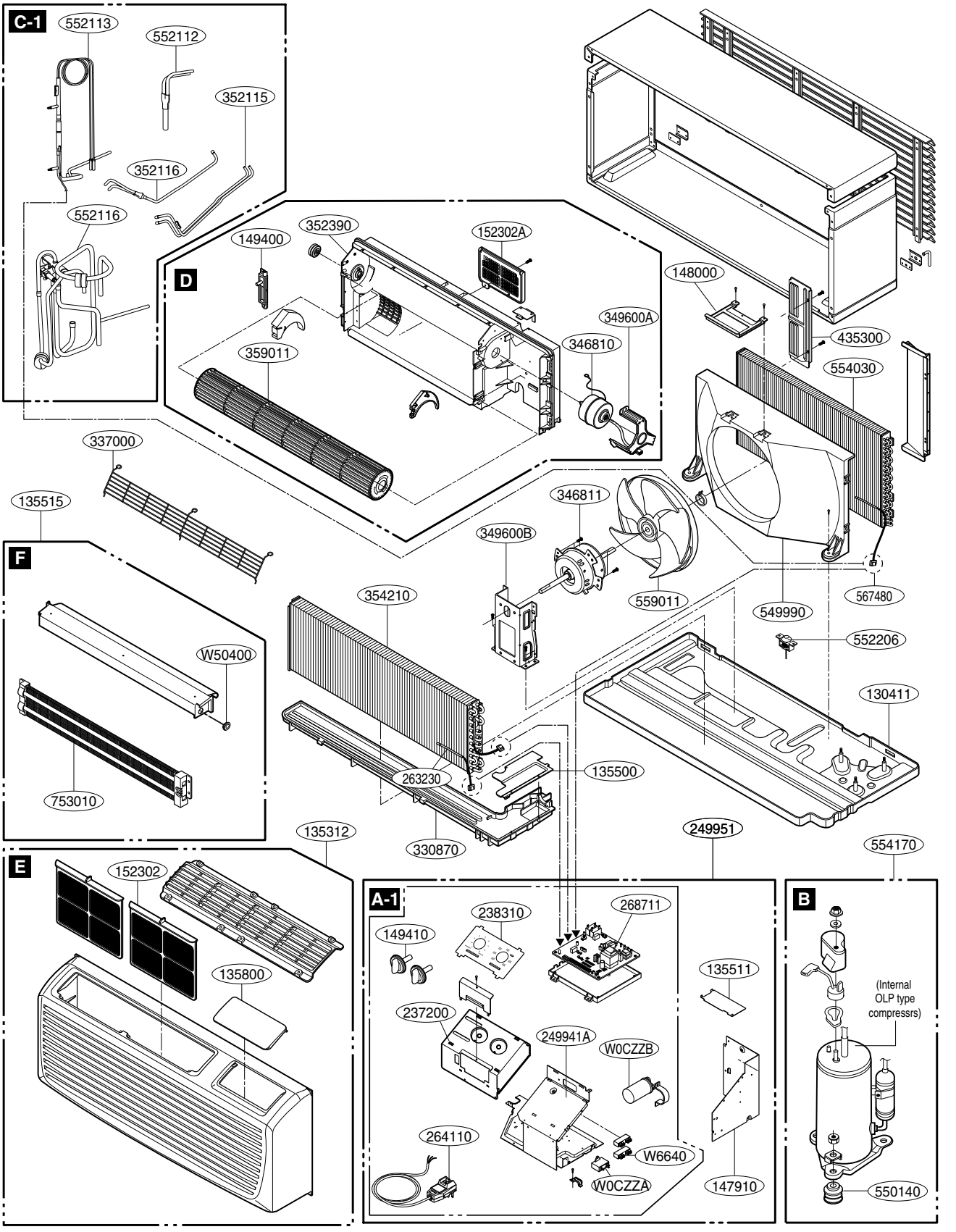
8.2 MECHANICAL HEATLING



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