

# Universal<sup>®</sup> Series Inverter Packaged Heat Pump

## Service Manual

**MODEL:**  
MDPH180604



Read this manual carefully before installation and keep it where the operator can easily find it for future reference.

Due to updates and constantly improving performance, the information and instructions within this manual are subject to change without notice.



Version Date: 1/31/24  
Please visit [www.mrcool.com/documentation](http://www.mrcool.com/documentation)  
to ensure you have the latest version of this manual.



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## 1.1 Models

CAPACITY (TON)	REFRIGERANT	MODEL NAME	SUPPLY (V, Ph, Hz)	APPEARANCE
2	R410A	MDPH180244	208/230 1Ph~60Hz	
3		MDPH180364		
4		MDPH180484		
5		MDPH180604		

### NOTE

- Above pictures may be different from actual model.
- 1Ton = 12,000Btu/h = 3.517kW

## 1.2 Product Nomenclature

M	D	P	H	18	024	4
MRCOOL	DC Inverter	Package	Heat Pump	SEER2	BTU	R410A

# 1 PRODUCT OVERVIEW

## 1.3 Features

Feature	Description
<b>DC Inverter Technology</b>	The unit is equipped with an efficient DC compressor and fan motor which can adjust output capacity and reduce power consumption.
<b>Non-Polarity Communication Design</b>	Directly connected to the wired controller with a two-core unshielded cable up to 328 feet (100 meters).
<b>Anti-Corrosive &amp; Dust-proof Design</b>	Both the indoor and outdoor units feature anti-corrosive coating, triple-layer moisture-proof paint, an IP56 standard outdoor fan motor, and a hermetically sealed indoor fan motor, which greatly improve the system's durability.
<b>Multi-Protection Design</b>	Built-in comprehensive protection includes high/low pressure protection, over-current protection, high-discharge temperature
<b>Multi-Parameter Throttling Control Design</b>	The operation process is substantially optimized by an electronic expansion valve that manages high and low pressure, and compressor discharge temperature.
<b>Dead Wind Start-Up Design</b>	The outdoor fan's dead wind start-up function greatly improves the success rates of fan startup during windy conditions and ensures a steady performance.
<b>Emergency Operation Design</b>	The unit is composed of two different systems. When one system fails, the other will continue to operate in an emergency status.
<b>Centralized Control</b>	One centralized controller can control up to 36 hosts.
<b>Remote Control Function</b>	Remote control can access host through LAN and WAN. (Gateway access is required.)

## 1.4 Product Data

Model			MDPH180244	MDPH180364
Capacity	Cooling	<i>kW</i>	7.03	10.08
		<i>BTU/h</i>	24000	34400
	Heating	<i>kW</i>	7.03	10.55
		<i>BTU/h</i>	24000	36000
SEER		-	17.8	17.8
HSPF		-	8.8	8.8
EER		<i>(Btu/h)/W</i>	11	11
COP		<i>W/W</i>	3.4	3.4
Power Supply		<i>V/Ph/Hz</i>	208/230/160	208/230/160
MOP		<i>A</i>	40	40
MCA		<i>A</i>	35	35
Refrigerant Charge Volume		<i>lbs</i>	11	11
Sound Pressure Volume		<i>dB(A)</i>	63	63
Dimension (WxDxH)	Outline	<i>in</i>	44-1/8 x 35-3/8 x 49-3/16	44-1/8 x 35-3/8 x 49-3/16
	Package	<i>in</i>	44-5/8 x 35-15/16 x 50-13/16	44-5/8 x 35-15/16 x 50-13/16
Net Weight/Gross Weight		<i>lbs</i>	523/545	523/545
Loading Quantity	40'GP/40'HQ	<i>unit</i>	26/52	26/52

Model			MDPH180484	MDPH180604
Capacity	Cooling	<i>kW</i>	13.77	16.41
		<i>BTU/h</i>	47000	56000
	Heating	<i>kW</i>	13.77	16.71
		<i>BTU/h</i>	47000	57000
SEER		-	17.8	17
HSPF		-	8.5	8.3
EER		<i>(Btu/h)/W</i>	11	10.6
COP		<i>W/W</i>	3.24	3.18
Power Supply		<i>V/Ph/Hz</i>	208/230/1/60	208/230/1/60
MOP		<i>A</i>	45	45
MCA		<i>A</i>	39.1	39.1
Refrigerant Charge Volume		<i>lbs</i>	14.8	14.8
Sound Pressure Volume		<i>dB(A)</i>	68	68
Dimension (WxDxH)	Outline	<i>in</i>	44-1/8 x 44-1/8 x 49-3/16	44-1/8 x 44-1/8 x 49-3/16
	Package	<i>in</i>	44-5/8 x 44-5/8 x 50-13/16	44-5/8 x 44-5/8 x 50-13/16
Net Weight/Gross Weight		<i>lbs</i>	628/650	628/650
Loading Quantity	40'GP/40'HQ	<i>unit</i>	20/40	20/40

## NOTE

- The cooling capacity stated above is measured under the following conditions:  
Indoor Conditions: 80.1°F DB / 66.9°F WB (26.7°C DB / 19.4°C WB)  
Outdoor Conditions: 95°F DB / 76°F WB (35°C DB / 24°C WB)
- The heating capacity stated above is measured under the following conditions:  
Indoor Conditions: 70°F DB / 60°F WB (21.1°C DB / 15.6°C WB)  
Outdoor Conditions 46.9°F DB / 42.9°F WB (8.3°C DB / 6.1°C WB)
- The air volume is measured at the relevant standard external static pressure.
- The technical parameters can change as the product improves. Refer to the nameplate on the unit for actual data.
- Above data is subject to change without notice.

## 1.5 Operating Range

Operating Mode	Outdoor Condition °F (°C)
Cooling	23°F ~ 125.6°F (-5°C ~ 52°C)
Heating	-22°F ~ 75.2°F (-30 ~ 24°C)

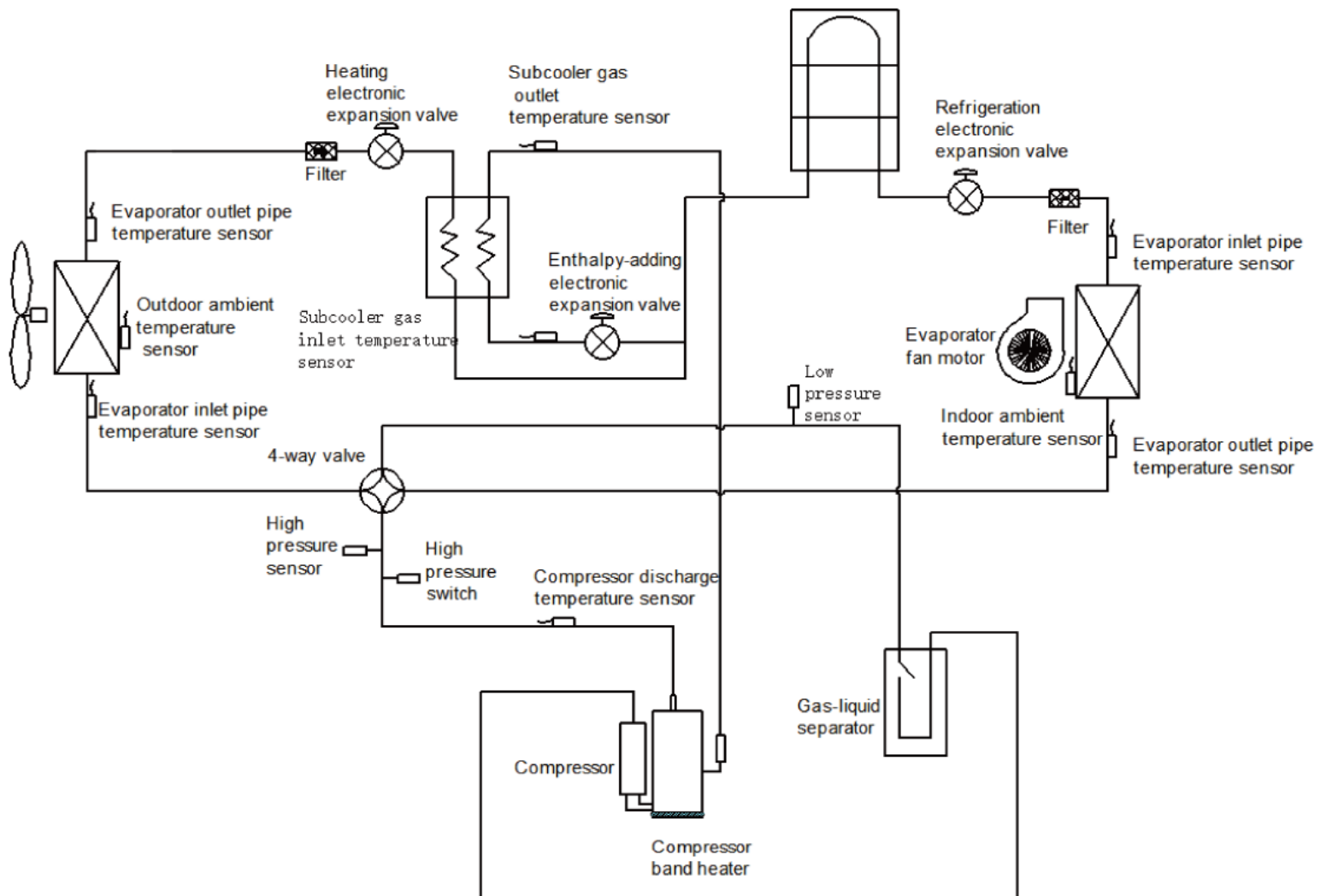
# 1 PRODUCT OVERVIEW

## 1.6 Electrical Data

Model	Power Supply	Fuse Capacity (A)	Maximum Over-Current Protection (A)	Minimum Circuit Ampacity (A)
MDPH180604 MDPH180484	208/230V-1Ph-60Hz	45	45	39.1
MDPH180364 MDPH180244	208/230V-1Ph-60Hz	40	40	35

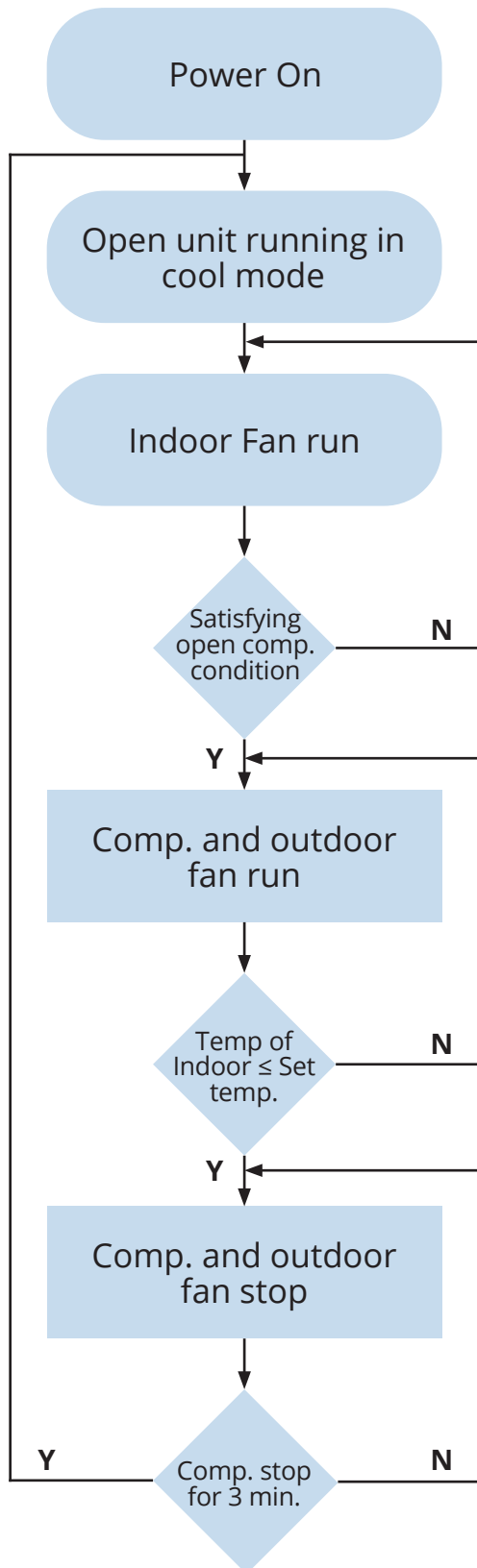
## 1.7 Piping Diagram

MDPH180604 / MDPH180484 / MDPH180364 / MDPH180244

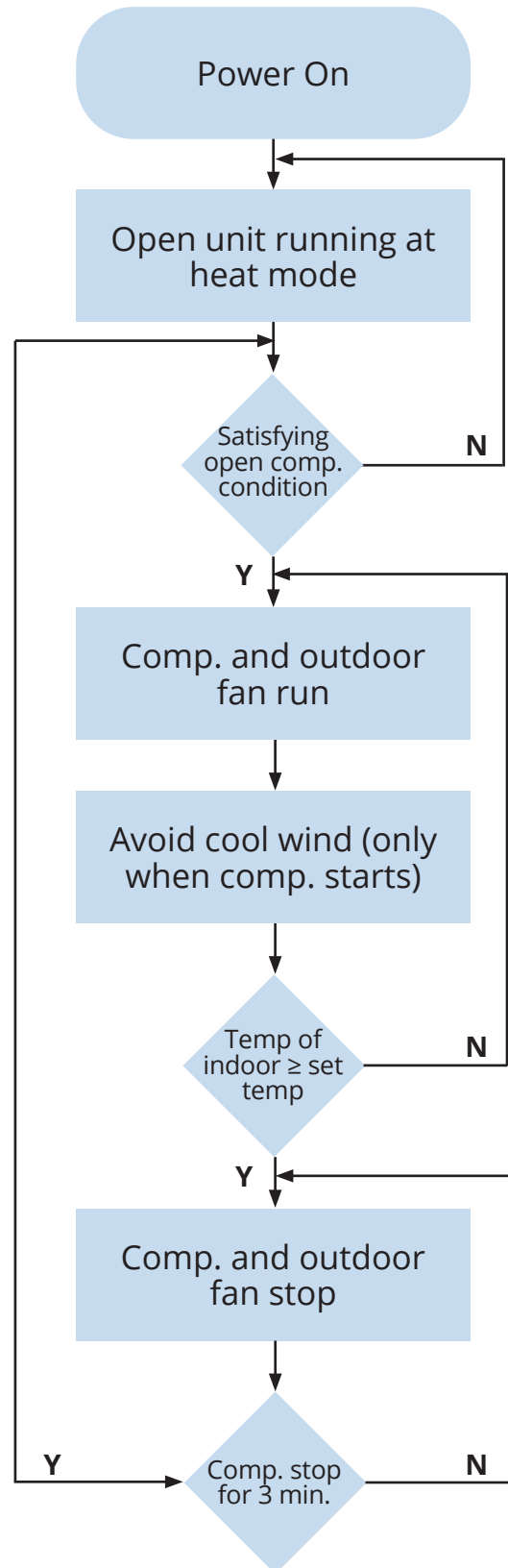


## 1.8 Operation Flowcharts

### Cooling Operation

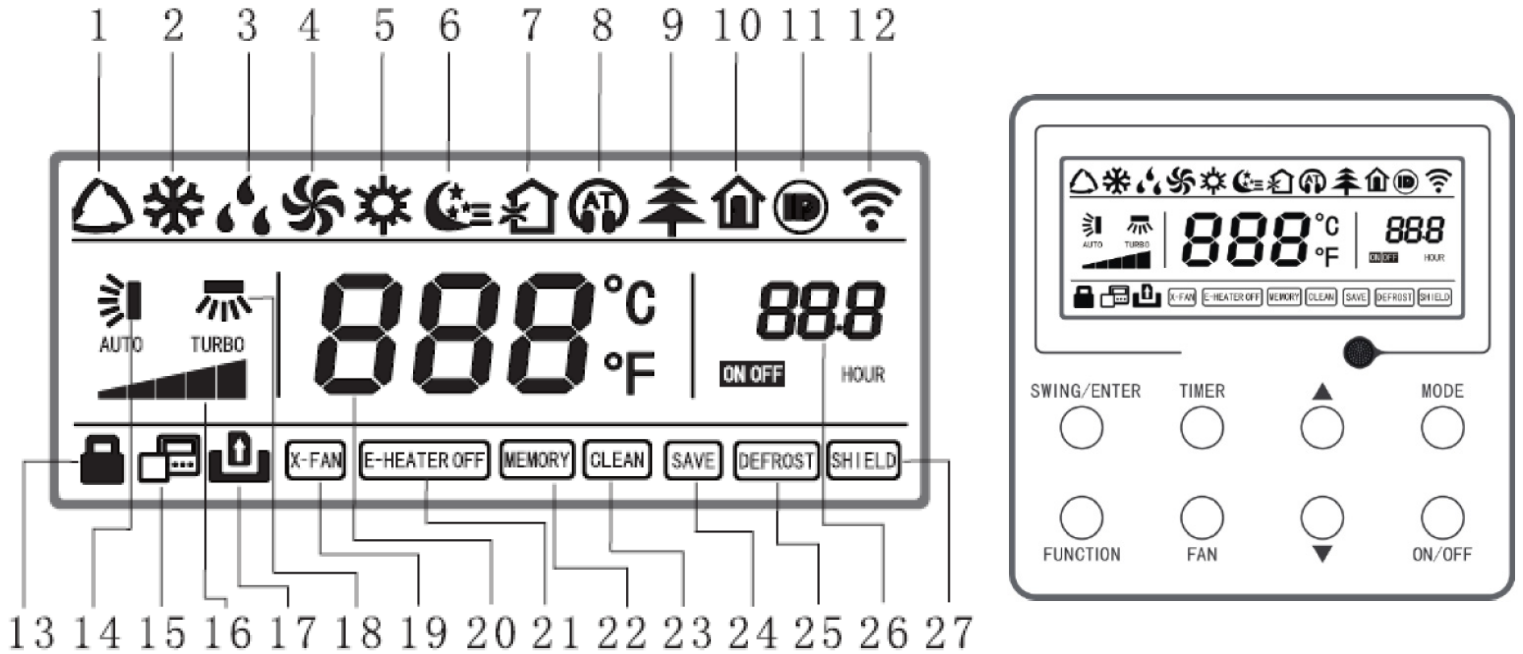


### Heating Operation



# 2 WIRED CONTROLLER

## 2.1 Display

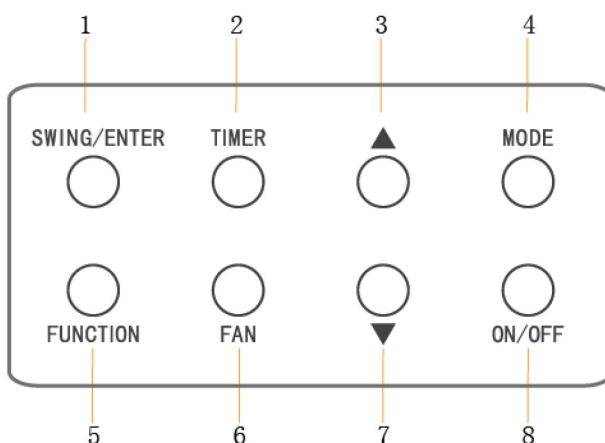


No.	Display	Description
1	Auto	Automatic Mode (under auto mode, the indoor unit will select its operating mode according to the variation of room temperature)
2	Cool	Cooling Mode
3	Dry	Dry Mode
4	Fan	Fan Mode
5	Heat	Heating Mode
6	Sleep	Display when sleep function is set (only display sleep mode II)
7	Exchange	Display when air exchange function is set
8	Silent	Display when silent function is set (only display silent, no AT)
9	Health	Display when health function is set
10	Absent	Display when absent function is set
11	I-Demand	Display when I-Demand function is set
12	WiFi	WiFi function icon
13	Child-Lock	Child-lock status; display when child-lock function is set
14	Up & Down Swing	Display when up and down swing function is set
15	Slave Wired Controller	Icon of slave wired controller; display when slave wired controller is set
16	Fan Speed	Currently set fan speed (auto, low, medium and low, medium, medium and high, high, and turbo)
17	No Card	No card in gate control system
18	Left & Right Swing	Display when left and right swing function is set
19	X-Fan	Display when dry function is set
20	Temperature	Displays set temperature



No.	Display	Description
21	E-Heater	On/Off Switch of auxiliary heating
22	Memory	Memory Status (After power failure and re-energizing the unit, it will resume to ON/OFF status of unit before the power failure.)
23	Clean	Filter washing reminder
24	Save	Display when energy-saving function is set
25	Defrost	Defrosting status
26	Timer	Display when timer status is set
27	Shield	Shielding status

## 2.2 Buttons



No.	Description	Functions
1	Swing/Enter	Function selection & canceling; Press for 5s to view ambient temperature; press Mode button to view outdoor ambient temperature or indoor ambient temperature
2	Timer	Timer setting
3	(Up Arrow)	Running temperature range of indoor unit: 60.8-86°F (16-30°C); Timer Setting Range: 0.5-24hrs
7	(Down Arrow)	Setting of air function level; Setting of energy-saving temperature; Setting of cleaning class
4	Mode	Setting of auto/cooling/heating/fan/dry mode of indoor unit
5	Function	Switch between swing/air/sleep/health/I-Demand/out/turbo/save/e-heater/X-Fan/clean/quiet
6	Fan	Setting of high/medium, high/medium/medium, low/low/auto fan speed
8	On/Off	Turn on/off indoor unit
4 & 3	Memory Function	Press mode and arrow up buttons at the same time for 5s when unit is off to access the memory function. (If memory function is set, the indoor unit will resume its original setting state after power failure and power recovery. If not, the indoor unit will default to an off status after power recovery. Ex-factory setting of memory function is on).
3 & 7	Lock	Upon startup of the unit without malfunction or under off state of the unit, press the up and down buttons at the same time for 5 seconds to enter lock state. In this case, any other button will not respond when pressed. Press the up and down arrow buttons again for 5 seconds to quit lock state.
4 & 5	Inquiry and Setting of Wired Controller	While the unit is powered off, press the Mode and Function buttons at the same time for 5 seconds to set the address.

## 2 WIRED CONTROLLER

No.	Description	Functions
5 & 2	<b>Setting of project parameters (Refer to notes for more details)</b>	When the unit is powered off, press the Function and Timer buttons at the same time for 5 seconds to access the debugging menu. Press the Mode button to adjust the setting items and press the up or down arrow buttons to set the actual value.
4 & 7	<b>Switch between Fahrenheit and Celsius</b>	When the unit is powered off, press the Mode and down arrow buttons at the same time for 5 seconds to switch between Fahrenheit and Celsius
5 & 7	<b>Viewing historical malfunction</b>	Simultaneously press the Function and down arrow buttons for 5 seconds to view historical malfunction. Then, press the up and down arrow buttons to adjust the displayed contents. The timer displaying position displays the sequence of malfunction and the detailed error code. The 5th displayed malfunction is the last malfunction.
1 & 4	<b>Setting of master and slave wired controller</b>	When the unit is powered off, press the Swing/Enter and Mode buttons at the same time for 5 seconds to set master and slave wired controller. Press the up and down arrow buttons to adjust.
1 & 3	<b>Swing angle function</b>	When the unit is powered off, press the Swing/Enter button and the up arrow button simultaneously for 5 seconds. The up and down swing icon will flash. Switching between simple swing and fixed swing is complete.

### NOTE

The following functions can be set through the Function and Timer buttons:

- Setting of ambient temperature sensor
- Display setting of freeze protection error code
- Selecting of blowing residual heat of indoor unit
- Selecting door control function

### 2.3 Functions & Settings

#### Setting of Filter Clean Reminder Function

When the unit is on, press the Function button to select the filter clean reminder function. The CLEAN icon will blink and then enter the setting of filter clean reminder function. The Timer zone displays the set pollution level and can be adjusted by pressing the up or down arrow buttons. Press the Swing/Enter button to turn on this function.

To cancel this function, when the filter clean reminder function is turned on, press the Function button and select the filter clean reminder function. The CLEAN icon will blink. Press the up or down arrow button to adjust the timer zone to display "00" and press the Swing/Enter button. The function is canceled.

When setting the filter clean reminder function, the timer zone will display 2 digits. The first digit indicates the pollution degree of the operating area and the second indicates the accumulated operating time of the indoor unit.

There are 4 types of situations:

1. Clean reminder is off: Timer zone shows "00"
2. Slight Pollution: The first digit in the timer zone shows 1 while the second shows 0, which indicated the accumulated operating time is 5500hr. Each time the second digit increases by 1, the accumulated operating time increases by 500hr. When it reaches 9, it means the accumulated operating time is 10,000hr.
3. Medium Pollution: The first digit in the timer zone shows 2 while the second shows 0, which indicates the accumulated operating time is 1400hr. Each time the second digit increases by 1, the accumulated operating time increases by 400hr. When it reaches 9, it means the accumulated operating time is 5000hr.
4. Heavy Pollution: The first digit in the timer zone shows 3 while the second shows 0, which indicates the accumulated operating time is 100hr. Each time the second digit increases by 1, the accumulated operating time increases 100hr. When it reaches 9, it means the accumulated operating time is 1000hr.

Pollution Level	Accumulative Operating Time (Hour)
10	5500
11	6000
12	6500
13	7000
14	7500
15	8000
16	8500
17	9000
18	9500
19	10000

Pollution Level	Accumulative Operating Time (Hour)
20	1400
21	1800
22	2200
23	2600
24	3000
25	3400
26	3800
27	4200
28	4600
29	5000

Pollution Level	Accumulative Operating Time (Hour)
30	100
31	200
32	300
33	400
34	500
35	600
36	700
37	800
38	900
39	1000

If the filter clean function is turned on, the CLEAN icon will be on.

1. If cleaning time is not reached, whether the setting is changed or not, the accumulated operating time won't be recalculated when pressing the Swing/Enter button.
2. If cleaning time is reached, when the unit is on or off, the CLEAN icon will blink every 0.5s as a reminder. Press the Function button to select the CLEAN icon and press the up or down arrow button to adjust the level. Then, press the Swing/Enter button so the accumulated operating time won't be cleared. (If the adjusted level is higher than the present accumulated operating time, the icon won't blink anymore; if the adjusted level is lower than the present accumulated operating time, the icon will continue blinking.)
3. To cancel the filter clean reminder function, press the Function button to select the clean reminder function. The CLEAN icon will blink. Press the up or down arrow buttons to adjust the timer zone to display "00". The accumulated operating time will be cleared.

## 2 WIRED CONTROLLER

### Lock Function

When the unit is powered on or off, press the up and down arrow buttons simultaneously for 5 seconds to turn on the Lock function. The screen will display a lock icon. Pressing the up and down arrow buttons at the same time for 5 seconds again will turn off this function.

When the Lock function is turned on, other buttons will become unresponsive. The function will remain active after power is restored after a power failure.

### Memory Function

Press the Mode and up arrow buttons simultaneously for 5 seconds when the unit is powered off to turn on or cancel the Memory function. If the Memory function is set, the MEMORY icon is displayed.

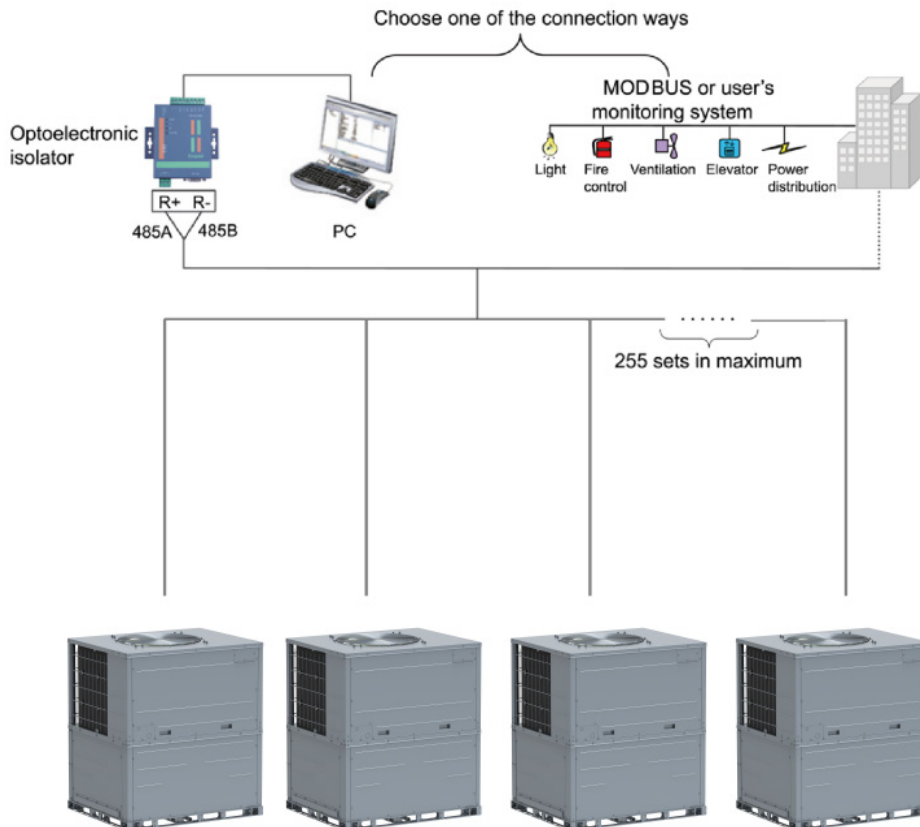
If the Memory function is set, the indoor unit will resume its original settings after power is restored after a power failure.

### NOTE

If power failure occurs within 5 seconds of the memorized content being changed, the memorized content may be abnormal after power recovery. Do not cut off power to the unit within 5 seconds of changing memorized content.

### Modbus Interface

The unit features MODBUS interface. If the user needs to connect the unit to the management system of the building, contact MRCOOL Tech Support for the MODBUS protocol.



## 1. Interface Instructions:

1. The printing is COM-CENT and the interface type is B2B-XH-K3.
2. Electrical characteristic: baud rate-9600bps; standard-RS485
3. Working principle

The indoor mainboard can send out the unit's state of operation through this interface and receive logical control information to control and monitor the unit.

## 2. Function Instructions:

In order to achieve this function, set the address mode and address through the wired controller. Refer to #3 below for the setting method. The address mode must be set into long-distance control address mode.

The address mode is defaulted to connecting to a centralized controller mode and the defaulted address is 1.

## 3. Setting Method:

First, set the address mode of the wired controller into centralized controller address mode. The setting method is:

When the unit is powered off, press the Function and Timer buttons simultaneously for 5 seconds to enter the debugging menu. Press the Mode button to adjust to "10" in the temperature display area. The timer area displays the setting state. Press the up or down arrow buttons to adjust. There are two selections:

1. Centralized Controller Address Mode (Screen displays "00".)
2. Long-Distance Control Address Mode (Screen displays "01".)

Choose the second selection and press the Swing/Enter button to save and exit this setting. The address of the wired controller is now set to match the address of long-distance control. The unit will memorize this setting status. The setting value will be memorized and returned to after a power failure.

Address setting of each unit: when the address mode is set to be long-distance control address mode.

Address setting value range: 01~255.

The setting method:

When the unit is powered off, press the Function and Mode buttons simultaneously for 5 seconds to enter the wired controller address setting interface. The screen will display the address sequence. Press the up or down arrow button to adjust the address sequence then press the Swing/Enter button to confirm. The setting value will be memorized after power failure.

## NOTE

1. In order to realize the MODBUS interface function, the address mode of the unit must be set into long-distance control address mode. It cannot be set into centralized control address mode, otherwise, this function cannot be realized.
2. The unit cannot be connected to the MODBUS and centralized controller at the same time; only one of them can be selected.
3. 255 sets of unit in maximum can be connected in the same network; the unit addresses in the same network must be different. Otherwise, the unit control will be affected.
4. Perform wiring when the unit power is disconnected.

### Fahrenheit/Celsius Adjustment

When the unit is powered off, press the Mode and down arrow buttons simultaneously for 5 seconds to switch between Fahrenheit and Celsius.

### Inquiry of Ambient Temperature

When the unit is powered off, press the Swing/Enter button for 5 seconds to view the ambient temperature. The timer area displays ambient temperature type 01 or 02. The ambient temperature area displays the corresponding temperature of that type. 01 corresponds with the outdoor ambient temperature and 02 corresponds with the indoor ambient temperature after compensation. Press the Mode button to switch between 01 and 02. Pressing any other button except the Mode button or receiving a remote control signal will exit this inquiry state. No operation within 20 seconds will also automatically exit the inquiry state.

#### NOTE

1. If the unit is not connected to an outdoor ambient temperature sensor, the display of outdoor ambient temperature will be shielding after energizing for 12 hours.
2. If there is a malfunction of the outdoor ambient temperature sensor, the display of outdoor ambient temperature will be shielding after energizing for 12 hours.
3. When you want to inquire about the outdoor ambient temperature, "00" will be displayed for 3 seconds before returning to the set temperature.

### Inquiry of Historical Malfunction

When the unit is powered off, simultaneously press the Function and down arrow buttons for 5 seconds to view historical malfunction.

In the inquiry state, the set temperature area will display "00". Press the up and down arrow buttons to view the 10 most recent malfunctions. The timer area also displays a detailed error code. The 10th malfunction displayed is the last malfunction.

### Debugging Function

When the unit is powered off, simultaneously press the Function and Timer buttons for 5 seconds to enter the debugging menu. Press the Mode button to adjust the setting items and press the up or down arrow buttons to set the actual value.

### Setting Ambient Temperature Sensor (Dual Ambient Temperature Sensors Function)

Under the debugging state, press the Mode button to adjust to "00" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 3 selections:

1. The ambient temperature at air return is set as indoor ambient temperature (timer area displays "01").
2. The temperature at the wired controller is set as indoor ambient temperature (timer area displays "02").
3. Select the temperature sensor at the air return in cooling, dry, and fan modes. Select the temperature sensor at wired controller in heating and auto modes.

## Freeze Protection Error Code Setting:

Under the debugging state, press the Mode button to adjust to "02" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. Displayed ("01" displayed)
2. Not Displayed ("02" displayed)

The unit defaults to "not displayed" status for export units and "displayed" for domestic units.

## Low Refrigerant Protection Setting

Under the debugging state, press the Mode button to adjust to "04" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. With low refrigerant protection function ("01" displayed)
2. Without low refrigerant protection function ("02" displayed)

## Blowing of Residual Heat Setting

Under the debugging state, press the Mode button to adjust to "05" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. Mode 1 ("00" displayed)
2. Mode 2 ("01" displayed)

### NOTE

Mode 1: In cooling mode, the unit stops once the temperature point is reached and the indoor fan motor does not stop. In heating mode, after the unit reaches the temperature point and stops, the unit will blow residual heat for 60 seconds before stopping the indoor unit.

Mode 2: In cooling or heating mode, after the unit reaches the temperature point and stops, the indoor fan motor stops operation with a 10 second delay.

## Compressor Electric Heating Belt Mode Selection

Under the debugging state, press the Mode button to adjust to "06" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. Mode 1 ("00" displayed)
2. Mode 2 ("01" displayed)

### NOTE

Mode 1: The compressor electric heating belt starts when the outdoor ambient temperature is below 95°F (35°C) and stops when the outdoor ambient temperature is above 98.6°F (37°C). When the outdoor ambient temperature is between 95°F (35°C)~98.6°F (37°C), the belt will keep its previous operational state.

Mode 2: The compressor electric heating belt starts when the outdoor ambient temperature is below 28.4°F (-2°C) and stops when the outdoor ambient temperature is above 32°F (0°C). When the outdoor ambient temperature is within 28.4°F (-2°C)~32°F (0°C), the belt will keep its previous operational state.

### Door Control Function Selection

Under the debugging state, press the Mode button to adjust to "08" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. Without door control function ("00" displayed)
2. With door control function ("01" displayed)

### Long-Distance Monitoring or Centralized Controller Selection

Under the debugging state, press the Mode button to adjust to "10" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 2 selections:

1. Centralized Controller ("00" displayed)
2. Long-Distance Monitoring ("01" displayed)

### Long-Distance Monitoring or Centralized Controller Selection

Under the debugging state, press the Mode button to adjust to "12" in the temperature display area. The timer zone displays the setting state. Press the up or down arrow button to adjust. There are 16 selections:

1. *Compensate 32°F (0°C) ("00" displayed)*
2. *Compensate 33.8°F (1°C) ("01" displayed)*
3. *Compensate 35.6°F (2°C) ("02" displayed)*
4. *Compensate 37.4°F (3°C) ("03" displayed)*
5. *Compensate 39.2°F (4°C) ("04" displayed)*
6. *Compensate 41°F (5°C) ("05" displayed)*
7. *Compensate 42.8°F (6°C) ("06" displayed)*
8. *Compensate 44.6°F (7°C) ("07" displayed)*
9. *Compensate 46.4°F (8°C) ("08" displayed)*
10. *Compensate 48.2°F (9°C) ("09" displayed)*
11. *Compensate 50°F (10°C) ("10" displayed)*
12. *Compensate 51.8°F (11°C) ("11" displayed)*
13. *Compensate 53.6°F (12°C) ("12" displayed)*
14. *Compensate 55.4°F (13°C) ("13" displayed)*
15. *Compensate 57.2°F (14°C) ("14" displayed)*
16. *Compensate 59°F (15°C) ("15" displayed)*

### NOTE

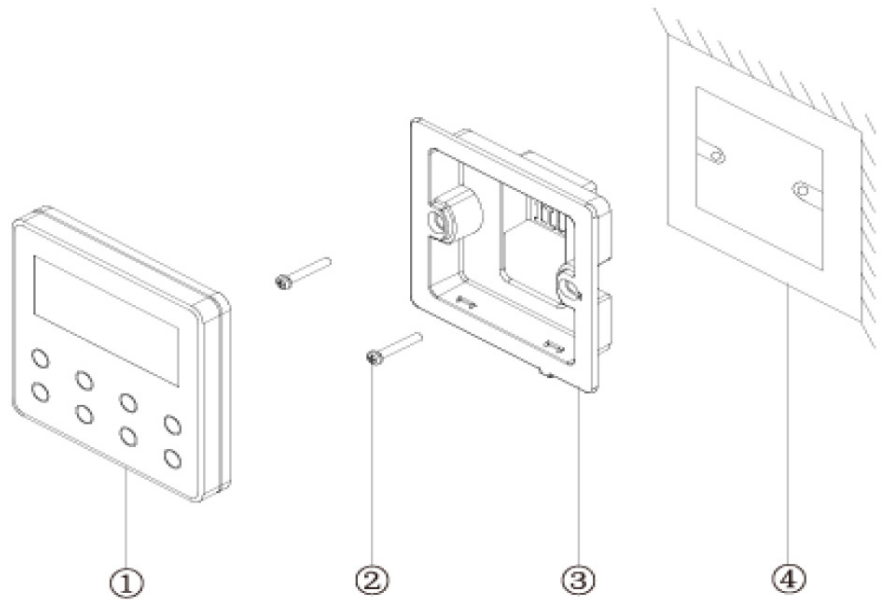
Indoor ambient temperature compensation can be set through the wired controller (E.g. if 02 is selected, it indicates the compensation temperature is 2°C. If the indoor ambient temperature detected by the temperature sensor at the air return is 84.2°F (29°C), the ambient temperature after compensation is 84.2°



## 2.4 Installation of Wired Controller

### Accessories List

No.	Name	Quantity
1	Wired Controller	1
2	M4x25 Screw	2
3	Installation Box	1
4	Inside-Wall Junction Box (To be prepared by installer)	1



### Installation Location Requirements

1. Do not install the wired controller in a location that is wet or likely to become wet.
2. Do not install the wired controller near high-temperature objects or under direct sunlight.
3. Do not install the wired controller in a position facing a window, in order to avoid interference with other controllers of the same model nearby.
4. Before installation, cut off the power supply of wiring inside the wall.
5. In order to avoid malfunction due to electromagnetic interference and other causes, ensure the following:
  1. Ensure the interface of the communication wire is correct, otherwise communication cannot occur.
  2. The signal wire of the controller should be separated from the power cord and the indoor and outdoor connecting wires. The shortest distance should be at least 7.87in (20cm), otherwise communication cannot occur.
  3. If the unit is installed in a location that is likely to be impacted by electromagnetic interface, the signal wire of the controller should be made of STP (shielded twisted pair).
6. The wired controller should only be installed indoors; its working temperature range is 32°F~122°F (0°C~50°C)

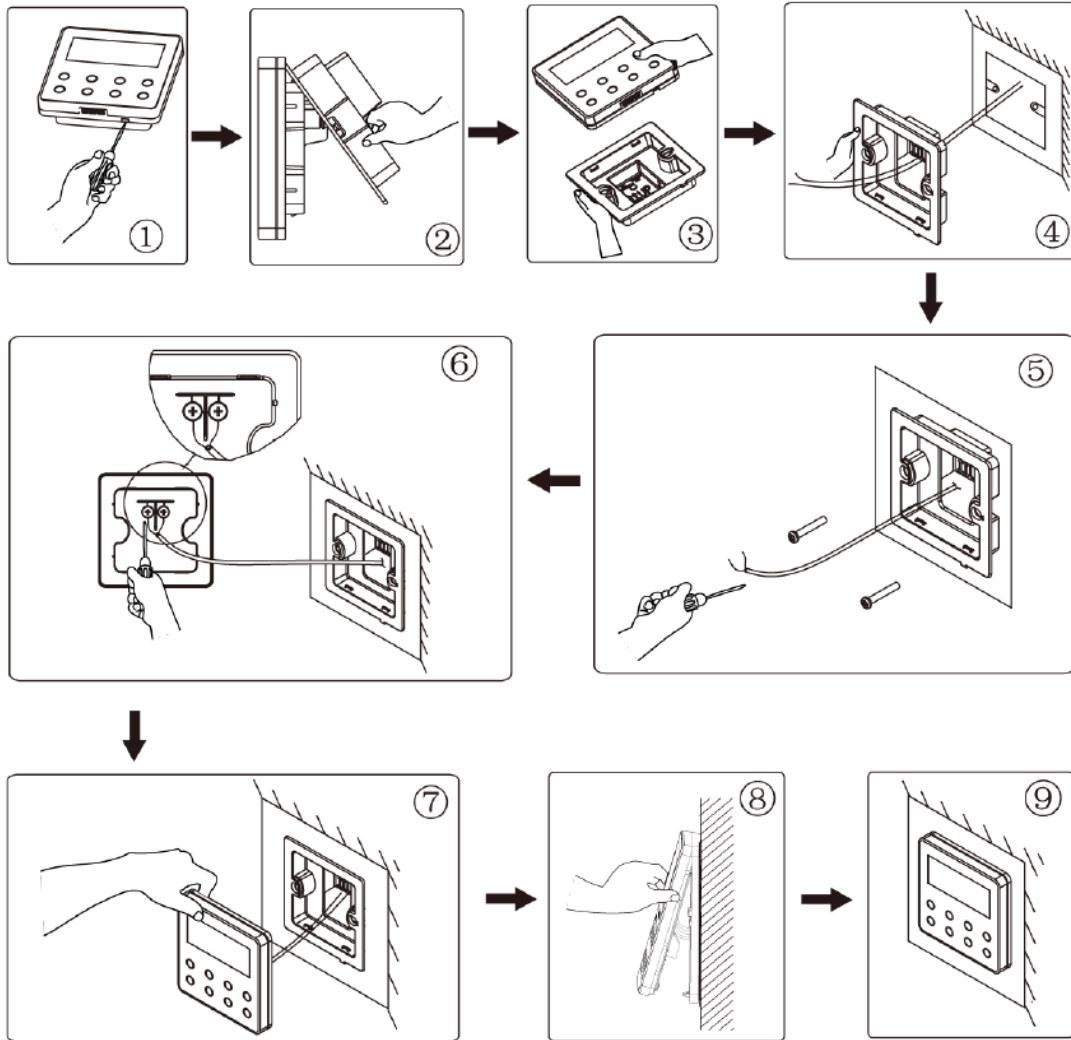
### Installation Steps

First, select the correct signal wire for the wired controller: 2-core signal wire (Diameter  $\geq$  .03in (.75mm); Length < 98.4ft (30m); Recommended length 26.2ft (8m).

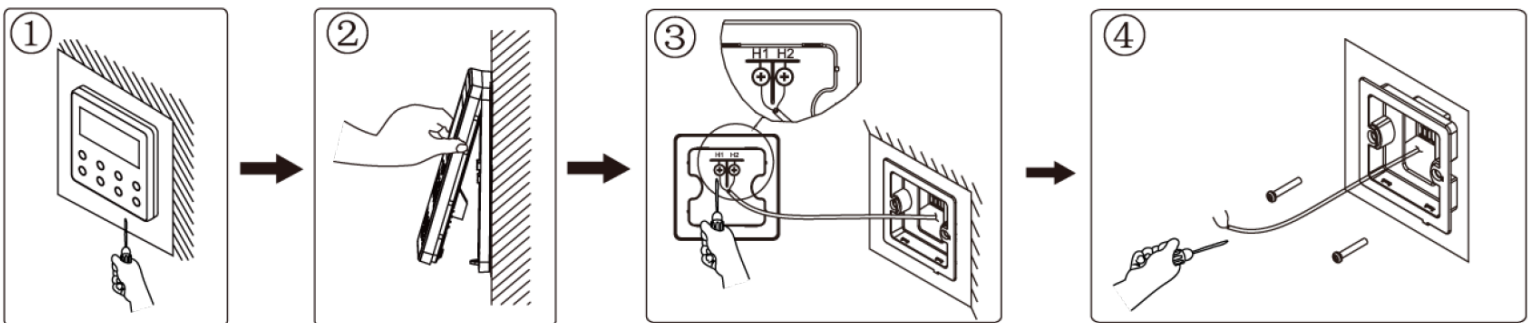
1. Before installation, cut of the power supply of the indoor unit.
2. Pull the 2-core STP from inside the wall through the installing hole, and thread the wire through the connecting hole in the back of the controller's sole plate.

## 2 WIRED CONTROLLER

3. Hold the sole plate of the controller to the wall and use M4x25 to attach the sole plate onto the installing hole of the wall.
4. Connect the 2-core STP with the two wiring terminals on the back of the wired controller and tighten the screw. There is no polarity for these two wiring terminals, but it should not be connected to a strong current.
5. Buckle the panel of the wired controller with the sole plate, and installation is complete.



### Removal of Wired Controller



## 2.5 Troubleshooting

No.	Error Code	Error	Remarks
1	E1	Compressor high pressure protection	
2	E2	Indoor anti-freeze protection	
3	E3	Compressor low pressure protection, low refrigerant protection, and refrigerant collecting mode	
4	E4	Compressor high discharge temperature protection	
5	E6	Communication error	
6	E8	Indoor fan motor error	
7	F0	Indoor ambient temperature sensor error	
8	F1	Evaporator temperature sensor error	
9	F2	Condenser temperature sensor error	
10	F3	Outdoor ambient temperature sensor error	
11	F4	Discharge temperature sensor error	
12	F5	Temperature sensor error of wired controller	
13	F6	Condenser mid-tube thermistor error	
14	C5	Capacity code error	
15	EE	Outdoor memory chip error	
16	PF	Electric box sensor error	
17	H3	Compressor overload protection	
18	H4	Overloading	
19	H5	IPM protection	
20	H6	DC fan motor error	
21	H7	Drive desynchronizing protection	
22	Lc	Activation failure	
23	Ld	Compressor phase sequence protection	
24	LE	Compressor stalling protection	
25	LF	Power protection	
26	Lp	Controllers incompatibility error	
27	U7	4-way valve direction changing protection	
28	P0	Drive reset protection	
29	P5	Over-current protection	
30	P6	Communication error between main control and drive	
31	P7	Drive module sensor error	
32	P8	Drive module over temperature protection	
33	P9	Zero passage protection	
34	PA	AC current protection	
35	Pc	Drive current error	
36	Pd	Sensor connection protection	
37	PE	Temperature drift protection	

## 2 WIRED CONTROLLER

No.	Error Code	Error	Remarks
38	PL	Bus low voltage protection	
39	PH	Bus high voltage protection	
40	PU	Charge loop error	
41	PP	Input voltage abnormality	
42	ee	Drive memory chip error	
43	HC	PFC protection	
44	C4	ODU jumper cap failure	
45	d1	DRED1 mode	
46	d2	DRED2 mode	
47	d3	DRED3 mode	
48	E9	Water overflow protection	
49	EL	Emergency Stop (Fire Alarm)	
50	08	Defrosting	
51	09	Oil Return	

### NOTE

When several malfunctions occur at the same time, these error codes will be displayed circularly. When there is a malfunction, turn off the unit and request professional assistance.

No.	Error Code	Error	Remarks
1	AL	Fan DC busbar under voltage protection	
2	AH	Fan DC busbar over voltage protection	
3	AA	Fan AC current protection (input side)	
4	A1	Fan IPM module protection	
5	AF	Fan PFC abnormality	
6	Ac	Fan startup failure	
7	Ad	Fan missing phase	
8	A0	Fan drive module resetting	
9	UL	Fan current protection	
10	UP	Fan power protection	
11	AE	Fan current sensor malfunction	
12	AJ	Fan motor loss of synchronization	
13	A6	Fan driving part to main-control communication malfunction	
14	A8	Overheat protection of fan radiator	
15	A9	Fan radiator sensor malfunction	
16	An	Fan drive shortage chip malfunction	
17	AU	Fan charge circuit malfunction	
18	AP	Fan AC input voltage abnormality	
19	Ar	Fan drive board environment temperature sensor malfunction	
20	U9	Fan AC contactor protection or input zero crossing error	

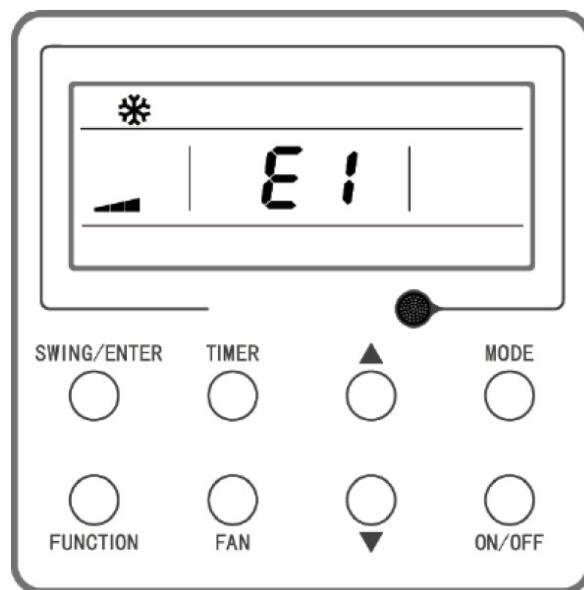
## 2 WIRED CONTROLLER

When there is a malfunction during operation, the error will be displayed on the temperature area of the screen.

When several malfunctions occur at the same time, these error codes will be displayed circularly.

When there is a malfunction, turn off the unit and request professional assistance.

For example, E1 means high pressure protection during operation.



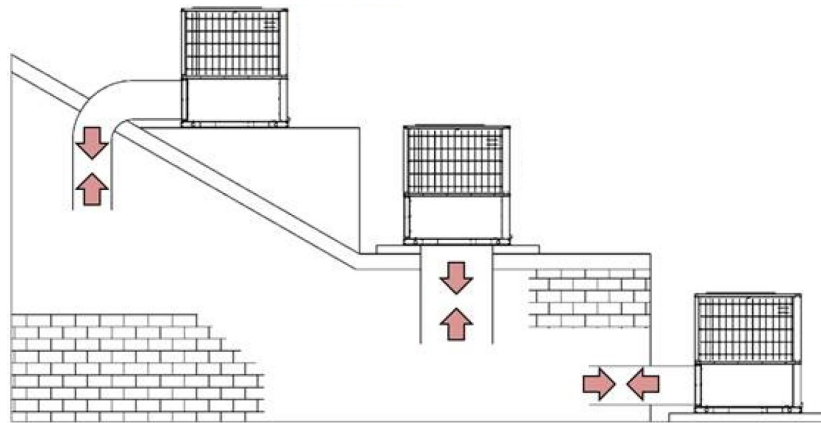
# 3 UNIT INSTALLATION

## 3.1 Position and Location

Ensure the unit's installation location meets the following requirements:

1. Unit should be installed so that air discharged by the outdoor fan will not return.
2. The unit should have sufficient surrounding space for repairs and maintenance.
3. The installation site must have proper ventilation for both intake and exhaust of air.
4. Place of installation must be strong enough to support the weight of the unit, and should be able to insulate noise and prevent vibration. Ensure that wind and noise emitted from the unit will not disrupt those nearby.
5. Avoid direct sunshine over the unit. If unavoidable, assemble a sun shield to protect the unit.
6. The installation site must be able to drain rainwater and condensate drainage.
7. The unit should not be exposed to potential environmental damage.
8. The air exhaust outlet of the unit should not directly face strong wind.
9. The unit must be anchored on a stable and solid surface.

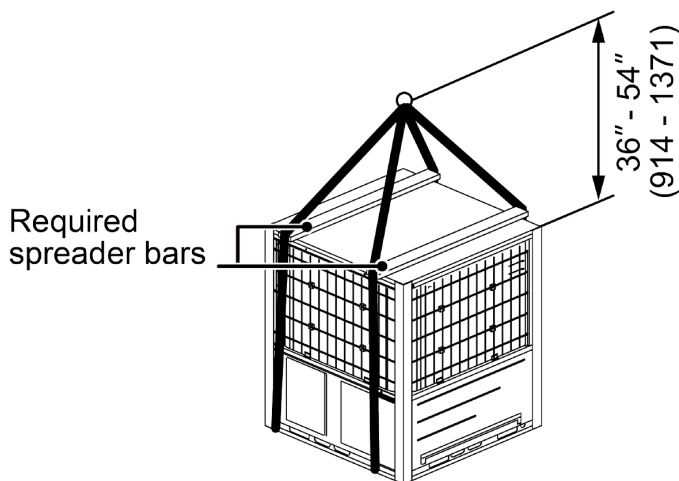
**MDPH180244 / MDPH180364 / MDPH180484 / MDPH180604**



## 3.2 Lifting

Do not remove the unit's packaging materials before installation. Keep the unit upright and do not drop. Rig the unit by attaching a chain or cable slings to the lifting holes in the base rails.

Place the unit on the roof curb and maintain clearance between the roof curb and the base rail inside at 1/4in. (6.4mm). After the unit is in position, remove the rigging skids and packaging materials.



### NOTE

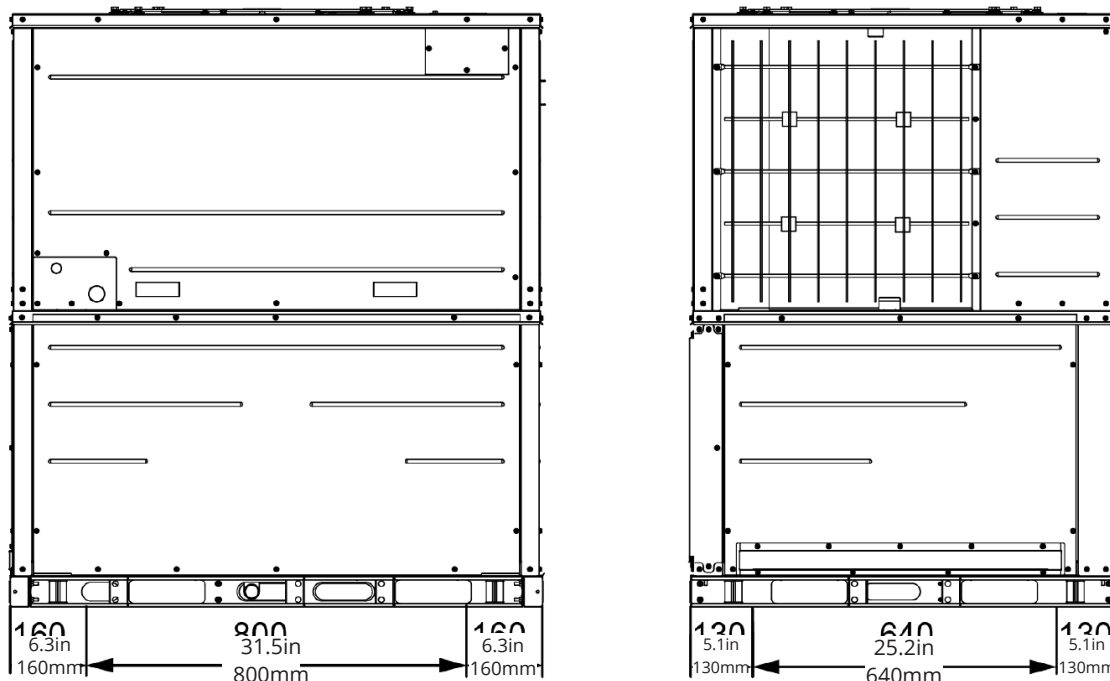
1. Spreader bars are required in order to prevent the rigging straps from damaging the unit.
2. All panels must be in place when rigging.
3. The height between the top of the unit and the rigging cables' connection point should be 36-54in. (914-1371mm)

## 3.3 Installation Pedestal

The unit must be placed on a rigid, horizontal pedestal. It is advised to utilize a concrete pedestal.

The height dimension of the pedestal must be larger than the needed drainpipe length. The unit must be bolted to the pedestal. Ensure the pedestal's location can support the weight of the unit. If not, the unit can overturn, lean, or fall of during extreme circumstances (earthquake, etc.).

MDPH180244 / MDPH180364



### NOTE

1. The diagram may be different from the actual model. The diagram for a pedestal made of concrete.
2. The height dimension of the pedestal must be enough to install the drainpipe. (Refer to Drainage Piping section of this manual.)

## 3.4 Ductwork

Air duct design and installation must conform with local engineering requirements and should be constructed with minimal restrictions and maintain suitable air velocity.

The air supply duct and air intake duct must be thermally insulated to avoid thermal leakage and condensation. They should also be attached to the prefabricated boards of the ceiling with iron supports. The joints of the ducts must be sealed with glue to avoid leakage.

The edge of the air intake duct must be at least 5.9in (150mm) away from the wall.

Noise control and shock absorption should be considered when designing and installing air ducts. Additionally, the noise source and air intake should not be in an area where people are regularly present.

Do not terminate the air duct in an area that can introduce toxic or objectionable fumes/odors into the ductwork.

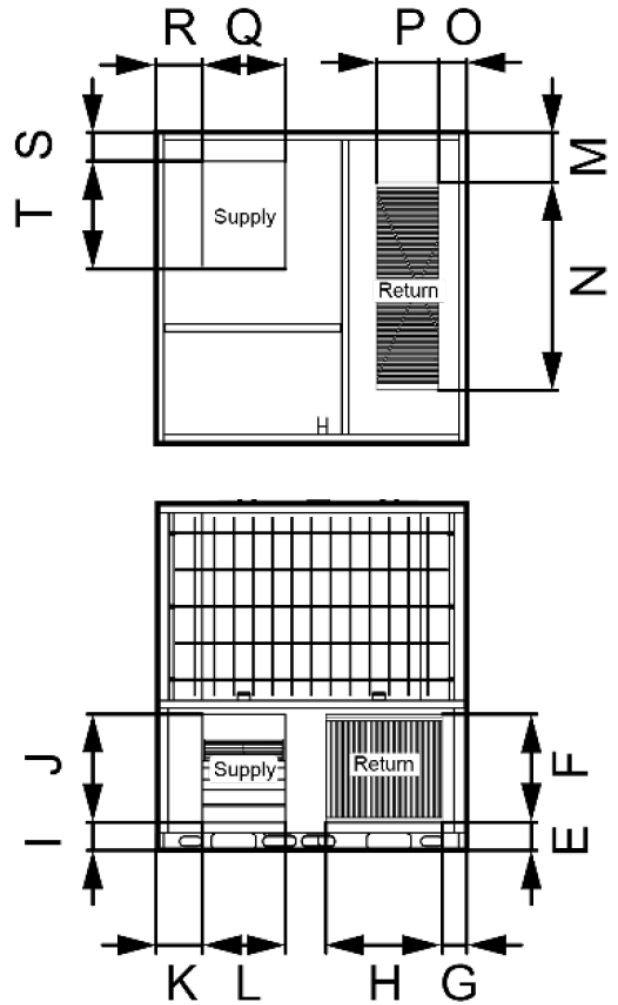
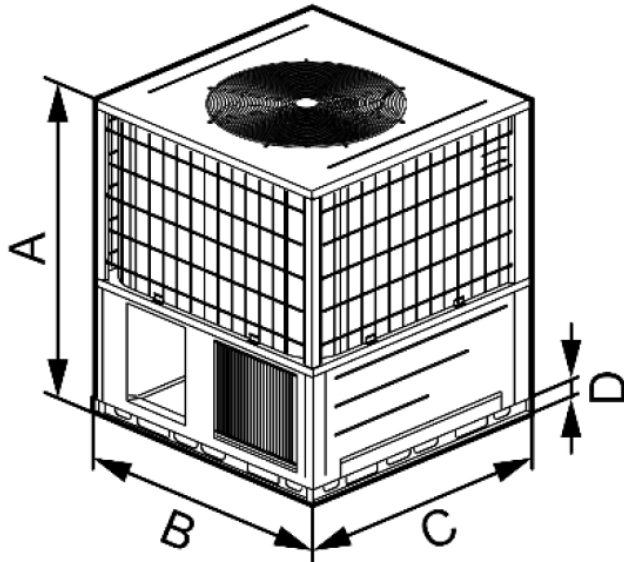
A return air filter must be included in each installation. This filtering may be performed at the unit or externally such as a return air filter grille.

Consider the building's condition and convenience of maintenance when selecting an installation method.

# 3 UNIT INSTALLATION

## 3.5 Dimensions

MDPH180244 / MDPH180364 / MDPH180484 / MDPH180604



Unit: inch (mm)

Model	A		B		C		D	
	49-1/4 (1250)		44 (1120)		35-7/16 (900)		2-1/2 (65)	
	<b>Side Air Vents</b>							
	E	Size of Air Return		G	I	Size of Air Supply		K
		F	H			J	L	
MDPH180244 MDPH180364	4-7/16 (113)	17-8/16 (445)	16-9/6 (420)	3-7/16 (87)	3-15/16 (101)	15-6/16 (390)	11-13/16 (300)	6-3/16 (157)
	<b>Bottom Air Vents</b>							
	M	Size of Air Return		O	R	Size of Air Supply		S
		N	P			Q	T	
	5-4/16 (149)	23-1/16 (586)	8-10/16 (219)	3-11/16 (93)	6-3/16 (156)	11-14/16 (302)	13-12/16 (350)	3-10/16 (92)



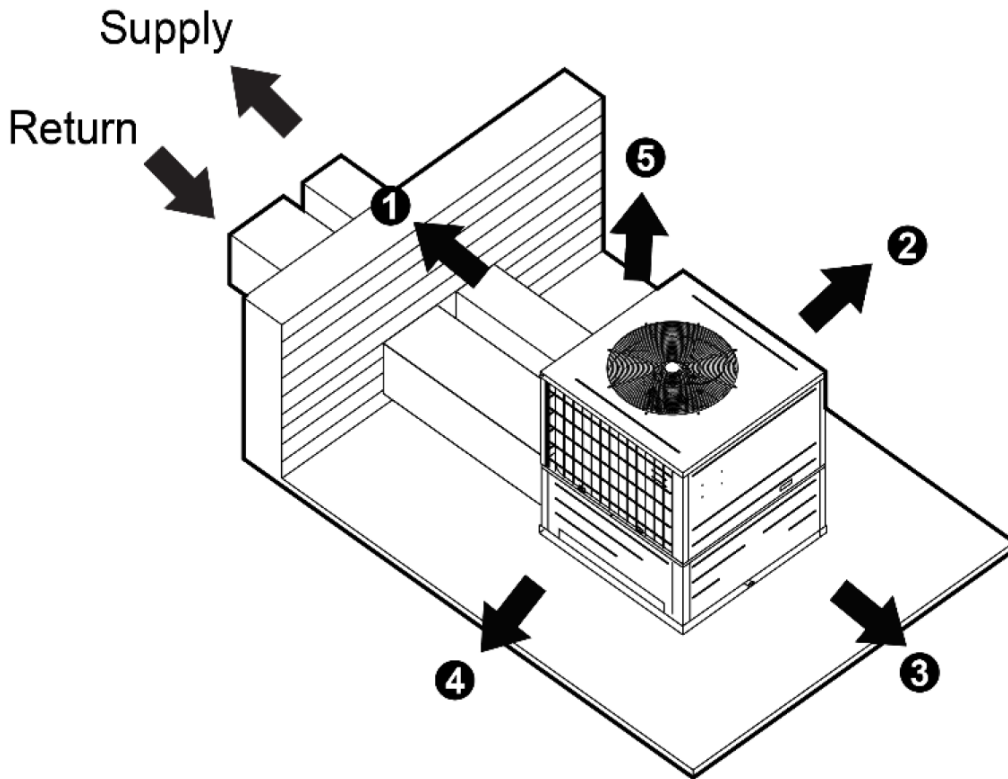
Unit: inch (mm)

Model	A		B		C		D	
MDPH180484 MDPH180604	49-1/4 (1250)		44 (1120)		44 (1120)		2-1/2 (65)	
	<b>Side Air Vents</b>							
	E	Size of Air Return		G	I	Size of Air Supply		K
		F	H			J	L	
	4 (101)	15-3/8 (30)	16-1/2 (420)	3-3/8 (87)	4 (101)	15-3/8 (390)	11-3/4 (300)	6-1/2 (166)
	<b>Bottom Air Vents</b>							
	M	Size of Air Return		O	R	Size of Air Supply		S
		N	P			Q	T	
7-7/8 (199)	28 (711)	9 (228)	3-3/4 (96)	6-1/2 (166)	11-3/4 (300)	15-3/8 (390)	4 (103)	

## NOTE

Above diagrams may be different from actual model.

### 3.6 Clearance Requirements



Installation Clearances: in(mm)	
1	24 (600)
2	43 (1100)
3	34 (860)
4	43 (1100)
5	60 (1524)

## NOTE

Above diagrams may be different from actual model.

# 3 UNIT INSTALLATION

## 3.7 Drainage Piping

### Installation Steps

After the unit is installed, ensure the unit is level. It must be placed horizontally to ensure it will function properly.

When shipped out from the factory, both condensate outlets are blocked by rubber plugs. Remove both plugs before installation. For condensate removal, attach a PVC pipe to the drain pan with termination in accordance with local or state Plumbing/HVAC codes.

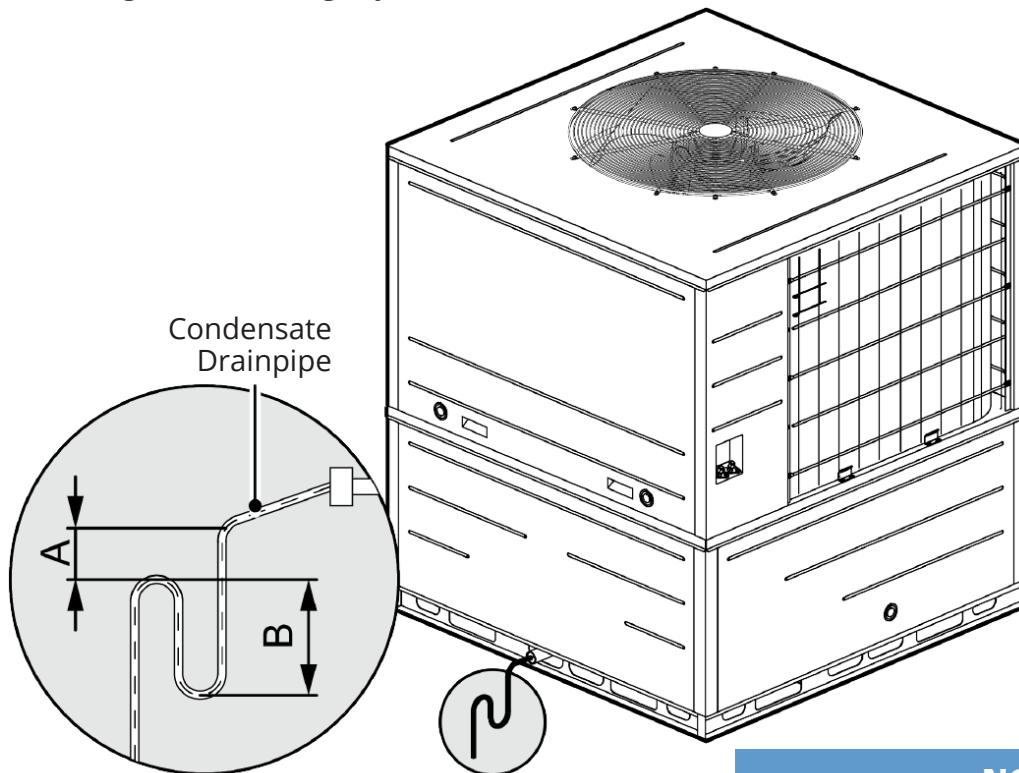
The indoor coil condensate drain ends with a threaded 3/4" (NPT) or 1-1/5" stub tube. A trap must be built for proper condensate drainage and to prevent debris from drawing into the unit.

The condensate pipe should be installed with an inclining angle of 5~10° to facilitate condensate drainage.

When the inside of the unit is in a negative pressure status, a backwater elbow is required.

Requirements:  $A=B \geq P/10+20(\text{mm})$

Note: P is the absolute pressure inside the unit. The unit of pressure is Pa. After the electrical installation is completed, carry out testing of the drainage system.



### NOTE

Above diagrams may be different from actual model.

Model	Drain Connection Size
MDPH180244 / MDPH180364 / MDPH180484 / MDPH180604	3/4" (NPT)

## 3.8 Electrical Wiring

### Precautions

1. Before connecting lines, read the unit nameplate for information about voltages, circuit ampacity, capacity, etc. Then, carry out line connection according to the schematic diagram.
2. The unit must have a special power supply line equipped with an electricity leakage switch and an air switch to accommodate overload conditions. In addition, the leakage switch must be tested each month.
3. The unit must be grounded to avoid insulation failure.
4. Power cords should be fed through a cable trough or wiring pipe. Connect power cord into electrical box through the criss-cross loop to avoid it becoming damaged by sheet metal edges.
5. The distance between power line and low voltage connections should be at least 5.9in (150mm).
6. All line connections should conform to the schematic diagram. A wrong connection could cause abnormal operation or damage to the unit.
7. Keep all cables away from the refrigerant pipe, the compressor, and moving parts such as fans.
8. Do not alter the internal line connections inside the unit. MRCOOL shall not be liable for any loss or abnormal operation arising from incorrect line connections.
9. If the supply cord is damaged, it must be replaced by MRCOOL or qualified technician to avoid hazards.
10. All of the supplied components, materials, and electric operation should be in accordance with local requirements.

### Wiring Connections

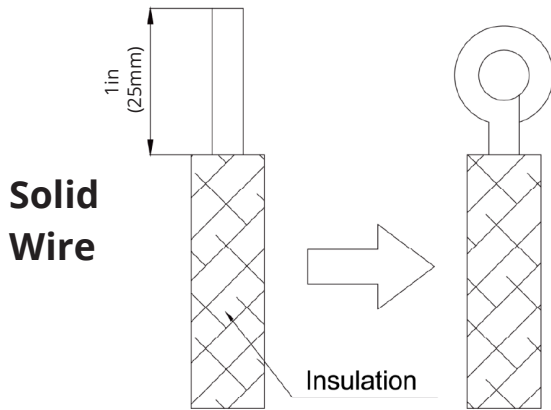
Perform the following checks before performing installing the unit:

1. Ensure the power supply is in accordance with the value on the nameplate.
2. The capacity of the power supply must be large enough.
3. The circuit must be installed by a professional technician.
4. In a fixed circuit, there must be an electricity leakage protection switch of sufficient power capacity and an air switch with at least .1in (3mm) of space between its electrode contacts.

# 3 UNIT INSTALLATION

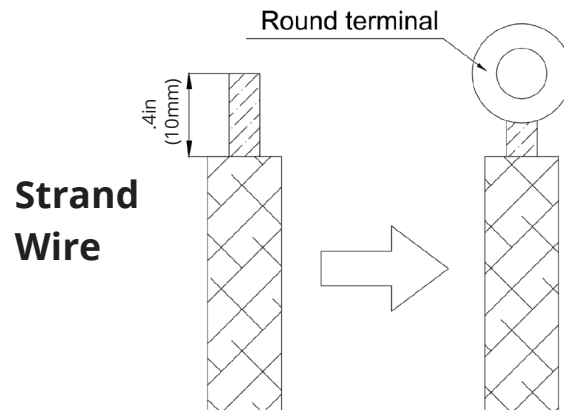
## Single Wire Connection:

1. Remove 1 in (25mm) of insulation with pliers.
2. Remove the screw from the terminal board.
3. Bend the peeled wire into a circle with pliers.
4. Screw through the circle and attach it to the terminal board.



## Strand Wires Connection:

1. Remove .4in (10mm) of insulation with pliers.
2. Remove the screw from the terminal board.
3. Clamp a round terminal of the peeled wires.
4. Screw through the circle and attach it to the terminal board.



## Supply Voltage

### 1. Unit with single-phase power supply:

1. Remove the electrical box cover of the unit.
2. Pass the cable through the rubber ring.
3. Connect the power supply cable to the terminals and grounding screw.
4. Use a cable fastener to bundle and attach the cable.

### 2. Unit with 3-phase power supply:

1. Remove the electrical box cover of the unit.
2. Pass the cable through the rubber ring.
3. Connect the power supply to the L1, L2, L3 terminals and grounding screw.
4. Use a cable fastener to bundle and attach the cable.

### 3. Low Voltage Connections

Low voltage wiring should use copper conductors. The wire size of the communication line should be no less than 0.75mm<sup>2</sup>

1. Remove the electrical box cover of the unit.
2. Pass the signal cable of the wired controller through the rubber ring.
3. Connect the signal cable to the H1, H2 terminals.
4. Use a cable fastener to bundle and attach the cable.

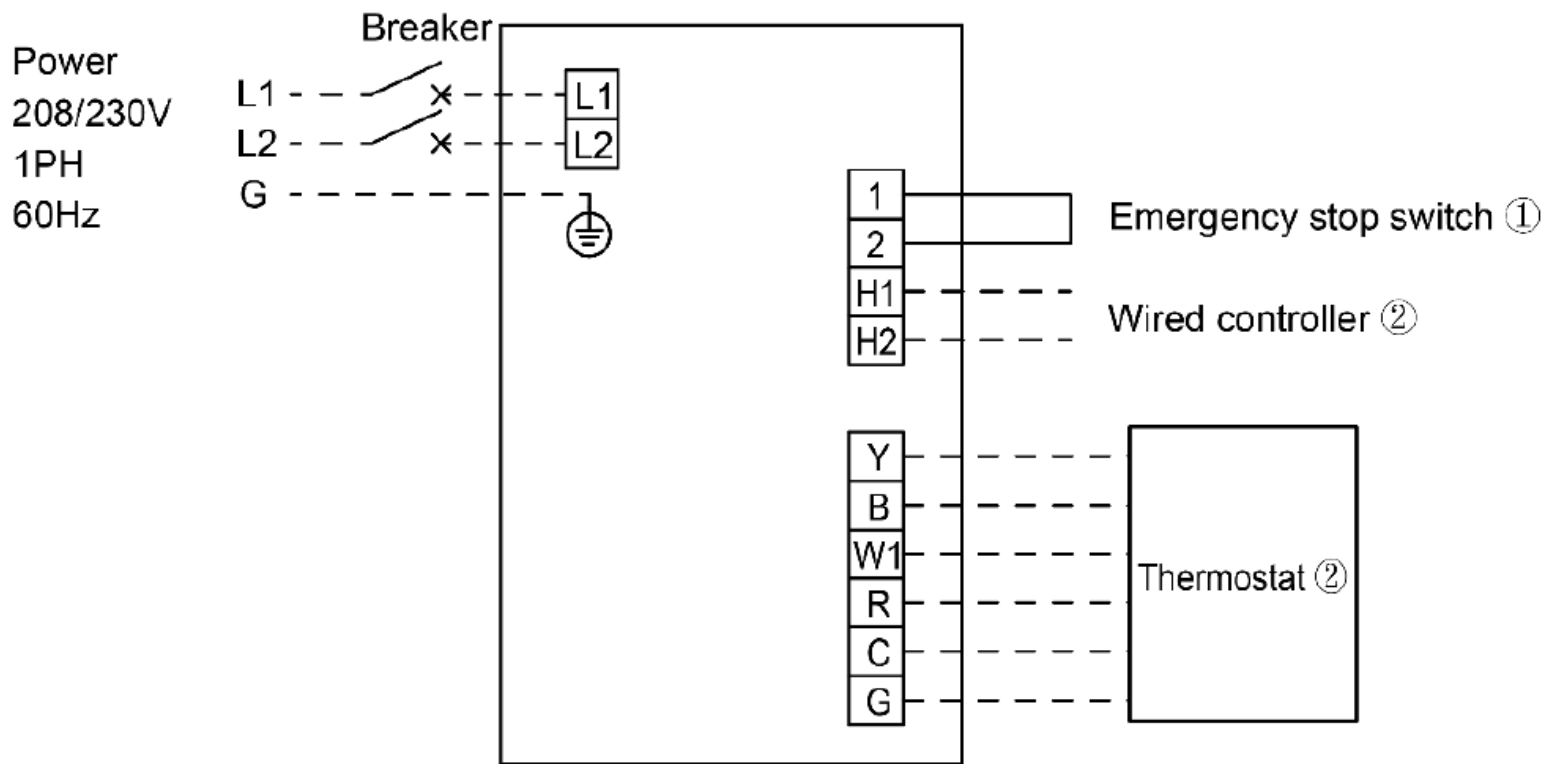
## ⚠ CAUTION

- Use care when performing wiring connections so as to avoid malfunction of the unit due to electromagnetic interference.
- The signal line of the wired controller must be separated from the power line.
- If the unit is installed in a location vulnerable to electromagnetic interference, it is recommended to use a shielded cable or double-twisted cable as the signal line of the wired controller.

## Wiring Diagrams

MDPH180244 / MDPH180364 / MDPH180484 / MDPH180604

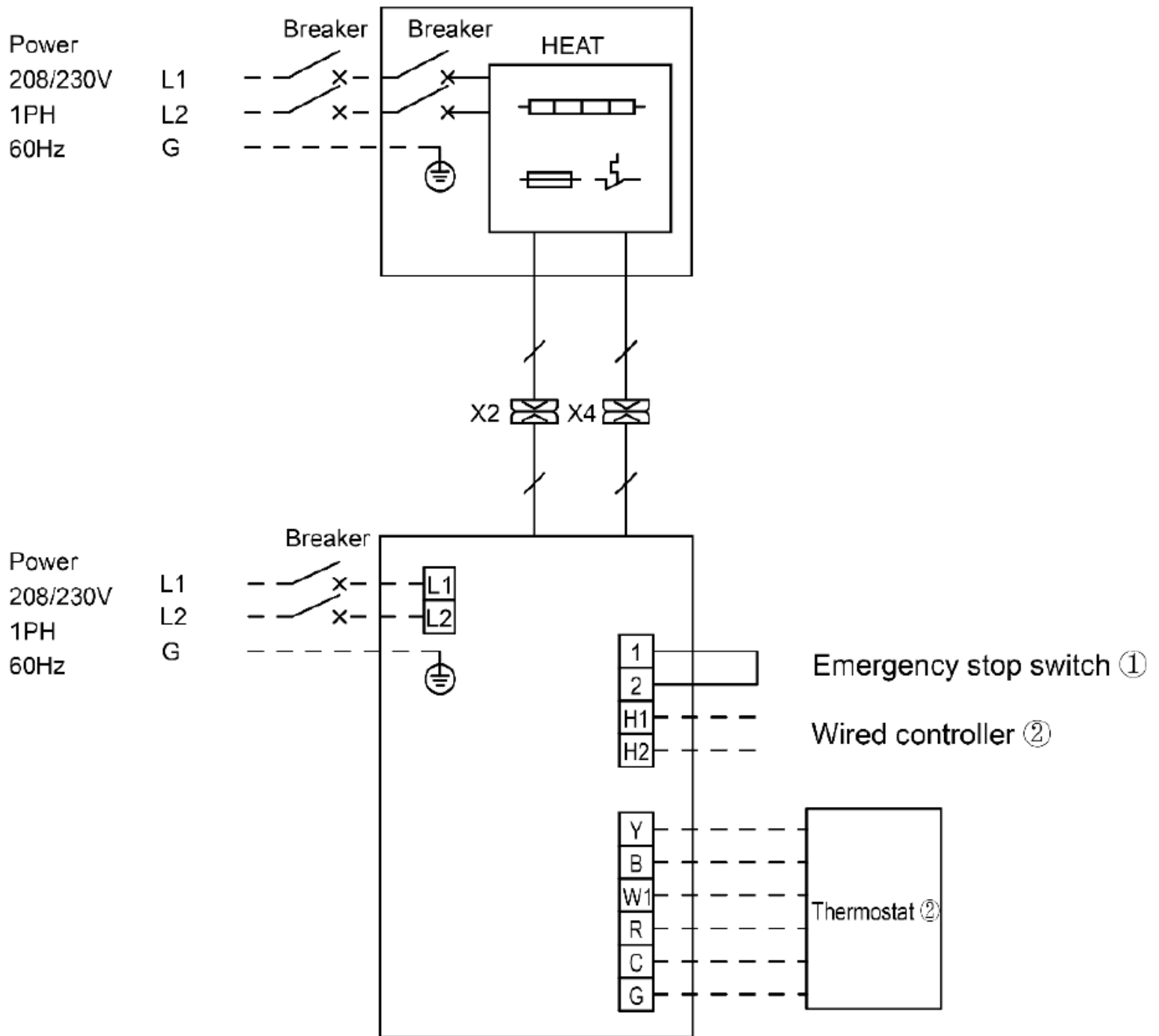
*Without electric heater:*



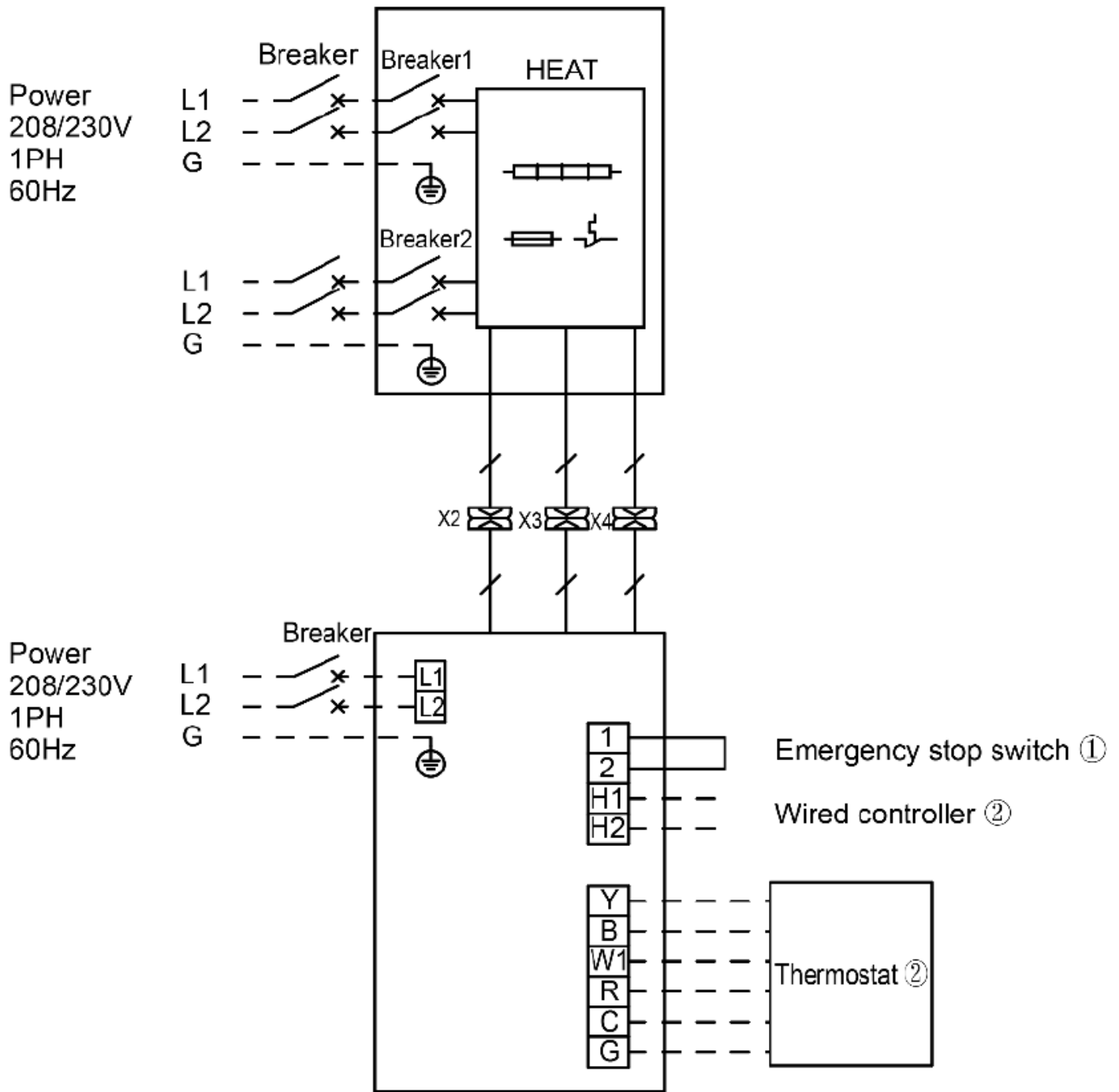
1. The unit has been short circuited before leaving the factory. When needing to connect the emergency stop switch, remove the corresponding short-circuit wire.
2. The unit can only be connected to a thermostat or wired controller.

# 3 UNIT INSTALLATION

With electric heater:



1. The unit has been short circuited before leaving the factory. When needing to connect the emergency stop switch, remove the corresponding short-circuit wire.
2. The unit can only be connected to a thermostat or wired controller.

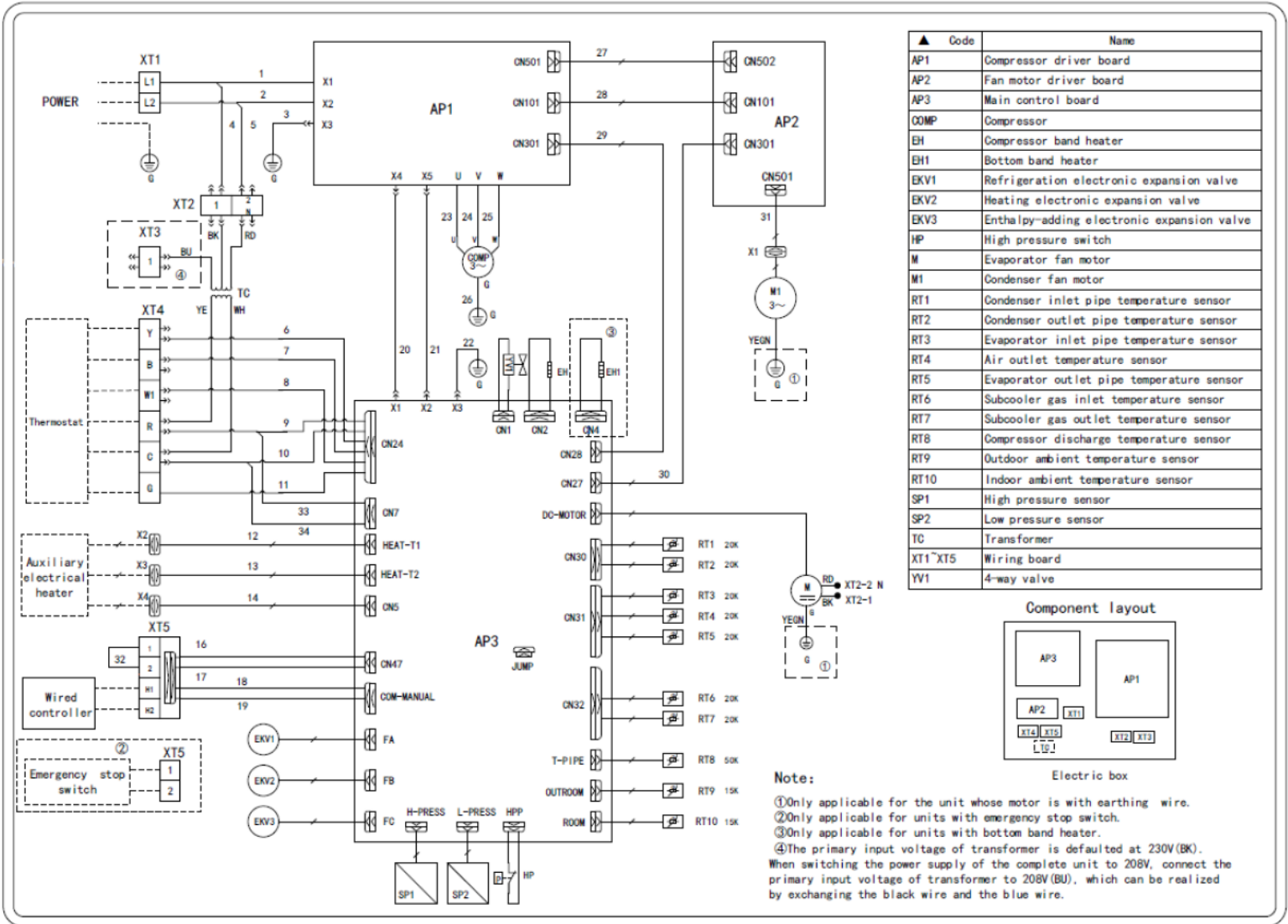


1. The unit has been short circuited before leaving the factory. When needing to connect the emergency stop switch, remove the corresponding short-circuit wire.
2. The unit can only be connected to a thermostat or wired controller.

# 3 UNIT INSTALLATION

The actual wiring should always refer to the wiring diagram of the unit.

MDPH180244 / MDPH180364 / MDPH180484 / MDPH180604



## NOTE

Above data is subject to change without notice.



## 4.1 Error Codes

No.	Error Code	Malfunction Name	Origin of Malfunction Signal	Control Description
1	E1	High pressure protection	High pressure switch	When unit detects the high pressure switch is cut off for 3 seconds successively, high pressure protection will occur. All the loads (except the 4-way valve in heating mode) will be switched off. In this case, all buttons and remote control signals except the ON/OFF button will be disabled and cannot be recovered automatically.
2	E2	Freeze Protection	Evaporator temperature sensor	If detected that the evaporator temperature is lower than the protective temperature value after the unit has been running for a period of time under cooling or dry mode, the unit will report this fault, in which case the compressor and condenser fan motor will stop. The unit will not run until the evaporator temperature is higher than the protective temperature value and the compressor is stopped for 3 minutes.
3	E3	Low pressure protection	Low pressure switch	If it is detected within 30 seconds successively that the low-pressure switch is cut off while in On or Standby state, the unit will report low pressure protection. If the fault occurs successively 3 times within 30 minutes, the unit cannot be recovered automatically.
		Low refrigerant protection	/	If the unit reports the system is lacking refrigerant within 10 minutes of turning on the unit, the unit will stop operation. If the fault occurs successively 3 times, the unit cannot be recovered automatically.
		Refrigerant recycling mode	/	If the unit enters refrigerant recycling mode through special operation, E3 will be displayed. After exiting refrigerant recycling mode, the code will disappear.
4	E4	Compressor high discharge temperature protection	Compressor discharge is too high	If the unit detects that the discharge temperature is higher than the protective temperature value, the unit will report high discharge temperature protection. If the protection occurs over 6 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
5	E6	Communication malfunction	Communication between mainboards	If the mainboard does not receive data from the other mainboards, communication malfunction will be reported. If there is a communication abnormality between the display board (wired controller) and the unit, communication malfunction will also be reported.
6	E8	Malfunction of Evaporator Fan Motor	Evaporator fan motor	If the unit does not receive signal from the evaporator fan motor for 30 seconds successively when the fan motor is operating, evaporator fan motor malfunction will be reported. In this case, the unit can automatically resume operation after stopping. If the malfunction occurs 6 times within one hour, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this malfunction.
7	E9	Full water protection	Water level switch	If cut-off of water level switch is detected for 8 seconds successively once energized, the system will enter full water protection. In this case, switch off the unit and then switch it on to eliminate this malfunction.

# 4 MAINTENANCE

No.	Error Code	Malfunction Name	Origin of Malfunction Signal	Control Description
8	F0	Malfunction of indoor ambient temperature sensor at air return port	Indoor ambient temperature sensor	If the indoor ambient temperature sensor detects open circuit or short circuit for 5 seconds successively, indoor ambient temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If indoor ambient temperature sensor malfunction occurs in fan mode, only the error code is displayed and the unit can work normally.
9	F1	Malfunction of evaporator temperature sensor	Evaporator temperature sensor	If the indoor evaporator temperature sensor detects open or short circuit for 5 seconds successively, evaporator temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If evaporator temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.
10	F2	Malfunction of condenser temperature sensor	Condenser temperature sensor	If the condenser temperature sensor detects open circuit or short circuit for 5 seconds successively, condenser temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If condenser temperature sensor malfunction occurs in fan mode, only the error code is displayed and the unit can work normally.
11	F3	Malfunction of outdoor ambient temperature sensor	Outdoor ambient temperature sensor	If the outdoor ambient temperature sensor detects open circuit or short circuit for 5 seconds successively, outdoor ambient temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears. If outdoor ambient temperature sensor malfunction occurs in fan mode, only the error code is displayed and the indoor unit can work normally.
12	F4	Malfunction of discharge temperature sensor	Discharge temperature sensor	If the discharge temperature sensor detects open circuit or short circuit for 5 seconds successively after the compressor has been operating for 3 minutes, discharge temperature sensor malfunction will be reported. The unit can automatically resume operation after the malfunction disappears.
13	F5	Malfunction of wired controller temperature sensor	Wired Controller	If the wired controller detects open circuit or short circuit of its temperature sensor for 5 seconds successively, wired controller temperature sensor malfunction will be reported.
14	F6	Condenser mid-tube thermistor error	Condenser mid-tube temperature sensor	If the condenser mid-tube temperature sensor detects open circuit or short circuit for 5 seconds successively, condenser mid-tube thermistor error will be reported. The unit can automatically resume operation after the error disappears. If condenser mid-tube thermistor error occurs in fan mode, only the error code is displayed and the unit can work normally.
15	ee	Malfunction of drive memory chip	Drive board	If the memory chip of drive board is broken, the unit cannot be started. The unit cannot be recovered automatically. If the malfunction cannot be eliminated after switching off the unit and then energizing the unit several times, replace the drive board.

No.	Error Code	Malfunction Name	Origin of Malfunction Signal	Control Description
16	H3	Compressor overload protection	Compressor overload switch	If it is detected within 3 seconds successively that the overload switch is cut off under On or Standby state, the unit will report overload protection. If the fault occurs successively 3 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
17	H4	Overload Protection	Evaporator temperature, condenser temperature	If the unit detects that the tube temperature is higher than the protective temperature value, the unit will report overload protection. The unit will not restart operation until tube temperature is lower than protective temperature value and the compressor is stopped for 3 minutes. If the protection occurs over 6 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this protection.
18	H6	Malfunction of condenser fan motor	Condenser fan motor	If the unit does not receive signal from condenser fan motor for 30 seconds successively when the fan motor is operating, condenser fan motor malfunction will be reported. In this case, the unit can automatically resume operation after stopping. If the malfunction occurs 6 times within one hour, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off power to eliminate this malfunction.
19	U7	Direction changing malfunction of 4-way valve	4-way valve	After the compressor starts operation in heating more, if the unit detects the difference between evaporator temperature and indoor ambient temperature is lower than the protective value for 10 minutes successively, direction changing malfunction of 4-way valve will be reported and the outdoor unit will stop operation. The unit can automatically resume operation in the first two malfunctions. If the malfunction occurs 3 times, the unit cannot be recovered automatically. Switch off the unit or re-energize the unit after cutting off the power to eliminate this malfunction.
20	P6	Communication malfunction between main control board and drive board	Communication between main control board and drive board	If the outdoor main control board does not receive data from the drive board, communication malfunction between main control and drive will be reported. This malfunction can be eliminated automatically.
21	EE	Malfunction of main control memory chip	Main control board	If the memory chip of the main control board is broken, the unit cannot be started. The unit cannot be recovered automatically. If the malfunction cannot be eliminated after switching off the unit and then energizing the unit several times, replace the outdoor main control board.

## 4.2 Drive Malfunction Codes

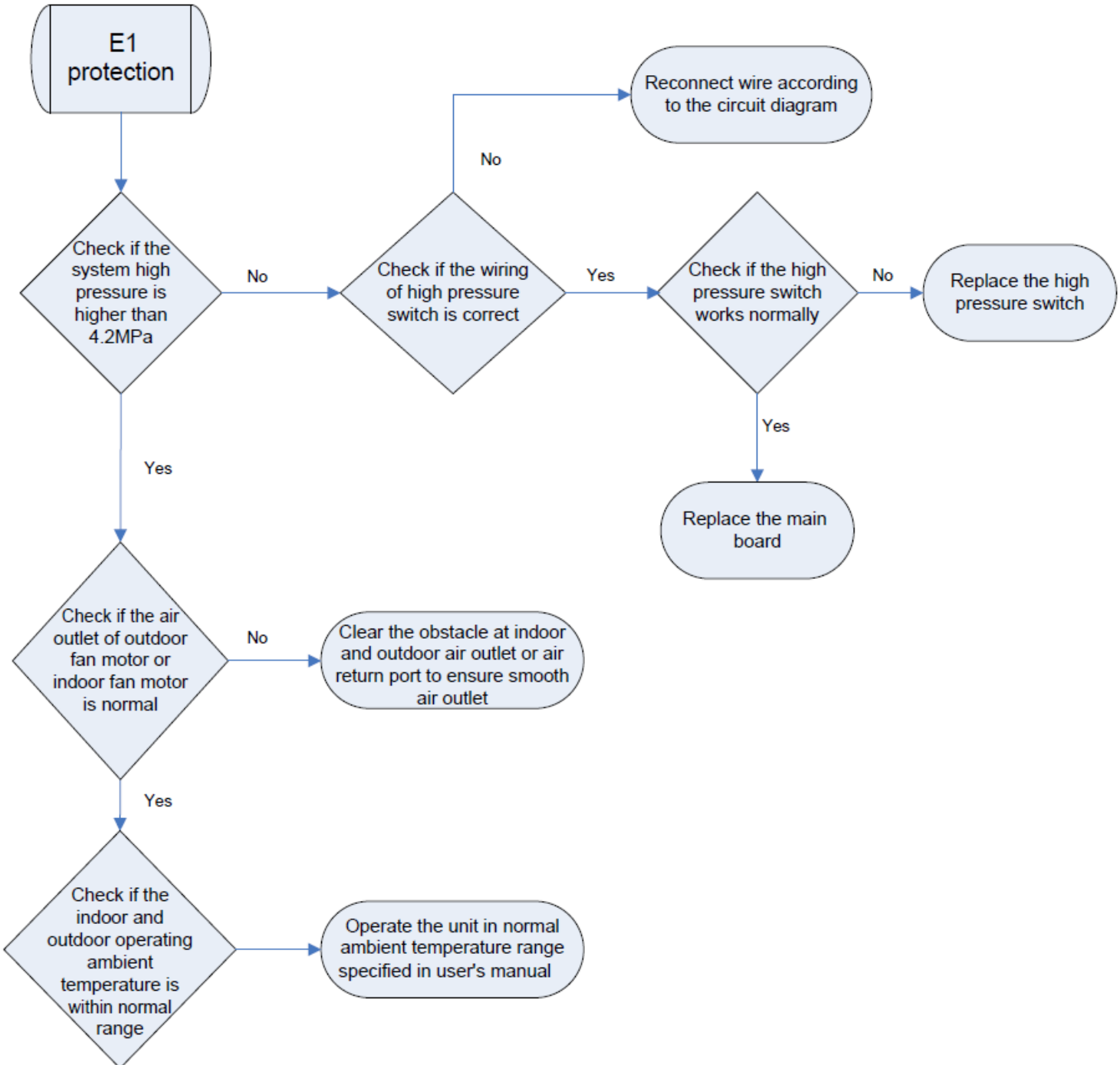
Malfunction Name	Wired Controller Display	Unit Display of Dual 8 Numeral Tube
DC busbar over-voltage protection	PH	PH
IPM or PFC over-temperature protection	P8	P8
Current sense circuit error	Pc	Pc
IPM or PFC temperature sensor error	P7	P7
Compressor current protection	P5	P5
DC busbar under-voltage protection	PL	PL
Compressor startup failure	Lc	Lc
Drive module reset	P0	P0
Compressor motor desynchronizing	H7	H7
Phase Loss	Ld	Ld
Drive-to-main-control communication error	P6	P6
IPM protection	H5	H5
Compressor overload protection	H3	H3
AC current protection (input side)	PA	PA
Charging circuit error	PU	PU
DC fan error	H6	H6
Input AC voltage abnormality	PP	PP
Driving board memory chip error	ee	ee
Condenser Fan DC busbar under-voltage protection	H6	AL
Condenser Fan DC busbar over-voltage protection	H6	AH
Condenser Fan AC current protection (input side)	H6	AA

Malfunction Name	Wired Controller Display	Unit Display of Dual 8 Numeral Tube
Condenser Fan IPM module protection	H6	A1
Condenser Fan PFC abnormality	H6	AF
Condenser Fan startup failure	H6	AC
Condenser Fan missing phase	H6	Ad
Condenser Fan Drive module resetting	H6	A0
Condenser Fan current protection	H6	UL
Condenser Fan power protection	H6	UP
Condenser Fan current sensor malfunction	H6	AE
Condenser Fan motor in loss of synchronization	H6	AJ
Malfunction from Condenser Fan driving part to main-control communication	H6	A6
Overheat protection of Condenser Fan radiator	H6	A8
Condenser Fan radiator sensor malfunction	H6	A9
Condenser Fan Drive storage chip malfunction	H6	An
Condenser Fan Charge circuit malfunction	H6	AU
Condenser Fan AC input voltage abnormality	H6	AP
Condenser Fan drive board environment temperature sensor malfunction	H6	Ar
Condenser Fan AC contactor protection or input zero crossing error	H6	U9

## 4.3 Troubleshooting Flowcharts

### Troubleshooting Flow Chart of Main Control Malfunction

#### E1 High Pressure Protection



#### E2 Freeze Protection

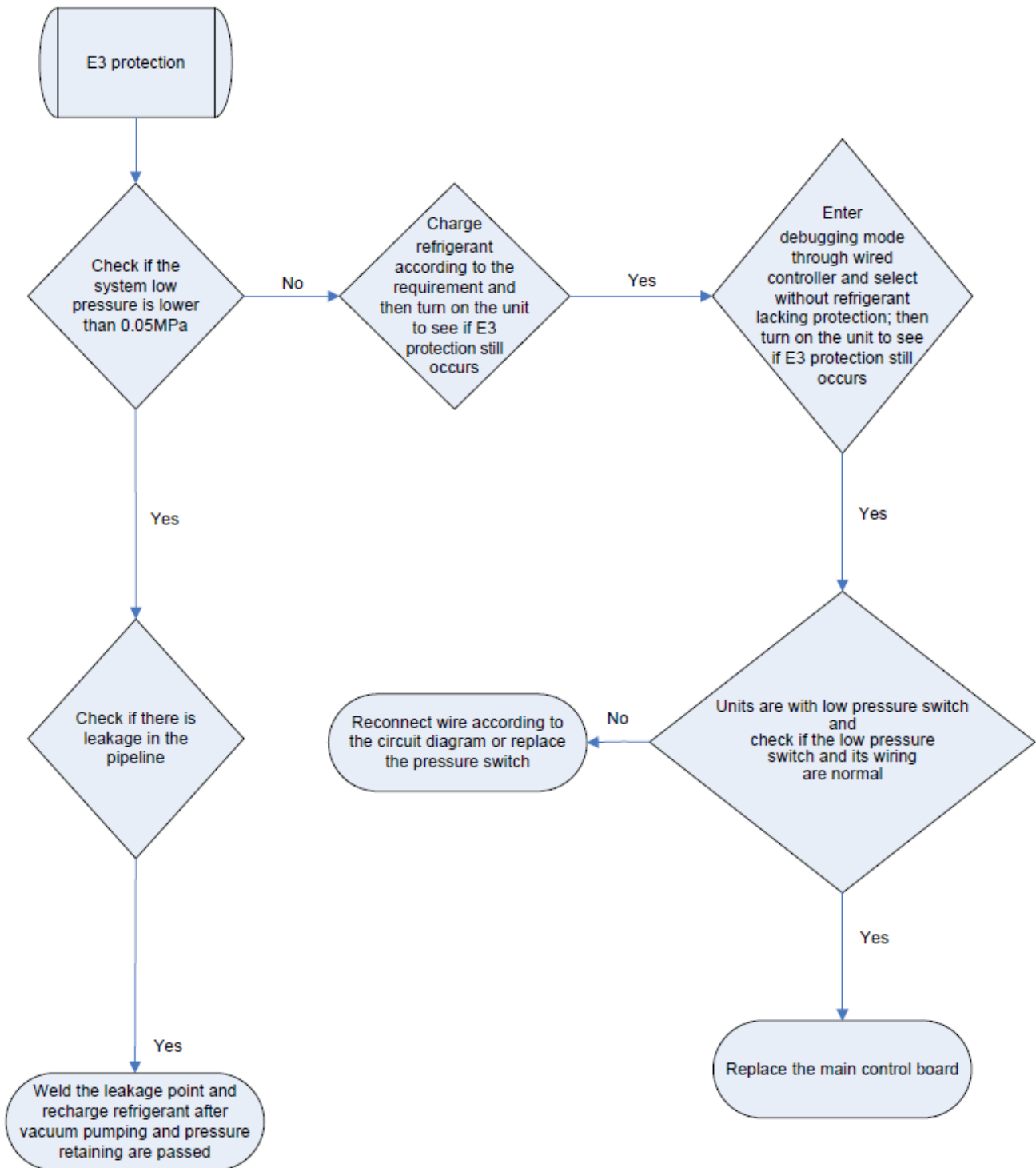
Freeze protection is a normal protection, but not an abnormal malfunction. If freeze protection occurs frequently during operation, check if the indoor filter is blocked with dirt and debris, or check if the indoor air outlet is abnormal. The user must clean the filter and check the air outlet and air return pipe periodically to ensure smooth operation.

## E3 Statuses

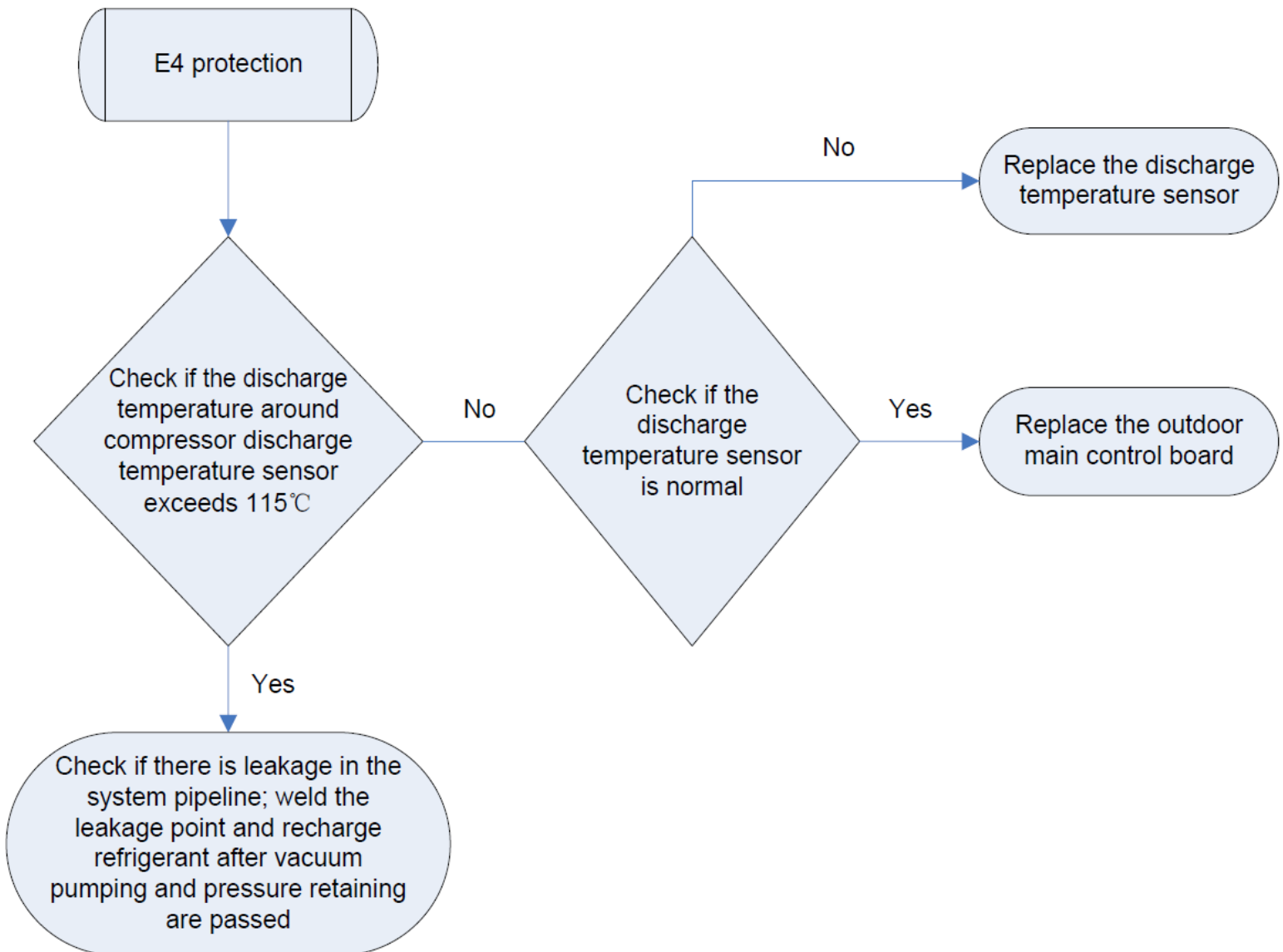
1. Low pressure protection
2. Low refrigerant protection
3. Refrigerant recycling mode

1. If unit enters refrigerant recycling mode through special operation, the displayed E3 is not an error code. It will be eliminated when exiting refrigerant recycling mode.

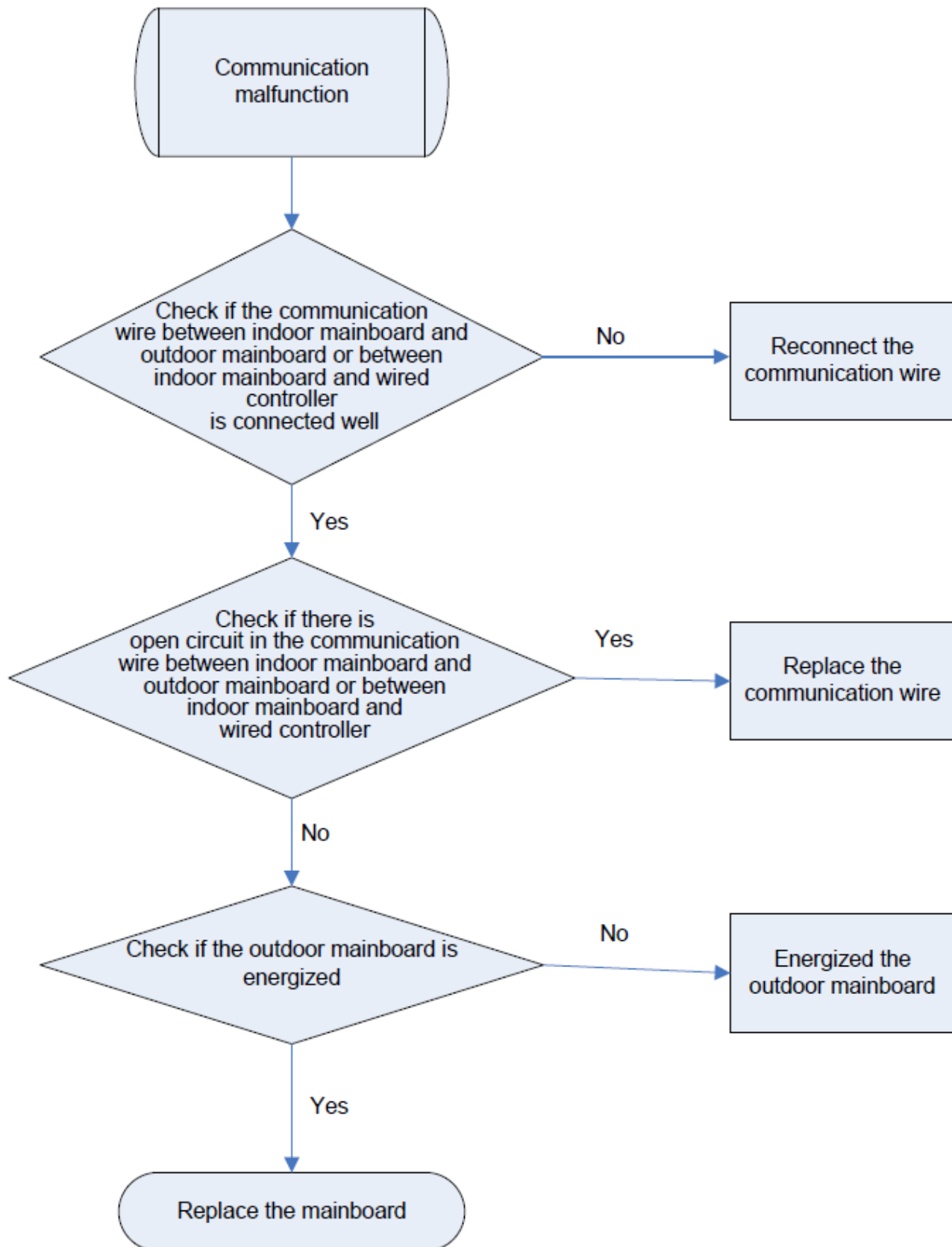
2. If you do not want to have low refrigerant protection, enter the debugging mode through the wired controller then cancel the low refrigerant protection mode.



## E4 Discharge Protection

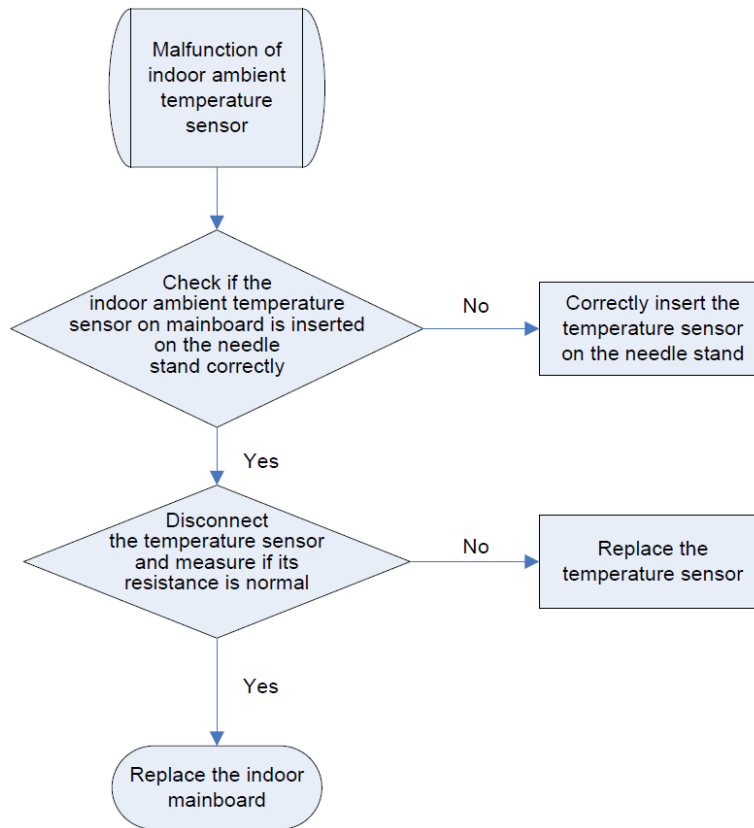


## E6 Communication Malfunction

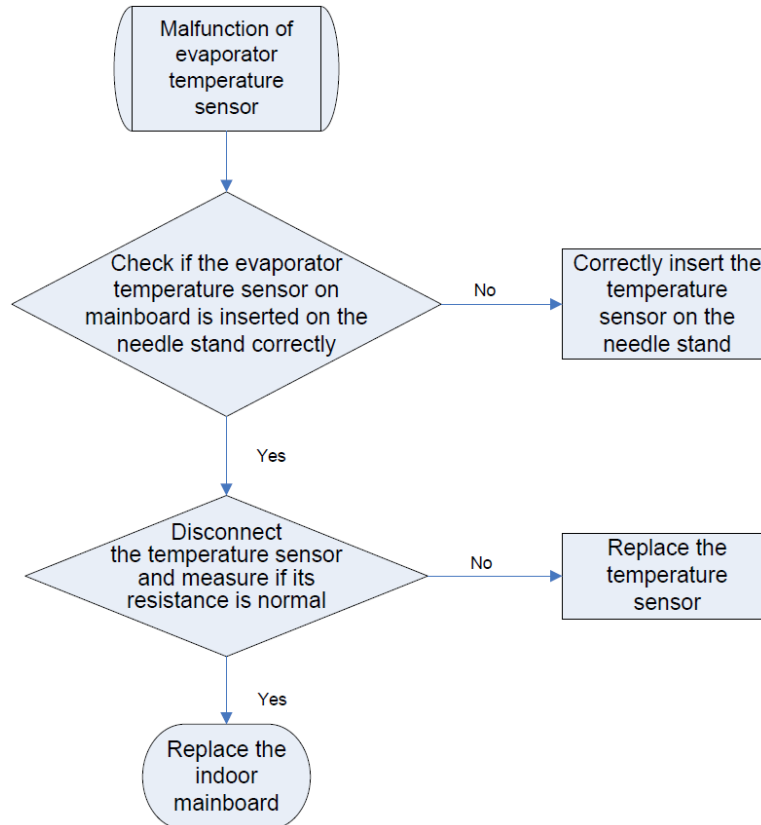




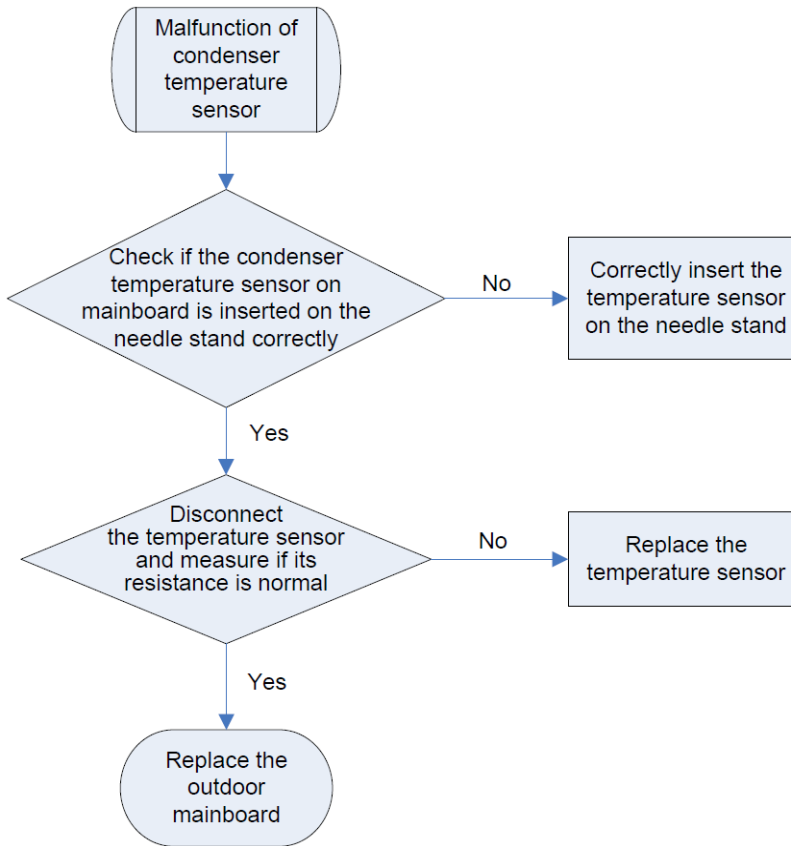
## F0 Malfunction of Indoor Ambient Temperature Sensor



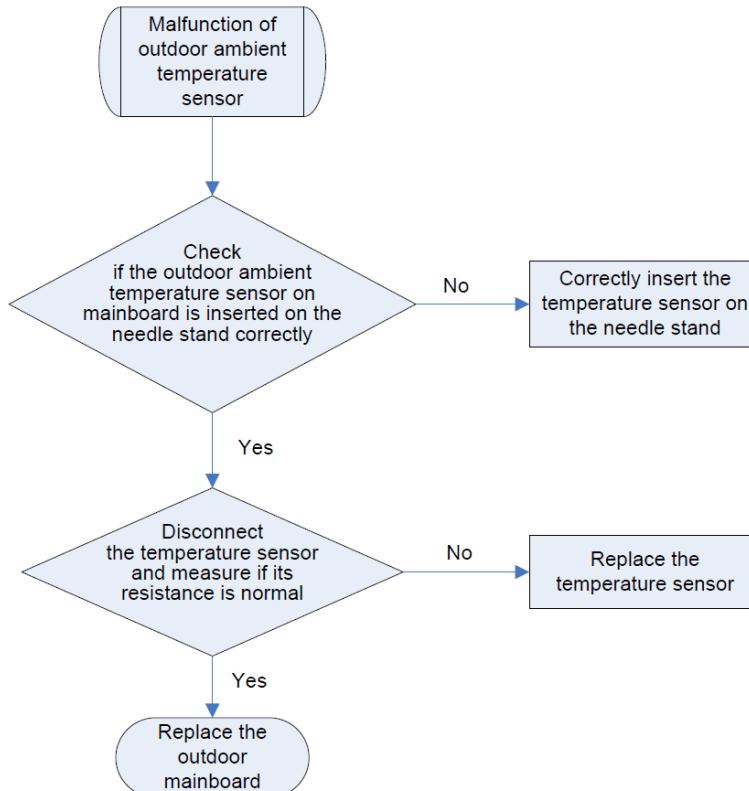
## F1 Malfunction of Evaporator Temperature Sensor



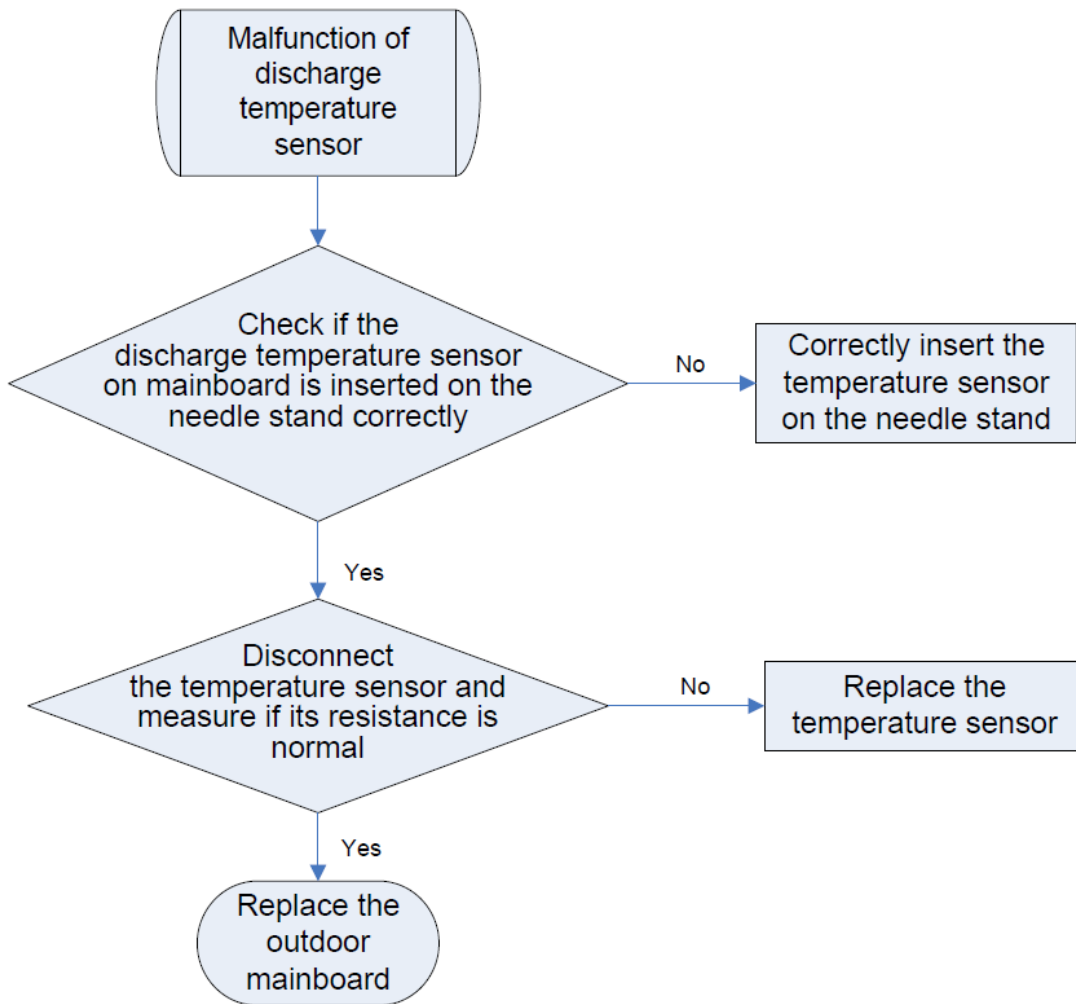
## F2 Malfunction of Condenser Temperature Sensor



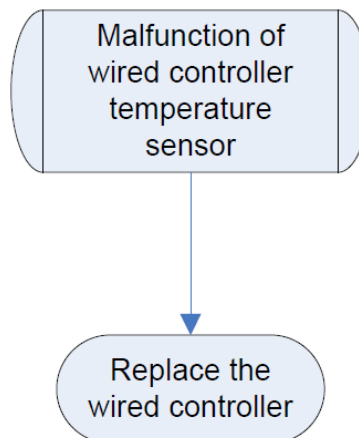
## F3 Malfunction of Outdoor Ambient Temperature Sensor



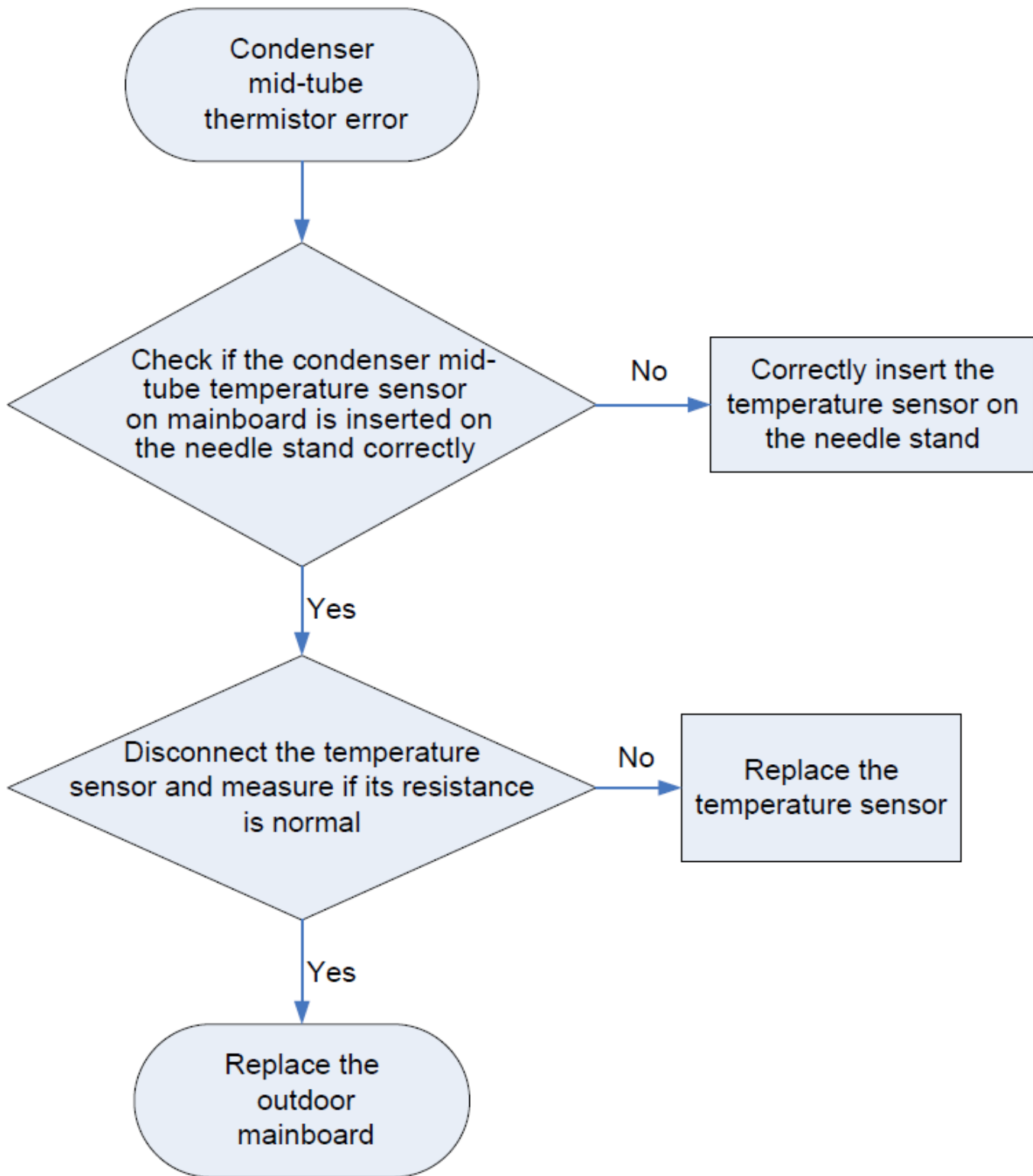
## F4 Malfunction of Discharge Temperature Sensor

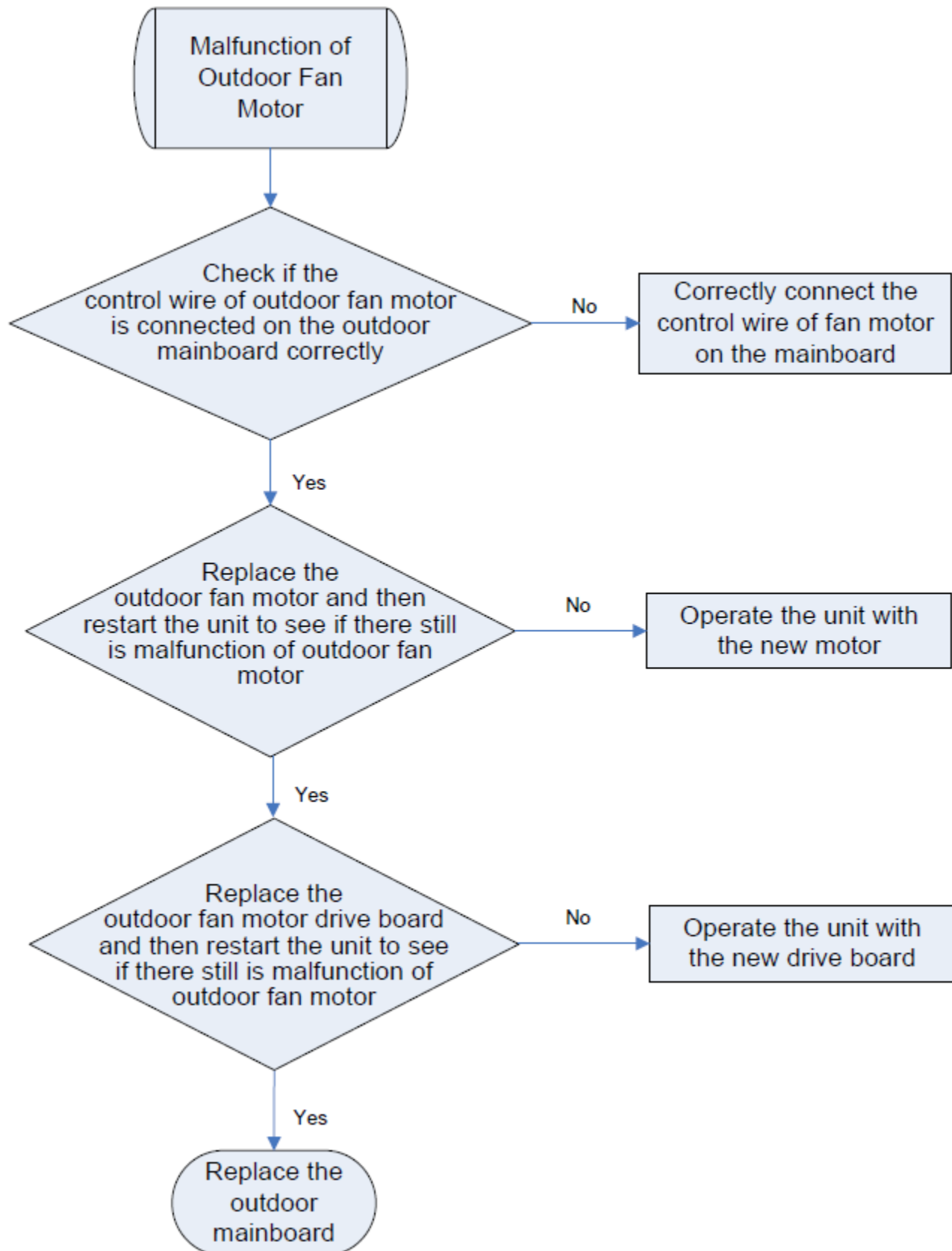


## F5 Malfunction of Wired Controller Temperature Sensor

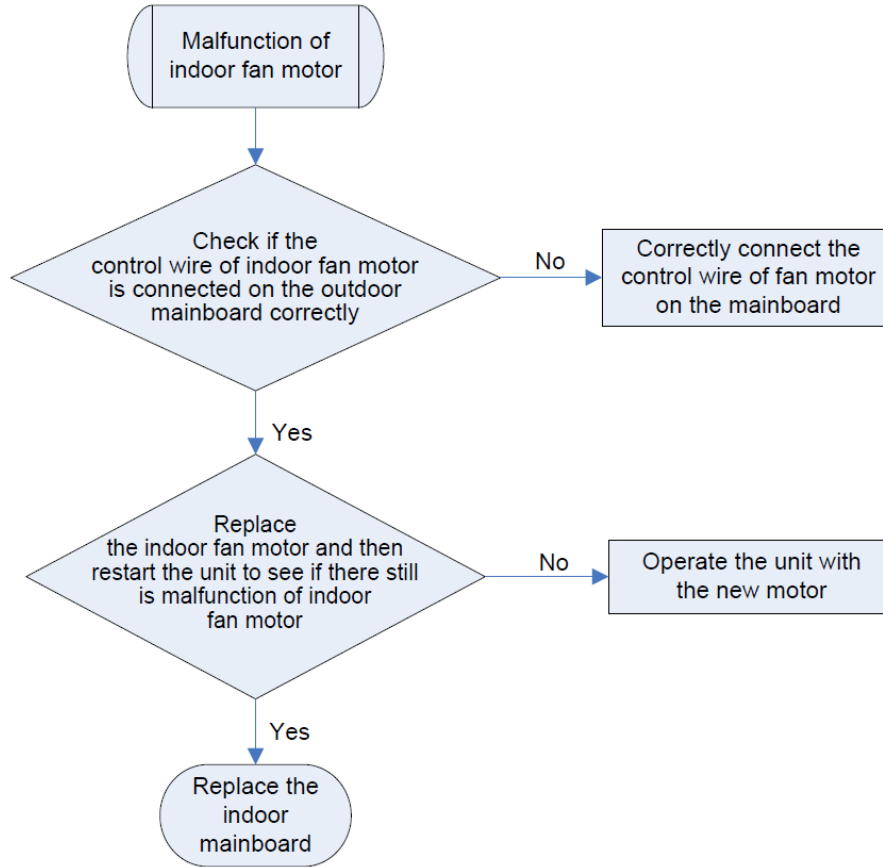


## F6 Condenser Mid-Tube Thermistor Error



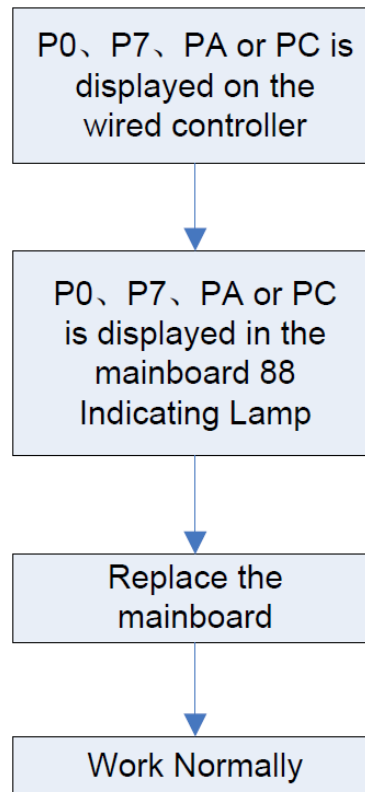
*H6 Malfunction of Outdoor Fan Motor*

## E8 Malfunction of Indoor Fan Motor

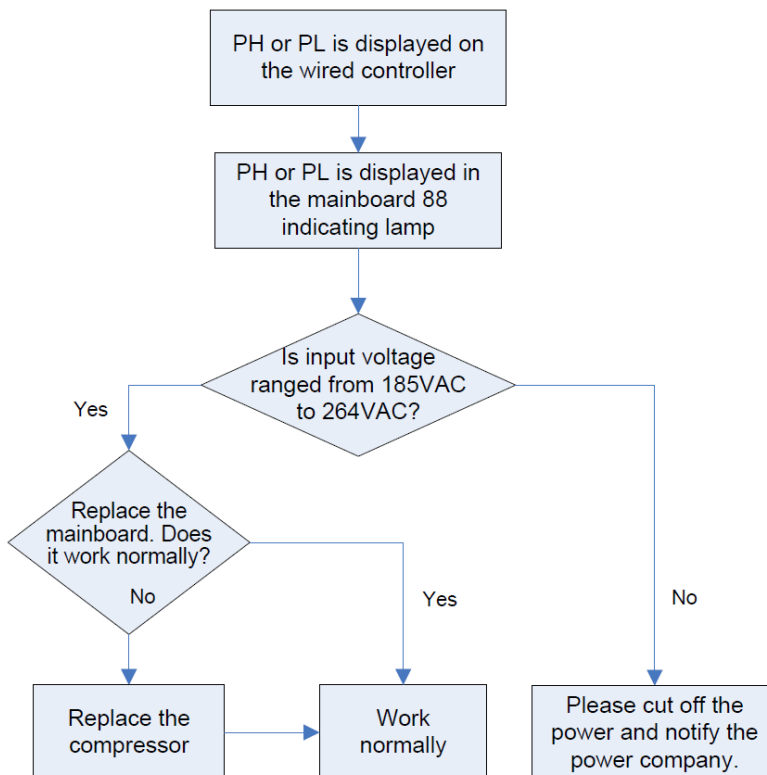


## Troubleshooting Flow Chart of Drive Malfunction

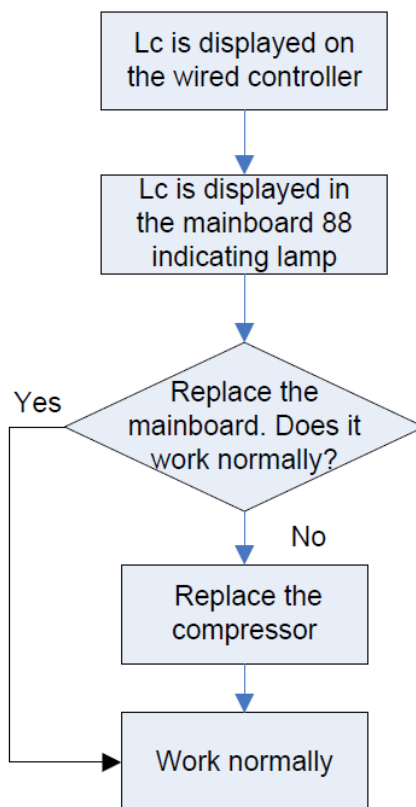
- *P0 Drive Module Reset*
- *P7 IPM temperature sensor error*
- *PA AC current protection (input side)*
- *PC Current sense circuit error*



- *PH DC busbar over-voltage protection*
- *PL DC busbar under-voltage protection*

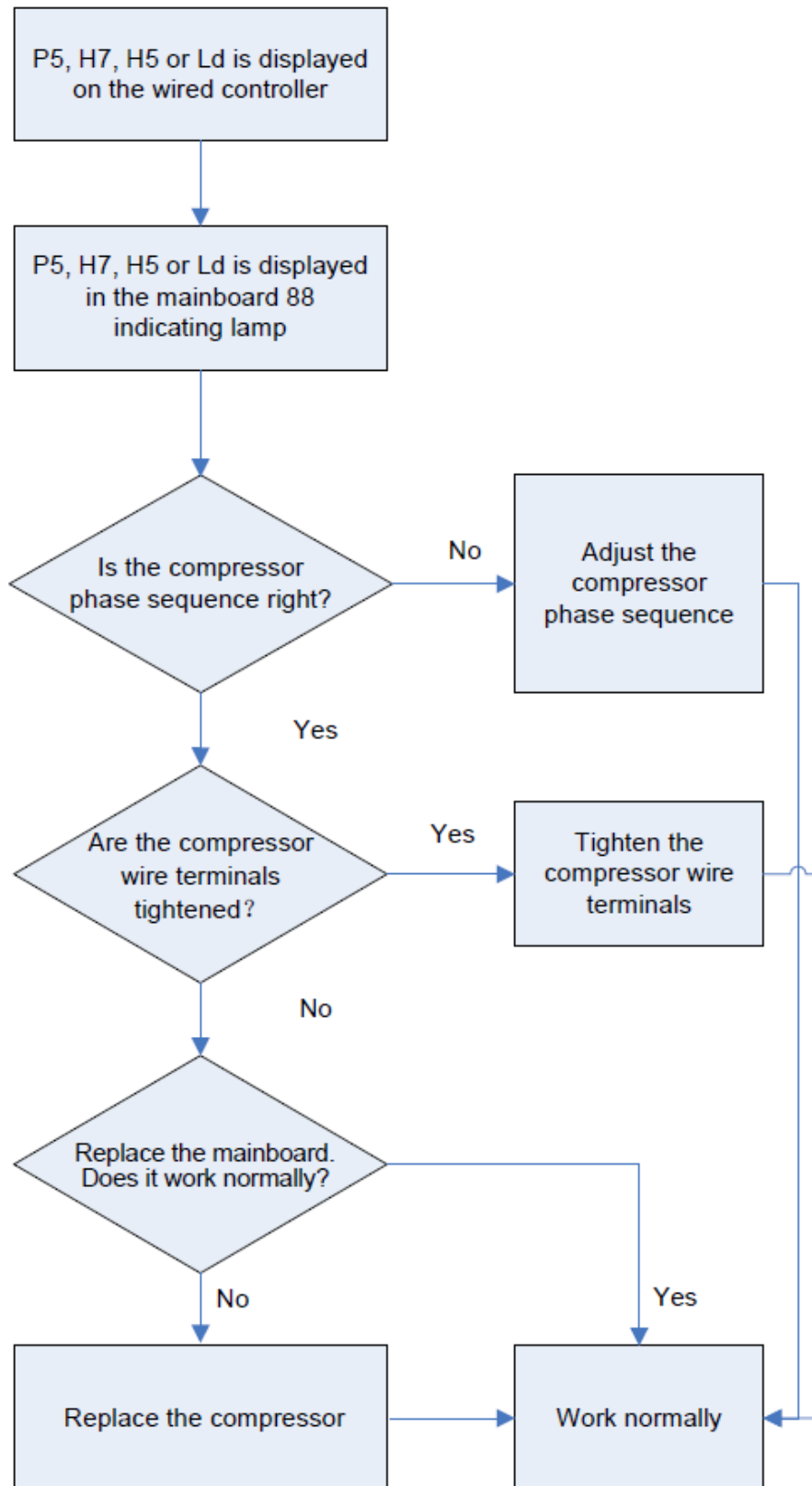


- *P6 Drive-to-main-control communication error*
- *LC Compressor Startup Failure*



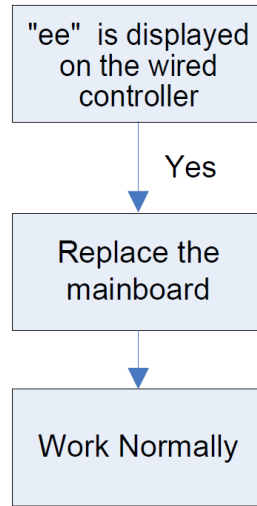
# 4 MAINTENANCE

- P5 Compressor current protection
- H7 Compressor motor desynchronizing
- H5 IPM Protection
- Ld Phase loss

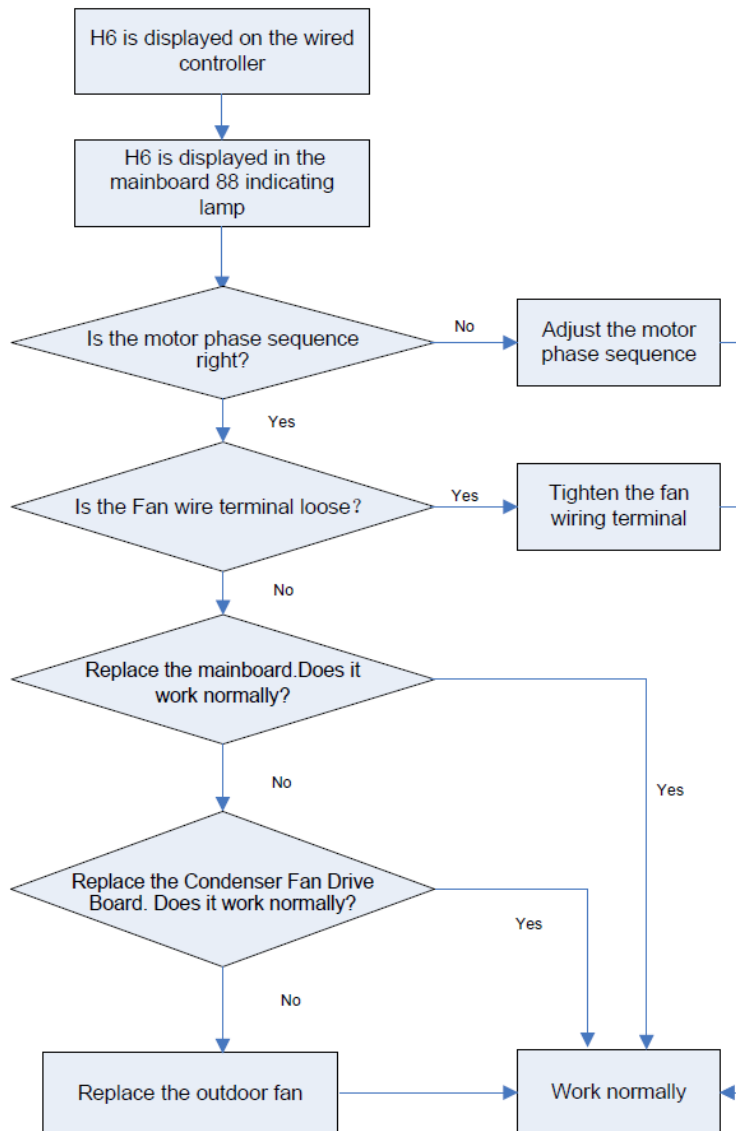




- *ee Driving board chip error*



- *H6 DC fan error*



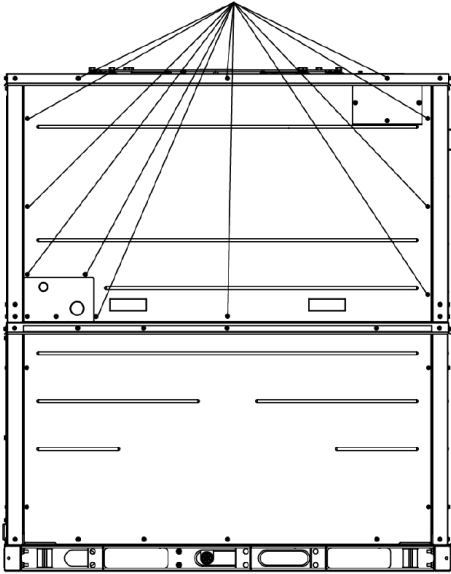
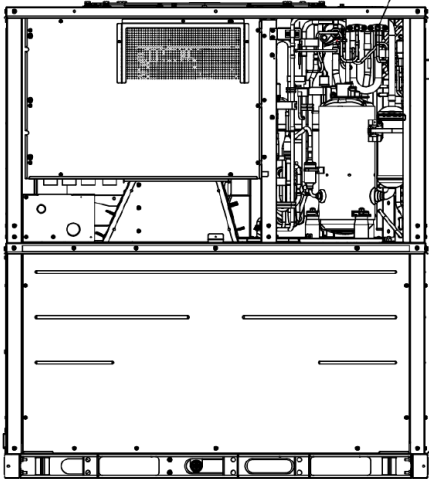
# 4 MAINTENANCE

## 4.4 Assembly & Disassembly

MDPH180244 / MDPH180364

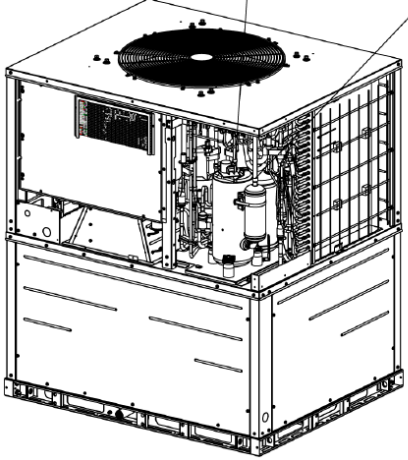
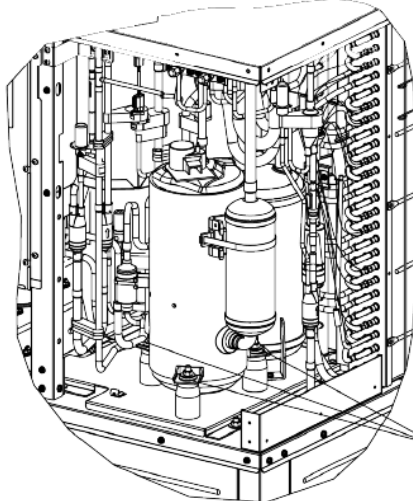
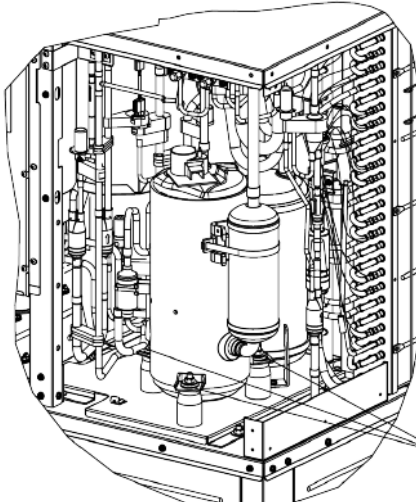
### Assembly & Disassembly of Compressor

**Note:** Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.

Step	Illustration	Handling Instruction
<p>1. Open the front panel</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Unscrew the bolts (indicated by arrows).</li> </ul>
<p>2. Disconnect the power cord and condenser fan motor wires.</p>		<ul style="list-style-type: none"> <li>Disconnect the power cord and condenser fan motor wires after removing the side plate.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing wire to avoid mistakes when renewing wire connection.</p>
<p>3. Recover refrigerant in the system</p>	<p style="text-align: center;">Nozzles</p> 	<ul style="list-style-type: none"> <li>Connect vacuum recovery tank with nozzle for adding freon for recovery of refrigerant.</li> </ul> <p>Note: Recovery work must be complete as refrigerant is harmful to the environment and animals.</p>

## Assembly & Disassembly of Compressor

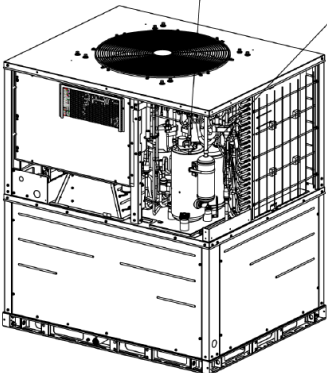
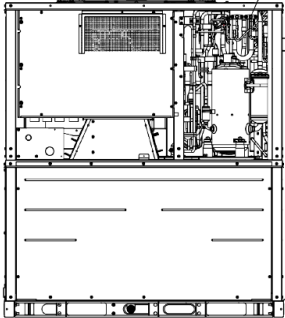
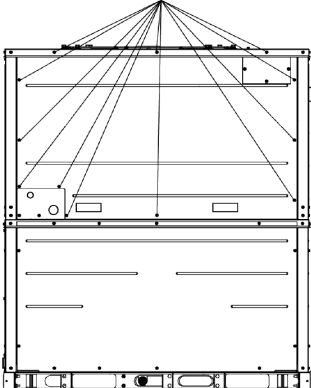
**Note: Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.**

Step	Illustration	Handling Instruction
<p>4. Remove the suction and discharge pipes</p>	 <p>Discharge pipe    Suction pipe</p>	<ul style="list-style-type: none"> <li>Heat the connection pipes indicated by arrows with fired heater then draw them out.</li> </ul> <p>Note: Pay attention to surroundings to avoid burns.</p>
<p>5. Remove the compressor from the chassis.</p>	 <p>Nuts</p>	<ul style="list-style-type: none"> <li>Unscrew the nuts on the compressor base with a wrench then remove the compressor from the base.</li> </ul> <p>Note: Keep compressor level and vertical. Never invert it.</p>
<p>6. Install a new compressor on the chassis.</p>	 <p>Nuts</p>	<ul style="list-style-type: none"> <li>Put the new compressor on the chassis in the same direction as during the removal. Then, tighten the fixing nut on the compressor base with a wrench.</li> </ul> <p>Note: Keep compressor level and vertical on the base. Never incline or invert it.</p>

# 4 MAINTENANCE

## Assembly & Disassembly of Compressor

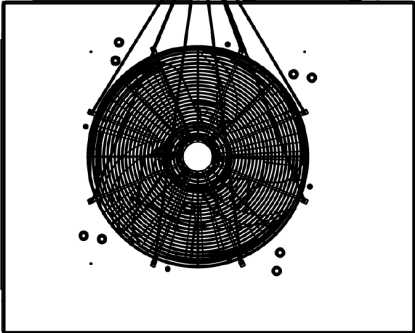
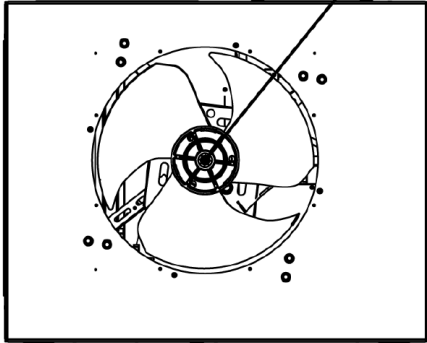
**Note: Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.**

Step	Illustration	Handling Instruction
<p>7. Connect the suction and discharge pipes of the compressor with system pipes.</p>	<p>Discharge pipe Suction pipe</p> 	<ul style="list-style-type: none"> <li>Heat the connected pipes indicated by arrows then weld them together with the unit pipes.</li> </ul> <p>Note: Pay attention to surroundings to avoid burns.</p>
<p>8. Reconnect power cord of compressor.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord on compressor according to the same procedure of disconnecting the power cord. The line connection must match the schematic diagram.</li> </ul> <p>Note: The connection box of the compressor must be recovered to resist water. No cable should have contact with the pipe or moving parts.</p>
<p>9. Recharge refrigerant</p>	<p>Nozzles</p> 	<ul style="list-style-type: none"> <li>Connect refrigerant tank with low-pressure nozzle (indicated by the maker) for recharging refrigerant.</li> </ul> <p>Note: Check the leak after finishing the connection pipes. Charge amount should be consistent with the nameplate.</p>
<p>10. Close the front panel</p>	<p>Screws</p> 	<ul style="list-style-type: none"> <li>Tighten the bolts.</li> </ul>

Note: Above diagrams may be different from actual model.

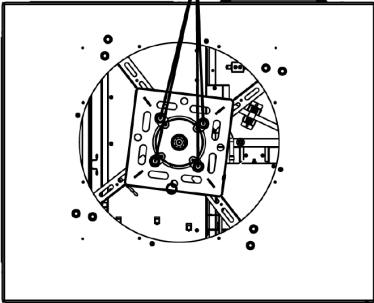
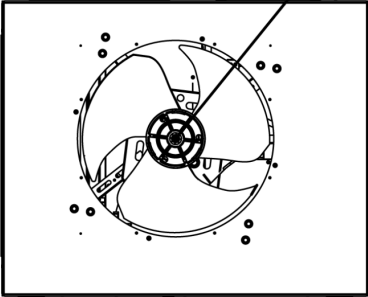
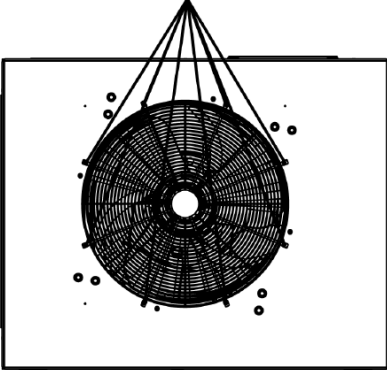
## Assembly & Disassembly of Condenser Fan Motor

**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
1. Disconnect the electrical source wire.		<p>Disconnect all connection lines between condenser fan motor and elements in electric box.</p> <p>Note: Please refer to the schematic diagram on electrical box for disconnection of connection lines of condenser fan motor.</p>
2. Remove the rear grille.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Reconnect the power cord on compressor according to the same procedure of disconnecting the power cord. The line connection must match the schematic diagram.</li> </ul> <p>Note: The connection box of the compressor must be recovered to resist water. No cable should have contact with the pipe or moving parts.</p>
3. Remove the fan.	<p style="text-align: center;">Nuts</p> 	<p>Remove the screw (indicated by the arrow) attaching the fan to remove the fan.</p> <p>Note: Fix the fan when unscrewing the holding bolt to avoid the fan rotating and causing possible injury.</p>
4. Remove the motor from the bracket		<ul style="list-style-type: none"> <li>Remove the holding bolt of motor first, then remove the motor from the bracket.</li> </ul> <p>Note: Loosen power cord fixed by bundles before removing motor.</p>

## Assembly & Disassembly of Condenser Fan Motor

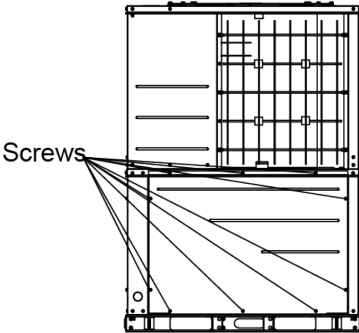
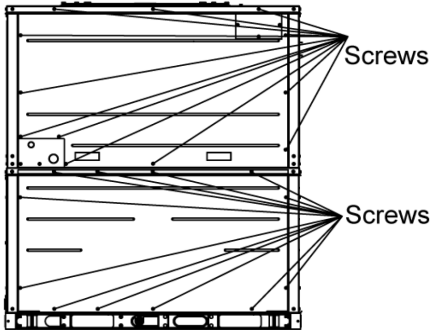
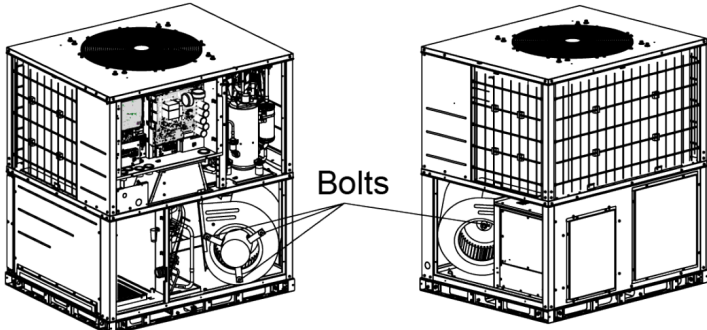
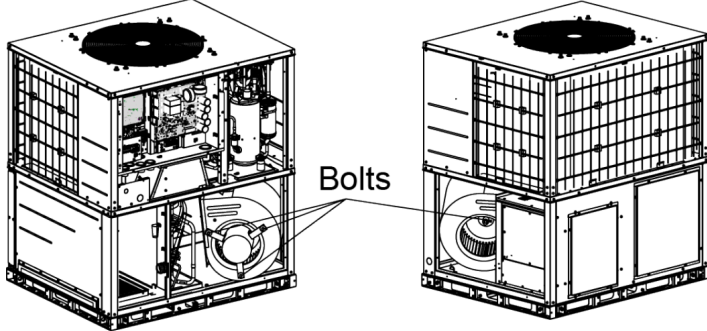
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>5. Fix the new motor onto the bracket.</p>	<p style="text-align: center;">Nuts</p> 	<p>Put the repaired or replaced motor onto the bracket in the same direction in removing. Then, screw down the holding bolt with a wrench.</p> <p>Note: Keep the motor level vertical during installation. Then, fix the power cord with bundles at original locations.</p>
<p>6. Install and fix fan blade.</p>	<p style="text-align: center;">Nuts</p> 	<ul style="list-style-type: none"> <li>Re-install fan blade and screw down the holding bolt indicated by the arrow with a wrench.</li> </ul> <p>Note: Level of force should be within 8-12N when screwing down the bolt. After that, place glue into the gap in between bolt and hole.</p>
<p>7. Re-Install the rear grille.</p>	<p style="text-align: center;">Screws</p> 	<p>Put the rear grille back and tighten the screws.</p>
<p>8. Reconnect the power cord.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord according to the circuit mark on the electrical box.</li> </ul> <p>Note: After connection, arrange leading wires and refix them with bundles at original locations. Close the cover plate of electrical box hermetically. No cable should contact the pipe and moving parts, such as the fan.</p>

Note: Above diagrams may be different from actual model.

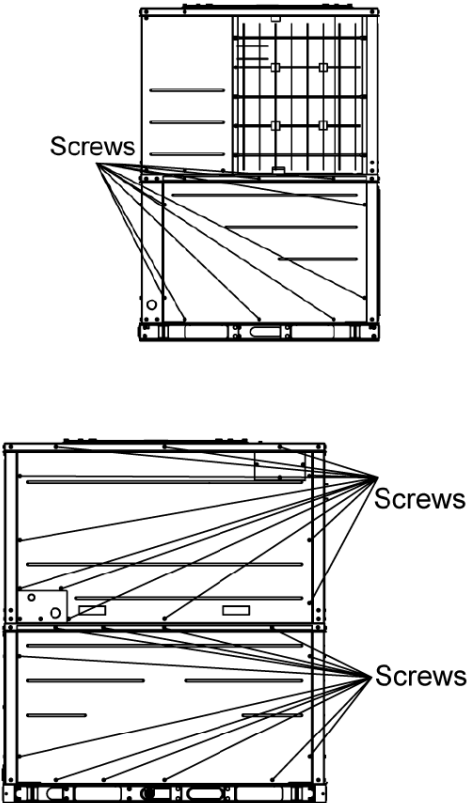
## Assembly & Disassembly of Supply Blower Motor

**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
1. Remove the side plate		<ul style="list-style-type: none"> <li>Remove the screws attaching the side plate (indicated by arrows) to remove it.</li> </ul>
2. Remove the front plate.		<ul style="list-style-type: none"> <li>Remove the screws attaching the cover plate (indicated by arrows) to remove it.</li> </ul>
3. Disconnect all connection lines.		<p>Disconnect all connection lines between motor and elements in electrical box.</p> <p>Note: Refer to the schematic diagram on the electrical box for disconnection of connection lines of supply blower motor.</p>
4. Remove the motor.		<p>Remove the nuts (indicated by arrows) to loosen the connection between the motor and bracket.</p>
5. Re-Install the motor.		<p>Re-assemble the repaired or replaced motor. Installation direction is the same as that of disassembly. Then, screw down the holding bolts with a wrench.</p>

## Assembly & Disassembly of Supply Blower Motor

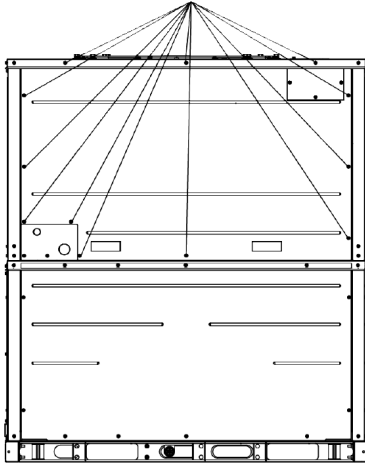
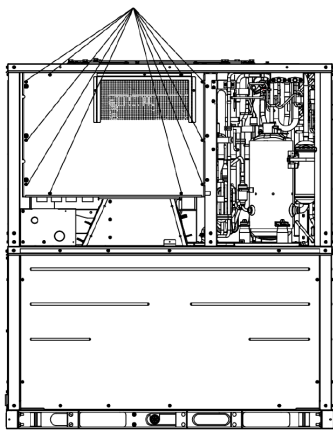
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>6. Re-connect the power cord.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord according to the wiring diagram on the electrical box.</li> </ul> <p>Note: After connection, arrange leading wires and refix them with bundles at original locations. No cable should touch the pipe or moving parts, such as the fan. Close the cover plate of the electrical box hermetically.</p>
<p>7. Reinstall the side and front plates.</p>		<ul style="list-style-type: none"> <li>Put pulleys onto shaft, then the taper sleeve. Then, cover the pulleys onto the taper sleeve. Screw down the 2 bolts clockwise.</li> </ul> <p>Note: The sleeve has taper, so the pulleys must be installed first. Ensure the coplanarity of the pulleys and adjust the tightness level of the belt.</p>



## Assembly & Disassembly of Electrical Box

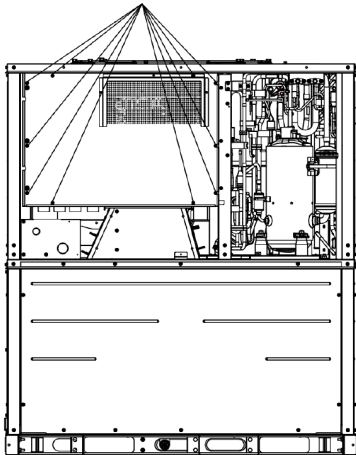
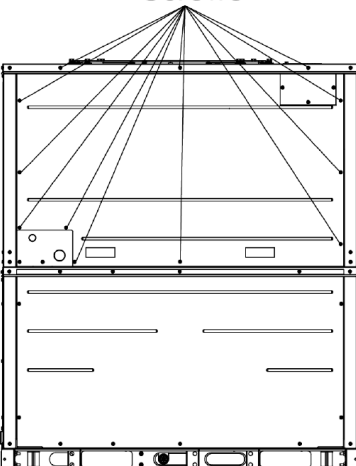
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>1. Take off the front plate</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Remove the screws fixing the front plate. Lift the handles, slightly pulling it outward and downward to remove the side plate.</li> </ul>
<p>2. Disconnect the power cord.</p>		<ul style="list-style-type: none"> <li>Pull out the power cord or disconnect the power cord after unscrewing the screws.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing the wire to avoid mistakes when reattaching wires.</p>
<p>3. Remove the electrical box cover.</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Remove the screws attaching the cover (indicated by the arrows). Then remove the cover.</li> </ul>
<p>4. Disconnect all connection lines.</p>		<ul style="list-style-type: none"> <li>Disconnect all connection lines between the exterior electrical component and elements in the electrical box.</li> </ul> <p>Note: Refer to the schematic diagram on the electrical box for disconnection of motor's connection lines.</p>
<p>5. Remove the main board.</p>		<ul style="list-style-type: none"> <li>Remove the screws (indicated by the arrows), then take down the main board.</li> </ul> <p>Note: Power cord may be fixed by bundles, so loosen the bundles before removing the main board.</p>

# 4 MAINTENANCE

## Assembly & Disassembly of Electrical Box

**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

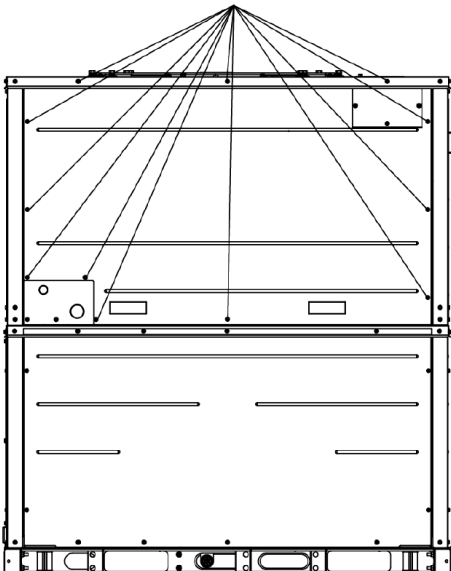
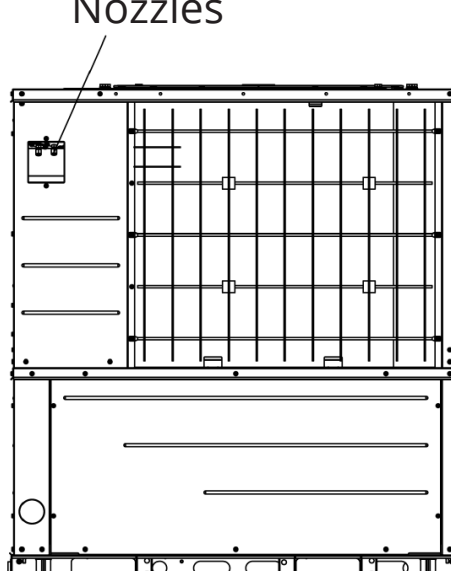
Step	Illustration	Handling Instruction
6. Re-Install the main board		<ul style="list-style-type: none"> <li>Put the main board back and tighten the screws. Then, reconnect all connection lines that had been taken down and refix the power cord with bundles at original locations.</li> </ul> <p>Note: The line connection must match the schematic diagram. No cable should touch the pipe or moving parts, such as the fan.</p>
7. Reconnect the power cord.		<ul style="list-style-type: none"> <li>Pull out the power cord or disconnect the power cord after unscrewing the screws.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing the wire to avoid mistakes when reattaching wires.</p>
8. Re-Install the electrical box cover.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Tighten the screws to attach the cover (indicated by the arrows).</li> </ul>
9. Re-Install the front plate.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Put the side plate back and tighten the screws.</li> </ul>

Note: Above diagrams may be different from actual model.

MDPH180484 / MDPH180604

## Assembly & Disassembly of Compressor

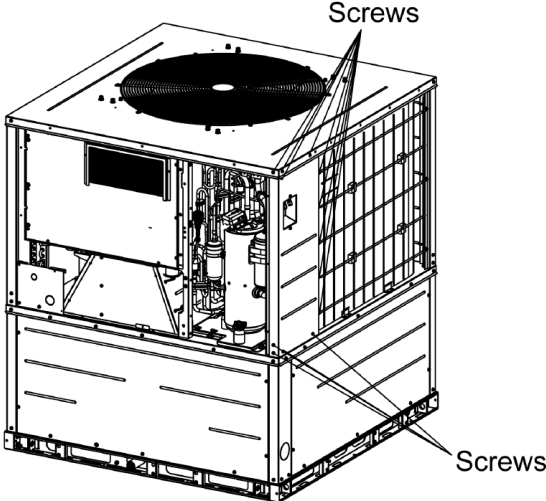
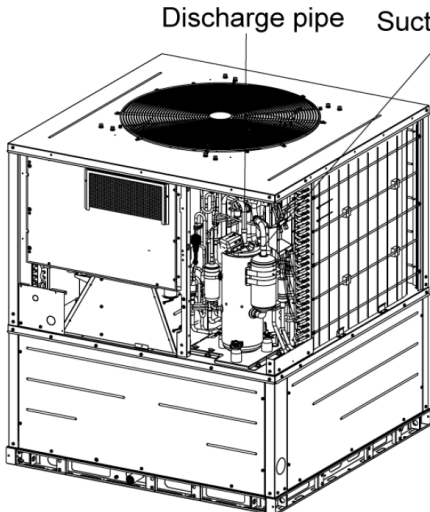
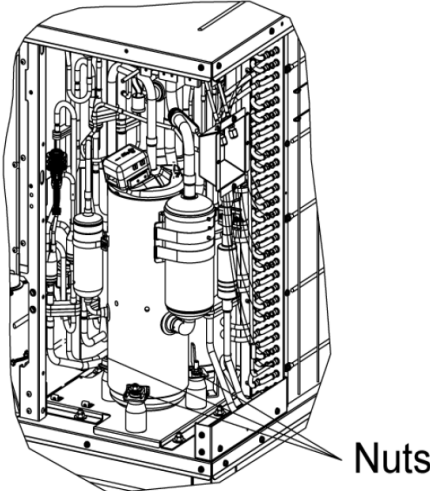
**Note: Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.**

Step	Illustration	Handling Instruction
<p>1. Open the front panel</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Unscrew the bolts (indicated by arrows).</li> </ul>
<p>2. Disconnect the power cord and condenser fan motor wires.</p>		<ul style="list-style-type: none"> <li>Disconnect the power cord and condenser fan motor wires after removing the side plate.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing wire to avoid mistakes when renewing wire connection.</p>
<p>3. Recover refrigerant in the system</p>	<p style="text-align: center;">Nozzles</p> 	<ul style="list-style-type: none"> <li>Connect vacuum recovery tank with nozzle for adding freon for recovery of refrigerant.</li> </ul> <p>Note: Recovery work must be complete as refrigerant is harmful to the environment and animals.</p>

# 4 MAINTENANCE

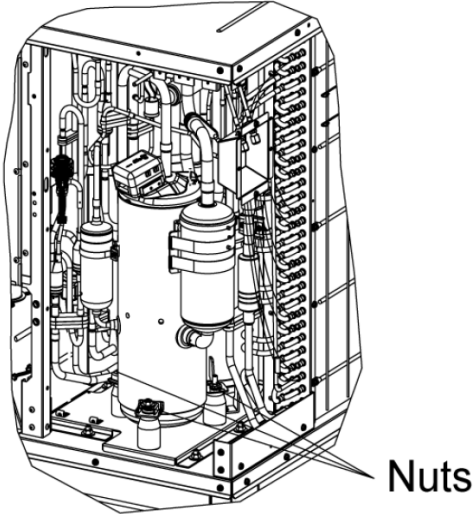
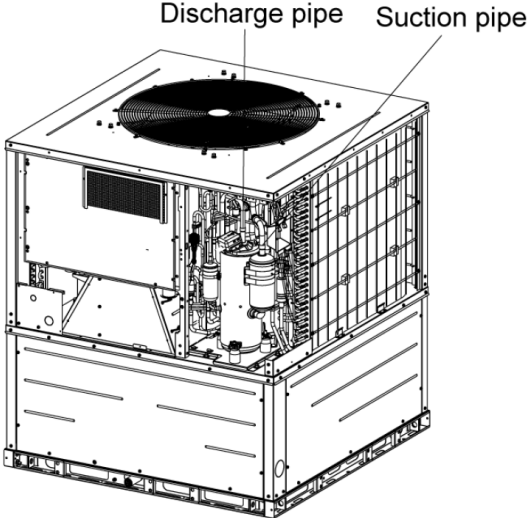
## Assembly & Disassembly of Compressor

**Note: Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.**

Step	Illustration	Handling Instruction
<p>4. Remove the suction and discharge pipes</p>	 <p>Screws</p> <p>Screws</p>	<ul style="list-style-type: none"> <li>Unscrew the bolts (indicated by arrows)</li> </ul>
<p>5. Remove the suction and discharge pipes</p>	 <p>Discharge pipe</p> <p>Suction pipe</p>	<ul style="list-style-type: none"> <li>Heat the connection pipes indicated by arrows with fired heater then draw them out.</li> </ul> <p>Note: Pay attention to surroundings to avoid burns.</p>
<p>6. Remove the compressor from the chassis.</p>	 <p>Nuts</p>	<ul style="list-style-type: none"> <li>Unscrew the nuts on the compressor base with a wrench then remove the compressor from the base.</li> </ul> <p>Note: Keep compressor level and vertical. Never invert it.</p>

## Assembly & Disassembly of Compressor

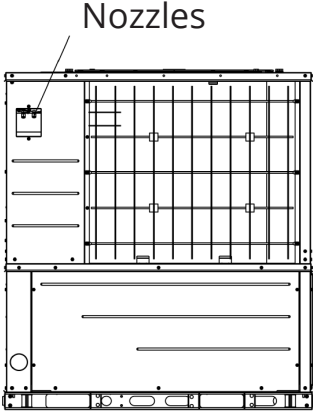
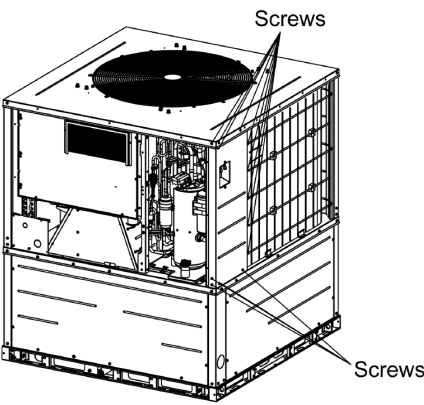
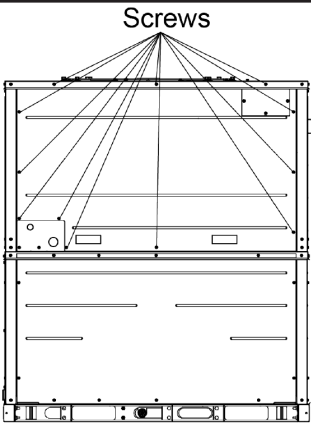
**Note:** Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.

Step	Illustration	Handling Instruction
<p>7. Install a new compressor on the chassis.</p>		<ul style="list-style-type: none"> <li>Put the new compressor on the chassis in the same direction as during the removal. Then, tighten the fixing nut on the compressor base with a wrench.</li> </ul> <p>Note: Keep compressor level and vertical on the base. Never incline or invert it.</p>
<p>8. Connect the suction and discharge pipes of the compressor with system pipes.</p>		<ul style="list-style-type: none"> <li>Heat the connected pipes indicated by arrows then weld them together with the unit pipes.</li> </ul> <p>Note: Pay attention to surroundings to avoid burns.</p>
<p>9. Reconnect power cord of compressor.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord on compressor according to the same procedure of disconnecting the power cord. The line connection must match the schematic diagram.</li> </ul> <p>Note: The connection box of the compressor must be recovered to resist water. No cable should have contact with the pipe or moving parts.</p>

# 4 MAINTENANCE

## Assembly & Disassembly of Compressor

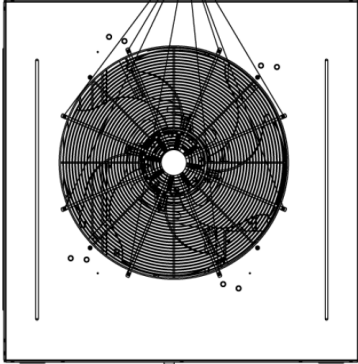
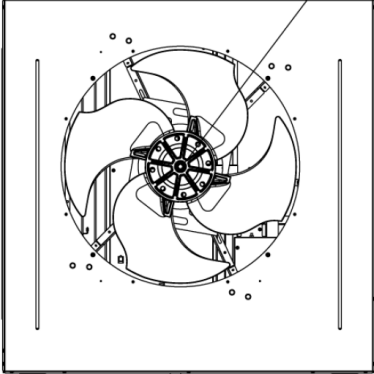
**Note: Ensure there isn't any refrigerant in piping system and the power supply is cut off before removing the compressor.**

Step	Illustration	Handling Instruction
10. Recharge refrigerant	 <p>The diagram shows a front view of the compressor unit with a refrigerant tank positioned above it. A low-pressure nozzle is connected to the top of the tank, and a line points to it with the label 'Nozzles'.</p>	<ul style="list-style-type: none"> <li>• Connect refrigerant tank with low-pressure nozzle (indicated by the maker) for recharging refrigerant.</li> </ul> <p>Note: Check the leak after finishing the connection pipes. Charge amount should be consistent with the nameplate.</p>
11. Close the side panel.	 <p>The diagram shows a 3D perspective view of the compressor unit with the side panel partially closed. Two lines point to screws on the top and bottom edges of the panel, both labeled 'Screws'.</p>	<ul style="list-style-type: none"> <li>• Tighten the bolts.</li> </ul>
12. Close the front panel.	 <p>The diagram shows a front view of the compressor unit with the front panel closed. A line points to screws along the top edge of the panel, labeled 'Screws'.</p>	<ul style="list-style-type: none"> <li>• Tighten the bolts.</li> </ul>

Note: Above diagrams may be different from actual model.

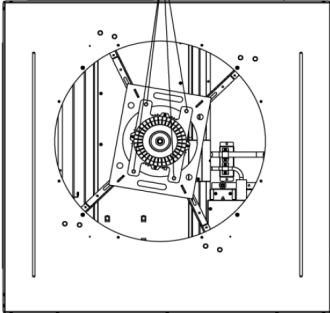
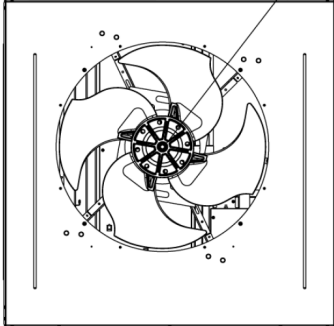
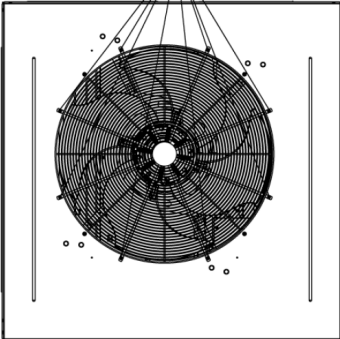
## Assembly & Disassembly of Condenser Fan Motor

**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
1. Disconnect the electrical source wire.		<p>Disconnect all connection lines between condenser fan motor and elements in electric box.</p> <p>Note: Please refer to the schematic diagram on electrical box for disconnection of connection lines of condenser fan motor.</p>
2. Remove the rear grille.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Reconnect the power cord on compressor according to the same procedure of disconnecting the power cord. The line connection must match the schematic diagram.</li> </ul> <p>Note: The connection box of the compressor must be recovered to resist water. No cable should have contact with the pipe or moving parts.</p>
3. Remove the fan.	<p style="text-align: center;">Nuts</p> 	<p>Remove the screw (indicated by the arrow) attaching the fan to remove the fan.</p> <p>Note: Fix the fan when unscrewing the holding bolt to avoid the fan rotating and causing possible injury.</p>
4. Remove the motor from the bracket		<ul style="list-style-type: none"> <li>Remove the holding bolt of motor first, then remove the motor from the bracket.</li> </ul> <p>Note: Loosen power cord fixed by bundles before removing motor.</p>

## Assembly & Disassembly of Condenser Fan Motor

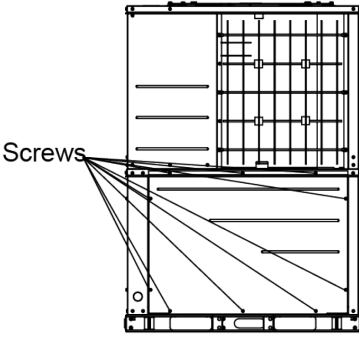
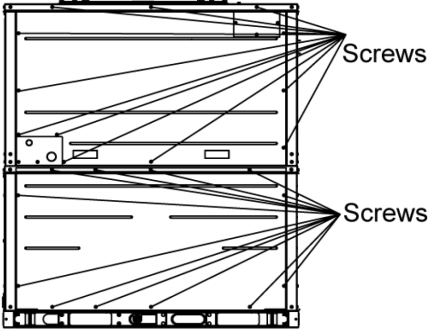
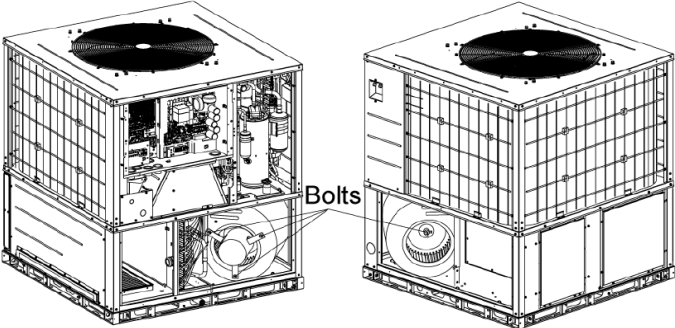
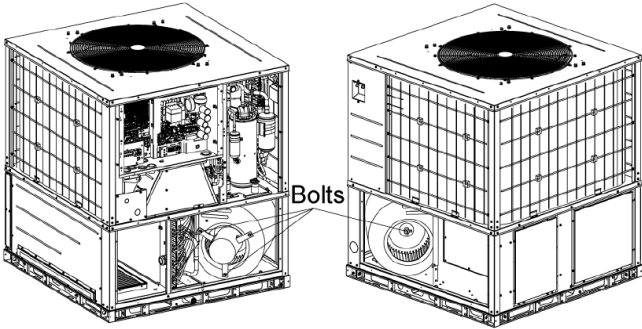
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>5. Fix the new motor onto the bracket.</p>	<p style="text-align: center;"><b>Nuts</b></p> 	<p>Put the repaired or replaced motor onto the bracket in the same direction in removing. Then, screw down the holding bolt with a wrench.</p> <p>Note: Keep the motor level vertical during installation. Then, fix the power cord with bundles at original locations.</p>
<p>6. Install and fix fan blade.</p>	<p style="text-align: center;"><b>Nuts</b></p> 	<ul style="list-style-type: none"> <li>Re-install fan blade and screw down the holding bolt indicated by the arrow with a wrench.</li> </ul> <p>Note: Level of force should be within 8-12N when screwing down the bolt. After that, place glue into the gap in between bolt and hole.</p>
<p>7. Re-Install the rear grille.</p>	<p style="text-align: center;"><b>Screws</b></p> 	<p>Put the rear grille back and tighten the screws.</p>
<p>8. Reconnect the power cord.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord according to the circuit mark on the electrical box.</li> </ul> <p>Note: After connection, arrange leading wires and refix them with bundles at original locations. Close the cover plate of electrical box hermetically. No cable should contact the pipe and moving parts, such as the fan.</p>



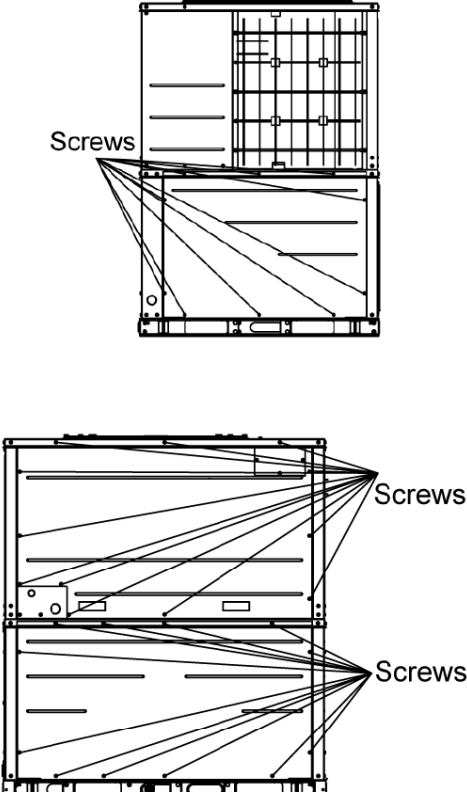
## Assembly & Disassembly of Supply Blower Motor

**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
1. Remove the side plate		<ul style="list-style-type: none"> <li>Remove the screws attaching the side plate (indicated by arrows) to remove it.</li> </ul>
2. Remove the front plate.		<ul style="list-style-type: none"> <li>Remove the screws attaching the cover plate (indicated by arrows) to remove it.</li> </ul>
3. Disconnect all connection lines.		<p>Disconnect all connection lines between motor and elements in electrical box.</p> <p>Note: Refer to the schematic diagram on the electrical box for disconnection of connection lines of supply blower motor.</p>
4. Remove the motor.		<p>Remove the nuts (indicated by arrows) to loosen the connection between the motor and bracket.</p>
5. Re-Install the motor.		<p>Re-assemble the repaired or replaced motor. Installation direction is the same as that of disassembly. Then, screw down the holding bolts with a wrench.</p>

## Assembly & Disassembly of Supply Blower Motor

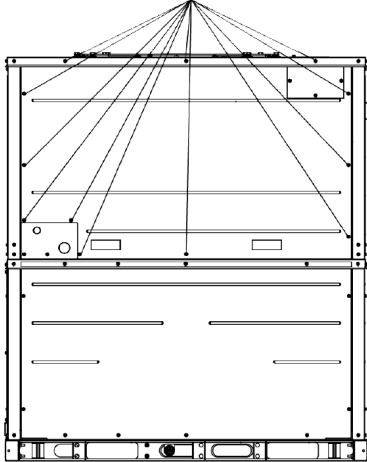
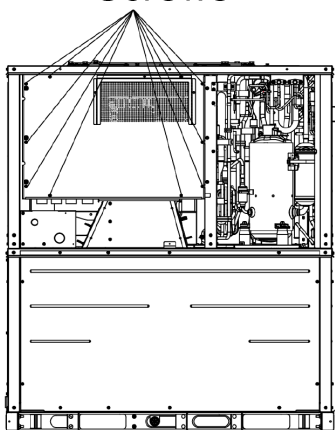
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>6. Re-connect the power cord.</p>		<ul style="list-style-type: none"> <li>Reconnect the power cord according to the wiring diagram on the electrical box.</li> </ul> <p>Note: After connection, arrange leading wires and refix them with bundles at original locations. No cable should touch the pipe or moving parts, such as the fan. Close the cover plate of the electrical box hermetically.</p>
<p>7. Reinstall the side and front plates.</p>		<ul style="list-style-type: none"> <li>Put pulleys onto shaft, then the taper sleeve. Then, cover the pulleys onto the taper sleeve. Screw down the 2 bolts clockwise.</li> </ul> <p>Note: The sleeve has taper, so the pulleys must be installed first. Ensure the coplanarity of the pulleys and adjust the tightness level of the belt.</p>

Note: Above diagrams may be different from actual model.

## Assembly & Disassembly of Electrical Box

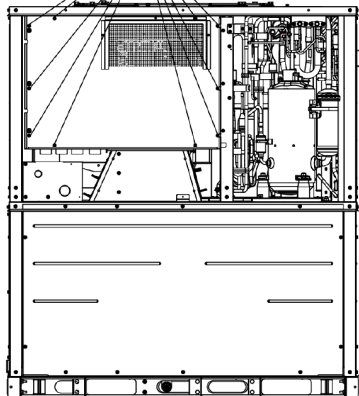
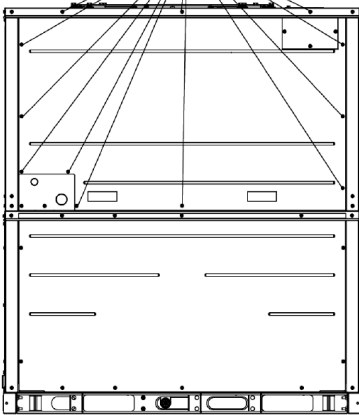
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
<p>1. Take off the front plate</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Remove the screws fixing the front plate. Lift the handles, slightly pulling it outward and downward to remove the side plate.</li> </ul>
<p>2. Disconnect the power cord.</p>		<ul style="list-style-type: none"> <li>Pull out the power cord or disconnect the power cord after unscrewing the screws.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing the wire to avoid mistakes when reattaching wires.</p>
<p>3. Remove the electrical box cover.</p>	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Remove the screws attaching the cover (indicated by the arrows). Then remove the cover.</li> </ul>
<p>4. Disconnect all connection lines.</p>		<ul style="list-style-type: none"> <li>Disconnect all connection lines between the exterior electrical component and elements in the electrical box.</li> </ul> <p>Note: Refer to the schematic diagram on the electrical box for disconnection of motor's connection lines.</p>
<p>5. Remove the main board.</p>		<ul style="list-style-type: none"> <li>Remove the screws (indicated by the arrows), then take down the main board.</li> </ul> <p>Note: Power cord may be fixed by bundles, so loosen the bundles before removing the main board.</p>

# 4 MAINTENANCE

## Assembly & Disassembly of Electrical Box

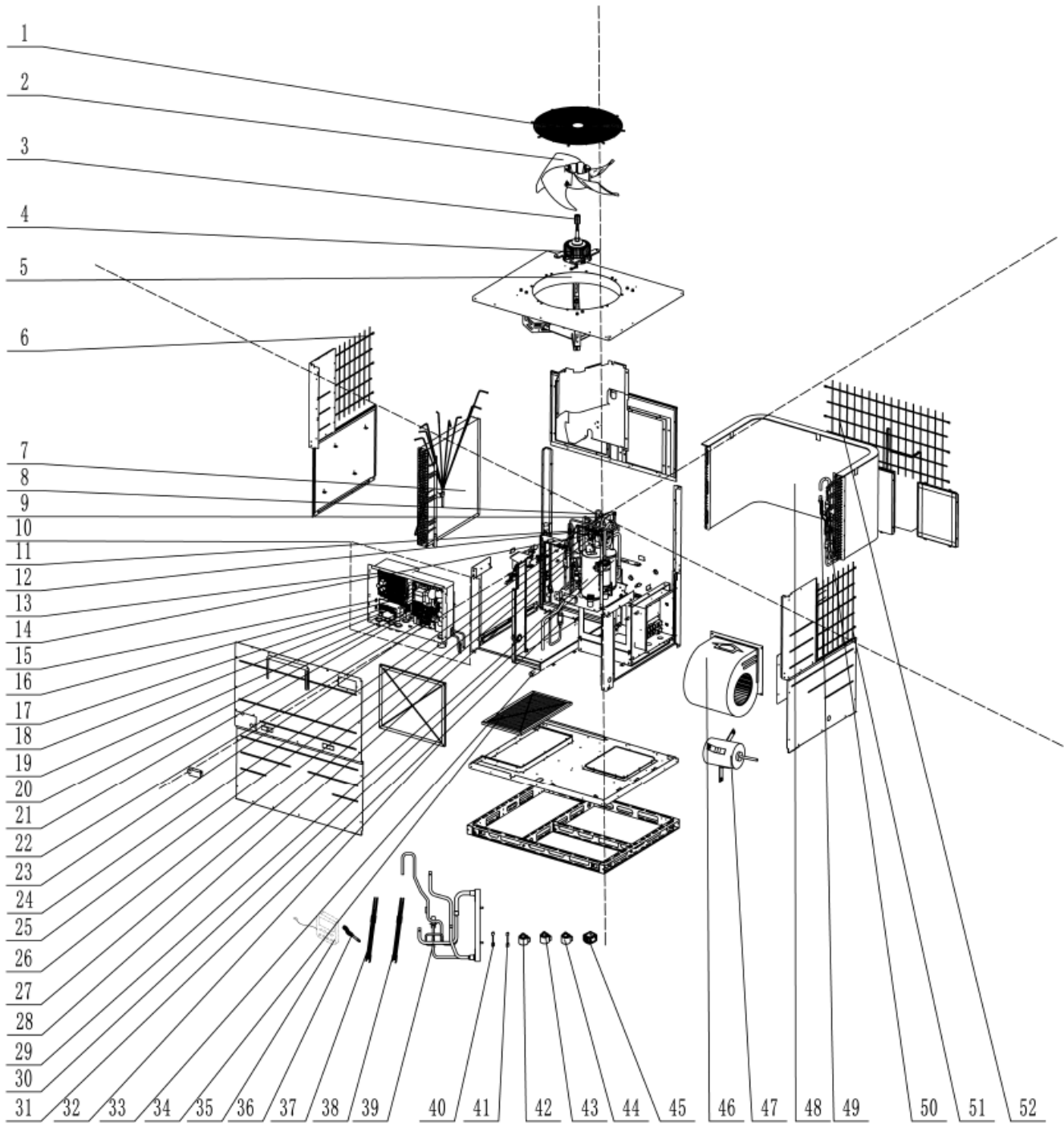
**Note: Ensure the unit is off and the power supply is cut off before removing the motor.**

Step	Illustration	Handling Instruction
6. Re-Install the main board		<ul style="list-style-type: none"> <li>Put the main board back and tighten the screws. Then, reconnect all connection lines that had been taken down and refix the power cord with bundles at original locations.</li> </ul> <p>Note: The line connection must match the schematic diagram. No cable should touch the pipe or moving parts, such as the fan.</p>
7. Reconnect the power cord.		<ul style="list-style-type: none"> <li>Pull out the power cord or disconnect the power cord after unscrewing the screws.</li> </ul> <p>Note: Earmark the color of wire corresponding to the terminal when removing the wire to avoid mistakes when reattaching wires.</p>
8. Re-Install the electrical box cover.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Tighten the screws to attach the cover (indicated by the arrows).</li> </ul>
9. Re-Install the front plate.	<p style="text-align: center;">Screws</p> 	<ul style="list-style-type: none"> <li>Put the side plate back and tighten the screws.</li> </ul>

Note: Above diagrams may be different from actual model.

## 4.5 Exploded Views & Spare Parts List

MDPH180244 / MDPH180364

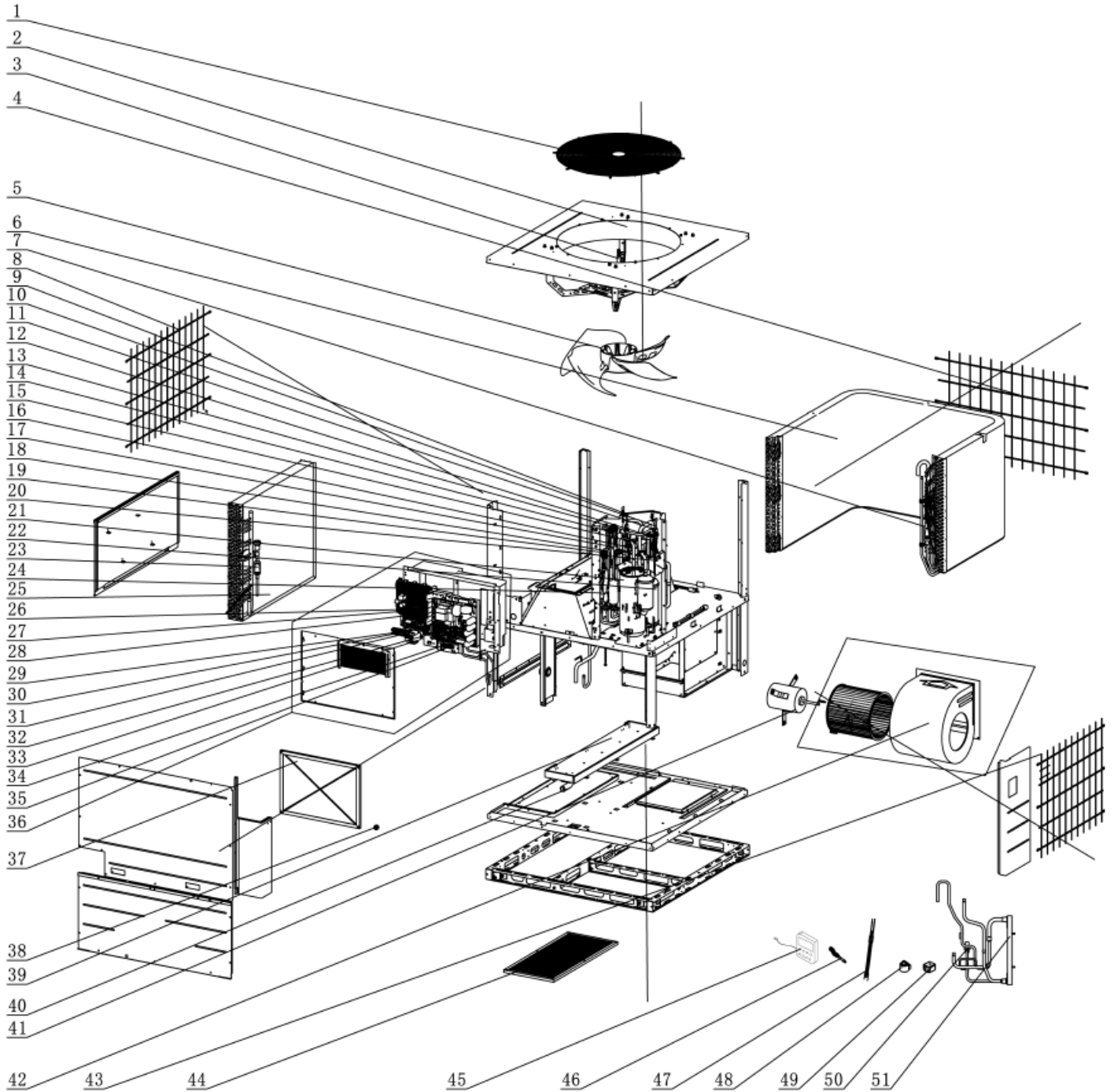


# 4 MAINTENANCE

No.	Name	Code	Qty
1	Rear Grille	01600106015001	1
2	Axial Flow Fan	103002060011	1
3	Axial Flow Fan Nesting	02204102	1
4	Brush-less DC Motor	150104060129	1
5	Diversion Circle	01523901P	1
6	Rear Grille	01600106015001	1
7	Evaporator Assembly	011001062845	1
8	Fusible Plug	035222000004	1
9	4-Way Valve	030072060444	1
10	Electric Box Assembly	100002082082	1
11	One Way Valve	071001060011	2
12	Nozzle for Adding Freon	06120012	1
13	Main Board	300027063166	1
14	Nozzle for Adding Freon	06120012	1
15	Radiator	43003406003306	1
16	Fan Board	300094000060	1
17	Terminal Board	42011103	1
18	Terminal Board	42011147	1
19	Transformer	43110286	1
20	Terminal Board	42011103	1
21	Main Board	300027061434	1
22	Terminal Board	4201025502	1
23	Terminal Board	42200006005405	1
24	Electronic Expansion Valve	072009060033	1
25	Nozzle for Adding Freon	06120012	1
26	Pressure Protect Switch	4602000919	1

No.	Name	Code	Qty
27	Strainer	035021060018	1
28	Electronic Expansion Valve	072009060018	1
29	Compressor & Fittings	009001060517ST	1
30	Gas-Liquid Separator	035027060001	1
31	Gas Tube Filter	072190512	1
32	Filter Sub-Assembly	111001060292	1
33	Drainage Hose	012146060040	1
34	Filter Sub-Assembly	111001060292	1
35	Display Board	300001000204	1
36	Sensor Sub-Assembly	390002060379	1
37	Electrical Heater (Compressor)	7651521215	2
38	Electrical Heater	7651521215	1
39	Plate-Type Heat Exchanger	010007060010	1
40	Pressure Sensor	32210100	1
41	Pressure Sensor	32210103	1
42	Electric Expand Valve Fitting	4304413256	1
43	Electric Expand Valve Fitting	072009060018	1
44	Electric Expand Valve Fitting	07200206002341	1
45	4-Way Valve Coil	07201006000601	1
46	Centrifugal Fan Housing	000052060774	1
47	Brush-less DC Motor	15010400001403	1
48	Condenser Assembly	000100060715	1
49	Electronic Expansion Valve	072009060018	1
50	Bidirection Strainer	0721004401	1
51	Rear Grille	01600106015001	1
52	Rear Grille	01600106015001	1

MDPH180484 / MDPH180604



# 4 MAINTENANCE

No.	Name	Code	Qty
1	Rear Grille	016001060151	1
2	Diversion Circle	012193060010	1
3	Brush-less DC Motor	1570411901	1
4	Rear Grille	01600106012101	1
5	Axial Flow Fan	103002000007	1
6	Condenser Assembly	000100060611	1
7	Bi-direction Strainer	0721004401	1
8	Rear Grille	0721004401	1
9	Pressure Sensor	32210103	1
10	Pressure Sensor	32210100	1
11	Fusible Plug	035222000004	1
12	Nozzle for Adding Freon	035222000004	1
13	Electric Expand Valve Fitting	4304413256	1
14	Electronic Expansion Valve	030026061382	1
15	4-Way Valve	43000338	1
16	Pressure Protect Switch	4602000910	1
17	One Way Valve	071001060011	1
18	Electronic Expansion Valve	072009060008	1
19	Electric Expant Valve Fitting	4300034502	1
20	Nozzle for Adding Freon	4300034502	1
21	Compressor & Fittings	009001060980	1
22	Gas-Liquid Separator	035027060001	1
23	Gas Tube Filter	072190512	1
24	Strainer	035021060018	2
25	Evaporator Assembly	011001062607	1
26	Main Board	300027063061	1



No.	Name	Code	Qty
27	Radiator	43003406003306	1
28	Fan Board	300094000052	1
29	Terminal Board	42200006001202	1
30	Terminal Board	4201025502	1
31	Terminal Board	42200006005405	1
32	Main Board	300027063061	1
33	Transformer	43110286	1
34	Terminal Board	42011103	1
35	Terminal Board	42011147	1
36	Electric Box Assembly	100002078181	1
37	Filter Sub Assembly	111001060400	2
38	Choke Plug	76718209	1
39	Water Tray	012122061115	1
40	Drainage Hose	012146060040	1
41	Brush-less DC Motor	15010400001303	1
42	Centrifugal Fan Housing	1570220301	1
43	Rear Grill	01600106012101	1
44	Filter Sub Assembly	111001060370	1
45	Display Board	300001000204	1
46	Sensor Sub Assembly	390002060379	1
47	Electrical Heater (Compressor)	7651521216	1
48	Electric Expand Valve Fitting	07200206002342	1
49	4 Way Valve Coil	07201006000601	1
50	Electronic Expansion Valve	072009060011	1
51	Plate-Type Heat Exchanger	00904100004	1



**MRCOOL®**  
COMFORT MADE SIMPLE

# **Universal® Series Inverter Packaged Heat Pump**

The design and specifications of this product and/or manual are subject to change without prior notice.  
Consult with the sales agency or manufacturer for details.