WALL MOUNTED SPLIT-TYPEAIR CONDITIONERS

SERVICE MANUAL

No.TE1307

Models:

WYD009AL3JAR-L

WYD012AL3JAR-L

WYD018GL3JAR-L

WYD024GL3JAR-L

CONTENTS:

IMPORTANT NOTICE

This service manual is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. It is to be installed and service by a licensed HVAC technician. Any attempt to repair the appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

The information, specifications and parameter are subject to change due to technical modification or improvement without any prior notice. The accurate specifications are presented on the nameplate label.

How to order spare parts

To have your order filled promptly and correctly, please furnish the following information:

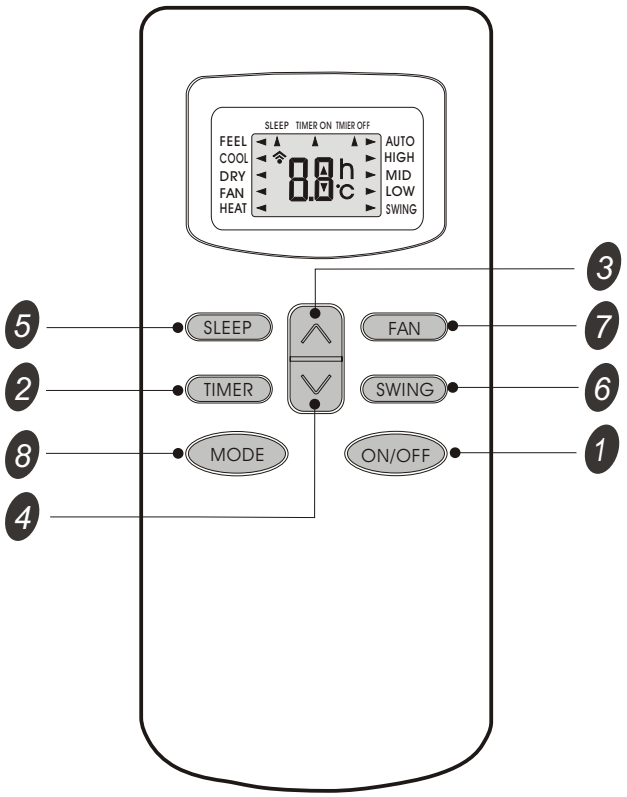
1. Model No. with Indoor or Outdoor
2. No. in the Explosion View
3. Part Name
4. The quantity you ordered

Operation Details

Remote controller

Remote controller

The remote controller transmits signals to the system.



1 ON/OFF button
Used to start and stop operation when pressed.

2 TIMER button
Used to select TIMER operation.

3 UP button (TOO COOL button)
Used to increase the set room temperature and time.

4 DOWN button (TOO WARM button)
Used to decrease the set room temperature and time.

5 SLEEP button
Used to set or cancel sleep mode operation.

6 VANE control button
Used to adjust airflow direction.

7 FAN SPEED control button
Used to select the indoor fan motor speed: Auto, High, Mid and Low.

8 MODE button
Used to select the type of operation mode: Feel, Cooling, Dry, Fan and Heating(Only for Heat Pump).

Note: Each mode and relevant function will be further specified in following pages.

Remote Control
The remote controller is not preset as Cooling Only Air Conditioner or Heat Pump by manufacturer.
Each time after the remote controller replace batteries or is energized, the arrowhead will flash on the front of "Heat" or "Cool" on LCD of the remote controller.
User can preset the remote controller type depending on the air conditioner type you have purchased as follows:
Press any button when the arrowhead flashes on the front of "Cool" , Cooling Only is set.
Press any button when the arrowhead flashes on the front of "Heat", Heat Pump is set.
If you don't press any button within 10 seconds, the remote controller is preset as Heat Pump automatically.

Note :
If the air conditioner you purchased is a Cooling Only one, but you preset the remote controller as Heat Pump, it doesn't matter. But if the air conditioner you purchased is a Heat Pump one, and you preset the remote controller as Cooling Only, then you CAN NOT preset the Heating operation with the remote controller.

Electronic Controller

1. Safety Control

(1) Time Delay Safety Control

- 3 minutes delay for compressor---The compressor is ceased for 3minutes to balance the pressure in the refrigeration cycle in order to protect the compressor.
- 2 minutes delay for 4-way valve---The 4-way valve is ceased for 2 minutes to prevent the refrigerant-gas abnormal noise when the HEATING operation is OFF or switch to the other operation mode.

(2) Indoor Pipe Temperature Sensor Frost Prevention Control

When the indoor pipe temperature sensor reads 32℉ or below for 5 minutes, the indoor pipe temperature sensor frost prevention control starts. The compressor and outdoor fan stop and indoor fan operates at high speed for 3 minutes. After that, if the indoor pipe temperature sensor reads less than 41℉ this control prolonged until the indoor pipe temperature sensor reads 41℉ or more.

(3) High Temperature Protection Control

During HEATING operation, the outdoor fan motor and compressor are controlled by the indoor pipe temperature to prevent the high temperature of compressor.

Outdoor fan OFF: when the indoor pipe temperature is ≥122℉

Outdoor fan ON: when the indoor pipe temperature is ≤118.4℉

Compressor OFF: when the indoor pipe temperature is ≥143.6℉

Compressor ON: when the indoor pipe temperature is ≤118.4℉

2. "I Feel" Mode Operation

(1) When the "I Feel" mode is selected, the operation mode and initial set temperature are determined by the initial room temperature at start-up of the operation except to turn off the air conditioner and operates it again.

(2) If the mode is change to "I Feel" mode from other mode, the "I Feel" mode doesn't operate until compressor stop for more than 3 minutes.

Mode	Initial room temperature	Initial set temperature
COOLING	78.8℉ or more	75.2℉
DRY	68℉ to 77℉	64.4℉
HEATING for Heat Pump Type FAN for Cooling Only Type	Less than 68℉	73.4℉

- In the "I Feel" mode , when the controller receives the up or down single of temperature, the set temperature can adjust by 33.8℉ upper or lower. The biggest you can adjust by 35.6℉ upper or lower.

3. "COOLING" Mode Operation

(1) When the COOLING mode is selected without setting temperature, the system will set the set temperature at 78.8℉ automatically with the AUTO FAN speed.

(2) When selecting the COOLING mode operation, the system will operate according to the setting by the remote controller and the operation is as following:

Room Temp. Set TEMP. ＋1.8℉ Set TEMP. －1.8℉					
Time	More than 2 min	More than 2 min	More than 2 min	More than 2 min	More than 2 min
Indoor Fan	Set Speed	Set Speed	Set Speed	Set Speed	Set Speed
Compressor	ON	OFF	ON	OFF	ON
Outdoor Fan	ON	OFF	ON	OFF	ON

4. "DRY" Mode Operation

(1) The system for DRY operation used the same refrigerant circle as the cooling circle.

(2) When the system operates in DRY mode ,at first it operates in cooling mode at 60. 8℉ or 64. 4℉ for 3 minutes. And then, the system operates in cooling mode with low speed that regards the temperature of the room temperature sensor reads decrease 35.6℉ as the set temperature. During the course of this, the fan speed set operation is failing but the vane motor can be controlled.

5. "HEATING" Mode Operation (Only available for Heat Pump)

(1) When the HEATING mode is selected without setting temperature, the system will set the temperature at 73. 4℉ automatically with the AUTO FAN speed.

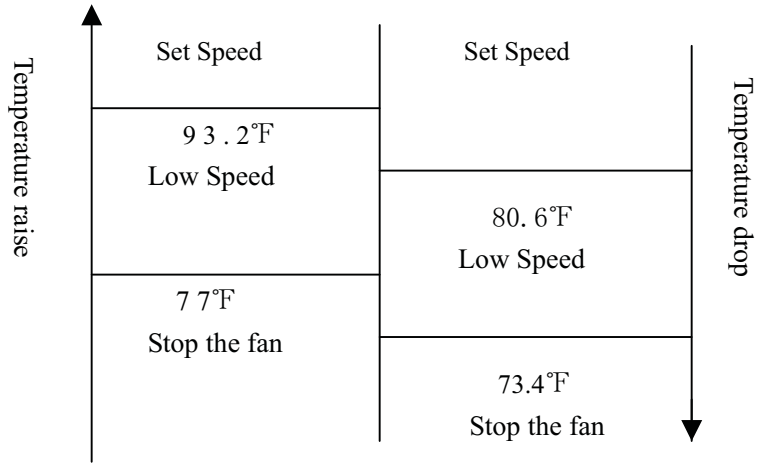
(2) When selecting the HEATING mode operation, the system will operate according to the setting by the remote controller and the operation is as following:

Set Temp. ＋1.8℉ Set Temp. －1.8℉ Room Temp.					
Time	More than 2 min	More than 2 min	More than 2 min	More than 2 min	More than 2 min
Compressor	ON	OFF	ON	OFF	ON
Outdoor fan	ON	OFF	ON	OFF	ON

(3) In HEATING mode, the indoor fan motor speed is controlled by Cold Air Prevention Control.

(4) Cold Air Prevention Control

- The function is intend to prevent cold air from being discharged when the heating operation starts or when defrosting.
- The indoor fan speed will be controlled as following.
- The vane angle is at the angle C(100°).



- During tne heating operation, if the compressor stops that it will adjust the indoor fan speed, after 30 seconds to stop the fan.

(5) Defrost

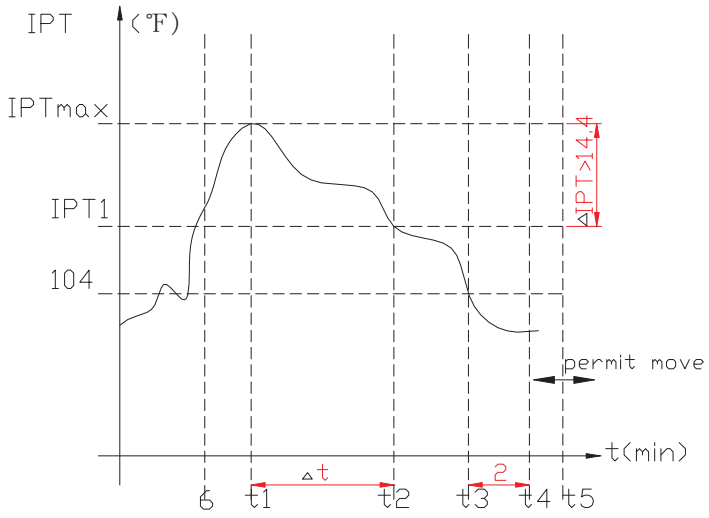
Defrosting of the outdoor heat exchange is controlled by the microprocessor with detection by the indoor pipe temperature sensor.

Defrost control type is according to the JC on the PCB whether is connected.

- **When the JC is connect on the PCB**

  When one of the conditions of A, Band C is satisfy, the defrosting operation stars.

  A. IPT--- indoor pipe temperature



  In the condition A, it must satisfy the conditions a), b)and c) then into defrosting operation.

  a) IPT1 satisfy IPT1=IPT_{MAX}－△IPT（14.4℉）

  b) t5≥50minutes(the compressor cumulative operation time≥50 minutes, t5 is permitted move and lower than t1 too).

  c) IPT＜104℉， and keep 2 minutes.

  According to the condition A enter the defrosting operation, the first defrosting operation time is 8 minutes; After defrosting operation one cycle, and then judge and regulate the defrosting operation time.

  B. After the compressor cumulative operation time exceeds 120 minutes and the temperature of the IPT is less than 95℉ for 2 minutes. When the defrosting operation time on this condition exceeds 8 minutes, it will terminate.

  C. After the compressor operates continuously for 20 minutes and the IPT is less than 73.4℉ or from the last time of defrosting operation is 50 minutes or more interval. When the defrosting operation time on this condition exceeds 10 minutes, it will terminate.

- **When the JC isn't connected on the PCB**

  When the conditions of a) or b) is satisfy, the defrosting operation starts.

  a) Under the heating operation, the compressor cumulative operation time exceeds 50 minutes and the temperature of the outdoor pipe temperature sensor reads lower than －14.4℉

  b) Under the heating operation, the compressor cumulative operation time exceeds 50 minutes, if the indoor pipe temperature sensor reads lower than 104℉ continuously for 2 minutes.

  Note: If haven't the outdoor pipe temperature sensor that uses the condition b) to defrost, against use the condition a).

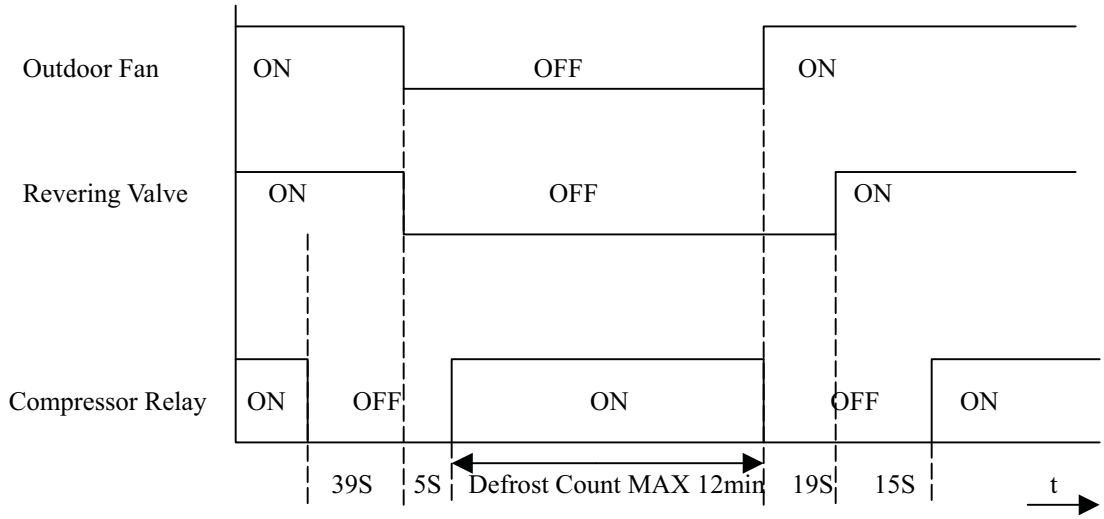
- **Defrost terminating conditions**

  When the condition c) or d) is satisfy, the defrosting operation will terminate.

  c) The outdoor defrost sensor reads 68℉ or more.

  d) The defrosting time exceeds 10 minutes.

- **Defrosting time chart**



6. "FAN" mode operation

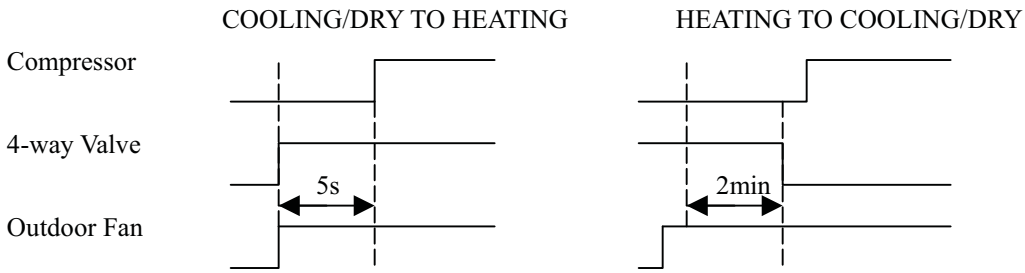
The indoor fan motor always turns on at the set speed and the vane motor turns on at the set fettle.

7. 4-way Valve control

HEATING ON

COOLING/DRY OFF

The 4-way valve reverses for 5 seconds right before start-up of the compressor as following chart:



8. "SLEEP" mode

When the SLEEP button is pressed, the SLEEP mode is selected as following:

- The indoor fan speed is set at the low speed, the power lamp and the sleep lamp is on, the temperature off after 5 minutes.
- When selecting COOLING/DRY operation with SLEEP mode, the set temperature will be raised by 1.8℉ 1 hour later and by 3.6℉ 2 hour later.
- When selecting HEATING operation with SLEEP mode, the set temperature will be dropped by 1.8℉ 1 hour later and 3.6℉ 2 hour later.
- After the System operates in SLEEP mode for 8 hours, it will stop automatically.

9. Fan motor control

(1) Rotational frequency feedback control

The indoor fan motor is equipped with a rotational frequency sensor, and outputs signal to the microprocessor to feedback the rotational frequency. Comparing the current rotational frequency with the target rotational frequency, the microprocessor adjusts fan motor electric to make the current rotational frequency close to the target rotational frequency. With this control, when the fan speed is switched, the rotational frequency changes smoothly.

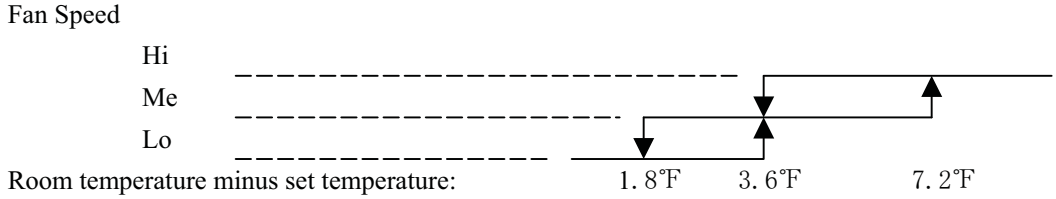
(2) When the rotational frequency feedback signal has not output for 5 seconds (or when the microprocessor can't detect the signal for 5 seconds), the fan motor is regarded locked-up. Then the electric current to the fan

motor is shut off. 10 seconds later, the electric current is applied to the fan motor again. During the fan motor lock-up, the POWER indicator lamp flashes on and off 6times/cycle or E6 to show the fan motor abnormality.

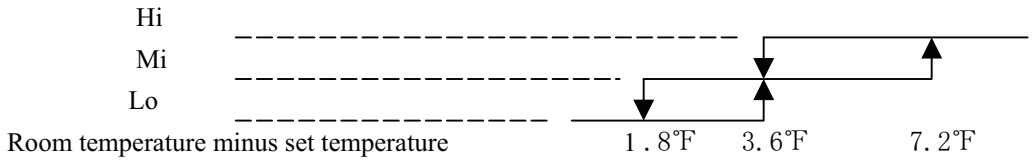
10. Auto Fan Speed Control

(1) When the auto fan speed is selected, the indoor fan motor speed is automatically controlled by the room temperature and the set temperature.

(2) In COOLING mode, the indoor fan motor operates as following:



(3) In HEATING mode, the indoor fan motor operates as following;



11. Auto Vane Operation control

(1) Vane motor drive

The unit is equipped with a stepping motor for the vane. The rotating direction, speed, and angle of the motor are controlled by pulse signal transmitted from indoor microprocessor.

(2) Positioning

The vane is once pressed to the vane stopper below to confirm the standard position and then set to the desired angle. The positioning is decided as follows:

- When the ON/OFF button is pressed.
- When the vane control is change from AUTO to MANUAL.
- When the SWING is finished.
- When the test run starts.
- When the power supply turns ON.

(3) The auto vane changes as follows by pressing the VANE CONTROL button.

(4) VANE AUTO mode

In vane auto mode, the microprocessor automatically determines the vane angle and operation to make the optimum room-temperature distribution.

(5) SWING mode

When presses the SWING button, the vane swings.

12. TIMER Operation

(1) To activate the air conditioner at the desire time, follow the procedure specified below(the remote control and air conditioner are switched off):

- Press the Timer button.
- Select the desired mode by pressing the Mode button.
- Select the desired temperature by pressing the ▲ ▼ button(only possible when the ‘cool’ or ‘heat’ mode is selected).
- Select the ventilator speed (low, medium or high) or automatic mode(only possible when the feel, Cool or Heat mode is selected) by pressing the Fan button.

  The ventilator always operates in the Auto mode when the Dry mode is selected.
- Select Swing or no Swing by pressing the Swing button.

- Press the Timer button('h' flashes).
- Use the ▲▼ button to select the time at which the air conditioner must activate (between 0 and 10 hours can be set at every half hour-between 10 and 24 hours can be set at every hour).
- Press the Timer button ('h' stops flashing) and the preset time appears in the display.
- Press the Timer button again to delete the selected data from the memory.

Note : If no buttons are pressed during the programming of the timer function, thee remote control will switch off automatically after 10 seconds.

(2) To switch the air conditioner off at the desired time, follow the procedure specified below (the remote control and air conditioner are switched off):

- Press the timer button.
- Use the ▲▼ button to select the time at witch.

13. EMERGENCY Operation

When the EMERGENCY Operation switch is pressed once, COOLING mode is selected and if in 3 seconds the EMERGENCY Operation switch is pressed again, mode is selected. Then pressed once again, the unit is switch off.

When the remote controller is missing, has failed or the batteries run down, press the EMERGENCY Operation switch on the front of the indoor unit. The unit will start.

The first 30 minutes of operation will be the test run operation. The operation is for servicing. The indoor fan runs at high speed and the system is in continuous operation. The thermostat is ON and the timer is reset to normal.

After 30 minutes of test run operation the system shifts to AUTO COOLING/HEATING mode, and the indoor fan runs in automatic speed. The operation continues unit the EMERGENCY operation switch is pressed or a button on the remote controller is pressed and normal operation will start.

NOTE: Do not press the EMERGEMCY Operation switch during normal operation.

14. AUTO RESTART Function(Option)

1.When the indoor unit is controlled with the remote controller, the operation mode, set temperature, and the fan speed are memorized by the indoor electric control PCB. The AUTO RESTART function sets to work the moment power has restored after power failure. Then, the unit will restart automatically.

2. How to set the AUTO RESTAR function.

- Press the emergency switch and power supply to the PCB following, hold 10 seconds and the buzzer will beep three times. The AUTO-RESTAR is set.
- Do the operation again, the buzzer will beep four times and the AUTO-RESTAR function is cancelled.

15. **Failure Display and Handling**

a) Failure Display

When the controller has failure, the buzzer will sound long for three times, and displays the failure from the failure lamp.

b) Failure Code

If have the digital pipe that displays the failure code for digital pipe, or display for the run lamp.

Type of failure	The lamp flash	Display of digital pipe
The failure of room temperature sensor	Once/cycle	E1
The failure of indoor pipe temperature sensor	Twice/cycle	E2
The failure of indoor fan motor	6 times/cycle	E6

c) Failure Handling

- When the room temperature sensor or the indoor pipe temperature sensor has a failure, the system will be shut off, the compressor will be OFF, and the outdoor fan and the indoor fan will be OFF. The system doesn't receive the signal of remoter controller except the signal of shut off it. When the failure disappear, the controller can operate in normal mode. before this, presses the "ON/OFF" to start the system, and it will operate in COOLING or HEATING for 30 minutes, and follows shut off. During

this, it displays the failure and the protection is failing. You must power off/on to operate it. In the failure, you can operate the FAN mode.

- When the outdoor protects in the COOLING or DRY, the outdoor unit stops, the indoor fan operates in set speed ; and in the HEATING, the outdoor unit stops, the indoor fan operates in cold air prevention control. The system doesn't receive the signal of remoter controller except the signal of shut off. When the system checks the voltage is 220V and the delay control is finished, it operates at normal again.
- When the indoor fan motor is failure, the compressor is stopped, the outdoor fan and indoor fan is stopped and display the failure. The system doesn't receive the signal of remoter controller except the signal of shut it off.

d) Display Of The Control

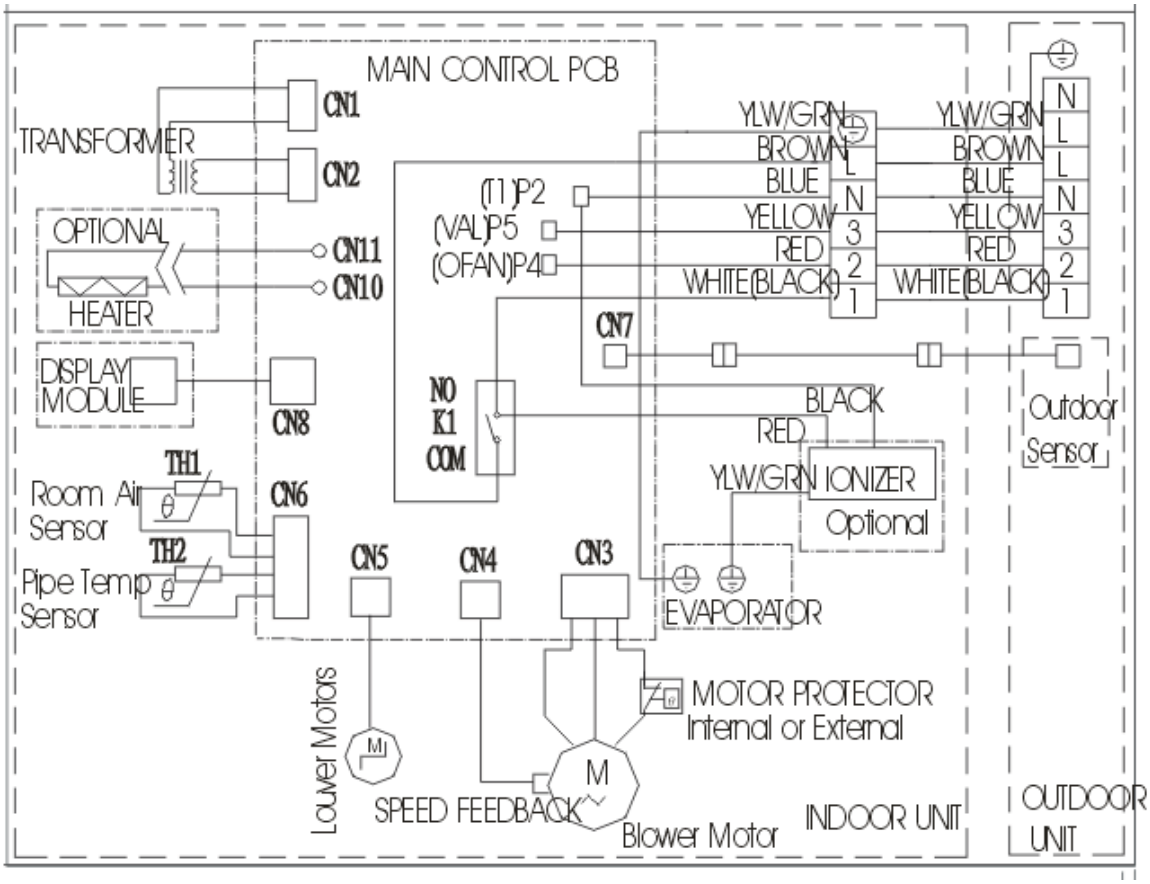
In the display board the lamp from left is the POWER lamp(Red), the SLEEP lamp(Yellow), the TIMER lamp(Yellow), the RUN lamp(Green).

g) When it gives the control power, the buzzer sounds long for 0.3 second per cycle.

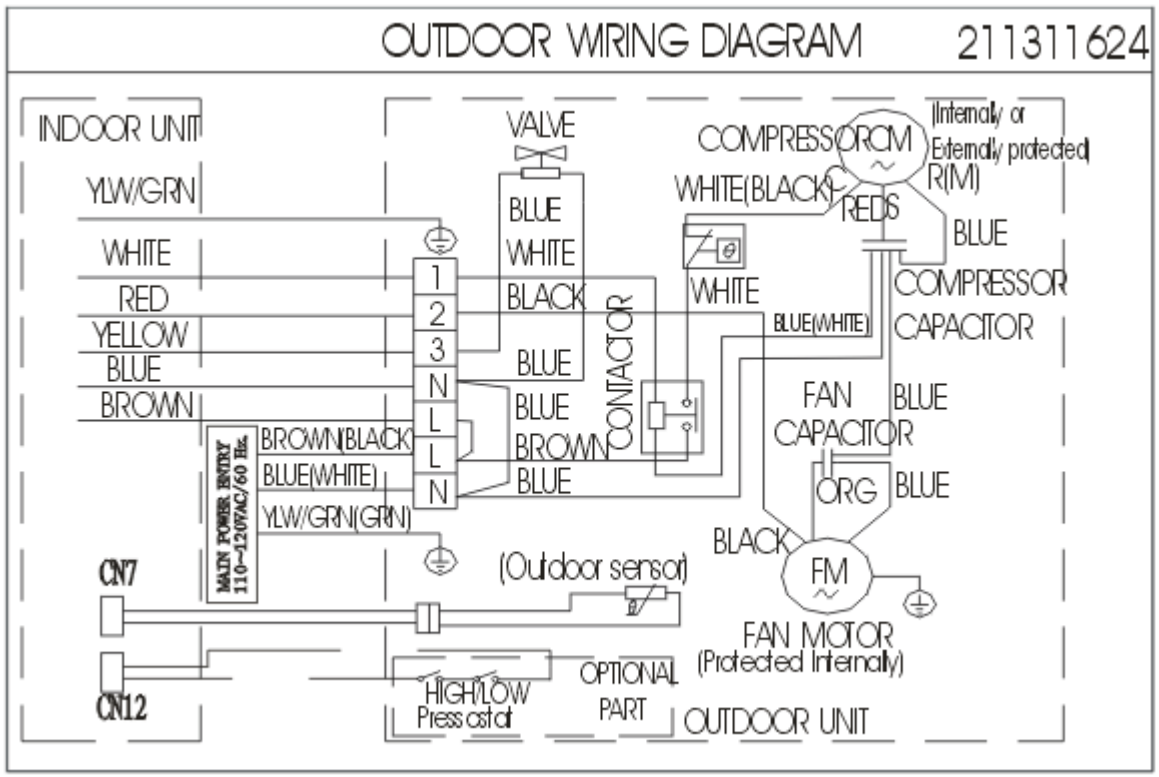
Wiring diagram

Model: WYD009AL3JAR-L / WYD012AL3JAR-L

Indoor unit



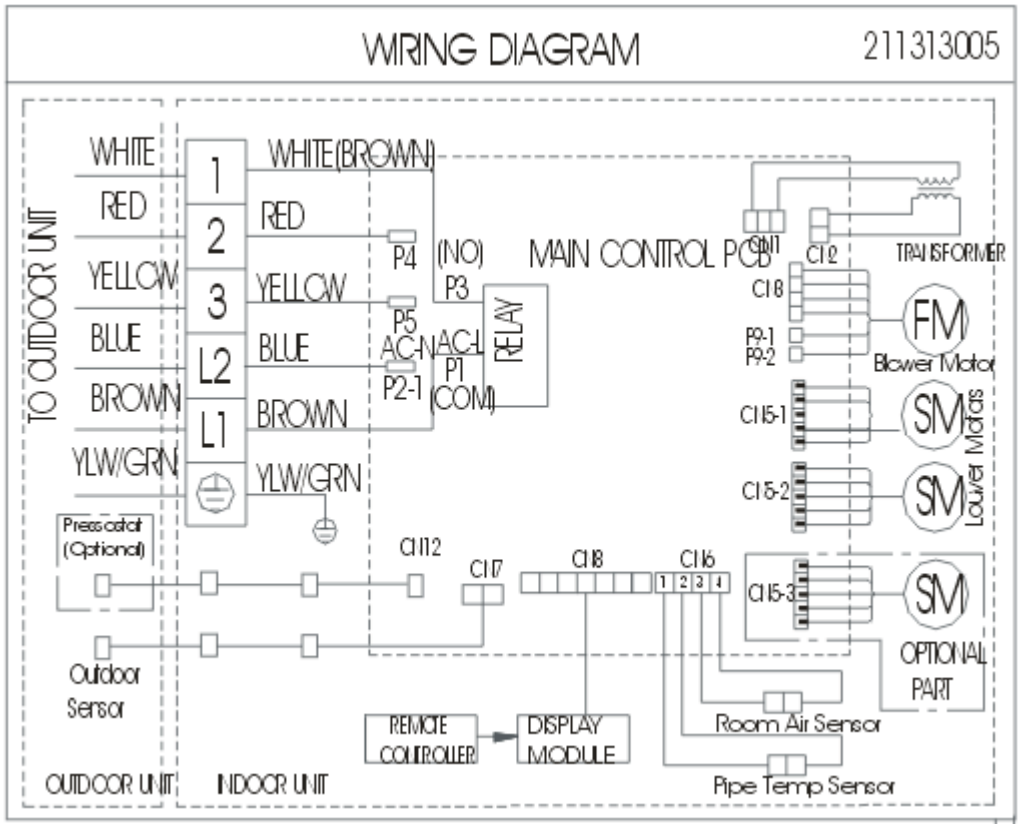
Outdoor unit



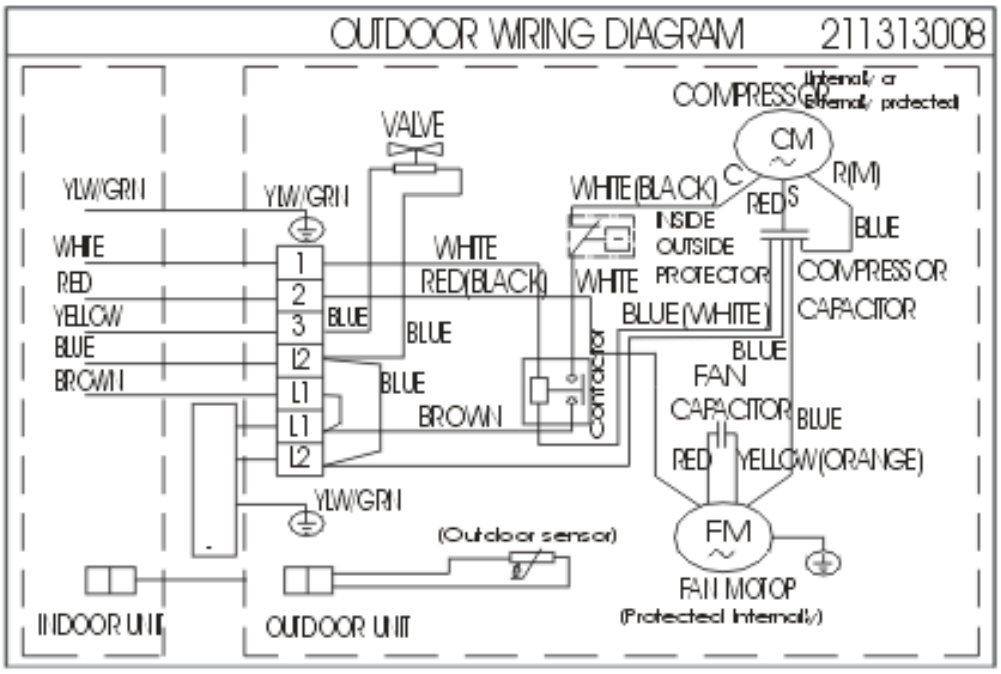
Wiring diagram

Model: WYD018GL3JAR-L

Indoor unit



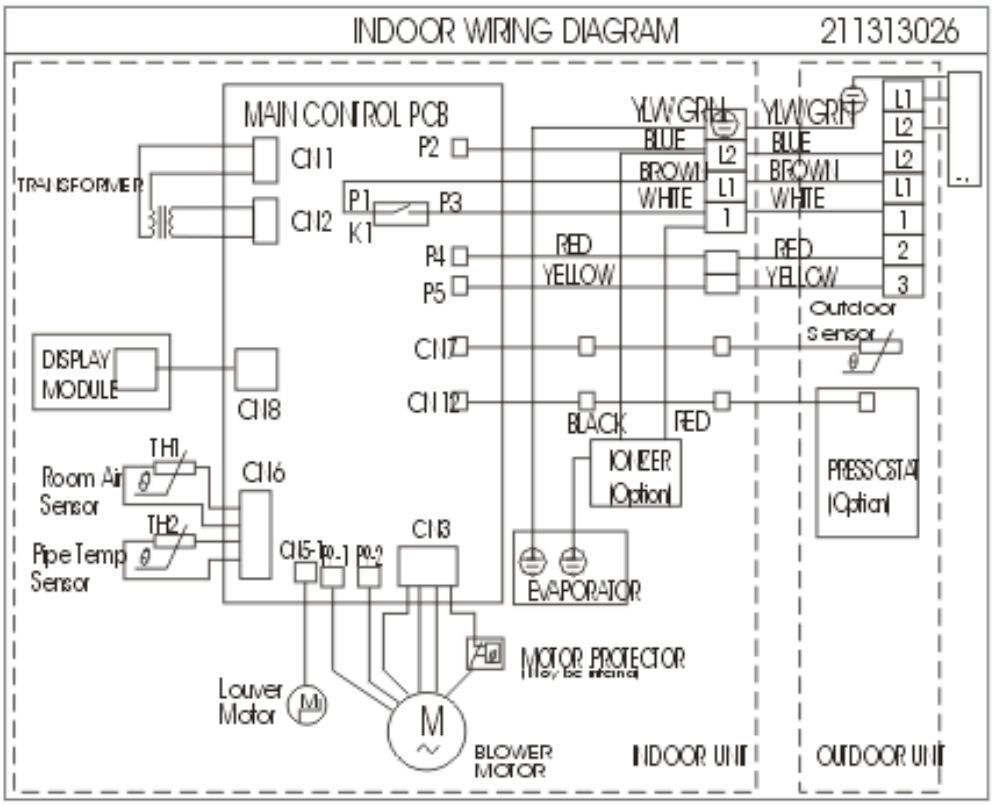
Outdoor unit



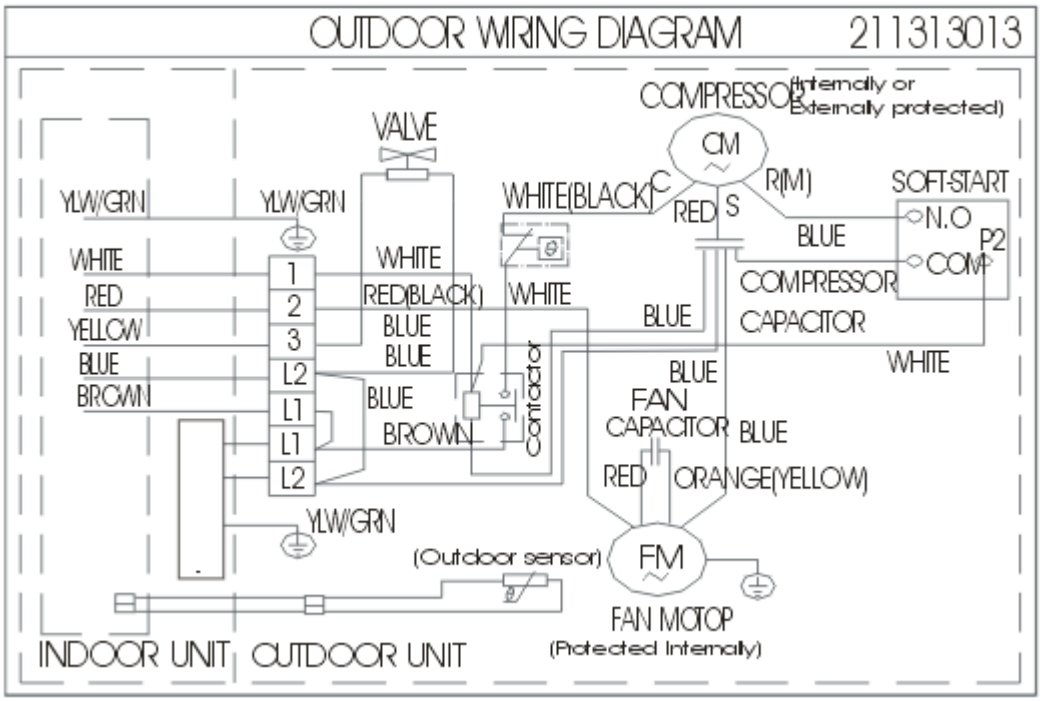
Wiring diagram

Model: WYD024GL3JAR-L

Indoor unit



Outdoor unit



Pioneer Brand, WYD Series 13 SEER Ductless Split System Heat Pump Engineering and Service Manual

Note: Please read the entire installation manual packed with the unit carefully and follow all instructions, during and after the installation. Your system has been fully tested and ran properly for a sufficient amount of time at the assembly line before it was approved and packed for shipment. All functions and components were verified to be in perfect working condition. Therefore a majority of problems and deficiencies are usually due to causes other than a factory defect. See below for some common problems, reasons and solutions. Call us for any other issues that cannot be resolved for further assistance by our engineering support. We can only help, if you are able to describe the symptoms properly and able to measure and advise us certain measurements such as voltages, temperatures and pressures on the system.

Symptom : E1 Error display on the indoor unit.
Reason : Indoor Unit's Room Temperature Sensor Open or Shorted Circuit.
Solution : Check for resistance. If measuring as open or shorted, replace the indoor unit's room temperature sensor (in front of the coil).

Symptom : E2 Error display on the indoor unit.
Reason : Indoor Unit's Heat Exchanger Temperature Sensor Open or Shorted Circuit.
Solution : Check for resistance. If measuring as open or shorted, replace the indoor unit's coil temperature sensor (on the coil header).

Symptom : E6 Error display on the indoor unit.
Reason : Indoor Unit's Motor Speed is out of range. Rough Shipment Handling or Damaged Motor.
Solution : Check for misaligned blower wheel, rubbing and vibration at the fan mechanism. Align the blower wheel in its cavity properly, so it spins freely without any effort. Check the blower bearing on the left side of the blower to assure it is sitting properly in its cavity. Check the motor mounts to assure motor is properly mounted. If the blower is spinning freely and E6 code is still displayed, change the fan motor. If this does not resolve the problem, change the indoor unit's controller card.

Symptom : HEAT Mode is missing on the remote control screen. Remote skips the heat mode.
Reason : Remote controller was erroneously setup as cooling only.
Solution : Reset the remote controller. Remove and reinsert the batteries. Do not touch any buttons until all flashing stops and the screen appears fully.

Symptom : Indoor unit lights are on and seems to work, but outdoor unit does not run at all.
Reason : Pair of the power wires running between the indoor and outdoor unit are inverted.
Solution : For 115V Models, assure BLUE wire is attached to the N terminal on both the indoor and outdoor sections. Likewise, assure the BROWN wire is attached to the L terminal on both the indoor and outdoor sections. For 230V Models, assure BLUE wire is attached to the L2 terminal on both the indoor and outdoor sections. Likewise, assure the BROWN wire is attached to the L1 terminal on both the indoor and outdoor sections. Swapping the wires attached at these 2 terminals at the indoor unit should resolve the problem. Otherwise check for continuity for all wires used in your installation for broken links.

Symptom : In HEAT Mode, outdoor compressor runs but the outdoor fan does not run.
Reason : System is in Defrost Mode or missing wire connection.
Solution : Check if the outdoor coil is iced up and the defrost mode gets terminated within maximum 10 minutes. Otherwise, assure that the RED wire is attached to terminal #2 on the outdoor unit. Also check that the same red wire is either connected to the #2 terminal on the indoor unit (009, 012, 018 models) or the white plug at the end of the cable at the indoor side is plugged with the matching white plug on the indoor unit properly (for 024 models only). Check for voltage between #2 and N terminals on 115V models and assure it reads 115V or check between #2 and L2 terminals on 230V models and assure it reads 230V(at the outdoor unit's terminal block).

Symptom : In HEAT Mode, indoor unit is blowing cold air instead of heating.
Reason : Missing wire connection, defective reversing valve actuator.
Solution : Otherwise, assure that the YELLOW wire is attached to terminal #3 on the outdoor unit. Also check that the same yellow wire is either connected to the #3 terminal on the indoor unit (009, 012, 018 models) or the white plug at the end of the cable at the indoor side is plugged with the matching white plug on the indoor unit properly (for 024 models only). While in Heat Mode: Check for voltage between #3 and N terminals on 115V models and assure it reads 115V or check between #3 and L2 terminals on 230V models and assure it reads 230V (at the outdoor unit's terminal block).

Symptom : Both indoor and outdoor units run but there is no heating or cooling.
Reason : Valves were not fully opened, like set is kinked, refrigerant was lost.
Solution : Assure that the system was properly vacuumed before releasing the refrigerant. Assure both valves on the outdoor unit were fully opened. Assure there are no refrigerant leak at any of the 4 flare connections attached during installation. Check for pressure reading in cool mode to be approx 120 PSI and both copper pipes to be very cold and sweating. Check for pressure reading in heat mode to be approx 400 PSI and both copper pipes to be very hot.

Symptom : In heat mode outdoor unit runs but indoor unit fan does not start blowing.
Reason : System is in warm Start Mode. If extended this can mean refrigerant loss.
Solution : When the compressor first starts in heat mode, indoor fan is delayed until the indoor coil surface gets hot enough to produce warm air discharge. The fan starts blowing once the indoor coil is warmed. This takes maximum 1 minute. If this is extended further, than check for operating pressures and assure the system has no refrigerant leaks.

Symptom : System does not start cooling or heating as soon as it is started.
Reason : System is in protection time delay mode.
Solution : When the system is started, the compressor does not start immediately. There is a 3 minute time delay for protection.

Symptom : Indoor unit seems totally dead. No lights.
Reason : Power connection from the outdoor unit is not made properly or fuse was blown.
Solution : Check for the voltage between L and N terminals on the indoor units terminal block (for 115V systems) to read 115 VAC. Check for the voltage between L1 and L2 terminals on the indoor units terminal block (for 230V systems) to read 230 VAC. Check the other end of the same wires on the outdoor unit for the same voltage. Assure the breaker is not tripped. If the voltage is present on the indoor unit, fuse may be blown on the controller card of the indoor unit. Replace with a 5A fuse. Or replace the control card.

Symptom : Indoor unit fan runs continuously in cooling mode.
Reason : This is a normal and required condition programmed by the internal software.
Solution : Indoor fan must run continually in cooling mode to be able to sample the air temperature and call for the compressor to cycle on when needed. This is normal. Indoor fan motor operates on only a few pennies a day, so it will not waste any significant amount of energy, plus it will provide a positive air circulation for better comfort.

Symptom : Indoor unit fan comes on and off briefly in heat mode.
Reason : This is a normal and required condition programmed by the internal software.
Solution : Indoor fan must runs once in a while to sample the air temperature and call for the compressor to cycle on when needed. This is normal. Unlike the cooling mode, indoor fan does not run continually in cooling mode to prevent cols air draft. The temperature swings in the space between the on and off modes will be slightly higher than the cooling mode.

Symptom : Water dripping from the indoor unit.
Reason : Misaligned installation leveling, blocked drain tube, frozen coil.
Solution : Check that the indoor unit is installed in a perfectly horizontal position. Check that the end of the drain hose is dripping water properly on the outside. Check that the drain tubes are not kinked, blocked or siphoned. Assure that the drain hose stays as low as possible in the wall hole and has a continual proper declination in its level. Check the evaporator coil if frozen. This can be the indication of refrigerant loss from the system. Check and assure correct operating pressures. Check for kinks in copper lines. Always close all open windows and doors to avoid excessive humidity entering the room.

Symptom : Excessive vibrations from the compressor carried all the way through the copper tubing.
Reason : Excessive refrigerant charge, high pressure (usually in heat mode).
Solution : Check for and obtain proper operating pressures. Reduce the refrigerant if overcharged.

Symptom : Frozen indoor coil (Cooling Mode)
Reason : Low refrigerant, dirty filters, dirty evaporator, or very low outdoor temperature.
Solution : System cannot operate in cooling mode at outdoor temperatures below 65F without installing an optional low ambient fan controller kit. Otherwise, check for low refrigerant. Clean the air filters and maintain them as clean. Clean the coil if needed.

Symptom : Frozen outdoor coil (Heating Mode)
Reason : Normal Operation, Low refrigerant, dirty condenser or very low outdoor temperature.
Solution : During the heating operation the outdoor coil will normally freeze once in a while. The built in defrost logic will handle this and defrost the accumulated ice as needed. Maximum time allowed for defrost is 10 minutes. In extreme conditions, this time may not be enough to fully defrost the coil but the system will stop defrosting and switch to heating mode again. Additionally, system cannot operate in heating mode at outdoor temperatures below 15F, which will be in efficient and causes more frequent freezing than normal. Otherwise, check for low refrigerant charge and measure the pressures and obtain proper levels. Clean the coil if needed.

Symptom : Circuit breaker tripping
Reason : Damaged breaker, lower breaker amperage than needed, compressor overload.
Solution : Check for the breaker to function properly. Always use properly rated breaker for the required amperage. Use power wires with proper gauge to allow for the minimum required circuit ampacity. If the breaker is still tripping frequently, this is a sign of compressor overload or electrical shortage. Check for blocked capillary tubes, closed valves, kinked line set, defective indoor or outdoor fan motors. Low or excessive refrigerant charge. Check for wrong incoming power voltage. Never share any other appliance or device with this heat pump, feeding power through the same circuit breaker.

Symptom : Insufficient heating or cooling
Reason : Low refrigerant, dirty condenser or evaporator, defective fan motor.
Solution : Check for the indoor and outdoor fans to be properly running (for the indoor fan check at high speed). Check for dirt or dust accumulated on the heat exchangers, check outdoor units for blockage by debris or being snowed in. Check for low refrigerant charge. Check for valves to be fully opened. Check for kinks on copper tubing. Do not operate the system in cooling when the outdoor temperature exceeds 115F and in heating when the outdoor temperature drops below 15F. Always locate the outdoor unit away from direct sun shine, direct winds, heavy water or snow falling over, bushes and other obstacles blocking the air flow.

Symptom : Steam-like air blowing out from the indoor unit air discharge in cooling mode.
Reason : Very high humidity conditions in the room.
Solution : Close all windows and doors to stop humidity entering the room from the outside.

Symptom : System does not automatically restart after a power failure.
Reason : Auto Restart Function has been turned OFF.
Solution : Turn OFF the breaker, Press and hold the emergency restart button and turn the breaker ON while still holding the button pressed for 10 more seconds. 5 beeps indicate activation of the Auto Restart function. Repeat the procedure for tuning OFF the auto restart function in not desired (Indicated by 3 beeps).

Symptom : Indoor unit blows smelly air.
Reason : Dirty filters and/or evaporator coil.
Solution : Clean the filters. If the coil is dirty have the evaporator professionally cleaned. Run the unit for several hours in FAN ONLY mode to dry it before preparing to leave the system OFF for long periods of time.

Symptom : Uncomfortably wide temperature swings in the room.
Reason : Indoor unit installed too high, filters dirty, Room temperature sensor deficiency.
Solution : Higher locations in the room will have warmer temperatures and the system will measure the temperature at the height the indoor unit is installed. User can compensate for this by setting the temperature settings slightly lower or higher than actually desired. Clean the filters weekly for best performance. Check the return air sensor and replace if needed.

Symptom : System does not respond to commands from the remote controller.
Reason : Remote is located far away, weak remote batteries, disconnected display board/
Solution : Place the remote nearby and retry. Replace the batteries. Check the connection cable between the display board and the main controller board.

Electrical / Wiring Diagnostics:

1. 110-120 VAC Models:
   a. Check the voltage between the L and N terminals on the indoor unit. It should be always 110~120V.
   b. Check the voltage between the L and N terminals on the outdoor unit. It should be always 110~120V.
   c. Check the voltage between two L terminals (left and right) on the outdoor unit. It should always 0 V.
   d. For the compressor to run, the voltage between the 1 and N terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 110~120 VAC.
   e. For the outdoor fan motor to run, the voltage between the 2 and N terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 110~120 VAC.
   f. For the heat mode to be activated, the voltage between the 3 and N terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 110~120 VAC.

2. 208-230 VAC Models:
   a. Check the voltage between the L1 and L2 terminals on the indoor unit. It should be always 208~230V.
   b. Check the voltage between the L1 and L2 terminals on the outdoor unit. It should be always 208~230V.
   c. Check the voltage between two L1 terminals (left and right) on the outdoor unit. It should always 0 V.
   d. For the compressor to run, the voltage between the 1 and L2 terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 208~230 VAC.
   e. For the outdoor fan motor to run, the voltage between the 2 and L2 terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 208~230 VAC. (#2 is not accessible for 024 Indoor).
   f. For the heat mode to be activated, the voltage between the 3 and L2 terminals at BOTH the outdoor and indoor units' terminal blocks must be measured as 208~230 VAC. (#3 is not accessible for 024 Indoor).

Piping Surface Temperature Diagnostics:

a. In Cooling mode, the smaller diameter pipe must feel Very Cold and the larger diameter pipe must feel Cold.
b. In Heating mode, the smaller diameter pipe must feel Hot and the larger diameter pipe must feel Very Hot.