International Refrigeration Products, Inc.

MINI-SPLIT INSTALLATION AND MAINTENANCE MANUAL

HEAT PUMP

9H47YIMI	**9H47YOMI**
12H47YIMI	**12H47YOMI**
12H47ZIMI	**12H47ZOMI**
18H47ZIMI	**18H47ZOMI**
24H46ZIMI	**24H46ZOMI**
30H48ZIMI	**30H48ZOMI**
36H46ZIMI	**36H46ZOMI**

950-0245revC

January 5, 2017

TABLE OF CONTENTS

NOTE TO INSTALLER 2

INSTALLER SUPPLIED ITEMS 3

PARTS INCLUDED WITH UNIT 3

ITEMS FOR CONSIDERATION 3

UNIT INSTALLATION 5

- Indoor installation 6
- Outdoor Installation 9
- Main Power Wiring 11
- Controls Wiring 11
- Wiring Diagram 12

REFRIGERANT CHARGE 13

UNIT START UP 13

PRESSURE CURVES 15

- Cooling Chart 15
- Heating Chart 16

TECHNICAL SPECIFICATIONS 17

- 9,000 and 12,000 BTU Units (115V) 17
- 12,000, 18,000 & 24,000 BTU Units (208/230V) 18
- 30, 000 and 36,000 BTU Units (208/230V) 19

TROUBLESHOOTING 20

THE IMPORTANCE OF DEEP VACUUM 21

WARRANTY 22

TECHNICAL SUPPORT 22

Installation and Maintenance Manual

Report shipping damage to carrier IMMEDIATELY. Check units and box exterior for damage.

NOTE TO INSTALLER

This manual is to aid the qualified HVAC contractor in the installation and maintenance of this mini-split system.

Please read and understand these instructions prior to installing the unit, failure to comply with these instructions may result in improper installation, operation and maintenance, possibly resulting in fire, electrical shock, property damage, personal injury or death.

Installers please retain this manual for future reference; pass warranty registration to end user. If technical assistance is required during installation or start up, please call 704-504-8590 for technical assistance. Before calling please have the model and serial numbers available.

Safety Instructions
Read all the instructions. Install and operate the system per these instructions.
Use the unit only in the manner described in this manual.

1. Check rating plate for correct system voltage before installing the unit installing and operating a unit with the incorrect voltage may result in malfunction or other issues and will void the warranty.

2. Units must be connected to a correctly grounded electrical supply.

3. Do not use the units if they have been dropped or otherwise damage or installed incorrectly.

The manufacturer of the unit will not be liable for any damages caused by failure to comply with the installation and operating instructions in this manual.

The unit rating plate contains pertinent information to the unit operation; please refer to it as required.

Completely read all Instructions prior to assembling, installing, operating, or working on these units. Inspect all parts for damage prior to installation and start up. Units must be installed by a qualified HVAC contractor.

Some photos may not look like your unit but it is representative of your unit.

SERIAL NUMBER LOCATIONS
Indoor unit - Right side below data label
Outdoor unit - Side panel below data label and inside electrical cover.

Condensate Pump Recommendations:
9H47YIMI - Blue Diamond model number X85-003 (MicroBlue)
12H47YIMI - Blue Diamond model number X85-003 (MicroBlue)
18H47ZIMI - Blue Diamond model number X85-003 (MicroBlue)
24H46ZIMI – Blue Diamiond model number X87-721 (MaxiBlue)
30H48ZIMI – Blue Diamiond model number X87-721 (MaxiBlue)
36H46ZIMI – Blue Diamiond model number X87-721 (MaxiBlue)

Special attention to steps 9, 10 and 11, on pages 11 and 12 are very important.

INSTALLER SUPPLIED ITEMS

The following items are necessary for the installation of the ductless mini splits.

- Refrigerant line set: Flared connection only, suitable for R410A with both lines insulated, max length for connection see page 4 or specification pages 17 to 19.
- High voltage interconnect wiring: Minimum 16 AWG stranded wiring from outdoor unit to indoor unit for power and control.
- Condensate tubing: Per local codes to remove condensate from the indoor unit.
- 5/8" drain tubing as necessary.
- Wall Sleeve
- Sealant
- 2” wide tape
- Main system breaker: Sized per unit requirements (see specification pages 17 to 19), to be mounted adjacent to outdoor unit.
- Refrigerant: R410A required for additional line set charge - see specification pages 13.
- Mounting hardware, condenser pad, etc.

PARTS INCLUDED WITH UNIT

Indoor unit	Outdoor Unit
Mounting Plate	Installation Manual
Remote Control	Plastic drain connection
Remote Control Holder	Rubber anti-vibration mounting pads (4)
Batteries for Remote Control (2 AAA)	Drain fitting with gasket
Operation Manual	
Wall Anchors	
Carbon Filters (2)	

ITEMS FOR CONSIDERATION

Application
Check the application of the unit prior to installation. Certain applications require additional components or installation parameters.

The below data is for the Northeast section of the US. Increase capacity by 25% for the East, 30% for the South and 40% for the West.

Computer or Data Server Rooms
These require ballpark sizing of approximately 12,000 BTU/H Capacity per 250 sq. ft. of room size.

The system will be running 24/7. If winter temperatures fall below 32°F, a Wind Baffle (Field Supplied) should be installed.

Offices and Commercial Spaces, Churches etc
These require ballpark sizing of approximately 12,000 BTU/H Capacity per 400 sq. ft. of room size.

Residential, Bedrooms, Family Rooms etc
These require ballpark sizing of approximately 12,000 BTU/H capacity per 600 sq. ft. of room size.

NOTICE:
Heat Pumps are a great application; however the unit may not provide adequate heat.
It is not recommended for use as a primary source of heat.

Installation
Determine the best location for mounting the Indoor unit. It must be located a minimum of 8 ft. from the floor. Pay close attention to the air circulation in the room. 9,000 &12,000 BTU units throw air approximately 15ft., 18,000 & 24,000 BTU units throw air approximately 25 ft. 30,000 & 36,000 BTU units throw air approximately 33 ft. Ensure there are no obstacles to airflow.
Locate the indoor and outdoor units as close together as possible, maximum line set run and lift CANNOT BE EXCEEDED. Determine how the Interconnect piping, wiring and condensate hose is to be run.

Installation (CONT'D).

Unit	Max Line Set Run	Max Vertical Lift	Line Sizes
9H47YMI	82 Feet	33 Feet	1/4" Liquid – 3/8" Suction
12H47YMI 12H47ZMI	82 Feet	33 Feet	1/4" Liquid – 1/2" Suction
18H47ZMI	98 Feet	66 Feet	1/4" Liquid – 1/2" Suction
24H46ZMI	98 Feet	66 Feet	3/8" Liquid – 5/8" Suction
30H48ZMI	164 Feet	82 Feet	3/8" Liquid – 5/8" Suction
36H46ZMI	213 Feet	98 Feet	3/8" Liquid – 5/8" Suction

Ensure that all panels can be removed for service as required.

CAUTION! Using old refrigerant lines with new Air Conditioner installation
This air conditioner adopts the new HFC refrigerant (R410A) which does not destroy ozone layer. R410A refrigerant operates at approximately 1.6 times the pressure of refrigerant R22. Accompanied with the adoption of the new refrigerant, the refrigeration lubricating oil has also been changed. During installation work be sure that water, dust, former refrigerant, or refrigeration lubricating oil does not enter into the new type refrigerant R410A air conditioner system. The system must not be left open to the atmosphere for any reason for any period of time as the systems oil quickly absorbs moisture and will contaminate and damage the system. To prevent mixing of refrigerant or refrigeration lubricating oil, the sizes of connecting sections of charging port on main unit and installation tools are different from those used for the conventional refrigerant units. Accordingly, special tools are required for the new refrigerant (R410A) units. For connecting pipes use new and clean piping materials with high pressure fittings made for R410A only. The best and recommended solution is not to use the existing line sets because there may be some problems with pressure fittings and possible impurities in the existing piping.

Certification
AII Ductless Mini Splits are certified by ETL under UL standard 1995, 4th Edition, Rev. Oct 14, 2011. Performance is certified by CSA standard C22.2 No. 236-05, 4th Edition, Rev. Oct 14, 2011

Operating Limit
Outdoor operating temperature range: 5°F to 122°F – Cooling, 5°F to 86°F – Heating.

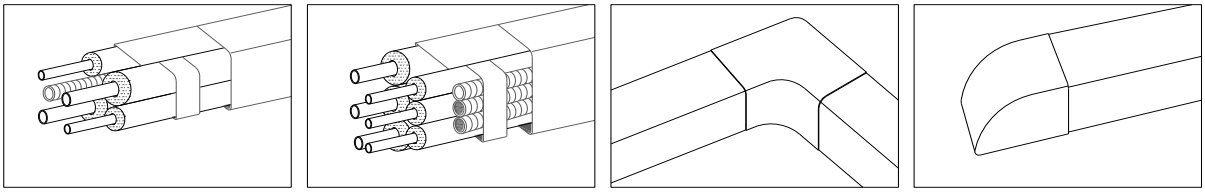
Controls and Components
Units are supplied with a wireless remote controller, which communicates with the unit microprocessor controller. The return air temperature sensor mounted on the unit then controls the unit operation.
Several modes of operation are available to the end user depending on the type of comfort required. AII unit operating functions are controlled via the remote controller.

Low Ambient Controller is included for use in Server Rooms or in Commercial applications.

Condensate Pump: Condensate pump can be used when gravity drain is not practical.
To power a condensate pump connect to outdoor unit input power supply ONLY. Do not connect to indoor unit.

Decorative Channel: Route the bundled piping and wiring to the outdoor unit and connect per the OUTDOOR UNIT installation instructions.

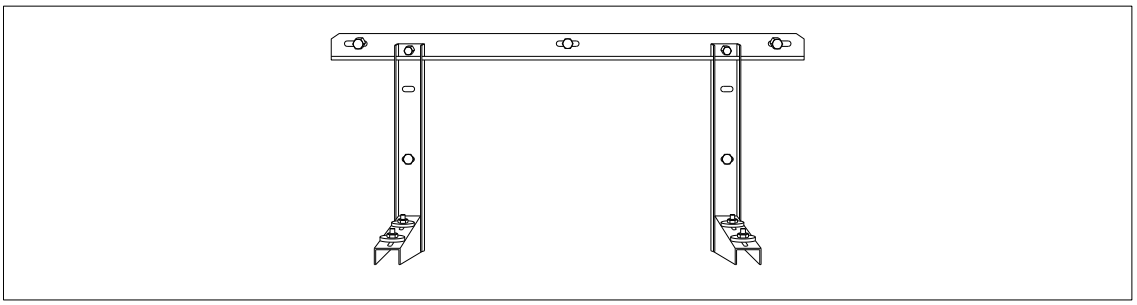
Our **Plastic-Duct** piping and wiring duct work provides a convenient and professional looking system to route and protect the pipes and wires. Please see the illustrations below:



Installation (CONT'D).

Wall Bracket: Mounting the outdoor unit on the wall is common; this allows mounting the outdoor unit closer to the indoor unit and also for a convenient installation.

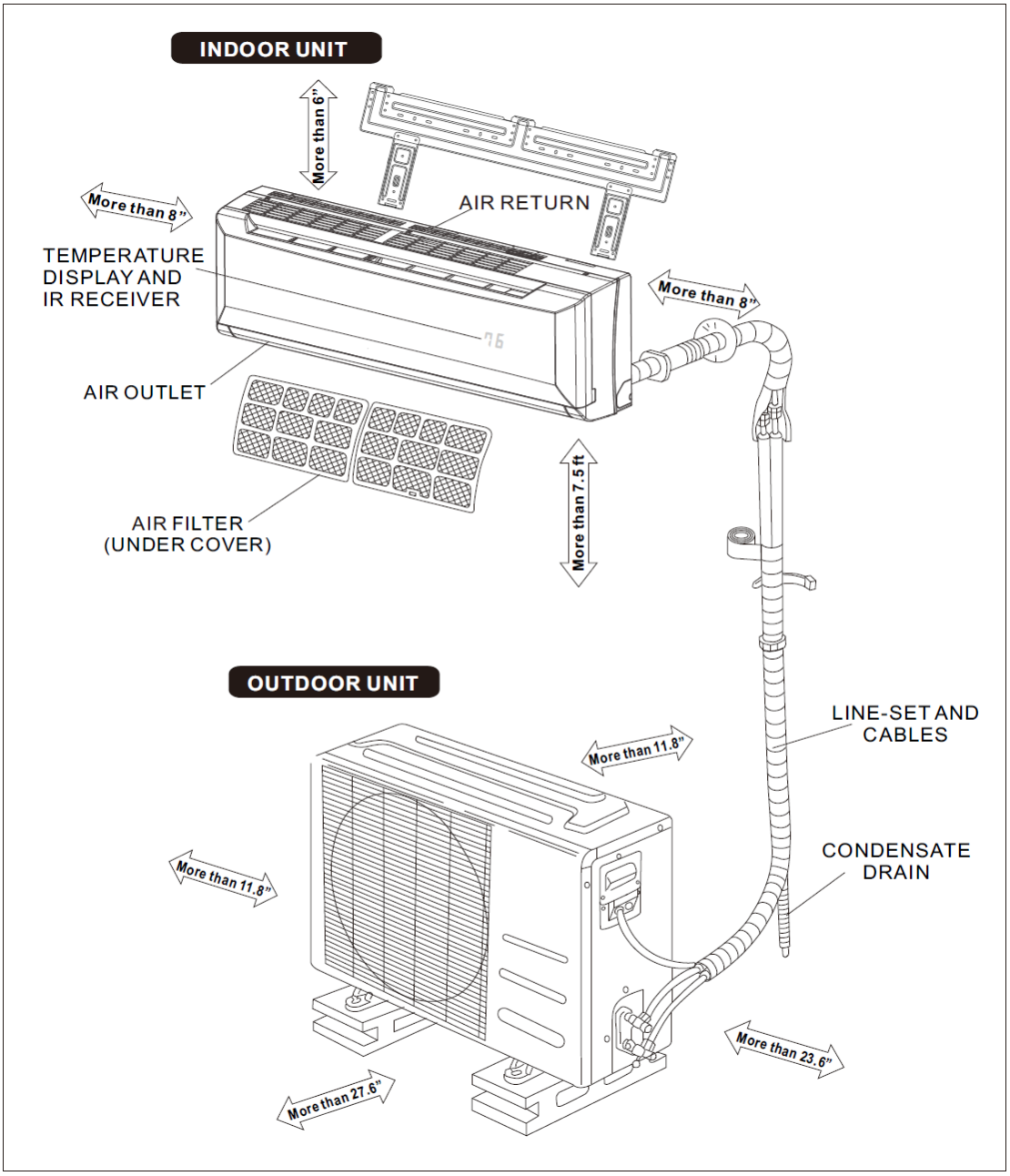
We offer wall brackets (Our Catalog# **BR-440L** for up to 440 lbs) as an accessory.



UNIT INSTALLATION

CAUTION!

Follow Instructions, failure to follow instructions may cause possible malfunction and void any warranty.



Step 1

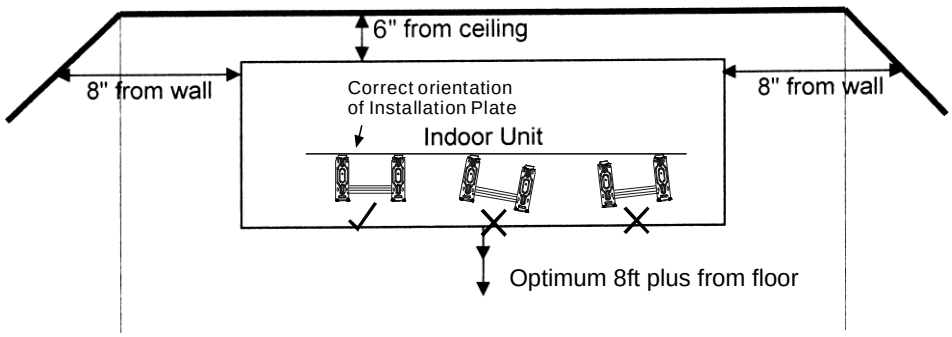
Indoor installation

Remove Indoor and Outdoor units from the carton. Indoor unit carton contains Remote Control and Batteries, ensure these are kept in a safe place during installation.

Step 2

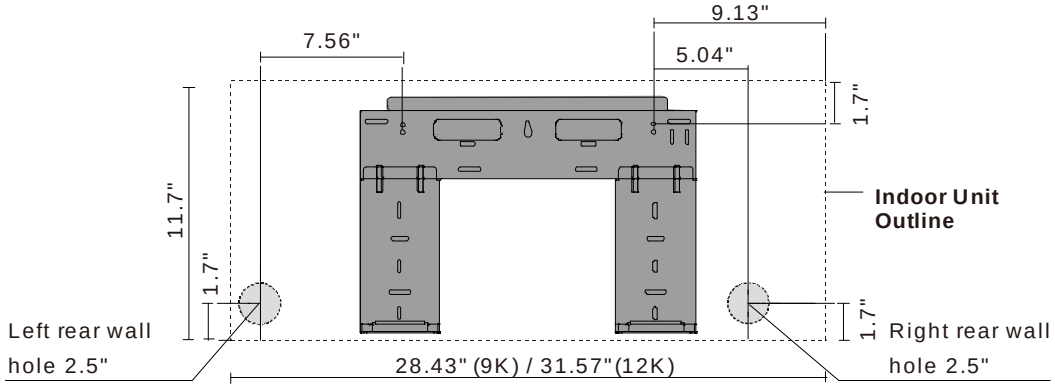
Locate area to Install Indoor unit Indoor unit must be located a minimum of 4 ft. from the floor and 6” from the ceiling.

Choose an area where the wall is plumb and determine how to best run the unit interconnects.

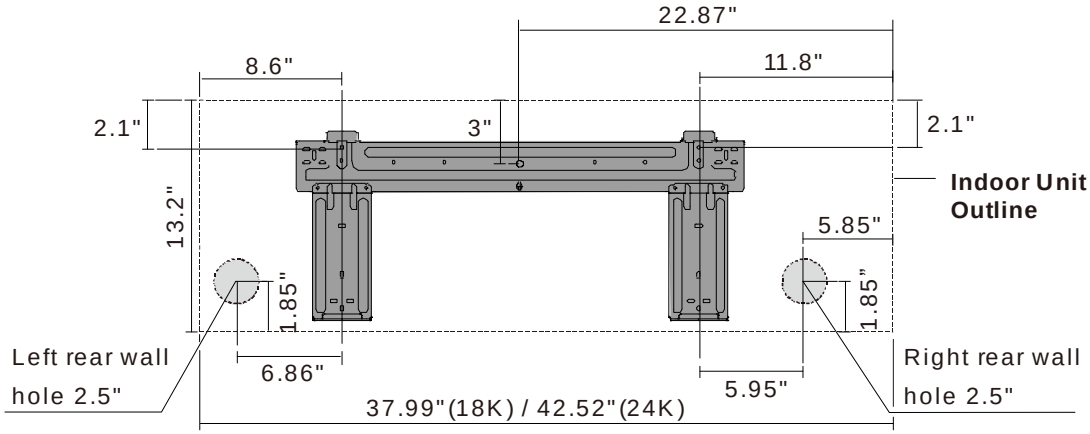


ALL VIEWED FROM FRONT SIDE

For models: 9H47YIMI, 12H47YIMI, 12H47ZIMI

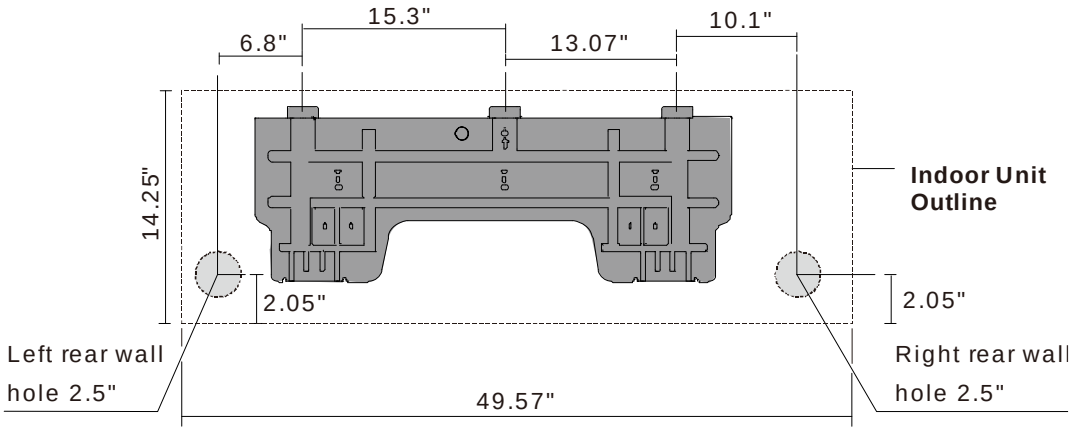


For models: 18H47YIMI, 24H46ZIMI



Installation (CONT'D).

For models: 30H48ZIMI, 36H46ZIMI

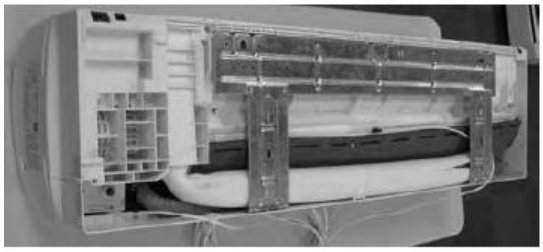


Ensure no obstacles to airflow are directly in front of the unit, for a minimum of 12 ft for 9,000 / 12,000 Btu/h units and 16 ft. for 18,000 to 36,000 Btu/h units.

Do not install the indoor unit in areas exposed to high humidity (RH of 80% plus), direct sunlight, direct heat from stoves or other devices.

Step 3

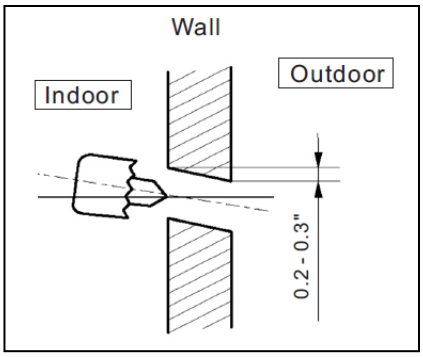
Remove mounting bracket from the rear of the Indoor unit, using a Phillips head screwdriver. Remove the unit pipe strap.



If mounting the unit on an outside wall measure from the edges of the unit to the center of the line set stub 90° bend to locate the center of the wall penetration.

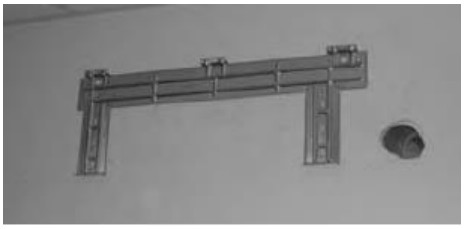
If the line set exits on the left or right, use the knockouts provided on the left and right sides of the unit to route the piping and wiring connections.

Drill a 3" diameter hole through the wall for line set. If using the installation kit, measure the diameter of the sleeve and cut / drill correct size hole. If not make sure the sleeve you use is large enough to allow the line set and wiring to pass through. Angle the wall penetration slightly down towards the outside to assist in draining the condensate away from the unit.



Step 4 Install Mounting Bracket

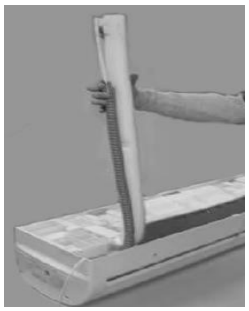
Locate and secure the mounting bracket to the wall. The indoor unit weighs a maximum of 40 lbs., use wall anchors and mount to a wall stud to ensure that the wall is capable of holding the weight of the unit. Use a level to ensure mounting bracket is leveled, so condensate can drain properly.

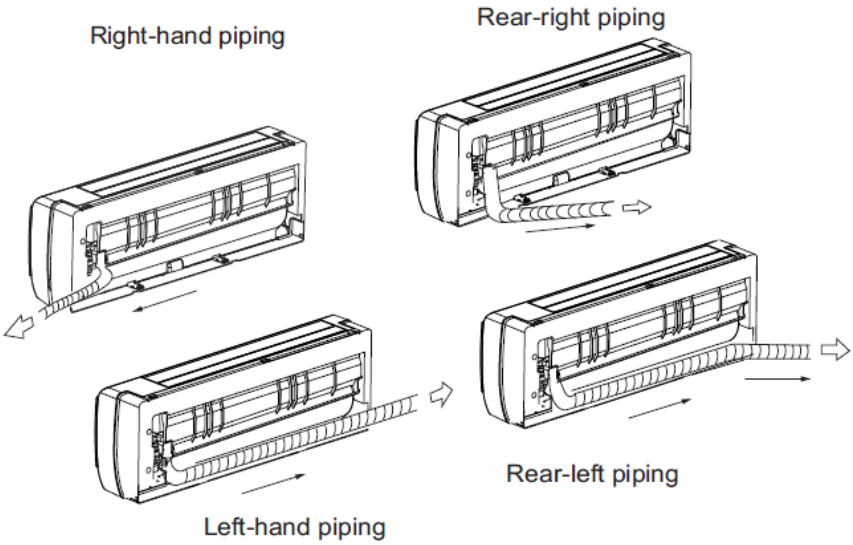


Wall sleeve can now be inserted into the hole. Wall sleeve included with unit. Insert sleeve from the inside. Excess length may be cut off if necessary. We recommend the sleeve to be approximately 3/16" longer than the wall thickness.

Installation (CONT'D)
<u>Step 5</u> Prepare Unit Line Set Connections

Rotate refrigerant line stubs set gently through 90° (if mounting on an outside wall). For other line set configurations align the stubs as required.

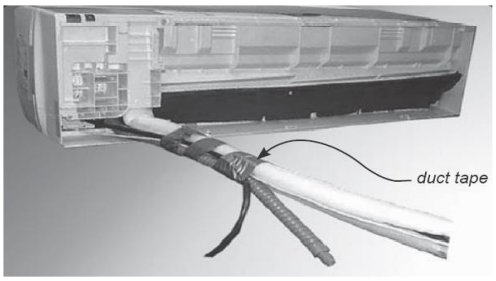




Condensate Hose
Hose connection is sized to accept a 5/8" OD or 1/2" ID clear plastic hose to then extend to building drain. Connect it to the gray condensate line coming from the indoor unit.
All condensate hose extensions should be in accordance with local building codes. Remember water only flows downhill to ensure positive draining from the unit. Check using water for a positive flow of condensate.

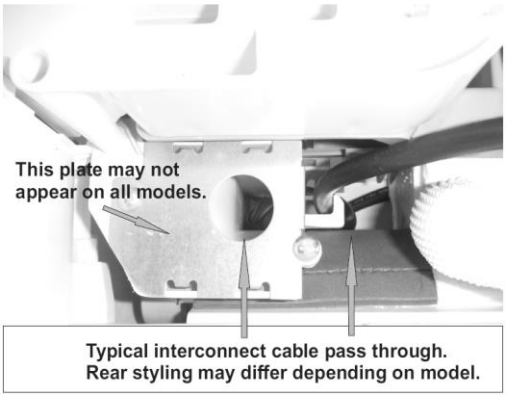
Tips:

♦ Use Duct tape to tape the condensate hose (make sure it is below the line set stubs). This makes it easier to guide them through the hole drilled in the wall.



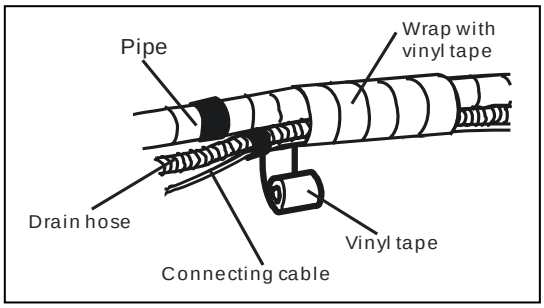
♦ Feed the 16 AWG interconnect wiring between indoor and outdoor (maximum # of wires required is 4) through the unit electrical connection (if required by local codes an electrical connector can be attached to the rear of the unit). Tape the loose wire to the line set stubs.

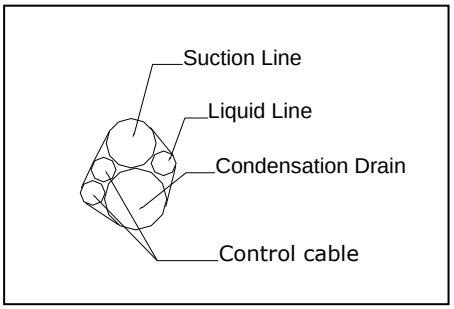
♦ These two tips save time and prevent damage to the stubs when mounting the Indoor unit.



Typical interconnect cable pass through.
Rear styling may differ depending on model.

Note:
Condensate hose is taped below line set stubs. Wrap Duct tape to the end of the condensate hose for easier installation.

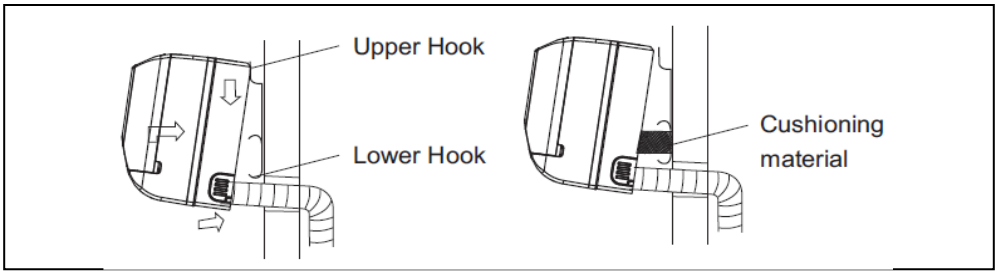




Installation (CONT'D).

Step 6

Install unit on mounting bracket. Feed the line set stubs/condensate hose/wiring connections through the 3" hole. Installation can be made easier by lifting the indoor unit and inserting a cushioning material (spacer) between indoor unit and the wall. Hook the top of the indoor unit to the top of the bracket (2 or 3 places) and once hooked, gently let it swing down and then push the lower portion of the indoor unit against the bracket until it snaps into the bracket.



Indoor unit is now installed. It should be plumb, level and flush with the wall. Insure that the line set stubs are completely through the wall penetration. Also check that the wall is plumb. The unit must be level and plumb for proper condensate removal.

Check the drain hose, observe that the condensate drain pipe does not curve upward and is in the lower part of the pipe bundle.



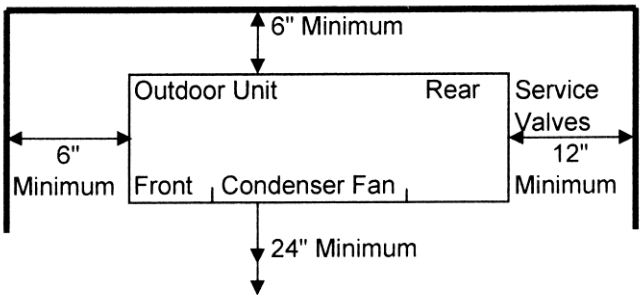
NOTES:

1) Two carbon filters are included with unit. These can be installed in the center of the filters supplied.
2) After the indoor unit is mounted and snapped to bracket, it can be adjusted slightly left and right without removing from wall.

Step 7

Outdoor Installation

Locate outdoor unit. Clearances for the outdoor unit are:



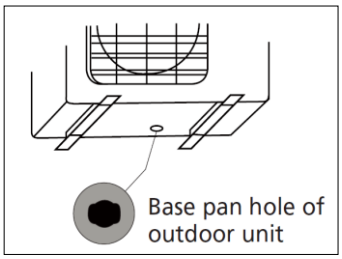
Note:

Install the Outdoor unit on a Condenser Pad or if a Heat Pump use feet to raise unit up approx 6" to allow for defrost to drain away

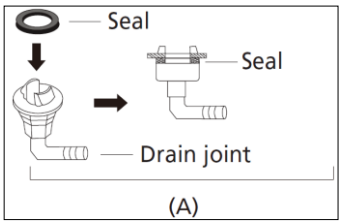
Do not install the outdoor unit in a location exposed to high winds (field fabricated and installed wind baffle may be required). Ensure location does not impede access around unit and pose a disturbance to neighboring areas.

Installation (CONT'D).

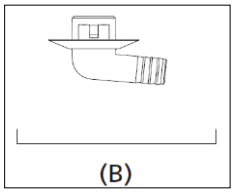
<u>Step 8</u> Install drain joint



Heat pump units require a drain joint. Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. Note that there are two different types of drain joints depending on the type of outdoor unit.



● If the drain joint comes with a rubber seal (see Fig. A), do the following:
1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks in place facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.



● If the drain joint doesn't come with a rubber seal (see Fig. B), do the following:
1. Insert the drain joint into the hole in the base pan of the unit. The drain joint will click in place.
2. Connect a drain hose extension (not included) to the drain joint to redirect water from the unit during heating mode.

The 1/2" I.D. tubing can be connected to the fitting directing the water away from the unit. Check to be sure the drain water is free to exit.

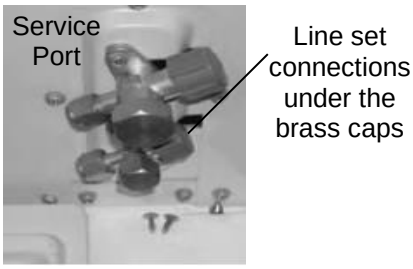
CAUTION!
In cold climates, make sure that the drain hose is as vertical as possible to ensure swift water drainage. If water drains too slowly, it can freeze in the hose and flood the unit.

<u>Step 9</u> Refrigerant Line Set Piping



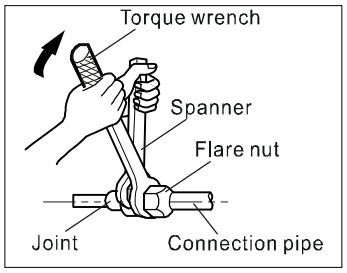
Interconnecting line set between the outdoor unit and the Indoor unit must have both refrigerant lines insulated as condensing device is located in the outdoor unit.
Gently bend the line set stubs from the indoor unit to the desired location. Using (2) properly sized wrenches remove the flare nuts from the Indoor unit line stubs.
The indoor unit is filled with a dry gas, check for release of this to ensure that no leaks are present. Use a small amount of vacuum pump oil on the male flare threads to ease installation.
Connect the line set to the stubs. Using 2 wrenches, 1 on the male & 1 on the female, tighten the flare nuts.

DO NOT INSTALL A LIQUID LINE SIGHT GLASS OR FILTER DRIER IN THE SYSTEM.



Run the line set to the outdoor unit. Avoid tight bends and kinking the lines. It is <u>not</u> recommended to braze line sets together or to the unit connections.
If line set length is in excess of that required, cut the pipes a little longer than measured distance. Completely remove all burrs from the cut cross section of pipes. Follow standard flaring procedures and use proper flaring tools for a leak proof connection.

Installation (CONT'D).
If a flared section is defective, cut it off and follow standard flaring procedures again.
See caution note page 4.
Align the center of the piping flare to its' mating connector, then screw on the flare nut by hand and then tighten the nut with a spanner and torque wrench.

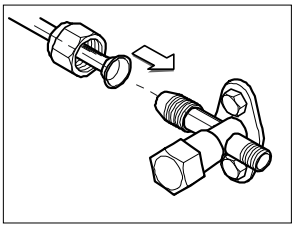


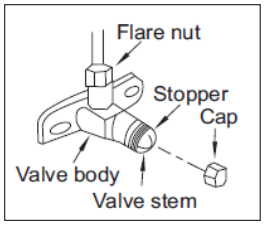
Note: Exceeding the tightening torque will damage the flare surface.

Tightening Torque Table							
1/4"	11-15 Ft-lbs	3/8"	25-30 Ft-lbs	1/2"	36-42" Ft-lbs	5/8"	54-58 Ft-lbs

Step 10 Evacuation

After connecting the indoor and outdoor units, evacuate the air from the line set and the indoor unit.
Gauges can now be attached to the service port - SERVICE PORTS HAVE A 5/16" CONNECTION TO GAUGES.
Use caution to ensure that the proper size fittings are used when connecting.
Once the gauges are attached the line set can be leak checked using nitrogen at 300 PSIG. Evacuate the unit down to a minimum of 500 Microns, break vacuum with nitrogen to further leak check.
Re-evacuate the system down to 500 Microns or lower. This is an R410A system, it is essential that a deep vacuum be pulled on the system to remove all traces of moisture. (See page 21 for The Importance of a Deep Vacuum).





Step 11

Main Power Wiring

⚠DANGER

ELECTRICAL WIRING SHOULD BE DONE BY A LICENSED ELECTRICIAN IN ACCORDANCE WITH NATIONAL AND LOCAL CODES.

♦ Tip: Small electrical screwdriver is required for unit terminals. Breaker size and wiring must be sized for the rating plate amperage. If a smaller than required breaker is used there is a possibility of unit damage. Use breaker as specified in Specifications Table page 17 to page 19.

Each system installed must have a separate branch circuit with an individual breaker/fuse. A local disconnect should be installed adjacent to the outdoor unit in accordance with National and Local Electrical Codes. The outdoor unit provides power for the indoor unit therefore, no disconnect is required between the outdoor and indoor units.

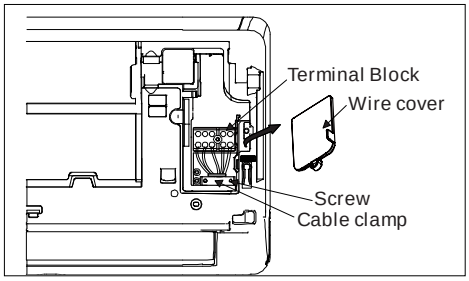
Line voltage from the disconnect should be wired to:
N - L – Ground screw (115V Unit)
L1 - L2 – Ground screw (208/230V Unit).
Remove right side knockout on the terminal access panel for whip/wiring connection. Ground connection must be made to the terminal plate.

♦ Tip: For easier access to the terminals in the outdoor unit remove the lower access panel to install whip and Seal Tite connectors for conduit.

Step 12

Controls Wiring

USE A MINIMUM 16 AWG WIRE.
Remove terminal covers from Indoor unit and wire to the terminals.
A small electrical screwdriver required.



Installation (CONT'D).

Control wiring from the outdoor unit must be a point to point; i.e. the terminal that the wire is attached to on the outdoor unit must be the same terminal it is wired to in on the Indoor unit.

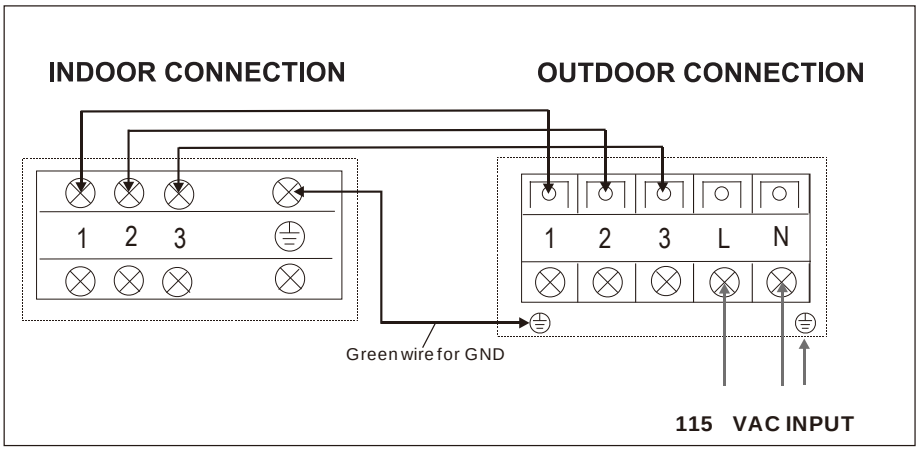
***** DO NOT CROSS WIRES BETWEEN TERMINALS. *****

THIS IS EXTREMELY IMPORTANT!

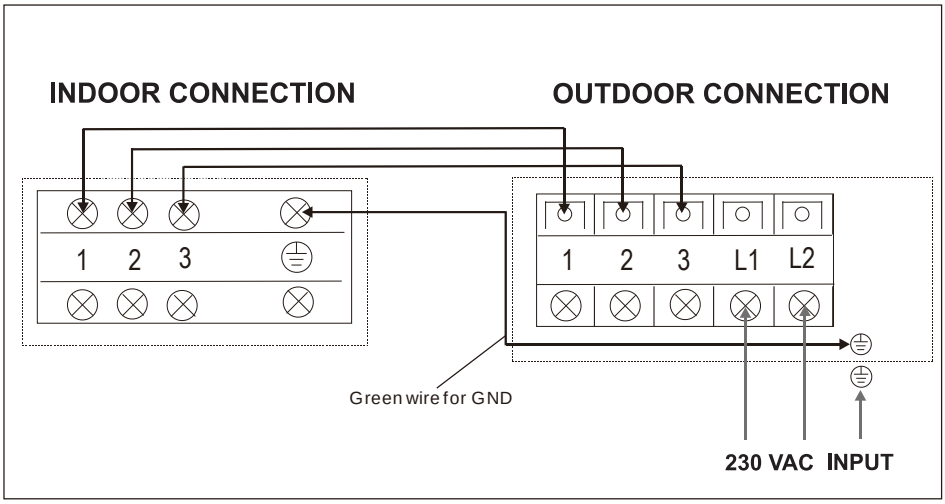
Miswiring (cross connecting wires) between the indoor unit and outdoor unit will cause the unit to fail to operate at a minimum, and can seriously damage the unit in the worst case. Use extreme care to ensure that wiring between the inside unit and the outside unit is per the wiring diagrams on the next pages.
Ground wires connected to the terminal plate indoor and outdoor units must be grounded.

Wiring Diagram

9K and 12K – 115 VAC



12K, 18K, 24K, 30K and 36K – 208/230 VAC



Note:

1. When connecting terminals wire color is not important, except green, which should always be used for GND.
2. Wire outdoor to indoor terminal to terminal as indicated in drawing above.

REFRIGERANT CHARGE

NOTE: Outdoor unit is *pre-charged* with enough R410A refrigerant for a line set up to 25 ft. long. For longer line set lengths additional charge must be WEIGHED in per the following table.

Unit	Chart shows amount of additional refrigerant needed with different length line sets.										
	oz/ft	30ft	35 ft.	45 ft.	50 ft	60 ft.	70 ft.	80 ft.	90 ft	100 ft	120 ft
9H47YMI	0.161 oz	0.81 oz	1.61 oz	3.22 oz	4.03 oz	5.64 oz	7.25 oz	8.86 oz	/	/	/
12H47YMI	0.161 oz	0.81 oz	1.61 oz	3.22 oz	4.03 oz	5.64 oz	7.25 oz	8.86 oz	/	/	/
12H47ZMI	0.161 oz	0.81 oz	1.61 oz	3.22 oz	4.03 oz	5.64 oz	7.25 oz	8.86 oz	/	/	/
18H47ZMI	0.161 oz	0.81 oz	1.61 oz	3.22 oz	4.03 oz	5.64 oz	7.25 oz	8.86 oz	10.47 oz	/	/
24H46ZMI	0.322 oz	1.61 oz	3.22 oz	6.44 oz	8.05 oz	11.27 oz	14.49 oz	17.71 oz	20.93 oz	/	/
30H48ZMI	0.322 oz	1.61 oz	3.22 oz	6.44 oz	8.05 oz	11.27 oz	14.49 oz	17.71 oz	20.93 oz	24.15 oz	30.59 oz
36H46ZMI	0.322 oz	1.61 oz	3.22 oz	6.44 oz	8.05 oz	11.27 oz	14.49 oz	17.71 oz	20.93 oz	24.15 oz	30.59 oz

DO NOT EXCEED THE SPECIFIED MAXIMUM LINE LENGTH.

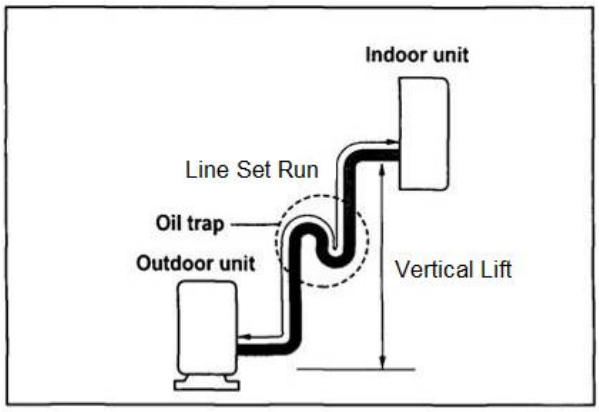
EXAMPLE: 30 ft. total length – 25 ft. pre-charge = 5 ft. x 0.161 oz per ft. = 0.81 oz. additional refrigerant.

Calculate your additional charge here:

____ - ____ = ____ X ____ = _____

CAUTION:

Capacity is based on standard length and maximum allowance length is base of reliability. Oil trap should be installed per 17 - 23 feet.

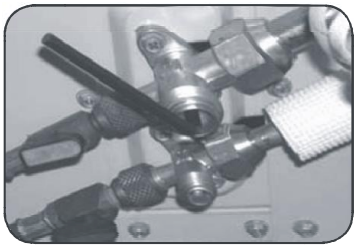


The basic system installation is now complete; the unit is ready for start up.

UNIT START UP

The system can now be opened to allow the refrigerant charge in the outdoor unit to be released into the line set. The service valves require a 5 mm Allen wrench to undo the valve stems. Remove brass caps from the service valves.

Open the SUCTION line valve first to prevent any possibility of oil clogged in the capillary tube.
(This can occur if the liquid line valve is opened first with the rest of the system in a deep vacuum)
LIQUID or GAS line can then be opened.
Check that both service valve stems are fully open and stop against the valve body. Replace the brass caps and tighten them to prevent leaks.



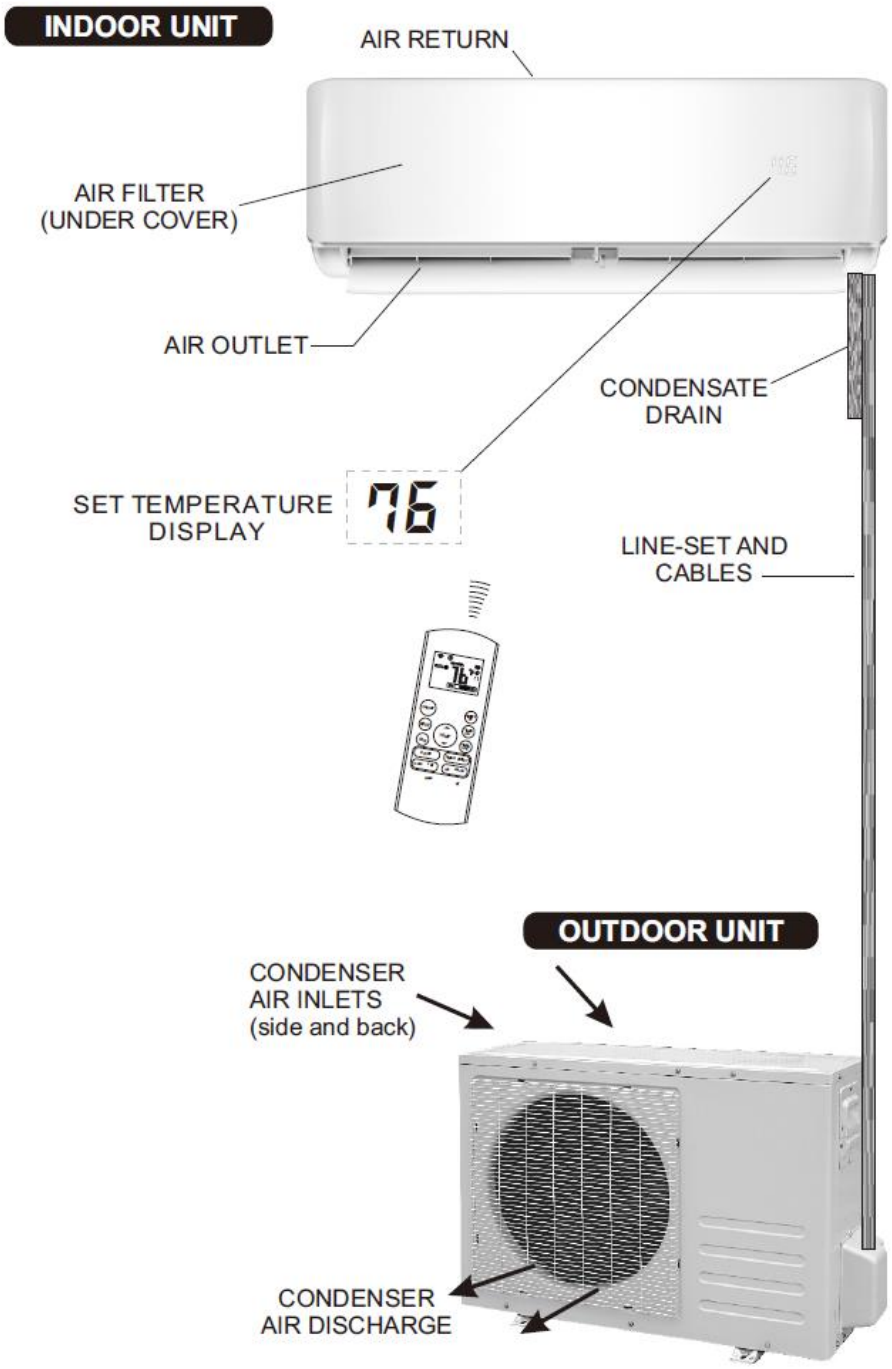
Energize the breaker to power up the system. **Compressor has a 3 minute time delay on startup.**

Before start up, double check all wiring has been properly connected. Review remote control functions in the Operators manual.

Note:

1. A wall control is optional WCM1 (244-0001). For the details of installation and operation, please refer to the manual to be placed with the wall control.
2. The cooling test may be performed if the outdoor temperature is between 5 ºF to 122 ºF.

   The heating test may be performed if the outdoor temperature is between 5 ºF to 86 ºF.



PRESSURE CURVES

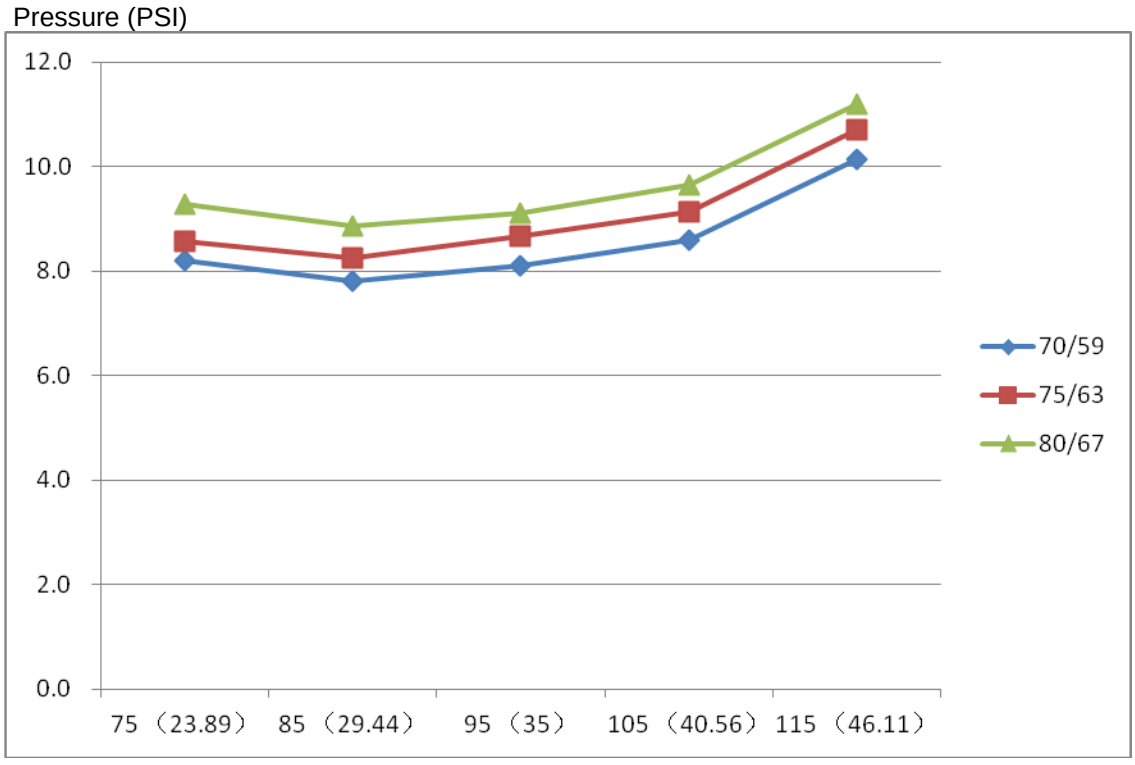
NOTE: After installation, the pressure reading should be as indicated below. Take from the service port, the pressure under the outdoor temperature should match the charts readings.

Cooling Chart

°F(°C)	ODT / IDT	75 (23.89)	85 (29.44)	95 (35)	105 (40.56)	115 (46.11)
BAR	70/59	8.2	7.8	8.1	8.6	10.1
BAR	75/63	8.6	8.3	8.7	9.1	10.7
BAR	80/67	9.3	8.9	9.1	9.6	11.2

°F(°C)	ODT / IDT	75 (23.89)	85 (29.44)	95 (35)	105 (40.56)	115 (46.11)
PSI	70/59	119	113	117	125	147
PSI	75/63	124	120	126	132	155
PSI	80/67	135	129	132	140	162

°F(°C)	ODT / IDT	75 (23.89)	85 (29.44)	95 (35)	105 (40.56)	115 (46.11)
MPA	70/59	0.82	0.78	0.81	0.86	1.01
MPA	75/63	0.86	0.83	0.87	0.91	1.07
MPA	80/67	0.93	0.89	0.91	0.96	1.12



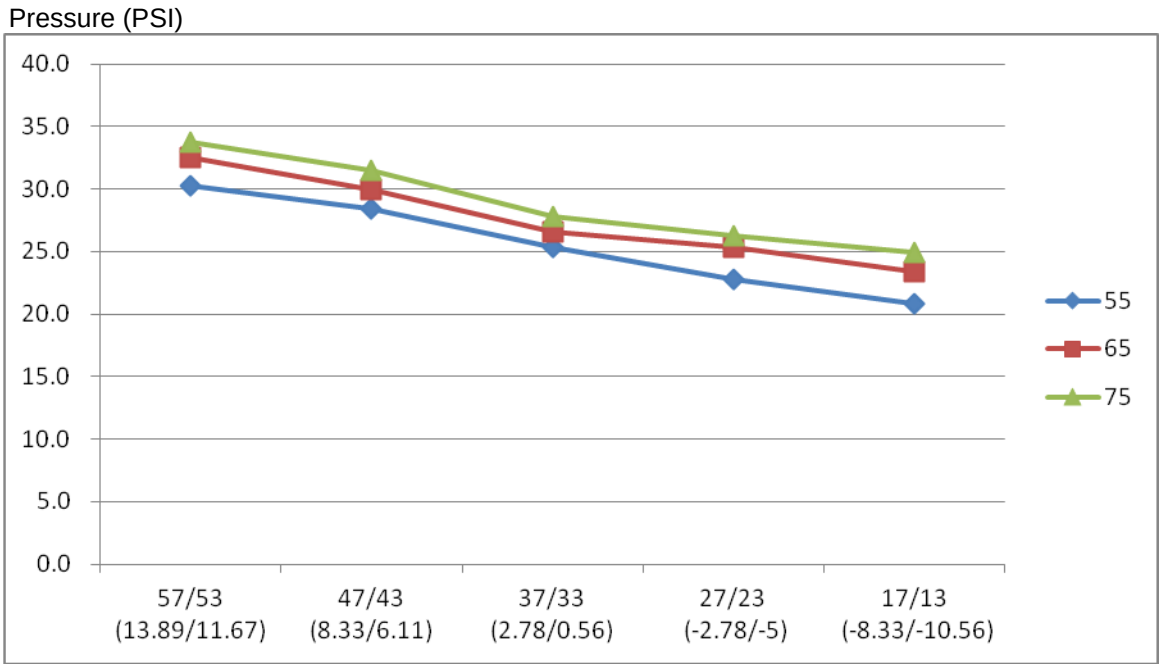
It is recommended to record and charge when the outdoor temperature is within the chart temperatures.

Heating Chart

°F (°C)	ODT / IDT	57/53 (13.89/11.67)	47/43 (8.33/6.11)	37/33 (2.78/0.56)	27/23 (-2.78/-5)	17/13 (-8.33/-10.56)
BAR	55	30.3	28.5	25.3	22.8	20.8
BAR	65	32.5	30.0	26.6	25.4	23.3
BAR	75	33.8	31.5	27.8	26.3	24.9

°F (°C)	ODT / IDT	57/53 (13.89/11.67)	47/43 (8.33/6.11)	37/33 (2.78/0.56)	27/23 (-2.78/-5)	17/13 (-8.33/-10.56)
PSI	55	439	413	367	330	302
PSI	65	471	435	386	368	339
PSI	75	489	457	403	381	362

°F (°C)	ODT / IDT	57/53 (13.89/11.67)	47/43 (8.33/6.11)	37/33 (2.78/0.56)	27/23 (-2.78/-5)	17/13 (-8.33/-10.56)
MPA	55	3.03	2.85	2.53	2.28	2.08
MPA	65	3.25	3.00	2.66	2.54	2.33
MPA	75	3.38	3.15	2.78	2.63	2.49



Outdoor Temperature

It is recommended to record and charge when the outdoor temperature is within the chart temperatures.

TECHNICAL SPECIFICATIONS
9,000 and 12,000 BTU Units (115V)

(Thermal Zone - Sea Breeze) Indoor / Outdoor			244-1401-E, 244-1401-C 9H47YIMI, 9H47YOMI	244-1402-E, 244-1402-C 12H47YIMI, 12H47YOMI
AHRI Reference Number			8752724	8740680
POWER SUPPLY		Ph-V-Hz	115V~ 60Hz ,1Ph	115V~ 60Hz ,1Ph
MINIMUM CIRCUIT AMPACITY		A	15	15
BREAKER SIZE		A	20	20
Cooling	Capacity	Btu/h	9000	12000
	Input	W	782	1200
	Rated current	A	3.5	5.2
	EER	Btu/w	11.5	10.5
	SEER	Btu/w	17	17.2
Heating	Capacity	Btu/h	9500	12000
	Input	W	925	1135
	Rated current	A	4.2	5.0
	COP	W/W	3.01	3.10
	HSPF (Region IV)	Btu/w	9	9
Moisture Removal		Pnts/h	2.2	2.6
Compressor	Model		ASN98D22UFZ	ASN98D22UFZ
	Type		ROTARY	ROTARY
	Brand		GMCC	GMCC
	Capacity	Btu/h	10014	10014
	Input	W	748	748
	Rated current(RLA)	A	9.0	9.5
	Heating Belt		Yes	Yes
	Refrigerant oil/oil charge	ml	ESTER OIL VG74·370	ESTER OIL VG74·370
Indoor fan motor	Model		ZKFP-20-8-5	ZKFP-20-8-5
	Brand		Welling	Welling
	Output	W	20(Output)	20(Output)
	RLA	A	0.2	0.3
	Speed(Hi/Mi/Lo)	r/min	1050/850/650	1050/850/650
Indoor air flow (Hi/Mi/Lo)		CFM	247/176/129	294/211/141
Indoor noise level (Hi/Lo)		dB(A)	39/24.5	40.5/24
Indoor unit	Dimension (W*D*H)	inch	28.43x7.36x11.42	31.57x7.44x11.69
	Packing (W*D*H)	inch	31.10x10.63x14.57	34.45x11.22x14.76
	Net/Gross weight	lbs.	16.5/20.9	18.7/22.5
Outdoor fan motor	Model		YKT-32-6-202L	YKT-32-6-202L
	Brand		Welling / Tongde	Welling / Tongde
	Output	W	32	32
	RLA	A	0.7	0.7
	Speed	r/min	850	850
Outdoor air flow		CFM	1060	1120
Outdoor noise level		dB(A)	56	54
Metering Device			Capillary Assembly	Capillary Assembly
Outdoor unit	Dimension (W*D*H)	inch	30.31x11.81x21.85	30.31x11.81x21.85
	Packing (W*D*H)	inch	35.43x13.58x23.03	35.43x13.58x23.03
	Net/Gross weight	lbs.	63.9/69.4	65.0/70.5
Refrigerant type		oz	R410A/28.2	R410A/33.9
Refrigerant precharged		ft	25	25
Additional charge for each ft		oz	0.161	0.161
Design pressure		PSIG	550/340 PSIG	550/340 PSIG
Refrigerant piping	Liquid side/ Gas side	inch	1/4"/3/8"	1/4"/1/2"
	Max. refrigerant pipe length	ft	82	82
	Max. difference in level	ft	33	33
Wire Size / No. of Conductors			14 AWG / 4C (Recommended)	14 AWG / 4C (Recommended)
Electrical Shock Protection			I	I
Indoor selection range - remote		°F	62~86	62~86
Remote Control			YES	YES
Wall Control (Optional)			YES	YES
Outdoor Operating range (cooling/heating) - with Low ambient kit		°F	5～122 / 5～86	5～122 / 5～86

12,000, 18,000 & 24,000 BTU Units (208/230V)

(Thermal Zone - Sea Breeze) Indoor / Outdoor			244-1403-E, 244-1403-C 12H47ZIMI, 12H47ZOMI	244-1404-E, 244-1404-C 18H47ZIMI, 18H47ZOMI	244-1405-E, 244-1405-C 24H46ZIMI, 24H46ZOMI
AHRI Reference Number			8740681	8740682	8740683
POWER SUPPLY		Ph-V-Hz	208-230V~60Hz ,1Ph	208-230V~60Hz ,1Ph	208-230V~60Hz ,1Ph
MINIMUM CIRCUIT AMPACITY		A	15	15	18
BREAKER SIZE		A	15	20	25
Cooling	Capacity	Btu/h	12000	18000	24000
	Input	W	1090	1635	2525
	Rated current	A	4.8	7.2	11.2
	EER	Btu/w	11	11	9.5
	SEER	Btu/w	17.5	17.7	16
Heating	Capacity	Btu/h	11800	18000	25000
	Input	W	1035	1935	2425
	Rated current	A	4.5	8.5	10.7
	COP	W/W	3.34	2.73	3.0
	HSPF (Region IV)	Btu/w	9	9.8	9
Moisture Removal		Pnts/h	2.6	4.0	5.3
Compressor	Model		ASN98D22UFZ	ASM135D23UFZ	ATF235D22UMT
	Type		ROTARY	ROTARY	ROTARY
	Brand		GMCC	GMCC	GMCC
	Capacity	Btu/h	10014	13836	24344
	Input	W	748	1035	1970
	Rated current(RLA)	A	6.8	10.5	12
	Heating Belt		Yes	Yes	Yes
	Refrigerant oil/oil charge	ml	ESTER OIL VG74·370	VG74/450	ESTER OIL VG74/670
Indoor fan motor	Model		ZKFP-20-8-6	ZKFP-30-8-3	ZKFP-58-8-1
	Brand		Welling	Welling	Welling
	Output	W	20	30	58
	RLA	A	0.3	0.3	0.4
	Speed(Hi/Mi/Lo)	r/min	1050/850/650	1100/800/700	1100/900/700
Indoor air flow (Hi/Mi/Lo)		CFM	294/206/141	388/265/224	647/530/412
Indoor noise level (Hi/Lo)		dB(A)	40.5/25	45/29	45.5/33
Indoor unit	Dimension (W*D*H)	inch	31.57x7.44x11.69	37.99x8.46x12.56	42.52x8.90x13.19
	Packing (W*D*H)	inch	34.45x11.22x14.76	41.14x12.01x15.94	45.47x16.34x12.40
	Net/Gross weight	lbs.	18.7/22.5	26.0/34.2	29.1/37.0
Outdoor fan motor	Model		YKT-32-6-3L	YKT-48-6-206	YKT-63-6-200L
	Brand		Welling / Tongde	Welling / Tongde	Welling / Tongde
	Output	W	32	48	63
	RLA	A	0.4	0.6	0.6
	Speed	r/min	860	880	940
Outdoor air flow		CFM	1120	1470	1590
Outdoor noise level		dB(A)	57	57.5	59
Metering Device			Capillary Assembly	Capillary Assembly	Capillary Assembly
Outdoor unit	Dimension (W*D*H)	inch	30.31x11.81x21.85	31.50x13.11x21.81	33.27x14.29x27.64
	Packing (W*D*H)	inch	35.43x13.58x23.03	36.22x15.35x24.21	38.00x15.55x29.72
	Net/Gross weight	lbs.	65.0/70.5	80.5/87.1	105.16/112.44
Refrigerant type		oz	R410A/33.9	R410A/52.9	R410A/63.5
Refrigerant precharged		ft	25	25	25
Additional charge for each ft		oz	0.161	0.161	0.322
Design pressure		PSIG	550/340 PSIG	550/340 PSIG	550/340 PSIG
Refrigerant piping	Liquid side/ Gas side	inch	1/4"/1/2"	1/4"/1/2"	3/8"/5/8"
	Max. refrigerant pipe length	ft	82	98	98
	Max. difference in level	ft	33	66	66
Wire Size / No. of Conductors			14 AWG / 4C (Recommended)	14 AWG / 4C (Recommended)	14 AWG / 4C (Recommended)
Electrical Shock Protection			I	I	I
Indoor selection range - remote		°F	62~86	62~86	62~86
Remote Control			YES	YES	YES
Wall Control (Optional)			YES	YES	YES
Outdoor Operating range (cooling/heating) - with Low ambient kit		°F	5～122 / 5～86	5～122 / 5～86	5～122 / 5～86

30, 000 and 36,000 BTU Units (208/230V)

(Thermal Zone - Sea Breeze) Indoor / Outdoor			244-1406-E, 244-1406-C 30H48ZIMI, 30H48ZOMI	244-1407-E, 244-1407-C 36H46ZIMI, 36H46ZOMI
AHRI Reference Number			8740684	8740685
Power supply		Ph-V-Hz	208-230V~60Hz ,1Ph	208-230V~60Hz ,1Ph
MINIMUM CIRCUIT AMPACITY		A	20	25
BREAKER SIZE		A	30	35
Cooling	Capacity	Btu/h	30000	36000
	Input	W	2857	4235
	Rated current	A	12.5	18.5
	EER	Btu/w	10.5	8.5
	SEER	Btu/w	18	16
Heating	Capacity	Btu/h	30000	36000
	Input	W	3110	3835
	Rated current	A	13.5	16.7
	COP	W/W	2.83	2.75
	HSPF (Region IV)	Btu/w	9.6	10
Moisture Removal		Pnts/h	6.3	8.0
Compressor	Model		ATF250D22UMT	ATF250D22UMT
	Type		ROTARY	ROTARY
	Brand		GMCC	GMCC
	Capacity	Btu/h	25760	25760
	Input	W	2070	2070
	Rated current(RLA)	A	15	17
	Heating Belt		Yes	Yes
	Refrigerant oil/oil charge	ml	ESTER OIL VG74/670	ESTER OIL VG74/670
Indoor fan motor	Model		ZKFP-58-8-1	ZKFP-58-8-1
	Brand		Welling	Welling
	Output	W	58	58
	RLA	A	0.5	0.5
	Speed(Hi/Mi/Lo)	r/min	1200/1050/950	1200/1050/750
Indoor air flow (Hi/Mi/Lo)		CFM	795/618/471	853/647/471
Indoor noise level (Hi/Lo)		dB(A)	52.5/-/44.5	54.5/-/38.5
Indoor unit	Dimension(W*D*H)	inch	49.57x11.10x14.25	49.57x11.10x14.25
	Packing (W*D*H)	inch	52.76x17.72x14.96	52.76x17.72x14.96
	Net/Gross weight	lbs.	43.2/55.6	43.2/55.6
Outdoor fan motor	Model		ZKFN-120-8-2	ZKFN-120-8-2
	Brand		Welling / Tongde	Welling / Tongde
	Output	W	120	120
	RLA	A	0.6	0.6
	Speed	r/min	810	810
Outdoor air flow		CFM	2530	2943
Outdoor noise level		dB(A)	62	63
Metering Device			Electronic Expansion Valve	Electronic Expansion Valve
Outdoor unit	Dimension (W*D*H)	inch	37.24x16.54x31.89	37.24x16.54x31.89
	Packing (W*D*H)	inch	42.91x19.69x34.06	42.91x19.69x34.06
	Net/Gross weight	lbs.	137.79/147.71	143.3/153.22
Refrigerant type		oz	R410A/97.0	R410A/119.9
Refrigerant precharged		ft	25	25
Additional charge for each ft		oz	0.322	0.322
Design pressure		PSIG	550/340 PSIG	550/340 PSIG
Refrigerant piping	Liquid side/ Gas side	inch	3/8"/5/8"	3/8"/5/8"
	Max. refrigerant pipe length	ft	164	213
	Max. difference in level	ft	82	98
Wire Size / No. of Conductors			14 AWG / 4C (Recommended)	14 AWG / 4C (Recommended)
Electrical Shock Protection			I	I
Indoor selection range - remote		°F	62~86	62~86
Remote Control			YES	YES
Wall Control (Optional)			YES	YES
Outdoor Operating range (cooling/heating) - with Low ambient kit		°F	5～122 / 5～86	5～122 / 5～86

TROUBLESHOOTING

Indoor Unit Error Code Display

Display	LED STATUS
E0	Indoor unit EEPROM parameter error
E1	Indoor / outdoor units communication error
E2	Zero-crossing signal detection error
E3	Indoor fan speed has been out of control
E4	Indoor room temperature sensor T1 open circuit or short circuit
E5	Evaporator coil temperature sensor T2 open circuit or short circuit
EC	Refrigerant leakage detection
F0	Overload current protection
F1	Outdoor ambient temperature sensor T4 open circuit or short circuit
F2	Condenser coil temperature sensor T3 open circuit or short circuit
F3	Compressor discharge temperature sensor T5 open circuit or short circuit
F4	Outdoor unit EEPROM parameter error
F5	Outdoor fan speed has been out of control
P0	IPM malfunction or IGBT over-strong current protection
P1	Over voltage or over low voltage protection
P2	High temperature protection of compressor top diagnosis and solution(only for 9k,12k models)
P3*	Outdoor ambient temperature too low.
P4	Inverter compressor drive error
P5	Indoor units mode conflict (multi-zone ONLY)

THE IMPORTANCE OF DEEP VACUUM

The purpose of a vacuum pump is to remove moisture and air from an A/C-R system. Modern systems are built tighter and charges are more critical. That means these systems have a greater sensitivity to moisture and other contaminants, making thorough evacuation more important than ever before.

Moisture in a refrigeration system, directly or indirectly, is the cause of most problems and complaints. First, moisture can cause freeze-up in a system. Moisture is picked up by the refrigerant and transported through the refrigerant line in a fine mist, with ice crystals forming at the point of expansion.

“Freeze-up” is not the only problem caused by moisture. It can also result in corrosion, the effects of which are not apparent until the real damage has occurred.

Moisture alone is bad enough, but combined with refrigerants containing chlorine, hydrochloric acids can form. These greatly increase the corrosion of metals.

Also, refrigerant oil rapidly absorbs moisture. Water-formed acids combine with the refrigerant, forming a closely bonded mixture of fine globules.

The effect is called sludging and it greatly reduces the lubricating ability of the oil.

A vacuum pump removes troublesome moisture by lowering the pressure within the system and vaporizing (or boiling off) the moisture, then exhausting it along with air.

WARRANTY

International Refrigeration Products warrants the accompanying split air conditioner or heat pump system to be free of defects in material and workmanship for the applications specified in the operation manual and installation manual for a period of one (1) year on parts and five (5) years on compressor, valid from the date of original retail purchase in the United States or Canada. Labor or shipping is not covered under this warranty.

If the unit exhibits a defect in normal use and is determined to be within the warranty period, International Refrigeration Products will, at its option, either repair or replace the unit free of charge within a reasonable time after the unit is returned.

This warranty does not cover:

- Damage, accidental or otherwise, to the unit while in possession of the consumer that is not a result of a defect in material in workmanship.
- Damage caused by consumer misuse, tampering, or failure to follow all care and maintenance instructions in the manuals.
- Damage to the finish of the case or other parts caused by water.
- Damage caused by repairs or alterations to the unit by anyone other than a qualified technician.
- Filter.
- Freight and Insurance cost for the warranty service.

Warranty card must be completed and sent in to activate the warranty for the accompanying unit. Warranty may also be activated via the website www.irproducts.biz

TECHNICAL SUPPORT

If you need technical support please call (215) 750-9876 M-F 8:00 am to 4:30 pm.

International Refrigeration Products
1035 Wheeler Way
Langhorne, PA 19047