U-MATCH SERIES

MANUAL DE USO E INSTALACIÓN

Condensadora U-MATCH

Muchas gracias por adquirir nuestro producto.
Antes de utilizar su unidad, lea atentamente este manual y consérvelo para futuras consultas.
La figura que se muestra en este manual es solo de referencia y puede ser ligeramente diferente del producto real.

HVAC SYSTEMS

MODELO

UADTDC060DD300E1/O

ALL PHASES OF THIS INSTALLATION MUST COMPLY WITH NATIONAL, STATE AND LOCAL CODES

⚠ WARNING

IMPORTANT — This document is customer property and is to remain with this unit. Please return to service information pack upon completion of work.
These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with the installation. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to your installing dealer or local distributor.

NOTE

The manufacturer recommends installing only approved matched indoor and outdoor systems. All of the manufacturer's split systems are AHRI rated only with TXV indoor systems. And the indoor units must be matched with TXV. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

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1 SAFETY

Important - This document contains a wiring diagram and service information. This is customer property and is to remain with this unit. Please return to service information pack upon completion of work.

⚠ CAUTION

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair a central air conditioning product may result in personal injury and/or 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.

⚠ WARNING

HAZARDOUS VOLTAGE!

Failure to follow this warning could result in property damage, severe personal injury or death. Disconnect all electric power, Including remote disconnects before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.

REFRIGERANT OIL!

Any attempt to repair a central air conditioning product may result in property damage, severe personal injury, or death.
These units use R-410A refrigerant which operates at 50 to 70% higher pressures than R-22. Use only R-410A approved service equipments. Refrigerant cylinders are painted a “Rose” color to indicate the type of refrigerant and may contain a “dip” tube to allow for charging of liquid refrigerant into the system. All R-410A systems with variable speed compressors use a POE oil (VG74 or equivalent) that readily absorbs moisture from the atmosphere. To limit this “hygroscopic” action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement.

HIGH CURRENT LEAKAGE!

Failure to follow this warning could result in property damage, severe personal injury, or death. Earth connection is essential before connecting electrical supply.

SERVICE VALVES!

Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and/or property damage. Extreme caution should be exercised when opening the Liquid Line Service valve. Turn valve stem counterclockwise only until the stem contacts the rolled edge. No torque is required.

⚠ WARNING

BRAZING REQUIRED!

Failure to inspect lines or use proper service tools may result in equipment damage or personal injury. if using existing refrigerant lines make certain that all joints are brazed, not soldered.

⚠ CAUTION

CONTAINS REFRIGERANT!

Failure to follow proper procedures can result in personal illness or injury or severe equipment damage. Systems contain oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening a system.

GROUNDING REQUIRED!

Failure to inspect or use proper service tools may result in equipment damage or personal injury. Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. if grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

INDOOR UNIT REQUIRED!

The indoor unit must be matched with TXV. And the model of TXV can be changed according to the system capacity.

HOT SURFACE!

May cause minor to severe burning. Failure to follow this caution could result in property damage or personal injury. Do not touch the top of compressor.

⚠ WARNING

This product can expose you to chemicals including Lead and Lead components, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www. P65Warnings.ca.gov.

⚠ INFORMATION

The manufacturer recommends installing only approved matched indoor and outdoor systems. All of the manufacturer’s split systems are AHRI rated only with TXV indoor systems. Some of the benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

2 UNIT LOCATION CONSIDERATIONS

2.1 Unit Dimensions

Unit Dimensions	
Models	H x W x L (Inches)
24/36	24-15/16 x 28 x 28
48/60	33-3/16 x 29-1/8 x 29-1/8

Table 2-1

The unit's weight values are on the cardboard box.

When mounting the outdoor unit on a roof, be sure the roof will support the unit's weight. Properly selected isolation is recommended to prevent sound or vibration transmission to the building structure.

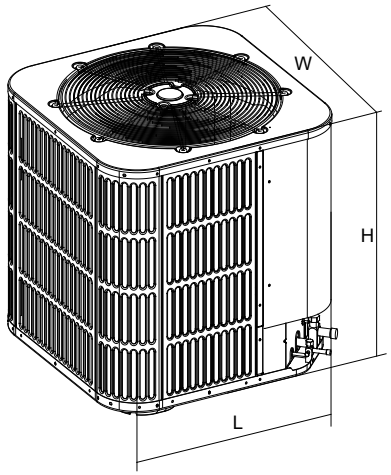


Figure 2-1

2.2 Refrigerant Piping Limits

System Capacity Model	Liquid Line	Suction Line	Total Equivalent Length - Feet			
			25	50	75	100
	Inch O.D.		Maximum Vertical Separation - Feet			
2 Ton	3/8 *	3/4 Std.	25	50	45	40
		5/8 Opt.	25	50	45	40
3 Ton	3/8 *	5/8 Opt.	25	50	50	50
		3/4 Std.	25	50	50	50
4 Ton	3/8 *	7/8 Std.	25	50	50	40
		3/4 Opt.	25	50	50	40
5 Ton	3/8 *	7/8 Std.	25	50	50	40
		3/4 Opt.	25	50	50	40
		1 1/8 Opt.	25	40	N/A	N/A

Table 2-2

* Standard line size is recommended;
N/A: Application not recommended;
Refrigerant charge: refer to Sec. 14

- Maximum line equivalent length = 100 feet.
- Maximum vertical equivalent length = 50 feet.
- Use only the line diameters indicated in Table 2-2.
- If the suction linesets are greater than 50 feet, do not use a larger suction line than recommended.

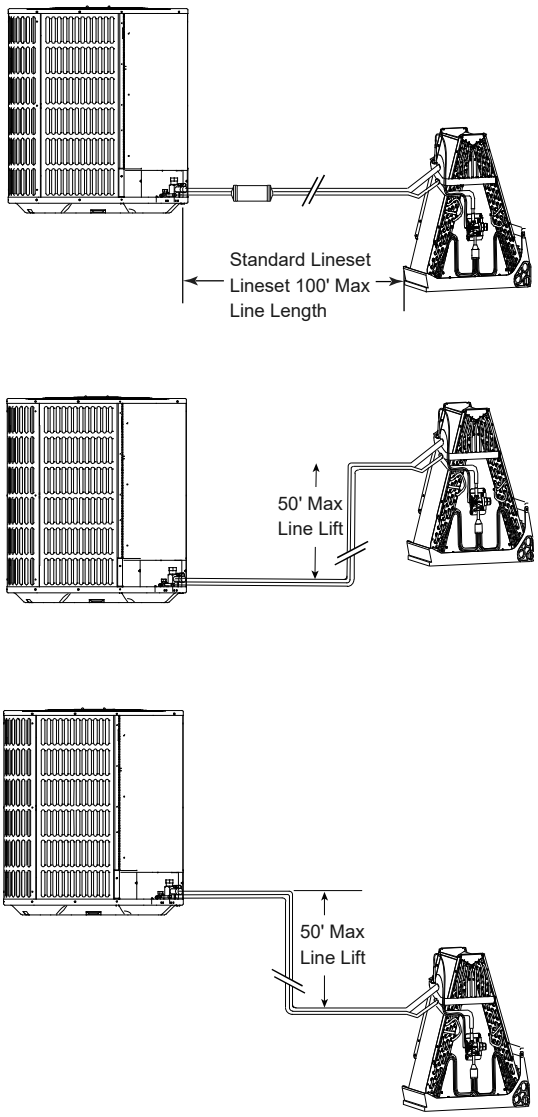


Figure 2-2

2.3 Location Restrictions

Ensure the top discharge area is unrestricted for at least 60 inches above the unit.

Do not locate outdoor unit near bedrooms since normal operational sounds may be objectionable.

Position unit to allow adequate space for unobstructed airflow, wiring, refrigerant lines, and serviceability.

Position the outdoor unit a minimum of 12" from any wall or surrounding shrubbery to ensure adequate airflow.

24 inches clearance must be provided in front of the control box (access panels) and any other side requiring service.

Maintain a distance of 24 in. between units.

Position the unit where water, snow, or ice from roof or overhang cannot fall directly on it.

Only use this unit in well-ventilated spaces and ensure that there are no obstructions that could impede the airflow into and out of the unit.
Do not install this unit in the following locations:

- Locations with mineral oil.
- Locations with saline atmospheres, such as seaside locations.
- Locations with sulphurous atmospheres, such as near natural hot springs.
- Where high voltage electricity is present, such as in certain industrial locations.
- On vehicles or vessels, such as trucks or ferry boats.
- Where exposure to oily or very humid air may occur, such as kitchens.
- In proximity to sources of electromagnetic radiation, such as high-frequency transmitters or other high strength radiation devices.

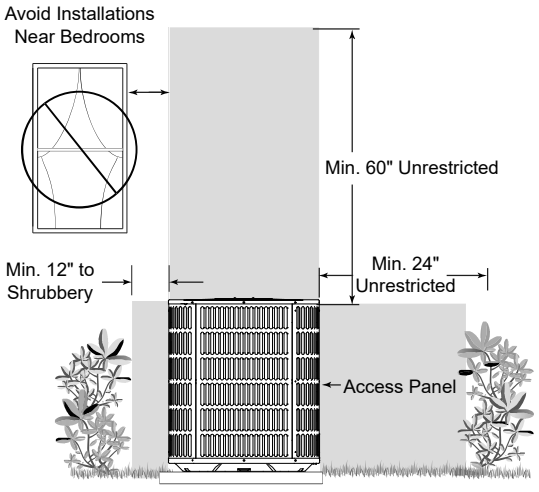


Figure 2-3

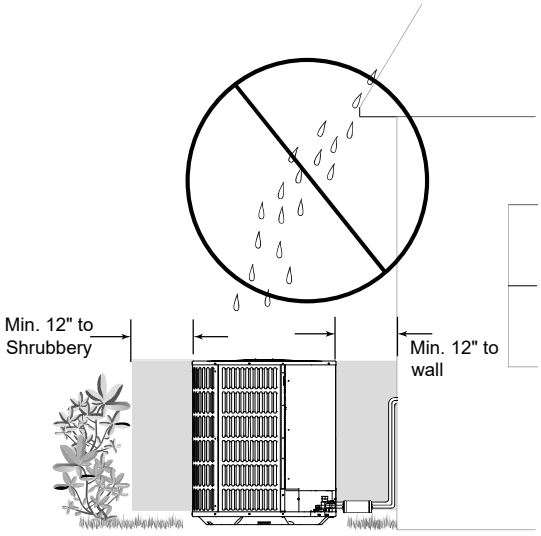


Figure 2-4

Cold climate considerations (heat pump only)

NOTE

Precautions must be taken for units being installed in areas where snow accumulation and prolonged below-freezing temperatures occur.

- Units should be elevated 3-12 inches above the pad or rooftop, depending on local weather. This additional height will allow drainage of snow and ice melted during defrost cycle prior to its refreezing. Ensure that drain holes in unit base pan are not obstructed, which could prevent the drainage of defrost water (Fig. 2-5).
- If possible, avoid locations that are prone to snow drifts. If not possible, a snow drift barrier should be installed around the unit to prevent a build-up of snow on the sides of the unit.

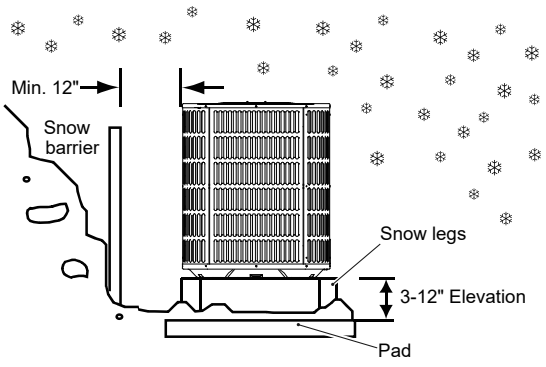


Figure 2-5

3 UNIT PREPARATION

3.1 Prepare the Unit for Installation

- Check for damage and report promptly to the carrier any damage found to the unit (Fig. 3-1).
- The charge port can be used to ensure the refrigerant charge has been retained during shipment.

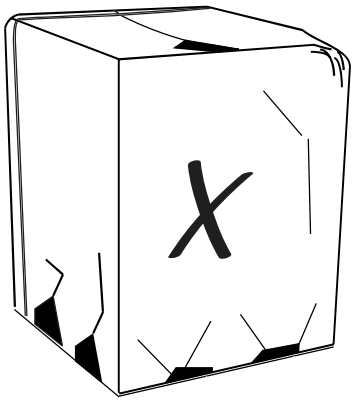


Figure 3-1

4 SETTING THE UNIT

4.1 Pad Installation

When installing the unit on a support pad, such as a concrete slab, consider the following:

- The pad must be at least 1-2” larger than the unit on all sides.
- The pad must be separated from any structure.
- The pad must be level.
- The pad must be high enough above grade to allow for drainage.
- The pad location must comply with National, State, and Local codes.

NOTE

These instructions are intended to provide a method to tie-down a system to a cement slab as a securing procedure for high wind areas. Check local codes for tie-down methods and protocols.

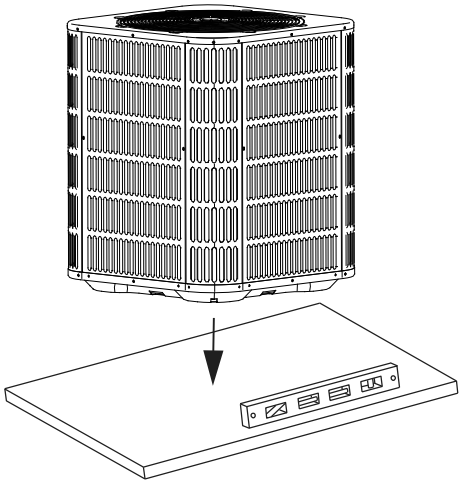
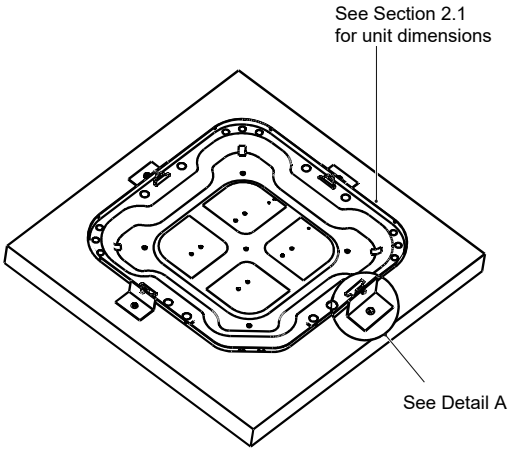


Figure 4-1



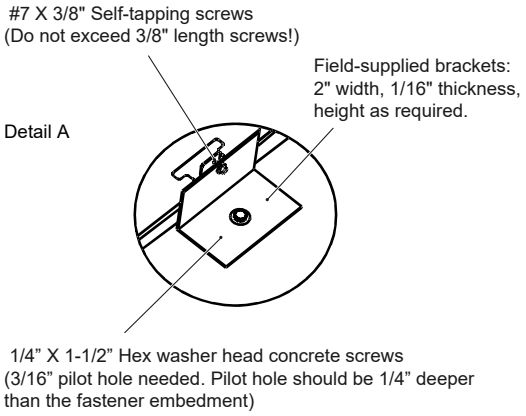


Figure 4-2

5 REFRIGERANT LINE CONSIDERATIONS

5.1 Refrigerant Line and Service Valve Connection Sizes

Models	Suction Line	Liquid Line	Suction Line Connection	Liquid Line Connection
	Dimensions in inches			
24/36	3/4	3/8	3/4	3/8
48/60	7/8	3/8	7/8	3/8

Table 5-1

5.2 Required Refrigerant Line Length

Determine required line length (Fig. 5-1). Refer to Section 2.2.

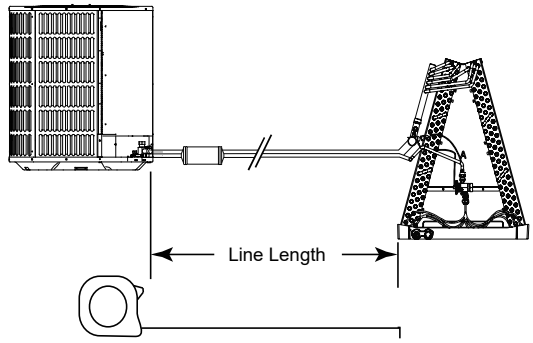


Figure 5-1

5.3 Refrigerant Line Insulation

NOTE

The Suction Line must always be insulated. DO NOT allow the Liquid Line and Suction Line to come in direct (metal to metal) contact.

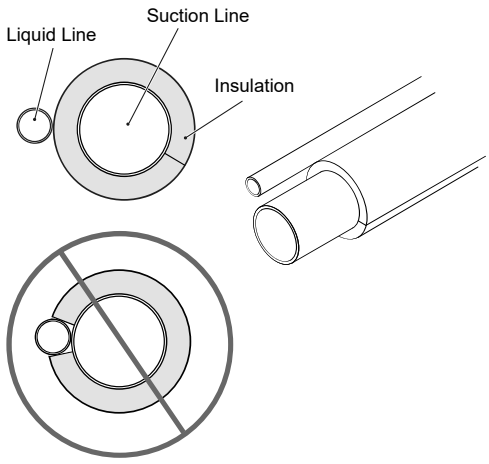


Figure 5-2

5.4 Reuse Existing Refrigerant Lines

⚠ CAUTION

If using existing refrigerant lines, make certain that all joints are brazed, not soldered.

For retrofit applications, where the existing refrigerant lines will be used, the following precautions should be taken:

- Ensure that the size of the refrigerant lines is correct. Refer to Section 2.2 and Table 5-1.
- Ensure that the refrigerant lines are free of leaks, acid, and oil.

NOTE

The manufacturer recommends installing only approved matched indoor and outdoor systems. All of the manufacturer's split systems are AHRI rated only with TXV indoor systems. The benefits of installing approved matched indoor and outdoor split systems are maximum efficiency, optimum performance and the best overall system reliability.

6 REFRIGERANT LINE ROUTING

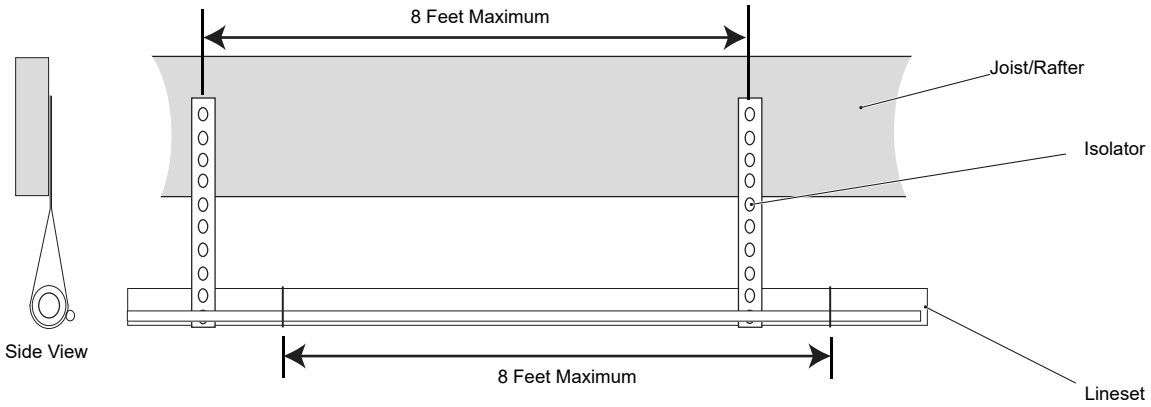
6.1 Precautions

NOTE

Take precautions to prevent noise within the building structure due to vibration transmission from the refrigerant lines. For example:

- When the refrigerant lines have to be fastened to floor joists or other framing in a structure, use isolation type hangers.
- Isolation hangers should also be used when refrigerant lines are run in stud spaces or enclosed ceilings.
- Where the refrigerant lines run through a wall or sill, they should be insulated and isolated.
- Isolate the lines from all ductwork.
- Minimize the number of 90º turns.

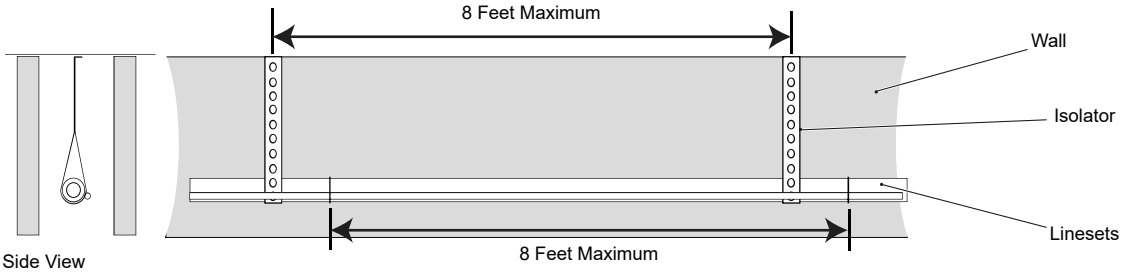
Comply with National, State, and Local codes when isolating linesets from joists, rafters, walls, or other structural elements.



Secure Suction Line from joists using isolators every 8 ft. Secure Liquid Line directly to Suction Line using tape, wire, or other appropriate method every 8 ft.

Isolation From Joist/Rafter

Figure 6-1



Secure Suction Line using isolators every 8 ft. Secure Liquid Line directly to Suction Line using tape, wire, or other appropriate method every 8 ft.

Isolation On Walls

Figure 6-2

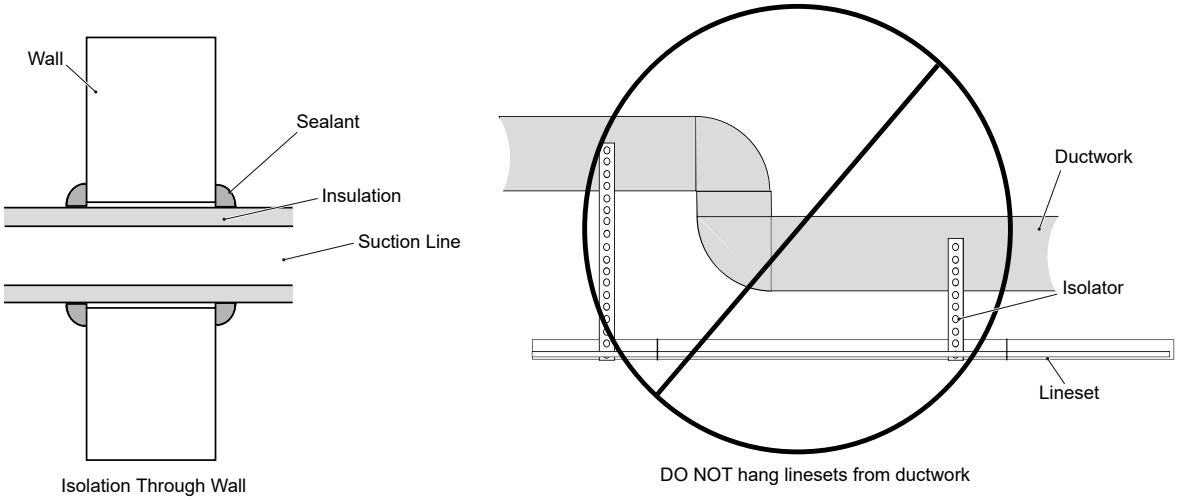


Figure 6-3

7 REFRIGERANT LINE BRAZING

7.1 Braze The Refrigerant Lines

1. Remove caps or plugs. Use a deburring tool to deburr the pipe ends. Clean both internal and external surfaces of the tubing using an emery cloth.

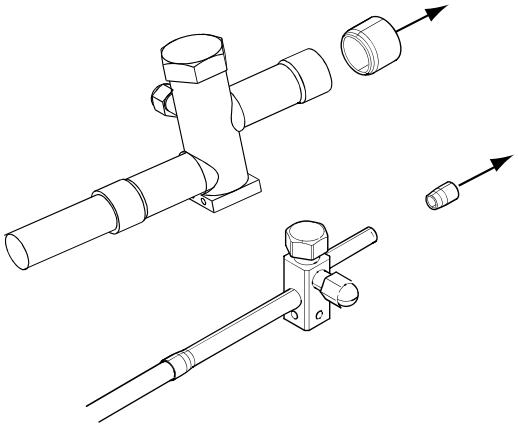


Figure 7-1

2. Remove the pressure tap cap from both service valves.

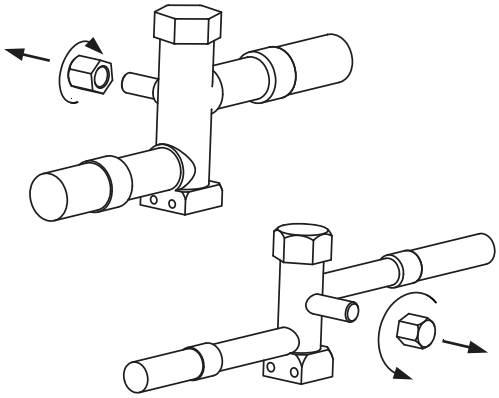


Figure 7-2

3. Purge the refrigerant lines and indoor coil with dry nitrogen.

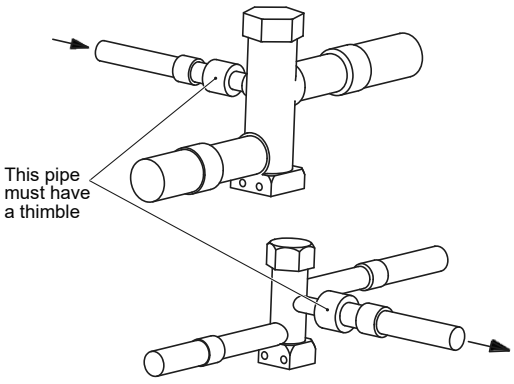


Figure 7-3

4. Wrap a wet rag around the valve body to avoid heat damage and continue the dry nitrogen purge (Fig. 7-4).

   Braze the refrigerant lines to the service valves.

   Continue the dry nitrogen purge. Do not remove the wet rag until all brazing is completed.

NOTE

Remove the wet rag before stopping the dry nitrogen purge.

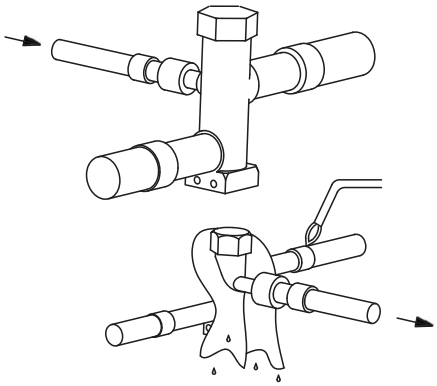


Figure 7-4

5. Replace the pressure tap caps after the service valves have cooled.

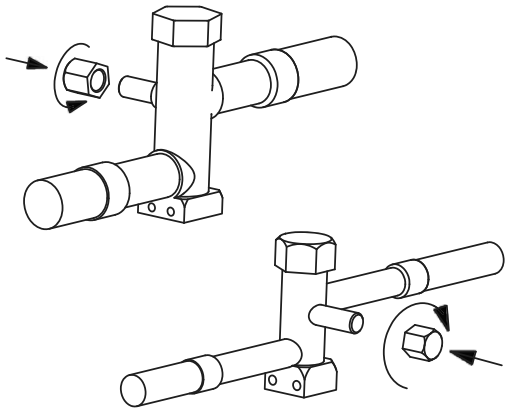


Figure 7-5

8 REFRIGERANT LINE LEAK CHECK

8.1 Check For Leaks

1. Pressurize the refrigerant lines and evaporator coil to 150 PSIG using dry nitrogen.

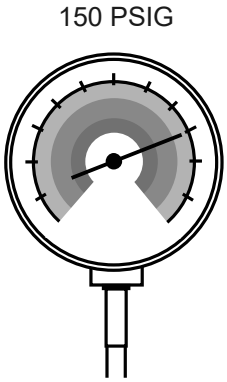


Figure 8-1

2. Check for leaks by using a soapy solution or bubbles at each brazed location.

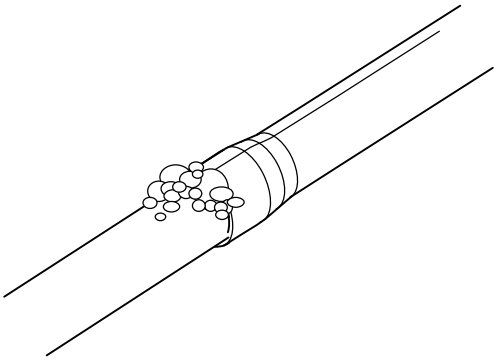


Figure 8-2

9 EVACUATION

9.1 Evacuate the Refrigerant Lines and Indoor Coil

NOTE

Do not open the service valves until the refrigerant lines and indoor coil leak check and evacuation are complete.

1. Evacuate until the micron gauge reads no higher than 350 microns, then close off the valve to the vacuum pump.

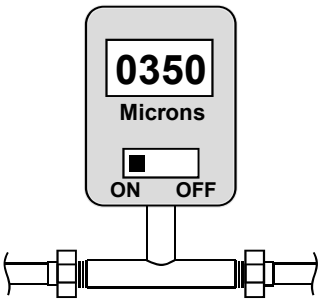


Figure 9-1

2. Observe the micron gauge. Evacuation is complete if the micron gauge does not rise above 500 microns in one (1) minute.

   Once evacuation is complete, turn off the vacuum pump and micron gauge, and close the valves on the manifold gauge set.

Figure 9-2

10 SERVICE VALVES

10.1 Open the Service Valves

⚠ WARNING

Extreme caution should be exercised when opening the Liquid Line Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required. Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and /or property damage.

NOTE

Leak check and evacuation must be completed before opening the service valves. The brazed lineset valves should be used for leak checking and vacuuming. Using the separate suction port for this process will result in loss of charge.

The Suction Service Valve must be opened first BEFORE opening the Liquid Service Valve.

1. Remove Service Valve Cap (Fig. 10-1).
2. Fully insert hex wrench into the stem and back out counterclockwise until valve stem just touches the rolled edge (approximately five (5) turns.)
3. Replace the Valve Stem Cap to prevent leaks. Tighten finger tight plus an additional 1/6 turn.
4. Repeat STEPS 1 - 3 for Liquid Service Valve.

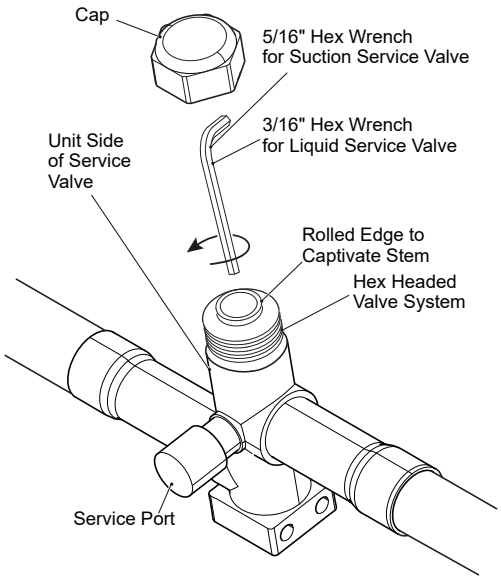


Figure 10-1

11 ELECTRICAL - LOW VOLTAGE

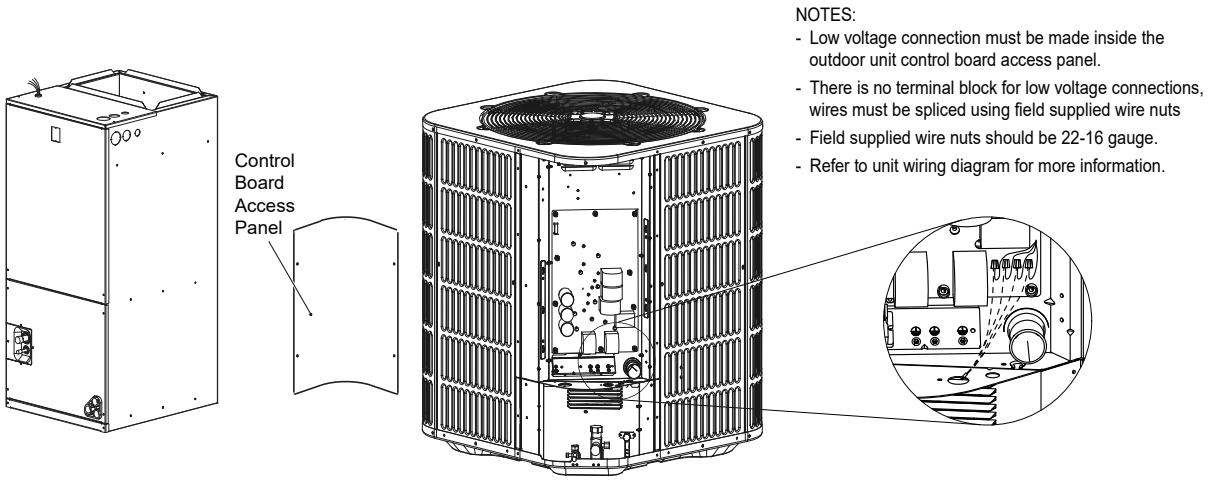
11.1 Low Voltage Maximum Wire Length

Table 11-1 defines the maximum total length of low voltage wiring from the outdoor unit, to the indoor unit, and to the thermostat.

24 Volts - Wire size	Max. Wire Length
18 AWG	150 Ft.
16 AWG	225 Ft.
14 AWG	300 Ft.

Table 11-1

11.2 Low Voltage Hook-Up Diagrams



NOTES:
- Low voltage connection must be made inside the outdoor unit control board access panel.
- There is no terminal block for low voltage connections, wires must be spliced using field supplied wire nuts
- Field supplied wire nuts should be 22-16 gauge.
- Refer to unit wiring diagram for more information.

Figure 11-1 Low Voltage Unit Connections

11.3 Thermostat Wiring Diagrams

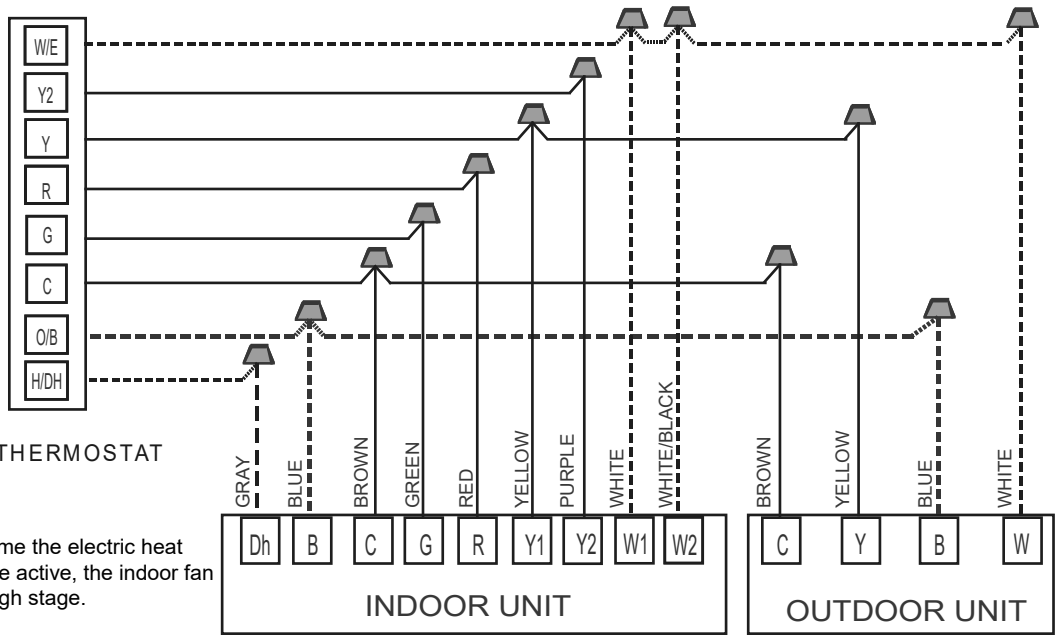
- Be sure power supply agrees with equipment nameplate.
- Power wiring and grounding of equipment must comply with local codes.
- Low voltage wiring must be No. 18 AWG minimum conductor.
- "- - - - - - - -" Field installed
- Single-stage auxiliary heating supported by 2H thermostat
- Two-stage auxiliary heating supported by 3H thermostat
- W1: The first stage of field installed electric auxiliary heat.
- W2: The second stage of field installed electric auxiliary heat.
- The outdoor unit W signal is connected to the electric auxiliary heat or the first stage electric auxiliary heat.

NOTE

Dashed lines in the following thermostat wiring diagrams refer to optional wiring (wiring for Passive Dehumidification Function and/or Electric Heat). For thermostat wiring please refer to the Owner's Manual of the thermostat.

B terminal to be connected with thermostat (O/B) wiring. Reversing valve energizes in heating.

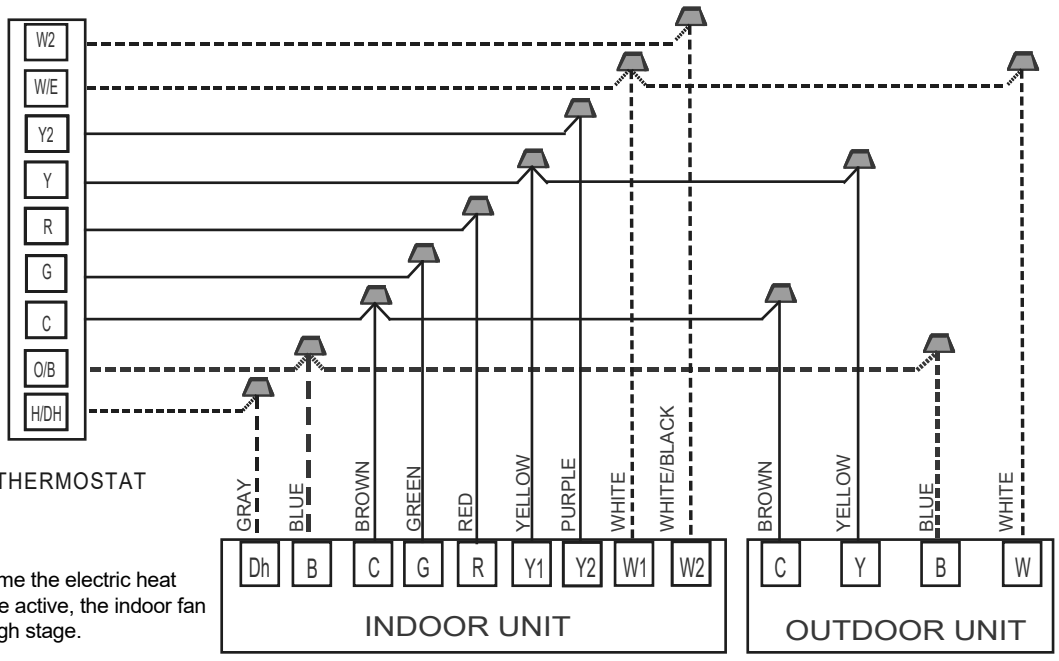
Support 3H and 2C thermostat



Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11-2

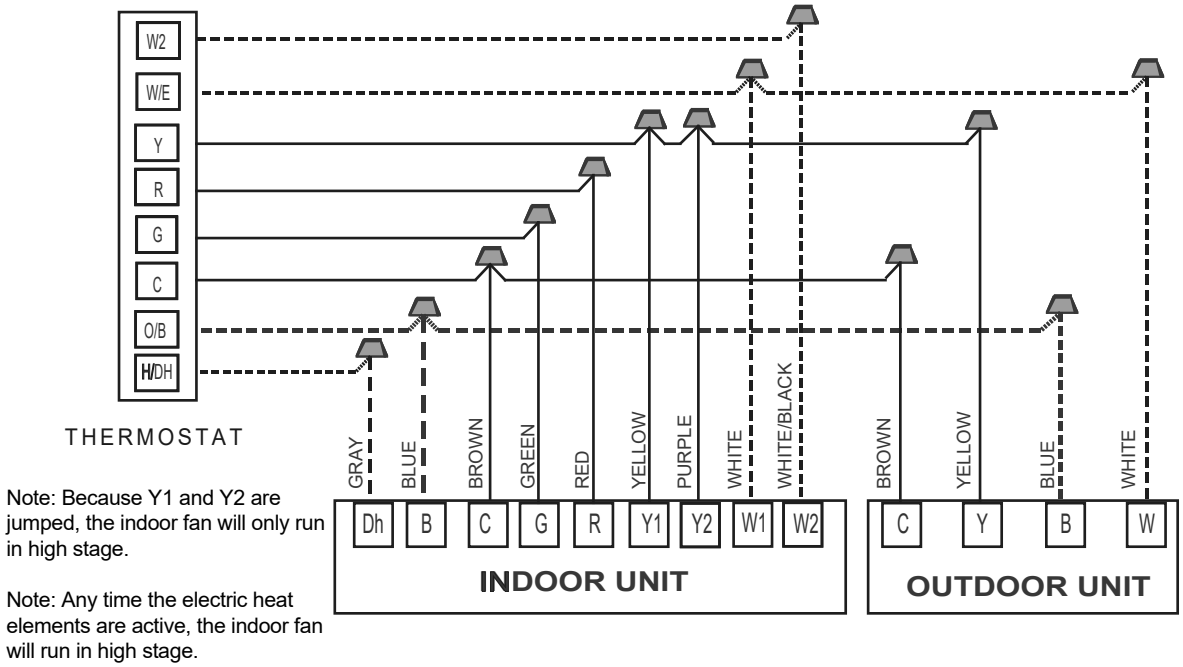
Wiring for 4H and 2C thermostat



Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11-3

Wiring for 3H and 1C thermostat

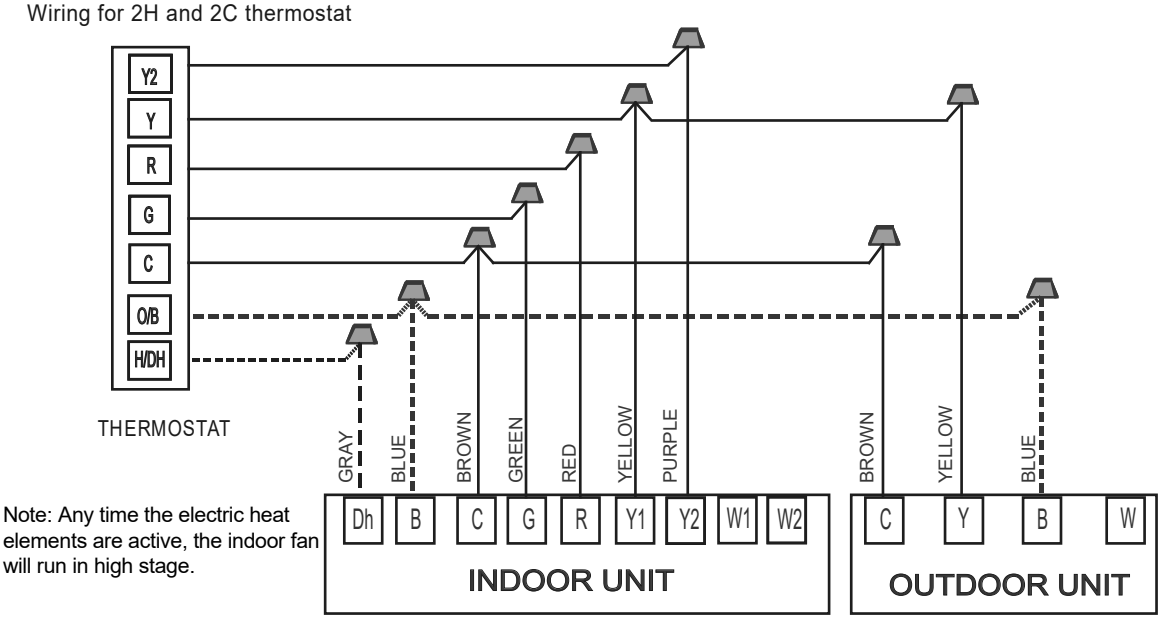


Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11-4

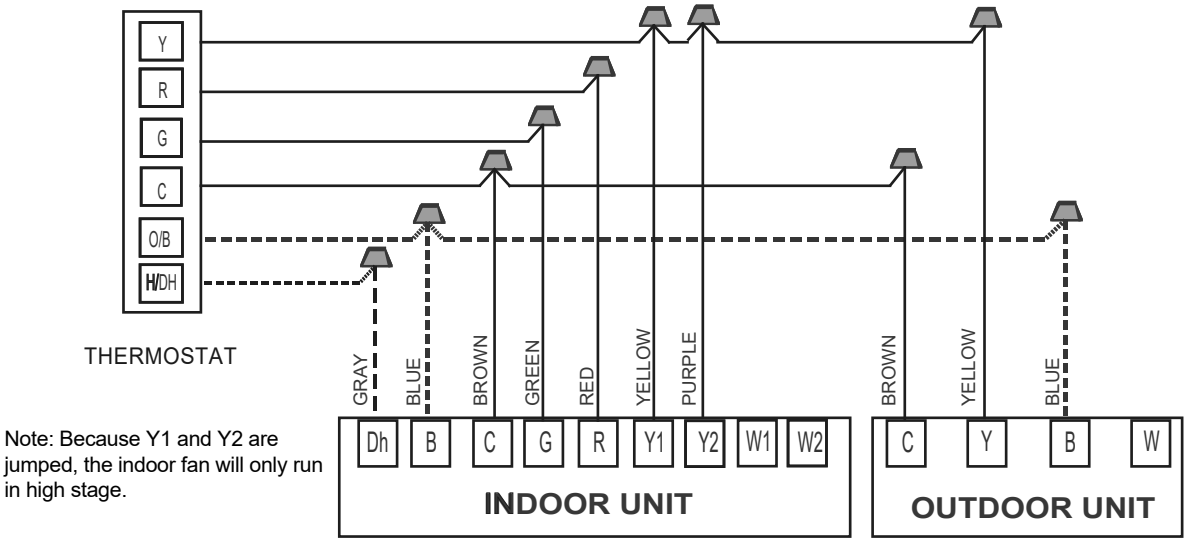
Wiring for 2H and 2C thermostat



Note: Any time the electric heat elements are active, the indoor fan will run in high stage.

Figure 11-5

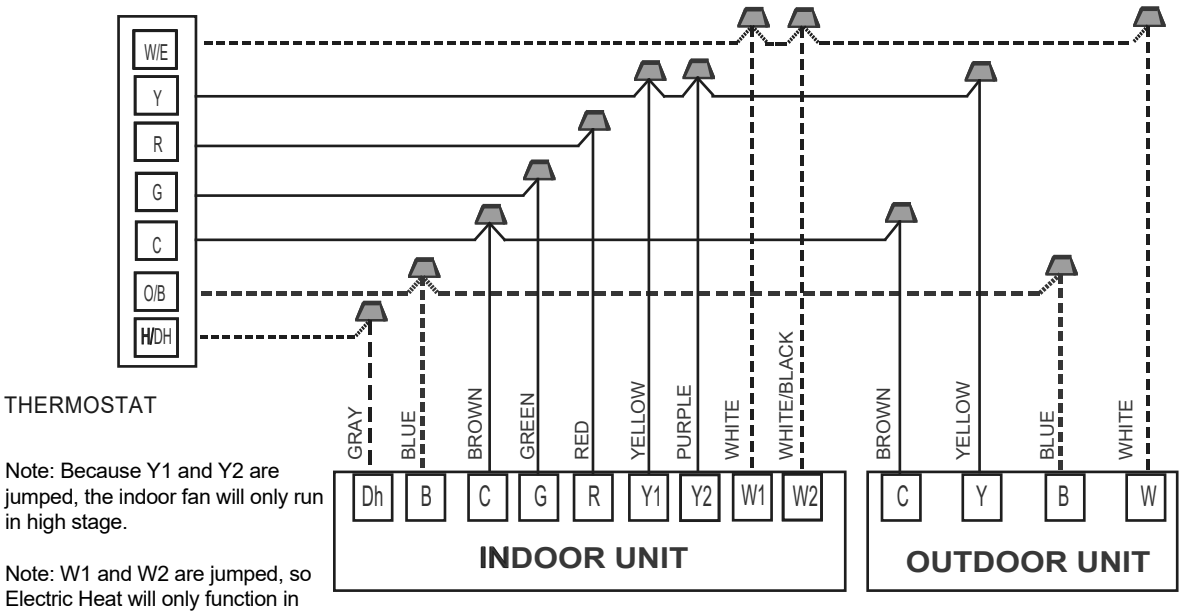
Wiring for 1H and 1C thermostat



Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Figure 11-6

Wiring for 2H and 1C thermostat



Note: Because Y1 and Y2 are jumped, the indoor fan will only run in high stage.

Note: W1 and W2 are jumped, so Electric Heat will only function in high stage.

Figure 11-7

12 ELECTRICAL - HIGH VOLTAGE

12.1 High Voltage Power Supply

⚠ WARNING

LIVE ELECTRICAL COMPONENTS!

During installation, testing, servicing, and trouble shooting of this product, it may be necessary to work with live electrical components. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

The high voltage power supply must match the equipment nameplate (208/230V, 1PH, 60Hz).

NOTE

Power wiring must comply with National, State, and Local codes.

Follow instructions on unit wiring diagram located on the inside of the control box access panel and refer to wiring diagram in this IOM.

12.2 High Voltage Disconnect Switch

Install a separate disconnect switch at the outdoor unit.

Field supplied flexible electrical conduit must be used for high voltage wiring.

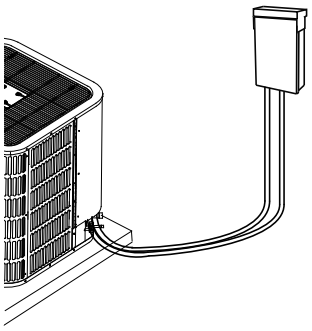


Figure 12-1

12.3 High Voltage Ground

Ground the outdoor unit per National, State, and Local code requirements.

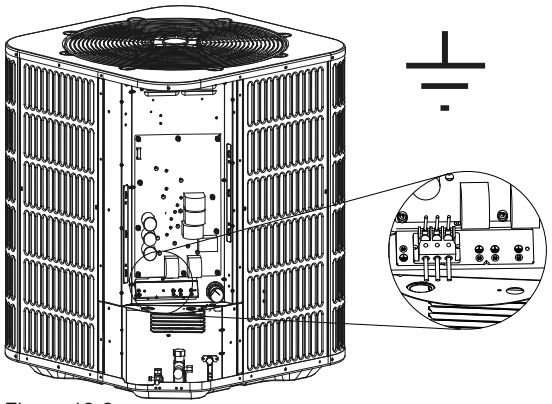


Figure 12-2

13 START UP

13.1 System Start Up

1. Ensure Sections 7, 8, 9, 10, 11, and 12 have been completed.

2. Set System Thermostat to OFF.

Figure 13-1

3. Turn on disconnect to apply power to the indoor and outdoor units.

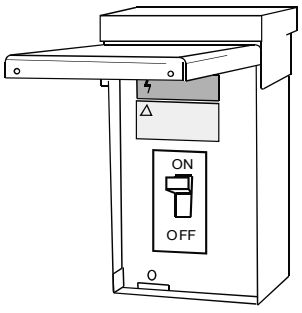


Figure 13-2

4. Upon initial unit installation, wait one (1) hour before starting the unit if compressor crankcase heater is used and the outdoor ambient temperature is below 70 ºF.

Figure 13-3

5. Set system thermostat to ON.

Figure 13-4

14 SYSTEM CHARGE ADJUSTMENT

14.1 Charging: Weigh-In Method

Use weigh-in method the initial installation, or anytime a system charge is being replaced. Weigh-in method can also be used when power is not available to the equipment site or operating conditions (indoor/outdoor temperatures) are not in range to verify with the subcooling charging method.

Model	Factory Charge	Charge multiplier for interconnecting refrigerant tube length
2 Ton	6 lbs 3 oz	0.6 oz/ft
3 Ton	6 lbs 3 oz	0.6 oz/ft
4 Ton	8 lbs 14 oz	0.6 oz/ft
5 Ton	8 lbs 14 oz	0.6 oz/ft

Table 14-1

NOTE

Power wiring must comply with National, State, and Local codes.

New Installations — Calculating additional charge for lineset greater than 15 ft.

1. Total Line Length (ft) = _____(a)
2. Standard Lineset (ft) = 15 (b)
3. (a) minus (b) = _____(c)
4. Refrigerant Multiplier = 0.6 oz/ft (d)
5. Refrigerant Adder (c*d) = _____(e)*

*If lineset is less than 15 ft, (e) = 0

Sealed-System Repairs — Calculating total system charge.

1. Total Line Length (ft) = _____(a)
2. Standard Lineset (ft) = 15 (b)
3. (a) minus (b) = _____(c)
4. Refrigerant Multiplier = 0.6 oz/ft (d)
5. Refrigerant Adder (c*d) = _____(e)*
6. Factory Charge (namplate) = _____(f)
7. Total System Charge (e+f) = _____

*If lineset is less than 15 ft, (e) = 0

NOTE

The only mode approved for validating system charge is while in Cooling "Force Mode". Outdoor temperature must be between 55°F and 120°F with indoor temperature kept between 70°F and 80°F.

14.2 Subcooling Charging And Refrigerant Adjustment In Cooling (Above 55°F Outdoor Temp.)

1. Check the outdoor ambient temperatures.

   Subcooling (in cooling mode) is the only recommended method of charging above 55ºF outdoor ambient temperatures.

   For outdoor ambient temperatures below 55ºF use weigh-in charge method.

NOTE

It is important to return in the spring or summer to accurately charge the system in the cooling mode when outdoor ambient temperature is above 55ºF.

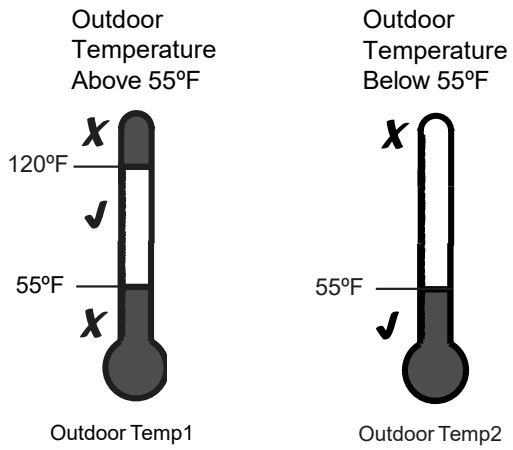


Figure 14-1

For best results, the indoor temperature should be kept between 70ºF and 80ºF during the install.

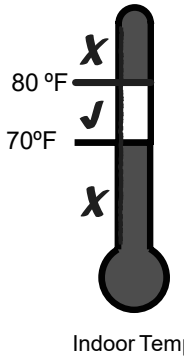


Figure 14-2

2. Ensure Sections 7,8,9,10,11,12 and 13 have been completed.

3. Stabilize the system.

   After starting the system in cooling mode, short press “FORCE” button, and “ ├ ” symbol should appear. System may take 10 minutes to ramp up. Operate the system for a minimum of twenty (20) minutes.

NOTE

After a twenty (20) minute stabilization period operating at 100% capacity (i.e. once the compressor reaches the frequency shown in Table 14-2), maintain continuous operation while adjusting refrigerant charge. After adjusting, operate system for a minimum of five (5) minutes for system to stabilize, otherwise repeat step 3.

Compressor Frequency in Force Mode in Cooling				
ODU Capacity	2TON	3TON	4TON	5TON
Frequency (HZ)	46	66	54	60

Table 14-2

Figure 14-3

4. Calculate superheat value (According to Table 14-3)

   Measured Suction Line Temp = _____ºF

   Measured Suction Line Pressure = _____ PSIG

   Calculate superheat value = _____ºF

NOTE

Check the superheat and select correct subcooling according to superheat, refer to Table 14-5. It is recommended to keep the superheat at 10-18°F if a third party indoor unit is used.

5. Calculate subcooling value (According to Table 14-4)

   Measured Liquid Line Temp. = _____ºF

   Measured Liquid Line Pressure = _____ PSIG

   Calculate subcooling value = _____ºF

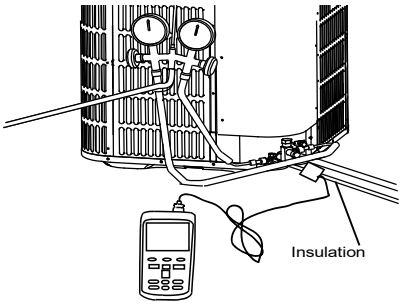


Figure 14-4

NOTE

If calculated subcooling value is lower than the design subcooling value (Table 14-5), please add refrigerant. Repeat steps 3 through 5.

If the superheat is out of range, refer to Troubleshooting section of this IOM.

Suction Temp (°F)	Final Superheat (°F)								
	6	8	10	12	14	16	18	20	22
	Suction Gauge Pressure (PSI)								
40	105	101	97	93	89	86	82	78	75
42	109	105	101	97	93	89	86	82	78
44	114	109	105	101	97	93	89	86	82
46	118	114	109	105	101	97	93	89	86
48	123	118	114	109	105	101	97	93	89
50	128	123	118	114	109	105	101	97	93
52	133	128	123	118	114	109	105	101	97
54	138	133	128	123	118	114	109	105	101
56	143	138	133	128	123	118	114	109	105
58	148	143	138	133	128	123	118	114	109
60	153	148	143	138	133	128	123	118	114
62	159	153	148	143	138	133	128	123	118
64	164	159	153	148	143	138	133	128	123
66	170	164	159	153	148	143	138	133	128
68	176	170	164	159	153	148	143	138	133
70	182	176	170	164	159	153	148	143	138
72	188	182	176	170	164	159	153	148	143

Table 14-3 R-410A Refrigerant chart - Final Superheat

Liquid Temp (°F)	Final Subcooling (°F)							
	6	7	8	9	10	11	12	13
	Liquid Gauge Pressure (PSI)							
55	173	176	179	182	185	188	191	195
60	188	191	195	198	201	204	208	211
65	204	208	211	215	218	221	225	229
70	221	225	229	232	236	239	243	247
75	239	243	247	251	255	259	262	266
80	259	262	266	270	275	279	283	287
85	279	283	287	291	295	300	304	309
90	300	304	309	313	318	322	327	331
95	322	327	331	336	341	346	351	355
100	346	351	355	360	365	370	376	381
105	370	376	381	386	391	397	402	407
110	397	402	407	413	418	424	430	435
115	424	430	435	441	447	453	459	465
120	453	459	465	471	477	483	489	496
125	483	489	469	502	508	515	521	528

Table 14-4 R-410A Refrigerant chart - Final Subcooling

Design Subcooling		
Model	Subcooling/°F	Superheat/°F
2TON/3TON	10±2	8—18
	8±2	6—8
4TON/5TON	12±2	8—18
	10±2	6—8

Table 14-5

Note: Those values in first line are applicable for indoor units with adjustable TXV or non-adjustable TXV.
Those values in second line are applicable for indoor units with non-adjustable TXV.

6. Adjust refrigerant level to attain proper gauge pressure.

NOTE

Add refrigerant if the subcooling reading from Table 14-4 is lower than the designed value (Table 14-5).

- Connect gauges to refrigerant bottle and unit as illustrated (Fig. 14-5).
- Purge all hoses.
- Open tank.
- Stop adding refrigerant when subcooling matches the design value (Table 14-5).

NOTE

Recover refrigerant if the subcooling reading from Table 14-4 is higher than the design value (Table 14-5).

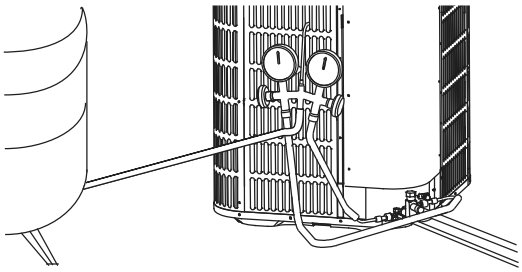


Figure 14-5

7. Stabilize the system.

- Wait 5 minutes for the system condition to stabilize between adjustments.

NOTE

When the subcooling matches the design value (Table 14-5), the system is properly charged.

- Remove gauges.
- Replace service port caps to prevent leaks. Tighten finger tight plus an additional 1/6 turn.

8. Record System Information for reference (Table 14-6).
Record system pressures and temperatures after charging is complete.

Description	Value
Outdoor model number	
Measured Outdoor Ambient	°F
Measured Indoor Ambient	°F
Measured Liquid Line Temp	°F
Measured Suction Line Temp	°F
Liquid Gauge Pressure	PSIG
Suction Gauge Pressure	PSIG

Table 14-6

15 SYSTEM OPERATION AND TROUBLESHOOTING

15.1 Control Logic Description

- The variable speed system adopts the same 24VAC control as any conventional heat pump.
- The compressor's speed is controlled based on coil pressures monitored by the unit's pressure transducer. To ensure stable and adequate capacity, the compressor speed will modulate relative to evaporator pressure during cooling operation and relative to condensing pressure during heating operation. The target pressure can automatically adjust based on compressor operation so optimal capacity can be achieved. Target pressure can be manually adjusted (SW4) to achieve improved dehumidification and capacity demands.

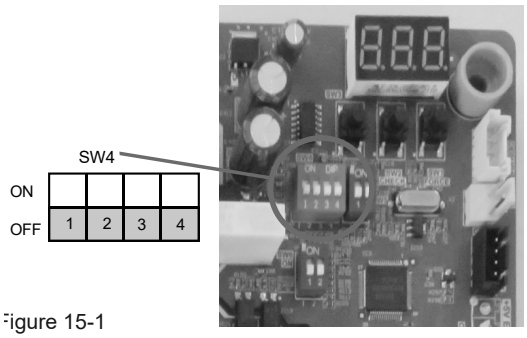


Figure 15-1

Switch	Description	
SW4-1	ON	Unused
	OFF*	Must be set at "OFF" position
SW4-2	ON	Unused
	OFF*	Must be set at "OFF" position
SW4-3	ON	Adaptive capacity output disabled
	OFF*	Adaptive capacity output enabled
SW4-4	ON	Accelerated cooling/heating
	OFF*	Normally cooling/heating

Table 15-1

Factory Default

- Adaptive capacity function is a "self-learning function" which allows a range of target coil temperatures to adapt for better unit operation and reduced short cycling.
- Accelerated cooling/heating function changes the initial target coil temperature to provide "enhanced comfort" by increasing unit capacity.

15.2 Sensors (Thermistors /Pressure Transducer)

- T3 = Outdoor Coil Temperature (Table 15-14)
  - — High/Low temperature protection
  - — Outdoor fan control (cooling mode)
  - — Defrost control (heating mode)
- T4 = Outdoor Ambient Temperature (Table 15-14)
  - — Operating condition permission
  - — Defrosting condition permission
  - — Outdoor fan control (heating mode)
- T5 = Compressor Discharge Temperature (Table 15-15)
  - — High/Low temperature protection
  - — Electronic Expansion Valve (EEV) (ODU/heating mode only)
- T3L = Liquid Line Temperature (Table 15-14)
- TF = Control board Temperature (Table 15-15)
  - — Inverter High Temperature Protection
- Pressure transducer
  - — Compressor frequency control
  - — Electronic Expansion Valve (EEV) control (heating mode only)
  - — High pressure protection (heating mode)
  - — Low pressure protection (cooling mode)

15.3 Pressure Equalizer Valve (PEV)

Used to balance the pressure in the system before the compressor starts up.

15.4 Defrost Description(Heat Pump Only)

- The Demand Defrost Control (DDC) monitors the ODU coil temperature using thermistor (T3). A second thermistor (T4) monitors outdoor ambient temperature. Based on these parameters, as well as accumulative run time and high pressure, the DDC calculates proper initiation of defrost.
- Any one of the below three conditions is required to enter defrost:

  1. The calculated temperature difference between the outdoor temperature (T4) and the coil temperature (T3) is called Delta T. After Delta T is achieved and continues for 3 minutes.
     - — T4 ≥ 39°F, Delta T = 21°F
     - — T4 ≥ 30°F, Delta T = 19°F
     - — T4 ≥ 19°F, Delta T = 17°F
     - — When T4 < 19°F, T3 < 9°F, accumulative compressor run time ≥ 80 minutes.

2. After “Minimum Run Time” (MRT) is achieved. MRT is based on outdoor ambient temperature (T4), for example:
   — MRT is 4 hours when: T4 < 23°F
   — MRT is 2 hours when: 23°F ≤ T4 < 40°F
3. After the high pressure saturation temperature drops below 82°F for 20 minutes.

- Defrost will terminate once outdoor coil temperature (T3) reaches 64°F for a period of 1 minute or defrost time has exceeded 8 minutes.

- Defrost Termination Settings (SW5) offers different defrost termination options for enhanced defrost for different geographical and outdoor conditions.

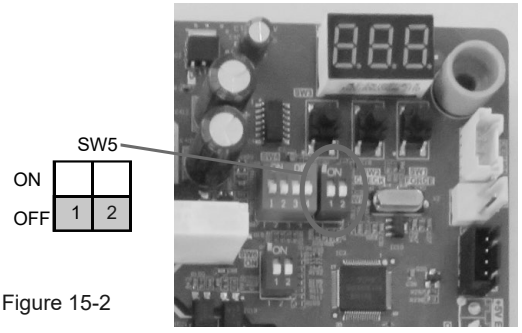


Figure 15-2

Defrosting Choice	SW5-1	SW5-2	Remarks
ON	Operating time is reduced by 10%	Defrosting extended for 60 seconds	
OFF	OFF	OFF	Default
Remarks	Remarks	Remarks	

Table 15-2

- Manual Defrost:
  1. The system must have a call for heat and have been operating for a minimum of 8 minutes.
  2. Press “Force” button on inverter board for 6 seconds to begin forced defrost.
  3. Wait approximately 40 seconds for defrost to initiate.
  4. Once defrost initiates, the display will indicate “dF”.
  5. Defrost test will terminate automatically, after which the display will indicate running speed.
  6. If a second defrost test is required, repeat steps 2-5 after 5 minutes.

15.5 Compressor Crankcase Heater Description

Refrigerant migration during the OFF cycle can result in noisy start-ups, therefore a CrankCase Heater (CCH) is used to minimize refrigerant migration thereby minimizing start-up noise and/or bearing “wash out”. All CCHs must be installed on the lower half of the compressor shell. Its purpose is to warm the compressor during the OFF cycle, driving refrigerant from compressor. After extended shutdown periods in cold weather, it is recommended to allow CCH to be energized for at least 12 hours prior to compressor operation by applying line voltage to heat pump with thermostat OFF.

- CCH operation energizes:
  1. First time line voltage is applied and compressor discharge temperature T5 < 53.6°F.
  2. Compressor stops running for 3 hours (outdoor ambient temperature T4 < 41°F OR compressor discharge temperature T5 < 53.6°F).
- CCH operation de-energizes:
  1. Compressor discharge temperature T5 ≥ 60.8°F.
  2. Compressor starts running.

15.6 Reversing Valve Operation (Heat Pump Only)

- Reversing valve energizes during heat mode and de-energizes in cool mode.

NOTE

During a heat call on first time operation the unit will run about 1 minute in cooling to build up pressure for reversing valve to change.

15.7 Protection Functions

- Outdoor coil temperature protection (T3)
  i. If T3 > 141.8°F, compressor is de-energized.
  ii. If T3 < 129.2°F, compressor is energized.
- Ambient temperature protection (T4)
  i. If 40°F ≤ T4 < 120°F, unit can operate in cooling.
  ii. If 5°F ≤ T4 < 86°F, unit can operate in heating.
  iii. If T4 < 7°F, heat pump will provide 24V control to indoor unit energizing electric heat (if installed).
- Discharge Temperature (DT) protection (T5)
  i. If DT > 230°F during cooling mode, the compressor will stop.
  ii. If DT < 185°F during cooling mode, the compressor will restart.
  iii. If DT > 230°F during heating mode, the compressor will stop.
  iv. If DT < 185°F during heating mode, the compressor will restart.
- High Pressure (HP) protection (mechanical open/close pressure switch)
  i. High Pressure Switch opens at P > 580 PSIG, the compressor and outdoor fan stop.
  ii. High Pressure Switch closes at P < 435 PSIG, the compressor and outdoor fan restart.
- Low Pressure (LP) protection
  i. If Low Pressure < 43.5 PSI for 5 minutes during cooling mode, the compressor and outdoor fan will stop.The system will attempt to run again after 6 minutes.
  ii. If condensing temp. Tc < outdoor ambient temp. T4 during heating mode, the compressor and outdoor fan will stop.
- Control board temperature protection (TF)
  i. If TF > 176°F, the compressor and outdoor fan will stop.
  ii. If TF < 154°F, the compressor and outdoor fan will restart.

15.8 Fault Code Table

Code	Fault Description (Sensor)
C3	The coil sensor is seated fault in cooling (T3)
E4	Temperature sensor fault (T3, T4, T3L,T5,TF)
E5	High/low voltage protection
E6	DC fan motor fault
E7	Compressor discharge sensor is seated fault (T5)
E9	EEPROM fault
H0	Communication fault in main control chip
H5*	5 times (P2) protection in 100 minutes, system lockout
H8	Pressure transducer fault (PT)
P0	Control board temperature protection (TF)
P1	High pressure switch protection (HPS)
P2	Low pressure protection in cooling or heating (PT)
P3	Compressor over current protection
P4	High compressor discharge temperature protection (T5)
P5	Condensor coil temperature protection in cooling (T3)
P8	DC fan motor hurricane/typhoon protection
PH	Low discharge superheat protection
F1	High pressure switch protection (HPS)
L0-L9	The IPM module protection
AtL	Ambient temperature Limited

System Protection Status Codes**

⊦	Forced operation mode
L	Running indication under T3 limited condition
D	Running indication under T5 limited condition
P	Running indication under compressor ratio limited condition
F	Running indication under TF limited condition
C	Running indication under current limited condition
U	Running indication under low voltage limited condition
A	Running indication under return oil mode
dF	Running indication under defrost mode(Heat Pump Only)

Table 15-3

* Fault requires hard restart

** If the first digit shown on the control board LED is one of the following protection codes (followed by two numerical digits which show the current compressor frequency in Hz), the unit will continue to run but in a limited condition. The only exception is when the system is in defrost mode, which only displays "dF" (without any numerical digits following).

15.9 Parameter Point Check Table

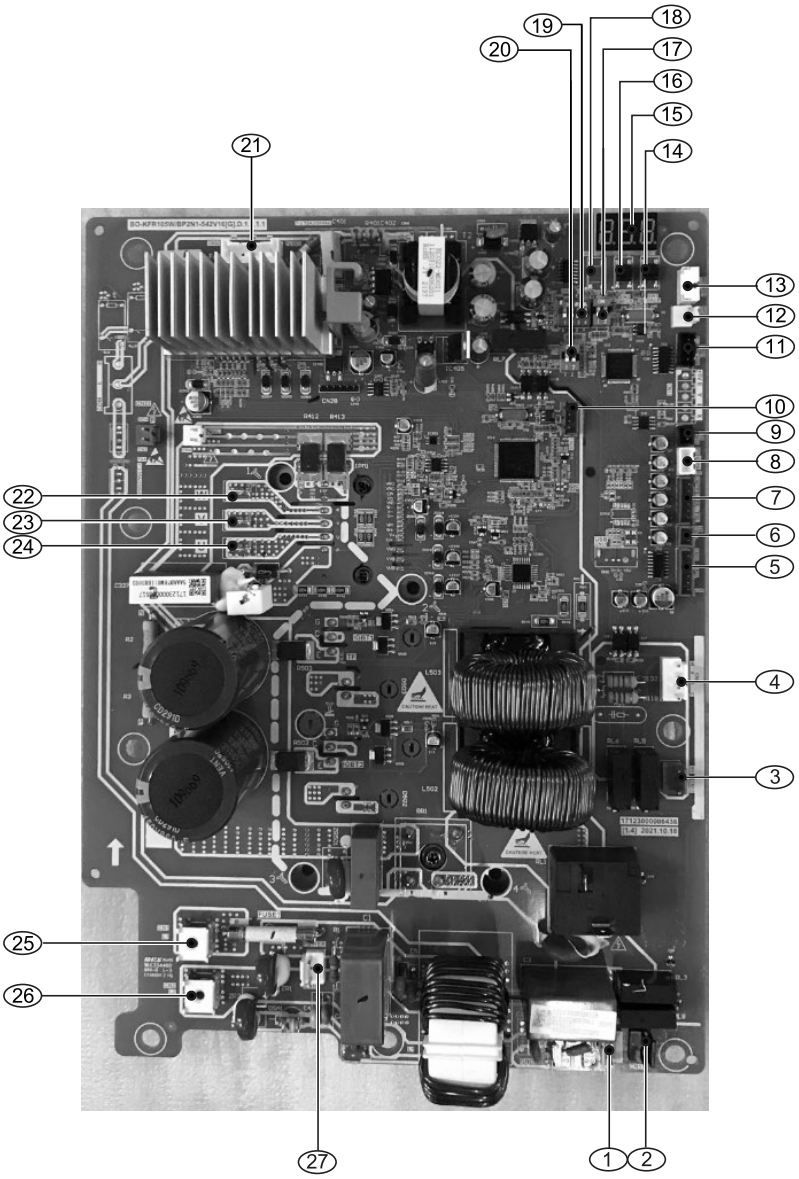
- To display system parameters, press the “Check” button to index through the series of parameters available. The first time you press the “Check” button, it will display the sequence, and after 1 second it will display the value of the parameter. If you press the “Check” button again, it will display the next sequence. Refer to Figure 15-3 and 15-4 for check button location on the control board.
- Normal Status, last two digits will display under the following conditions
  i. Unit not operating (Standby Mode); “outdoor ambient temperature”.
  ii. Unit operating; displays “compressor operating frequency”.
- After 20 seconds on same parameter, the display will revert back to normal status.
- If a system protection is active, first digit will display “status code”.

No.	Point check content	Example	Remark
0	Outdoor unit capacity	H3	H3= 3 ton
1	Outdoor unit mode	2	0 standby, 2 cooling, 3 heating(Heat Pump Only)
2	Outdoor unit set compressor speed (Hz)	66	
3	T3 (outdoor coil temp.) (°F)		
4	T4 (outdoor ambient temp.) (°F)		
5	T5 (compressor discharge temp.) (°F)		
6	Reserve		
7	T3L (liquid line temp.) (°F)		
8	Tf (module temp.) (°F)		
9	Pe (evaporating pressure) (PSI)		Low Suction Pressure
10	Pc (condensing pressure) (PSI)		High Head Pressure
11	Tes target of the evaporating temp. (only use for cooling mode) (°F)		
12	Te (evaporating temp.) (°F)		
13	Tcs target of the condensing temp. (only use for heatling mode) (°F)		
14	Tc (condensing temp.) (°F)		
15	Target of the compressor discharge superheat (only use for heating mode) (°F)		
16	Compressor discharge superheat (°F)		
17	Openings of EEV		(Heat Pump Only)
18	Fan speed		
19	Compressor current (A)		
20	AC voltage of power input (V)		
21	DC voltage (V) of compressor input		
22	Continuous running time of the compressor (min)		
23	Last fault code	00	
24	Software version	01	
25	Remark“--”	--	--

Table 15-4

15.10 Control Board Overviews

Main Control Board for 24/36 ODU Model

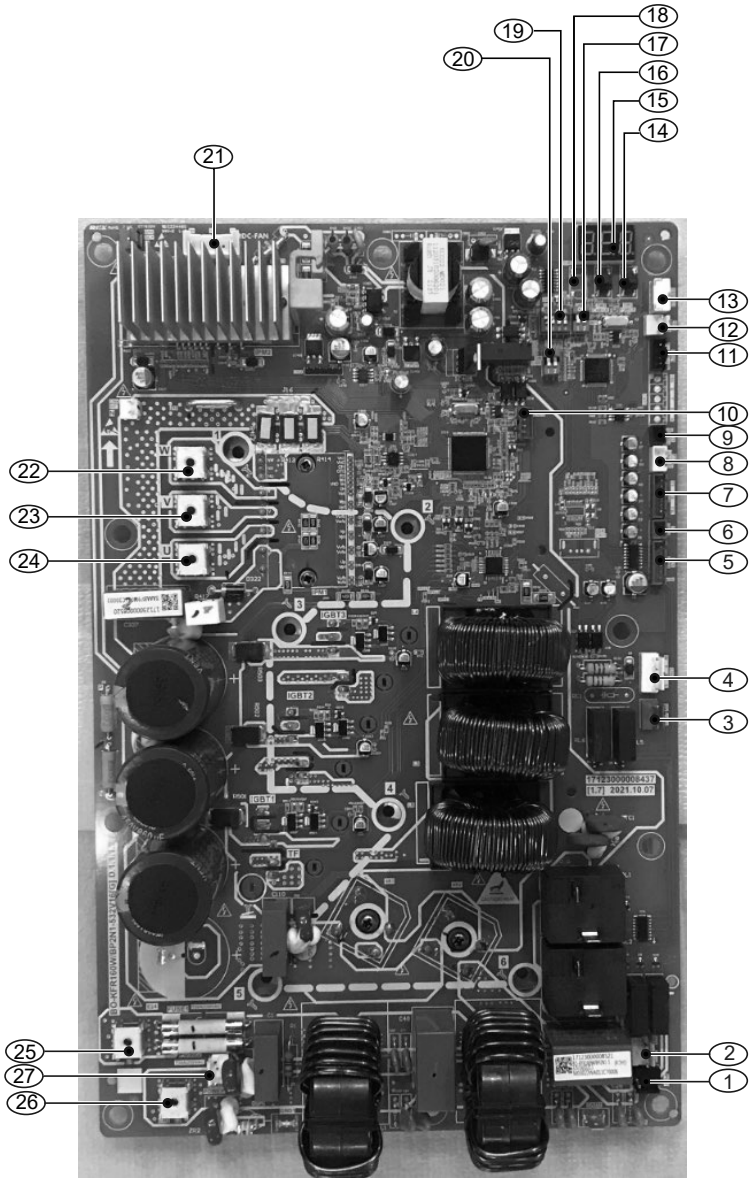


No.	Function description
1	Compressor crankcase heater port
2	Pressure equalizer valve port
3	Reversing valve port(Heat Pump Only)
4	Thermostat wire connections
5	EEV port(Heat Pump Only)
6	Th sensor port（Reserve）
7	T3 T4 T3L sensor port
8	Pressure transducer port
9	T5 sensor port
10	Reserve
11	Reserve
12	High pressure switch port
13	Reserve
14	SW1 FORCE BUTTON
15	LED
16	SW2 CHECK BUTTON
17	SW5 Dip SWITCH:Defrost logic settings
18	Reserve
19	SW4 Dip SWITCH:Control logic settings
20	SW6 Dip SWITCH: Select capacity
21	DC motor port
22	Compressor: W port
23	Compressor: V port
24	Compressor: U port
25	Power input
26	Power input
27	Reserve

*The photo is provided for reference purposes only, Layout and components will vary according to the unit specification.

Figure 15-3

Main Control Board for 48/60 ODU Model



No.	Function description
1	Pressure equalizer valve port
2	Compressor crankcase heater port
3	Reversing valve port(Heat Pump Only)
4	Thermostat wire connections
5	EEV port(Heat Pump Only)
6	Th sensor port（Reserve）
7	T3 T4 T3L sensor port
8	Pressure transducer port
9	T5 sensor port
10	Reserve
11	Reserve
12	High pressure switch port
13	Reserve
14	SW1 FORCE BUTTON
15	LED
16	SW2 CHECK BUTTON
17	SW5 Dip SWITCH:Defrost logic settings
18	Reserve
19	SW4 Dip SWITCH:Control logic settings
20	SW6 Dip SWITCH: Select capacity
21	DC motor port
22	Compressor: W port
23	Compressor: V port
24	Compressor: U port
25	Power input
26	Power input
27	Reserve

*The photo is provided for reference purposes only, Layout and components will vary according to the unit specification.

Figure 15-4

15.11 Error Code Troubleshooting

Error Code	Description (Sensor)
P1	High pressure switch (HPS) protection
P5	Condenser coil temperature (T3) protection in cooling
P3	Compressor over current protection

Table 15-5

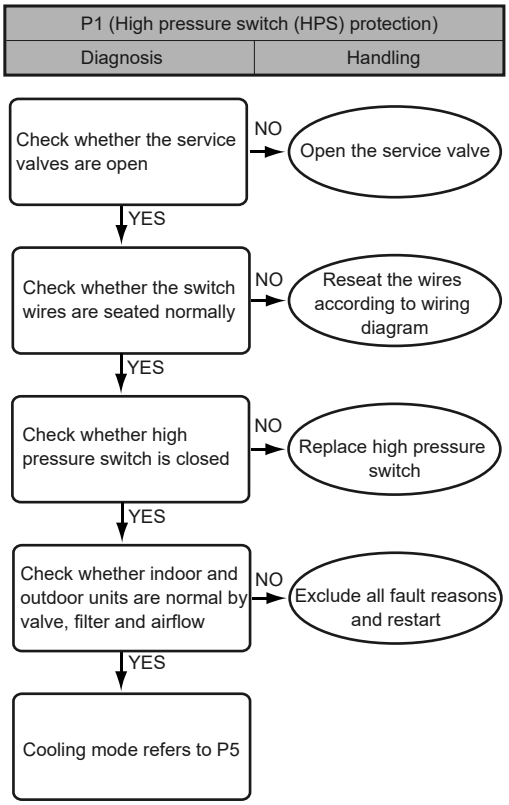


Figure 15-5

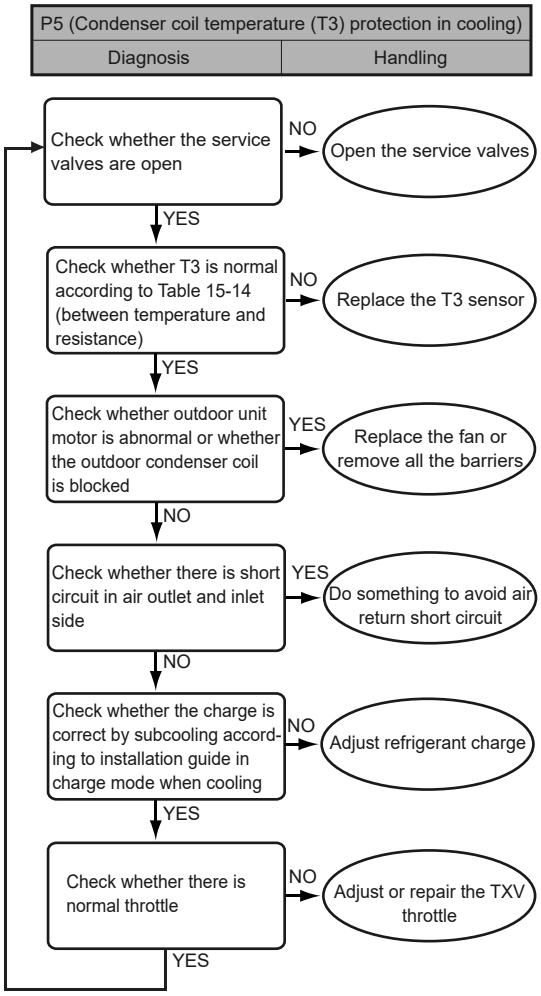


Figure 15-6

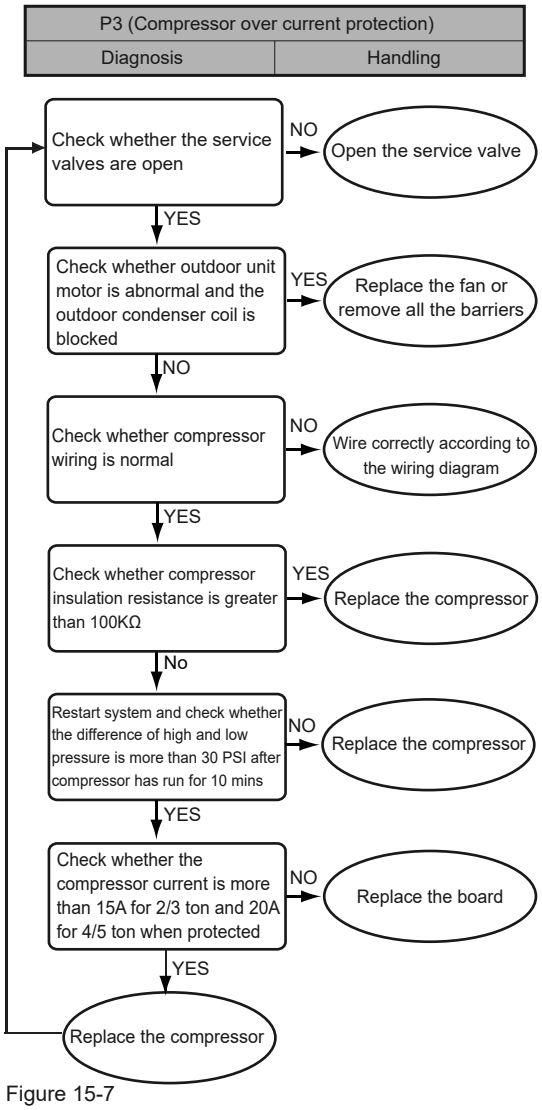


Figure 15-7

Error Code	Description
P0	High module radiator temperature (TF) protection

Table 15-6

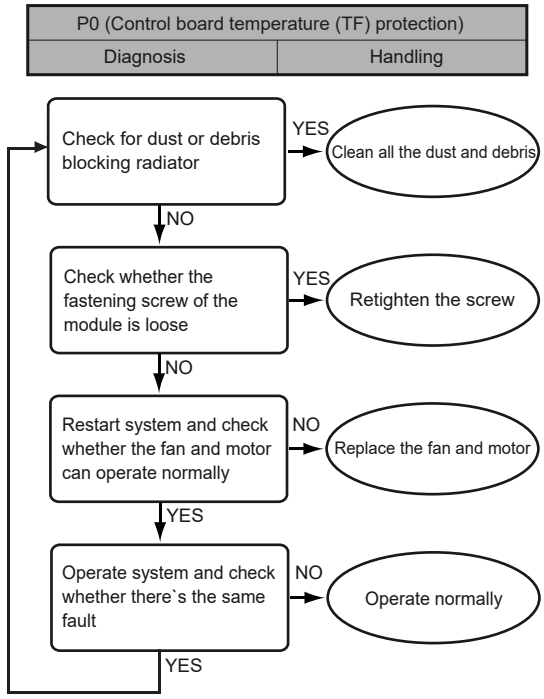


Figure 15-8

Error Code	Description
P2	Low pressure (PT) Protection in cooling and heating
H5	System lockup, 5 times (P2) protection in 100 minutes
P4	High compressor discharge temperature (T5) protection

Table 15-7

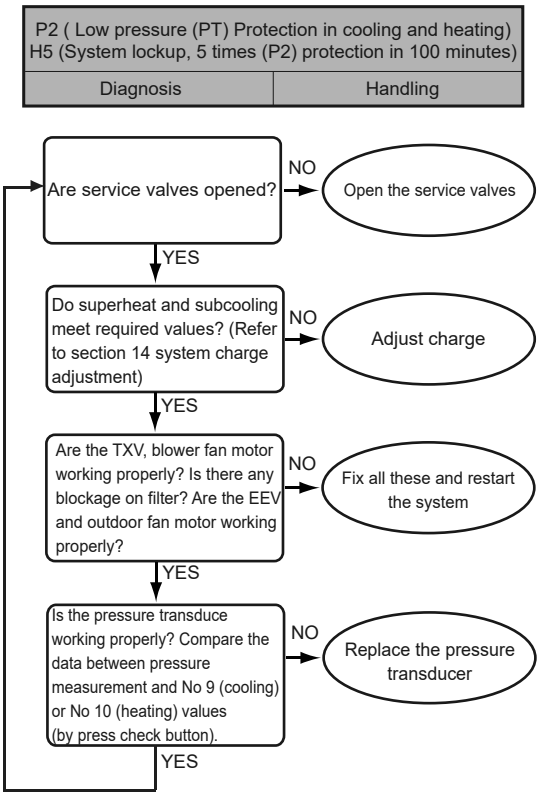


Figure 15-9

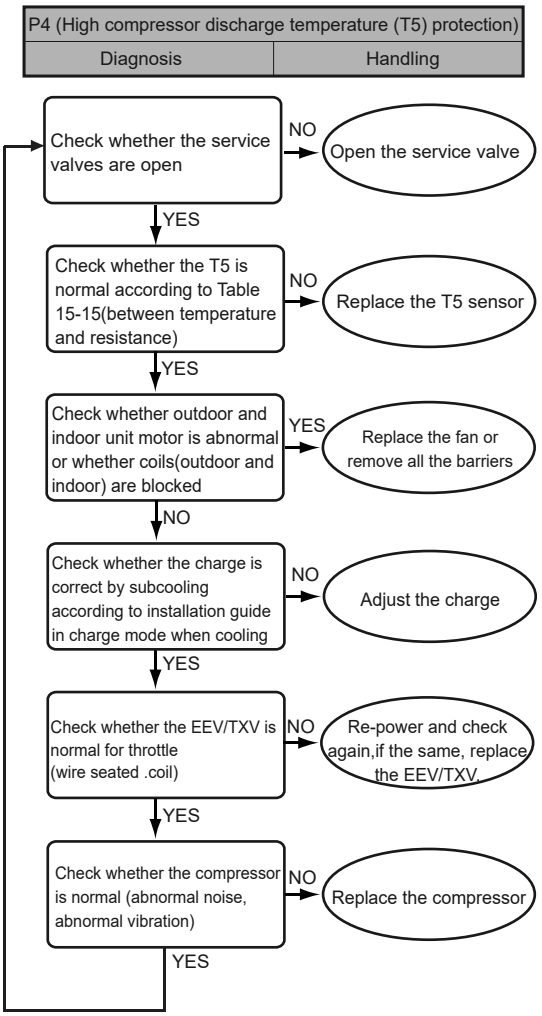


Figure 15-10

Error Code	Description
E4	Temperature sensor fault (T3, T4,T3L,T5, TF)
H8	Pressure transducer (PT) fault
F1	High pressure switch (HPS) fault

Table 15-8

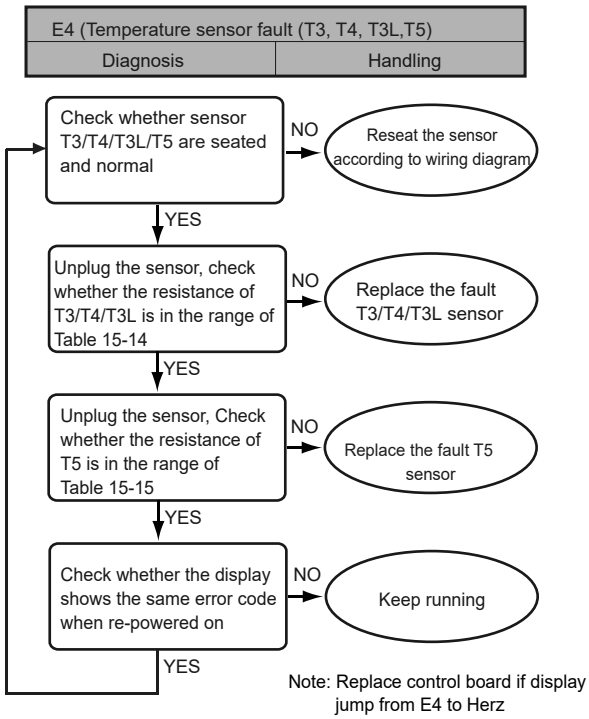


Figure 15-11

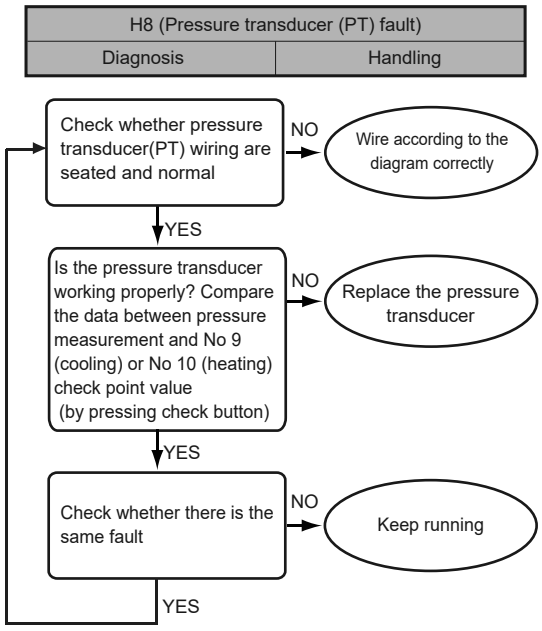


Figure 15-12

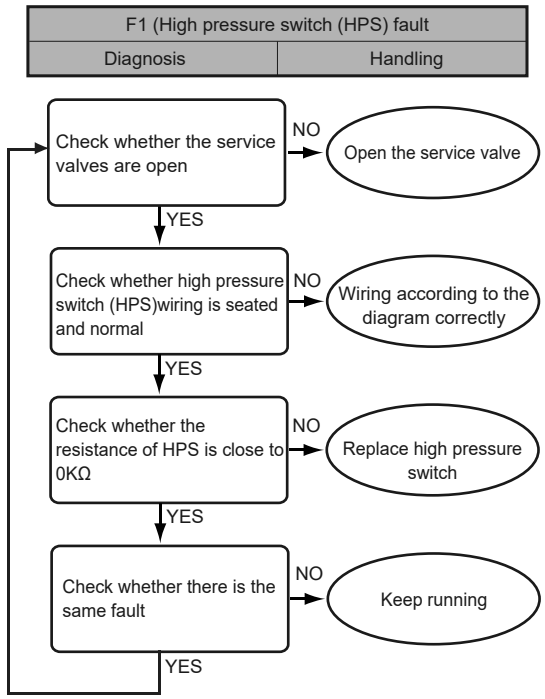


Figure 15-13

Error Code	Description
C3	Condenser coil sensor (T3) is seated fault in cooling
E7	Compressor discharge sensor (T5) is seated fault

Table 15-9

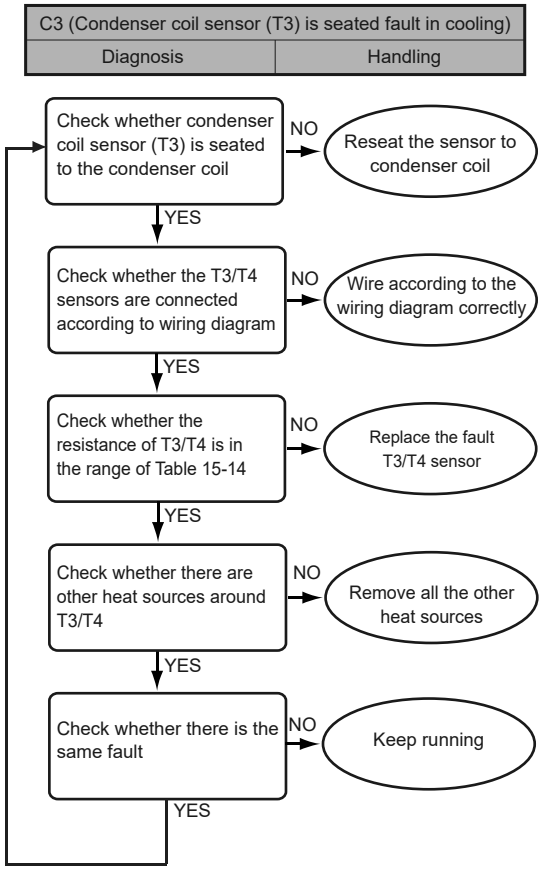


Figure 15-14

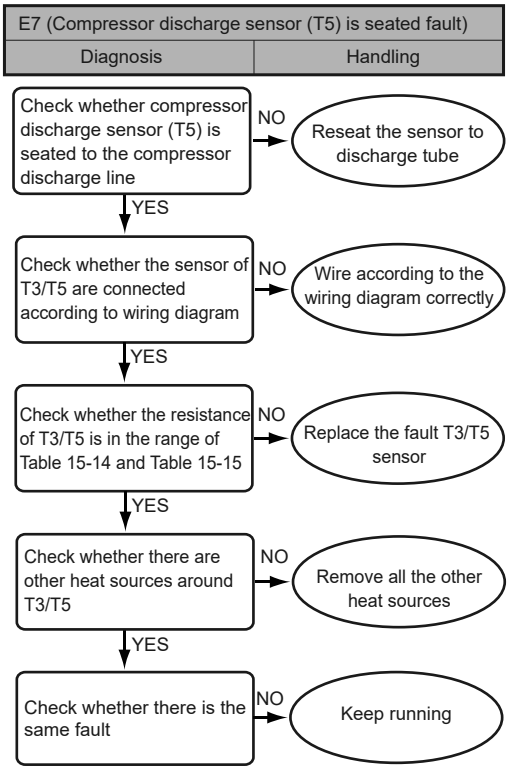


Figure 15-15

Error Code	Description
E6	DC fan motor fault

Table 15-10

If the E6 error code appears occasionally, no action is necessary. The system will restart automatically after 6 minutes.

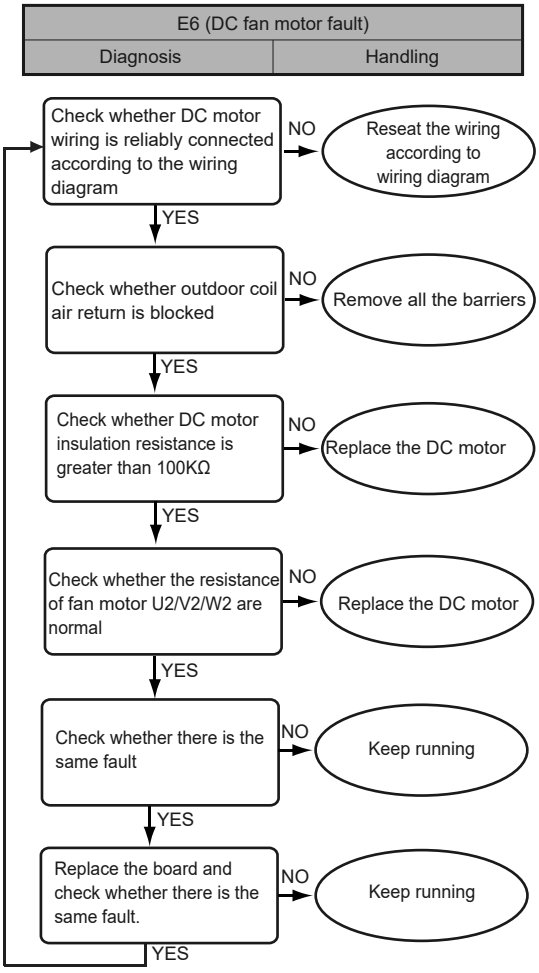


Figure 15-16

Error Code	Description
E9	EEPROM fault
H0	Communication fault in main control chip
E5	High/low voltage protection

Table 15-11

If error codes E9/H0/E5 appear occasionally and after the system restarts and runs normally after the power supply is re-established, no action is necessary. Otherwise the system must be checked.

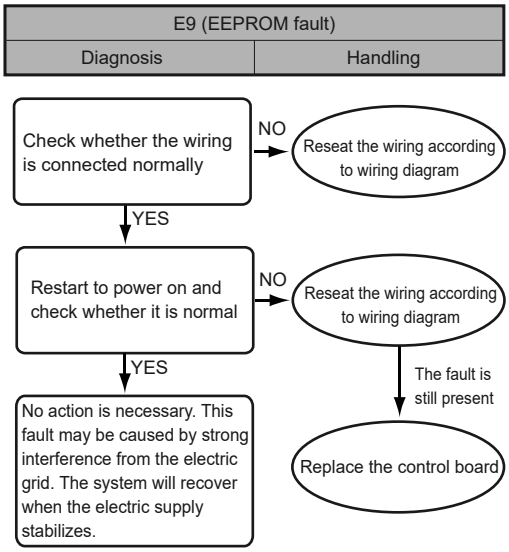


Figure 15-17

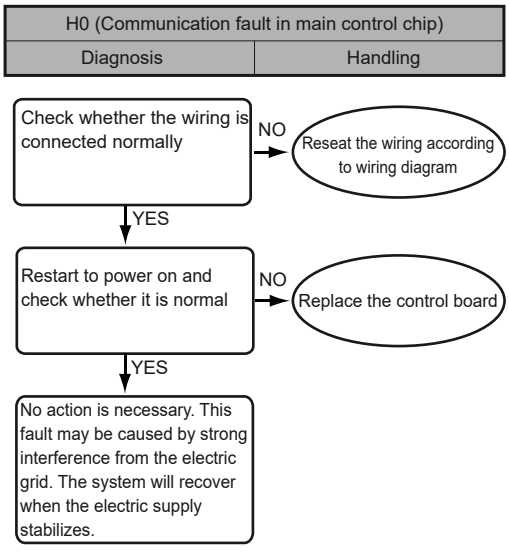


Figure 15-18

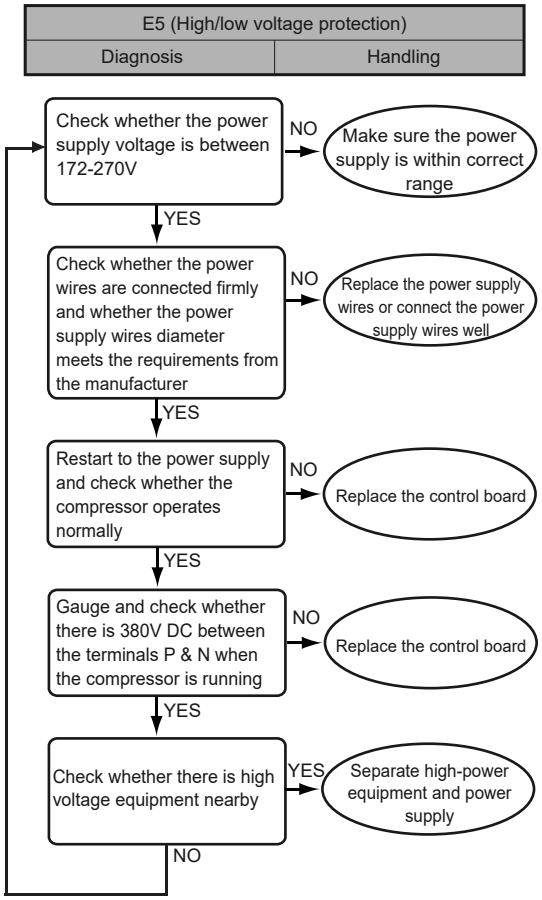


Figure 15-19

Note: Refer to wiring diagram for P&N location

Error Code	Description
L0-L9	IPM module protection

Table 15-12

When error codes L0-L9 appears occasionally, no action is necessary. The system will restart automatically after 6 minutes.

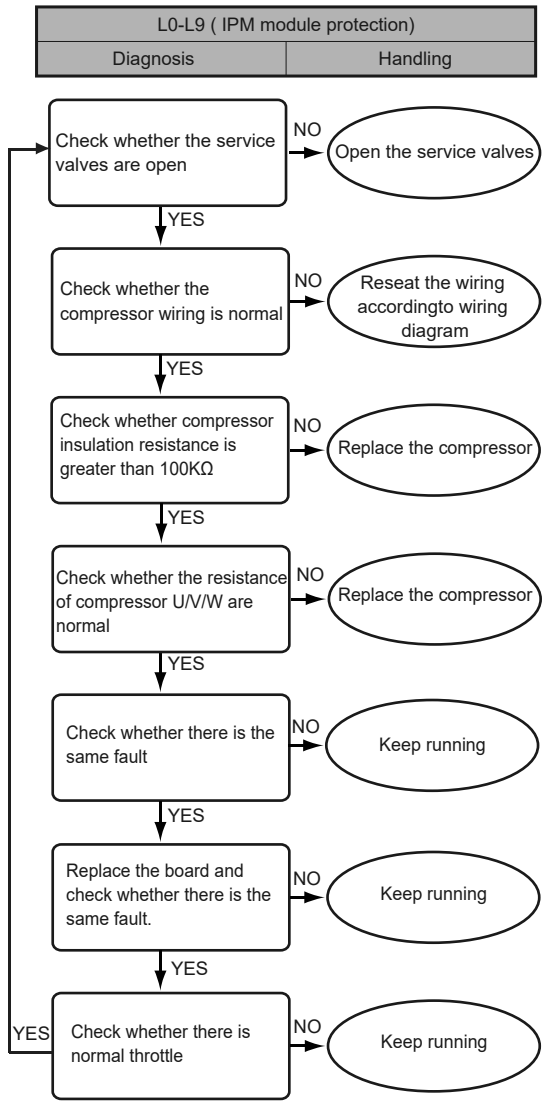


Figure 15-20

Error Code	Description
AtL	Ambient Temperature Limited

Table 15-13

NOTE

When the ambient temperature returns to within the operating range, the system will recover automatically.

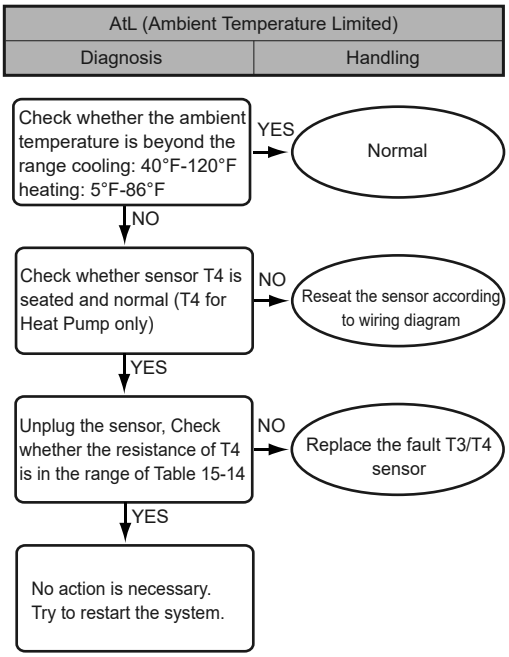


Figure 15-21

15.12 Temperature and Resistance Relationship Tables (for T3/T4/T3L Sensors)

TEMP F	TEMP C	RESISTANCE kΩ	VOLTS DC	TEMP F	TEMP C	RESISTANCE kΩ	VOLTS DC
-5	-20.6	107.732	4.65	90	32.2	7.225	2.36
0	-17.8	93.535	4.60	95	35.0	6.401	2.21
5	-15.0	79.521	4.54	100	37.8	5.683	2.07
10	-12.2	67.795	4.47	105	40.6	5.057	1.93
15	-9.4	57.948	4.39	110	43.3	4.509	1.79
20	-6.7	49.652	4.30	115	46.1	4.028	1.67
25	-3.9	42.645	4.21	120	48.9	3.606	1.55
30	-1.1	36.710	4.10	125	51.7	3.233	1.43
40	4.4	27.386	3.86	130	54.4	2.902	1.32
45	7.2	23.732	3.73	135	57.2	2.610	1.22
50	10.0	20.610	3.59	140	60.0	2.350	1.13
55	12.8	17.939	3.45	145	62.8	2.119	1.04
60	15.6	15.648	3.30	150	65.6	1.914	0.96
65	18.3	13.681	3.15	155	68.3	1.731	0.88
70	21.1	11.987	2.99	160	71.1	1.574	0.82
75	23.9	10.527	2.83	165	73.9	1.416	0.75
80	26.7	9.265	2.67	170	76.7	1.276	0.68
85	29.4	8.172	2.52				

Table 15-14 for T3, T4,T3L

15.13 Temperature and Resistance Relationship Tables (for T5 Sensor)

TEMP F	TEMP C	RESISTANCE kΩ	VOLTS DC	TEMP F	TEMP C	RESISTANCE kΩ	VOLTS DC
-5	-20.6	600.134	4.93	140	60.0	13.643	3.14
0	-17.8	505.551	4.92	145	62.8	12.359	3.03
5	-15	427.463	4.91	150	65.6	11.214	2.91
10	-12.2	362.739	4.89	155	68.3	10.227	2.80
15	-9.4	308.891	4.87	160	71.1	9.308	2.68
20	-6.7	265.398	4.85	165	73.9	8.485	2.56
25	-3.9	227.481	4.83	170	76.7	7.746	2.45
30	-1.1	195.601	4.80	175	79.4	7.105	2.34
35	1.7	168.707	4.77	180	82.2	6.504	2.23
40	4.4	146.695	4.74	185	85.0	5.963	2.13
45	7.2	127.258	4.70	190	87.8	5.474	2.02
50	10.0	110.707	4.66	195	90.6	5.032	1.92
55	12.8	96.572	4.61	200	93.3	4.645	1.83
60	15.6	84.465	4.56	205	96.1	4.280	1.73
65	18.3	74.411	4.51	210	98.9	3.949	1.64
70	21.1	65.408	4.45	215	101.7	3.648	1.56
75	23.9	57.634	4.39	220	104.4	3.383	1.48
80	26.7	50.904	4.32	225	107.2	3.133	1.40
85	29.4	45.258	4.24	230	110.0	2.904	1.32
90	32.2	40.152	4.16	235	112.8	2.694	1.25
95	35.0	35.699	4.08	240	115.6	2.503	1.18
100	37.8	31.807	3.99	245	118.3	2.334	1.12
105	40.6	28.398	3.89	250	121.1	2.172	1.06
110	43.3	25.506	3.80	255	123.9	2.024	1.00
115	46.1	22.861	3.70	260	126.7	1.888	0.95
120	48.9	20.529	3.59	265	129.4	1.767	0.90
125	51.7	18.47	3.48	270	132.2	1.651	0.85
130	54.4	16.708	3.37	275	135.0	1.544	0.80
135	57.2	15.085	3.26	280	137.8	1.446	0.76

Table 15-15 for T5

SYSTEM FAULTS		WHAT TO CHECK MODE	POWRE SUPPLY OR HIGH VOLTAGE WIRINGS	LOW VOLTAGE WIRING OR THERMOSTAT	I.D.FUSE	INEFFICIENT COMP.	CONTROL BOARD OR WIRES	RES.I.D.AIRFLOW	RES O.D.AIRFLOW	INEFFICIENT O.D.FAN	RES O.D.RADIATOR	REF.UNDERCHARGE	REF.OVERCHARGE	REF.CIR.RESTRICTIONS	TXV STUCK OPEN OF NEED TO ADJUST	EEV OR COIL DEF.	REV.OR COIL DEF.	REV.LEAKING	SERVICE VALVE LEAKING	PT SENSOR DEF.	T3 SENSOR DEF.	T4 SENSOR DEF.	T5 SENSOR DEF.	T1 SENSOR DEF.	HPS SENSOR DEF.
SYSTEM	Display shows nothing	C	P				S																		
		H	P				S																		
	System won't start SS	C		P	P		S																		S
		H		P	P		S																		S
	Capacity is insuffciency	C						P	P	P		P			S			S	S				S		
		H						P	P	P		P				S		S	S				S		
	Display is not normal when running	C					P																		
		H					P																		
	Cool when heating requirement	H		P													S								
REFRIGERANT CIRCUIT	P1	C							P	P			S	P											
		H						P					S	P											
	P2/H5	C			P							P			S				S						
		H			P							P			S				S						
	P3	C								P	P		S	P											
		H						P					S	P											
	P5	C							P	P			S	S							S				
		H												S											
	P0	C								P	P	S													
		H								P	P	S													
	P4	C										P			S								S		
		H										P				S							S		
	PH	C											P		P						S		S		
		H											P			P							S		
	C3(T3 is seated fault)	C																			P				S
	E7(T5 is seated fault)	C																			S		P		
		H																		S			P		
	ATL(Ambient temp. beyond the license)	C																				S			
		H																				S			
ELECTRICAL OR CONTROL	E4	C																			P	P	P	P	
		H																			P	P	P	P	
	H8	C																		P					
		H																		P					
	F1	C																			S				P
		H																							P
	E6	C					S			P															
		H					S			P															
	P6	C								P															
		H								P															
	P8	C																							
		H																							
	L0-L9	C				S	P																		
		H				S	P																		
	E9	C					P																		
		H					P																		
	H0	C					P																		
		H					P																		
	E5	C	P				S																		
		H	P				S																		

Table 15-16

C-Cooling
H-Heating
P-Primary Causes
S-Secondary Causes
Comp.-compressor
RES.-Restrictions
REF.-Refrigeration
DEF.-Defective
CIR.-Circuit
EEV-Electronic expansion valve
REV.-Reversing Valve
PT-Pressure Transducer
T3-Outdoor coil temp. sensor
T4-Ambient temp. sensor
T5-Comp. discharge temp. sensor
Tf-Control board Temperature
T3L-Liquid Line Temp. sensor
HPS-High pressure switch
RES I.D. AIRFLOW -Perhaps failue of fan motor or fan capacitor or filter
RES O.D. AIRFLOW -Perhaps failue of fan motor or fan capacitor or recirculation or blocking coil
RES O.D. RADIATOR-Perhaps failue of blocking radiator

PÓLIZA DE GARANTÍA HVAC SYSTEMS

Atención: Leer cuidadosamente el manual de mantenimiento e instalación y ponerlos en práctica, le brindará lo necesario para un funcionamiento adecuado de su equipo. Para validar la garantía favor de acudir directamente con el distribuidor autorizado que le vendió este equipo.

Se validará la garantía bajo las siguientes condiciones:

Cláusulas

1. Requisitos. Para validar su garantía, se deberá presentar la póliza debidamente sellada por distribuidor autorizado que vendió este producto o en su caso, copia respectiva de la factura o recibo que acredite la compra-venta de su unidad.
2. Producto. Esta póliza de garantía es exclusivamente para el producto adquirido y cuyo número de serie está identificado tanto en unidades exterior (condensadora) e interior (evaporadora), así como en los empaques de los mismos. Se recomienda conservar estas etiquetas para futuras aclaraciones.
3. Vigencia y alcance. La vigencia de esta póliza de garantía es de 3 meses en partes electrónicas (tarjetas, display y control remoto), 12 meses en el resto de partes (motores, aspas, serpentines, compresor, etc), a partir de la adquisición del producto; se extiende única y exclusivamente a fallas o defectos de fabricación.
4. La instalación, reparación y manipulación de esta unidad deberá ser realizada por personal calificado y autorizado por nuestras marcas.

La garantía de este producto no será válida en las siguientes situaciones:

a) Cuando el producto haya sido instalado de manera diferente a la que se expresa en este manual.
b) Cuando el producto haya sufrido daños por problemas climatológicos, ambientales o desastres naturales.
c) Cuando presente daños en su estructura debido al mal manejo de la unidad.
d) Cuando el producto sea destinado para fines distintos a los indicados en el manual.
e) Cuando el producto no sea instalado y/o utilizado de acuerdo a las especificaciones que se indican en el manual de usuario.
f) Cuando el producto sea instalado, alterado o reparado por personal no autorizado por la marca.
g) Cuando el producto no se encuentre el periodo de garantía especificado en esta póliza.
h) Por la implementación de accesorios que no correspondan a la marca.
i) Cuando el producto sea instalado para fines comerciales y no domésticos.
j) Cuando la unidad sea desinstalada.

Refacciones

1. Las refacciones y componentes empleados para la reparación de su unidad no tendrán costo extra únicamente cuando estén sujetos a esta póliza de garantía, de igual forma se cubrirán los gastos de transportación y mano de obra que se deriven del fallo que se presente.
2. El consumidor puede obtener partes, componentes, consumibles y accesorios con el distribuidor autorizado que vendió en la zona.

Atención y servicio. Esta garantía podrá ser atendida únicamente por el distribuidor que vendió el producto. Cuando el producto se haya adquirido en cadenas comerciales, la garantía se hará válida en los centros de servicio autorizados, mismos publicados en www.unitedappliances.com. Para más información llame al Tel. 800-788-4040 o comuníquese vía correo electrónico: soporte.tecnico@unitedappliances.com, Por estos medios se le brindará la información que se requiera.

ALLOSTE S.A DE C.V se deslinda de responsabilidad alguna al momento en que se presente un fallo en el equipo por instalaciones defectuosas o erróneas realizadas por personal no autorizado.

HVAC SYSTEMS

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MODELO CONDENSADORA **UADTDC060DD300E1/O**	
1 FASE	208/230V ~ 60Hz
CAPACIDAD DE ENFRIAMIENTO:	56 000 BTU/h
MÍNIMA AMPACIDAD DE CIRCUITO:	39,2 A
REFRIGERANTE:	R410A
CARGA DE REFRIGERANTE:	4,03 kg
GRADO DE PROTECCIÓN:	IPX4
PRESIÓN DE OPERACIÓN (ALTA/BAJA):	3,79 / 1,72 MPa
MAX. PRESIÓN PERMISIBLE:	4.2 MPa
HECHO EN CHINA	

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