

INSTALLATION MANUAL

R-410A, 13 SEER LATITUDE™ SERIES

NM024-060

2-5 Ton

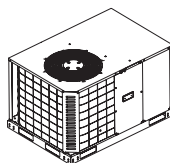


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General

YORK® Model NM units are factory assembled air conditioners designed to be installed along side the home or building. Field-installed electric heater accessories are available to provide supplemental electric heat combined with electric cooling.

The units are completely assembled on rigid base rails. All piping, refrigerant charge, and electrical wiring is factory installed and tested. The units require only electric power and duct connections at the point of installation.

The electric heaters have nickel-chrome resistance wire elements and utilize single point power connection.

Safety Considerations

This is a safety alert symbol ▲. When you see this symbol on labels or in manuals, be alert to the potential for personal injury.

Understand and pay particular attention the signal words **DANGER**, **WARNING** or **CAUTION**.

DANGER indicates an **imminently** hazardous situation, which, if not avoided, **will result in death or serious injury**.

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

CAUTION indicates a potentially hazardous situation, which, if not avoided **may result in minor or moderate injury**. It is also used to alert against unsafe practices and hazards involving only property damage.

▲ WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual for assistance or for additional information, consult a qualified contractor, installer or service agency.

⚠ CAUTION

This product must be installed in strict compliance with the installation instructions and any applicable local, state and national codes including, but not limited to building, electrical, and mechanical codes.

⚠ WARNING

Before performing service or maintenance operations on unit, turn off main power switch to unit. Electrical shock could cause personal injury. Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual. For assistance or additional information consult a qualified installer or service agency.

⚠ CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system. Gage sets, hoses, refrigerant containers and recovery systems must be designed to handle R-410A. If you are unsure, consult the equipment manufacturer. Failure to use R-410A compatible servicing equipment may result in property damage or injury.

Due to system pressure, moving parts, and electrical components, installation and servicing of air conditioning equipment can be hazardous. Only qualified, trained service

personnel should install, repair, or service this equipment. Untrained personnel can perform basic maintenance functions of cleaning coils and filters and replacing filters.

Observe all precautions in the literature, labels, and tags accompanying the equipment whenever working on air conditioning equipment. Be sure to follow all other applicable safety precautions and codes including.

Wear safety glasses and work gloves. Use quenching cloth and have a fire extinguisher available during brazing operations.

Inspection

As soon as a unit is received, it should be inspected for possible damage during transit. If damage is evident, the extent of the damage should be noted on the carrier's freight bill. A separate request for inspection by the carrier's agent should be made in writing.

Reference

Additional information is available in the following reference forms:

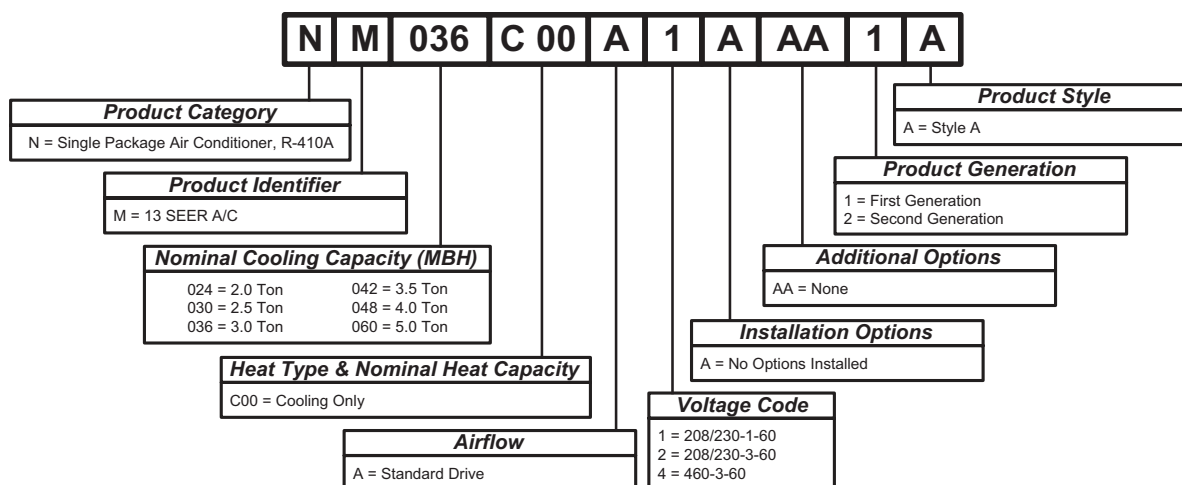
- Technical Guide - 546039
- General Installation - 534046
- Electric Heat Accessory - 552392

Renewal Parts

Contact your local York® parts distribution center for authorized replacement parts.

⚠ WARNING

Improper installation may create a condition where the operation of the product could cause personal injury or property damage.

Nomenclature

Installation

Limitations

These units must be installed in accordance with the following national and local safety codes.

- 1. National Electrical Code ANSI/NFPA No. 70 or Canadian Electrical Code Part 1, C22.1 (latest editions).
- 2. Local plumbing and waste water codes and other applicable local codes.

Refer to Table 5 for unit physical data and to Table 4 for electrical data.

If components are to be added to a unit to meet local codes, they are to be installed at the dealer's and/or the customer's expense.

Size of unit for proposed installation should be based on heat loss/heat gain calculations made in accordance with industry recognized procedures identified by the Air Conditioning Contractors of America.

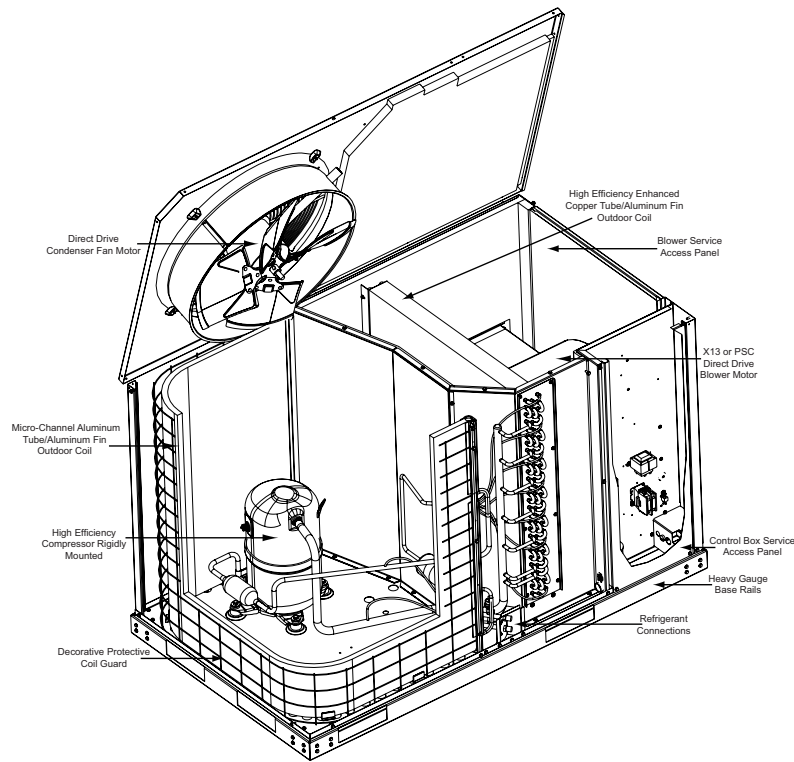


Figure 1: Component Location

Table 1: Unit Limitations

Size (Tons)	Unit Voltage	Unit Limitations		
		Applied Voltage		Outdoor DB Temp Max (°F)
		Min	Max	
024 (2.0)	208/230-1-60	187	252	125
030 (2.5)	208/230-1-60	187	252	125
036 (3.0)	208/230-1-60	187	252	125
	208/230-3-60	187	252	125
042 (3.5)	208/230-1-60	187	252	125
048 (4.0)	208/230-1-60	187	252	125
	208/230-3-60	187	252	125
	460-3-60	432	504	125
060 (5.0)	208/230-1-60	187	252	125
	208/230-3-60	187	252	125
	460-3-60	432	504	125

Unit Location

Several important factors must be considered before selecting the site for this unit:

1. **Site** – Select a solid level position, preferably on a concrete slab, slightly above grade level and parallel to the home.
2. **Proximity to home or building** – The length of the supply and return ducts should be kept to a minimum with no sharp bends. Consideration should be given to the distance and routing of electrical service to connect the unit. Try to select a site for the unit that it is as close as possible to the proposed return grille location. Unit may be positioned to draw air from underneath structure.
3. **Proximity to the clothes dryer vent** – The clothes dryer vent should not be located upwind from the unit.
4. **Ability to service** – Side access panels of the unit should not be closer than 24 inches to a structure so blower and controls may be serviced.
5. **Sound transmission** – Locate the unit away from bedroom windows or other rooms where sound may be objectionable.
6. **Air Circulation** – The outside coil sides should not be closer than 24 inches to a structure that will restrict air flow through the coil. The air discharge of the unit requires a 60-inch clearance between the top of the unit and any obstruction. See Figure 2.
7. **Wind direction** – The hot condenser air must be discharged up and away from the home or building, and if possible in a direction with the prevailing wind.

8. **Relationship between building, sun and unit** – If practical, place the air conditioner in an area where the unit and the ducts will be shaded from the afternoon sun (when the heat load is the greatest).

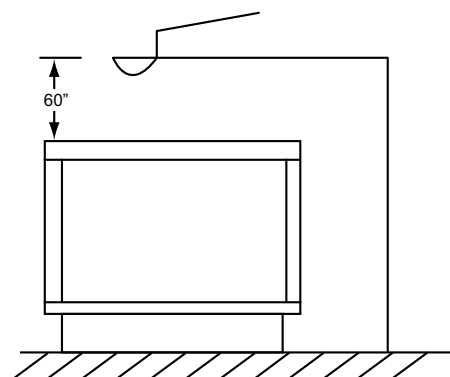


Figure 2: Air Discharge Clearance

Site Preparation

After the site has been selected and prepared, using criteria mentioned above, install the air conditioner support pad at the selected site.

NOTE: This unit must be installed and operated on a level surface. Failure to do so will result in condensate drainage problems.

Clearances

All units require certain clearances for proper operation and service. Refer to Table 3 for the clearances required for construction, servicing and proper unit operation.

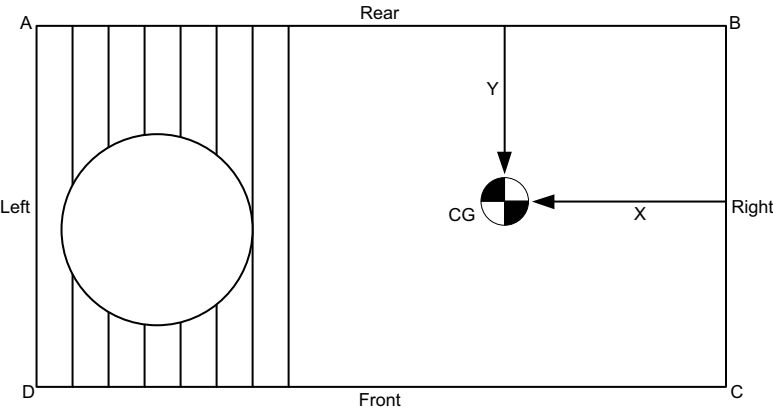


Figure 3: Unit 4 Point Load Weight

Size (Tons)	Weight (lbs.)		Center of Gravity		4 Point Load Location (lbs.)			
	Shipping	Operating	X	Y	A	B	C	D
024 (2.0)	279	276	23.5	16	68	71	71	68
030 (2.5)	282	279	23.5	16	68	71	71	68
036 (3.0)	318	315	22	15.5	80	73	78	85
042 (3.5)	318	315	22	15.5	80	73	78	85
048 (4.0)	360	357	29	16	86	87	93	91
060 (5.0)	353	350	29	16	84	86	91	89

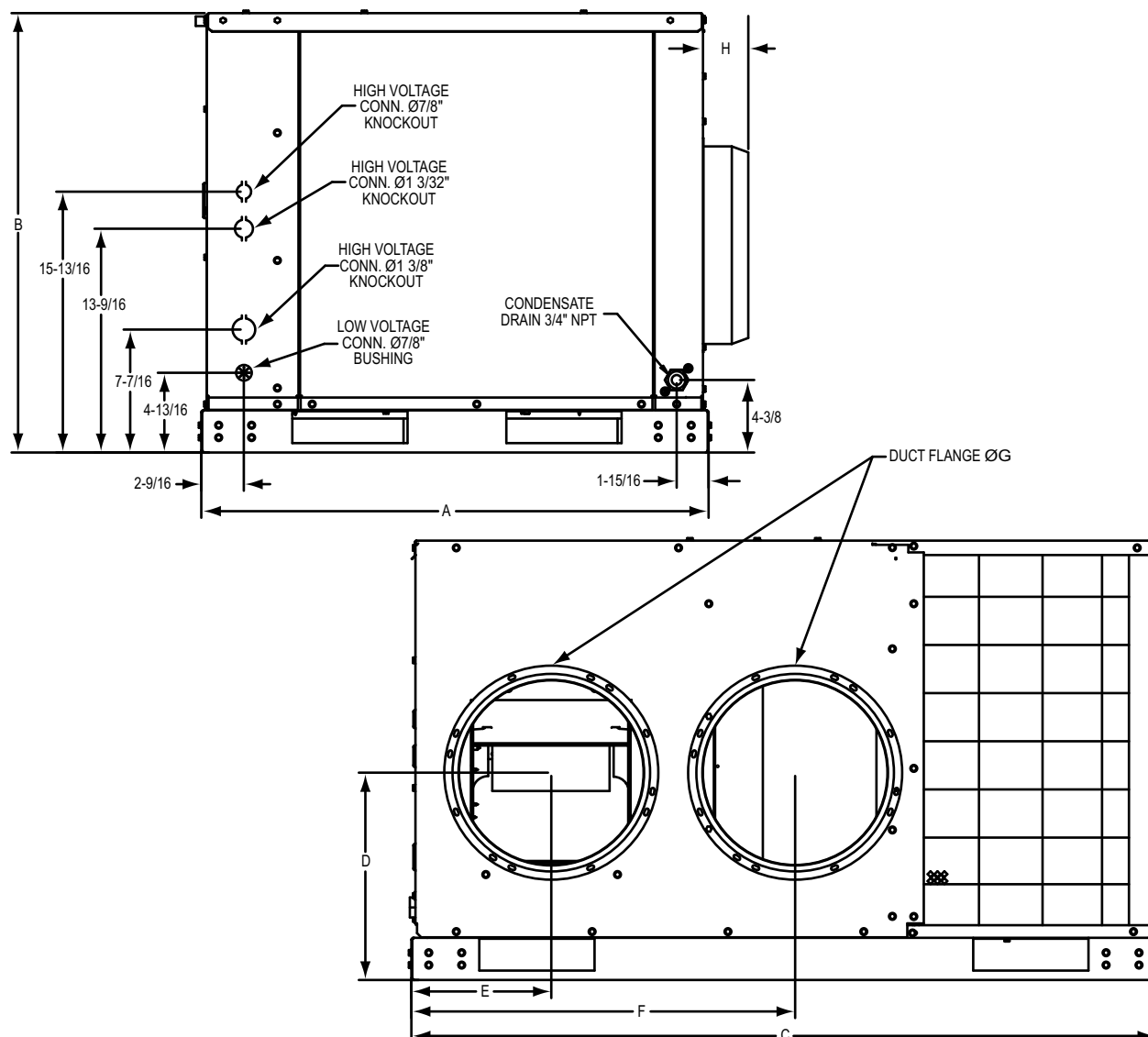


Figure 4: Unit Dimensions

Table 2: Unit Dimensions

Size (Tons)	Dimensions							
	"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
024 (2.0)	32 13/16	30 15/16	47 1/4	12 9/16	8 1/2	24 1/16	12	2 3/4
030 (2.5)	32 13/16	30 15/16	47 1/4	12 9/16	8 1/2	24 1/16	12	2 3/4
036 (3.0)	32 13/16	30 15/16	47 1/4	12 9/16	8 1/2	24 1/16	12	2 3/4
042 (3.5)	32 13/16	30 15/16	47 1/4	12 9/16	8 1/2	24 1/16	12	2 3/4
048 (4.0)	32 13/16	34 15/16	57 9/16	11 9/16	10 5/16	28 7/8	14	2 3/4
060 (5.0)	32 13/16	34 15/16	57 9/16	11 9/16	10 5/16	28 7/8	14	2 3/4

Table 3: Unit Clearances

Direction	Distance (in.)	Direction	Distance (in.)
Top ¹	60	Right	24
Front	36	Left	24
Rear ²	18	Bottom	0

1. Units must be installed outdoors. Over hanging structure or shrubs should not obscure condenser air discharge outlet.
2. Unit may be positioned to draw air from underneath structure.

Installing Of Duct To Unit (Manufactured Housing)

⚠ CAUTION

When installing this air conditioning system in conjunction with a furnace, a damper must be installed in the furnace to prevent cold air being discharged around the heat exchanger. The presence of such cold air could damage the heat exchanger and could cause asphyxiation. A damper, part number 7900-6771* is available for use on Unitary Products Group manufactured housing gas and oil furnaces. (See 7900-6771* damper assembly installation instructions packed with the damper assembly for more in-formation. For other makes of furnaces, check with the furnace manufacturer for damper requirements.

Flanges for round ducts are packed with the unit. The unit's supply and return air connections are sized for optimum performance.

Should the ductwork connecting to the air conditioner be of smaller dimensions, it is recommended that transitions connecting the ducts to the unit be constructed to allow a smooth airflow to the air conditioner's return air opening and from the supply air opening. Abrupt duct size changes increase the system static pressure and reduces air volume which may cause unsatisfactory performance. Duct-work should be in accordance with Local and National Codes.

Ductwork exposed to outside environmental conditions must be insulated and weather proofed. Out-side wall openings through which the ducts pass must be weather proofed in accordance with Local and National Codes.

Supply and return air ducts passing through unconditioned spaces of the building must be insulated and covered with a vapor barrier. Following this practice will prevent thermal losses and condensate formation on the ducts.

Supply and Return Ducts

Duct should be sized to accommodate a maximum of .8" water column. Metal ducts may be used when properly insulated and vapor proofed. Any duct used should be covered with insulation having a minimum R-value of 4.0 or in accordance with any local codes or standards regarding duct material. Insulation

must be covered with a vapor barrier. Install the air conditioning duct connections to the unit. Insure that the seam is towards bottom. A good quality duct tape should be used to insure an airtight installation.

The Return — Air Grille Boxes

The return air grille assembly should be installed first. The return air grille box and filter should be located and installed in the "out-rigger" areas of the home. Keep in mind, the closer to the cooling unit, the better. The return ducting connects to the bottom of the return air box so it will be necessary to provide an opening beneath the box. See Figure 5.

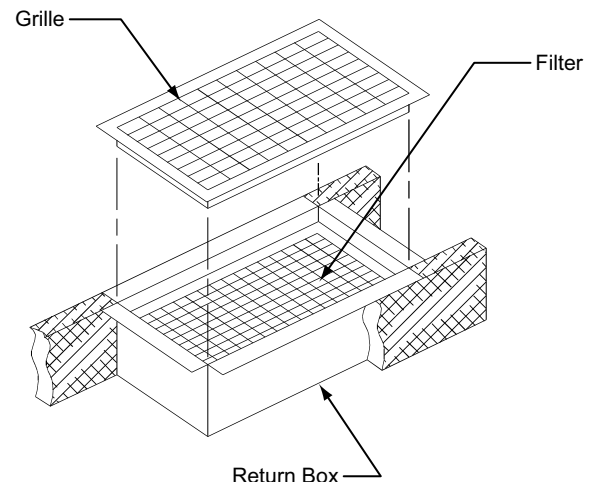


Figure 5: Return Air Box and Grille

After determining the location of the return air opening, start installation from beneath the manufactured home.

1. Cut a small hole in the fiber under board to determine floor joist location. Floor joists are generally located on 16" centers, leaving 14-3/8" between joists.
2. Cut a 12-1/2" x 20-1/2" rectangular hole in the floor between two joists.
3. Set the return box into the opening and mark a circular pattern on the fiber under board through the flex duct connector collar, then remove the return box from the opening.
4. Cut outside of the circular mark to allow enough space to pull the flex duct up through the hole and fasten to the return box.

- When attaching the flex duct to the return air box, secure the duct collar and return box collar together with at least three (3) sheet metal screws and seal with duct tape.
- Set the return air box, with flex duct attached, back into the floor opening.
- Fasten the return air box securely to the floor with screws or nails.
- Seal fiber under board hole around flex duct.

For ease of installation of the flexible ductwork, it is recommended that as much work as possible be done outside the underneath area of the manufactured home. Accurate measurements are required. Plan the ducting configuration well and double check the measurements.

Check the intended routing and length required of the flexible duct.

Remember, each slight change in direction of the duct add static resistance and reduces airflow.

Keep flexible ducts straight and short. Wide sweeping bends should be used when turns are necessary, not sharp corners or angles.

- When return air grille box is installed, run the duct to the return air inlet flange on the unit.
- Cut the duct to the required length using a knife, or tin snips, and cut the helical wire with a wire cutter.

- Insert a stub collar in the raw end of the duct and tape securely in place.
- Make sure the duct is not stretched tight and does not have kinks from excessive length after installation.
- Attach the duct end, with the stub collar, to the air conditioner return air flange with screws and duct tape sealing the duct cover securely.

Wye Installation

It is necessary to field fabricate and install an insulation jacket for the Wye. Insulation will prevent loss of capacity especially where the gain or loss is critical in a borderline installation. See Figures 6 and 7.

- Use "faced" batt insulation material.
- Place the insulation on the topside of the Wye, with the faced or vinyl side out.
- Tape to insulation placed on bottom of Wye and tape together "diaper style".
- Make sure a tight bond is obtained and attach to flexible duct sleeves with tape.
- Tape insulation to return air opening flange, airtight.

NOTE: The insulation should not be compressed around the Wye. This defeats the purpose of the insulation.

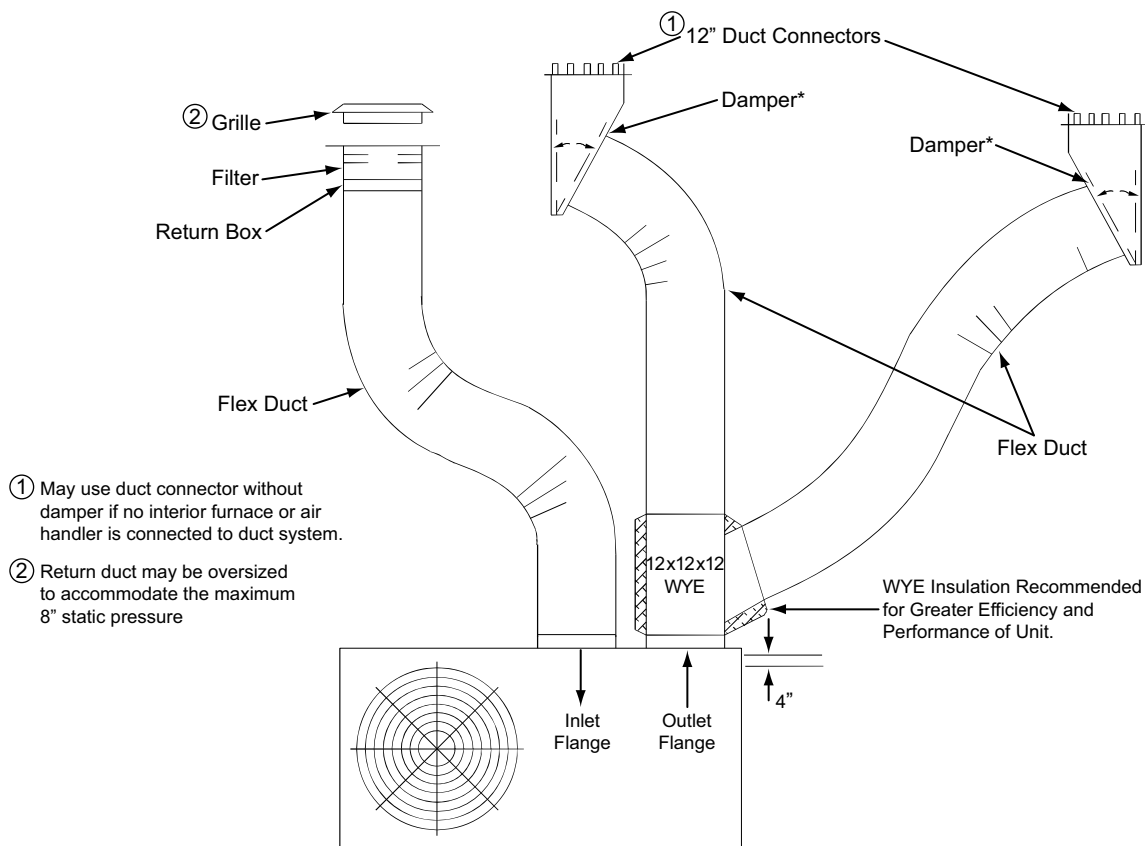


Figure 6: Wye Installation (Outlet)

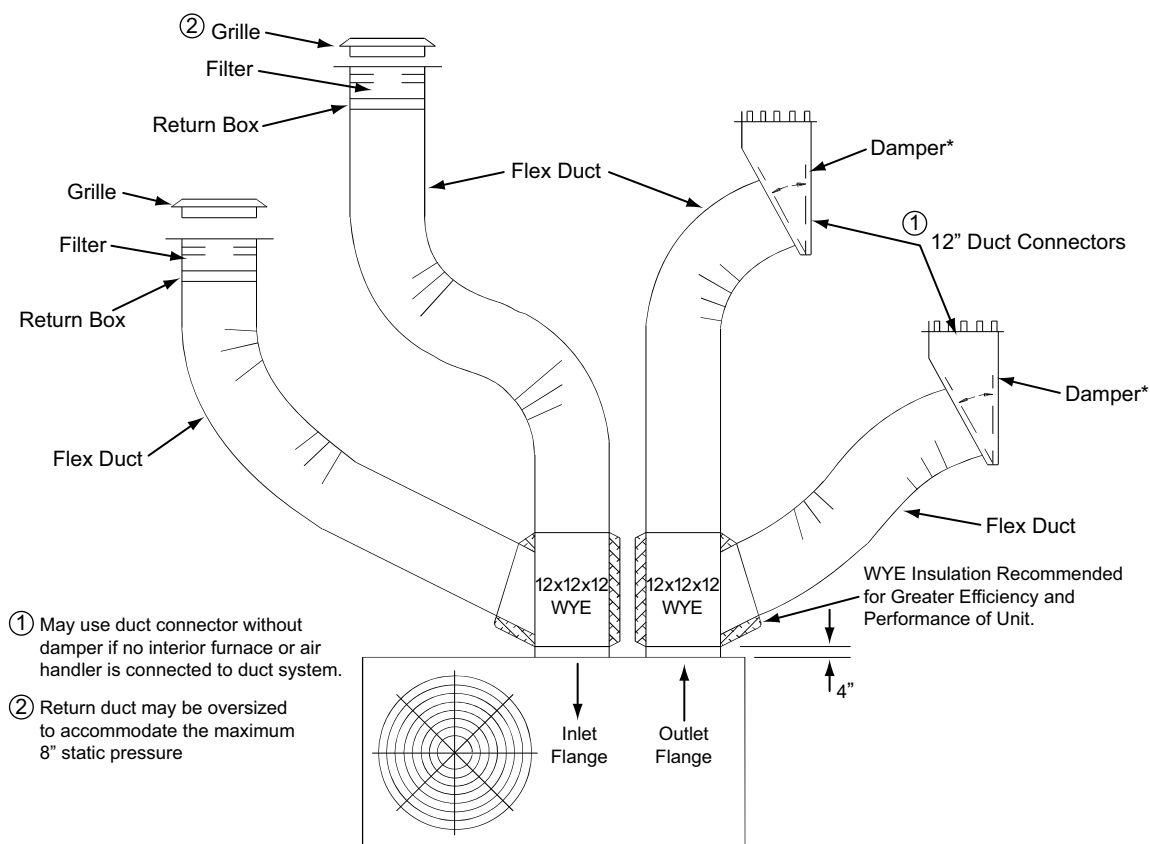


Figure 7: Wye Installation (Inlet and Outlet)

Discharge Duct Installation

If an interior furnace or air handler will be connected to the supply duct system, the supply duct connector should be equipped with a damper. See Figure 8.

If no interior furnace or air handler will be connected to the ductwork, the duct connector may be a 12" diameter round duct. See Figure 9.

When locating the duct connector, check carefully for floor joists, axles, wheels and frame members that could interfere with the installation of the duct connector or the running of the

duct. Ideally, the duct connector should be located in the bottom of the main duct, forward of center of the manufactured home. Do not install duct connector under a register. This will help to eliminate the transmission of sound into the home.

To locate the center of the duct, first cut a 6" hole in the fiberboard below the duct at the desired location. After locating the duct center, increase the hole in the fiber board to approximately the size of the duct connector.

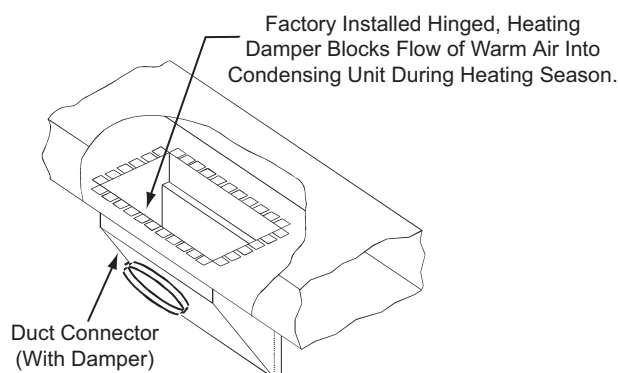


Figure 8: Duct Connector (With Damper)

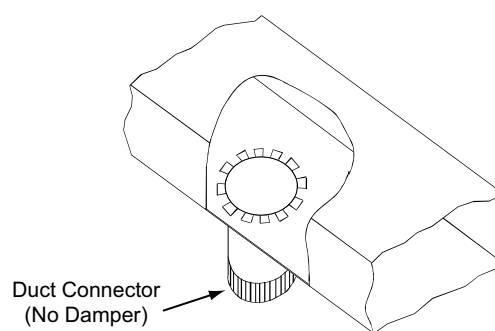


Figure 9: Duct Connector (No Damper)

If using the duct connector with damper, cut a 9-1/8"x 16-1/8" hole in the center of the duct bottom. If using the 12" diameter duct connector without damper cut a 12-1/8" diameter hole in the center of the duct bottom. Place the duct connector in the hole and secure tightly with the tabs. If necessary, support duct connector with support braces. See Figures 6 & 7.

NOTE: It is advisable to tape joints at the duct connector airtight. There is extreme pressure exerted by the blower at this point.

Installing Of Duct To Unit (Residential)

Flanges are provided to help install the ducts to the air conditioner. The duct flanges must be field in-stalled on the unit's side.

The unit's supply and return air connections are sized for optimum performance. Should the duct work connecting to the air conditioner be of smaller dimensions, it is recommended that transitions connecting the ducts to the unit be constructed to allow a smooth airflow to the heat unit's return air opening and from the supply air opening. Abrupt duct size changes increase the system static pressure and reduces air volume which may cause unsatisfactory performance.

Ductwork should be in accordance with local and national codes.

Ductwork exposed to outside environmental conditions must be insulated and weather proofed. Out-side wall openings through which the ducts pass must be weather proofed in accordance with good construction practices.

Supply and return air ducts passing through unconditioned spaces of the building must be insulated and covered with a vapor barrier. Following this practice will prevent thermal losses and condensate formation on the ducts.

Installing Drain Tube And Connection

A drain tube, a barbed elbow plastic fitting, and a plastic hose clamp are provided in the small parts package packed in the blower chute.

1. To insure proper condensate drainage, the barbed plastic elbow fitting should be screwed into the unit drain fitting

(located in the front corner of the unit), and the drain tube installed on the barbed end of the plastic fitting secured in plastic fitting with the plastic hose clamp.

2. If it is necessary to drain water away from unit, attach a drain hose to the drain tube.

CAUTION

The drain hose must not rise above the level of the drain fitting at any point in its routing. Failure to do so will result in condensate water overflowing into the unit's interior.

Service Access

Access to all serviceable components is provided at the following locations:

- Blower compartment access panel
- Control box access panel

Refer to Figure 1 for location of these access locations and minimum clearances in Table 3.

CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system. Gage sets, hoses, refrigerant containers and recovery systems must be designed to handle R-410A. If you are unsure, consult the equipment manufacturer. Failure to use R-410A compatible servicing equipment may result in property damage or injury.

WARNING

Wear safety glasses and gloves when handling refrigerants. Failure to follow this warning can cause serious personal injury.

Compressors

The compressor used in this product is specifically designed to operate with R-410A Refrigerant and cannot be interchanged.

⚠ CAUTION

This system uses R-410A Refrigerant which operates at higher pressures than R-22. No other refrigerant may be used in this system.

The compressor also uses a polyolester (POE oil), Mobil 3MA POE. This oil is extremely hygroscopic, meaning it absorbs water readily. POE oil can absorb 15 times as much water as other oils designed for HCFC and CFC refrigerants. Take all necessary precautions to avoid exposure of the oil to the atmosphere.

⚠ CAUTION

Do not leave the system open to the atmosphere. Unit damage could occur due to moisture being absorbed by the **POE oil** in the system. This type of oil is highly susceptible to moisture absorption

POE (polyolester) compressor lubricants are known to cause long term damage to some synthetic roofing materials.

⚠ CAUTION

Exposure, even if immediately cleaned up, may cause embrittlement (leading to cracking) to occur in one year or more. When performing any service that may risk exposure of compressor oil to the roof, take precautions to protect roofing.

Procedures which risk oil leakage include, but are not limited to, compressor replacement, repairing refrigerant leaks, replacing refrigerant components such as filter drier, pressure switch, metering device or coil.

Units are shipped with compressor mountings which are factory-adjusted and ready for operation.

⚠ CAUTION

Do not loosen compressor mounting bolts.

Power And Control Wiring

Field wiring to the unit must conform to provisions of the current N.E.C. ANSI/NFPA No. 70 or C.E.C. and/or local ordinances. The unit must be electrically grounded in accordance with local codes or, in their absence, with the N.E.C./C.E.C. Voltage tolerances which must be maintained at the compressor terminals during starting and running conditions are indicated on the unit Rating Plate and Table 5.

The wiring entering the cabinet must be provided with mechanical strain relief.

A fused disconnect switch should be field provided for the unit. If any of the wire supplied with the unit must be replaced, replacement wire must be of the type shown on the wiring diagram.

Electrical line must be sized properly to carry the load. Each unit must be wired with a separate branch circuit fed directly from the meter panel and properly fused.

Power Wiring

1. Remove side panel. Run power line service wiring into control box through the bottom knockout opening in the casing. (The two top knockouts are used when installing an auxiliary heater.)
2. For single phase units - Connect one supply wire to L1 on the contactor, and the other supply wire to L2 on the contactor. Connect ground wire to ground lug in control box. See Figure 10.
3. For three phase units - connect supply wires to L1, L2 and L3 on the contactor. Connect ground wire to ground lug in control box.
4. Unless the air conditioner is grounded through proper wiring to the service entrance ground terminal, a suitable separate ground must be provided at the air conditioner.

Control Wiring

1. Run low voltage control circuit wires through the "fingered" snap bushing into the low voltage compartment.
2. Connect low voltage wires from the thermostat to the red, yellow and green 18 gauge wires in the unit low voltage compartments.
3. Disregard the white wire unless installing an auxiliary heater. In this case refer to auxiliary heater instructions.

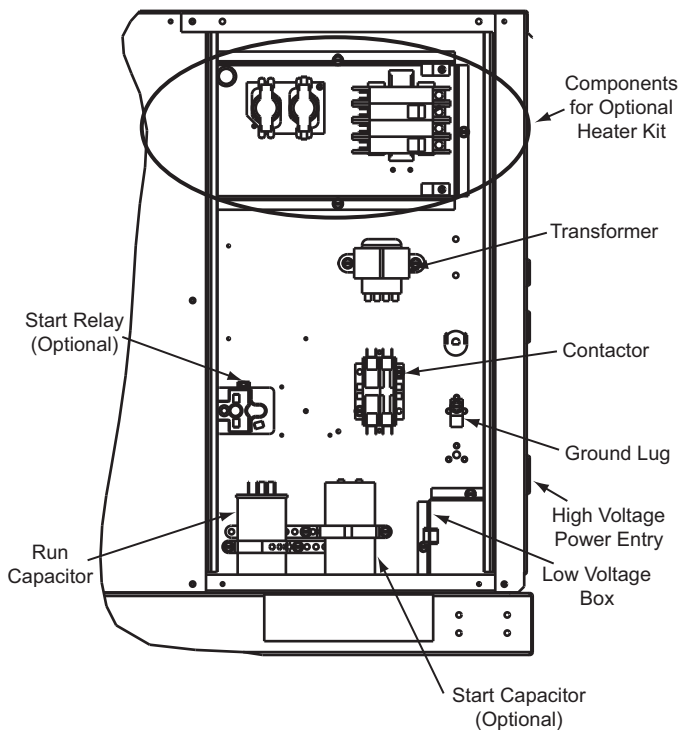


Figure 10: Unit Component Location

Wall Thermostat Installation

CAUTION

A thermostat interlock system must be provided to prevent simultaneous operation of the furnace and air conditioner which can possibly cause equipment damage, energy waste and overheating of the home.

The use of a combination heat/cool thermostat is recommended to achieve the required interlock. A heat/cool thermostat suitable for this purpose is available as an accessory (P/N 3110-350P).

Wiring of the 3110-350P thermostat is shown in Figure 12. (Complete instructions are included in the thermostat package.)

CAUTION

The heating side of this thermostat is equipped with a self adjusting anticipator. Anticipator adjustment is not needed and no provision is made for it. The current range for this system is from .15 to 1.0 Amps, obtain proper thermostat from thermostat manufacturer.

In the event a separate cooling thermostat is used, a separate switch as shown in Figure 11 must be installed in both thermostat circuits so that only one thermostat at a time can be operated.

General recommendations for the location of the thermostat are as follows:

The proper location of the room thermostat is most important to insure that it will provide a comfortable home temperature.

Observe the following general rules when selecting a location:

1. Locate thermostat about 5 feet above floor.
2. Install on a partitioning wall, not on an outside wall.
3. Never expose it to direct light from lamps, sun, fireplaces, etc.
4. Avoid locations close to doors that lead outside, to windows or to adjoining outside walls.
5. Avoid locations close to radiators, warm air registers, or in the direct path of heat or cold air from them.
6. Make sure that there are no pipes or ductwork in that part of the wall chosen for thermostat location.
7. Never locate it in a room that is warmer or cooler than the rest of the home, such as a kitchen or hallway.
8. The living or dining room is normally a good location provided there is no cooking range or refrigerator on the opposite side of wall.

Make final check of complete electrical system for correct wiring. Check for any possible loose connections.

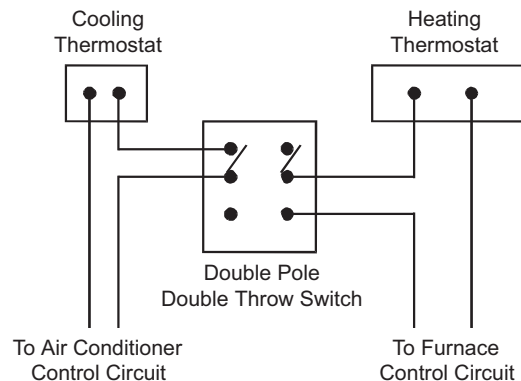


Figure 11: Switch Installation

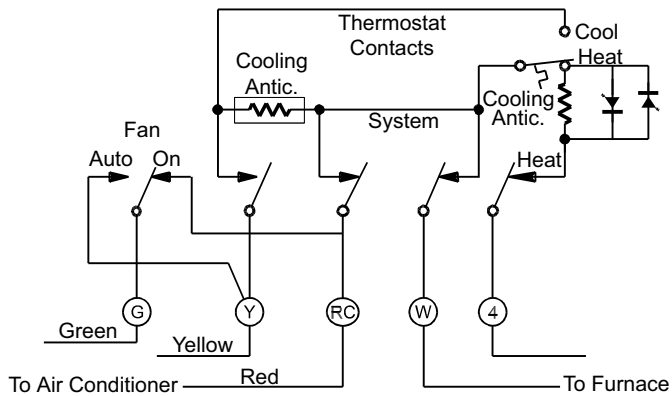


Figure 12: Thermostat Wiring

Pre-start Procedure

Before starting air conditioner, make sure of the following:

1. The unit is properly located and level.
2. The ductwork is properly sized, insulated, weather proofed and correctly spaced from combustible materials.
3. Air is free to flow to and from outdoor coil.
4. All wiring is correct, tight and according to the wiring diagrams.
5. The unit is properly grounded electrically.
6. The condensate drain is connected and directed away from the unit and structure.
7. The outdoor fan and indoor blower wheel will turn freely.
8. The indoor blower is factory wired to provide the correct speed.

System Startup, Check-out

1. With the thermostat set to the "OFF" position, close disconnect switch or switches to complete circuit to air conditioner. Set thermostat to call for cooling.
2. With the system in operation, check the air conditioner for unusual noise and undue vibration.
3. Replace blower compartment door if removed.
4. After the system has been operating for approximately ten minutes, check the voltage and amperage at the condensing unit contactor. If the voltage is not within 10% of the rated voltage, or amperage, shut down the system and contact the electrical utility.
5. Allow the system to operate until it is balanced or stabilized (approximately 30 minutes) before making further checks.
6. Check that the furnace damper closes properly when the air conditioner is on.
7. Turn off the air conditioner at the thermostat and turn on the furnace. Check that automatic heat damper opens properly in the heating mode.
8. Re-install all panels on the A/C unit.
9. Adjust and balance the duct system.
10. Check the ducts for condensation during the cooling mode.
11. Check the A/C system for tubing and sheet metal rattles.
12. Instruct the owner on the operation and maintenance of this A/C system.
13. After installation is completed, place unit Data Sheet and Installation Instructions into Customer Envelope.

Table 4: Electrical Data

Size (Tons)	Volt	Compressors (each)			OD Fan Motors (each)	Supply Blower Motor	Electric Heat Option				MCA ¹ (Amps)	MOCP ² (Amps)	Factory Fuse ³ / Size (Amps)
		RLA	LRA	MCC			Model	kW	Stages	Amps			
024 (2.0)	208/230-1-60	8.3	43.0	13.0	1.2	3.3	None	—	—	—	14.9	20	20
							2PH08520506	3.6/4.8	1	17.2/19.9	25.7/29.0	30/30	30/30
							2PH08520706	4.9/6.5	1	23.5/27.1	33.5/38.0	35/40	35/40
							2PH08521006	7.2/9.6	1	34.5/39.8	47.2/53.9	50/60	50/60
							2PH08521506	10.8/14.3	1	51.7/59.7	68.8/78.8	70/80	70/80
030 (2.5)	208/230-1-60	10.6	54.0	16.6	1.4	3.3	None	—	—	—	18.0	25	25
							2PH08520506	3.6/4.8	1	17.2/19.9	25.7/29.0	30/30	30/30
							2PH08520706	4.9/6.5	1	23.5/27.1	33.5/38.0	35/40	35/40
							2PH08521006	7.2/9.6	1	34.5/39.8	47.2/53.9	50/60	50/60
							2PH08521506	10.8/14.3	1	51.7/59.7	68.8/78.8	70/80	70/80
036 (3.0)	208/230-1-60	14.7	74.0	23.0	1.4	3.3	None	—	—	—	23.1	30	30
							2PH08520506	3.6/4.8	1	17.2/19.9	25.7/29.0	35/35	35/35
							2PH08520706	4.9/6.5	1	23.5/27.1	33.5/38.0	35/40	35/40
							2PH08521006	7.2/9.6	1	34.5/39.8	47.2/53.9	50/60	50/60
							2PH08521506	10.8/14.3	1	51.7/59.7	68.8/78.8	70/80	70/80
042 (3.5)	208/230-1-60	16.0	84.0	25.0	1.7	4.1	None	—	—	—	16.1	25	25
							2PH08520506	3.6/4.8	1	17.2/19.9	26.7/30.0	35/40	35/40
							2PH08520706	4.9/6.5	1	23.5/27.1	34.5/39.0	40/40	40/40
							2PH08521006	7.2/9.6	1	34.5/39.8	48.2/54.9	50/60	50/60
							2PH08521506	10.8/14.3	1	51.7/59.7	69.8/79.8	70/80	70/80
048 (4.0)	208/230-1-60	18.6	102.0	29.0	1.7	7.6	None	—	—	—	32.6	45	45
							2PH08520506	3.6/4.8	1	17.2/19.9	32.6/34.4	45/45	45/45
							2PH08520706	4.9/6.5	1	23.5/27.1	38.8/43.4	50/50	50/50
							2PH08521006	7.2/9.6	1	34.5/39.8	52.6/59.3	60/60	60/60
							2PH08521506	10.8/14.3	1	51.7/59.7	74.2/84.1	80/90	80/90
060 (5.0)	208/230-1-60	26.2	150.0	41.0	1.7	7.6	None	—	—	—	24.6	35	35
							2PH08520506	3.6/4.8	1	17.2/19.9	42.1/42.1	60/60	60/60
							2PH08520706	4.9/6.5	1	23.5/27.1	42.1/43.4	60/60	60/60
							2PH08521006	7.2/9.6	1	34.5/39.8	52.6/59.3	60/60	60/60
							2PH08521506	10.8/14.3	1	51.7/59.7	74.2/84.1	80/90	80/90
060 (5.0)	208/230-3-60	17.6	120.0	27.5	1.7	7.6	None	—	—	—	31.3	40	40
							2PH08520506	3.6/4.8	1	17.2/19.9	42.1/42.1	60/60	60/60
							2PH08520706	4.9/6.5	1	23.5/27.1	42.1/43.4	60/60	60/60
							2PH08521006	7.2/9.6	1	34.5/39.8	52.6/59.3	60/60	60/60
							2PH08521506	10.8/14.3	1	51.7/59.7	74.2/84.1	80/90	80/90
060 (5.0)	460-3-60	8.3	70.0	13.0	0.9	3.8	None	—	—	—	15.1	20	20
							2PH08520506	3.6/4.8	1	17.2/19.9	42.1/42.1	60/60	60/60
							2PH08520706	4.9/6.5	1	23.5/27.1	42.1/43.4	60/60	60/60
							2PH08521006	7.2/9.6	1	34.5/39.8	52.6/59.3	60/60	60/60
							2PH08521506	10.8/14.3	1	51.7/59.7	74.2/84.1	80/90	80/90

1. Minimum Circuit Ampacity.
2. Maximum Over Current Protection per standard UL 1995.
3. Fuse or HACR circuit breaker size installed at factory or field installed.

Table 5: Physical Data

Component	Models					
	NM024	NM030	NM036	NM042	NM048	NM060
Nominal Tonnage	2.0	2.5	3.0	3.5	4.0	5.0
ARI COOLING PERFORMANCE						
Gross Capacity @ ARI A point (Btu)	24300	31500	37000	41400	48100	57500
ARI net capacity (Btu)	23300	30200	35400	40200	46500	55800
EER	10.8	11.4	11	10.8	11.2	10.8
SEER	13	13	13	13	13	13
Nominal CFM	850	1000	1200	1150	1450	1700
System power (KW)	2.15	2.64	3.21	3.72	4.15	5.17
Refrigerant type	R-410A	R-410A	R-410A	R-410A	R-410A	R-410A
Refrigerant charge (lb-oz)						
System 1	4-6	4-6	4-8	4-8	4-12	4-14
DIMENSIONS (inches)						
Length	47-1/4	47-1/4	47-1/4	47-1/4	57-9/16	57-9/16
Width	32-13/16	32-13/16	32-13/16	32-13/16	32-13/16	32-13/16
Height	30-15/16	30-15/16	30-15/16	30-15/16	34-15/16	34-15/16
OPERATING WT. (lbs.)	276	279	315	315	357	350
COMPRESSORS						
Type	Recip	Recip	Recip	Recip	Recip	Scroll
Quantity	1	1	1	1	1	1
CONDENSER COIL DATA						
Face area (Sq. Ft.)	11.2	11.2	11.2	11.2	15.1	15.1
Rows	1	1	1	1	1	1
Fins per inch	23	23	23	23	23	23
Tube diameter (in.)	.71/18	.71/18	.71/18	.71/18	.71/18	.71/18
Circuitry Type	2-pass Microchannel	2-pass Microchannel	2-pass Microchannel	2-pass Microchannel	2-pass Microchannel	2-pass Microchannel
EVAPORATOR COIL DATA						
Face area (Sq. Ft.)	4.67	4.67	4.67	4.67	5.44	5.44
Rows	3	3	4	4	3	4
Fins per inch	13	13	13	13	13	13
Tube diameter	3/8	3/8	3/8	3/8	3/8	3/8
Circuitry Type	Intertwined	Intertwined	Intertwined	Intertwined	Intertwined	Intertwined
Refrigerant control	Orifice	Orifice	Orifice	Orifice	Orifice	Orifice
CONDENSER FAN DATA						
Quantity	1	1	1	1	1	1
Fan diameter (Inch)	20	20	20	20	22	22
Type	Prop	Prop	Prop	Prop	Prop	Prop
Drive type	Direct	Direct	Direct	Direct	Direct	Direct
No. speeds	1	1	1	1	1	1
Number of motors	1	1	1	1	1	1
Motor HP each	1/4	1/4	1/4	1/3	1/3	1/3
RPM	850	1100	1100	1100	1100	1100
Nominal total CFM	2500	2800	2800	3000	3200	3200
DIRECT DRIVE EVAP FAN DATA						
Quantity	1	1	1	1	1	1
Fan Size (Inch)	10 x 7	10 x 7	10 x 7	10 x 7	11 x 10	11 x 10
Fan type	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal	Centrifugal
Drive type	Direct	Direct	Direct	Direct	Direct	Direct
No. speeds	3	3	3	5	5	5
Number of Motors	1	1	1	1	1	1
Motor HP each	1/2	1/2	1/2	1/2	1	1
RPM	1075	1075	1075	1100	1100	1100
Frame size	48	48	48	48	48	48
FILTERS						
Quantity - Size	-	-	-	-	-	-

Airflow Performance

Table 6: Airflow Performance

Size (Tons)	Unit Speed)	External Static Pressure (Inch Water Gauge)														
		0.2			0.4			0.6			0.8			1.0		
		SCFM	W	RPM	SCFM	W	RPM	SCFM	W	RPM	SCFM	W	RPM	SCFM	W	RPM
024 (2.0)	Low	1048	398	862	1008	377	937	927	347	1005	813	310	1056	644	266	1100
	Medium	1273	491	980	1194	457	1028	1084	416	1064	944	374	1094	754	322	1119
	High	1410	572	1069	1302	532	1090	1160	487	1109	1002	444	1127	801	395	1142
030 (2.5)	Low	1048	398	862	1008	377	937	927	347	1005	813	310	1056	644	266	1100
	Medium	1273	491	980	1194	457	1028	1084	416	1064	944	374	1094	754	322	1119
	High	1410	572	1069	1302	532	1090	1160	487	1109	1002	444	1127	801	395	1142
036 (3.0)	Low	1048	398	862	1008	377	937	927	347	1005	813	310	1056	644	266	1100
	Medium	1273	491	980	1194	457	1028	1084	416	1064	944	374	1094	754	322	1119
	High	1410	572	1069	1302	532	1090	1160	487	1109	1002	444	1127	801	395	1142
042 (3.5)	Low	1095	233	853	1037	255	936	979	269	1003	904	283	1079	829	297	1154
	Low/Medium	1161	276	897	1104	298	973	1043	312	1040	978	325	1105	913	337	1171
	Medium	1166	306	912	1101	323	977	1037	338	1042	977	351	1102	833	321	1139
	Medium/High	1255	385	971	1169	400	1030	1109	412	1087	996	384	1123	841	328	1146
	High	1336	471	1031	1263	479	1081	1154	446	1114	1027	397	1133	853	340	1153
048 (4.0)	Low	1264	206	684	1160	228	763	968	258	875	871	274	927	774	290	979
	Low/Medium	1307	227	706	1212	249	780	1060	277	878	924	300	947	788	323	1016
	Medium	1340	250	726	1245	274	803	1100	311	900	996	329	967	892	347	1034
	Medium/High	1854	554	898	1776	583	957	1695	617	1022	1612	643	1077	1529	669	1132
	High	2250	944	1039	2175	964	1081	2034	912	1114	1827	822	1136	1620	732	1158
060 (5.0)	Low	1368	331	849	1229	369	953	1015	397	1045	898	420	1106	781	443	1167
	Low/Medium	1546	394	865	1391	439	975	1187	479	1080	1062	501	1088	937	523	1096
	Medium	1612	480	923	1488	522	1018	1318	570	1127	1059	515	1157	-	-	-
	Medium/High	1922	687	995	1804	732	928	1566	682	1140	1121	542	1160	-	-	-
	High	2227	978	1086	1976	889	1129	1677	757	1151	-	-	-	-	-	-

Table 7: Additional Static Resistance

Size (Tons)	CFM	Wet Indoor Coil	Electric Heat, kW			
			5	6.5	10	15
024 (2.0)	400	0.05	0.05	0.05	0.06	0.07
	500	0.06	0.06	0.06	0.07	0.08
	600	0.07	0.07	0.07	0.08	0.09
	700	0.08	0.08	0.08	0.09	0.10
	800	0.09	0.09	0.09	0.10	0.12
	900	0.1	0.10	0.10	0.11	0.13
	1000	0.12	0.12	0.12	0.13	0.15
	1100	0.13	0.13	0.13	0.14	0.17
	1200	0.15	0.15	0.15	0.16	0.19
	1300	0.17	0.17	0.17	0.18	0.21
030 (2.5)	1400	0.19	0.19	0.19	0.20	0.23
	400	0.05	0.05	0.05	0.06	0.07
	500	0.06	0.06	0.06	0.07	0.08
	600	0.07	0.07	0.07	0.08	0.09
	700	0.08	0.08	0.08	0.09	0.10
	800	0.09	0.09	0.09	0.10	0.12
	900	0.1	0.10	0.10	0.11	0.13
	1000	0.12	0.12	0.12	0.13	0.15
	1100	0.13	0.13	0.13	0.14	0.17
	1200	0.15	0.15	0.15	0.16	0.19
036 (3.0)	1300	0.17	0.17	0.17	0.18	0.21
	1400	0.19	0.19	0.19	0.20	0.23
	400	0.05	0.05	0.05	0.06	0.07
	500	0.06	0.06	0.06	0.07	0.08
	600	0.07	0.07	0.07	0.08	0.09
	700	0.08	0.08	0.08	0.09	0.10
	800	0.09	0.09	0.09	0.10	0.12
	900	0.1	0.10	0.10	0.11	0.13
	1000	0.12	0.12	0.12	0.13	0.15
	1100	0.13	0.13	0.13	0.14	0.17
042 (3.5)	1200	0.15	0.15	0.15	0.16	0.19
	1300	0.17	0.17	0.17	0.18	0.21
	1400	0.19	0.19	0.19	0.20	0.23
	400	0.05	0.05	0.05	0.06	0.07
	500	0.06	0.06	0.06	0.07	0.08
	600	0.07	0.07	0.07	0.08	0.09
	700	0.08	0.08	0.08	0.09	0.10
	800	0.09	0.09	0.09	0.10	0.12
	900	0.1	0.10	0.10	0.11	0.13
	1000	0.12	0.12	0.12	0.13	0.15
048 (4.0)	1100	0.13	0.13	0.13	0.14	0.17
	1200	0.15	0.15	0.15	0.16	0.19
	1300	0.17	0.17	0.17	0.18	0.21
	1400	0.19	0.19	0.19	0.20	0.23
	1500	0.21	0.21	0.21	0.22	0.25
	1600	0.23	0.23	0.23	0.24	0.27
	1700	0.25	0.25	0.25	0.26	0.29
	1800	0.27	0.27	0.27	0.28	0.31
	1900	0.29	0.29	0.29	0.30	0.33
	2000	0.31	0.31	0.31	0.32	0.35
060 (5.0)	2100	0.33	0.33	0.33	0.34	0.37
	2200	0.35	0.35	0.35	0.36	0.39
	800	0.09	0.09	0.09	0.10	0.12
	900	0.1	0.10	0.10	0.11	0.13
	1000	0.12	0.12	0.12	0.13	0.15
	1100	0.13	0.13	0.13	0.14	0.17
	1200	0.15	0.15	0.15	0.16	0.19
	1300	0.17	0.17	0.17	0.18	0.21
	1400	0.19	0.19	0.19	0.20	0.23
	1500	0.21	0.21	0.21	0.22	0.25
	1600	0.23	0.23	0.23	0.24	0.27
	1700	0.25	0.25	0.25	0.26	0.29
	1800	0.27	0.27	0.27	0.28	0.31
	1900	0.29	0.29	0.29	0.30	0.33
	2000	0.31	0.31	0.31	0.32	0.35
	2100	0.33	0.33	0.33	0.34	0.37
	2200	0.35	0.35	0.35	0.36	0.39

Table 8: Electric Heat Minimum Supply Air

Size (Tons)	Voltage	Minimum Supply Air (CFM)			
		Heater kW			
		5.0	6.5	10.0	15.0
024 (2.0)	208/230-1-60	800	800	800	775
030 (2.5)	208/230-1-60	800	800	800	775
036 (3.0)	208/230-1-60	800	800	800	775
042 (3.5)	208/230-1-60	800	800	800	775
048 (4.0)	208/230-1-60	1300	1300	1270	1160
060 (5.0)	208/230-1-60	1300	1300	1270	1160

Table 9: Indoor Blower Specifications

Size (Tons)	Motor				
	HP	RPM	Eff.	SF	Frame
024 (2.0)	1/2	1075	0.8	1.0	48
030 (2.5)	1/2	1075	0.8	1.0	48
036 (3.0)	1/2	1075	0.8	1.0	48
042 (3.5)	1/2	1100	0.8	1.0	48
048 (4.0)	1	1100	0.8	1.0	48
060 (5.0)	1	1100	0.8	1.0	48

Table 10: Electric Heat Multipliers

Voltage		kW Capacity Multipliers ¹
Nominal	Applied	
240	208	0.75
	230	0.92

1. Electric heaters are rated at nominal voltage. Use this table to determine the electric heat capacity for heaters applied at lower voltages.

Maintenance

Normal Maintenance

WARNING

Prior to any of the following maintenance procedures, shut off all power to the unit, to avoid personal injury.

Periodic maintenance consists of changing or cleaning filters and general cleaning of the outdoor coil.

FILTERS - Inspect once a month. Replace Disposable or clean Permanent Type as necessary. DO NOT replace Permanent Type with Disposable.

MOTORS - Indoor and outdoor fan motors are permanently lubricated and require no maintenance.

OUTDOOR COIL - Dirt should not be allowed to accumulate on the outdoor coil surface or other parts in the air circuit. Cleaning should be as often as necessary to keep the coil clean. Use a brush, vacuum cleaner attachment, or other suitable means. If water is used to clean the coil, be sure that the power to the unit is shut off prior to cleaning.

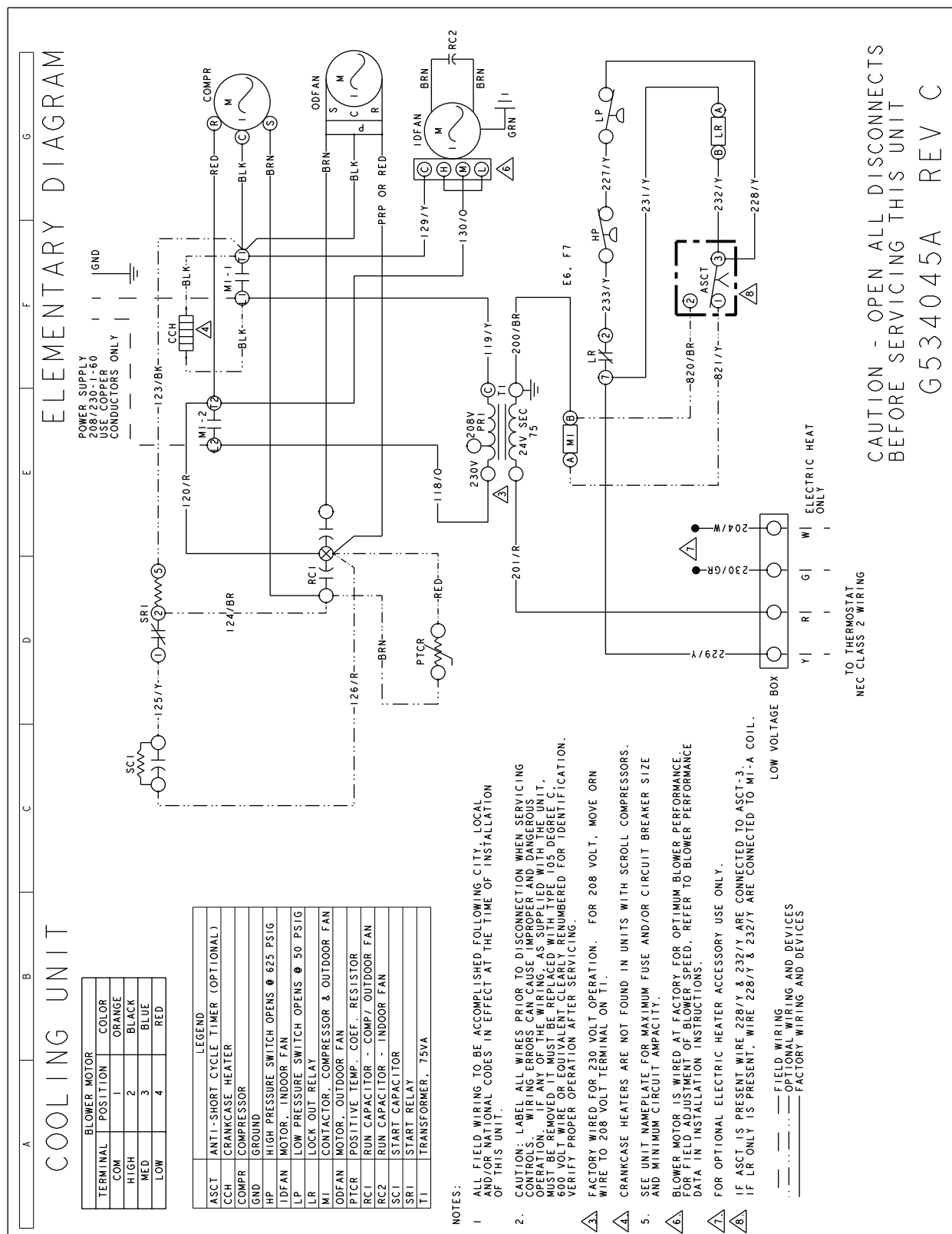
CAUTION

Exercise care when cleaning the coil so that the coil fins are not damaged.

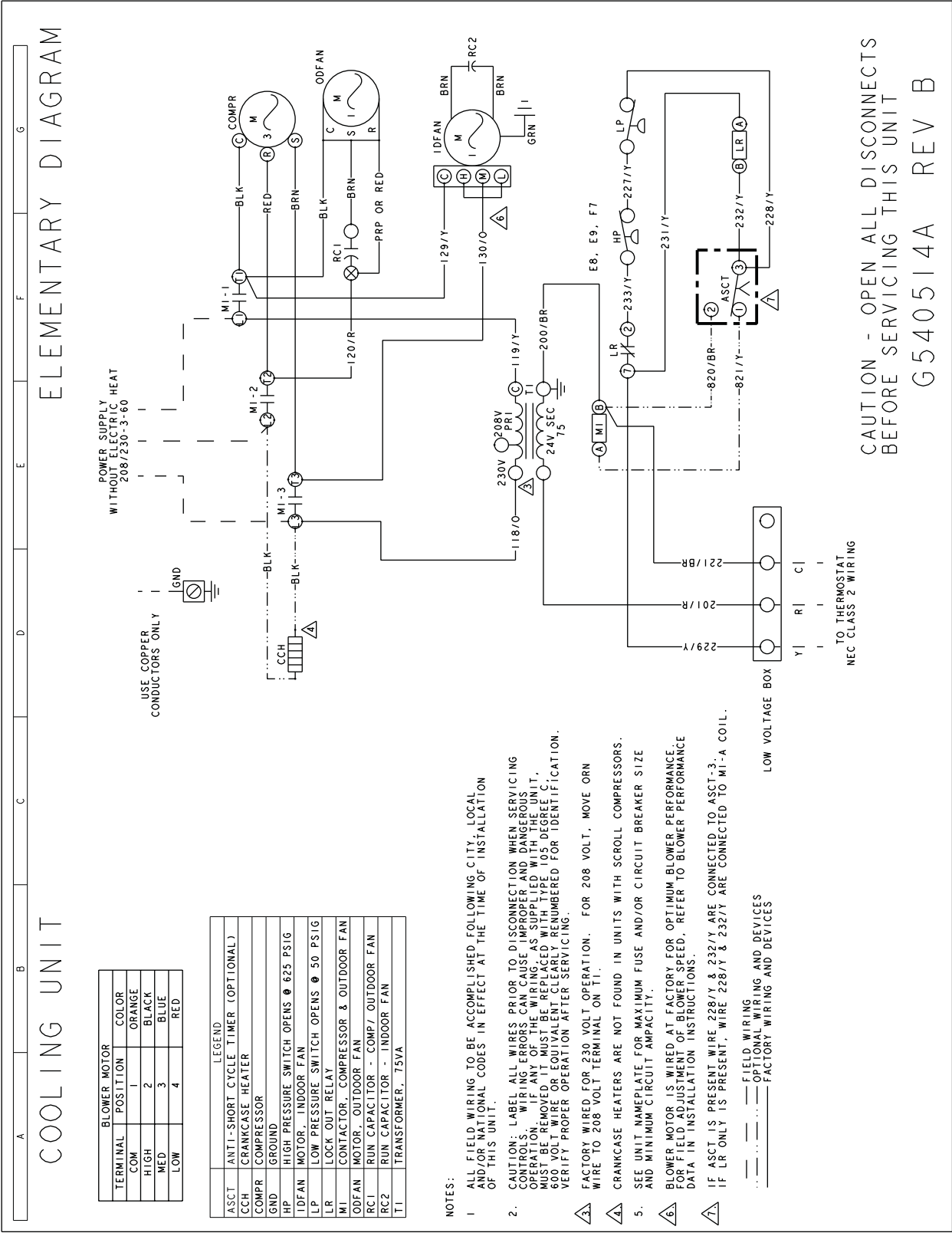
Do not permit the hot condenser air discharge to be obstructed by overhanging structures or shrubs.

Typical Wiring Diagrams

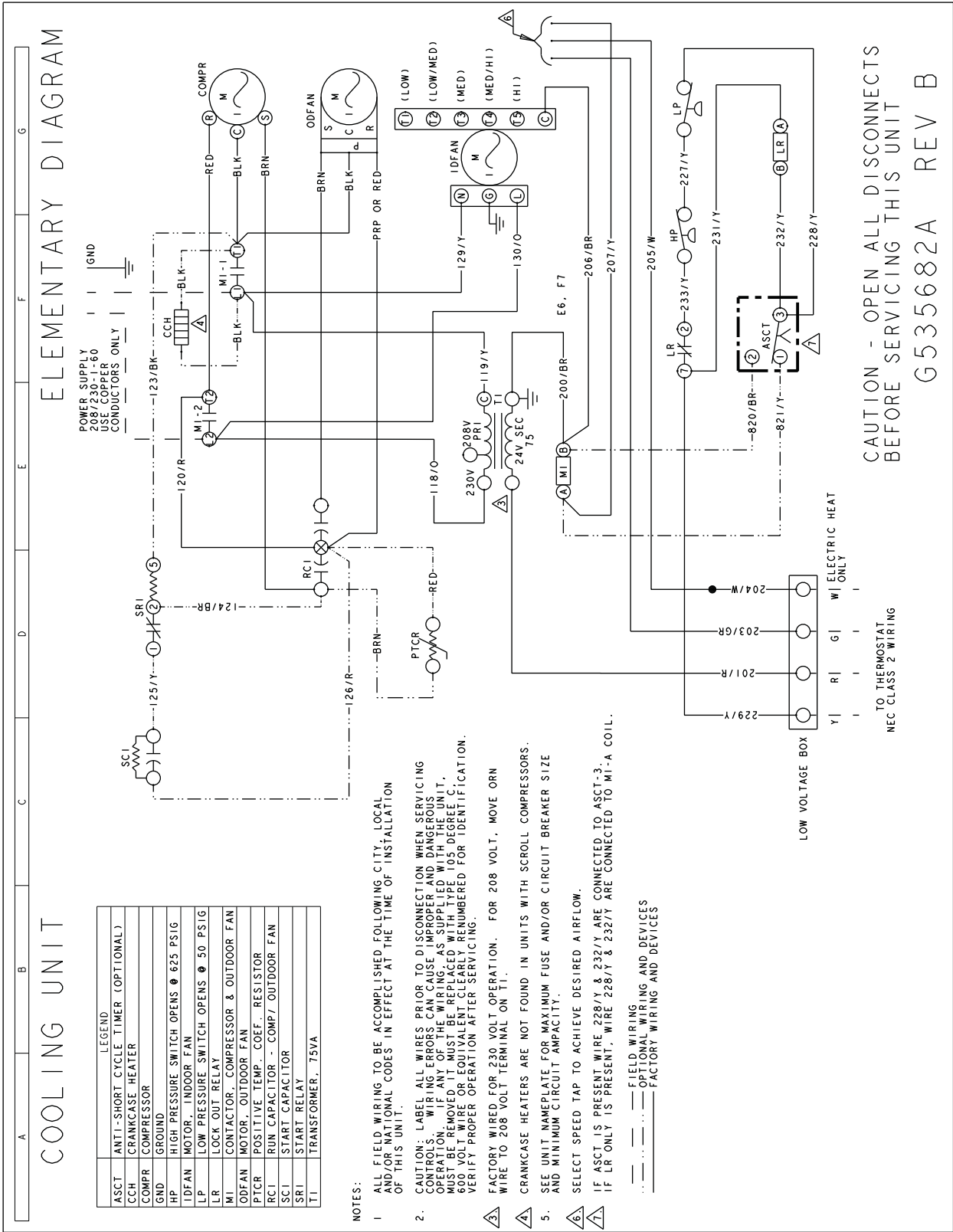
NM024, 030 and 036 Typical Cooling Unit 208/230-1-60 volt Wiring Diagram



NM036 Typical Cooling Unit 208/230-3-60 volt Wiring Diagram



NM042, 048 and 060 Typical Cooling Unit 208/230-1-60 volt Wiring Diagram



NM048 and 060 Typical Cooling Unit 460-3-60 volt Wiring Diagram

