INSTALLATION MANUAL

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NOTES, CAUTIONS AND WARNINGS

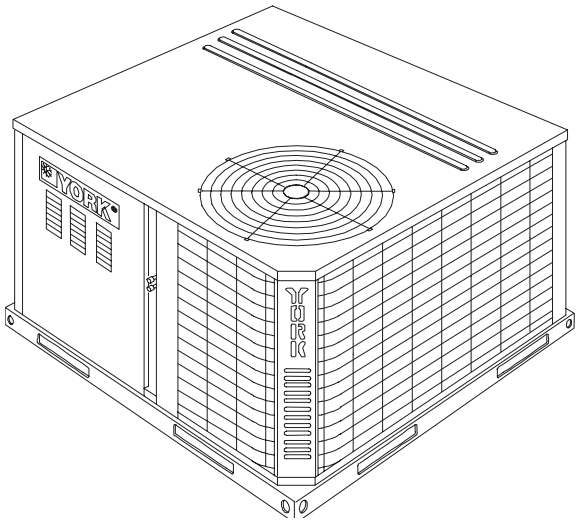
The installer should pay particular attention to the words: *NOTE*, *CAUTION*, and *WARNING*. Notes are intended to clarify or make the installation easier. Cautions are given to prevent equipment damage. Warnings are given to alert installer that personal injury and/or equipment damage may result if installation procedure is not handled properly.

CAUTION: READ ALL SAFETY GUIDES BEFORE YOU BEGIN TO INSTALL YOUR UNIT.

SAVE THIS MANUAL

CHAMPION®PLUS
SINGLE PACKAGED GAS/ELECTRIC
AIR COOLED AIR CONDITIONERS
1-1/2 THROUGH 5 NOMINAL TON

DNH: 018, 024, 030, 036, 042, 048, 060



ISO 9001
Certified Quality
Management System

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GENERAL

YORK Model D1NH units are cooling/heating air conditioners designed for outdoor installation. Only gas piping, electric power and duct connections are required at the point of installation.

The gas-fired heaters have hot surface to pilot ignition. The tubular heat exchangers are aluminized steel.

This appliance is not to be used for temporary heating of buildings or structures under construction.

Installer should pay particular attention to the words; NOTE, CAUTION, and WARNING. NOTES are intended to clarify or make the installation easier. CAUTIONS are given to prevent equipment damage. WARNINGS are given to alert the installer that personal injury and/or equipment damage may result if installation procedure is not handled properly.

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. Refer to Form 50.15-NM for additional information.

RENEWAL PARTS

For key Replacement Parts, refer to Renewal Parts Form:

- 530.46-RP1.1Y
- 530.46-RP1.2Y
- 530.46-RP2.1Y
- 530.46-RP3.1Y

APPROVALS

Design certified by CGA and AGA listed as follows:

1. For use as a forced air furnace with cooling unit.
2. For outdoor installation only.
3. For installation directly on combustible flooring or, in U.S., on wood flooring or Class A; B; C roof covering material.
4. For installation on combustible material.
5. For use with natural gas and/or propane (LP) gas. Not suitable for use with conventional venting systems.

⚠ CAUTION

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

⚠ WARNING

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

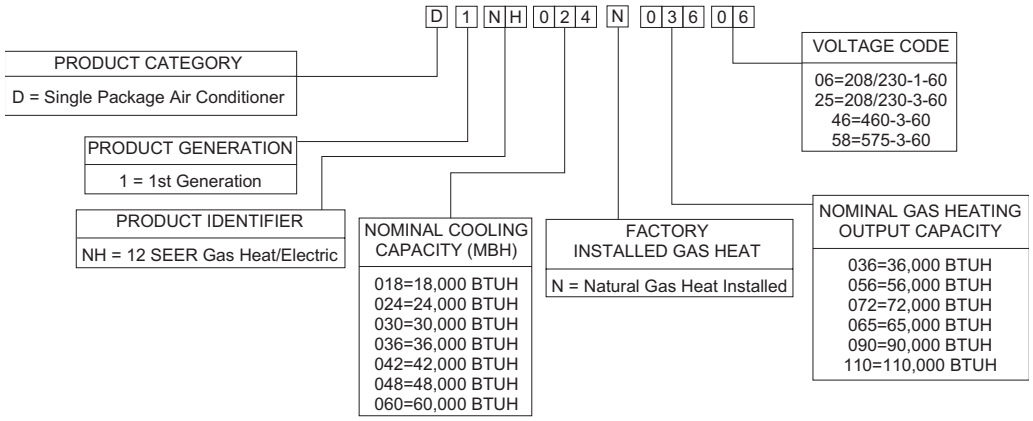


FIGURE 1 - PRODUCT NOMENCLATURE

INSTALLATION

LIMITATIONS

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

1. National Electrical Code ANSI/NFPS No. 70 or Canadian Electrical Code Part 1, C22.1 (latest editions).
2. National Fuel Gas Code Z223.1 or CAN/CGA B149.1 or.2 Installation Code.
3. Local gas utility requirements.
4. Local plumbing and waste water codes and other applicable local codes.

Refer to Table 1 for unit application data and to Table 2 for gas heat application 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.

TABLE 1: UNIT APPLICATION DATA

Voltage Variation Min. / Max.[1]	208/230V[2]	187 / 253
	460V	414 / 504
	575V	518 / 630
Wet Bulb Temperature (°F) of Air on Evaporator Coil, Min. / Max.		57 / 72
Dry Bulb Temperature (°F) of Air on Condenser Coil, Min.[3] / Max.		45 / 120

1. Rated in accordance with ARI Standard 110, utilization range "A".
2. "T1" transformer primary tap must be moved from the 230 volt connection to the 208 volt connection for low voltage applications of 208 volt and below
3. A low ambient accessory is available for operation down to 0 °F.

LOCATION

Use the following guidelines to select a suitable location for these units.

1. Unit is designed for outdoor installation only.
2. Condenser must have an unlimited supply of air. Where a choice of location is possible, position unit on either north or east side of building.

⚠ CAUTION

Excessive exposure of this furnace to contaminated combustion air may result in equipment damage or personal injury. Typical contaminants include: permanent wave solution, chlorinated wastes and cleaners, chlorine based swimming pool chemicals, water softening chemicals, carbon tetrachloride, halogen type refrigerants, cleaning solvents (e.g. perchloroethylene), printing inks, paint removers, varnishes, hydrochloric acid, cements and glues, antistatic fabric softeners for clothes dryers, masonry acid washing materials.

3. For ground level installation, a level pad or slab should be used. The thickness and size of the pad or slab used should meet local codes and unit weight. Do not tie the slab to the building foundation.
4. For roof top installation, be sure the structure will support the weight of the unit plus any field installed components. Unit must be installed on a level roof curb or appropriate angle iron frame providing adequate support under the compressor/condenser section.
5. Maintain level tolerance of unit to 1/8" maximum.

RIGGING OR HANDLING

Care must be exercised when moving the unit. Do not remove any packaging until the unit is near the place of installation. Rig unit with slings placed under the unit. Spreader bars of sufficient length should be used across the top of the unit.

⚠WARNING

Before lifting a unit, make sure that its weight is distributed equally on the cables so that it will lift evenly.

Units may also be moved or lifted with a fork-lift. Slotted openings in the skid are provided for this purpose. Forks must pass completely through the base.

Refer to Table 2 for unit weights and to Figure 2 for approximate center of gravity.

TABLE 2: UNIT WEIGHTS AND CENTER OF GRAVITY

UNIT SIZE	SHIPPING WEIGHT (LBS.)	OPERATING WEIGHT (LBS.)	CORNER WEIGHTS (LOCATION, LBS.)			
			"A"	"B"	"C"	"D"
018	365	360	91	88	89	92
024	365	360	91	88	89	92
030	395	390	98	95	96	99
036	400	395	100	96	98	101
042	470	465	131	129	101	103
048	475	470	133	130	102	104
060	485	480	136	133	105	107

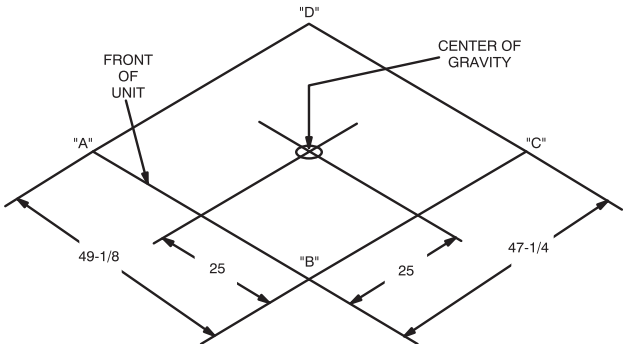


FIGURE 2 - UNIT CENTER OF GRAVITY

CLEARANCES

All units require certain clearances for proper operation and service. Refer to Figure 5 for the clearances required for combustion, construction, servicing and proper unit operation.

⚠WARNING

Do not permit overhanging structures or shrubs to obstruct the condenser air discharge, combustion air inlet or vent outlet.

DUCT WORK

These units are adaptable to downflow use as well as rear supply and return air duct openings. To convert to downflow, use the following steps:

1. Remove the duct covers found in the bottom return and supply air duct openings. There are four (4) screws securing each duct cover (save these screws to use later).
2. Install the duct covers, removed in step one, to the rear supply and return air duct openings. Secure with the four (4) screws used in step one.
3. Seal duct covers with silicone caulk.

Duct work should be designed and sized according to the methods of the Air Conditioning Contractors of America (ACCA), as set forth in their Manual D.

A closed return duct system shall be used. This shall not preclude use of economizers or ventilation air intake. Flexible joints may be used in the supply and return duct work to minimize the transmission of noise.

⚠ CAUTION

When fastening duct work to the side duct flanges on the unit, insert the screws through the duct flanges only. Do not insert the screws through the casing. Outdoor ductwork must be insulated and waterproofed.

NOTE: Be sure to note supply and return openings.

Refer to Figure 5 for information concerning rear and bottom supply and return air duct openings.

ROOF CURB

On applications when a roof curb is used, the unit must be positioned on the curb so the front of the unit is tight against the curb.

FILTERS

Single phase units are shipped without a filter or filter racks and is the responsibility of the installer to secure a filter in the return air ductwork or install a Filter/Frame Kit (1FF0110).

A filter rack and a high velocity filters are standard on three phase units.

Filters must always be used and must be kept clean. When filters become dirt laden, insufficient air will be delivered by the blower, decreasing your units efficiency and increasing operating costs and wear-and-tear on the unit and controls.

Filters should be checked monthly especially since this unit is used for both heating and cooling.

CONDENSATE DRAIN

A condensate trap is recommended to be installed in the condensate drain. The plumbing must conform to local codes. Use a sealing compound on male pipe threads. Install the condensate drain line (NPTF) to spill into an open drain.

SERVICE ACCESS

Access to all serviceable components is provided by the following removable panels:

- Blower compartment
- Gas control/electrical service access

Refer to Figure 5 for location of these access panels and minimum clearances.

THERMOSTAT

The room thermostat should be located on an inside wall approximately 56" above the floor where it will not be subject to drafts, sun exposure or heat from electrical fixtures or appliances. Follow manufacturer's instructions enclosed with the thermostat for general installation procedure. Four color coded insulated wires (minimum #18 AWG) should be used to connect thermostat to unit. See Figure 2.

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 8.

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.

Refer to Figure 2 for typical field wiring and to the appropriate unit wiring diagram for control circuit and power wiring information.

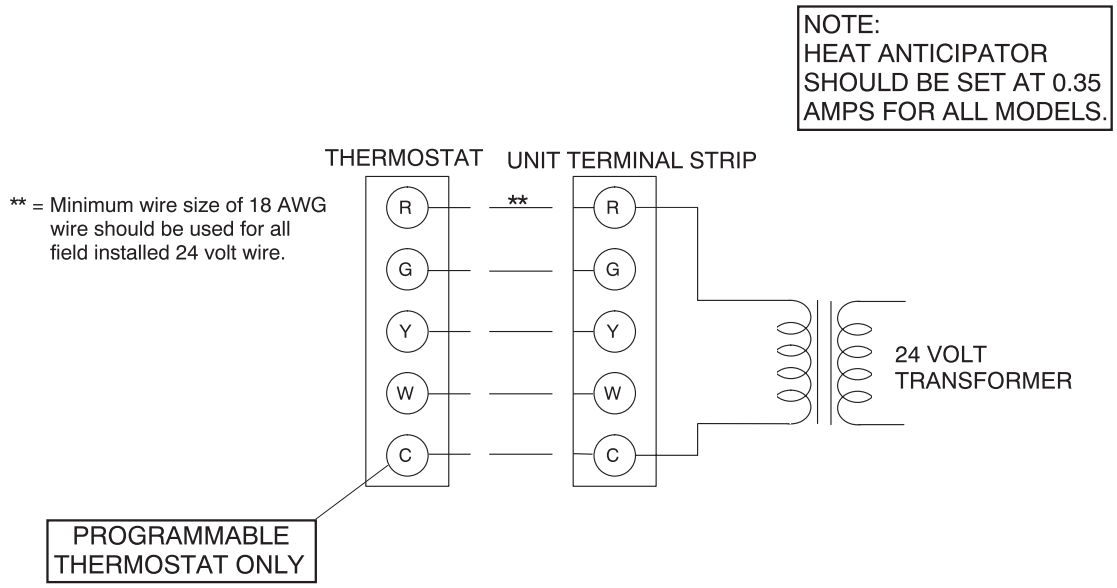


FIGURE 3 - FIELD WIRING DIAGRAM CONTROL WIRING

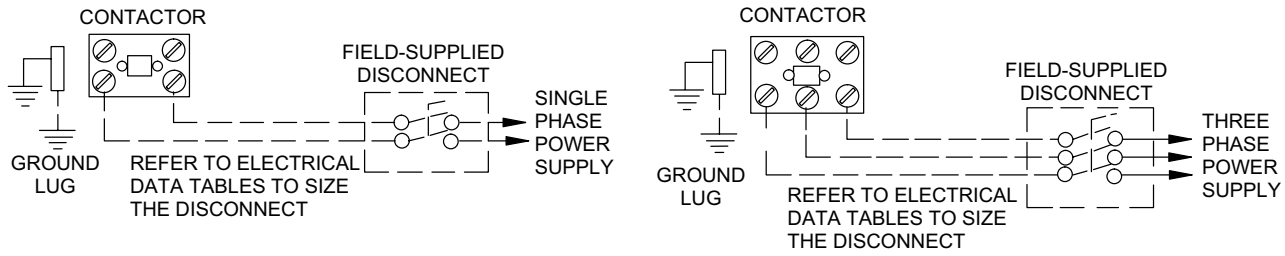


FIGURE 4 - POWER WIRING FIELD DIAGRAM

COMPRESSORS

Units are shipped with compressor mounting factory-adjusted for shipping.

⚠ CAUTION

Loosen compressor mounting bolts a half turn before operating unit.

TABLE 3: NATURAL GAS APPLICATION DATA

AVAILABLE ON MODELS	INPUT CAPACITY (MBH)[1]	OUTPUT CAPACITY (MBH)	GAS RATE[2] FT.^{3}/HR.	NUMBER OF BURNERS	TEMP. RISE °F AT FULL INPUT[3]	
					MIN.	MAX.
1-1/2, 2, 2-1/2 3 TON	45	36	42	2	25	55
2 & 2-1/2 TON	70	56	65	3	30	60
3 TON	70	56	65	3	25	55
3-1/2 TON, 4 & 5 TON	80	64	74	3	25	55
3 TON	90	72	84	4	30	60
3-1/2 TON	108	87	100	4	45	75
4 & 5 TON	108	87	43	4	30	60
4 & 5 TON	135	108	126	5	35	65

1. Heating capacity valid for elevations up to 2000 feet above sea level. For elevations above 2,000 feet, rated capacity should be reduced by 4% for each 1,000 feet above sea level.
2. Based on 1075 BTU/Ft.^{3}.
3. The air flow must be adjusted to obtain a temperature rise within the range shown. Continuous return air temperature should not be below 55°F.

TABLE 4: PROPANE[1] (LP) GAS APPLICATION DATA

AVAILABLE ON MODELS	INPUT CAPACITY (MBH)[2]	OUTPUT CAPACITY (MBH)	GAS RATE[3] FT.^{3}/HR.	NUMBER OF BURNERS	TEMP. RISE ×F AT FULL INPUT[4]	
					MIN.	MAX.
1-1/2, 2, 2-1/2, 3 TON	45	36	18	2	25	55
2 & 2-1/2 TON	70	56	28	3	30	60
3 TON	70	56	28	3	25	55
3-1/2, 4 & 5 TON	80	64	32	3	25	55
3 TON	90	72	36	4	30	60
3-1/2 TON	108	87	43	4	45	75
4 & 5 TON	108	87	43	4	30	60
4 & 5 TON	135	108	54	5	35	65

1. Propane applications are accomplished by field installation of a Propane Conversion Accessory, Model 1NP0805.
2. Heating capacity valid for elevations up to 2,000 feet above sea level. For elevations above 2,000 feet, rated capacity should be reduced by 4% for each 1,000 feet above sea level.
3. Based on 2500 BTU/Ft.^{3}.
4. The air flow must be adjusted to obtain a temperature rise within the range shown. Continuous return air temperatures should not be below 55°F.

COMBUSTION DISCHARGE

GAS PIPING

Proper sizing of gas piping depends on the cubic feet per hour of gas flow required, specific gravity of the gas and the length of run. National Fuel Gas Code Z223.1 or CAN/CGA B149.1 or .2 should be followed in all cases unless superseded by local codes or gas company requirements. Refer to Tables 5 and 6.

The heating value of the gas may differ with locality. The value should be checked with the local gas utility.

NOTE: There may be a local gas utility requirement specifying a minimum diameter for gas piping. All units require a 1/2 inch pipe connection at the gas valve.

GAS CONNECTION

The gas supply line can be routed through the hole located on the left side of the unit. Refer to Figure 5 to locate these access openings. Typical supply piping arrangements are shown in Figure 3.

Gas piping recommendations:

1. A drip leg and a ground joint union must be installed in the gas piping.
2. When required by local codes, a manual shut-off valve may have to be installed outside of the unit.
3. Use wrought iron or steel pipe for all gas lines. Pipe dope should be applied sparingly to male threads only.

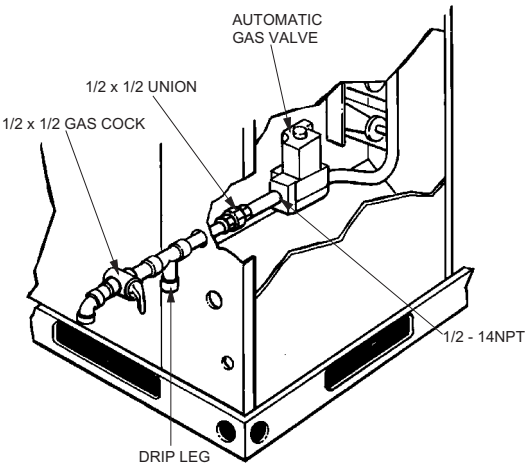


FIGURE 5 - EXTERNAL SUPPLY CONNECTION EXTERNAL SHUT-OFF

TABLE 5: NATURAL GAS PIPE SIZING CHART[1]

LENGTH IN FEET	NOMINAL INCHES IRON PIPE SIZE			
	1/2"	3/4"	1"	1-1/4"
10	132	278	520	1,050
20	92	190	350	730
30	73	152	285	590
40	63	130	245	500
50	56	115	215	440
60	50	105	195	400
70	46	96	180	370
80	43	90	170	350
90	40	84	160	320
100	38	79	150	305

1. Maximum capacity of pipe in cubic feet of gas per hour (based upon a pressure drop of 0.3 inch water column and 0.6 specific gravity gas).

TABLE 6: PROPANE (LP) GAS PIPE SIZING CHART[1]

LENGTH IN FEET	NOMINAL INCHES IRON PIPE SIZE			
	1/2"	3/4"	1"	1-1/4"
10	275	567	1,071	2,205
20	189	393	732	1,496
30	152	315	590	1,212
40	129	267	504	1,039
50	114	237	448	913
60	103	217	409	834
70	96	196	378	771
80	89	185	346	724
90	83	173	322	677
100	78	162	307	630

1. Maximum capacity of pipe in thousands of BTU per hour (based upon a pressure drop of 0.5 inch water column).

⚠ CAUTION

If flexible stainless steel tubing is allowed by the authority having jurisdiction, wrought iron or steel pipe must be installed at the gas valve and extend a minimum of two (2) inches outside of the unit casing.

⚠WARNING

Natural gas may contain some propane. Propane being a excellent solvent, will quickly dissolve white lead or most standard commercial compounds. Therefore, a special pipe dope must be applied when wrought iron or steel pipe is used. Shellac base compounds such as gaskoloc or stalastic, and compounds such as rectorseal # 5, Clyde's or John Crane may be used.

4. All piping should be cleaned of dirt and scale by hammering on the outside of the pipe and blowing out the loose dirt and scale. Before initial start-up, be sure that all of the gas lines external to the unit have been purged of air.
5. The gas supply should be a separate line and installed in accordance with all safety codes as prescribed under Limitations. After the gas connections have been completed, open the main shut-off valve admitting normal gas pressure to the mains. Check all joints for leaks with soap solution or other material suitable for the purpose. NEVER USE A FLAME.
6. The furnace and its individual manual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.48 kPa).

The furnace must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.48 kPa).

FLUE VENT HOOD

The flue vent hood with screen is not shipped attached. This hood must be installed to assure proper unit operation. The hood must be fastened to the outside of the side gas control/ electrical compartment with the screws provided in the bag attached to the inside of the gas control/electrical compartment, see Figure 4.

⚠WARNING

Flue hood surfaces may be hot.

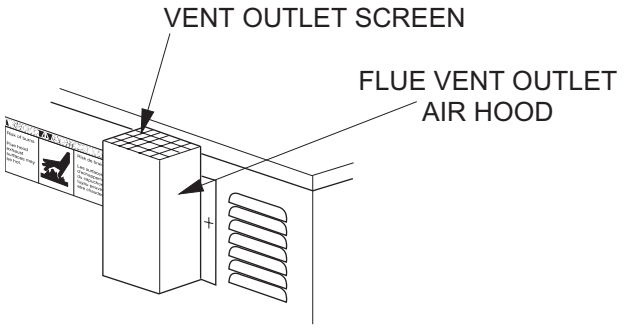


FIGURE 6 - FLUE VENT OUTLET AIR HOOD

⚠ CAUTION

The flue exhaust hood must be properly installed and within the recommended clearances. Further communications and action must be given to the home or building owner(s) to eliminate any unauthorized human contact around this area during the heating cycle. Flue hood surface and immediate area are designed to operate at high temperatures during the heating cycle.

TABLE 7: PHYSICAL DATA

MODEL		DNH						
		018	024	030	036	042	048	060
EVAPORATOR BLOWER	CENTRIFUGAL BLOWQER (Dia. x Wd. in.)	10 X 8	10 X 8	10 X 8	11 x 10	11 x 10	12 x 11	12 x 11
	FAN MOTOR HP (3 Speed)	1/2	1/2	1/2	3/4	3/4	3/4	1
EVAPORATOR COIL	ROWS DEEP	2	2	3	3	3	3	3
	FINS PER INCH	13	15	13	13	13	16	16
	FACE AREA (Sq. Ft.)	3.5	3.5	3.5	3.5	4.5	4.5	4.5
CONDENSER FAN	PROPELLER DIA. (in.)	22	22	22	22	22	22	22
	FAN MOTOR HP	1/4	1/4	1/4	1/4	1/4	1/3	1/3
	NOM. CFM TOTAL	1,800	2,200	2,400	2,400	2,400	3,000	3,000
CONDENSER COIL	ROWS DEEP	1	1	1	2	1	2	2
	FINS PER INCH	20	20	20	20	20	20	20
	FACE AREA (Sq. Ft.)	11.7	11.7	11.7	11.7	14.7	14.7	14.7
CHARGE	REFRIGERANT 22 (lbs./oz.)	4 / 6	4 / 6	4 / 9	6 / 12	5 / 14	8 / 0	8 / 12
FILTER	FACE AREA (Sq. Ft.) Size (Nominal)	2.6/20x20	2.6/20x20	2.6/20x20	2.6/20x20	3.3/20x12 (2 Reqd.)	3.3/20x12 (2 Reqd.)	3.3/20x12 (2 Reqd.)
FURNACE SECTION	NATURAL GAS BURNER ORIFICE NO. (Drill Size)	43	43	43	43	40	40	40
	PROPANE BURNER ORIFICE NO. (Drill Size)	55	55	55	55	53	53	53
	GAS CONNECTION SIZE	1/2 NPTI	1/2 NPTI	1/2NPTI	1/2 NPTI	1/2 NPTI	1/2 NPTI	1/2 NPTI
COMPRESSOR	HERMETIC TYPE, (Qty. = 1)	Recip	Recip	Scroll	Scroll	Scroll	Scroll	Scroll

TABLE 8: ELECTRICAL DATA

MODEL DNH	POWER SUPPLY	VOLTAGE LIMITATIONS[1]		COMPRESSOR		COND. FAN MOTOR, FLA	SUPPLY AIR BLOWER MOTOR FLA	MINIMUM CIRCUIT AMPACITY	MAX. FUSE SIZE, AMPS[2]	MAX. HACR BREAKER SIZE, AMPS	UNIT POWER FACTOR	TRANSFORMER SIZE (VA)
		MIN.	MAX.	RLA	LRA							
018	208/230-1-60	187	253	7.1	48	1.1	2.6	12.5	15	15	.96	40
024	208/230-1-60	187	253	9.3	57	1.1	2.6	15.3	20	20	.96	40
030	208/230-1-60	187	253	13.6	67	1.1	2.6	20.7	30	30	.96	40
030	208/230-3-60	187	253	8.6	55	1.1	2.6	14.5	20	20	.96	75
030	460-3-60	414	504	4.3	27	0.6	1.4	7.4	15	15	.96	75
036	208/230-1-60	187	253	17.2	88	1.1	3.5	26.1	35	35	.96	40
036	208/230-3-60	187	253	11.4	77	1.1	3.5	18.9	30	30	.96	75
036	460-3-60	414	504	5.7	39	0.6	1.8	9.5	15	15	.96	75
036	575-3-60	518	630	4.7	31	0.4	1.5	7.8	15	15	.96	75
042	208/230-1-60	187	253	20.0	104	1.3	3.5	29.8	40	40	.96	40
042	208/230-3-60	187	253	13.9	88	1.3	3.5	22.2	30	30	.96	75
042	460-3-60	414	504	6.4	44	0.7	1.8	10.5	15	15	.96	75
042	575-3-60	518	630	5.4	34	0.5	1.5	8.8	15	15	.96	75
048	208/230-1-60	187	253	23.4	126	1.9	4.2	35.4	45	45	.96	40
048	208/230-3-60	187	253	13.0	93	1.9	4.2	22.4	30	30	.96	75
048	460-3-60	414	504	6.4	46.5	1.0	2.1	11.1	15	15	.96	75
048	575-3-60	518	630	5.1	37.2	0.8	1.7	8.9	15	15	.96	75
060	208/230-1-60	187	253	32.1	175	1.9	9.4	51.4	70	70	.96	40
060	208/230-3-60	187	253	19.3	123	1.9	9.4	35.4	45	45	.96	75
060	460-3-60	414	504	10.0	62	1.0	9.4	18.2	25	25	.96	75
060	575-3-60	518	630	7.9	50	0.8	2.8	13.5	20	20	.96	75

1. **Rated in accordance with ARI Standard 110, utilization range "A".**
2. **Dual element, time delay type.**

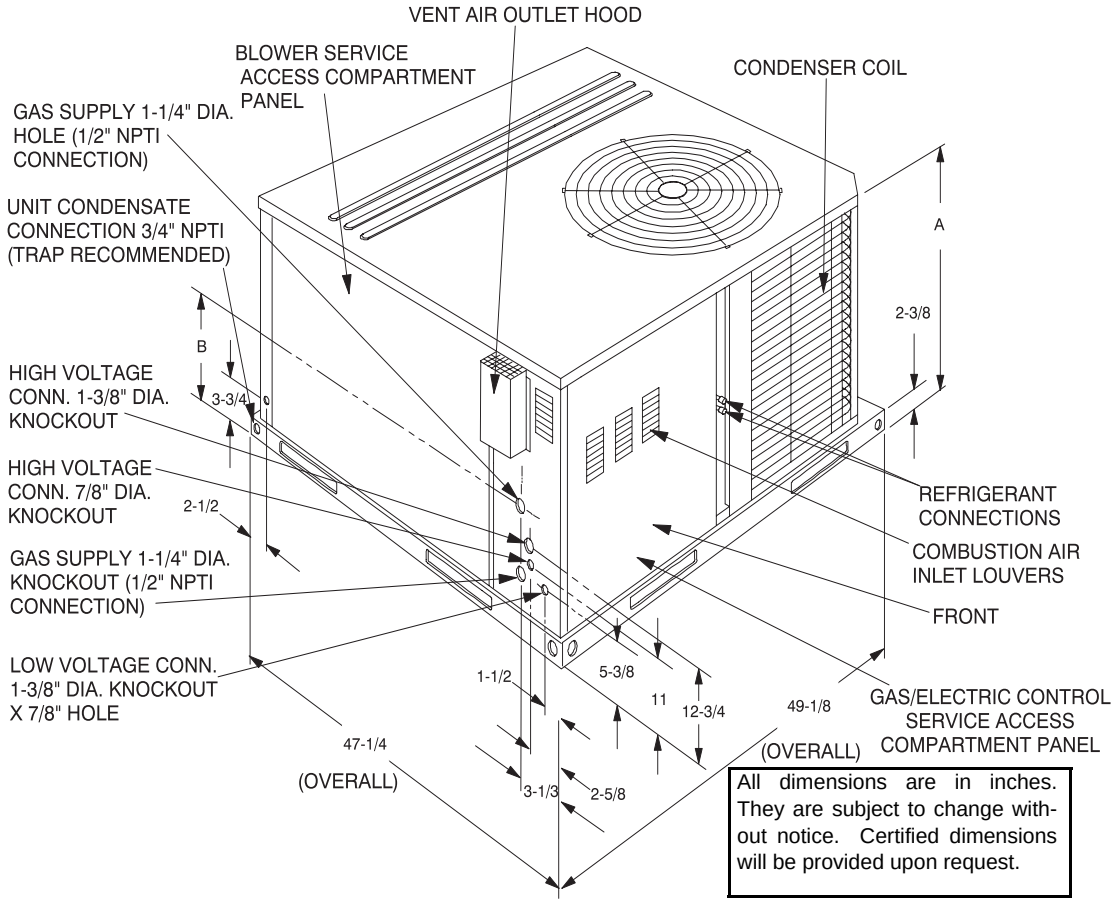


FIGURE 7 - UNIT DIMENSIONS - FRONT

TABLE 9: UNIT DIMENSIONS FRONT

UNIT SIZE	DIMENSION	
	"A"	"B"
018 - 036	33-1/2	18-1/4
042 - 060	41-1/2	23-1/8

TABLE 10: UNIT MINIMUM CLEARANCES[1] [2]

CLEARANCES	
FRONT	36"
BACK	0"
LEFT SIDE (Filter-Access)	24"
RIGHT SIDE	12"
BELOW UNIT[3]	0"
ABOVE UNIT [4]	36" (For Condenser Air Discharge

1. A 1" clearance must be provided between any combustible material and the supply 7 air ductwork.
2. The products of combustion must not be allowed to accumulate within a confined space and recirculate.
3. Units may be installed on combustible floors made from wood or class A, B, or C roof covering material.
4. Units must be installed outdoors. Overhanging structures or shrubs should not obstruct condenser air discharge outlet.

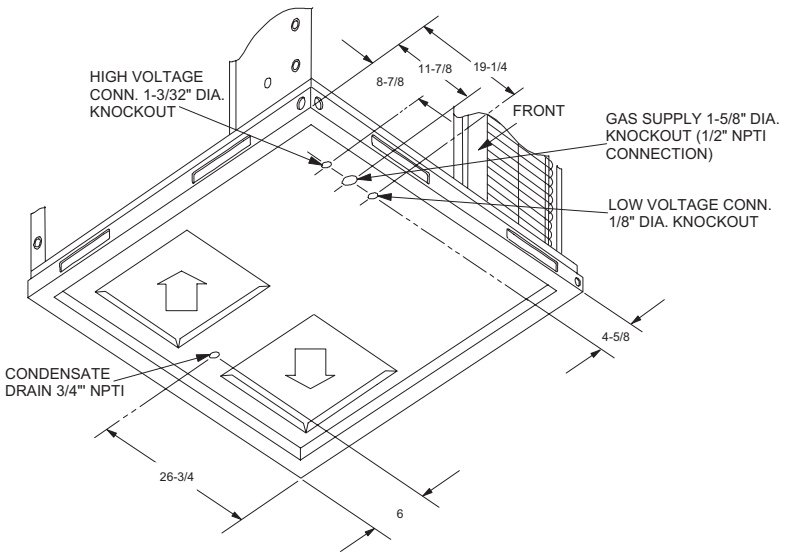


FIGURE 8 - UNIT DIMENSIONS - FRONT & BOTTOM

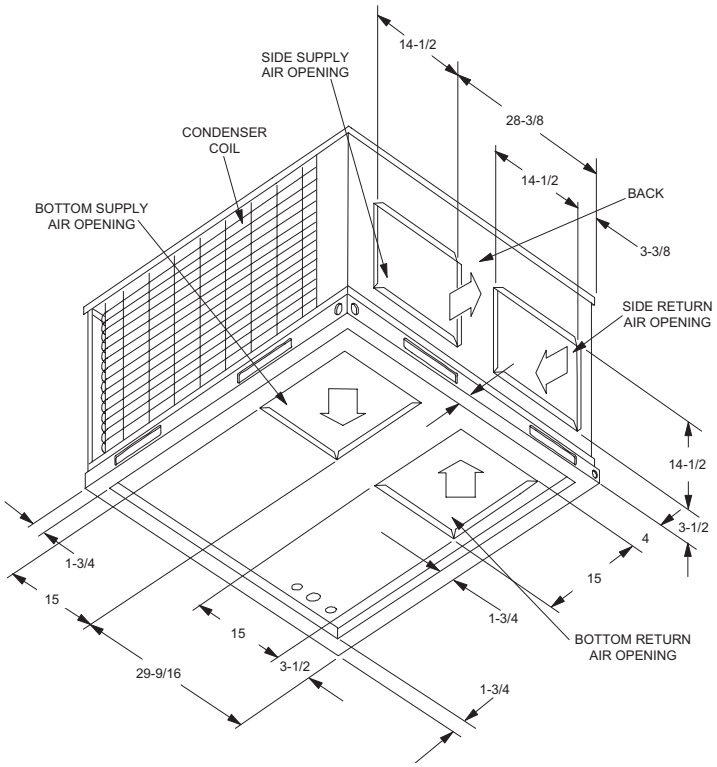


FIGURE 9 - UNIT DIMENSIONS - BACK & BOTTOM

SEQUENCE OF OPERATION

The unit is controlled by a conventional four wire heating/ cooling thermostat common to this class of equipment.

HEATING

When the thermostat calls for HEAT, the thermostat terminal W is energized, energizing the combustion air blower.

After airflow is established, the air proving switch closes, the hot surface ignitor is energized and the pilot valve opens igniting the pilot flame.

The flame rod senses a flame and de-energizes the ignitor opening the main gas valve and the main burners light.

30 seconds after the main burners light the circulating fan is energized at the heating speed.

When the thermostat is satisfied, terminal W is de-energized, de-energizing the ignition system closing the gas valve.

After a 5 second postpurge timing period, the combustion air blower is de-energized and the heat fan off timing begins.

When this field selected heat fan off timing is completed the circulating fan is de-energized.

If the primary, rollout and auxiliary limit switches open, the thermostat and ignition system is de-energized and the gas valve closes. The combustion blower and the circulating fan, at heat speed, are energized.

The combustion blower remains energized for the 5 second postpurge timing period if the primary, rollout and auxiliary limit switches remake the contact (the rollout and auxiliary limit switches must be manually reset). The circulating fan remains energized for the selected heat delay off timing.

Normal operation of the system resumes.

COOLING

When the thermostat calls for COOL, the thermostat terminals G and Y are energized signaling the compressor and outdoor fan to run.

After a cool fan on delay timing of 2 seconds, the circulating fan is energized at cooling speed.

When the thermostat is satisfied, terminals G and Y are de-energized, de-energizing the compressor and outdoor fan.

After a cool fan off delay timing of 30 seconds the circulating fan is de-energized.

CIRCULATING FAN

When the thermostat calls for FAN, the thermostat terminal G is energized signaling the circulating fan to run at the heat speed 2 seconds after the G terminal is energized.

If a call for HEAT occurs, the circulating fan continues to run at the heat speed.

If a call for COOL occurs, the circulating fan switches to cool speed after a 4 second delay.

When the thermostat ends the call for FAN, the thermostat terminal G is de-energized, de-energizing the circulating fan.

START-UP

PRE-START CHECK LIST

Complete the following checks before starting the unit.

1. Check the type of gas being supplied. Be sure that it is the same as listed on the unit nameplate.
2. Make sure that the vent outlet air hoods has been properly installed.

OPERATING INSTRUCTIONS

1. STOP! Read the information on the unit safety label.
2. Set the thermostat to the OFF position.
3. Turn off all electrical power to the unit.
4. DO NOT try to light the burners by hand. This appliance is equipped with an ignition device which automatically lights the burners.
5. Remove the access panel.
6. Turn the gas valve switch to the OFF position.
7. Wait five (5) minutes to clear out any gas. If you then smell gas, STOP! Follow B in the information on the unit safety label. If you don't smell gas, go to the next step.
8. Turn the gas valve switch to the ON position.
9. Replace the control access panel.
10. Turn on all electric power to the unit.
11. Set the thermostat to the desired setting.
12. If the unit will not operate, follow the instructions To Turn Off Gas To Appliance and call your service technician or gas supplier.

TO TURN OFF GAS TO UNIT

1. Set the thermostat to the OFF position.
2. Turn off all electric power to the appliance if service is to be performed.

3. Remove the control access panel.
4. Turn the gas valve switch to the OFF position. DO NOT FORCE.
5. Replace the control access panel.

POST-START CHECK LIST (GAS)

After the entire control circuit has been energized and the heating section is operating, make the following checks:

1. Check for gas leaks in the unit piping as well as the supply piping.
2. Check for correct manifold gas pressures. See Checking Gas Input.
3. Check the supply gas pressure. It must be within the limits shown on rating nameplate. Supply pressure should be checked with all gas appliances in the building at full fire. At no time should the standby gas line pressure exceed 10.5", nor the operating pressure drop below 4.5" for natural gas units. If gas pressure is outside these limits, contact the local gas utility for corrective action.

MANIFOLD GAS PRESSURE ADJUSTMENT

Small adjustments to the gas flow may be made by turning the pressure regulator adjusting screw on the automatic gas valve. Refer to Figure 6.

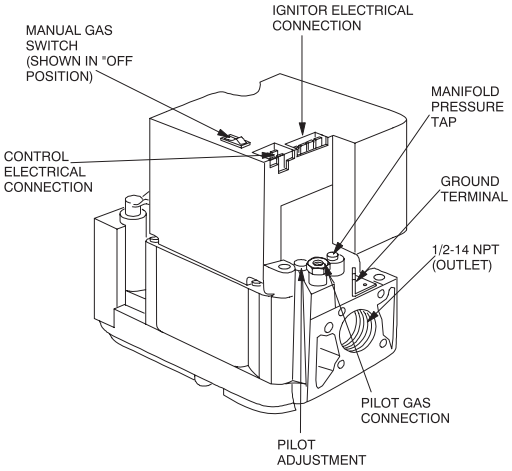


FIGURE 10 - GAS VALVE - FRONT

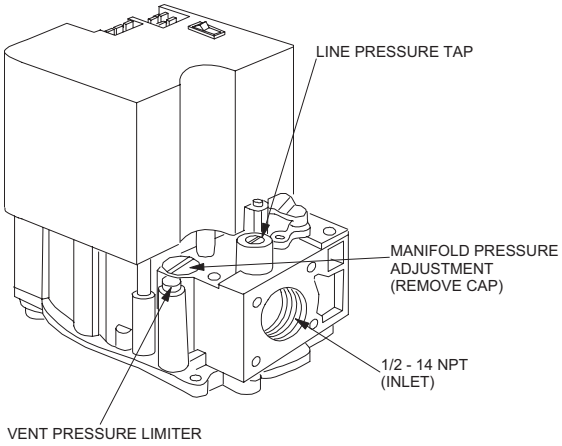


FIGURE 11 - GAS VALVE - REAR

Adjust as follows:

1. Remove the cap from the valve body. See Figure 6 for location.
2. To decrease the gas pressure, turn the adjusting screw counterclockwise.
3. To increase the gas pressure, turn the adjusting screw clockwise.

NOTE: The correct manifold pressure for natural gas furnaces is 3.5 IWG 0.2. The correct manifold pressure for propane (LP) is 10.0 IWG 0.2.

BURNER INSTRUCTIONS

To check or change the burners, CLOSE THE MAIN MANUAL SHUT-OFF VALVE AND SHUT OFF ALL POWER TO THE UNIT.

1. Remove the two (2) #8 screws holding each burner in place.
2. Remove the burner assembly from the manifold assembly by moving the burner assembly forward, turn at an angle and pull back.
3. Burners are now accessible for service.

HOT SURFACE PILOT INSTRUCTIONS

To check, adjust or remove the hot surface pilot assembly, CLOSE THE MAIN MANUAL SHUT-OFF VALVE AND SHUT OFF ALL POWER TO THE UNIT.

The pilot flame should envelope 1/2 inch of the end of the flame sensor and not contain any yellow color, see Figure 7.

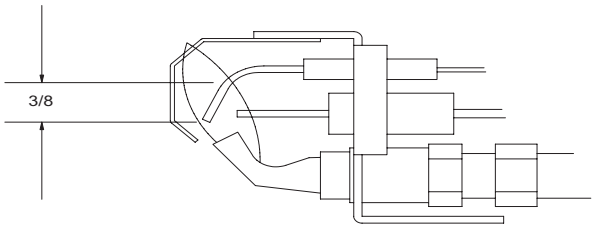


FIGURE 12 - PROPER FLAME ADJUSTMENT

To adjust the pilot flame:

1. Remove the pilot adjustment cover screw.
2. Adjust the pilot adjustment screw to achieve the proper pilot flame.
3. Replace the pilot adjustment cover screw after the pilot flame is set.

To remove the hot surface pilot assembly:

1. Disconnect the wiring from the gas valve to the hot surface pilot assembly.
2. Remove the two (2) #8 screws holding the hot surface pilot assembly in place.
3. Remove the hot surface pilot assembly.

To remove the hot surface ignitor and flame sensor assembly:

1. Remove the clip attaching the ignitor and sensor assembly as shown in Figure 8.

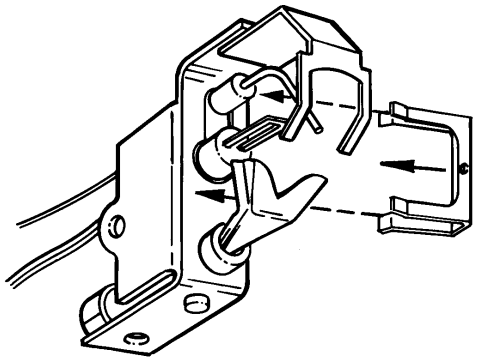


FIGURE 13 - IGNITOR AND FLAME SENSOR ASSEMBLY

2. Lift the pilot and sensor from the assembly. Care must be taken not to damage the pilot or sensor when removing this assembly.

ADJUSTMENT OF TEMPERATURE RISE

$$Degrees\ F\ Temp\ Rise = \frac{BTUH\ Output}{1.08 \times CFM}$$

OR

$$CFM = \frac{BTUH\ Output}{1.08 \times Degrees\ F\ Temp\ Rise}$$

The temperature rise (or temperature difference between the return air and the heated air from the furnace) must lie within the range shown on the rating plate and the data in Tables 3 and 4.

After the temperature rise has been determined, the CFM can be calculated as follows:

After about 20 minutes of operation, determine the furnace temperature rise. Take readings of both the return air and the heated air in the ducts about six feet from the furnace where they will not be affected by radiant heat. Increase the blower CFM to decrease the temperature rise; decrease the blower CFM to increase the rise.

DIRECT DRIVE BLOWER

All units have direct drive multi-speed blower motors. Refer to the unit wiring diagram and connect the blower motor for the desired CFM.

CHECKING GAS INPUT

NATURAL GAS

1. Turn off all other gas appliances connected to the gas meter.
2. With the furnace turned on, measure the time needed for one revolution of the hand on the smallest dial on the meter. A typical gas meter usually has a 1/2 or a 1 cubic foot test dial.
3. Using the number of seconds for each revolution and the size of the test dial increment, find the cubic feet of gas consumed per hour from Table 9.

If the actual input is not within 5% of the furnace rating with allowance being made for the permissible range of the regulator setting, replace the orifice spuds with spuds of the proper size.

NOTE: To find the BTU input, multiply the number of cubic feet of gas consumed per hour by the BTU content of the gas in your particular locality. (Contact your gas company for this information since it varies widely from city to city.)

SECURE OWNER'S APPROVAL

When the system is functioning properly, secure the owner's approval. Show him the location of all disconnect switches and the thermostat. Teach him how to start and stop the unit and how to adjust temperature settings within the limitations of the system. Advise him that the flue exhaust hood surface and the immediate area will experience high temperatures during the heating cycle. All unauthorized personnel and debris must be kept away from this area.

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. Under some conditions, the main burners should be cleaned.

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, along with the combustion blower 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.

TABLE 11: GASE RATE - CUBIC FEET PER HOUR[1]

SECONDS FOR ONE REV.	SIZE OF TEST DIAL	
	1/2 CU. FT.	1 CU. FT.
10	180	360
12	150	300
14	129	257
16	113	225
18	100	200
20	90	180
22	82	164
24	75	150
26	69	138
28	64	129
30	60	120
32	56	113
34	53	106
36	50	100
38	47	95
40	45	90
42	43	86
44	41	82
46	39	78
48	37	75
50	36	72
52	35	69
54	34	67
56	32	64
58	31	62
60	30	60

1. *EXAMPLE*: By actual measurement, it takes 38 seconds for the hand on the 1-cubic foot dial to make a revolution with just a 100,000 BTUH furnace running. Using this information, locate 38 seconds in the first column of Table 11. Read across to the column headed “1 Cubic Foot,” where you will see that 95 cubic feet of gas per hour are consumed by the furnace at that rate. Multiply 95 x 1050 (the BTU rating of the gas obtained from the local gas company). The result is 99,750 BTUH, which is close to the 100,000 BTUH rating of the furnace.

⚠ 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.

BURNER

At the beginning of each heating season, make a visual check of the main burner flame. If it is not possible to adjust for the proper flame, the burners may need cleaning.

TO CLEAN BURNERS

Remove them from the furnace as explained in Burner Instructions. Clean burners with hot water applied along top of the burner.

COMBUSTION AIR DISCHARGE

Visually inspect discharge outlet periodically to insure soot and dirt buildup is not excessive. If necessary, clean to maintain adequate combustion air discharge.

The manufacture recommends that the furnace system be inspected once a year by a qualified service person.

CLEANING FLUE PASSAGES AND HEATING ELEMENTS

With proper combustion adjustment the heating element of a gas fired furnace will seldom need cleaning. If the element should become sooted, it can be cleaned as follows:

1. Remove the burner assembly as outlined in BURNER INSTRUCTIONS.
2. Remove the screws securing the restrictor plate to the tube sheet.
3. Using a wire brush on a flexible wand, brush out the inside of each heat exchanger from the burner inlet and flue outlet ends.
4. Brush out the inside of the restrictor plate to the tube sheet.
5. If soot build-up is particularly bad, remove the vent motor and clean the wheel and housing.
6. After brushing is complete, blow all brushed areas with air or nitrogen. Vacuum as needed.
7. Replace parts in the order they were removed in steps 1 through 3.

CHECKING SUPPLY AIR CFM

To check the supply air CFM after the initial balancing has been completed:

1. Remove the two ¼ inch dot plugs in the duct panel.
2. Insert at least 8 inches of ¼ inch tubing into each of these holes for sufficient penetration into the airflow on both sides of the indoor coil.
3. Using an inclined manometer, determine the pressure drop across the dry evaporator coil. Since the moisture on an evaporator coil may vary greatly, measuring the pressure drop across a wet coil under field conditions would be inaccurate. To ensure a dry coil, the compressors should be deactivated while the test is being run.
4. Knowing the pressure drop across a dry coil, the actual CFM through the unit can be determined from the curve in Coil Delta P vs. Supply Air CFM figure.

⚠WARNING

Failure to properly adjust the total system air quantity can result in extensive system damage.

After readings have been obtained, remove the tubes and reinstall the two ¼ inch plugs removed in Step 1.

De-energize the compressors before taking any test measurements to ensure a dry indoor coil.

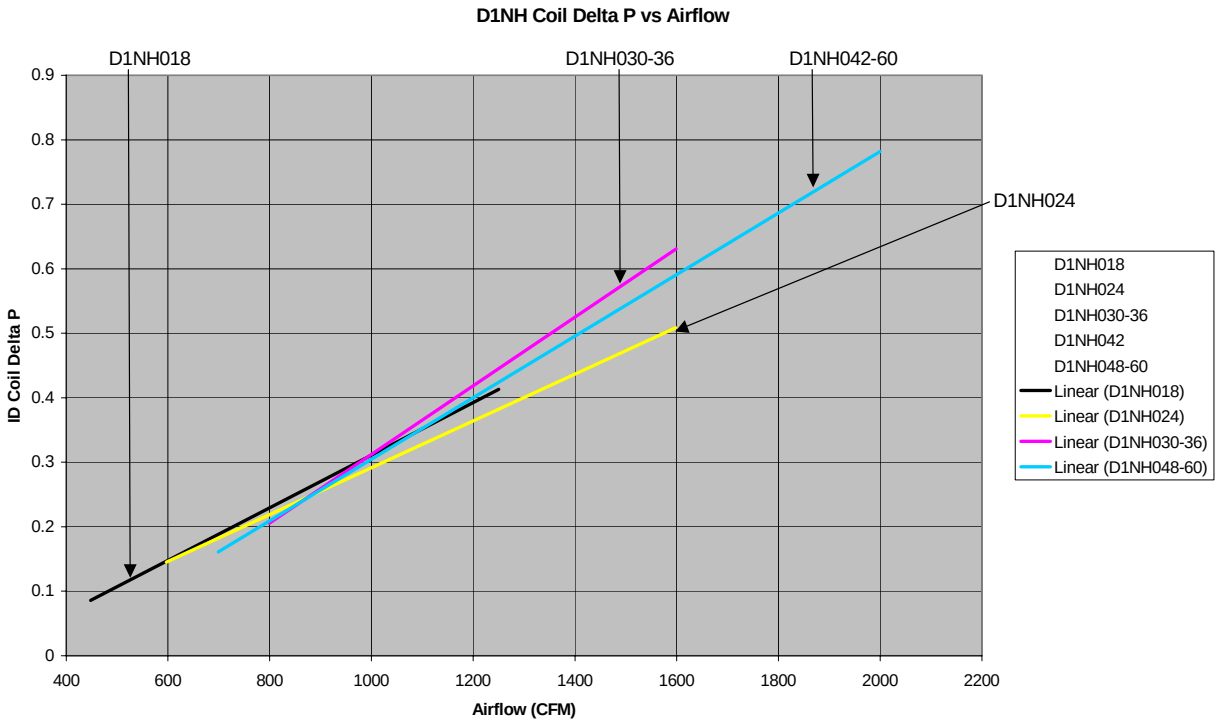


FIGURE 14 - D1NH COIL DELTA P VS. AIRFLOW

TABLE 12: SUPERHEAT CHARGING TABLE FOR D1NH018

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 600 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	30.7	31.2	31.8	32.3	32.9	33.4	34.0	34.2	34.4	34.7	34.9
70	22.9	24.4	25.8	27.3	28.8	30.2	31.7	32.1	32.6	33.0	33.4
75	15.1	17.5	19.9	22.2	24.6	27.0	29.4	30.0	30.7	31.4	32.0
80	7.3	10.6	13.9	17.2	20.5	23.8	27.1	27.9	28.8	29.7	30.6
85	-	-	8.0	12.2	16.4	20.6	24.8	25.9	27.0	28.1	29.2
90	-	-	5.5	8.6	11.7	14.8	17.9	20.4	22.9	25.4	27.9
95	-	-	-	5.0	7.0	9.0	11.0	14.9	18.8	22.7	26.6
100	-	-	-	-	5.5	7.0	8.5	12.2	15.8	19.5	23.2
105	-	-	-	-	-	5.0	6.0	9.5	12.9	16.3	19.7
110	-	-	-	-	-	-	-	6.7	9.9	13.1	16.3
115	-	-	-	-	-	-	-	-	7.0	9.9	12.9

TABLE 13: SUPERHEAT CHARGING TABLE FOR D1NH024

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 800 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	29.2	29.5	29.7	30.0	30.2	30.5	30.7	31.5	32.2	33.0	33.8
70	25.1	25.8	26.4	27.0	27.7	28.3	29.0	29.8	30.7	31.6	32.5
75	21.0	22.0	23.1	24.1	25.1	26.2	27.2	28.2	29.2	30.2	31.2
80	16.9	18.3	19.7	21.2	22.6	24.0	25.5	26.5	27.6	28.7	29.8
85	12.8	14.6	16.4	18.2	20.1	21.9	23.7	24.9	26.1	27.3	28.5
90	5.7	8.0	10.4	12.7	15.1	17.4	19.8	21.8	23.8	25.7	27.7
95	-	-	-	7.3	10.1	13.0	15.9	18.7	21.4	24.2	26.9
100	-	-	-	5.6	7.7	9.9	12.0	15.2	18.4	21.6	24.8
105	-	-	-	-	5.4	6.8	8.2	11.8	15.4	19.1	22.7
110	-	-	-	-	-	-	-	8.4	12.4	16.5	20.6
115	-	-	-	-	-	-	-	-	9.4	14.0	18.5

TABLE 14: SUPERHEAT CHARGING TABLE FOR D1NH030

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 1,000 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	23.8	25.6	27.5	29.3	31.1	32.9	34.7	35.3	35.9	36.5	37.0
70	19.5	21.8	24.1	26.4	28.8	31.1	33.4	34.1	34.9	35.6	36.3
75	15.1	18.0	20.8	23.6	26.5	29.3	32.1	33.0	33.9	34.7	35.6
80	10.8	14.1	17.4	20.8	24.1	27.5	30.8	31.8	32.9	33.9	34.9
85	6.4	10.3	14.1	18.0	21.8	25.7	29.5	30.7	31.9	33.0	34.2
90	-	6.3	10.2	14.1	18.0	21.9	25.8	27.5	29.1	30.8	32.5
95	-	-	6.3	10.2	14.2	18.1	22.1	24.2	26.4	28.5	30.7
100	-	-	5.4	8.4	11.4	14.4	17.4	20.1	22.8	25.5	28.2
105	-	-	-	6.6	8.7	10.7	12.7	16.0	19.2	22.4	25.7
110	-	-	-	-	5.9	7.0	8.0	11.8	15.6	19.4	23.2
115	-	-	-	-	-	-	-	7.7	12.0	16.4	20.7

TABLE 15: SUPERHEAT CHARGING TABLE FOR D1NH036

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 1,200 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	32.4	33.0	33.5	34.0	34.6	35.1	35.6	35.7	35.8	35.9	36.0
70	29.1	29.8	30.5	31.2	31.9	32.6	33.3	33.6	33.9	34.2	34.4
75	25.7	26.6	27.5	28.4	29.3	30.1	31.0	31.5	31.9	32.4	32.8
80	22.4	23.5	24.5	25.6	26.6	27.7	28.7	29.3	30.0	30.6	31.2
85	19.1	20.3	21.5	22.7	24.0	25.2	26.4	27.2	28.0	28.8	29.6
90	13.5	15.2	16.8	18.5	20.2	21.9	23.6	24.8	26.0	27.2	28.4
95	7.9	10.0	12.2	14.3	16.4	18.6	20.7	22.3	24.0	25.6	27.2
100	6.4	8.0	9.6	11.3	12.9	14.5	16.2	18.4	20.7	23.0	25.2
105	-	6.0	7.1	8.2	9.3	10.5	11.6	14.5	17.4	20.3	23.3
110	-	-	-	5.2	5.8	6.4	7.1	10.6	14.2	17.7	21.3
115	-	-	-	-	-	-	-	6.7	10.9	15.1	19.3

TABLE 16: SUPERHEAT CHARGING TABLE FOR D1NH042

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 800 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	25.6	25.8	26.0	26.2	26.5	26.7	26.9	27.4	27.9	28.4	28.9
70	23.3	23.7	24.0	24.4	24.8	25.1	25.5	26.0	26.6	27.1	27.7
75	21.1	21.6	22.1	22.6	23.1	23.6	24.1	24.7	25.3	25.9	26.5
80	18.8	19.4	20.1	20.7	21.3	22.0	22.6	23.3	23.9	24.6	25.2
85	16.5	17.3	18.1	18.9	19.6	20.4	21.2	21.9	22.6	23.3	24.0
90	14.3	15.1	15.9	16.6	17.4	18.2	19.0	20.0	21.0	22.0	23.0
95	12.1	12.9	13.7	14.4	15.2	15.9	16.7	18.0	19.4	20.7	22.0
100	9.4	10.1	10.7	11.4	12.1	12.7	13.4	15.3	17.2	19.1	21.0
105	6.7	7.3	7.8	8.4	9.0	9.5	10.1	12.6	15.1	17.5	20.0
110	-	-	-	5.4	5.9	6.3	6.8	9.8	12.9	16.0	19.0
115	-	-	-	-	-	-	-	7.1	10.8	14.4	18.0

TABLE 17: SUPERHEAT CHARGING TABLE FOR D1NH048

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 1,600 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	23.8	25.1	26.5	27.8	29.1	30.5	31.8	32.8	3.7	34.7	35.7
70	22.4	23.4	24.4	25.3	26.3	27.3	28.2	29.7	31.1	32.5	33.9
75	21.1	21.7	22.3	22.9	23.5	24.1	24.7	26.6	28.5	30.3	32.2
80	19.7	20.0	20.2	20.4	20.6	20.9	21.1	23.5	25.8	28.2	30.5
85	18.4	18.2	18.1	17.9	17.8	17.7	17.5	20.3	23.2	26.0	28.8
90	13.1	13.0	12.9	12.8	12.7	12.6	12.5	16.6	20.7	24.7	28.8
95	7.9	7.8	7.7	7.6	7.6	7.5	7.4	12.8	18.1	23.5	28.9
100	6.1	6.1	6.1	6.2	6.2	6.3	6.3	11.1	15.9	20.7	25.4
105	-	-	-	-	-	5.0	5.2	9.4	13.6	17.8	22.0
110	-	-	-	-	-	-	-	7.7	11.3	14.9	18.5
115	-	-	-	-	-	-	-	6.0	9.0	12.1	15.1

TABLE 18: SUPERHEAT CHARGING TABLE FOR D1NH060

OUTDOOR TEMP. °F	SUPERHEAT AT COMPRESSOR SUCTION (F), AIRFLOW = 600 CFM										
	INDOOR WB TEMP. (°F)										
	55	57	59	61	63	65	67	69	71	73	75
65	27.7	29.3	30.9	32.5	34.0	35.6	37.2	37.3	37.3	37.4	37.5
70	21.1	23.2	25.2	27.2	29.3	31.3	33.3	34.2	35.1	35.9	36.8
75	14.5	17.0	19.5	22.0	24.5	27.0	29.5	31.1	32.8	34.4	36.0
80	7.9	10.9	13.8	16.8	19.8	22.7	25.7	28.1	30.5	32.9	35.3
85	-	-	8.2	11.6	15.0	18.4	21.8	25.0	28.2	31.4	34.6
90	-	-	6.0	8.6	11.2	13.8	16.3	20.5	24.6	28.8	32.9
95	-	-	-	5.6	7.4	9.1	10.9	16.0	21.1	26.2	31.3
100	-	-	-	-	5.8	7.1	8.4	12.6	16.8	21.0	26.2
105	-	-	-	-	-	5.0	5.9	9.2	12.5	15.8	19.0
110	-	-	-	-	-	-	-	5.8	8.2	10.5	12.9
115	-	-	-	-	-	-	-	-	-	5.3	6.8

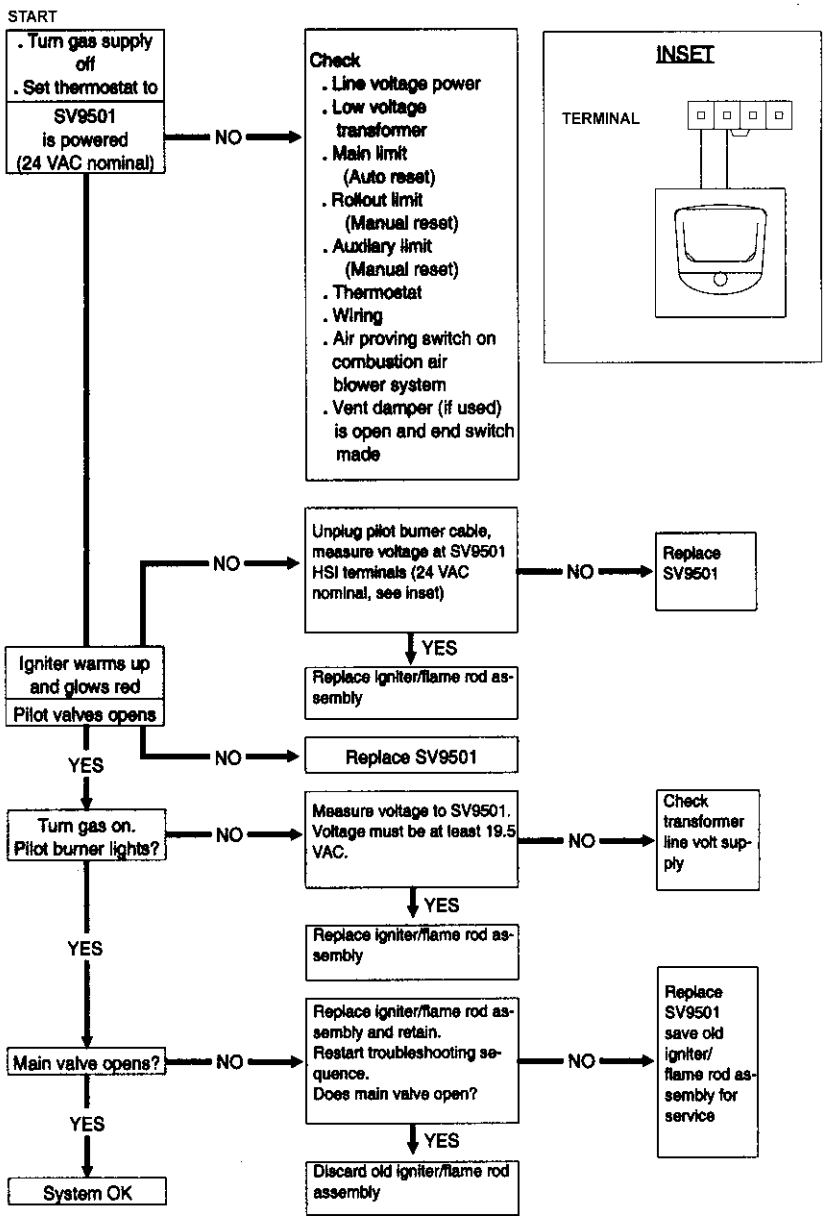


FIGURE 15 - TROUBLESHOOTING

TROUBLESHOOTING

NOTE: Before troubleshooting, familiarize yourself with the START-UP and CHECKOUT procedures.

⚠ WARNING

Troubleshooting of components necessarily requires opening the electrical control box with the power connected to the unit. Use extreme care when working with the live circuits! Check the unit nameplate for the correct line voltage and set the volt meter to the correct range before making any connections with line terminals.

⚠ CAUTION

If the variable speed motor found in DNH060 models operates erratically check the fan control board for the presence of a break-off tab. Remove tab if present.

The wire number or color and terminal designations referred to may vary. Check the wiring label inside the control box access panel for the correct wiring.

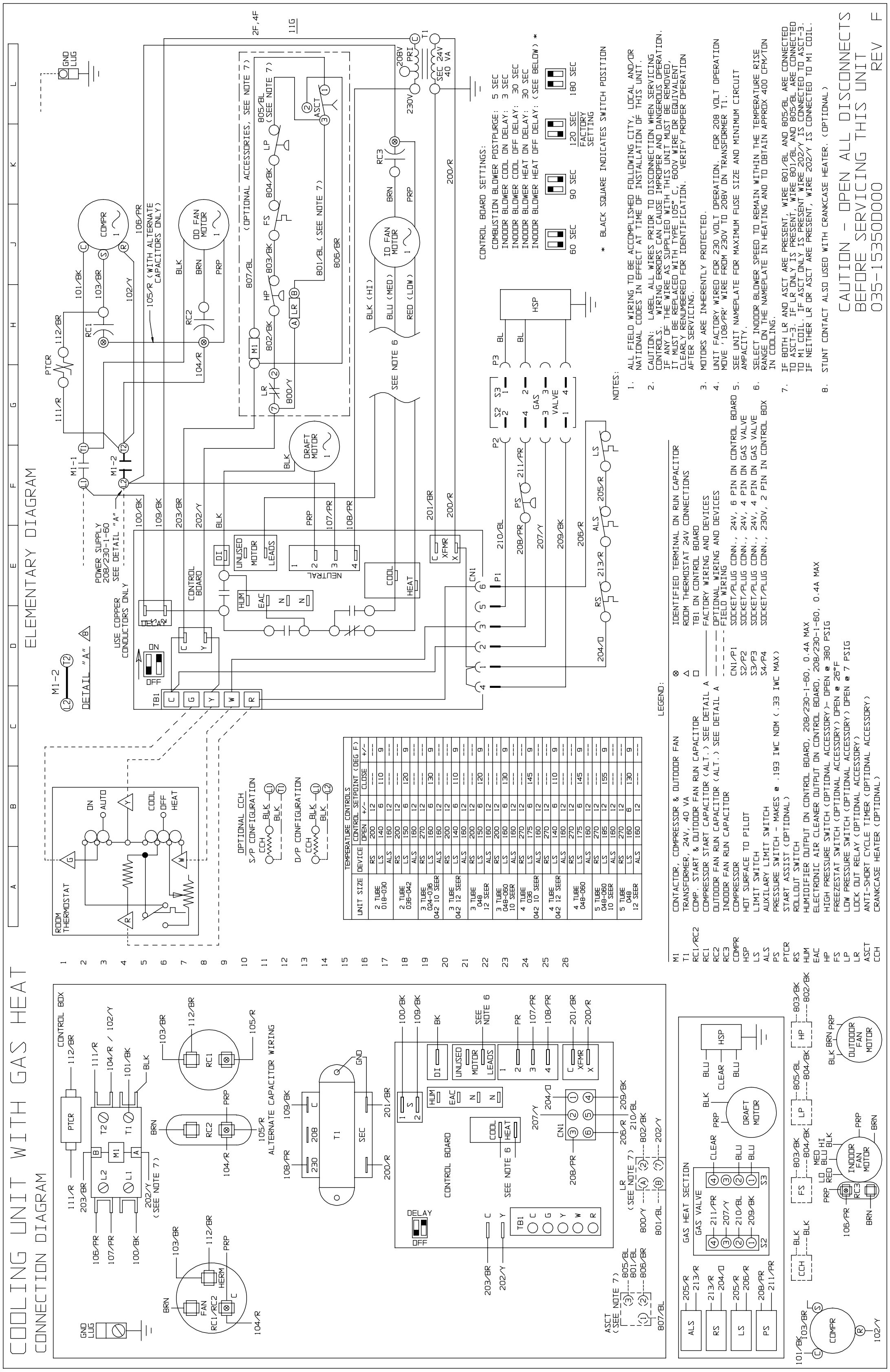
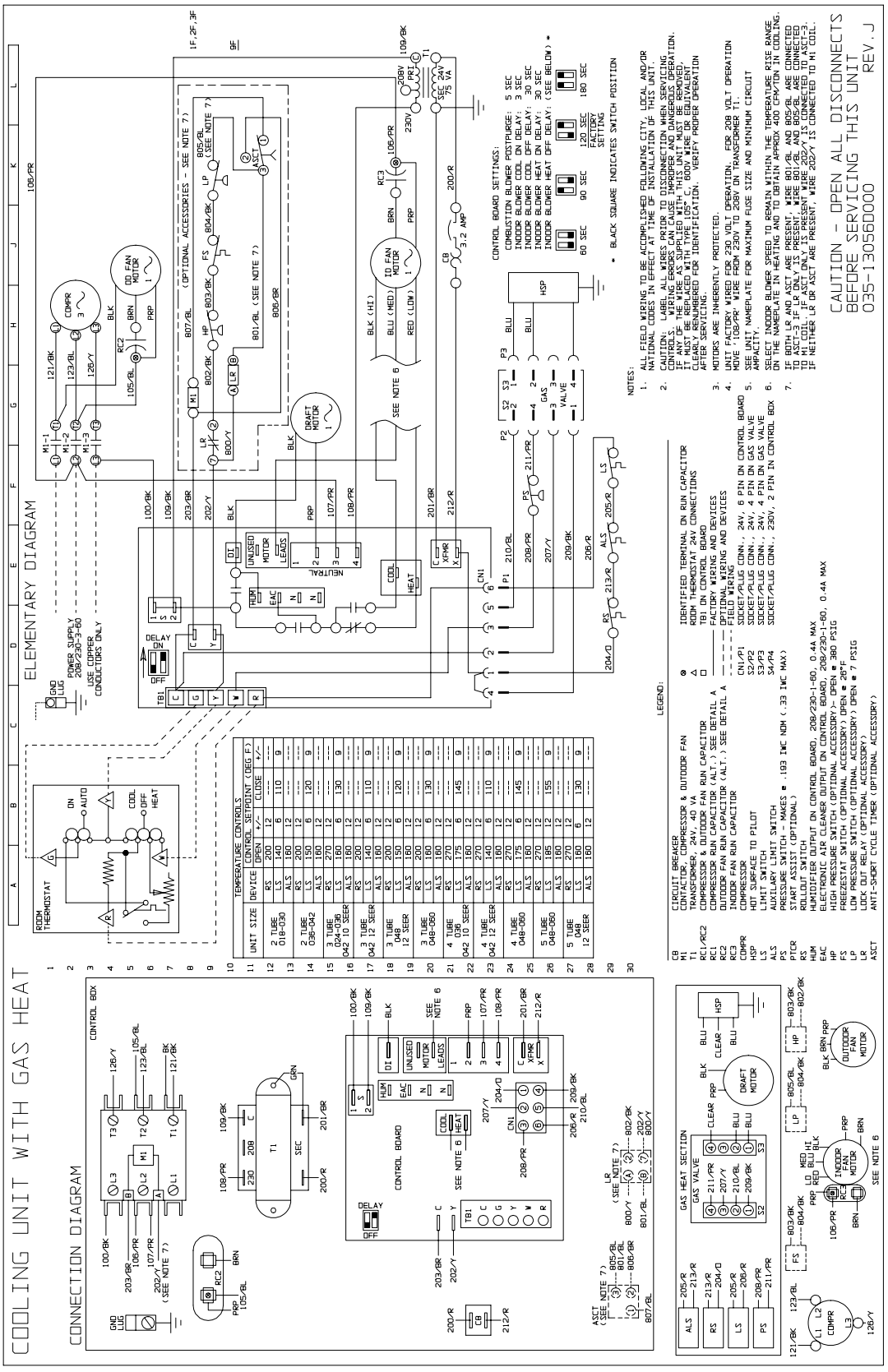


FIGURE 16 - TYPICAL WIRING DIAGRAM D1NH 018, 024, 030, 036, 048 (208/230-1-60 POWER SUPPLY)



UNIT SIZE	DEVICE	CONTROL SETPOINT (DEG F) OPEN	+/-	CLOSE	+/-
2 TUBE 018-030	RS	200	12	---	---
	LS	140	6	110	9
	ALS	160	12	---	---
2 TUBE 036-042	RS	200	12	---	---
	LS	140	6	120	9
	ALS	160	12	---	---
3 TUBE 024-036 042 10 SEER	RS	270	12	---	---
	LS	160	6	130	9
	ALS	160	12	---	---
3 TUBE 042 12 SEER	RS	200	12	---	---
	LS	140	6	110	9
	ALS	200	12	---	---
3 TUBE 048 12 SEER	RS	150	6	120	9
	ALS	160	12	---	---
3 TUBE 048-060	RS	200	12	---	---
	LS	160	12	---	---
	ALS	160	12	---	---
4 TUBE 036-048 042 10 SEER	RS	270	12	---	---
	LS	160	6	130	9
	ALS	160	12	---	---
4 TUBE 048-060	RS	270	12	---	---
	LS	175	6	145	9
	ALS	270	12	---	---
5 TUBE 048-060	RS	270	12	155	9
	LS	185	12	---	---
	ALS	160	12	---	---
5 TUBE 048 12 SEER	RS	270	12	---	---
	LS	160	6	130	9
	ALS	160	12	---	---

FIGURE 17 - TYPICAL WIRING DIAGRAM D1NH 030, 036, 042, 048 (208/230-3-60 POWER SUPPLY)

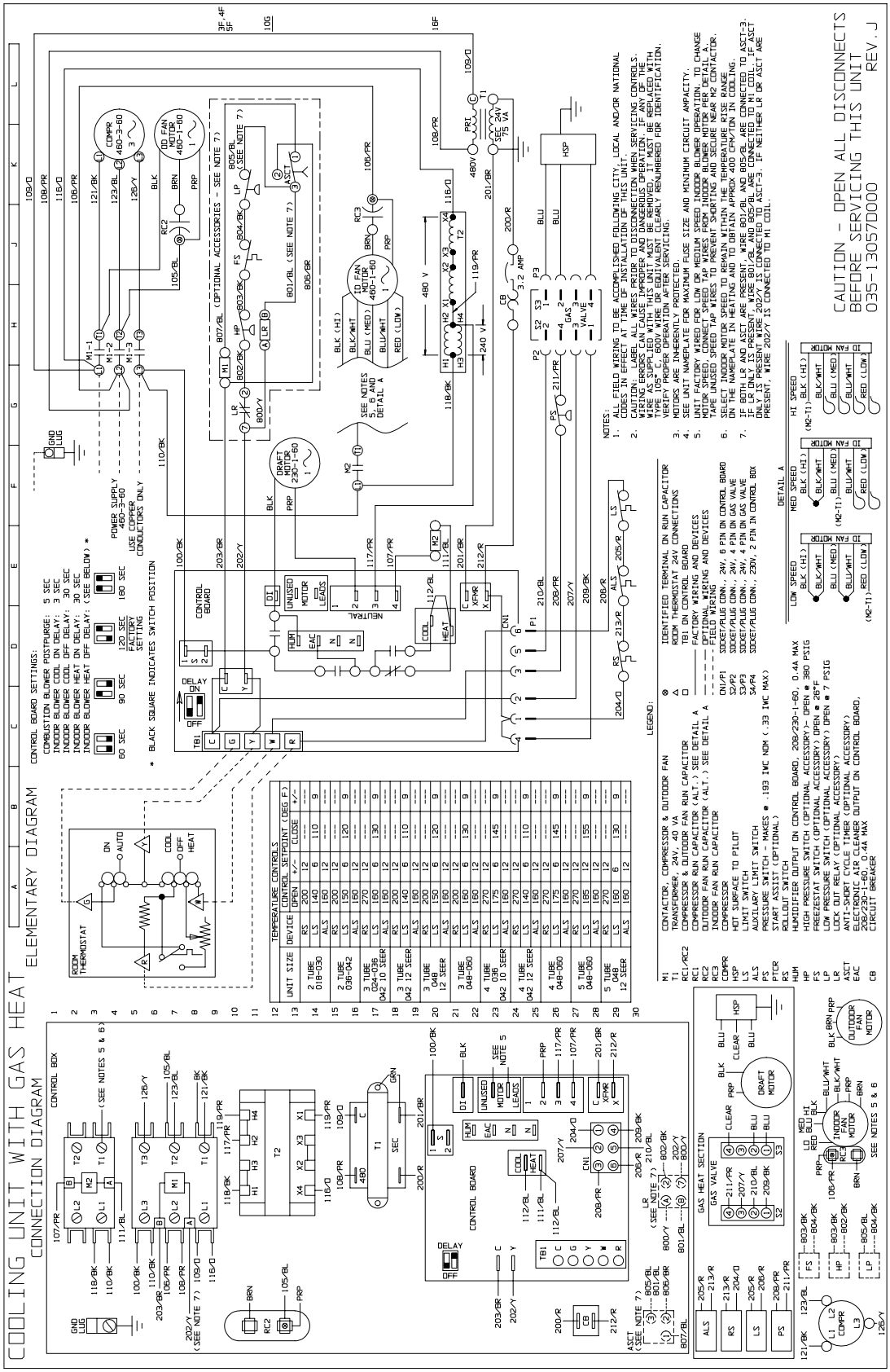


FIGURE 18 - TYPICAL WIRING DIAGRAM D1NH 030, 036, 042, 048 (460-3-60 POWER SUPPLY)

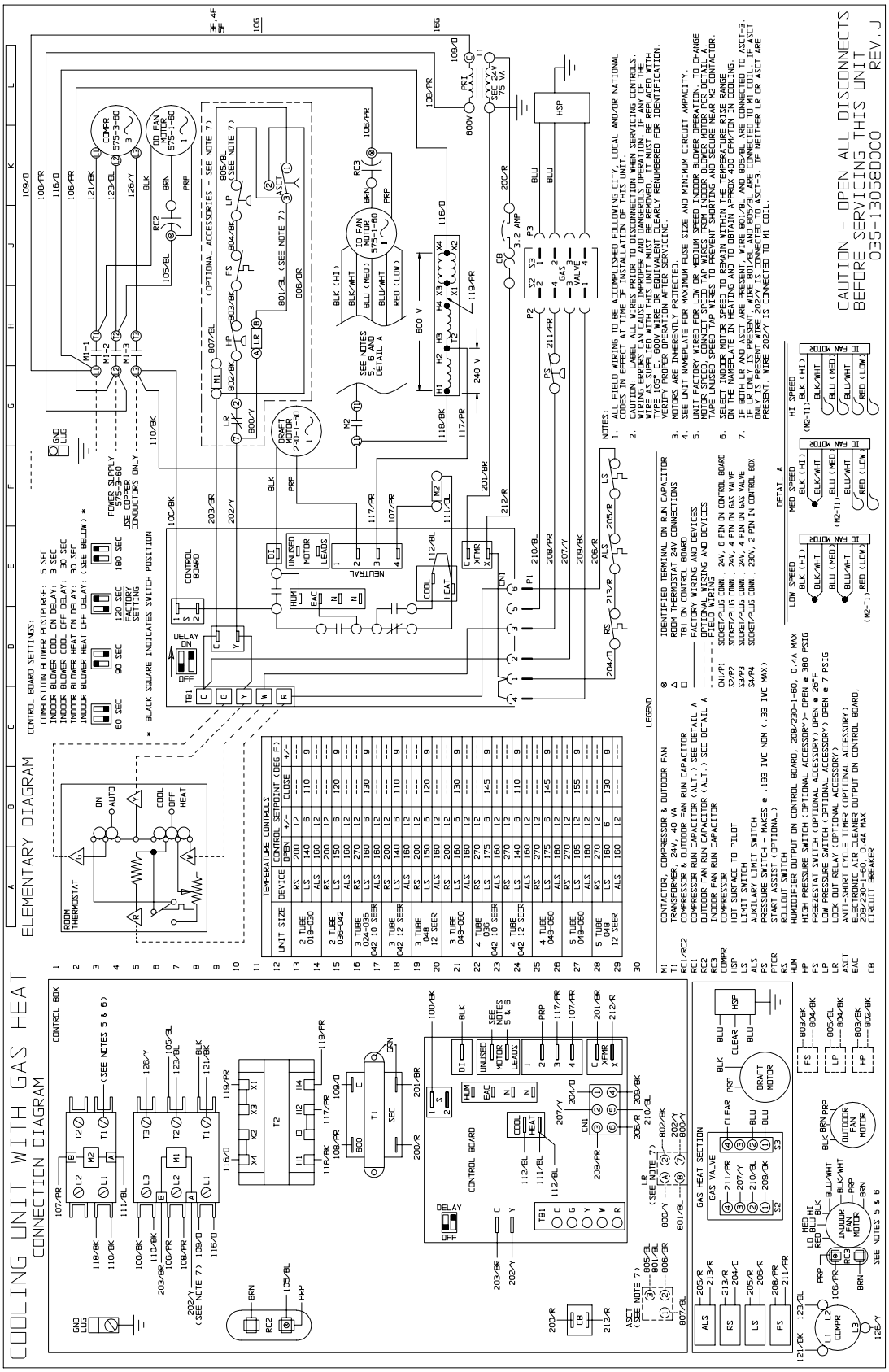


FIGURE 19 - TYPICAL WIRING DIAGRAM D1NH 036, 042, 048, 060 (575-3-60 POWER SUPPLY)

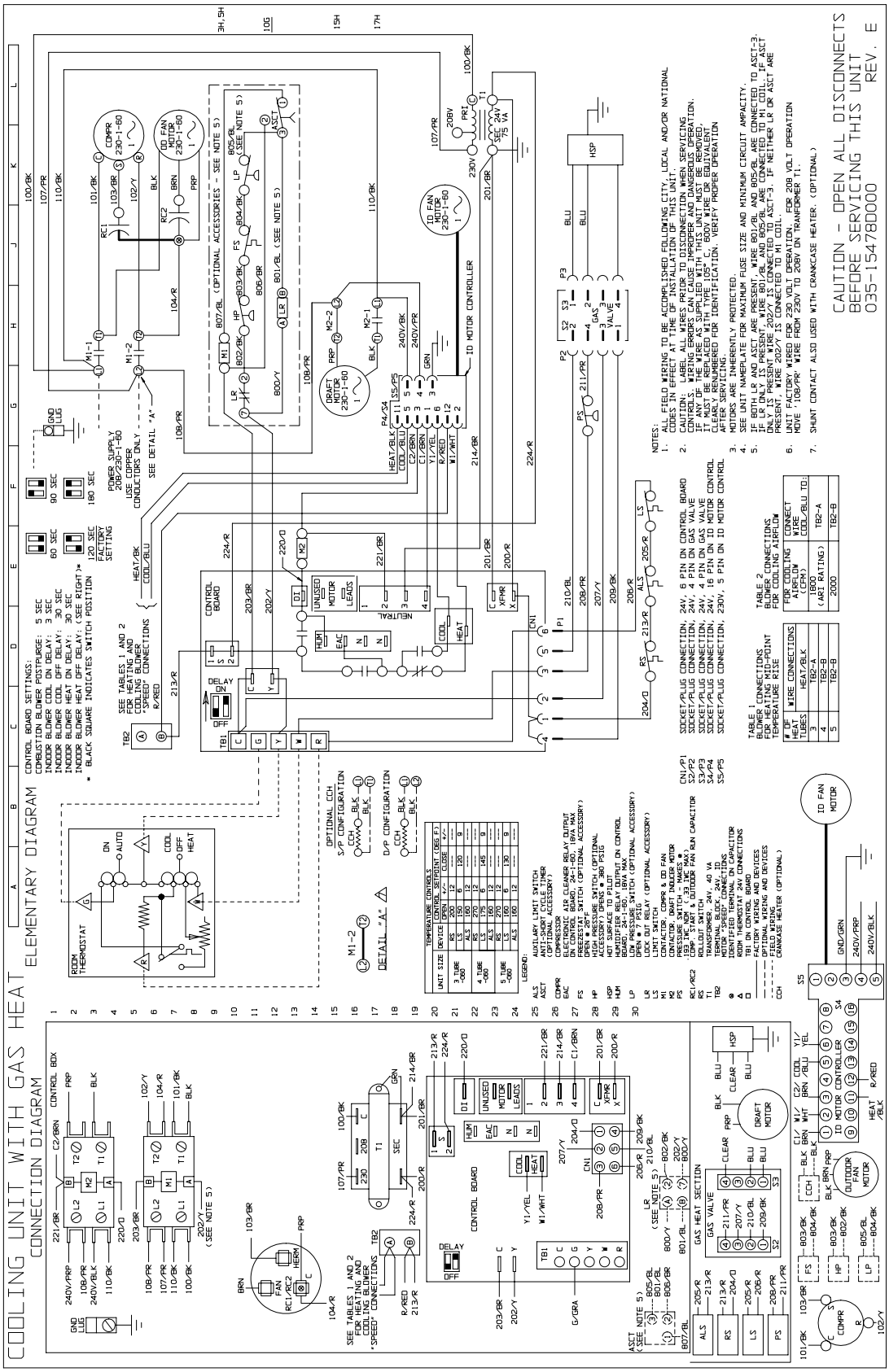


FIGURE 20 - TYPICAL WIRING DIAGRAM D1NH 060 (208-230-1-60 POWER SUPPLY)

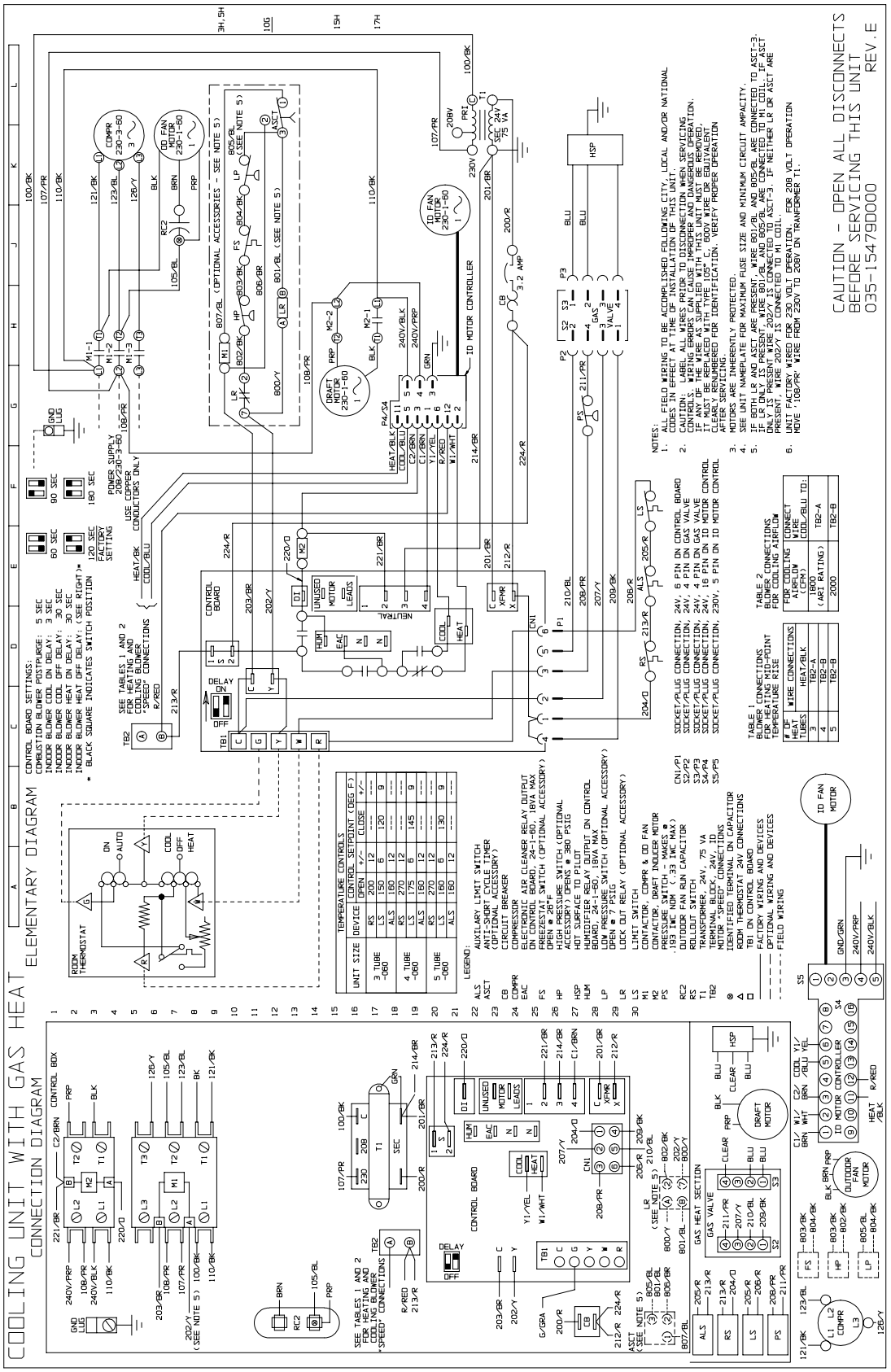


FIGURE 21 - TYPICAL WIRING DIAGRAM D1NH 060 (208-230-3-60 POWER SUPPLY)

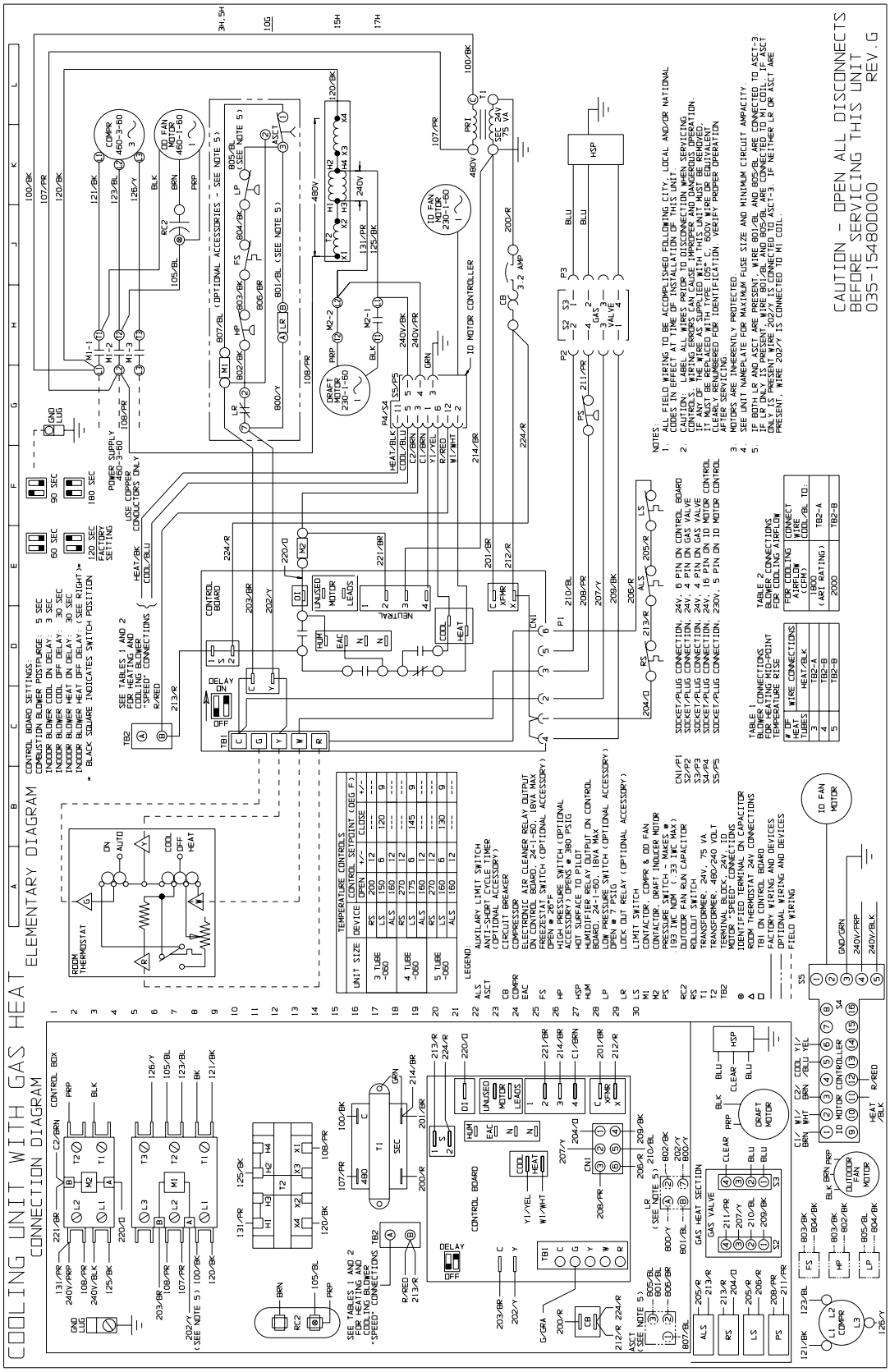


FIGURE 22 - TYPICAL WIRING DIAGRAM D1NH 060 (460-3-60 POWER SUPPLY)

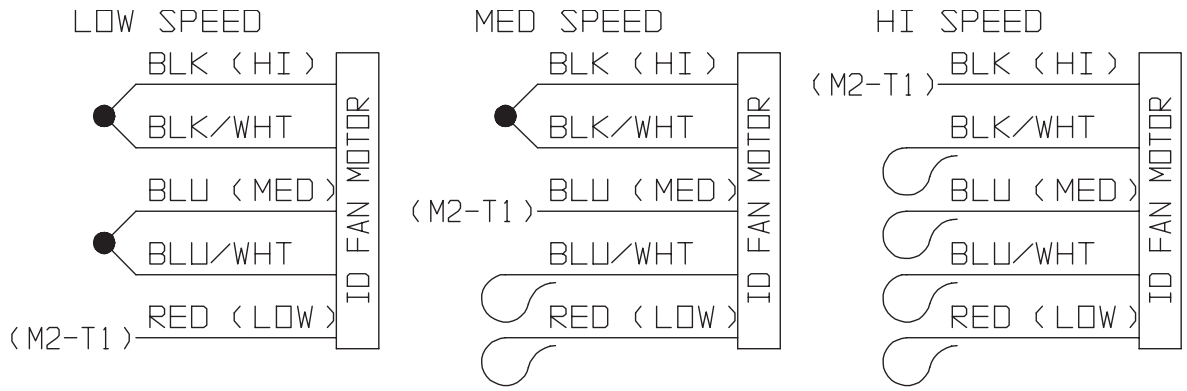


FIGURE 23 - WIRING DIAGRAM DETAIL B (460 & 575-3-60 POWER SUPPLY)[1]

1. See Figures 18 and 19.

TYPICAL WIRING DIAGRAM NOTES
(SEE FIGURES 16, 17, 18 AND 19)

1. All field wiring to be accomplished following city, local and/or national codes in effect at time of installation of this unit.

⚠ CAUTION

Label all wires prior to disconnection when servicing controls. Wiring errors can cause improper and dangerous operation if any of the wire as supplied with this unit must be removed it must be replaced with type 105°C, 600V wire or equivalent clearly renumbered for identification. Verify proper operation after servicing.

2. Motors are inherently protected.
3. See unit nameplate for maximum fuse size and minimum circuit ampacity.
4. Unit factory wired for low or medium speed indoor blower operation to change motor speed connect speed tap wires from indoor blower motor per Detail B (Figure 23) tape unused speed tap wires to prevent shorting and secure near M2 contactor.
5. Select indoor blower speed to remain within the temperature rise range on the nameplate in heating and to obtain approximately 400 CFM/Ton in cooling.
6. If both LR and ASCT are present, wire 801/BL and 805/BL are connected to ASCT-3 if LR only is present wire 801/BL and 805/BL are connected to M1 coil. If ASCT only is present wire 202/Y is connected to ASCT-3. If neither LR or ASCT are present, Wire 202/Y is connect to M1 coil.

⚠ CAUTION

Open all disconnects before servicing this unit.

LEGEND

CCH	CRANKCASE HEATER (OPTIONAL)
ALS	AUXILARY LIMT SWITCH
ASCT	ANTI-SHORT CYCLE TIMER
CB	CIRCUIT BREAKER, 3.0 AMP
COMPR	COMPRESSOR
EAC	ELECTRONIC AIR CLEANER OUTPUT ON CONTROL BOARD (SEE UNIT WIRING DIAGRAM FOR PROPER RATING)
FS	FREEZESTAT SWITCH (OPTIONAL ACCESSORY) OPEN AT 26°F
HP	HIGH PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN AT 7 PSIG
HSP	HOT SURFACE TO PIOLT
HUM	HUMIDIFIER OUTPUT ON CONTROL BOARD (SEE UNIT WIRING DIAGRAM FOR PROPER RATING)
LP	LOW PRESSURE SWITCH (OPTIONAL ACCESSORY) OPEN AT 7 PSIG
LR	LOCK OUT REALY (OPTIONAL ACCESSORY)
LS	LIMIT SWITCH
M1	CONTACTOR, COMPRESSOR & OUTDOOR FAN
M2	CONTACTOR, DRAFT INDUCER MOTOR
PS	PRESSURE SWITCH - MAKES AT .193 IWC NOM. (.33 IWC MAX.)
PTCR	START ASSIT (OPTIONAL)
RC1 / RC2	COMPRESSOR START & OUTDOOR FAN RUN CAPACITOR
RC1	COMPRESSOR START CAPACITOR (ALTERNATE)
RC2	OUTDOOR FAN RUN CAPACITOR (ALTERNATE)
RC3	INDOOR FAN RUN CAPACITOR
RS	ROLLOUT SWITCH
T1	TRANSFORMER, 24V, 40 VA (1 PH.), 75 VA (3 PH.)
T2	TRANSFORMER 480 / 240 VOLT
TB2	TERMINAL BLOCK 24V, IO MOTOR "SPEED" CONNECTIONS
⊗	IDENTIFIED TERMINAL ON RUN CAPCITOR
△	ROOM THERMOSTAT 24V CONNECTIONS
_____	FACTORY WIRING AND DEVICES
_____ _ _ _____	OPTIONAL WIRING AND DEVICES
- - - - - - - - - -	FIELD WIRING
CN1/P1	SOCKET/PLUG CONNECTION, 24V, 6 PIN ON CONTROL BOARD
S2/P2	SOCKET/PLUG CONNECTION, 24V, 4 PIN ON GAS VALVE
S3/P3	SOCKET/PLUG CONNECTION, 24V, 4 PIN ON GAS VALVE
S4/P4	SOCKET/PLUG CONNECTION, 230V, 2 PIN IN CONTROL BOX

DNHLEGEND WIRING DIA

FIGURE 24 - TYPICAL WIRING DIAGRAM LEGEND[1]

1. See Figures 16, 17, 18 and 19

66324-YIM-B-1004
Supersedes: 66324-YIM-A-1003/035-18266-002-A-1003

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