

MODELS
RPMH 30 and RPMH 36
ROOF MOUNT
PACKAGED HEAT PUMP
INSTALLATION INSTRUCTIONS

SPECIALLY DESIGNED FOR ROOFTOP
HEATING / COOLING APPLICATIONS

ENERGY CONSERVING ROOF MOUNT PACKAGED HEAT PUMPS

MODELS
RPMH30
RPMH36

ENGINEERED FEATURES

UPFLOW CONDENSER AIR DISCHARGE allows more freedom of unit placement. Condenser fan is less susceptible to wind effect than horizontal discharge models.

ROOF ADAPTER - Special one piece design eliminates the possibility of water leaks. Permits the installer to rough-in the duct work. (Model RA3036 Roof Adapter - order separately).

ROOF CURB - Factory supplied option designed to mate with the RA3036 Roof Adapter. Makes a lower cost, quicker, easier to install, leakproof installation. Flexible design suitable for most flat roofs. Has built-in roofing "nailer strip." (Model RPM36 Roof Curb - order separately). Special order curbs for pitched roofs available - consult factory.

EASY TO SERVICE because all components and controls are accessible for inspection.

THREE-SPEED BLOWER MOTOR provides airflow adjustments for both high or low static operation. Standard on both models.

ELECTRIC HEAT STRIPS with automatic limit and thermal cutoff are available as a built-in option.

HIGH PRESSURE SWITCH provides additional protection for the heat pump system.

INTERNAL FUSING with single power circuit eliminates extra field wiring. Fusing standard on 10, 15 and 20Kw models.

HEAT PUMP COMPRESSOR is equipped with crankcase heater and is protected with internal overload, high-pressure relief valve and anti-slug device.

SUCTION ACCUMULATOR protects the compressor from refrigerant flood-back and prevents damage to the compressor bearing surfaces.

EMERGENCY HEAT RELAY permits continuous operation of the system.

HIGH AND LOW SIDE GAUGE PORTS are standard equipment for easier maintenance.

THERMOSTAT - Optional with non-cycling reversing valve or automatic changeover.

BUILT-IN THROWAWAY FILTER is standard equipment.

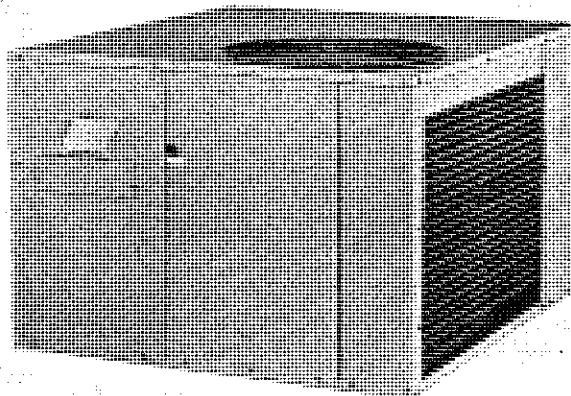
FRESH AIR INLET - Standard.

DEFROST SYSTEM - Positive 60 minute time-temperature with 7 minute time safe override.

COMPRESSOR MALFUNCTION RELAY energizes the system warning light located on the indoor thermostat. Standard on all 1-phase.

COOLING CAPACITIES: 30,000 to 34,000 BTU

HEATING CAPACITIES: 31,200 to 34,800 BTU



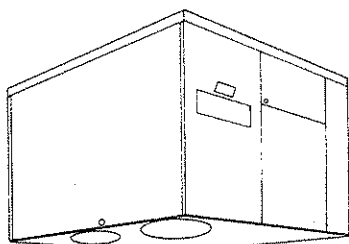
CAPACITY AND EFFICIENCY RATINGS

MODEL	Phase	COOLING			HEATING @ 47°			HEATING @ 17°	
		BTUH	EER	SEER	BTUH	COP	HSPF*	BTUH	COP
RPMH30	1	30,000	--	7.70	31,200	2.60	5.50	16,600	1.50
RPMH30-3	3	30,000	7.50	--	31,200	2.70	--	15,600	1.50
RPMH36	1	34,000	--	7.80	34,800	2.70	5.75	17,300	1.60
RPMH36-3	3	34,000	7.90	--	34,800	2.80	--	16,200	1.60

*Heating Seasonal Performance factor at Region IV minimum design heating requirement per DOE test procedures in effect at time of printing.

Easy 3-step installation for roof top applications. Saves installation labor, time, cost and provides leakproof installation. No special roof hood plenum assembly required.

RPM SERIES.
Packaged Roof
Mount Heat
Pump Unit.



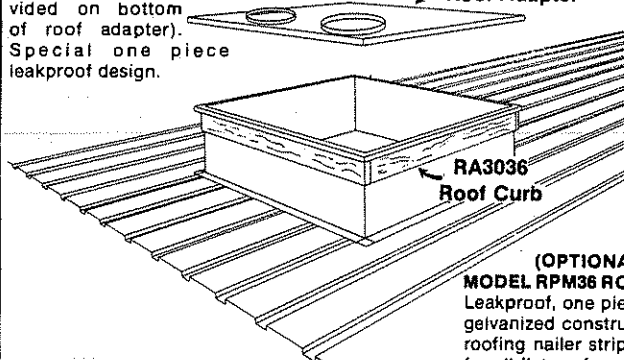
RPMH30
or
RPMH36

RA3036 ROOF ADAPTER.

Painted galvanized steel adapter permits installer to rough-in the duct work at the job sight and install RPM unit later. (Duct flanges provided on bottom of roof adapter).

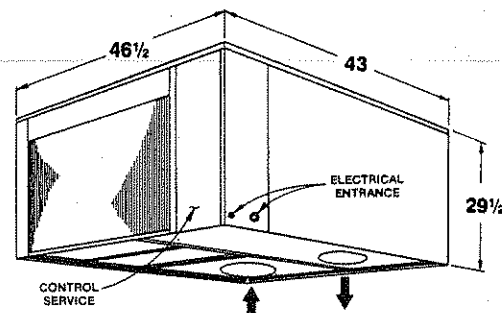
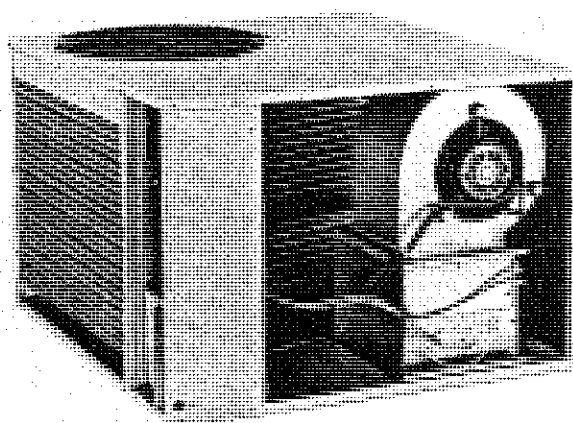
Special one piece leakproof design.

RA3036
Roof Adapter



RA3036
Roof Curb

(OPTIONAL)
MODEL RPM36 ROOF CURB
Leakproof, one piece welded galvanized construction with roofing nailer strip - suitable for all flat roofs.



SPECIFICATIONS —

MODEL	RPMH30	RPMH30-3	RPMH30-3	RPMH36	RPMH36-3	RPMH36-3
Cooling Capacity BTUH	30,000	30,000	30,000†	34,000	34,000	34,000†
*Hi-Temp Heating BTUH (47°)	31,200	31,200	31,200	34,800	34,800	34,800
*Lo-Temp Heating BTUH (17°)	16,600	15,600	15,600	17,300	16,200	16,200
Electrical — Less Kw	230/208-1-60	230/208-3-60	460-3-60	230/208-1-60	230/208-3-60	460-3-60
Operating Voltage Range	197-253	187-253	414-506	197-253	187-253	414-506
Min. Circuit Ampacity	27	19	15	29	21	15
*Field Wire Size	No. 10	No. 12	No. 14	No. 10	No. 12	No. 14
**Delay Fuse — Max.	40	30	15	45	30	15
*Total Unit Amps	22.3	16.3	8.2	24.3	17.3	9.2
Compressor — Circuit A						
Volts	230/208	230/200	460	230/208	230/200	460
Rated Load	18.0	12.0	6.0	20.0	13.0	7.0
Lock Rotor Amps	75.8	65	32.0	83.5	66	35
Fan Motor & Condenser						
Fan Motor — HP/RPM		1/5 H.P. - 1075 RPM		1/5 H.P. - 1075 RPM		
Fan Motor — Amps	1.5	1.5	1.5	1.5	1.5	1.5
Fan — Cfm/CFM	18"/2000	18"/2000	18"/2000	18"/2000	18"/2000	18"/2000
Face Area - Sq. Ft.	5.04	5.04	5.04	5.04	5.04	5.04
Row/Fins per in.	3/14	3/14	3/14	3/14	3/14	3/14
Motor & Evaporator						
Blower Motor — HP/RPM		1/3 H.P. - 1075 RPM - 3 Speed		1/3 H.P. - 1075 RPM - 3 Speed		
Blower Motor — Amps	2.8	2.8	2.8	2.8	2.8	2.8
CFM (Rated)	1100	1100	1100	1275	1275	1275
Face Area - Sq. Ft.	4.17	4.17	4.17	4.17	4.17	4.17
Row/Fins per in.	3/15	3/15	3/15	3/15	3/15	3/15
Refrigerant 22	87	87	87	95	95	95
Shipping Wt. Lbs.	410	410	410	415	415	415

*60° C Copper Wire Size. Basic unit only — does not include supplemental heaters from Table No. 1.
Refer to Table No. 2 for heater amps and additional capacity.
**Maximum Time Delay Fuse or "HACR Type" Circuit Breaker.
†460V not U.L. listed.

ELECTRIC HEAT TABLE NO. 1

MODEL	RATED VOLTS & PH	HEATER KW @ 240V	MAX. UNIT AMPS	NO. FIELD POWER CIRCUITS	INTERNAL FUSES CKT. A/B	MAXIMUM FUSE OR CIRCUIT BREAKER* CKT. A	MINIMUM CIRCUIT AMPACITY CKT. A	FIELD*** POWER WIRING CKT. A	GROUND*** WIRE SIZE CKT. A
RPMH30	230/208-1	5 10 **15 **20	43.1 63.9 65.3 86	1 1 1 1	60/30 60/60 60/60	60 80 90 110	53 79 82 108	6 2 2 1	10 8 8 6
RPMH30-3	230/208-3	6 9 12 **18	30.7 38 45.2 46.2	1 1 1 1		45 50 60 60	37 46 55 58	8 6 6 4	10 10 10 10
RPMH30-3	460-3	6 9 12 18	15.4 19 22.6 23.1	1 1 1 1		20 25 30 30	19 23 28 29	12 10 10 10	12 10 10 10
RPMH36	230/208-1	5 10 **15 **20	45.1 65.9 65.9 86	1 1 1 1	60/30 60/60 60/60	60 90 90 110	55 82 82 108	6 2 2 1	10 8 8 6
RPMH36-3	230/208-3	6 9 12 **18	31.7 39 46.2 46.2	1 1 1 1		45 50 60 60	39 48 57 58	8 6 4 4	10 10 10 10
RPMH36-3	460-3	6 9 12 **18	16.4 20 23.6 23.6	1 1 1 1		25 25 30 30	20 25 29 29	10 10 10 10	10 10 10 10

*Time Delay Fuses or "HACR Type" circuit breakers must be used for 60A and smaller sizes.
Standard fuses or circuit breakers suitable for sizes 70A and larger.
**Max amount of electric heat which can be operated in conjunction with the compressor during heating mode is 10Kw on 1 phase and 12Kw on 3 phase. The balance of the electric heat can be operated only during compressor cut off or emergency heat mode.
***Based on 60° C copper wire.

COOLING APPLICATION RATINGS — OUTDOOR TEMPERATURE ° F*

MODEL		70°	75°	80°	85°	90°	95°	100°	105°	110°	115°
RPMH30	Total BTUH	36,900	35,500	34,100	32,800	31,500	30,000	28,900	27,700	26,400	25,300
	Sensible BTUH	23,600	23,200	22,800	22,500	22,200	21,900	21,600	21,400	21,300	21,200
	Latent BTUH	13,300	12,300	11,300	10,300	9,300	8,100	7,300	6,300	5,100	4,100
RPMH36	Total BTUH	38,400	37,600	36,800	35,900	35,000	34,000	32,600	30,900	29,100	27,200
	Sensible BTUH	24,500	24,400	24,300	24,200	24,100	23,900	23,700	23,400	23,000	22,800
	Latent BTUH	13,900	13,200	12,500	11,700	10,900	10,100	8,900	7,500	6,100	4,400

*At 80° DB/67° WB Return Air Temperature at Rated Indoor CFM.

HEATING APPLICATION RATINGS — OUTDOOR TEMPERATURE ° F*

MODEL		0°	5°	10°	15°	17°	20°	25°	30°	35°	40°	45°	47°	50°	55°	60°	65°
RPMH30	BTUH	9,800	11,400	13,200	15,000	15,800	16,700	18,400	20,200	21,900	25,700	29,600	31,200	32,600	35,000	37,400	39,800
	Watts	3,000	3,060	3,080	3,090	3,100	3,170	3,250	3,130	3,370	3,430	3,480	3,500	3,530	3,580	3,620	3,710
	COP	1.00	1.10	1.25	1.40	1.50	1.55	1.70	1.85	1.90	2.20	2.50	2.60	2.65	2.85	3.00	3.10
RPMH36	BTUH	9,600	11,400	13,400	15,500	16,200	17,500	19,600	21,600	23,600	28,400	33,000	34,800	36,600	39,500	42,400	44,400
	Watts	2,800	2,900	3,000	3,110	3,150	3,220	3,320	3,420	3,500	3,620	3,720	3,755	3,810	3,910	4,000	4,100
	COP	1.00	1.20	1.30	1.40	1.50	1.60	1.70	1.90	2.00	2.30	2.60	2.70	2.80	2.90	3.10	3.20

*At 70° DB Indoor Return Air at Rated CFM.

All Specifications Subject To Change Without Notice

INDOOR BLOWER PERFORMANCE

CFM-DRY COIL WITH FILTER			
E.S.P. in H ₂ O	RPMH30 and RPMH36		
	High Speed	Medium Speed	Low Speed
.0	1425	1225	1130
.10	1385	1190	1115
.20	1330	1150	1085
.30	1275	1100	1050
.40	1205	1050	1005
.50	1130	995	950
.60	1060	935	890

ELECTRIC HEAT TABLE NO. 2

240V			
MODEL	BTUH	AMP	
5Kw 1 Ph	17065	20.8	
10Kw 1 Ph	34130	41.7	
15Kw 1 Ph	51195	62.5	
20Kw 1 Ph	68260	83.4	
9Kw 3 Ph	30600	21.7	
12Kw 3 Ph	40980	28.9	
18Kw 3 Ph	61200	43.4	

IMPORTANT: This AMP-values listed in this Table No. 2 are for electric heating elements only. (Does not include compressor amps.)

IMPORTANT

While this electrical data is presented as a guide, it is important to electrically connect, properly size fuses and conductor wires in accordance with the National Electrical Code and all existing local codes.

INDOOR THERMOSTAT OPTIONS

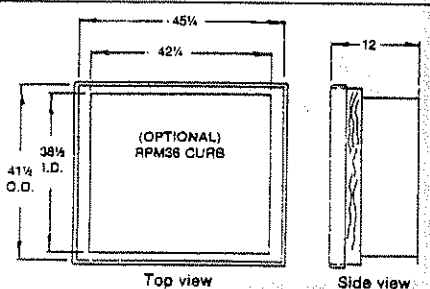
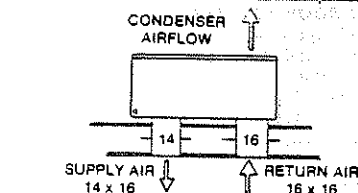
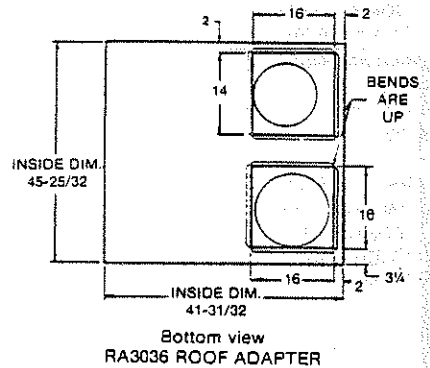
ALL MODELS These Bard Systems feature the option of either using a thermostat with a non-cycling reversing valve or automatic changeover.

Non-Cycling Reversing Valve

Thermostat - Part No. Subbase - Part No.
8403-017 8404-009
(Honeywell T874R1129) (Honeywell Q674L1181)

Automatic Changeover

Thermostat - Part No. Subbase - Part No.
8403-018 8404-010
(Honeywell T874N1024) (Honeywell Q674F1261)



IMPORTANT

The equipment covered in this manual is to be installed by trained, experienced service and installation technicians. Any heat pump is more critical of proper operating, charge and an adequate duct system than a straight air conditioning unit. All ductwork, supply and return, must be properly sized for the design air flow requirement of the equipment. NEBSA is an excellent guide to proper sizing. All duct work or portions thereof not in the conditioned space should be properly insulated in order to both conserve energy and prevent condensation or moisture damage.

SHIPPING DAMAGE

Upon receipt of equipment, the carton should be checked for external signs of shipping damage. If damage is found, the receiving party must contact the last carrier immediately, preferably in writing, requesting inspection by the carrier's agent.

GENERAL

The refrigerant system is completely assembled and charged. All internal wiring is complete.

These instructions explain the recommended method to install the air cooled self-contained unit and the electrical wiring connections to the unit.

These instructions and any instructions packaged with any separate equipment required to make up the entire air conditioning system should be carefully read before beginning the installation. Note particularly "Starting Procedure" and any tags and/or labels attached to the equipment.

While these instructions are intended as a general recommended guide, they do not supersede any national and/or local codes in any way. Authorities having jurisdiction should be consulted before the installation is made.

INSTALLATION

Size of unit for a proposed installation should be based on heat loss calculation made according to methods of National Warm Air Heating and Air Conditioning Association. The air duct should be installed in accordance with the Standards of the National Fire Protection Association for the Installation of Air Conditioning and Ventilating Systems of Other Than Residence Type, NFPA No. 90A, and Residence Type Warm Air Heating and Air Conditioning Systems, NFPA No. 90B. Where local regulations are at a variance with instructions, installer should adhere to local codes.

DUCTWORK

Design the ductwork according to methods given by the National Warm Air Heating and Air Conditioning Association. When duct runs through unheated spaces, it should be insulated with a minimum of two inches of insulation. Use insulation with a vapor barrier on the outside of the insulation. Flexible joints should be used to connect the ductwork to the equipment in order to keep the noise transmission to a minimum.

LOCATING THE UNIT

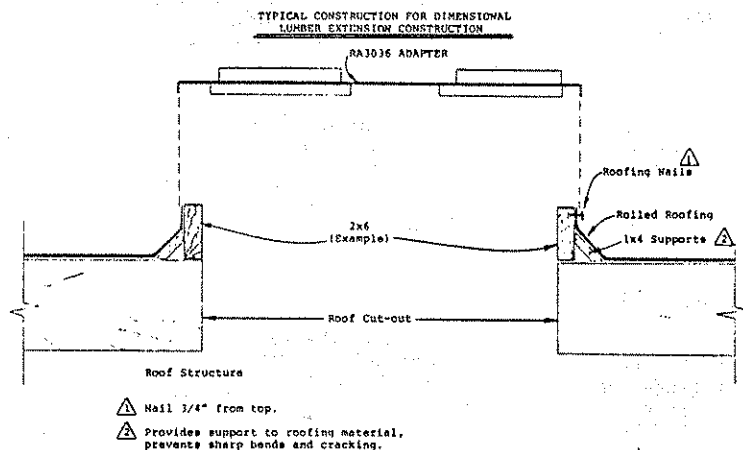
A location on the roof must be chosen that will provide adequate support to the unit, while at the same time allowing clearance for the supply air and return air duct connections to the RA3036 roof adapter—see layout and dimensions. **NOTE:** The RA3036 Roof Adapter **MUST BE USED** to assure a leak-free installation, and the U.L. approval is contingent upon the use of this mating adapter.

ROOF CURB FABRICATION

The roof curb (extension section between actual roof and RA3036 roof adapter) could be fabricated from either sheet steel or nominal dimensional lumber. In either case, the O.D. dimension of the extension section must be sized to fit the RA3036 adapter dimensions as shown.

All corners, seams or joints must be sealed to assure a leak-free installation. The height of the curb section is determined by installation requirements such as degree slope of roof, direction that the outdoor (exposed) coil faces, and geographic location. The unit **MUST SET LEVEL** when installed, and should be high enough to provide proper defrost drainage from outdoor coil during heating cycle.

A suggested design for a wood frame type construction is shown below:



CONDENSATE AND DEFROST DRAINAGE

A 3/4" FPT coupling is provided to connect a condensate drain line to, and is located on side opposite outdoor coil. See illustration.

An optional accessory outdoor coil drain pan, DP3036, is available to collect normal condensate run-off and defrost cycle condensate in applications where it may not be desirable to drain on to mounting surface, or may not be permitted by local codes.

There is a space beneath the outdoor coil for the DP3036 to slide in without unit modification, and the DP3036 is also supplied with a 3/4" FPT coupling for drain line connection.

AIR FILTER

A 24" x 24" x 1" disposable fiberglass type filter is located inside the unit for air filtration of both return air from structure and for optional fresh air intake (see below).

Access to the filter is by removing the corner panel where either the fresh air blank off panel or fresh air intake hood is located.

FRESH AIR INTAKE

The fresh air intake cover is a manual damper operated device to allow intake of fresh air whenever indoor blower is operating. The damper position can be manually set and locked in position with a wing nut. It is held in place by two screws and has a hardware cloth screen to prevent entry of birds or rodents. An optional cover plate is available if fresh air intake is not used.

WIRING - MAIN POWER

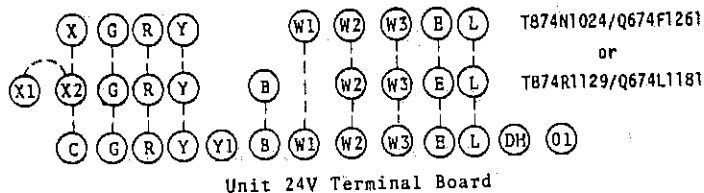
Refer to the unit rating plate for wire sizing information and maximum fuse or "HACR Type" circuit breaker size. Each outdoor unit is marked with a "Minimum Circuit Ampacity." This means that the field wiring used must be sized to carry that amount of current. Depending on the installed Kw of electric heat, there may be two field power circuits required. If this is the case, the unit serial plate will so indicate. Some models are suitable only for connection with copper wire, while others can be wired with either copper or aluminum wire. Each unit and/or wiring diagram will be marked "Use Copper Conductors Only" or "Use Copper or Aluminum Conductors." These instructions MUST BE adhered to. Refer to the National Electrical Code for complete current carrying capacity data on the various insulation grades of wiring material.

The electrical data lists fuse and wire sizes (60°F copper) for all models, including the most commonly used heater sizes. Also shown are the number of field power circuits required for the various models with heaters.

The unit rating plate lists a "Maximum Time Delay Fuse" or "HACR Type" circuit breaker that is to be used with the equipment. The correct size must be used for proper circuit protection and also to assure that there will be no nuisance tripping due to the momentary high starting current of the compressor motor.

WIRING - 24V CONTROL CIRCUIT

Nine (9) wires should be run from thermostat subbase to the 24V terminal board in the unit. A nine conductor, 18 gauge copper, color-coded thermostat cable is recommended. The connection points are shown on most of the wiring diagrams and are also shown below.



IMPORTANT NOTE: Only the thermostat and subbase combinations as shown above will work with this equipment. The stat and subbase MUST be matched, and correct operation can be assured only by proper selection and application of these parts.

COMPRESSOR MALFUNCTION RELAY (Single Phase Models Only)

Actuation of the green "check" lamp is accomplished by a voltage type relay which is factory installed. Any condition such as loss of charge, defective capacitor, defective contactor, etc., that will prevent compressor from operating will cause green lamp to activate. This is a signal to the operator of the equipment to place system in emergency heat position.

PRESSURE SERVICE PORTS

High and low pressure service ports are installed on all units so that the system operating pressures can be observed. Pressure curves can be found later in the manual covering all models on both cooling and heating cycles. It is imperative to match the correct pressure curve to the unit by model number.

THERMOSTAT INDICATOR LAMPS

The red lamp marked "EM.HT." comes on and stays on whenever the system switch is placed in the Em. Ht. position. The green lamp marked "check" will come on if there is any problem that prevents the compressor from running when it is supposed to be.

EMERGENCY HEAT POSITION

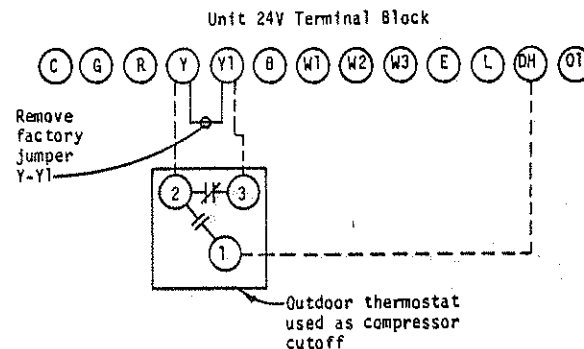
The operator of the equipment must manually place the system switch in this position. This is done when there is a known problem with the outdoor section, or when the green "check" lamp comes on indicating a problem.

COMPRESSOR CUT-OFF THERMOSTAT AND OUTDOOR THERMOSTATS

Heat pump compressor operation at outdoor temperatures below 0°F are neither desirable nor advantageous in terms of efficiency. Since most equipment at time of manufacture is not designated for any specific destination of the country, and most of the equipment is installed in areas not approaching the lower outdoor temperature range, the compressor cut-offs are not factory installed.

NOTE: Maximum amount of electric heat which can be operated in conjunction with the compressor during heating mode is 10Kw on 1 phase and 12Kw on 3 phase. The balance of the electric heat can be operated only during compressor cut off or emergency heat mode.

COMPRESSOR CUT-OFF AND OUTDOOR THERMOSTAT WIRING



HEAT ANTICIPATION

Both of the thermostats shown below have a fixed heat anticipator for stage 1 with no adjustment required. Stage 2 has an adjustable anticipator for the W2 connection and fixed for the W3 connection. Both the W2 and W3 circuits are controlled by the stage 2 bulb. The only heat anticipator that needs to be checked is stage 2 and it should be set to match the load carried by the W2 circuit. The normal factory wiring provides for only one electric heat contactor to be controlled by W2, and the anticipator should be set at .40A. If special field wiring is done, it is best to actually measure the load but a good rule is .40A for each heat contactor controlled by W2.

WALL THERMOSTAT AND SUBBASE COMBINATIONS

Group	Thermostat	Subbase	Predominant Feature
A	8403-017 (T874R1129)	8404-009 (Q674L1181)	Heat or Cool No Auto
B	8403-018 (T874N1024)	8404-010 (Q674F1261)	Automatic Heat-Cool Changeover Position

No automatic changeover position—must manually place in heat or cool. Reversing valve remains energized at all times system switch is in heat position (except during defrost cycle). No pressure equalization noise when thermostat is satisfied on either heating or cooling.

Allows thermostat to control both heating and cooling operation when set in "AUTO" position. Reversing valve de-energizes at end of each "ON" heating cycle.

IMPORTANT NOTE: Both thermostat and subbase combinations shown above incorporate the following features: Man-Auto fan switch, Off-Heat-Cool-Em. Heat Switch, and two (2) indicator lamps—one for emergency heat and one for compressor malfunction.

SEQUENCE OF OPERATION

Cooling - Circuit R-Y makes at thermostat pulling in compressor contactor starting the compressor and outdoor motor. The G (indoor motor) circuit is automatically completed on any call for cooling operation, or can be energized by manual fan switch on subbase for constant air circulation.

Heating - A 24V solenoid coil on reversing valve controls heating cycle operation. Two thermostat options, one allowing "Auto" changeover from cycle to cycle and the other constantly energizing solenoid coil during heating season and thus eliminating pressure equalization noise except during defrost, are to be used. On "Auto" option, a circuit is completed from R-W1 and R-Y on each heating "on" cycle, energizing reversing valve solenoid and pulling in compressor contactor starting compressor and outdoor motor. R-G also make starting indoor blower motor. Heat pump heating cycle now in operation. The second option has no "Auto" changeover position, but instead energizes the reversing valve solenoid constantly whenever the system switch on subbase is placed in "Heat" position, the "B" terminal being constantly energized from R. A thermostat demand for heat completes R-Y circuit, pulling in compressor contactor starting compressor and outdoor motor. R-G also make starting indoor blower motor.

CRANKCASE HEATERS

All units are provided with some form of compressor crankcase heat. Some single phase units utilize the compressor motor start winding in series with a portion of the run capacitor to generate heat within the compressor shell to prevent liquid refrigerant migration.

Some three phase units utilize a wraparound type of crankcase heater that warms the compressor oil from the outside.

Some single and three phase models have an insertion well-type heater located in the lower section of the compressor housing. This is a self-regulating type heater that draws only enough power to maintain the compressor at a safe temperature.

Some form of crankcase heat is essential to prevent liquid refrigerant from migrating to the compressor, causing oil pump out on compressor start-up and possible valve failure due to compressing a liquid.

Refer to unit wiring diagram to find exact type of crankcase heater used.

The following decal is affixed to all outdoor units detailing start-up procedure. This is very important. Please read carefully.

IMPORTANT

THESE PROCEDURES MUST BE FOLLOWED AT INITIAL START-UP AND AT ANY TIME POWER HAS BEEN REMOVED FOR 12 HOURS OR LONGER.

TO PREVENT COMPRESSOR DAMAGE WHICH MAY RESULT FROM THE PRESENCE OF LIQUID REFRIGERANT IN THE COMPRESSOR CRANKCASE

1. MAKE CERTAIN THE ROOM THERMOSTAT IS IN THE OFF POSITION (THE COMPRESSOR IS NOT TO OPERATE).
2. APPLY POWER BY CLOSING THE SYSTEM DISCONNECT SWITCH THIS ENERGIZES THE COMPRESSOR HEATER WHICH EVAPORATES THE LIQUID REFRIGERANT IN THE CRANKCASE.
3. ALLOW 4 HOURS OR 80 MINUTES PER POUND OF REFRIGERANT IN THE SYSTEM AS NOTED ON THE UNIT RATING PLATE, WHICHEVER IS GREATER.
4. AFTER PROPERLY ELAPSED TIME THE THERMOSTAT MAY BE SET TO OPERATE THE COMPRESSOR.
5. EXCEPT AS REQUIRED FOR SAFETY WHILE SERVICING - DO NOT OPEN SYSTEM DISCONNECT SWITCH.

7961-051

DEFROST CYCLE

The defrost cycle is controlled by time and temperature. The 240 volt timer motor runs all the time the compressor is in operation. When the outdoor temperature is in the lower 40°F temperature range or colder, the outdoor coil temperature is 32°F or below. This temperature is sensed by the defrost thermostat mounted near the bottom of the outdoor coil on a return bend. The defrost thermostat closes at approximately 32°F. Every 60 (or 30) minutes that the compressor is running, contacts 3-5 close for 7 minutes, with contacts 3-4 closed for the first 40 seconds of that 7 minutes. If the defrost thermostat is closed, the defrost relay energizes and places the system in defrost mode. An interlocking circuit is created with timer contact 3-5 and defrost relay contact 7-9 in series.

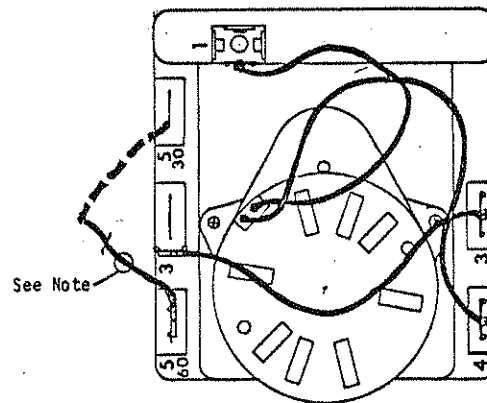
During the defrost mode, the refrigerant cycle switches back to the cooling cycle, the outdoor motor stops, electric heaters are energized, and hot gas passing through the outdoor coil melts any accumulated frost. When the temperature rises to approximately 57°F, the defrost thermostat opens, de-energizing the defrost relay and returning the system to heating operation.

If some abnormal or temporary condition such as a high wind causes the heat pump to have a prolonged defrost cycle, contacts 3-5 of the defrost timer will open after 7 minutes and restore the system to heating operations automatically.

There are two time settings on the defrost timer—30 minutes and 60 minutes. Most models are shipped wired on the 60 minute setting for greatest operating economy. If special circumstances require a change to the shorter time, remove wire connected to terminal 5/60 and reconnect to terminal 5/30.

There is a manual advance knob located on the timer. This can be used to advance timer to contact closure point if it is desired to check out defrost cycle operation, without waiting for time to elapse.

DEFROST TIMER WIRING



NOTE: All models are connected to 5/60 terminal (60 minute). Any model can be changed from 60 minutes to 30 minutes by unplugging from 5/60 terminal and reconnecting to 5/30 terminal as shown by dotted line.

REFRIGERANT CHARGE

The correct system R-22 charge is shown on the unit rating plate. Optimum unit performance will occur with a refrigerant charge resulting in a suction line temperature (6" from compressor) as shown in the following table:

Model	Rated Airflow	95°F O.D. Temp.	82°F O.D. Temp.
RPMH30	1100	64 - 66	72 - 74
RPMH36	1275	72 - 74	77 - 79

The above suction line temperatures are based upon 80°F dry bulb/67°F wet bulb (50% R.H.) temperature and rated airflow across the evaporator during cooling cycle.

SERVICE HINTS

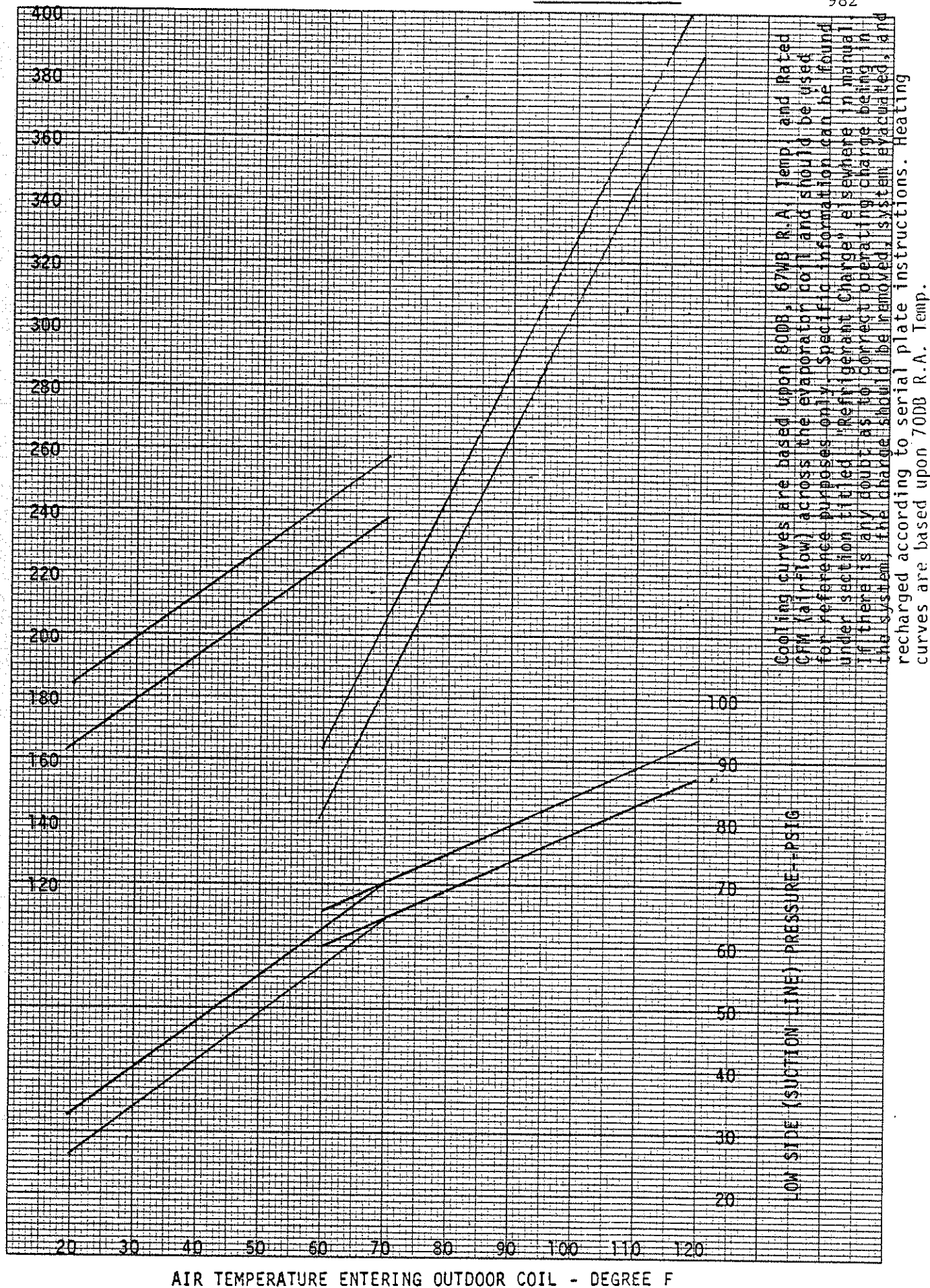
1. Caution homeowner to maintain clean air filters at all times. Also, not to needlessly close off supply and return air registers. This reduces air flow through the system, which shortens equipment service life as well as increasing operating costs.
2. Switching to heating cycle at 75°F or higher outside temperature may cause a nuisance trip of the manual reset high pressure switch.
3. The heat pump wall thermostats perform multiple functions. Be sure that all function switches are correctly set for the desired operating mode before trying to diagnose any reported service problems.
4. Check all power fuses or circuit breakers to be sure that they are the correct rating.
5. Periodic cleaning of the outdoor coil to permit full and unrestricted airflow circulation is essential.

IMPORTANT INSTALLER NOTES:

1. For improved start-up performance wash the indoor coil with a dishwasher detergent.

DIETZGEN CORPORATION
MADE IN U. S. A.NO. 34OR-20 DIETZGEN GRAPH PAPER
20 X 20 PER INCH

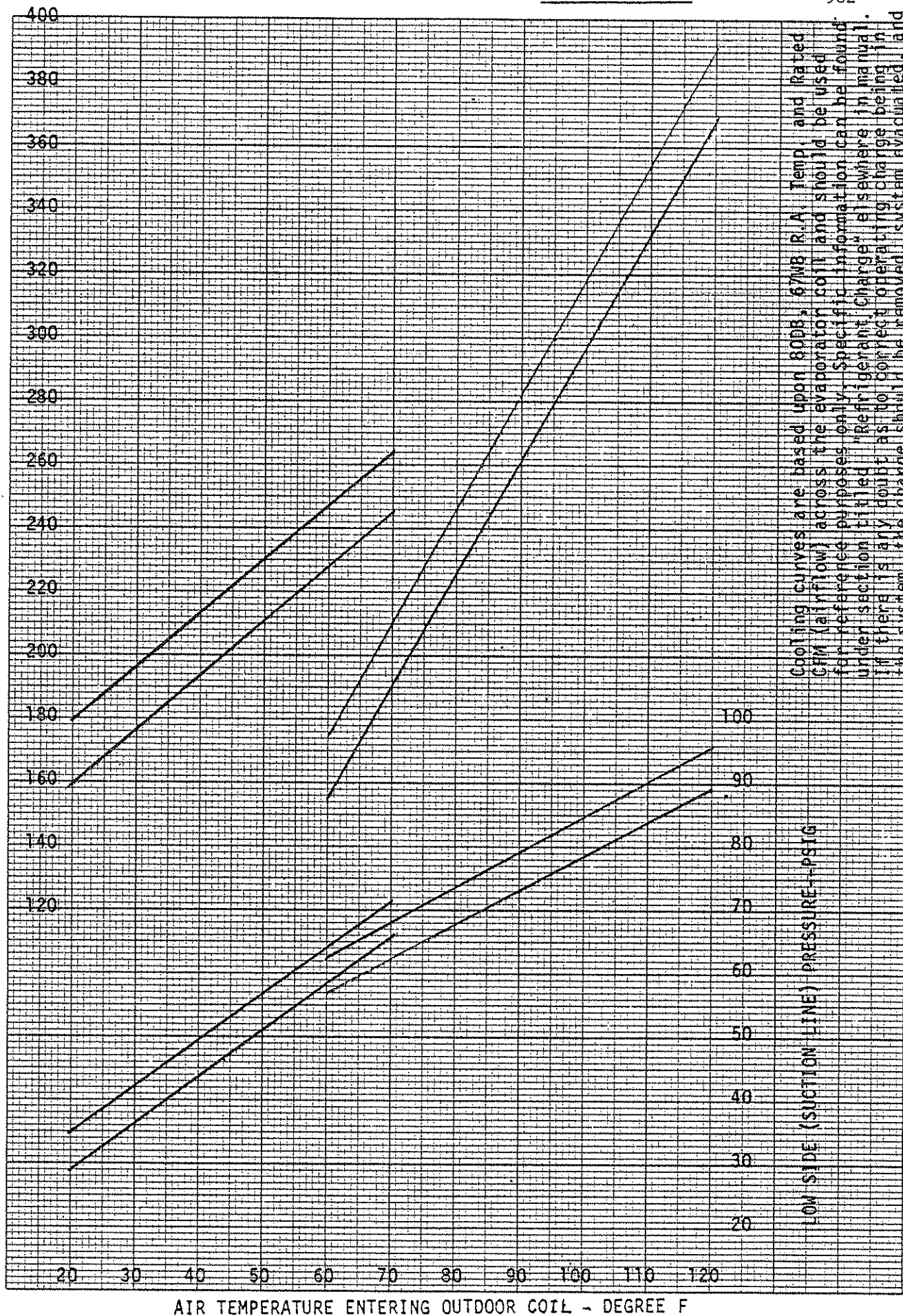
HIGH SIDE (DISCHARGE LINE) PRESSURE -- PSIG



AIR TEMPERATURE ENTERING OUTDOOR COIL - DEGREE F

DIETZEN CORPORATION
MADE IN U.S.A.NO. 340R-20 DIETZEN GRAPH PAPER
20 X 20 PER INCH

HIGH SIDE (DISCHARGE LINE) PRESSURE -- PSIG



Cooling curves are based upon 80DB, 67WB R.A. Temp. and Rated CFM (airflow) across the evaporator coil and should be used for reference purposes only. Specific information can be found under section titled "Refrigerant Charge" elsewhere in manual. If there is any doubt as to correct operating charge being in the system, the charge should be removed, system evacuated, and recharged according to serial plate instructions. Heat C. s are based upon 70DB R.A. Temp.

PARTS LIST
SINGLE PACKAGE HEAT PUMPS

Effective 4-1-82

PART NO.	DESCRIPTION	RPMH30	RPMH30-3	RPMH36	RPMH36-3	RPMH30-3 460V	RPMH36-3 460V
5202-003	Accumulator	x	x	x			
5202-004	Accumulator				x	x	x
*	Blower Housing 10-8	x	x	x	x	x	x
5152-010	Blower Wheel DD10-7A	x	x	x	x	x	x
8552-035	Capacitor 40/370V	x		x			
8552-019	Capacitor 5/440V	x	x	x	x	x	x
8552-002	Capacitor 5/370V	x	x	x	x	x	x
5811-033	Capillary Tube - Cool	(2)	(2)	(2)	(2)	(2)	(2)
5811-026	Capillary Tube - Heat	x	x	x	x	x	x
8000-052	Compressor CRG1-0250-PFV-270	x					
8000-053	Compressor CRG1-0250-TF5-270		x				
8000-054	Compressor CRG1-0250-TFD-270					x	
8000-055	Compressor CRH1-0275-PFV-270			x			
8000-056	Compressor CRH1-0275-TF5-270				x		
8000-057	Compressor CRH1-0275-TFD-270						x
8401-007	Contacto 1P25A	x		x			
8401-002	Contacto 3P25A		x		x	x	x
8401-006	Contacto 2P20	x	x	x	x		
8408-004	Defrost Mounting Plate	x	x	x	x	x	x
8408-002	Defrost Thermostat	x	x	x	x	x	x
5060-022	Evaporator Coil	x	x	x	x	x	x
5151-024	Fan Blade A-1831-5	x	x	x	x	x	x
7051-014	Fan Guard	x	x	x	x	x	x
8614-006	Fuse OT30	x		x			
8614-007	Fuse OT60	x		x			
8614-022	Fuse TR60	x		x			
8614-017	Fuse Block	x		x			
8614-018	Fuse Block	x		x			
8604-023	Heat Strip 5Kw	x		x			
8604-024	Heat Strip 10Kw	x		x			
8604-025	Heat Strip 15Kw	x		x			
8604-035	Heat Strip 9Kw		x		x		
8604-036	Heat Strip 12Kw		x		x		
8604-032	Heat Strip 9Kw					x	x
8604-033	Heat Strip 12Kw					x	x
8406-011	Hi Pressure Switch	x	x	x	x	x	x
8402-020	Limit Switch 140°-125°	x	x	x	x	x	x
8105-010	Blower Motor 1/3 hp	x	x	x	x	x	x
8103-007	Fan Motor 1/5 hp	x	x	x	x	x	x
8200-003	Motor Mount - Blower	x	x	x	x	x	x
8200-022	Motor Mount - Fan	x	x	x	x	x	x
5451-011	Motor Mounting Parts	x	x	x	x	x	x
5451-009	Motor Mounting Parts -Fan	x	x	x	x	x	x
5651-036	Check Valve	x	x	x	x	x	x
5051-003	Condenser Coil	x	x	x	x	x	x

*Please order by model number.

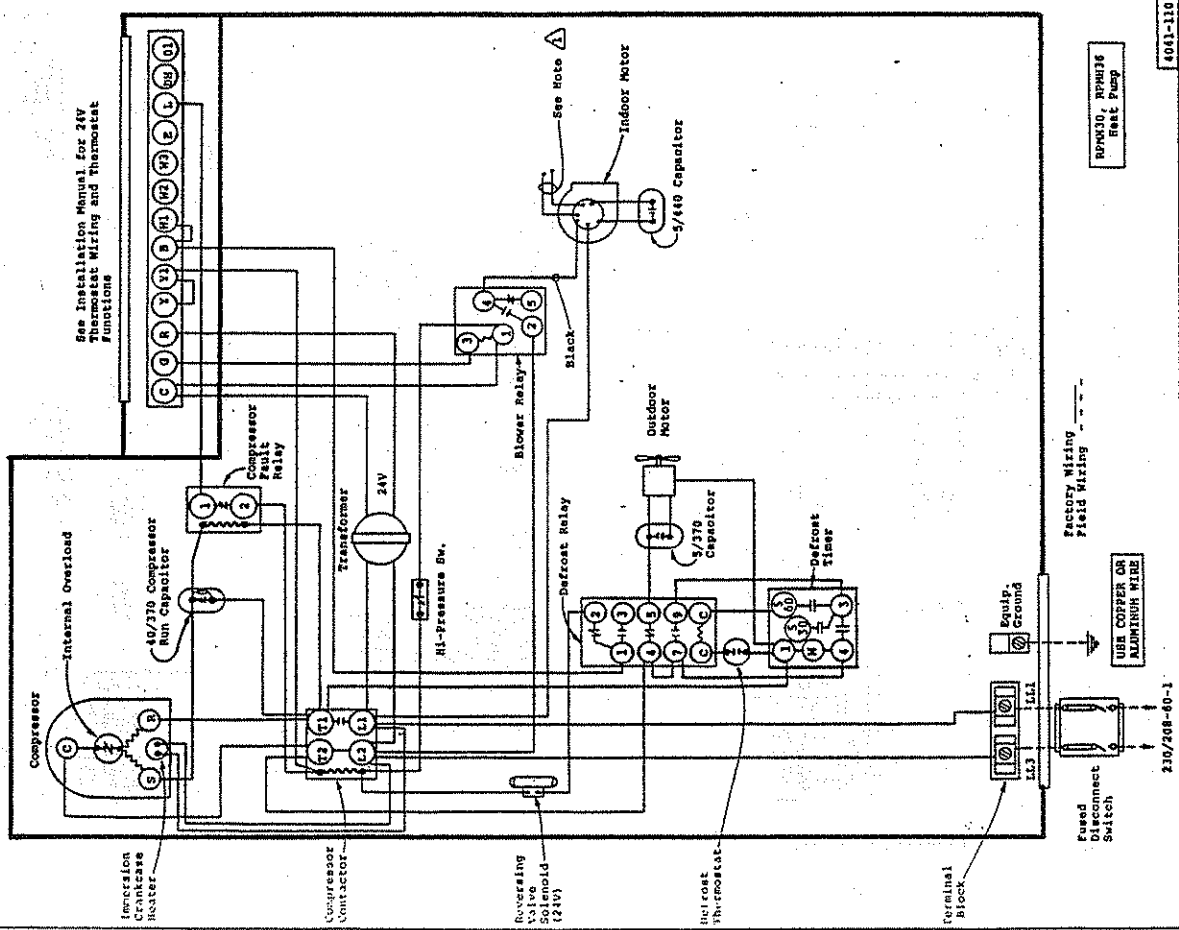
PARTS LIST
SINGLE PACKAGE HEAT PUMPS

Effective 12-9-81

PART NO.	DESCRIPTION	RPMH30	RPMH30-3	RPMH36	RPMH36-3	RPMH30-3 460V	RPMH36-3 460V
5153-022	Rain Shield	x	x	x	x	x	x
8201-009	Relay - Blower	x	x	x	x	x	x
8201-013	Relay - Emergency Heat	x	x	x	x	x	x
8201-023	Relay - Defrost	x	x	x	x	x	x
8201-031	Relay - Compressor Fault	x		x			
5650-005	Reversing Valve	x	x			x	
5650-006	Reversing Valve			x	x		x
5650-008	Solenoid Coil	x	x	x	x	x	x
5210-004	Strainer	x	x	x	x	x	x
5210-002	Strainer	x	x	x	x	x	x
8607-010	Terminal Board	x	x	x	x	x	x
8607-001	Terminal Block	x		x			
8607-002	Terminal Block		x		x	x	x
8402-030	Thermal Cutoff	x	x	x	x	x	x
8612-011	Timer w/7 Min. Time Safe	x	x	x	x	x	x
8407-015	Transformer	x	x	x	x	x	x
8407-003	Transformer - Stepdown 1.5 KVA					x	x
8604-064	Heat Strip 6Kw		x		x		
8604-065	Heat Strip 6Kw					x	x

Minimum Net Billing \$15.00. Supersedes all previous lists.
Subject to change without notice.

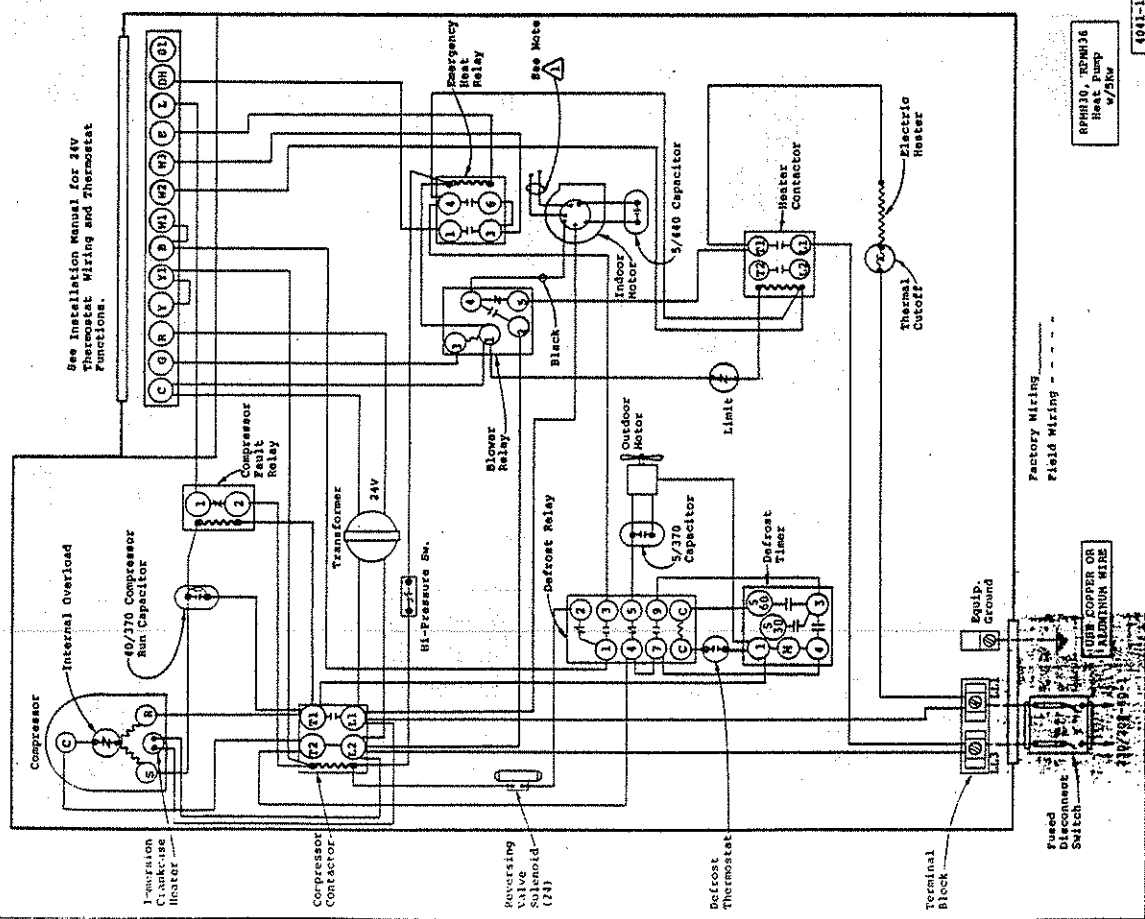
⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately. See Installation Manual for Max. Static Pressure Operation on each speed.



401-110B

RPH030, RPH036 Heat Pump

⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately. See Installation Manual for Max. Static Pressure Operation on each speed.

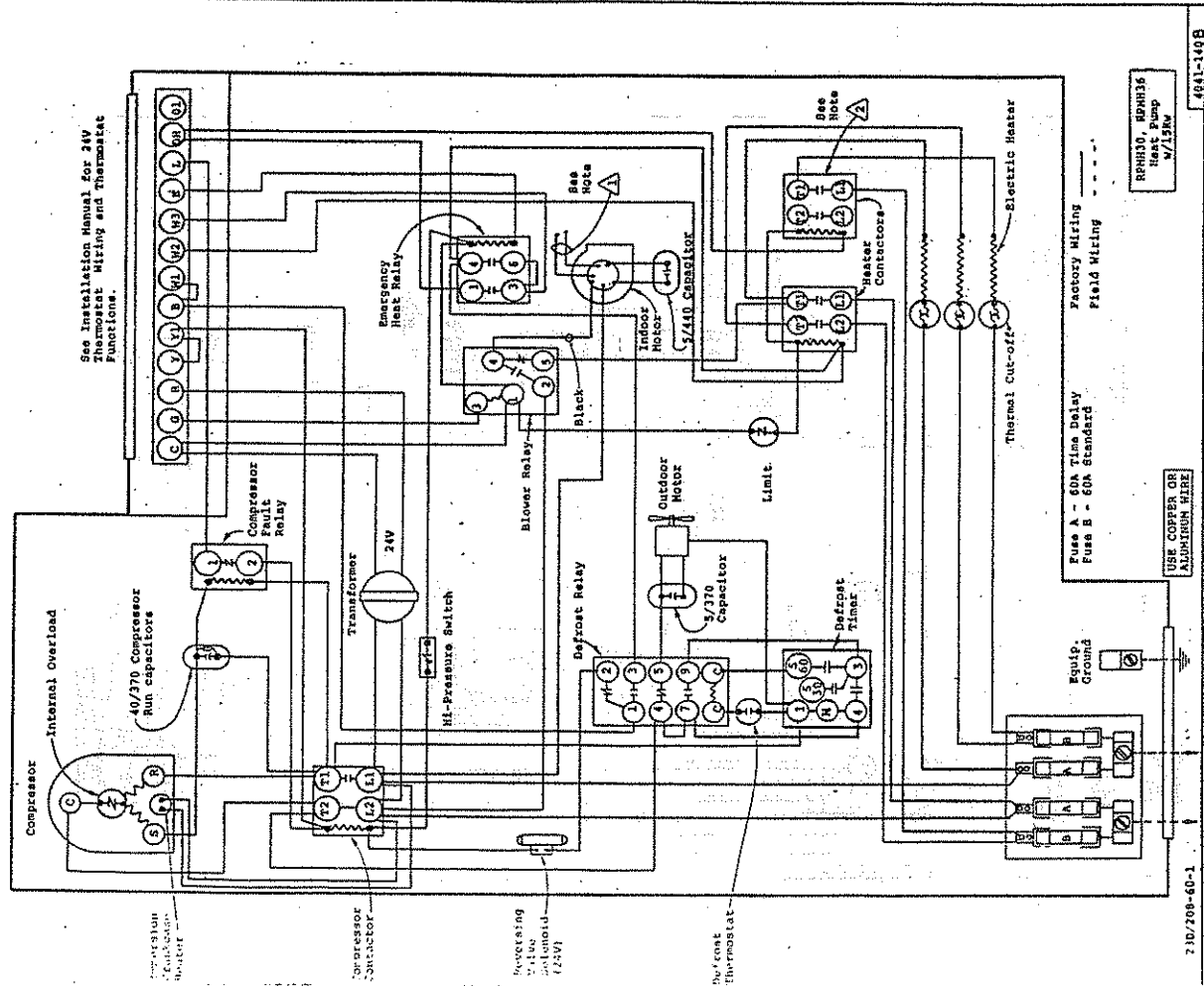


401-120A

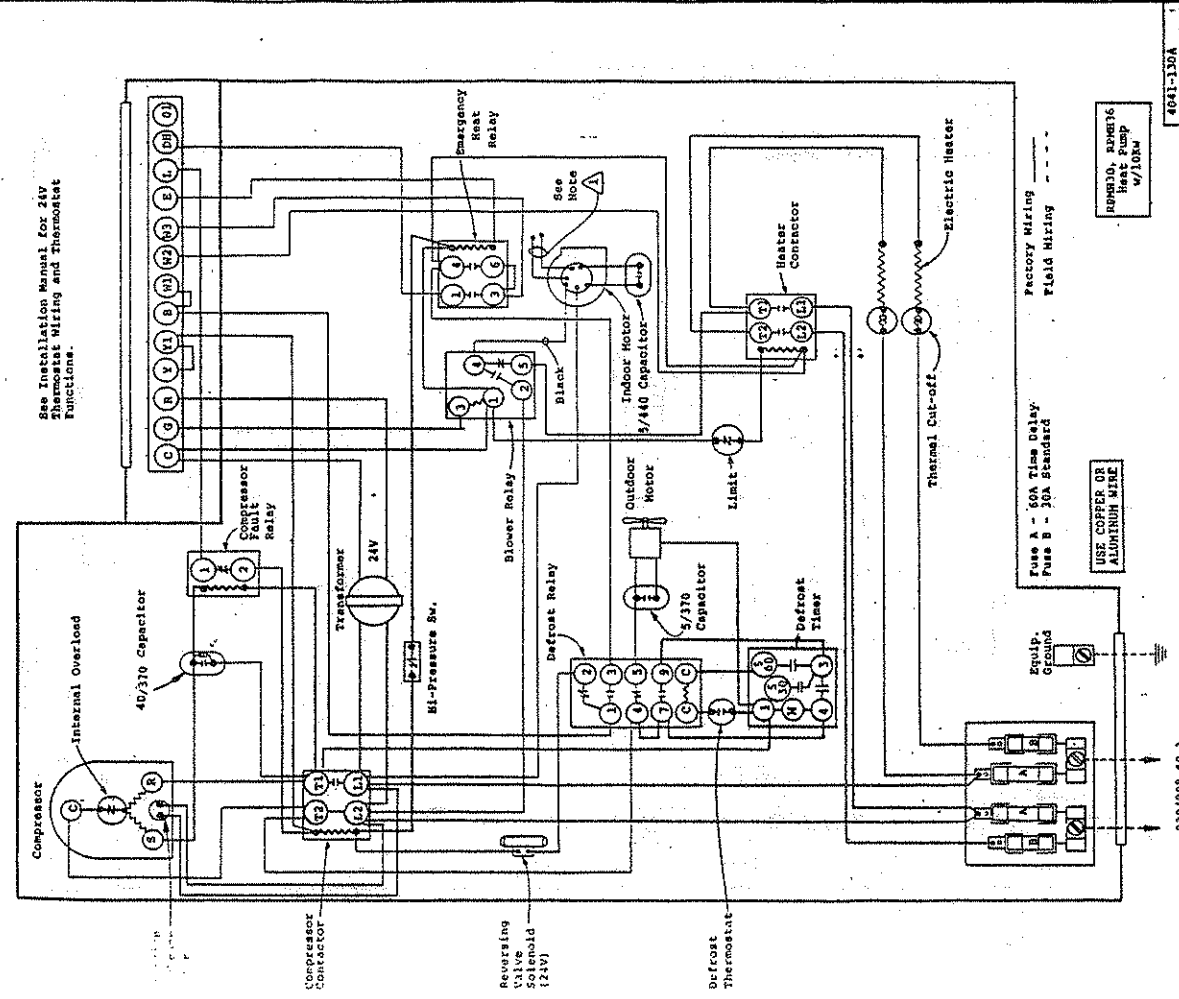
RPH030, RPH036 Heat Pump w/5kw

1. High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately. See Installation Manual for Max. Static Pressure operation on each speed.

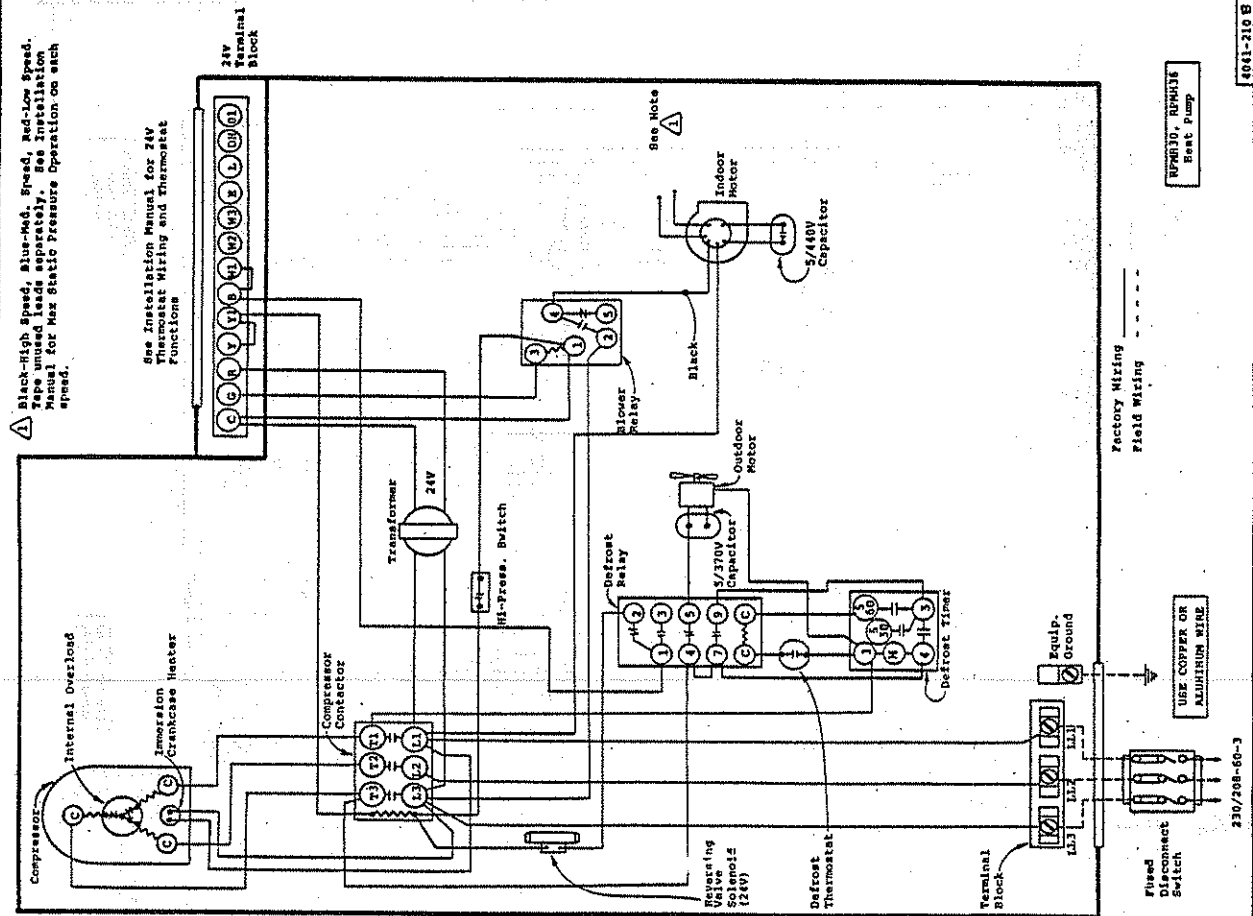
2. Heat heat contactor operates only during emergency heat or compressor out-off.



1. Black-High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately. See Installation Manual for Max. Static Pressure operation on each speed.



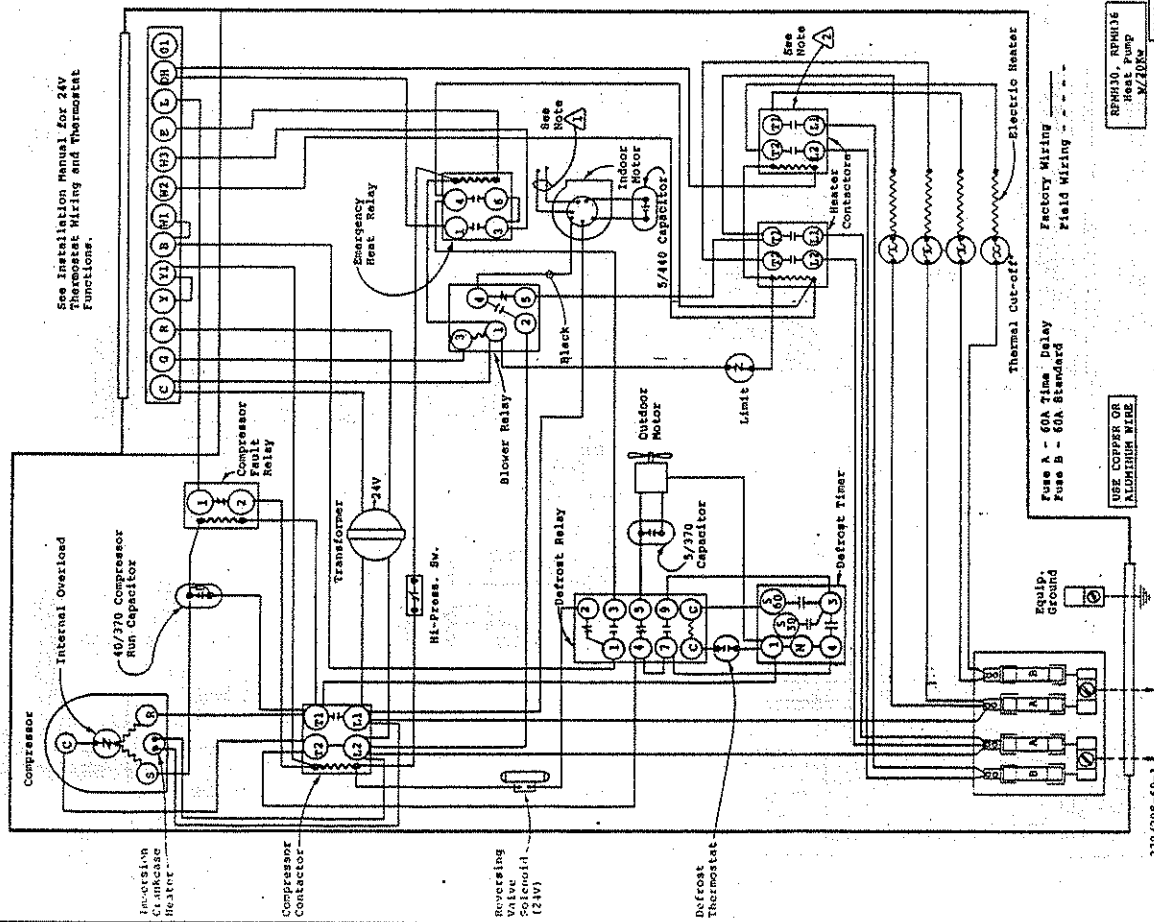
- ⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed.
Tape unused leads separately.
See Installation Manual for Max. Static Pressure Operation on each speed.



4001-210 B

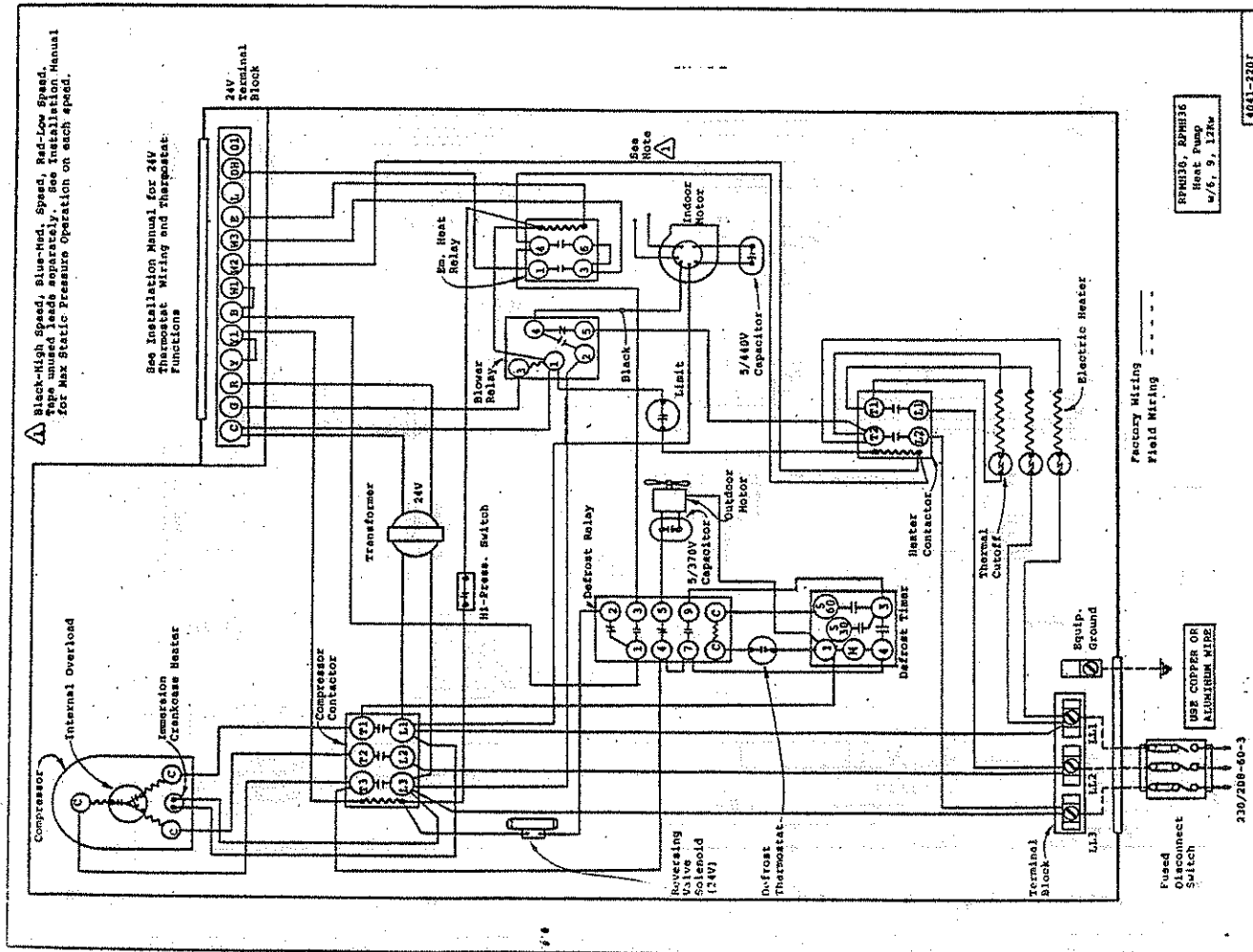
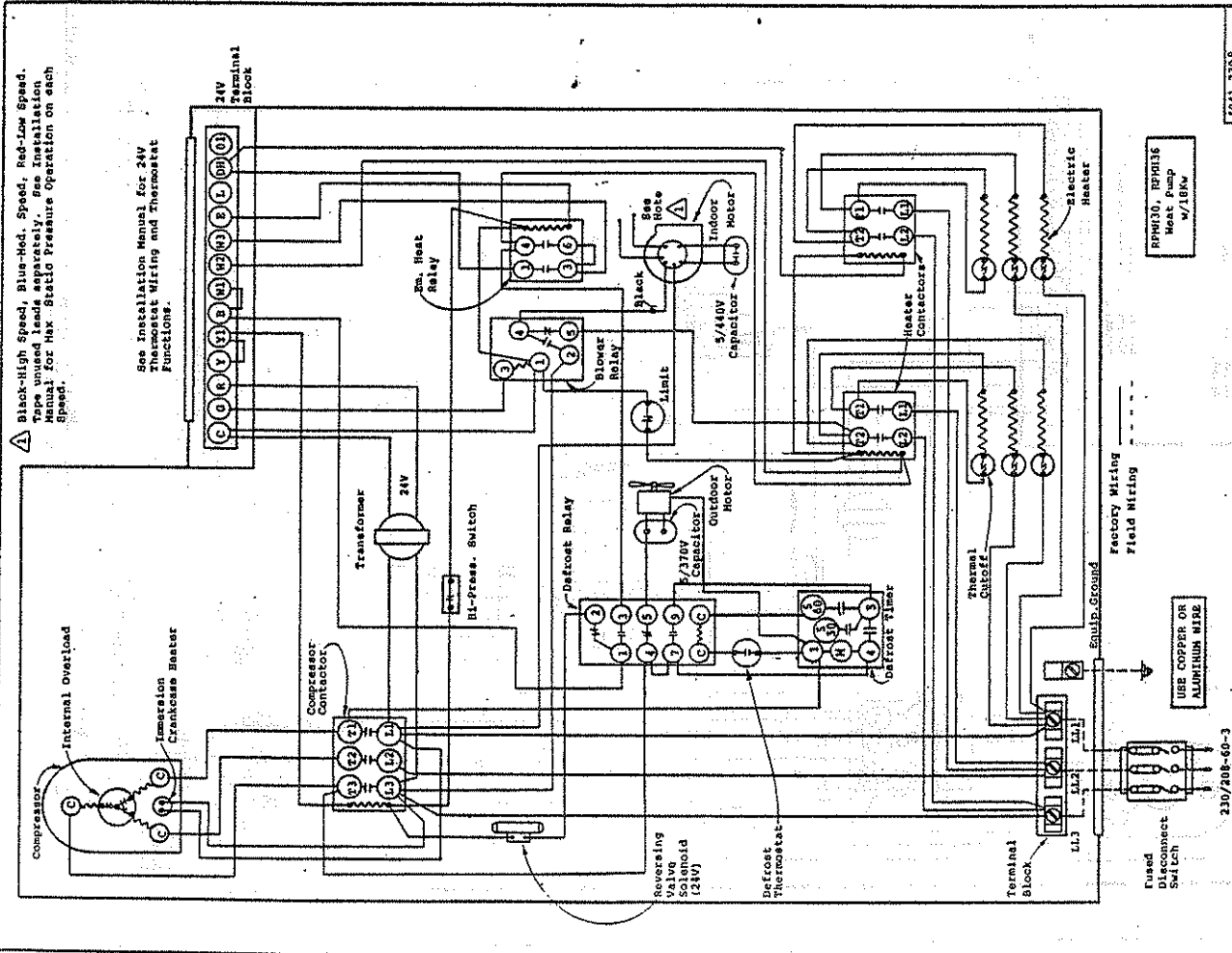
RPM130, RPM136
Heat Pump

- ⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately.
See Installation Manual for Max. Static Pressure Operation on each speed.
- ⚠ 2nd heat contactor operates only during emergency heat or compressor out-off.



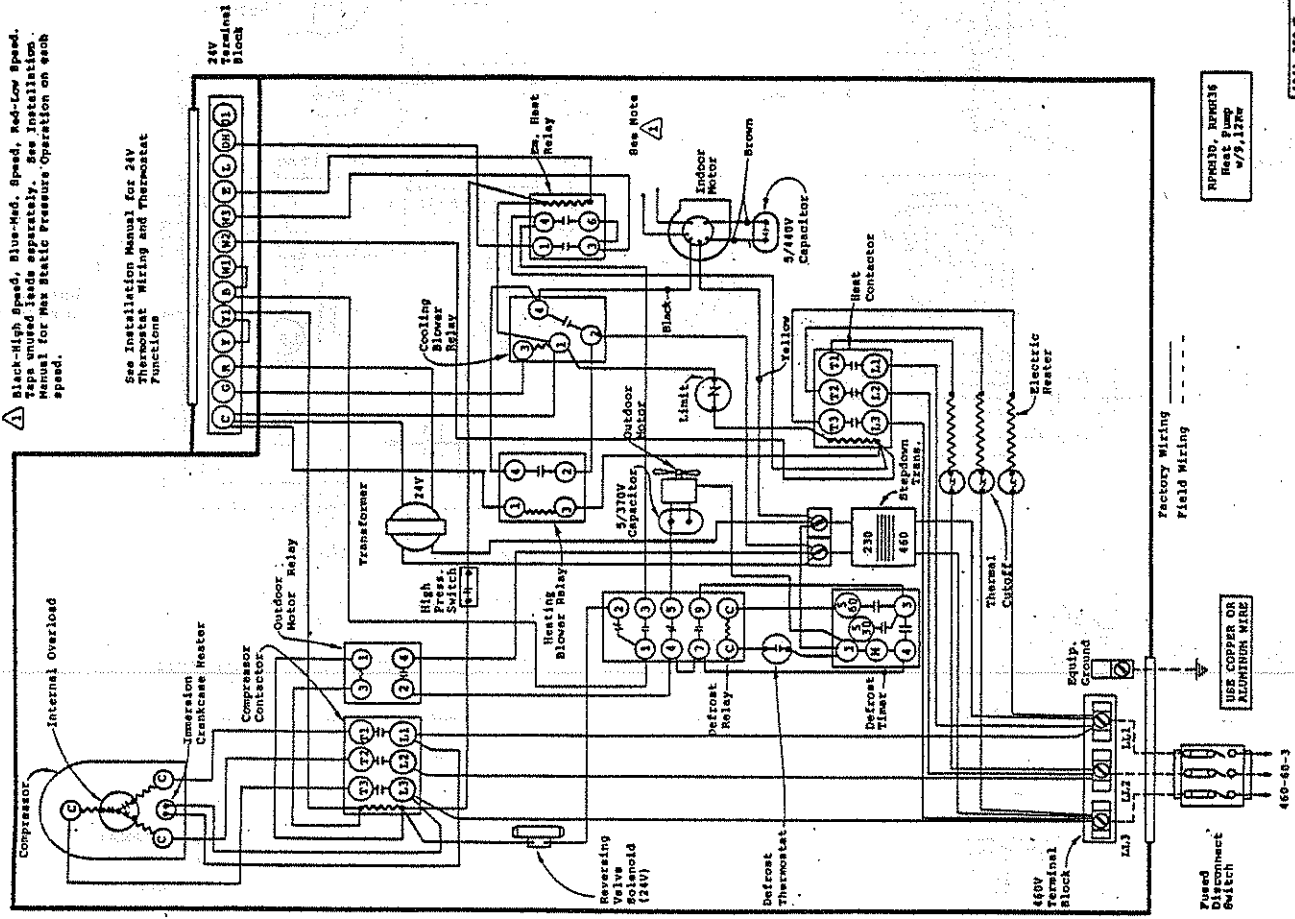
4001-150 B

RPM130, RPM136
Heat Pump



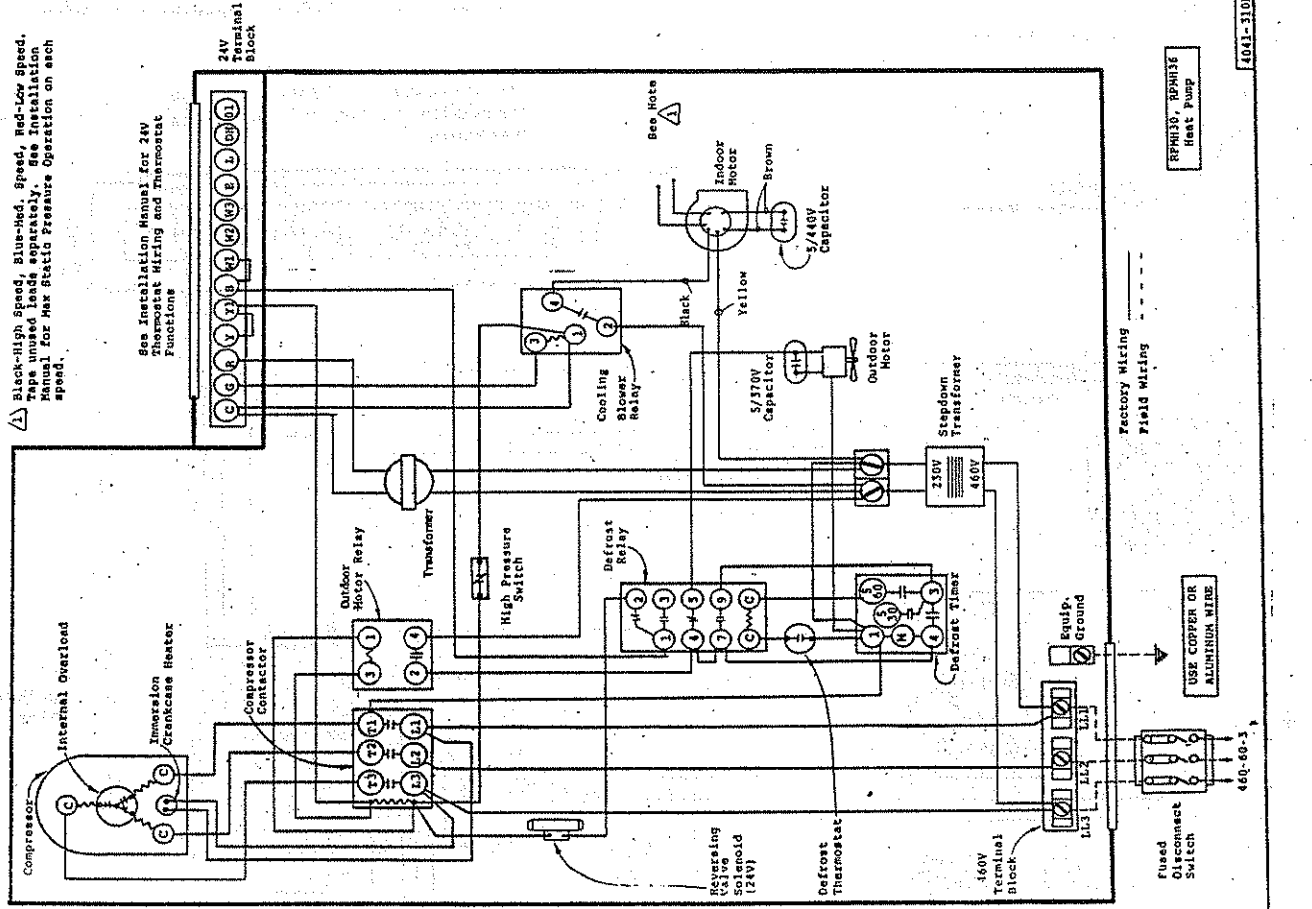
⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed.
Tape unused leads separately. See Installation
Manual for Max Static Pressure Operation on each
speed.

See Installation Manual for 24V
Thermostat Wiring and Thermostat
Functions



⚠ Black-High Speed, Blue-Med. Speed, Red-Low Speed.
Tape unused leads separately. See Installation
Manual for Max Static Pressure Operation on each
speed.

See Installation Manual for 24V
Thermostat Wiring and Thermostat
Functions



1 Black-High Speed, Blue-Med. Speed, Red-Low Speed. Tape unused leads separately. See Installation Manual for Max Static Pressure Operation on each speed.

See Installation Manual for 24V Thermostat Wiring and Thermostat Functions

