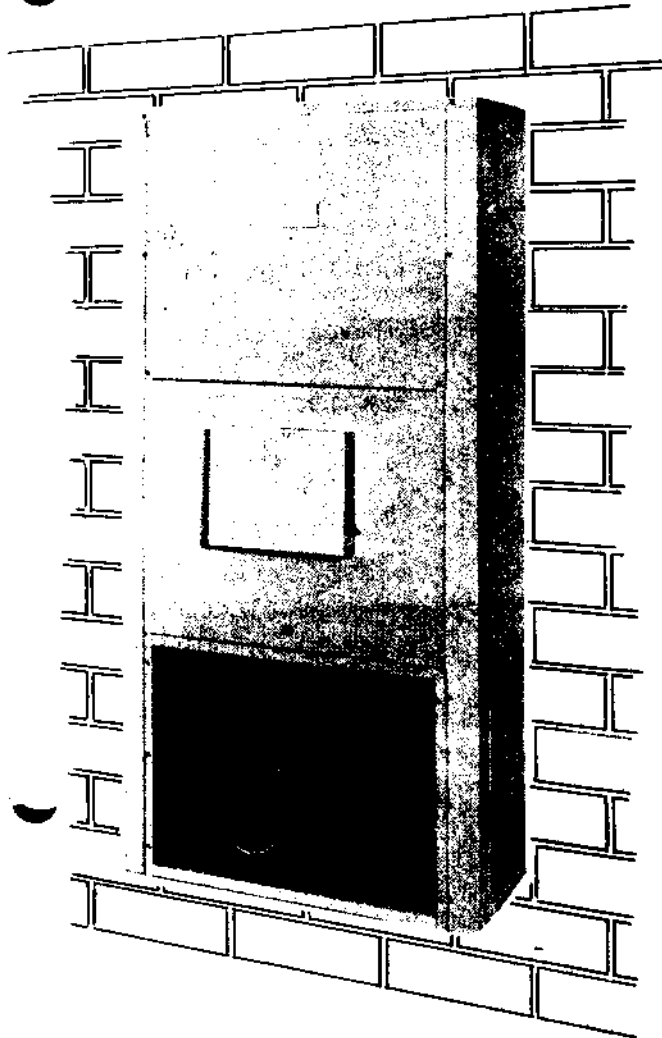


INSTALLATION INSTRUCTIONS

SELF CONTAINED WALL MOUNTED
AIR CONDITIONING

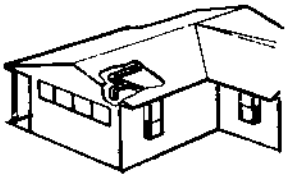


AIR CONDITIONING MODELS

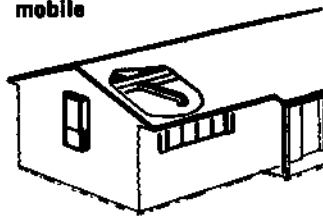
18WA1
20WA
24WA1
30WA1
36WA3
48WA3

APPLICATIONS

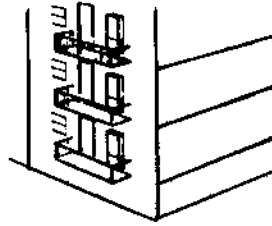
RESIDENTIAL . . . single, multiple, mobile



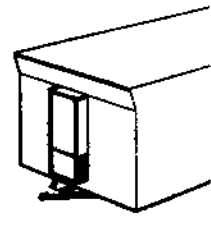
Zoned heating/cooling
control in multiple areas



Attic ducted single
unit installation

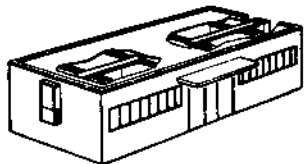


Multiple dwelling
installation

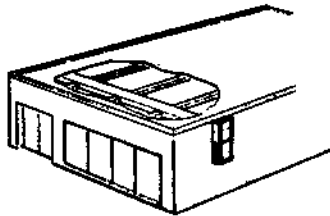


Offices/Homes on wheels

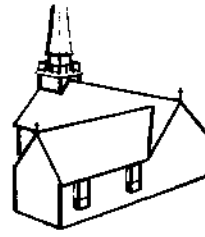
COMMERCIAL and INSTITUTIONAL



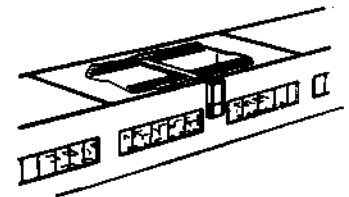
Separate offices (zoned)



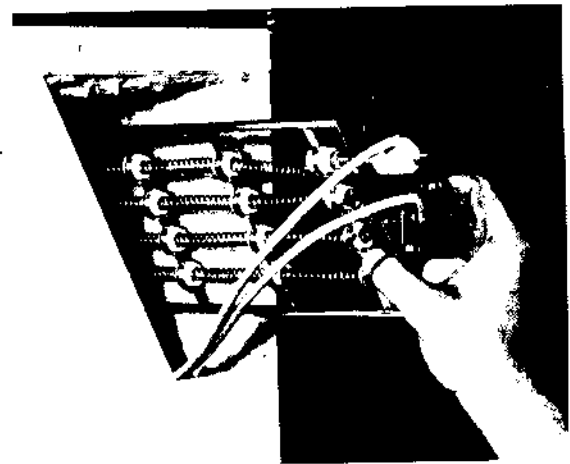
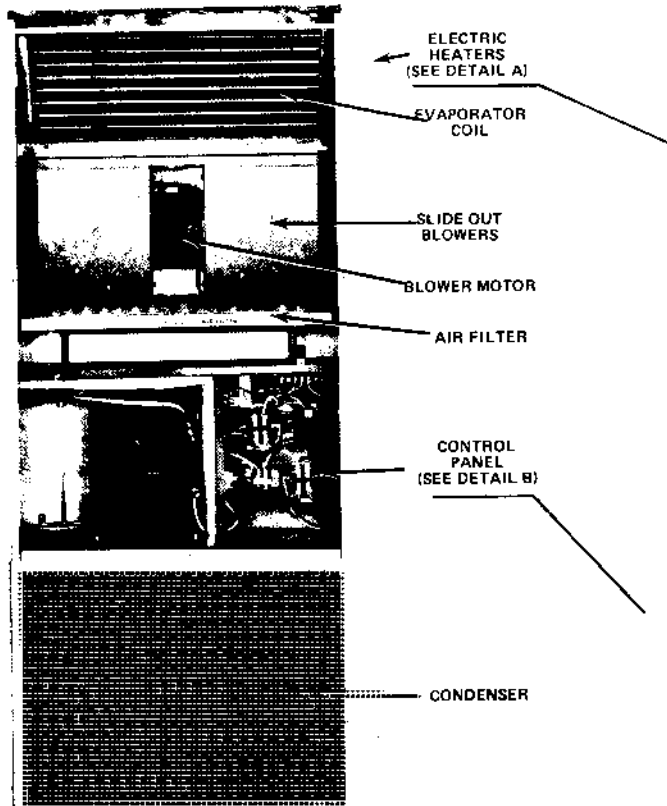
Production areas (for complete
conditioning from single unit)



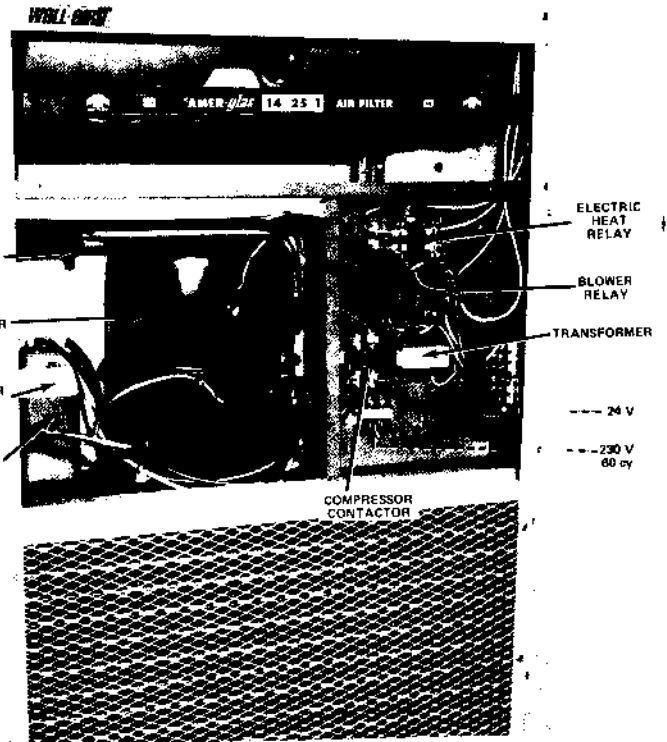
Churches (zoned)



Temporary classrooms

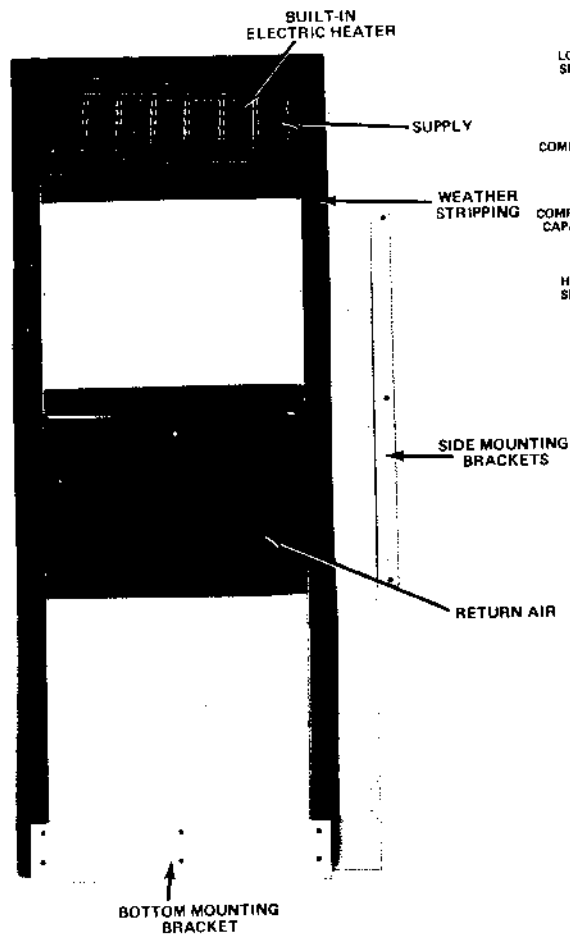


DETAIL A



DETAIL B

NOTE: BEFORE FASTENING SIDE MOUNTING BRACKETS CHECK INSIDE FOR CLEARANCE



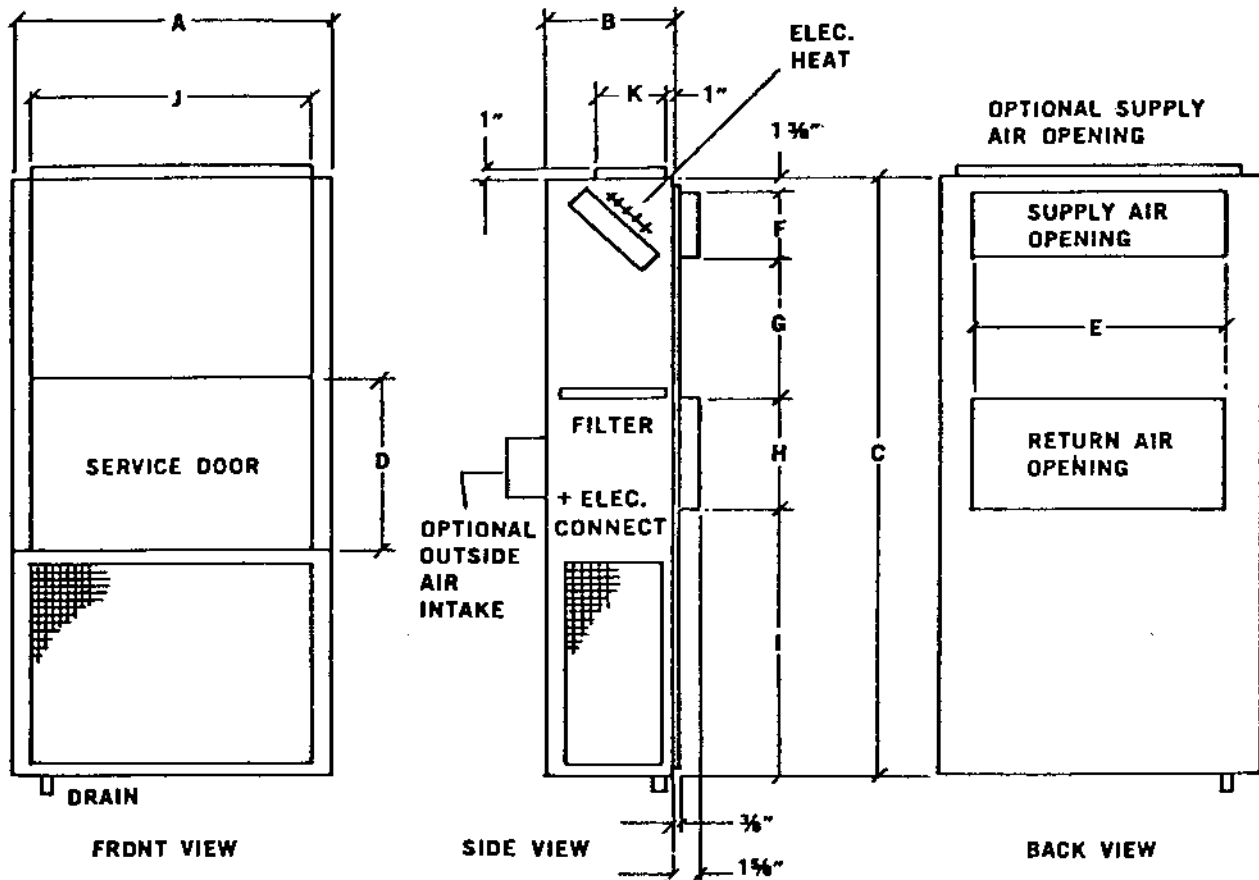
BACK SIDE OF UNIT

DIMENSIONS *

... for architect and installation requirements

MODEL	A	B	C	D	E	F	G	H	I	J	K	FILTER SIZES*
18WA1-20WA-24WA1	32½	13½	67½	20	20	8	20½	12	25¾			14 x 25
30WA1-36WA3	38¾	15¼	74	22½	28	8	18¾	14	32¾	32	8	15 x 30-5/8
48WA3	38¾	18	84	32½	30	10	30	16	26¾			(2) 16 x 16

* Dimensions and filter sizes are in inches.



INSTALLER NOTE: Optimum unit performance will occur with a refrigerant charge resulting in a suction line temperature (near the compressor) of 53° to 58°F with 95°F outdoor temperature and 80°F dry bulb/67°F wet bulb (50% R.H.) indoor temperatures and rated airflow across the indoor coil.

ELECTRICAL INFORMATION										WIRING INFORMATION		
Model	Volts/Ph	Heater Kw @ 240V	Max. Unit Amps	NO. Field Power Circuits	Internal Fuses		Req'd. Maximum External Fuses Ckt. A/B	Min. Ckt. Ampacity Ckt. A/B	Field Power Wiring Ckt. A/B	Ground Wire Size Ckt. A/B	Wiring Diagram No.	
					Ckt. A	Ckt. B						
18WA1	230/1	0	16.3	1			30	20	12	12	4007-110	
18WA1	230/1	4	17.9	1			30	22	10	10	-120	
18WA1	230/1	5	22	1			30	28	10	10	-120	
18WA1	230/1	8	34.5	1			45	43	6	10	-130	
18WA1	230/1	10	42.8	1			60	54	6	10	-130	
20WA	230/1	0	14.8	1			25	18	12	12	4007-110	
20WA	230/1	4	17.9	1			25	22	10	10	-120	
20WA	230/1	5	22	1			30	28	10	10	-120	
20WA	230/1	8	34.5	1			45	43	6	10	-130	
20WA	230/1	10	42.8	1			60	54	6	10	-130	
24WA1	230/1	0	16.3	1			30	20	12	12	4007-110	
24WA1	230/1	4	17.9	1			30	22	10	10	-120	
24WA1	230/1	5	22	1			30	28	10	10	-120	
24WA1	230/1	8	34.5	1			45	43	6	10	-130	
24WA1	230/1	10	42.8	1			60	54	6	10	-130	
30WA1	230/1	0	25	1			50	30	10	10	4008-110	
30WA1	230/1	5	25	1			50	30	10	10	-120	
30WA1	230/1	10	45	1			60	56	4	10	-130	
30WA1	230/1	15	65.9	1	60	30	90	82	2	8	-140	
36WA3	208-230/1	0	29	1			50	35	8	10	4009-110 Rev. A	
36WA3	208-230/1	5	29	1			50	35	8	10	-120 A	
36WA3	208-230/1	10	45	1			60	56	4	10	-130 A	
36WA3	208-230/1	15	65.9	1	60	30	90	82	2	8	-140 A	
36WA3	208-230/3	0	19.5	3			35	23	10	10	-210 A	
36WA3	208-230/3	6	19.5	3			35	23	10	10	-220 A	
36WA3	208-230/3	9	25.1	3			35	31	8	10	-220 A	
36WA3	208-230/3	12	32.3	3			40	40	8	10	-230 A	
36WA3	208-230/3	15	39.6	3			50	50	6	10	-230 A	
48WA3	208-230/1	0	34	1			60	41	6	10	4010-110 Rev. A	
48WA3	208-230/1	5	34	1			60	41	6	10	-120 A	
48WA3	208-230/1	10	45.7	1			60	57	4	10	-130 A	
48WA3	208-230/1	15	66.6	1	60	30	90	83	2	8	-140 A	
48WA3	208-230/1	20	87.3	1	60	60	60/60	57/52	3/4	10/10	-150 A	
48WA3	208-230/3	0	24.5	3			45	29	10	10	-210 A	
48WA3	208-230/3	9	25.8	3			45	32	8	10	-220 A	
48WA3	208-230/3	12	33	3			45	41	6	10	-230 A	
48WA3	208-230/3	15	40.3	3			50	50	6	10	-230 A	
48WA3	208-230/3	18	47.5	3			60	59	4	10	-240 A	

1 Based upon the use of 600 copper wiring material. 2 Based upon Table 250-95 of N.E.C., 1975.

APPLICATION AND INSTALLATION INSTRUCTIONS

GENERAL

Units are shipped completely assembled and internally wired, requiring only duct connections, thermostat wiring and external 220-240 volt AC power supply. The refrigerant system is completely assembled and charged.

These instructions and any instructions packaged with any separate equipment should be carefully read before beginning the installation. Note particularly 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.

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.

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.

NOTE: All models are U.L. approved with 1" clearance to combustible materials for the first 3 feet of duct attached to the outlet duct flange. The cabinet is approved for 0" clearance.

Refer to Figure 1-8 for additional information.

WALL MOUNTING

1. Two holes, the size of the supply and return air openings must be cut through the wall as shown in Fig. 1, 2, 3, 4, 5 and 6.
2. On wood-frame walls, the wall construction must be strong and rigid enough to carry the weight of the unit without transmitting any unit vibration.
3. Concrete block walls must be thoroughly inspected to insure that they are capable of carrying the weight of the installing unit.
4. Ducts through the walls must be insulated and all joints taped or sealed to prevent air or moisture entering the wall cavity.
5. Some installations may not require any return air duct. It is recommended that on this type of installation that a filter grille be located in the wall. Filters must be of sufficient size to allow a maximum velocity of 400 FPM.

FILTER

A 1" throw away filter is supplied with each unit. The filter slides into position making it easy to service. The filter can be serviced from the outside by removing the service door.

FRESH AIR INTAKE

All units are made with a fresh air inlet hole punched in the service panel. If not ordered originally, a fresh air cover with shut-off damper may be ordered from the factory. The fresh air cover is so positioned that all fresh air intake is filtered by the internal unit filter.

WIRING - 24V

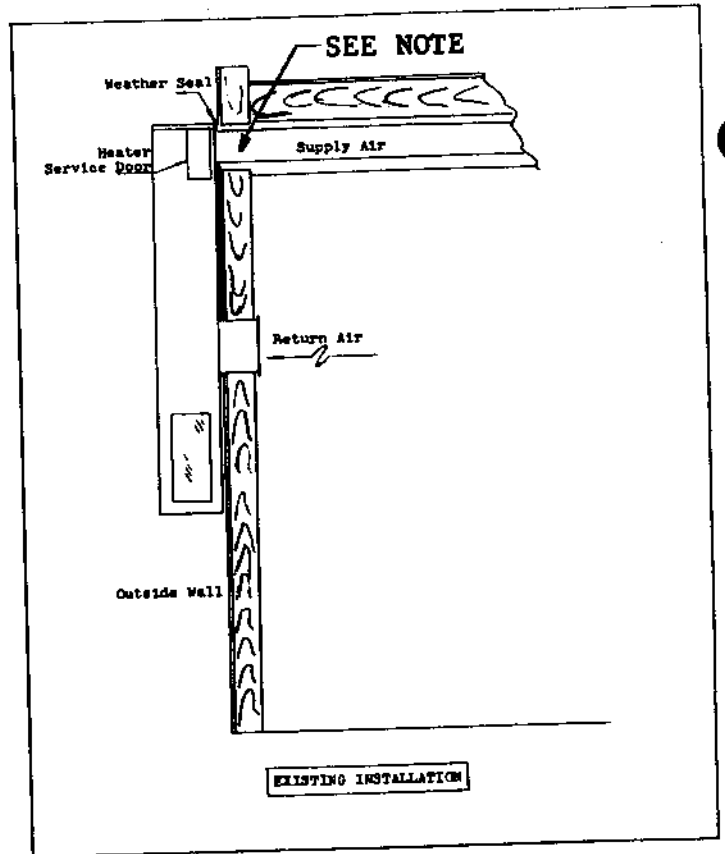
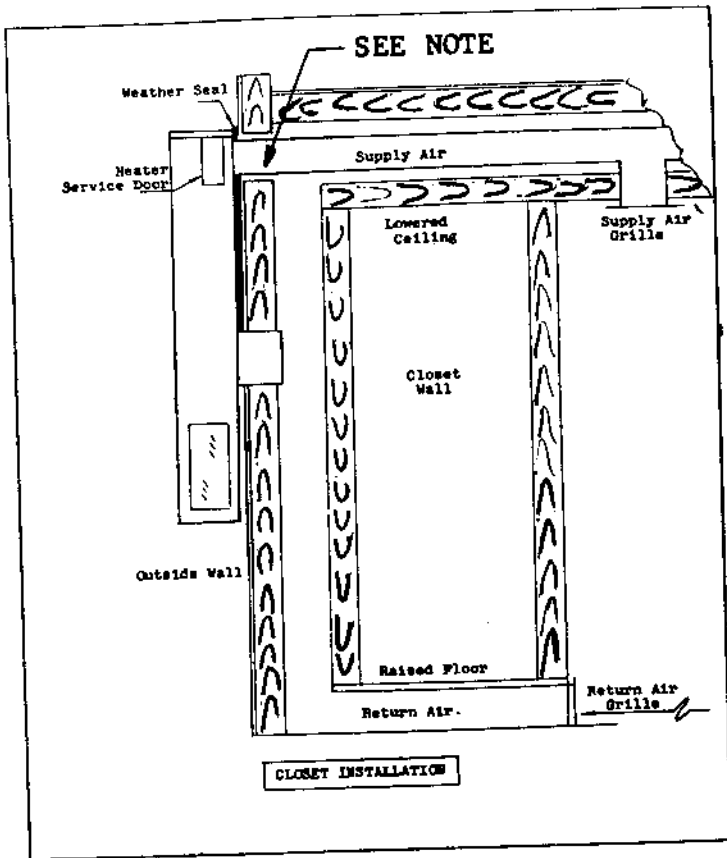
A low voltage terminal block is provided for connection of 24V wires from wall thermostat. Refer to unit wiring diagram for specific wiring information.

WIRING - 230V

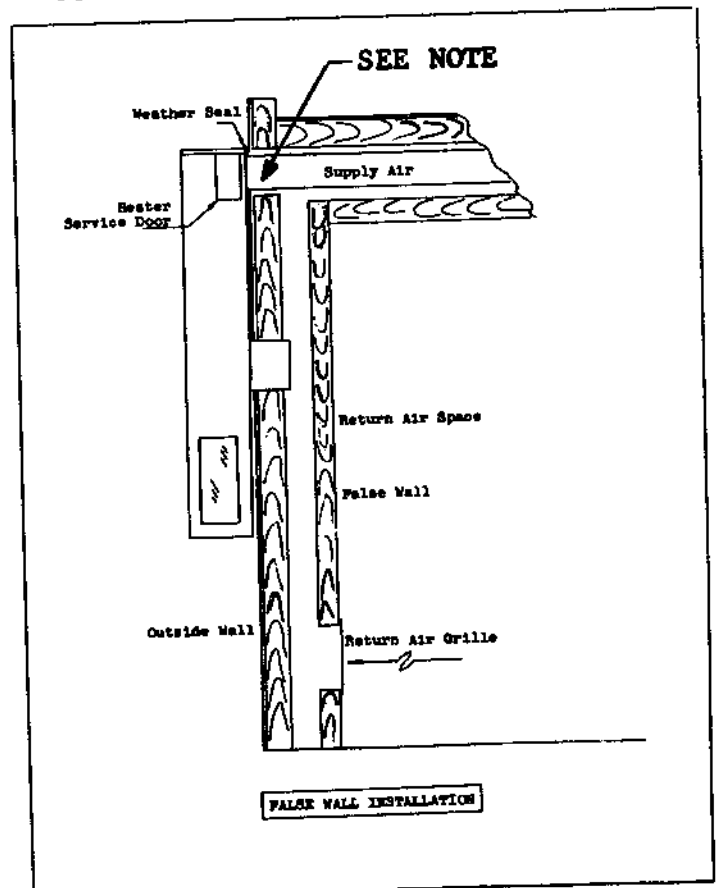
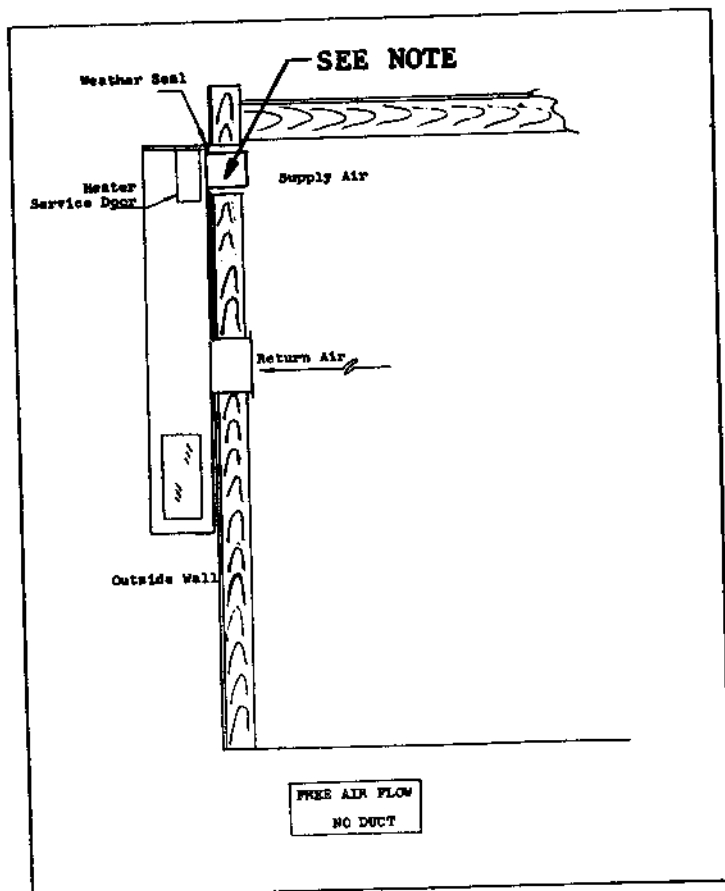
On all models that are not built at the factory with electric heat installed, the field wiring connections are made directly at the compressor contactor. All other models built with electric heat have either a terminal block or a fuse panel for the field wiring connections. Refer to the unit wiring diagram for complete wiring information.

CONDENSATE DRAIN

A plastic drain hose extends from the drain pan at the top of the unit down to the unit base. There are openings in the unit base for the drain hose to pass through. In the event the drain hose is connected to a drain system of some type, it must be an open or vented type system to assure proper drainage.



NOTE: 1" clearance to combustible materials required for first 3 feet of supply air duct system.



MODELS 16WAL-20WA-24WAL

MOUNTING ON CONCRETE BLOCK WALL

These units are secured by wall mounting brackets which secure the unit to the outside wall surface at both sides and at the bottom. (Fig. 1).

In a standard 8 x 16 in. block wall, saw or knock out two 22 inch sections of concrete blocks normally the 7th, 8th and 11th course of blocks above floor level. In both cases this should be one whole block plus 3 in. of the block on each side.

On the wall, lay out approximately the position for the bottom and side brackets. Fasten these brackets to the wall firmly with 3/8 in. lag screws.

The side brackets should be located approximately 15 in. down from the top of the unit and fastened to both sides with metal screws. After mounting the unit on the wall a metal weather stripping should be installed at the top to insure a water tight application.

INSTALLATION SCHEMATIC

CONCRETE BLOCK WALL

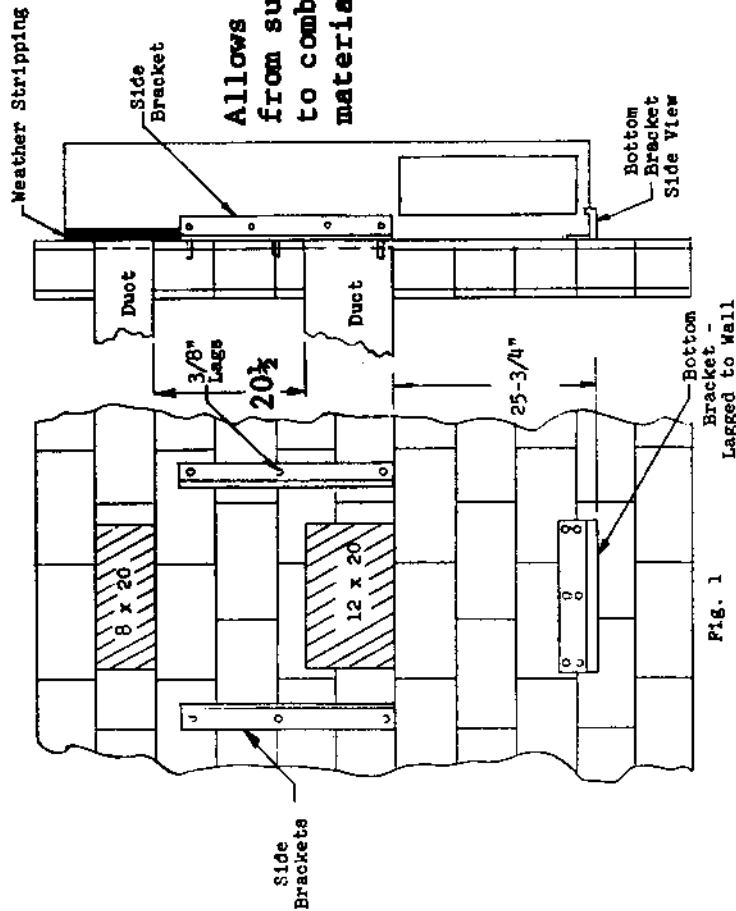


Fig. 1

Bottom Bracket - Lagged to Wall

MODELS 16WAL-20WA-24WAL

MOUNTING ON WOOD FRAME WALLS

Locate and cut out two openings as shown in (Fig. 2). Cut away the outside siding to the depth of the sheathing. Install metal weather stripping at the top and caulk or otherwise seal joints between siding and sheathing. Frame in the openings between the wall studs as necessary for the particular wall involved with the plates at the bottom of each wall opening being sufficiently strong to carry the weight of the unit.

Install the two side brackets to the unit (15 in. down from the top). Mount unit on wall and pull in firmly using three 3/8 in. lag screws through each of the wall mounting brackets.

For additional mounting rigidity, each air opening collar may be screwed to the plate at the bottom of each wall opening. Drill two 1/4 in. holes in the bottom flange of each collar before hanging the unit, then fasten to wall plate with NO. 10 by 1-1/2 in. wood screws.

OUTSIDE FRAME WALL SCHEMATIC

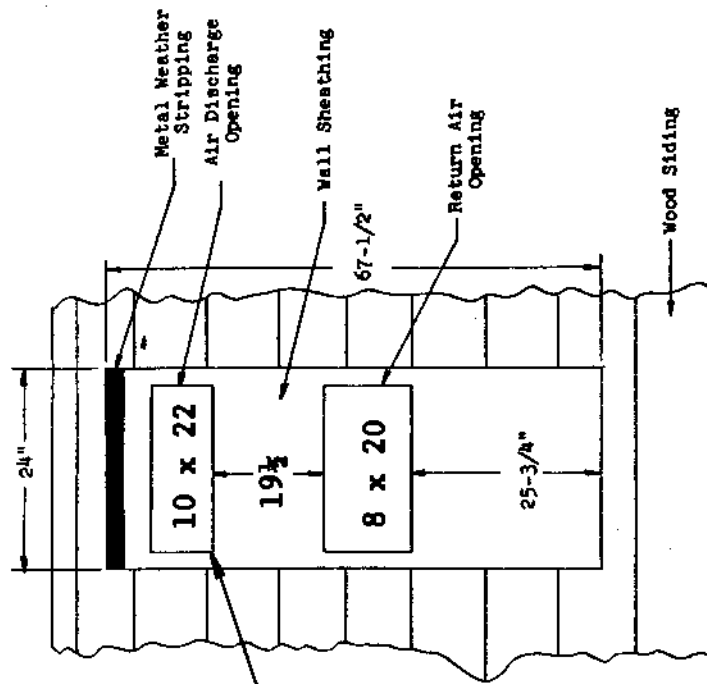


Fig. 2

Allows 1" clearance from supply air duct to combustible materials.

MODELS 30WAL-36WA3

MOUNTING ON CONCRETE BLOCK WALL

These units are secured by wall mounting brackets which secure the unit to the outside wall surface at both sides and at the bottom (Fig. 3).

In a standard 8 x 16 in. block wall, knock out two 28 in. sections of concrete blocks normally the 7th, 8th, and 11th course of blocks above floor level. In both cases this should be one whole block plus 7 in. of the block on each side.

On the wall, lay out approximately the position for the bottom and side brackets. Fasten these brackets to the wall firmly with 3/8 in. lag screws.

The side brackets should be located approximately 15 in. down from the top of the unit and fastened to both sides with metal screws. Before drilling into side of casing, check inside tubing for clearance. After mounting the unit on the wall a metal weather stripping should be installed at the top to insure a water tight application.

INSTALLATION SCHEMATIC

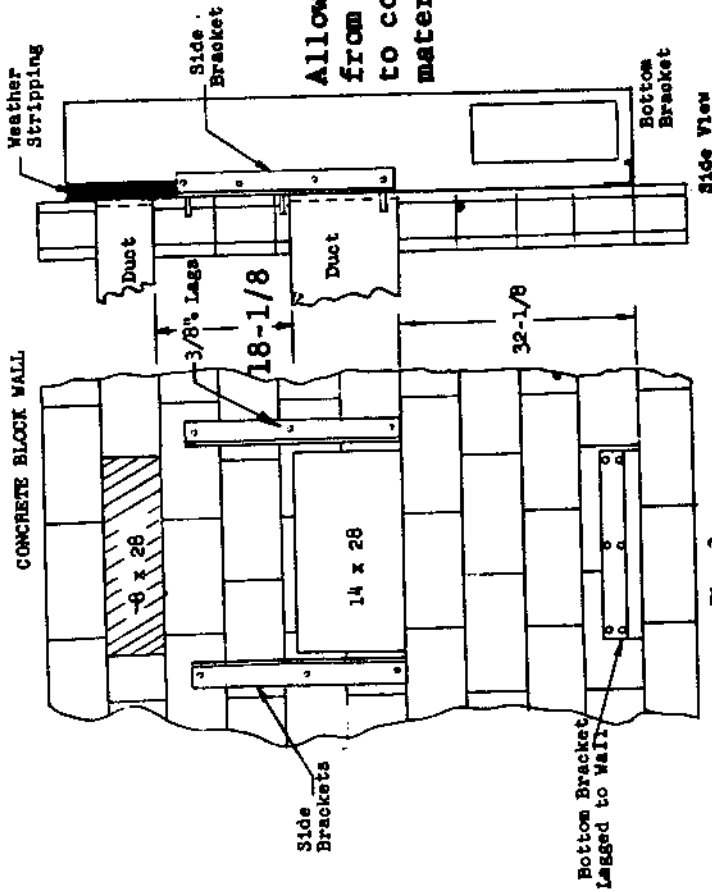


FIG. 3

MODELS 30WAL-36WA3

MOUNTING ON WOOD FRAME WALLS

Locate and cut out two openings as shown in (Fig. 4). Cut away the outside siding to the depth of the sheathing. Install metal stripping at the top and caulk or otherwise seal joints between siding and sheathing. Frame in the openings between the wall studs as necessary for the particular wall involved with the plates at the bottom of each wall opening being sufficiently strong to carry the weight of the unit.

Install the two side brackets to the unit (15 in. down from the top). Before drilling into side of casing, check inside tubing for clearance. Mount unit on wall and pull in firmly using three 3/8 in. lag screws through each of the wall mounting brackets.

For additional mounting rigidity, each air opening collar may be screwed to the plate at the bottom of each wall opening. Drill two 1/4 in. holes in the bottom flange of each collar before hanging the unit, then fasten to wall plate with No. 10 by 1-1/2 in. wood screws.

OUTSIDE FRAME WALL SCHEMATIC

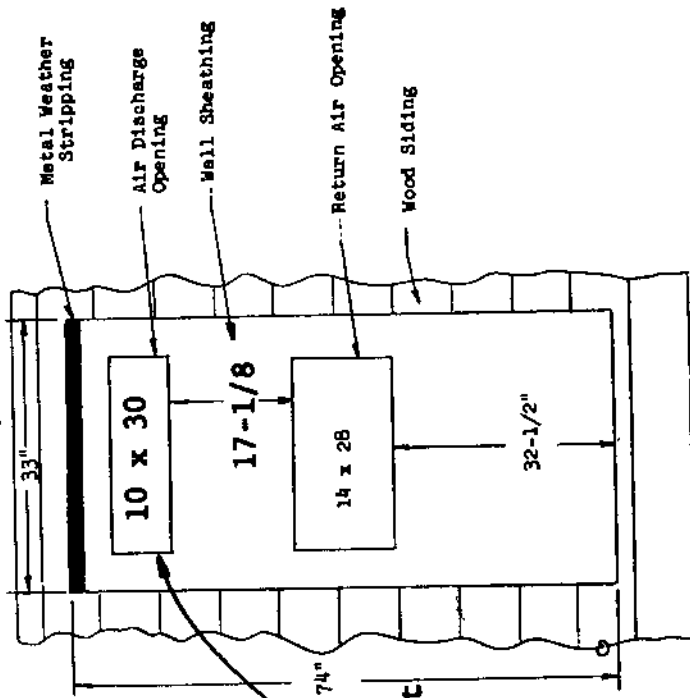


Fig. 4

Allows 1" clearance from supply air duct to combustible materials.

MODEL 48WA 3

MOUNTING ON CONCRETE BLOCK WALL

These units are secured by wall mounting brackets which secure the unit to the outside wall surface at both sides and at the bottom (Fig. 5).

In a standard 8 x 16 in. block wall, saw or knock out two 30 in. sections of concrete blocks normally the 8th and 11th course of blocks above floor level. In both cases this should be two whole block.

On the wall, lay out approximately the position for the bottom and side brackets. Fasten these brackets to the wall firmly with 3/8 in. lag screws.

The side brackets should be located approximately 10 in. down from the top of the unit and fastened to both sides with metal screws. Before drilling into side of casing, check inside tubing for clearance. After mounting the unit on the wall, a metal weather stripping should be installed at the top to insure a water-tight application.

INSTALLATION SCHEMATIC

CONCRETE BLOCK WALL

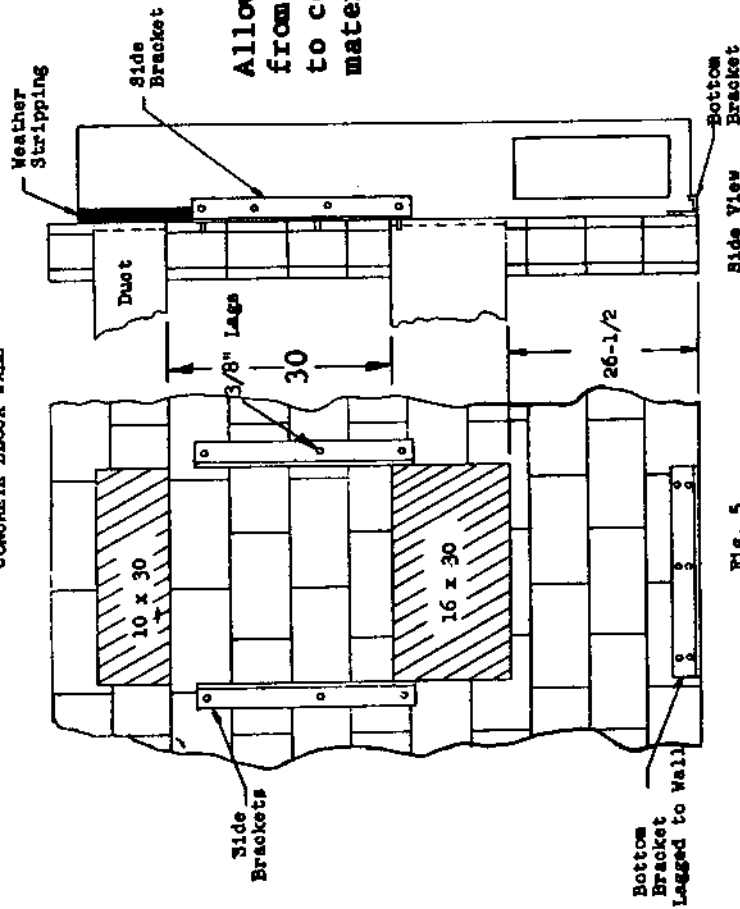


Fig. 5

MODEL 48WA 3

MOUNTING ON WOOD FRAME WALLS

Locate and cut out two 8 x 28 in. (minimum) openings as shown in (Fig. 6). Cut away the outside siding to the depth of the sheathing. Install metal weather stripping at the top and caulk or otherwise seal joints between siding and sheathing. Frame in the openings between the wall studs as necessary for the particular wall involved with the plates at the bottom of each wall opening being sufficiently strong to carry the weight of the unit.

Install the two side brackets to the unit (10 in. down from the top). Before drilling into side of casing, check inside tubing for clearance. Mount unit on wall and pull in firmly using three - 3/8 in. lag screws through each of the wall mounting brackets.

For additional mounting rigidity, each air opening collar may be screwed to the plate at the bottom of each wall opening. Drill two 1/8 in. holes in the bottom flange of each collar before hanging the unit, then fasten to wall plate with No. 10 by 1-1/2 in. wood screws.

OUTSIDE FRAME WALL SCHEMATIC

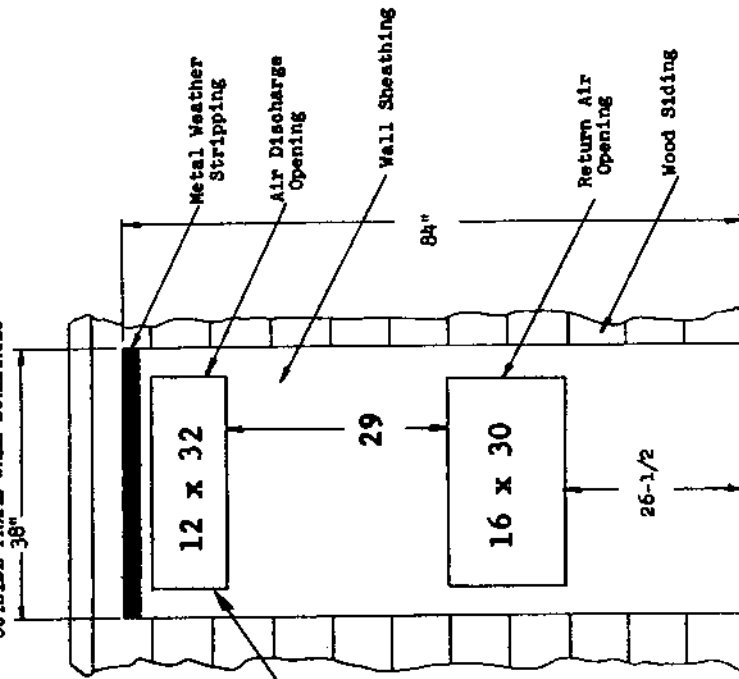


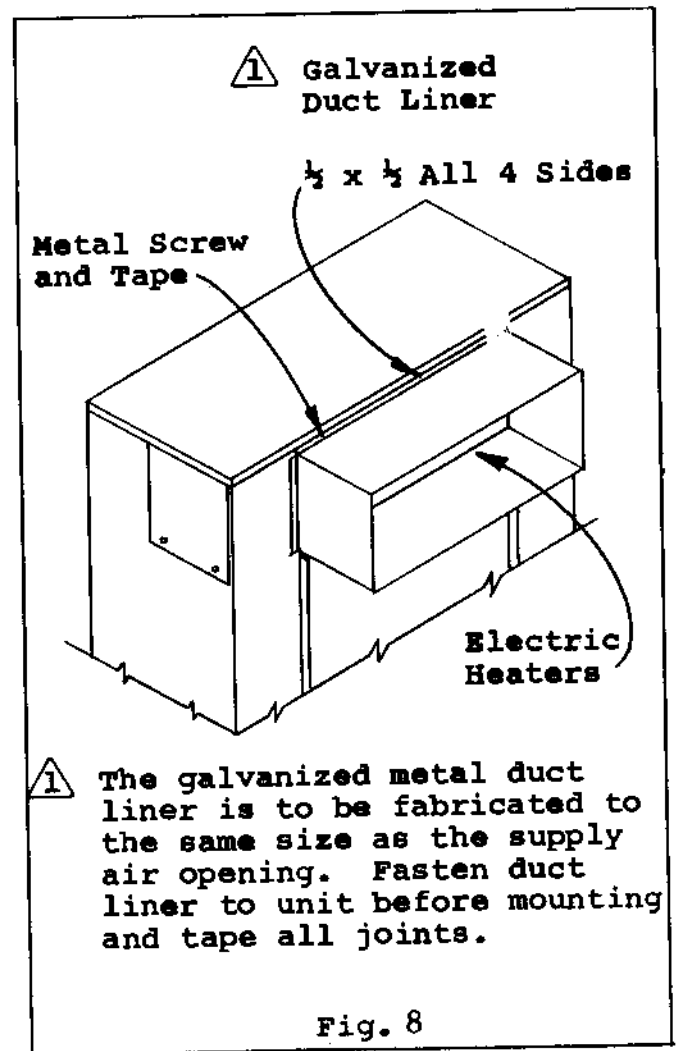
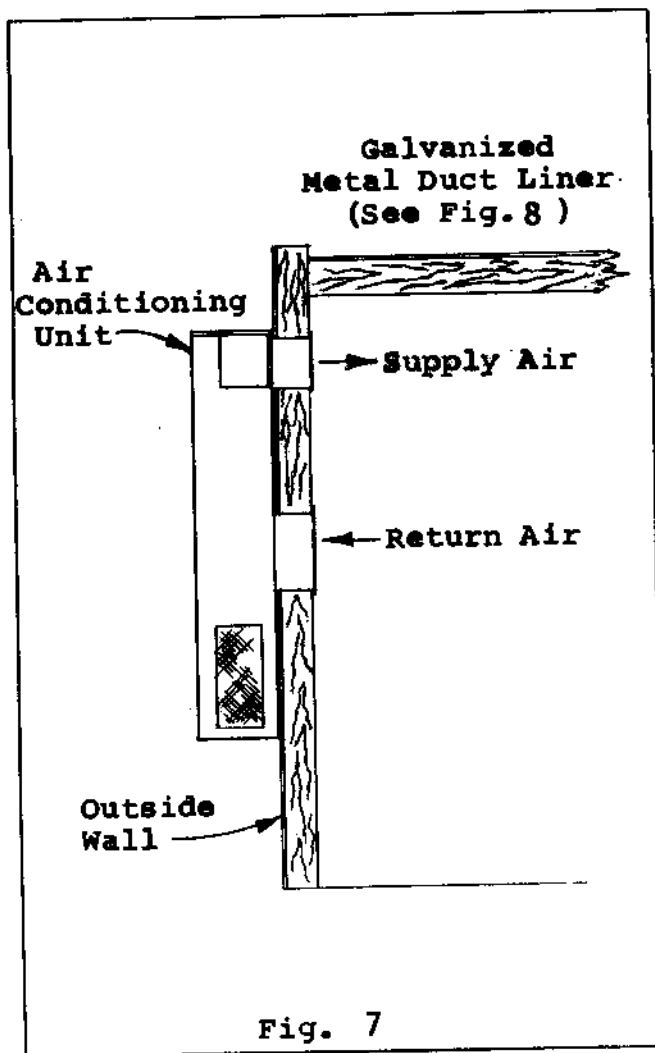
Fig. 6

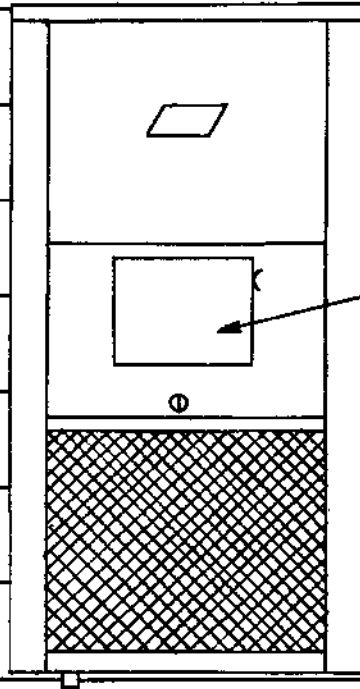
Allows 1" clearance from supply air duct to combustible materials.

**SUPPLY AIR METAL DUCT LINER
MODELS WA AND WH**

The cabinets on all models, with or without electric heaters, are approved for 0" clearance to combustible material. The outlet duct on all models with electric heaters must have 1" clearance to combustible materials for at least the first 3 feet of duct.

Whenever a model WA or WH is installed, a galvanized metal duct liner must always be attached (Fig. 8). Before installing, determine the wall thickness. If the installation is free air flow, with no external duct, then the liner should be cut flush with the inside wall opening. In order to insure no sweating, the duct liner should be wrapped with a minimum of 1" insulation.

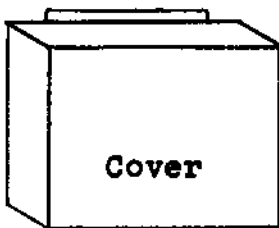




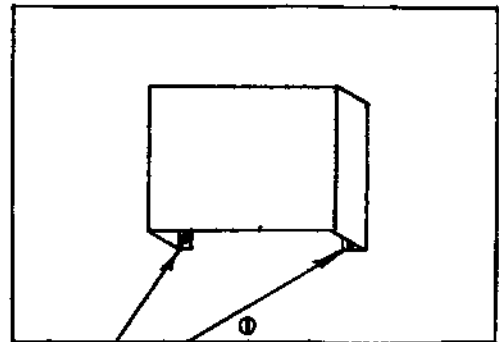
Fresh Air Cover
With Adjustable
Damper



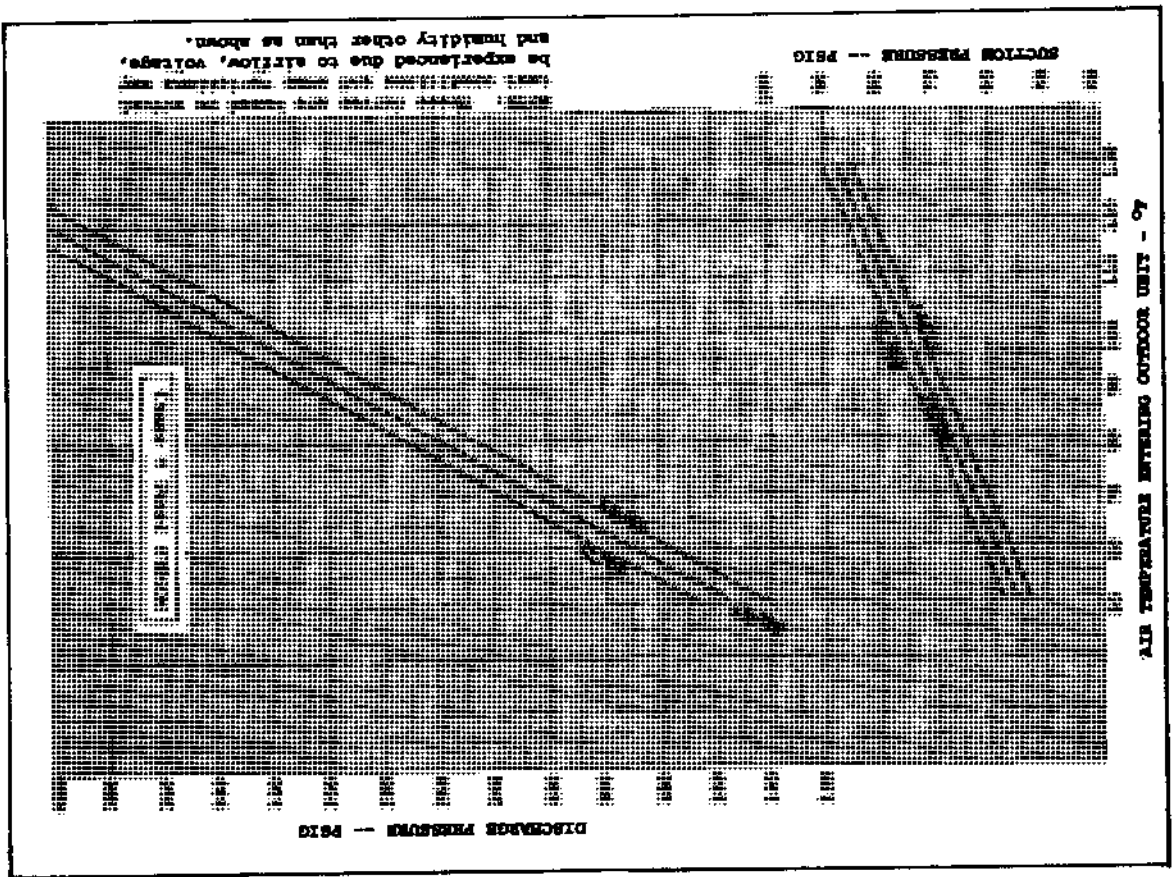
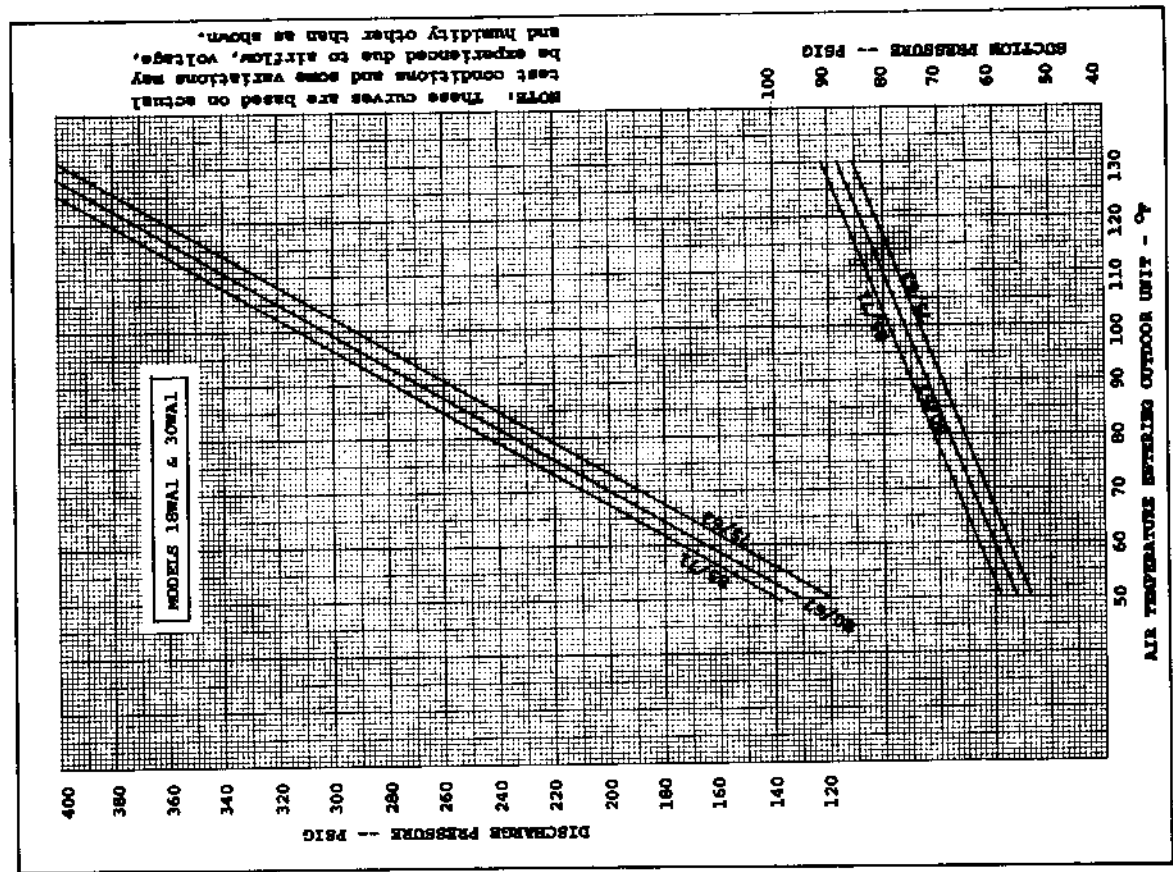
Service
Door

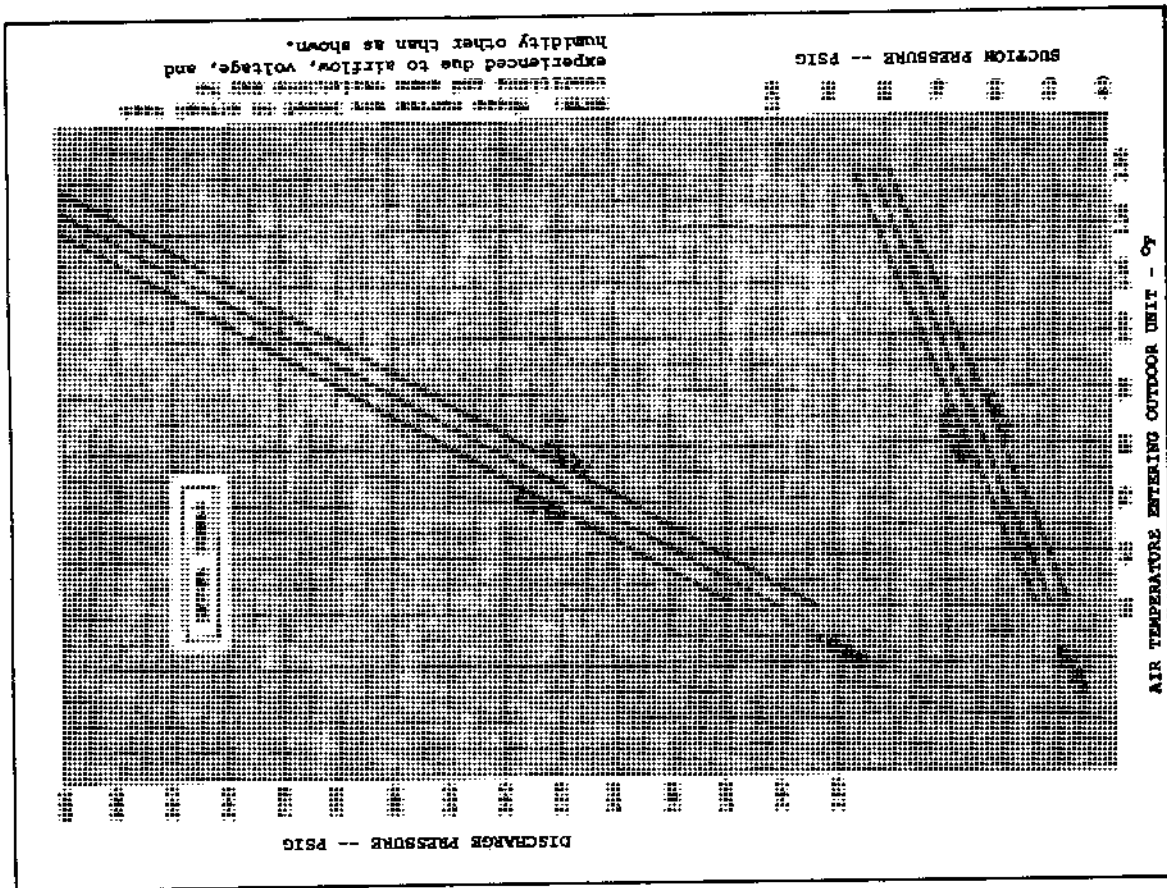
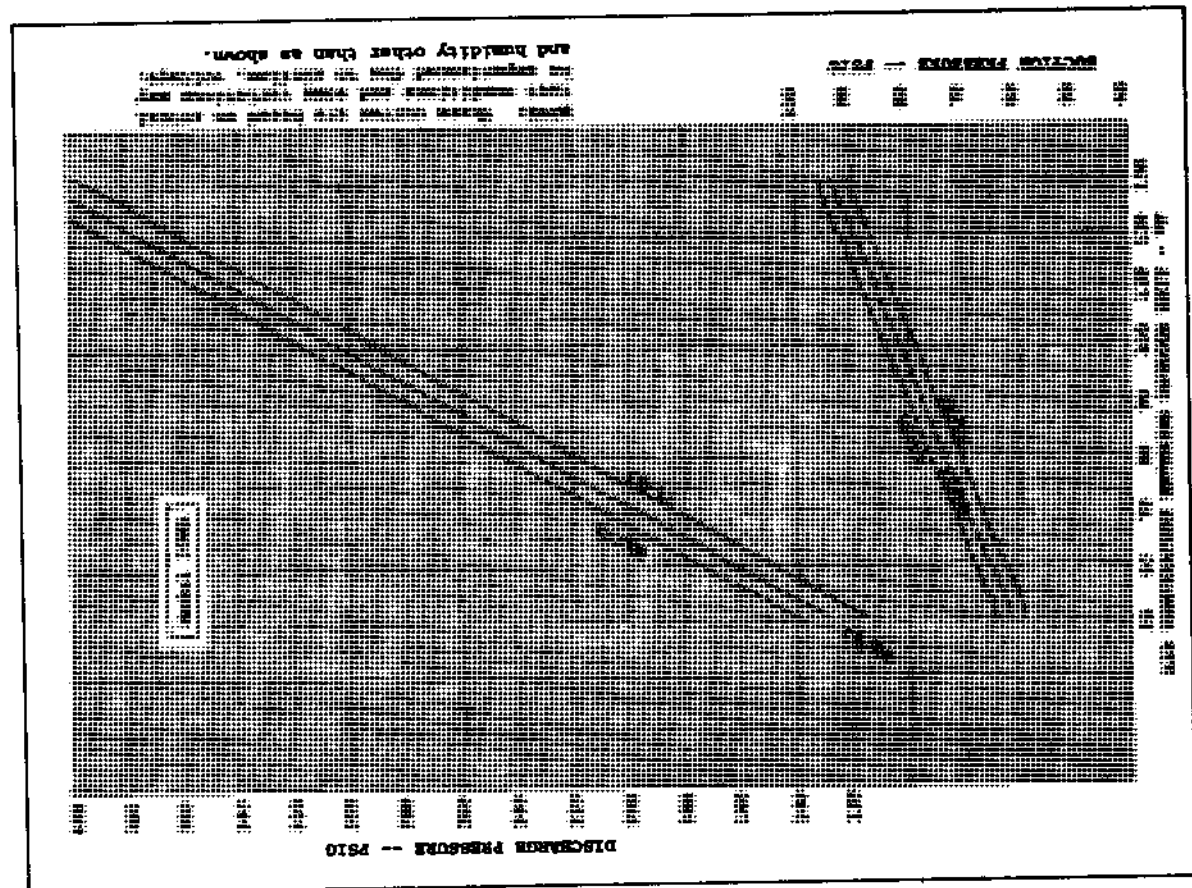


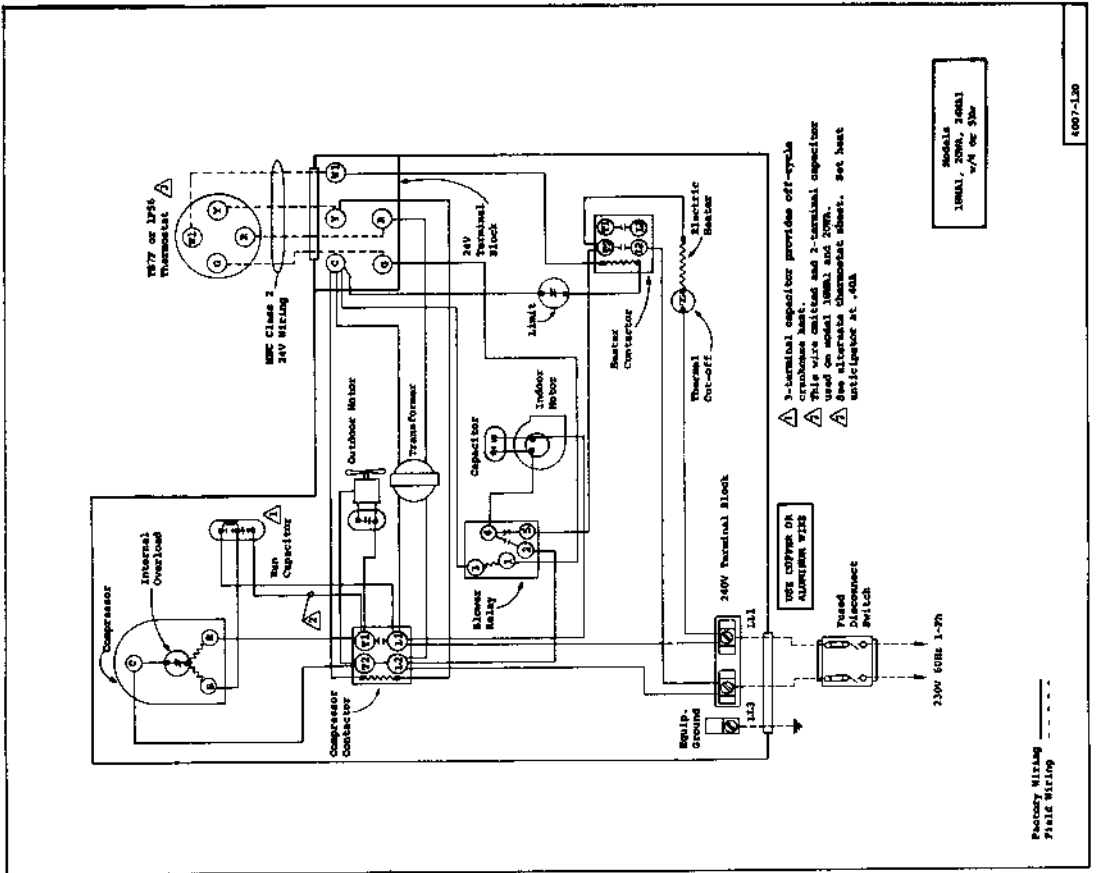
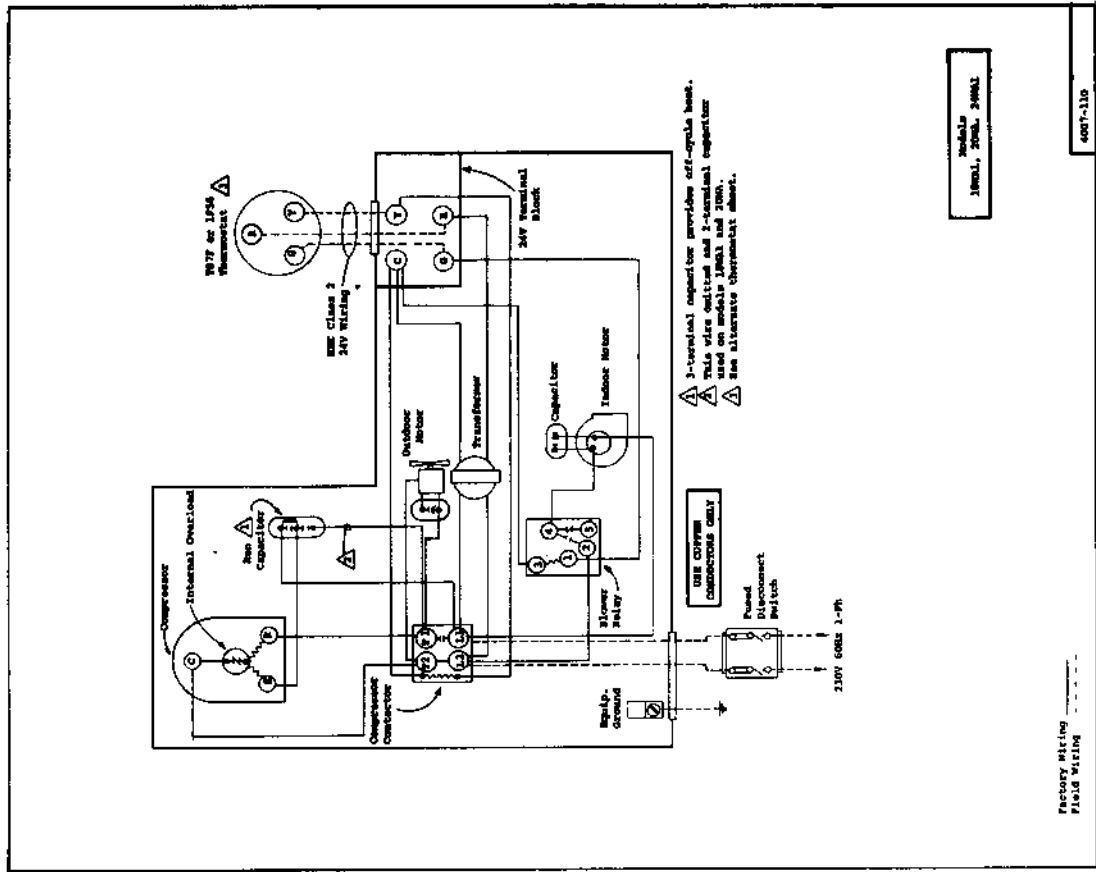
Cover

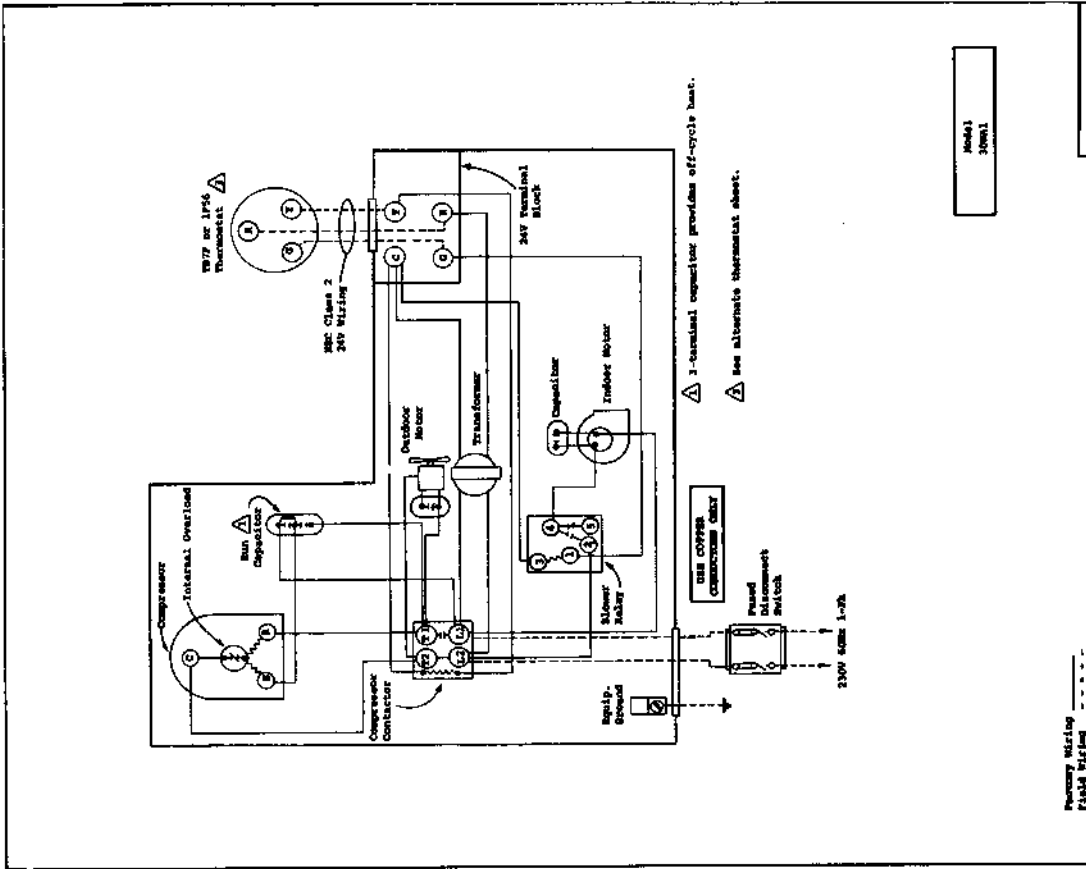
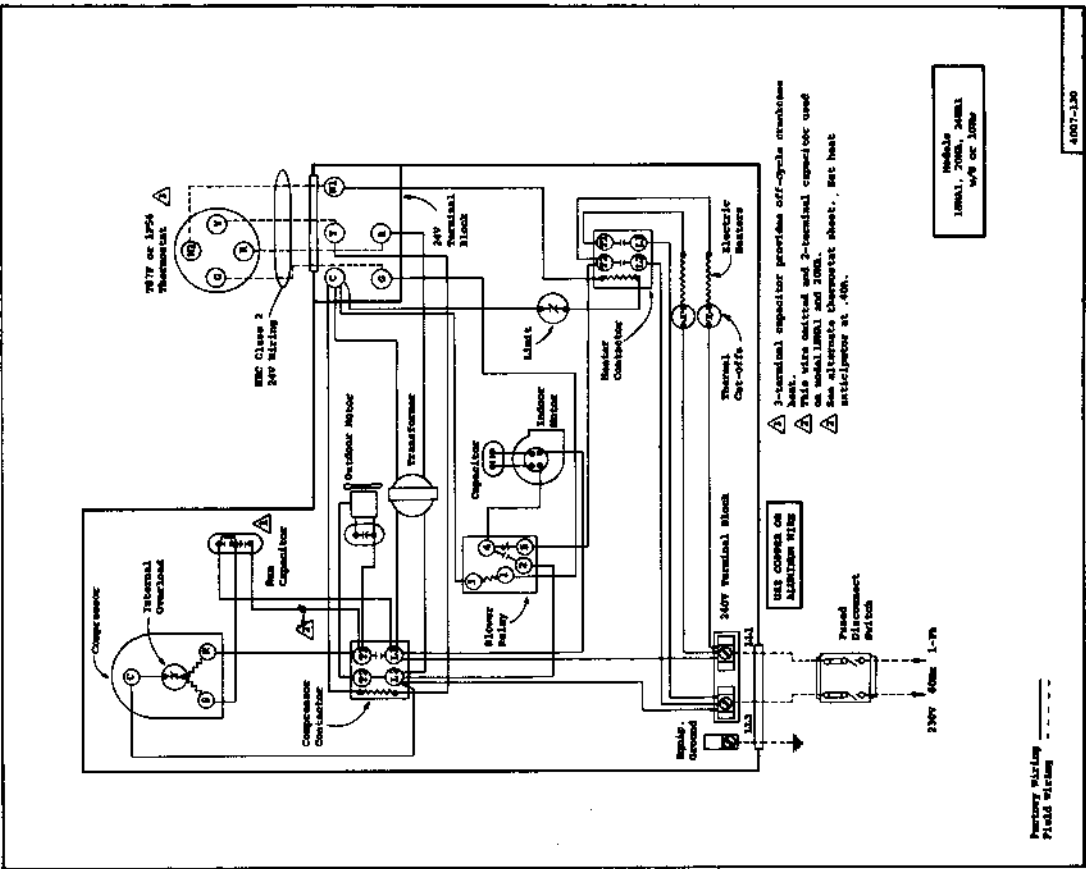


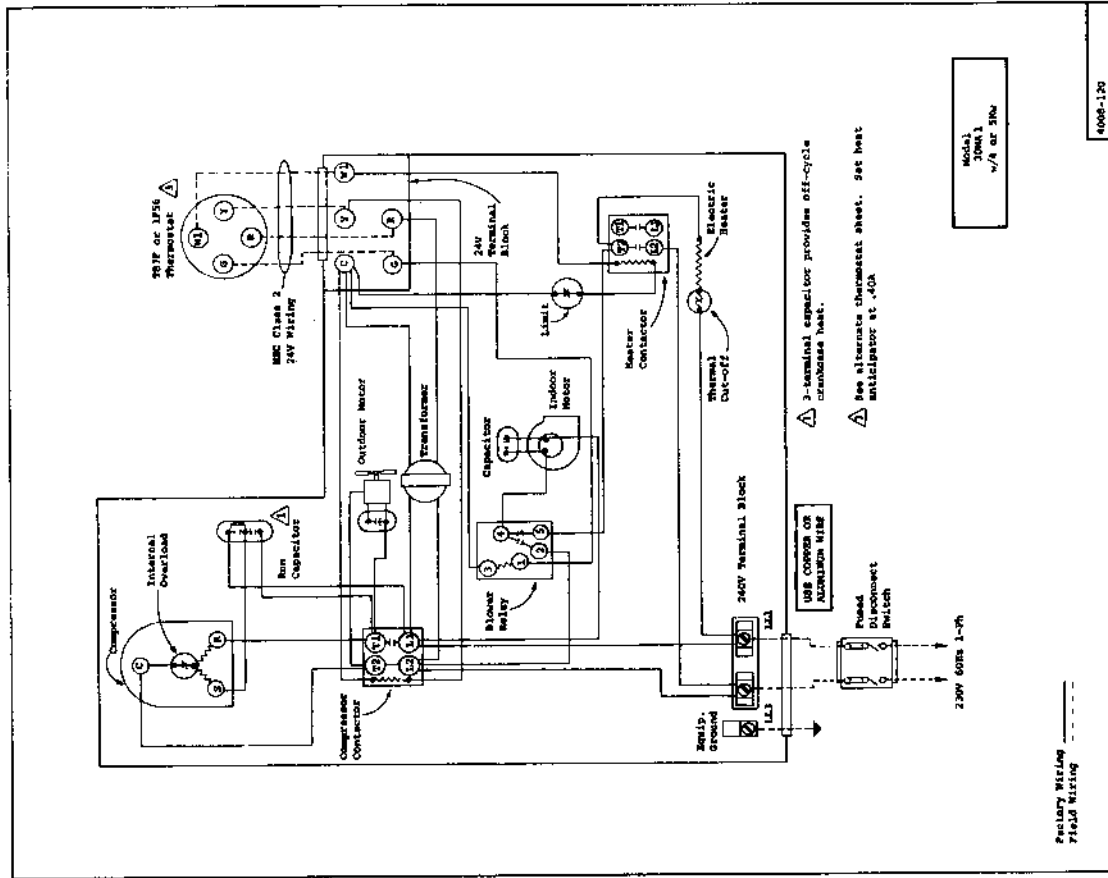
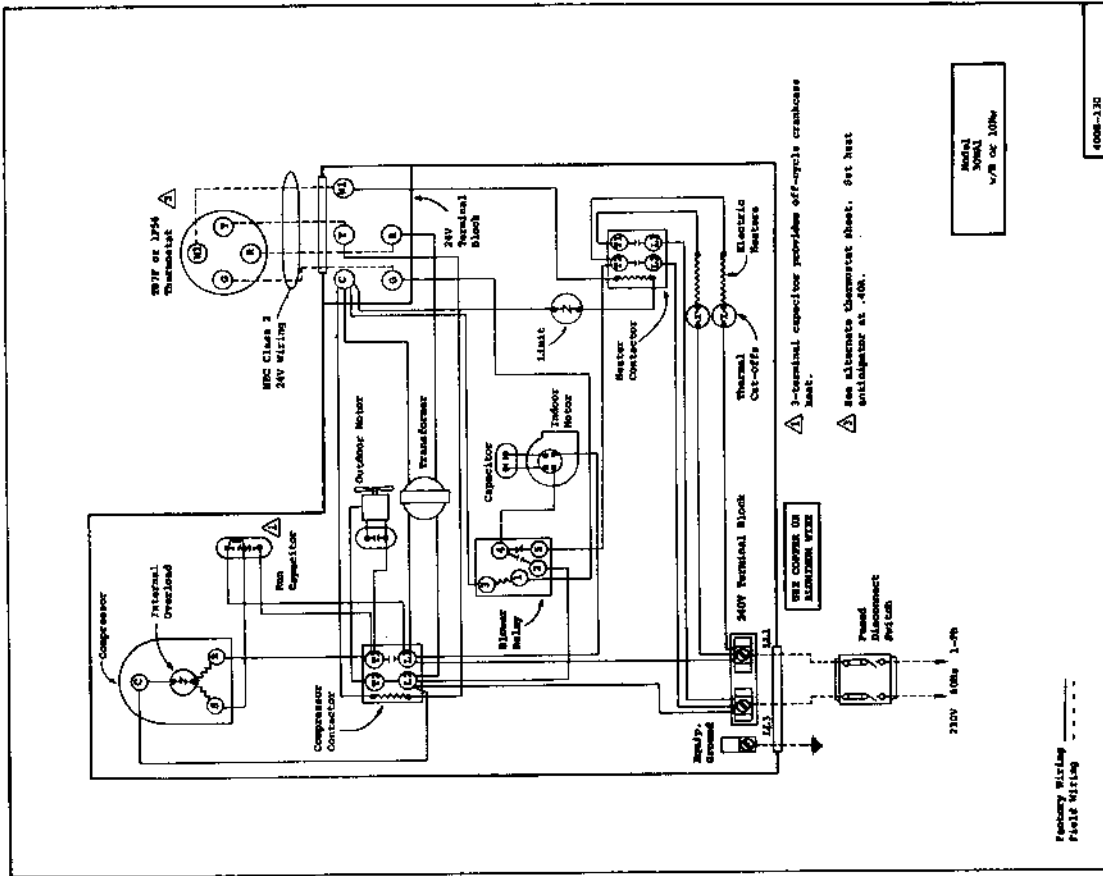
Fasten With Screw

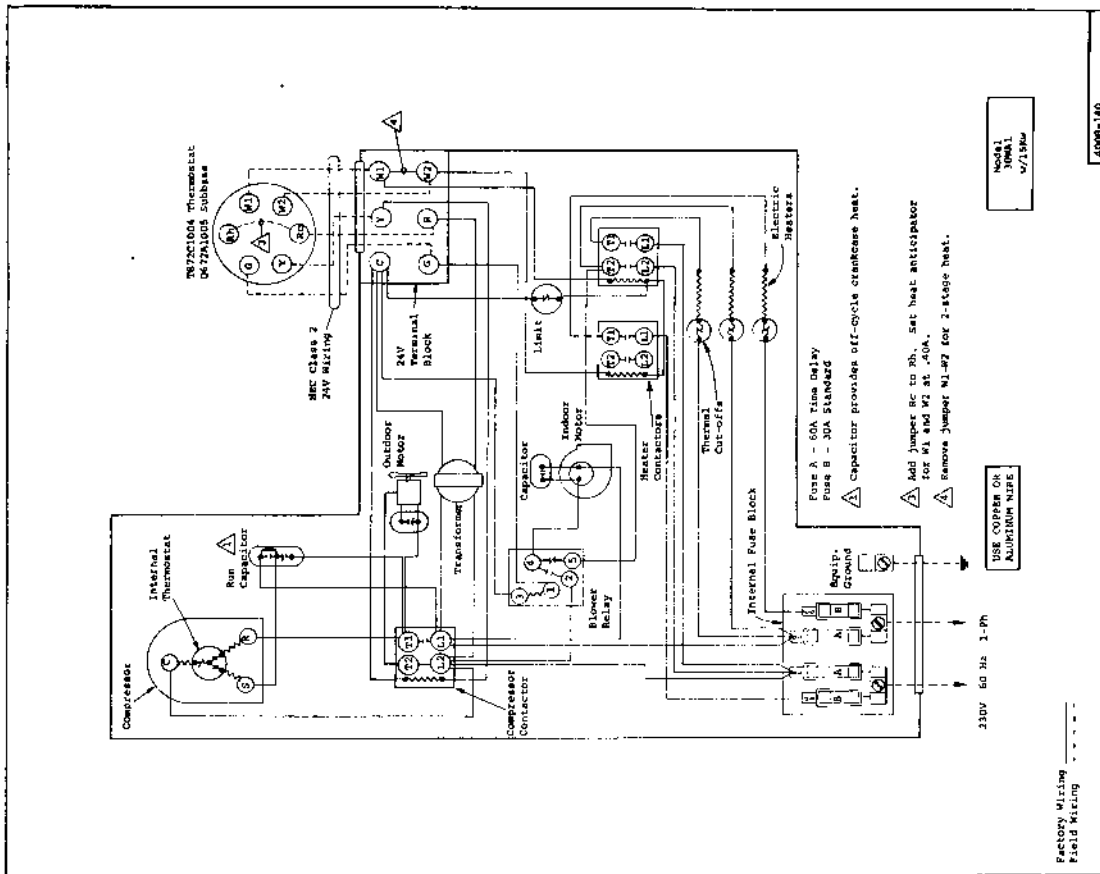
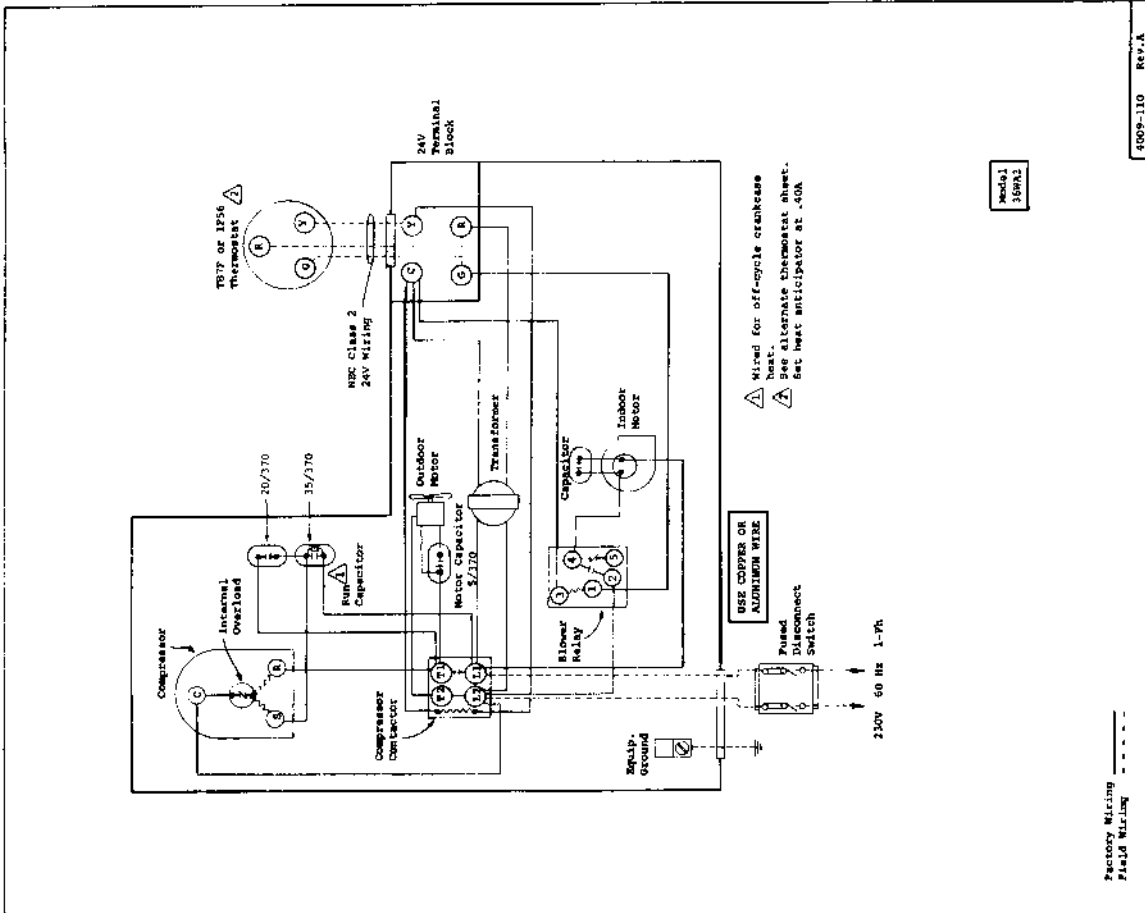


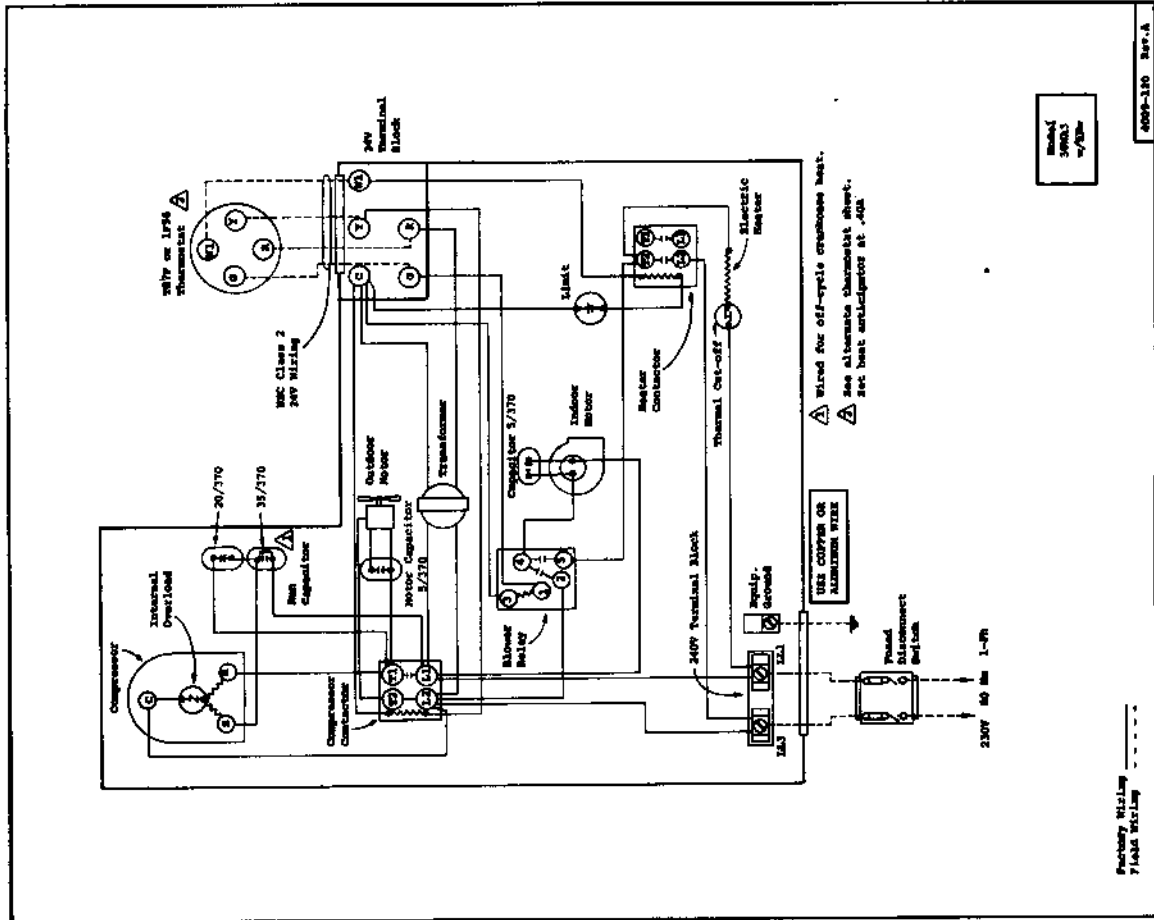
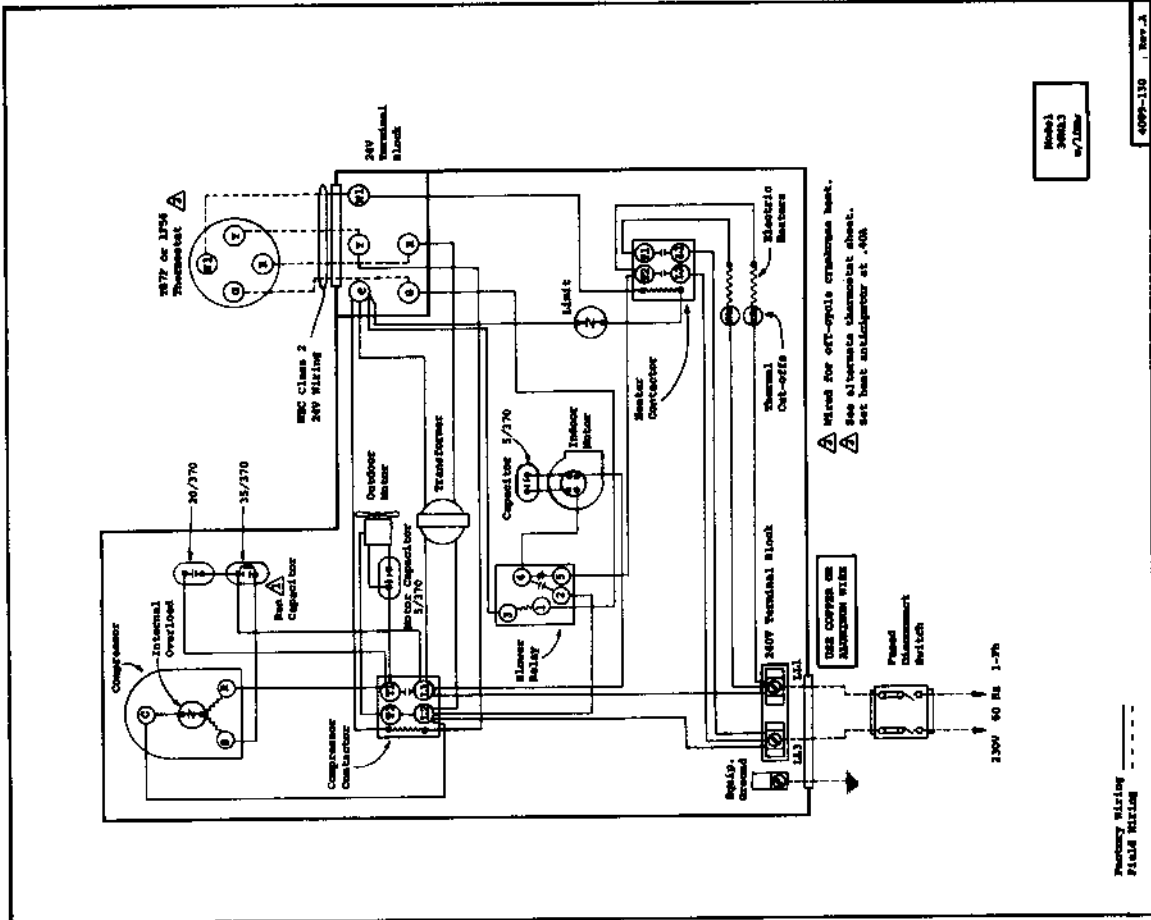


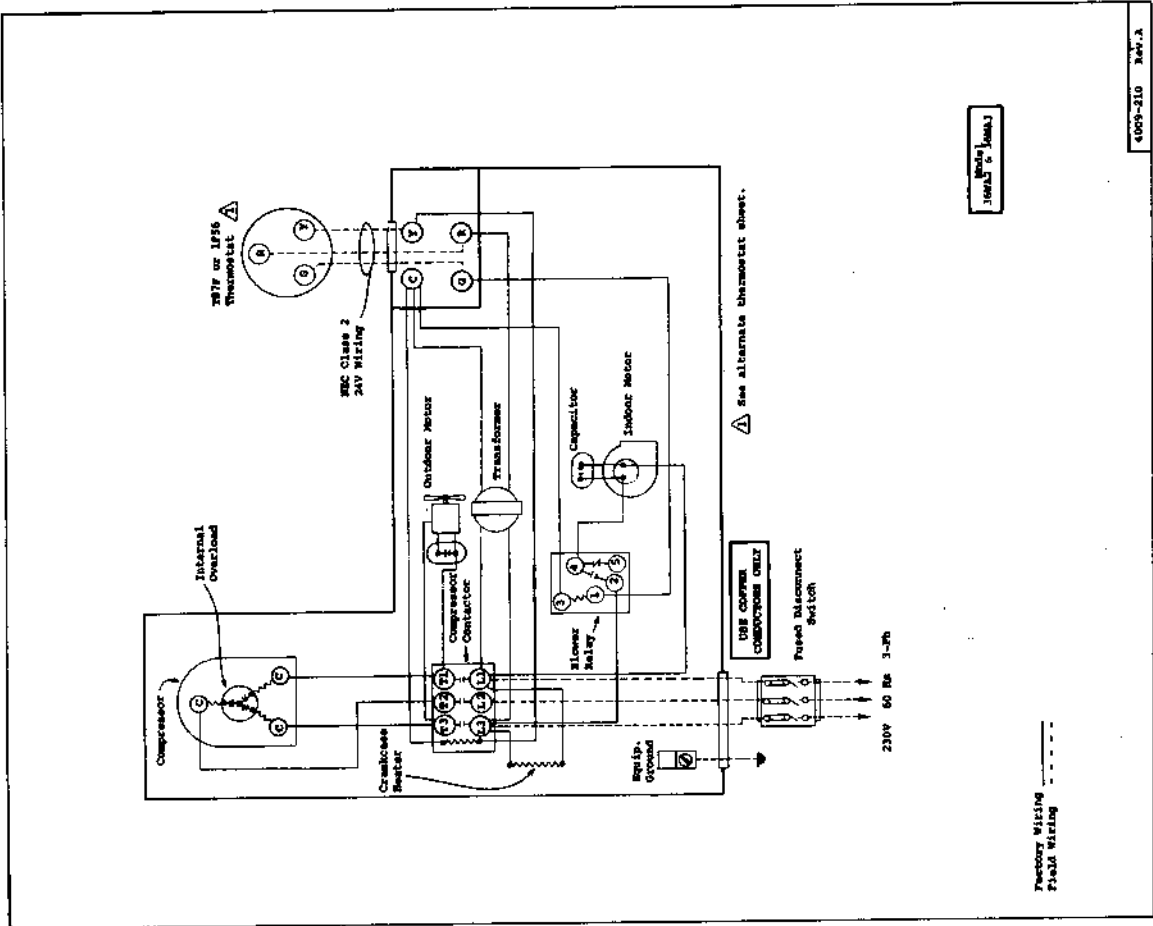
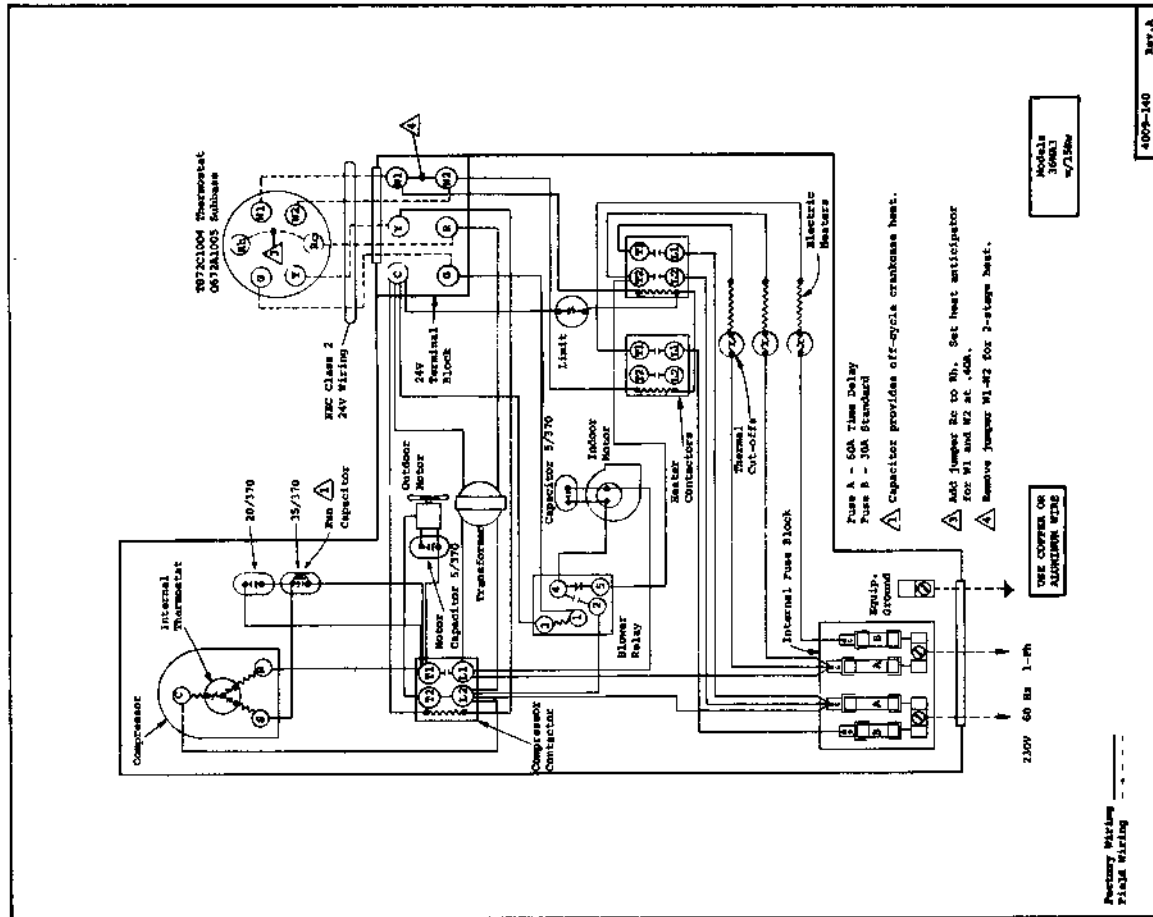


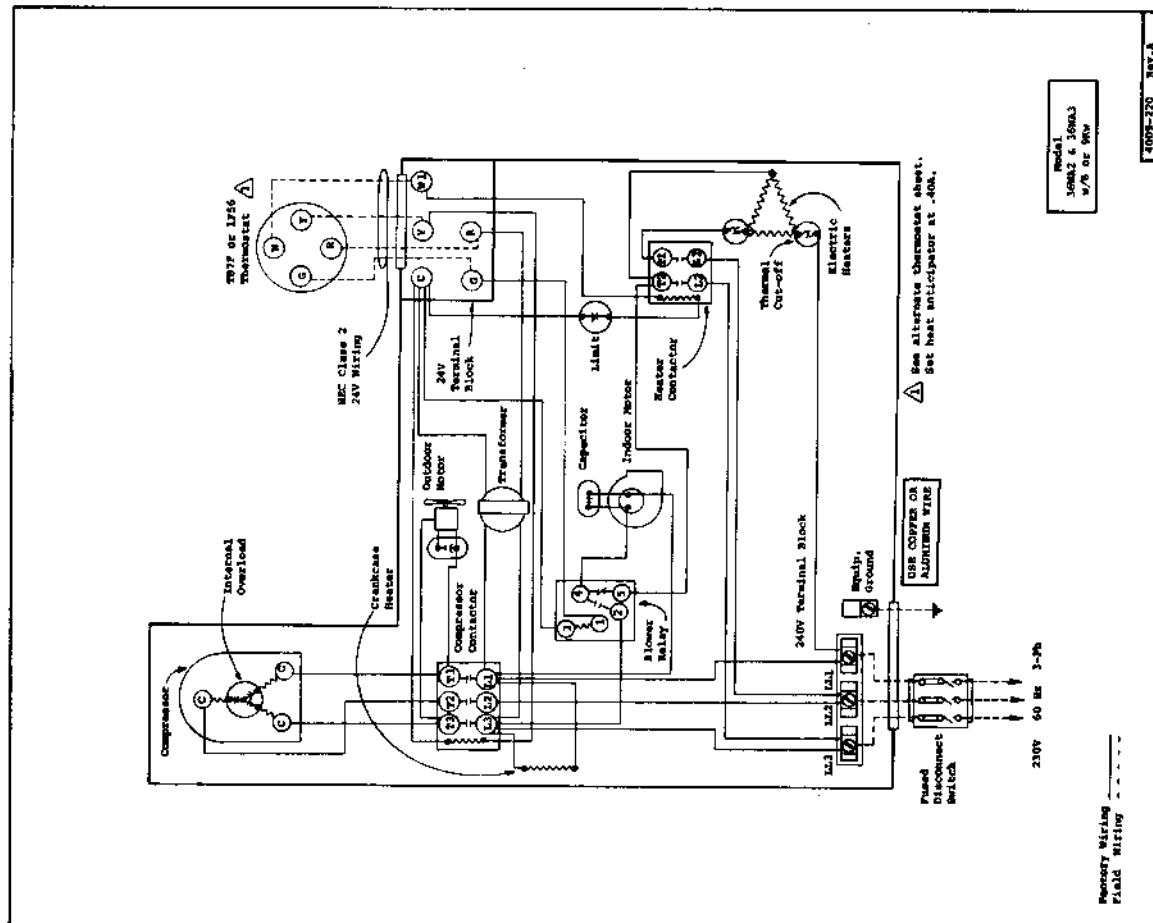
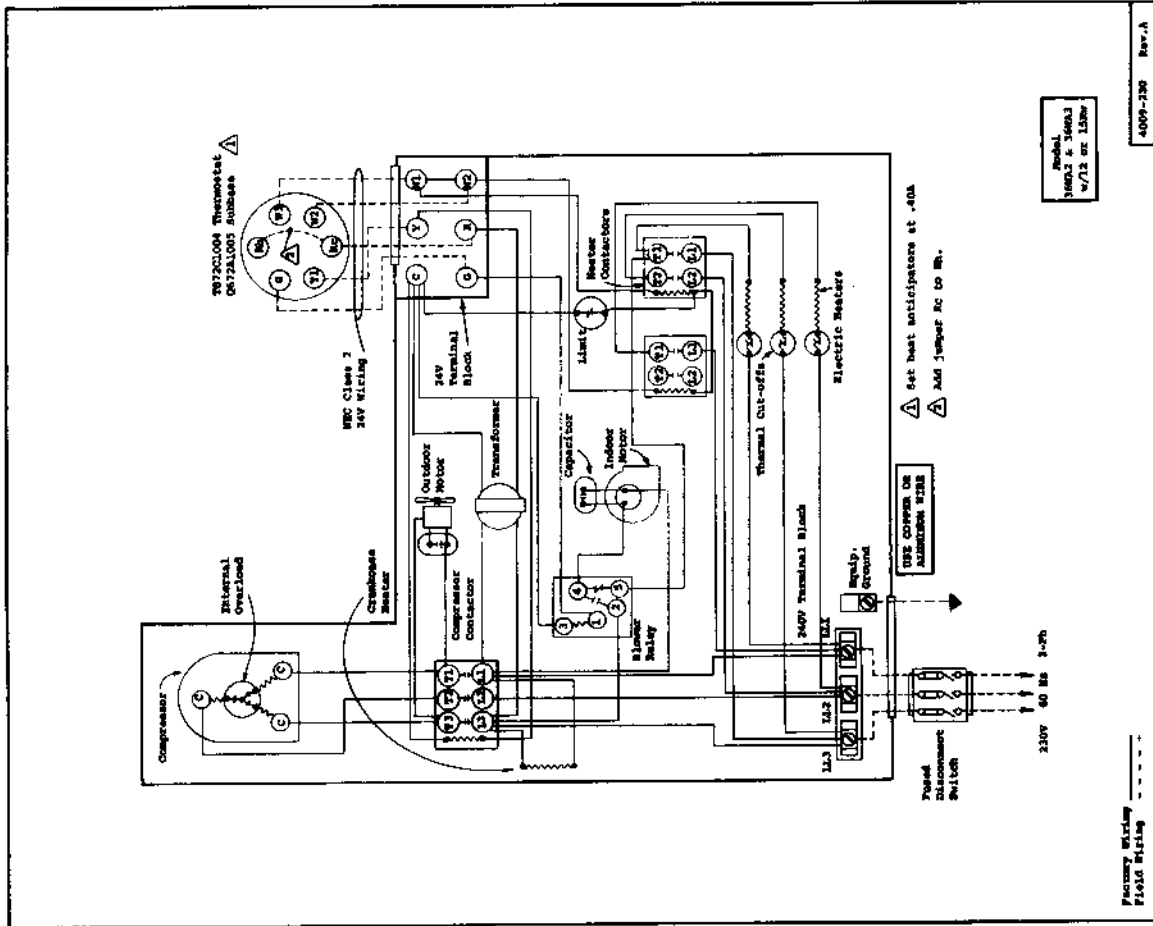


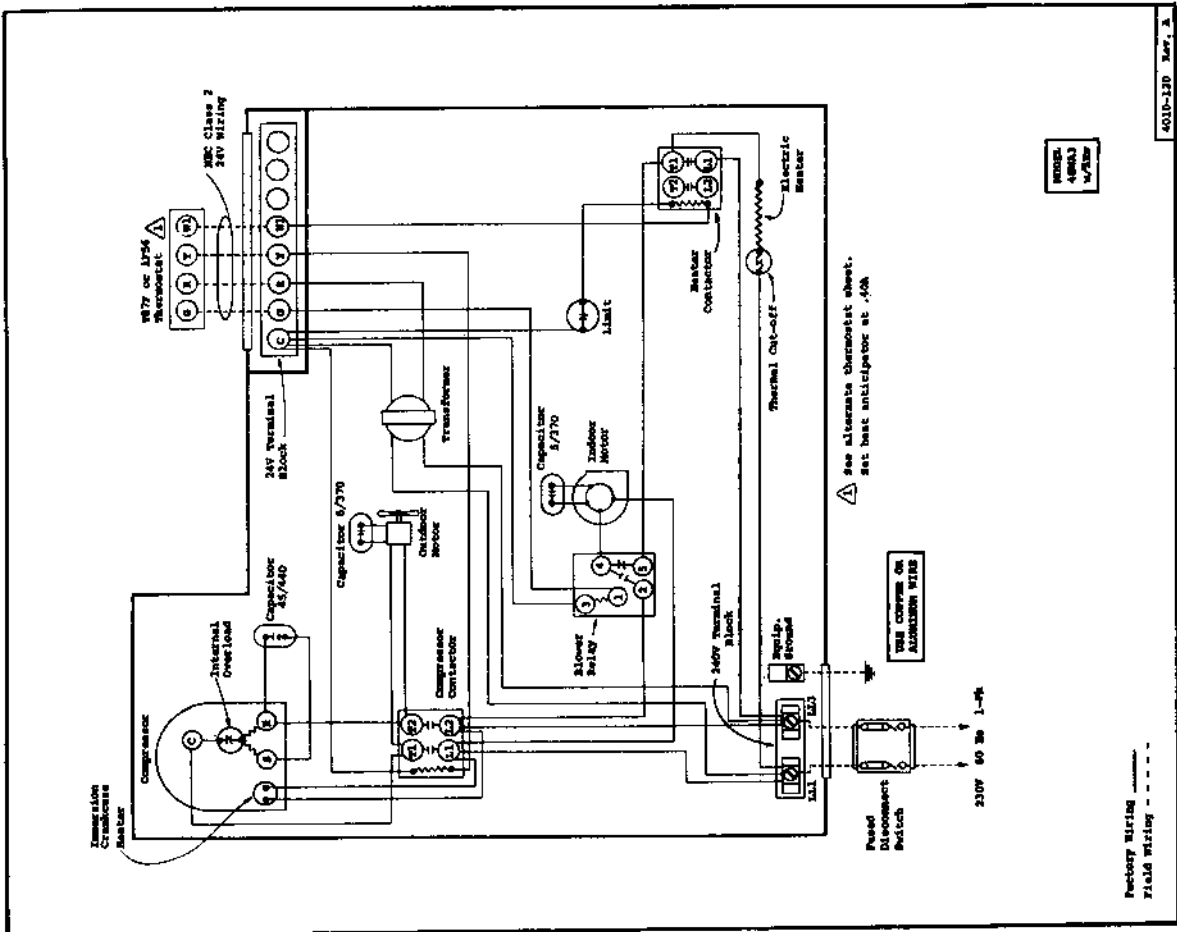
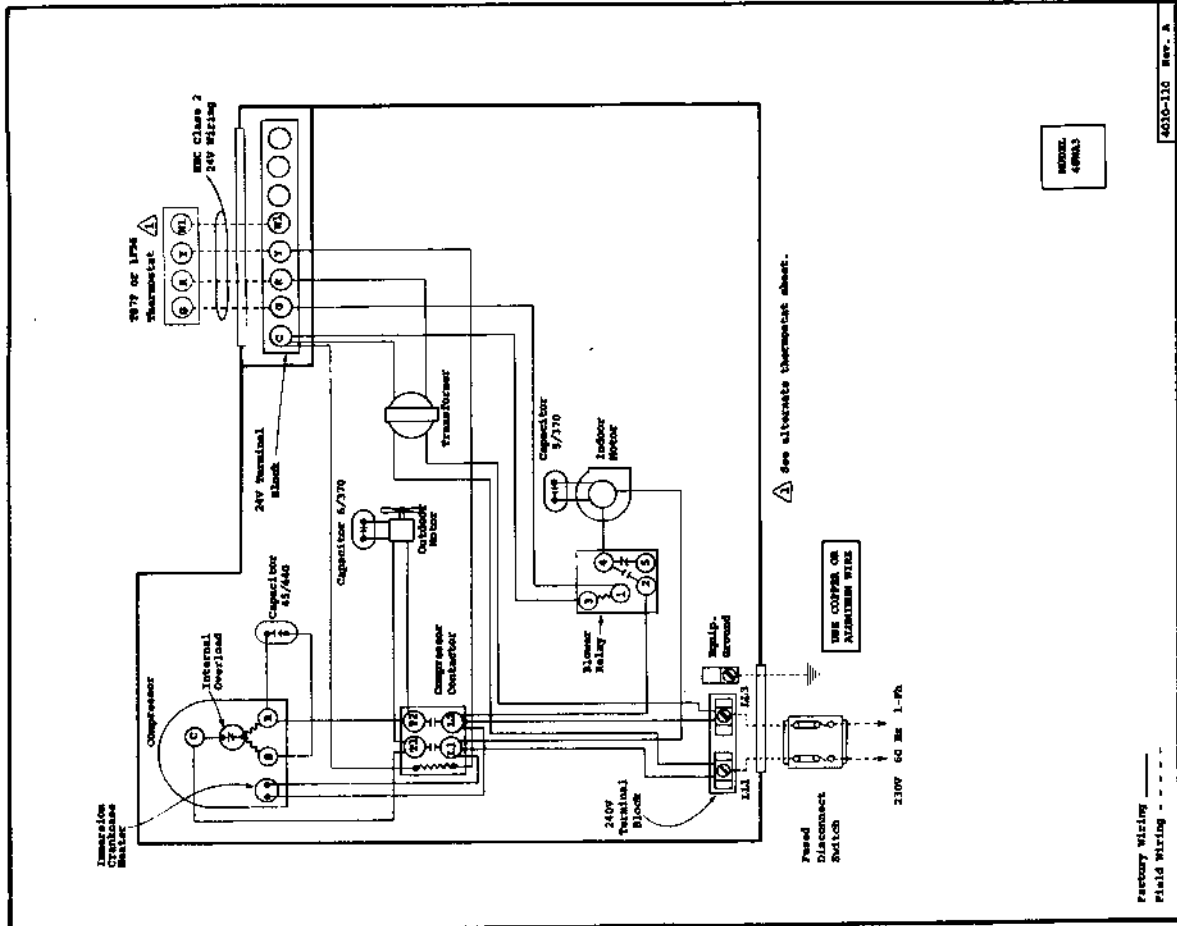


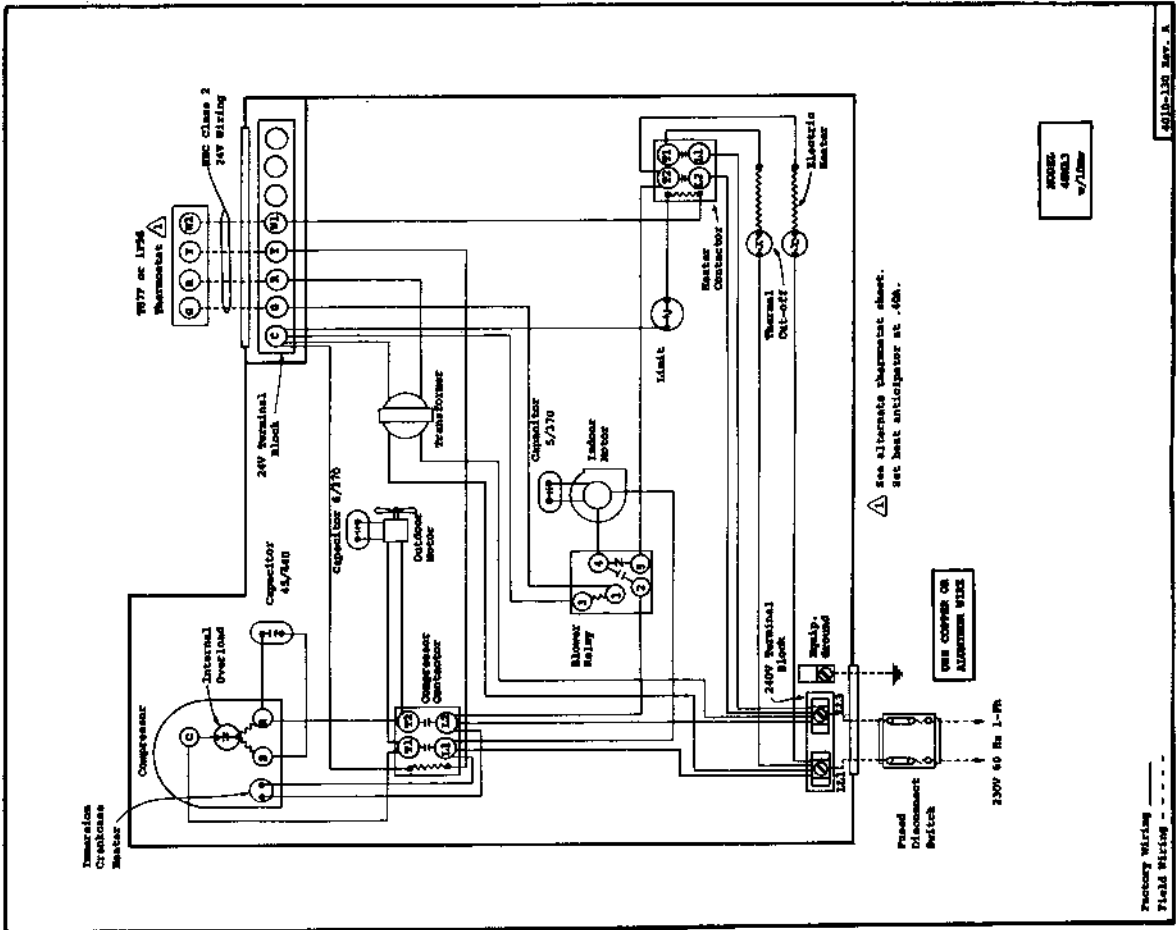
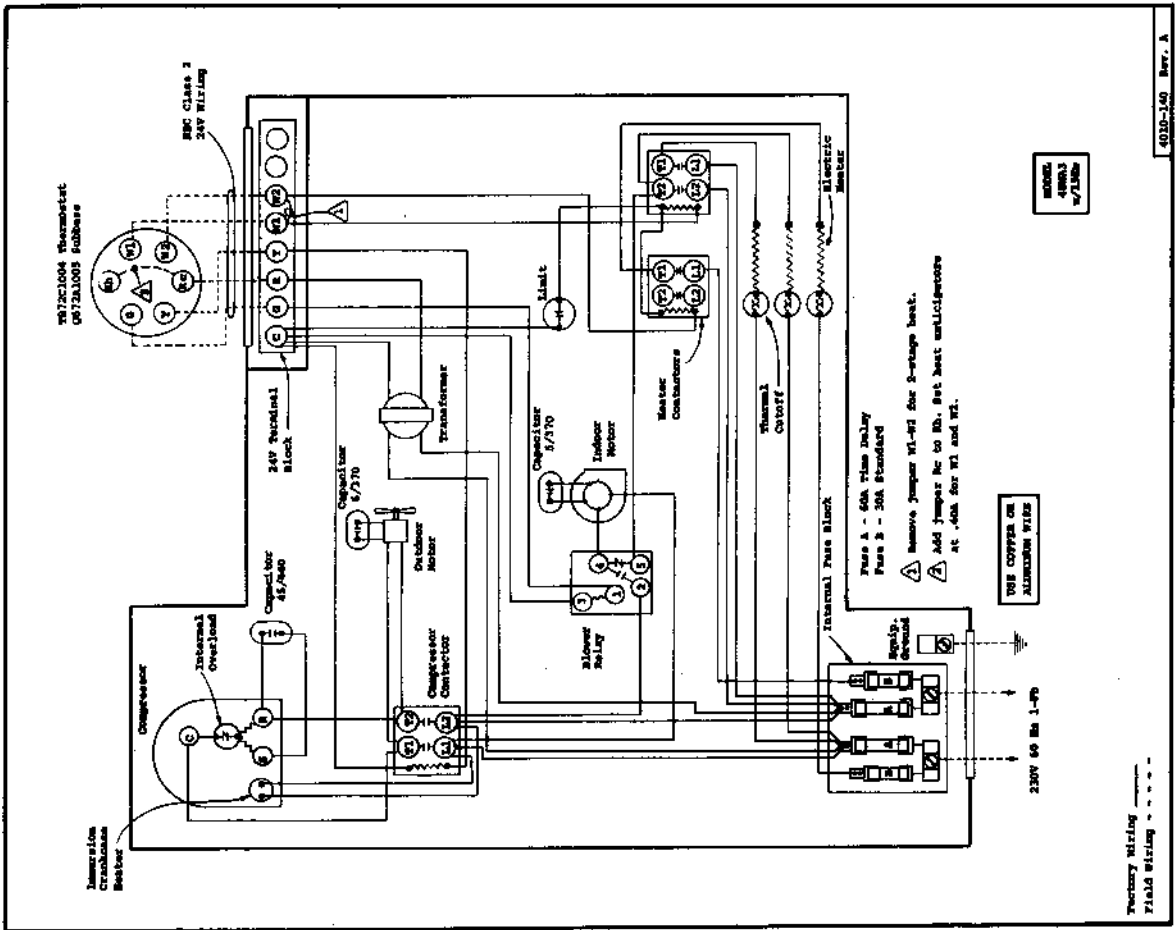


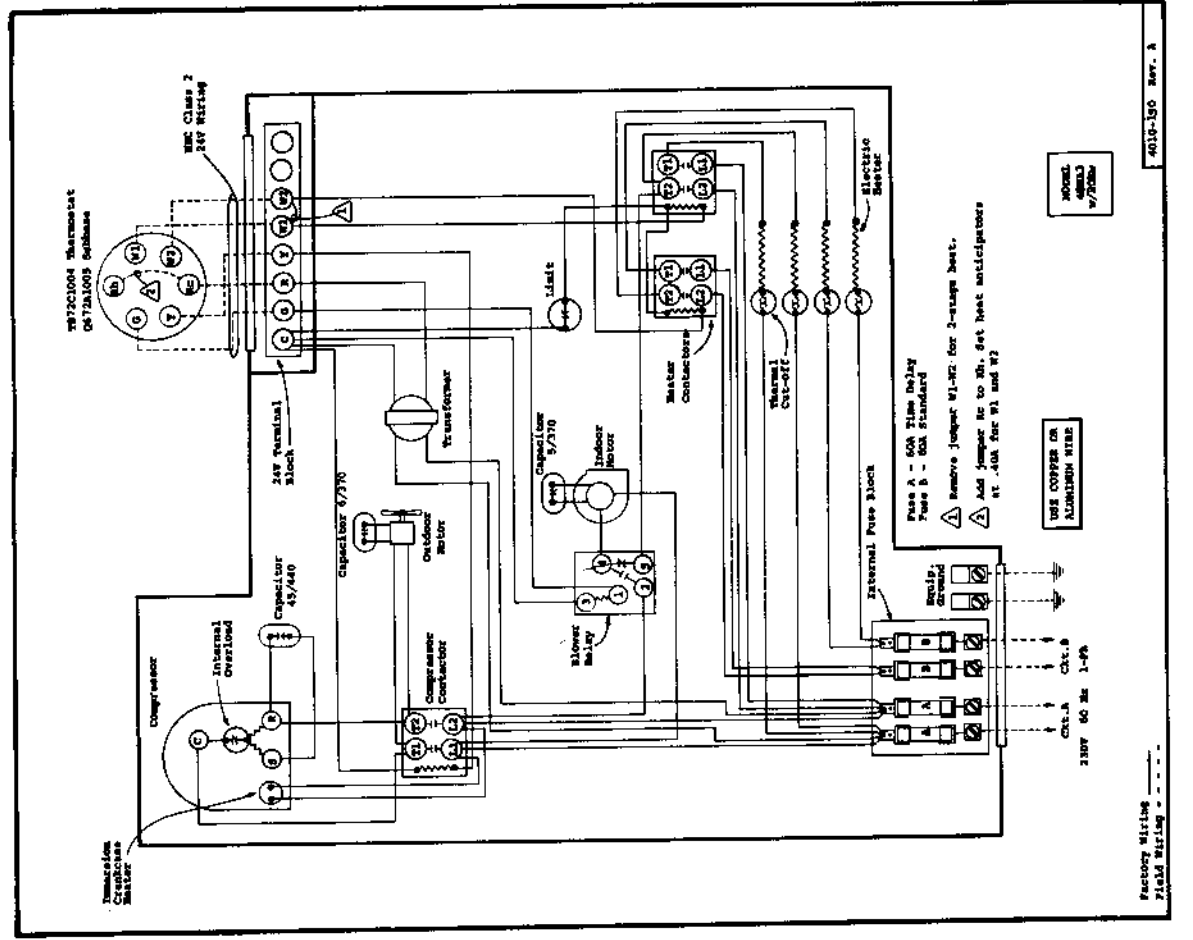
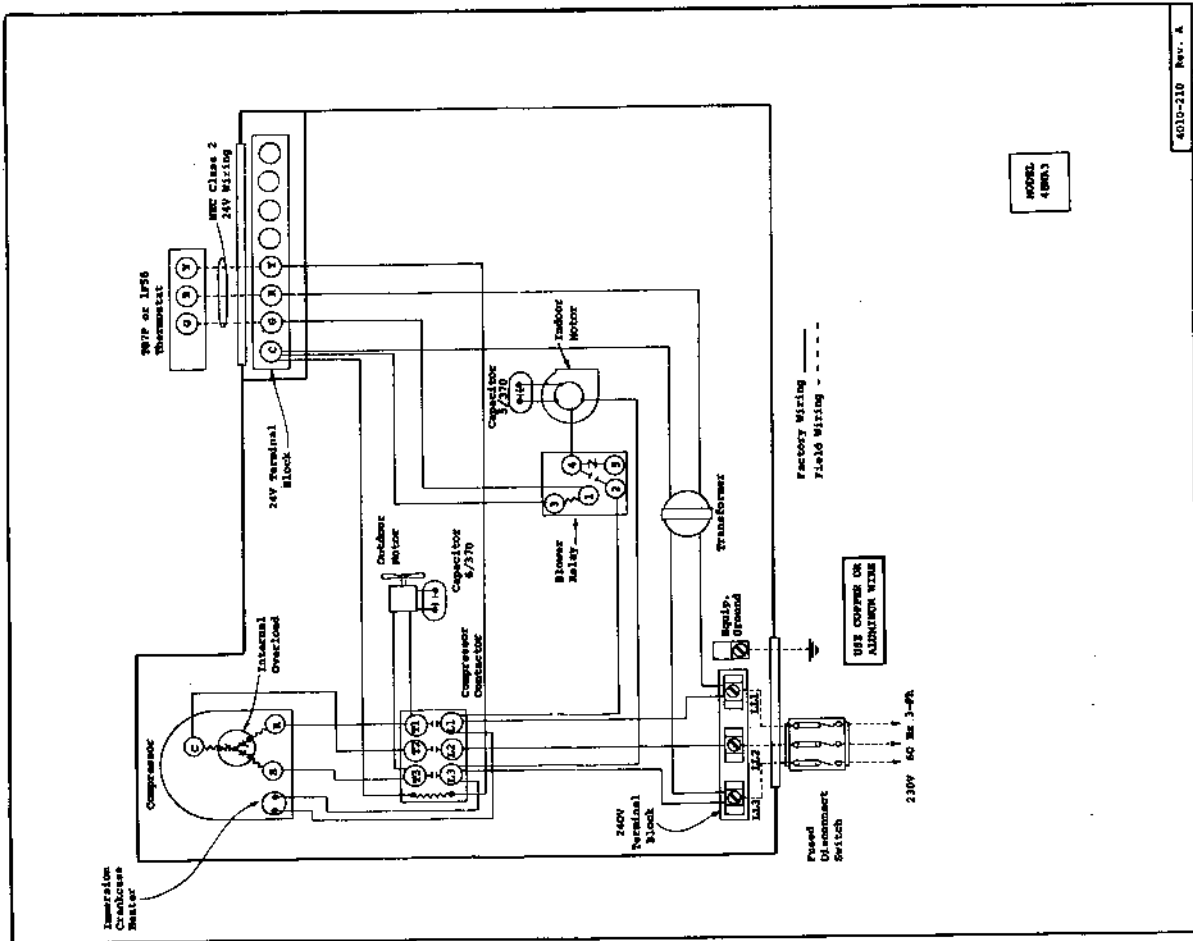


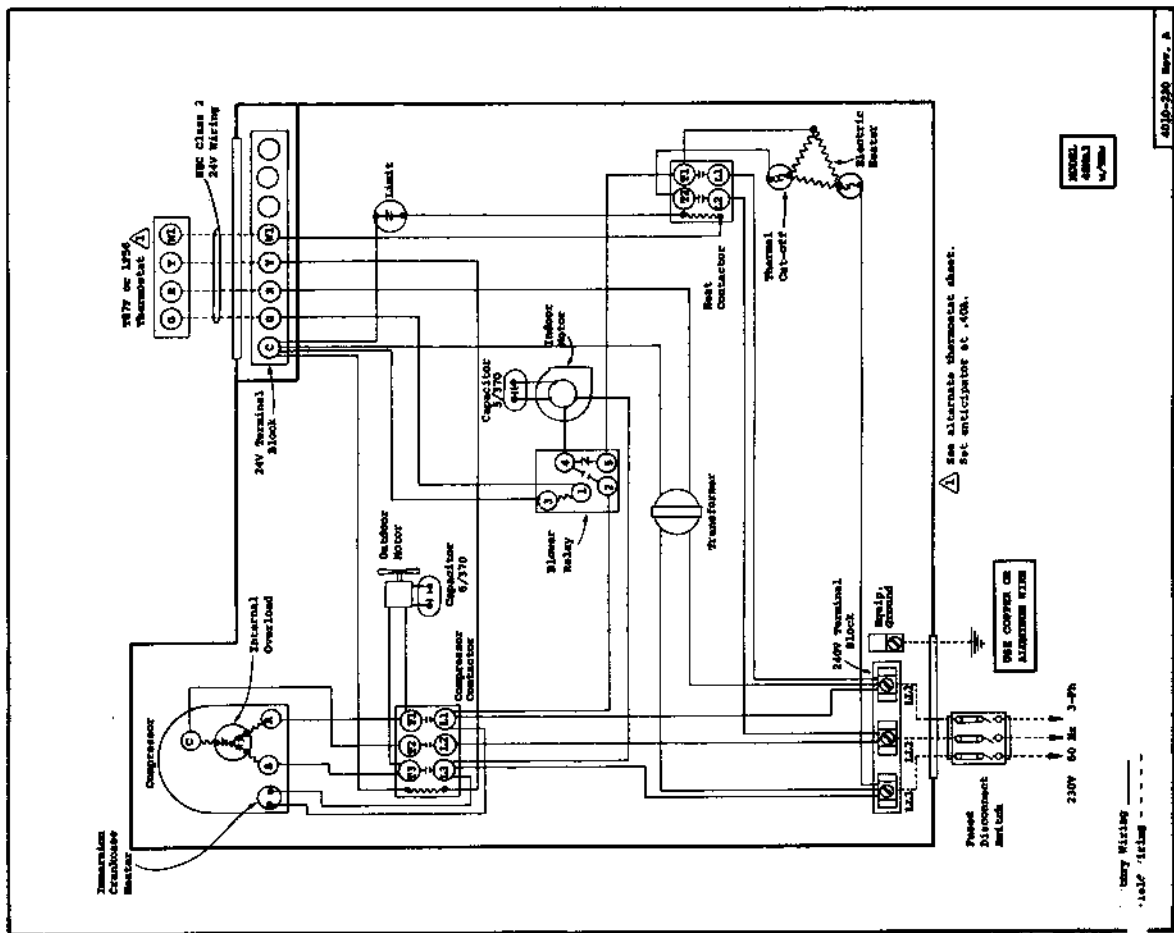
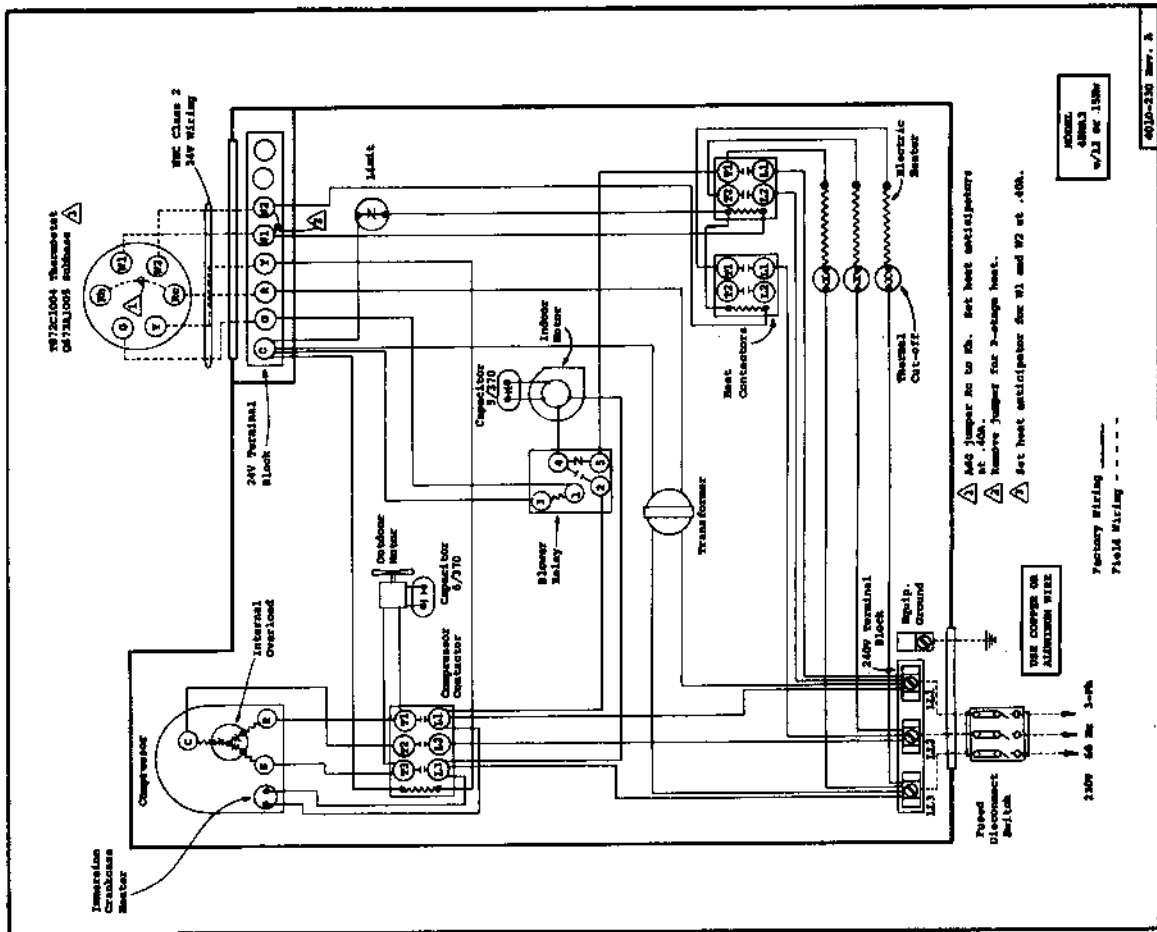


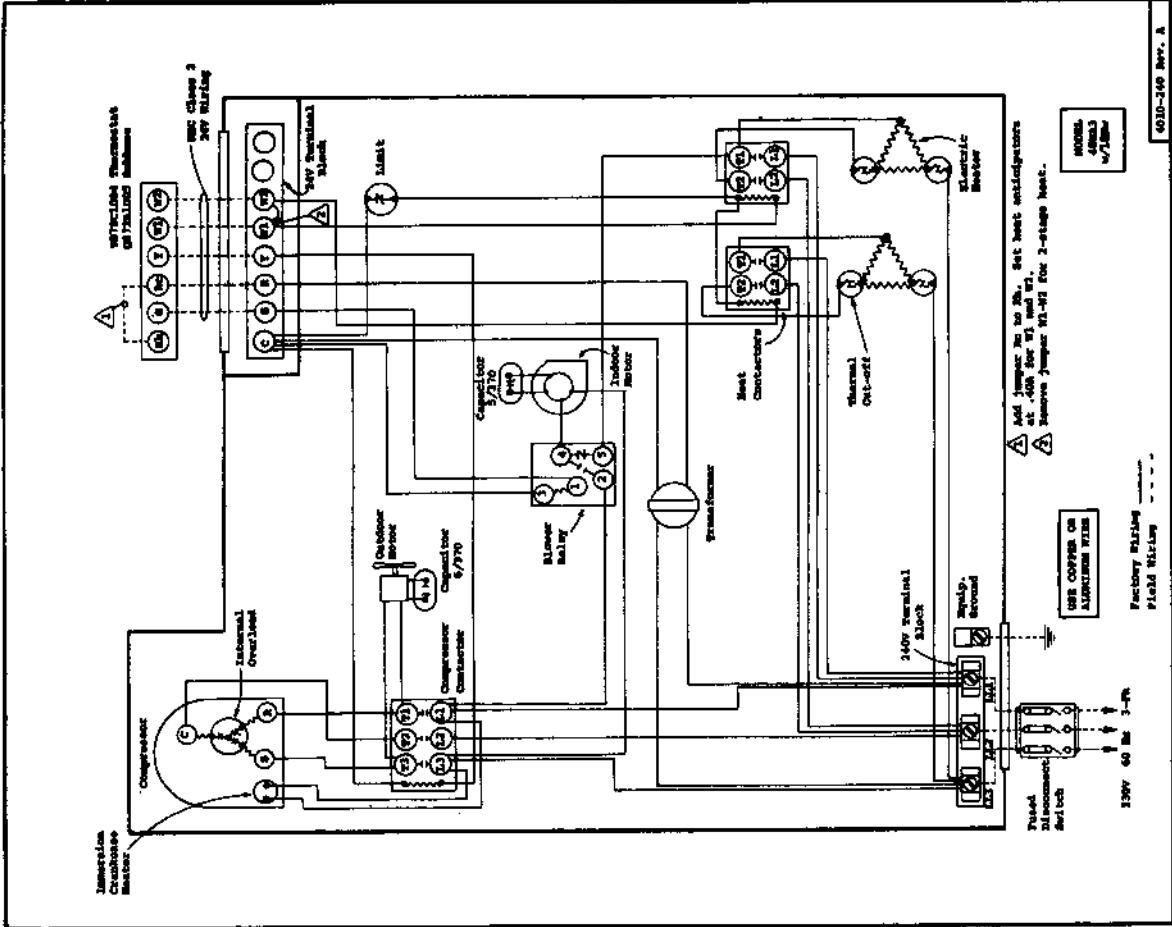












COOLING AND HEATING ANTICIPATION
FOR WALL THERMOSTATS

All 24V wall thermostats are built with both cooling and heating anticipators. The purpose of these anticipators is to compensate the thermostat for various system controls and allow the best possible cycle rates.

The cooling anticipator for all thermostats, and the heating anticipator on a limited number, are fixed and require no adjustment. Most heating anticipators are adjustable and DO REQUIRE ADJUSTMENT to match the current rating of the relay, contactor or other control being cycled by that heating stage. In the case of a two stage heating thermostat there will be an anticipator for each stage, either both adjustable, one fixed and one adjustable, or both fixed.

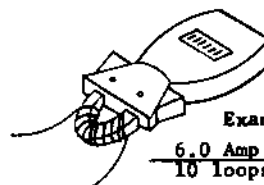
The fixed anticipators are rated for a maximum of 1.5A. The adjustable anticipators generally have a range of .2 - 1.2A, and MUST BE ADJUSTED. Failure to adjust the anticipator lever to correspond to the actual current draw passing through that stage mercury switch and anticipator will cause severe short cycling conditions if set too low and room temperature may never attain the thermostat set point, and if set too high, will cause room temperature over-shoot.

While oil burner primary controls and gas valves are normally marked with the nominal current rating, the contactors and relays installed in air conditioners and heat pumps are not. Listed below are some of the more popularly used controls and their nominal current ratings.

Contactor or Relay	Nominal Current Rating
Honeywell - R850B Series	.55
- R8210 Series	.40
- R8212 Series	.40
- R8214 Series	.40
- R8222 Series	.38
- R8228 Series	.38
- R8242 Series	.38
- R8243 Series	.38
RBM - Type 84	.12
- Type 91	.34
- Type 112	.34
- Type 143	.34
- Type 154	.26
- Type 184	.12
Elwood - 30B020	.39
- 30C020	.39
- 30CDO20	.39
- 30FO20	.21
- 30DO30	.21
- 30E030	.21

Below is a procedure which allows accurate low amperage current measurements with a standard clamp-on ammeter with a 0-6A range. It is actually recommended that this measurement always be taken, since variations in voltage, thermostat wire length, etc. can all cause some change in current draw.

1. Wrap exactly 10 loops of thermostat wire (W1) around the prongs of an Amprobe.
2. Let the heating system operate for one minute before reading the W1 or W2 current draw.
3. Divide the reading obtained in Step 2 by 10.
4. Use the value calculated in step 3 to set the heat anticipator.
5. Repeat the procedure for (W2) if 2-stage heat.



Example:

$$\frac{6.0 \text{ Amp}}{10 \text{ loops}} = .6A$$

ALPHABETICAL PARTS LIST SINGLE PACKAGE AIR CONDITIONERS

PART NO.	DESCRIPTION	18WA1	20WA	24WA1	30WA1	36WA3	36WA3-3	48WA3	48WA3-3	36WA3-3	48WA3-3	460V
5151-002	Pan Blade	X	X	X	X	X	X					
5151-004	Pan Blade									X		48WA3-3
5151-014	Pan Blade							X				460V
7004-006	Filter	X	X	X						X		
7004-008	Filter											
7004-009	Filter							(2)	(2)			(2)
8614-006	Fuse - Heater				X	X		X				
8614-022	Fuse - Compressor				X	X		X				
8614-017	Fuse Block				X	X		X				
8604-041	Heat Strip 4Kw	X	X	X	X	X		X				
8604-042	Heat Strip 5Kw	X	X	X	X	X		X				
8604-049	Heat Strip 6Kw											
8604-043	Heat Strip 8Kw	X	X	X	X	X		X				
8604-044	Heat Strip 10Kw	X	X	X	X	X		X				
8604-048	Heat Strip 9Kw	X	X	X	X	X		X				
8604-046	Heat Strip 12Kw				X	X		X				
8604-047	Heat Strip 15Kw				X	X		X				
8604-050	Heat Strip 9Kw				X	X		X		X		
8604-051	Heat Strip 12Kw				X	X		X		X		
8604-052	Heat Strip 15Kw				X	X		X		X		
8406-010	Hi Pressure Switch							X				
8402-029	Limit Switch	X	X	X								
8402-031	Limit Switch				X	X		X				
8402-028	Limit Switch				X	X		X				
8102-002	Motor - Blower	X	X	X								
8105-003	Motor - Blower				X	X		X		X		
8106-005	Motor - Blower				X	X		X		X		
8103-009	Motor - Fan	X	X	X	X	X		X		X		
8106-006	Motor - Fan				X	X		X		X		
8200-001	Motor Mount - Fan	X	X	X	X	X		X		X		
8201-009	Relay - Blower	X	X	X	X	X		X		X		
8201-008	Relay - Blower				X	X		X		X		
8551-001	Start Capacitor											
8201-020	Start Relay											
5210-002	Strainer	X	X	X								
5210-004	Strainer				X	X		X		X		
5210-003	Strainer				X	X		X		X		
8607-006	Terminal Board 24V	X	X	X	X	X		X		X		
8607-001	Terminal Block 230V	X	X	X	X	X		X		X		
8607-002	Terminal Block	X	X	X	X	X		X		X		
8607-007	Terminal Board				X	X		X		X		
8402-030	Thermal Cut off	X	X	X								
8402-032	Thermal Cut off				X	X		X		X		
8407-007	Transformer	X	X	X	X	X		X		X		
8407-015	Transformer	X	X	X	X	X		X		X		
8407-003	Trans. - Stepdown											
8407-004	Trans. - Stepdown											
8607-005	Terminal Board							X		X		

PART NO.	DESCRIPTION	18WA1	20WA	24WA1	30WA1	36WA3	36WA3-3	48WA3	48WA3-3	36WA3-3	48WA3-3	460V
5152-030	Blower Housing	X	X	X	X	X				X		
5152-026	Blower Housing							X		X		
5152-028	Blower Wheel	X	X	X	X	X				X		
5152-029	Blower Wheel	X	X	X	X	X				X		
5152-011	Blower Wheel cw							X		X		
5152-012	Blower Wheel ccw							X		X		
8552-015	Capacitor 370V	X	X									
8552-007	Capacitor 370V				X							
8552-020	Capacitor 440V											
8552-017	Capacitor 440V							X				
8552-001	Capacitor 370V	X	X	X	X	X		X		X		
8552-002	Capacitor 370V	X	X	X	X	X		X		X		
8552-003	Capacitor 370V	X	X	X	X	X		X		X		
5811-021	Cap Tube - Cool	X	X	X								
5811-022	Cap Tube - Cool				(2)	(2)		(2)		(2)		
5811-008	Cap Tube - Cool							(3)	(3)		(3)	
8000-001	Compressor 1-Ph	X	X									
8000-002	Compressor 1-Ph			X								
8000-006	Compressor 1-Ph				X							
8000-045	Compressor 1-Ph							X				
8000-046	Compressor 3-Ph											
8000-010	Compressor 3-Ph									X		
8000-026	Compressor 1-Ph											
8000-030	Compressor 3-Ph							X				
8000-047	Compressor 3-Ph									X		
83494	Compressor O'Load									X		
83493	Compressor O'Load											
5051-007	Condenser Coil	X										
5051-006	Condenser Coil			X								
5051-001	Condenser Coil											
5051-016	Condenser Coil											
8401-007	Contact - Comp.	X	X	X	X							
8401-003	Contact - Comp.									X		
8401-002	Contact - Comp.											
8401-001	Contact - Comp.									X		
8401-006	Contact - Heater	X	X	X	X	X		X		X		
8605-001	Crankcase Heater									X		
8605-002	Crankcase Heater											
5060-007	Evaporator Coil	X										
5060-005	Evaporator Coil			X								
5060-006	Evaporator Coil				X					X		
5060-001	Evaporator Coil				X					X		
5051-020	Condenser Coil									X		
8552-022	Capacitor 370V									X		