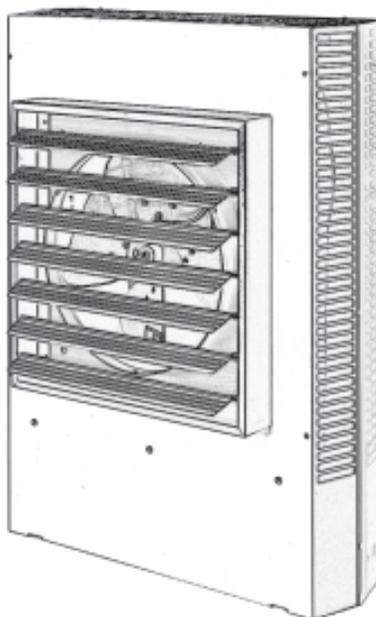


TASKMASTER

5100 SERIES

55 THRU 100 kW MODELS

Horizontal or Vertical Mounting
Industrial / Commercial
Unit Heater
NOT FOR RESIDENTIAL USE



INSTALLATION INSTRUCTIONS



TPI Corporation
P.O. Box 4973
Johnson City, TN
37602-4973

America's Comfort Conditioning Company

ATTENTION: Read carefully before attempting to install, operate or service the TaskMaster Unit Heater. Retain these installation instructions for future use.

PRODUCT FEATURES

Forced air electric unit heater available in 208, 240/208, and 480 volt, 3 phase as standard.

Ten standard heating capacities of 55.0 KW/187,715 BTUH thru 100.0 KW/341,300 BTUH.

Specially designed inlet louver allows the fan to pull cool air evenly across the high mass all-steel element.

Outward drawn venturi and adjustable louver assembly further directs the outlet air in a uniform pattern to meet specific air pattern requirements in either the horizontal or vertical mounting position.

Optional wall/ceiling or vertical mounting brackets (as required).

Optional radial or anemostat diffusers lending air pattern versatility when mounted vertically. (55 thru 75 kW only)

Modular control kits for field installation. Thermostat, summer fan switch, heat recovery thermostat. All kits with spade terminals .

Single point terminal board wiring of integral control kits.

24 volt low voltage control circuit standard on all models.

Roomy control box with access door locked into position by two (2) 1/4 turn fasteners for ease of installation.

Form 8986
ECO 1-6931
REV 03/14

IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

PROPER LOCATION INSTRUCTIONS

Once the total heating load is calculated, the quantity and capacity of the unit heaters must be determined, because a large number of low-capacity heaters provides more uniform heat distribution. This approach is recommended when the area will be occupied by a relatively large number of sedentary personnel, (i.e. working on production lines and at benches.)

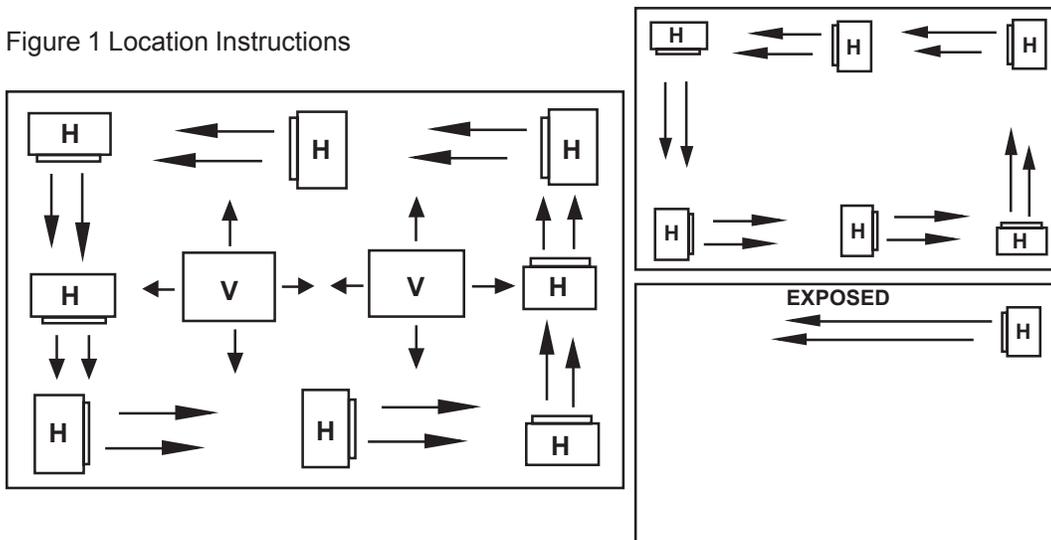
A large number of smaller capacity unit heaters tends to prevent hot drafts, reduces noise levels, and increases diversity of load to help reduce electrical demand and operating costs.

In warehouses where even heat distribution and constant temperatures are less important, a smaller number of high capacity units can be used -- in many cases reducing installation cost. To maintain reasonable heat distribution and reduce severe stratification even in lower bay areas, the total air volume of the space should pass through the unit heaters about three times per hour. (Take total cubic feet and divide by 20 in order to determine proper total heater CFM rating.)

It is important that the rated voltage of the heating equipment match the supply voltage. Supply voltage in excess of the heater rated voltage can damage equipment. Supply voltage lower than the rated heater voltage will decrease heater output as well as run the risk of damaging some components.

Horizontal unit heaters are recommended in low bay areas with maximum 15 to 18 foot ceilings. These should be concentrated along outside wall or other areas of greatest heat loss; spaced to set up a generally circular air movement, each heater supporting the air stream of the other. Additional vertical down below unit heaters with appropriate accessory diffusers can be located to counteract ceiling heat losses (see Figure 1 Location charts).

Figure 1 Location Instructions



GENERAL SAFETY INFORMATION / CAUTION:

Follow all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).

To avoid possible electrical shock, be sure the electrical current is turned off at the main switch prior to wiring or servicing of unit.

If the power disconnect is not integral and is out-of-sight, lock it in the open position and tag to prevent unexpected application of power prior to performing any service or maintenance of the unit.

The unit when installed must be electrically grounded in accordance with the National Electrical Code and standard industry practice.

Make certain that the power source conforms to the requirements of your equipment. See Table 2 on page 6 for wire and circuit size

Check heater voltage and phase on rating label to confirm that it matches the electric service supply.

Wiring diagrams of the heater and supply connections are permanently attached to the inside of the heater access door. All terminals are coded in accordance with the wiring diagram. Accessory wiring are shown on the unit wiring diagram and supporting literature.

The heater must be mounted at least 7' above the floor to prevent accidental contact with the fan blade which could cause injury. Install unit so there are no obstructions to the intake or discharge. Maintain clearances as marked.

The wall/ceiling mounting structure and anchoring provisions must be of sufficient strength to support the combined weight of the heater and mounting bracket.

IMPORTANT INSTRUCTIONS

When using electrical appliances, basic precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons, including the following:

1. Read all instructions before using this heater.
2. **CAUTION:** High temperatures. Keep cords and all other combustible material, such as furniture, papers, clothes and curtains away from the heater. For safe and efficient operation, keep an open space around heater of three feet in front and 12 inches at ends and rear.
3. Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended.
4. Do not operate any heater after it malfunctions, has been dropped or damaged in any manner. Return heater to authorized service facility for examination, electrical or mechanical adjustment, or repair.
5. Do not use outdoors.
6. To disconnect heater, turn controls to off, and turn off power to heater circuit at main disconnect panel (or operate internal disconnect switch if provided).
7. Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric chock or fire, or damage the heater.
8. To prevent a possible fire, do not block air intakes or exhaust in any manner.
9. A heater has hot and arcing or sparking parts inside. **WARNING: Do not use it in area where gasoline, paint, or flammable liquids are used or stored.**
14. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.
10. This heater may include an audible or visual alarm to warn that parts of the heater are getting excessively, hot If the alarm sounds (or illuminates), immediately turn the heater off and inspect for any objects on or adjacent to the heater that may have blocked the airflow or otherwise caused high temperatures to have occurred.
DO NOT OPERATE THE HEATER WITH THE ALARM SOUNDING (OR ILLUMINATING).
11. **SAVE THESE INSTRUCTIONS**

PRINCIPLES OF OPERATION

Upon a call for heat from the floor level or unit mounted optional accessory thermostat, the unit fan motor and heating elements shall be energized and remain ON until temperature reaches setting of thermostat; at which time the heating elements shall be de-energized.

The fan motor shall continue to run and purge heater casing of residual heat until setting of fan override is reached, then the fan motor shall be de-energized.

All units are supplied with a single speed motor. The 55-75 kW heaters are supplied with 3 stages of heat. The heater can be wired as one stage, two stage or three stage. The 80 thru 100 kW models are supplied with four stages and be operated as 1 thru 4 stages. The thermostat or step controller (optional) will, upon a call for heat, energize fan motor and the first stage heating element. Should temperature continue to fall, the thermostat shall energize the remaining stages according to demand.

Upon a rise in space conditions towards setting of the thermostat or step controller, the stages of heating elements shall be de-energized in reverse sequence.

The fan motor shall continue to run and purge heater casing of residual heat until setting of fan override is reached, then the fan motor shall be de-energized.

The optional unit mounted stratification thermostat will energize the unit heater fan motor upon a rise in temperature above its setting.

When the unit mounted stratification thermostat closes on a temperature rise and at the same time the floor thermostat calls for heat, the motor shall be energized immediately and the heating element shall be energized, as previously described.

The manual reset safety high limit shall de-energize the heating elements and control circuits should the temperature exceed the setting of this device. The fan safety override shall energize fan motor any time the setting of this device is exceeded so as to purge heater casing of excess residual heat.

When the optional fan switch is placed in the ON position (for summer air circulation), the unit heater fan motor shall be energized.

NOTE: The wall thermostat is to be set to the OFF position during this mode of operation (units with contactors).

For those optional thermostats equipped with an integral fan switch, place the switch in the HEAT, or AUTO position for operation of the fan and elements which shall then be under control of the thermostat as described above.

When switch is placed in the OFF position, the unit shall be de-energized. When switch is placed in the FAN position, elements shall be de-energized and fan shall be immediately energized.

VERTICAL DISCHARGE UNITS - AIR PATTERNS

USED ON	MAX MTG HT.	A		B	STOCK NO.	MAX MTG HT.	A	MAX MTG HT.	A	STOCK NO.	STOCK NO.	MAX MTG HT.		A	
		45°	OPEN									45°	OPEN		
55 THRU 75 KW	31'	109'	60'	STD	31'	83'	31'	90'	AD5175	RD 5175	23'	42'	80'	60'	
80 THRU 100 KW	40'	140'	80'	STD	40'	100'	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

STD = Standard N/A = Not Available

Optional diffusers lend added air pattern versatility to individual vertical down blow installations as shown in above illustrations.

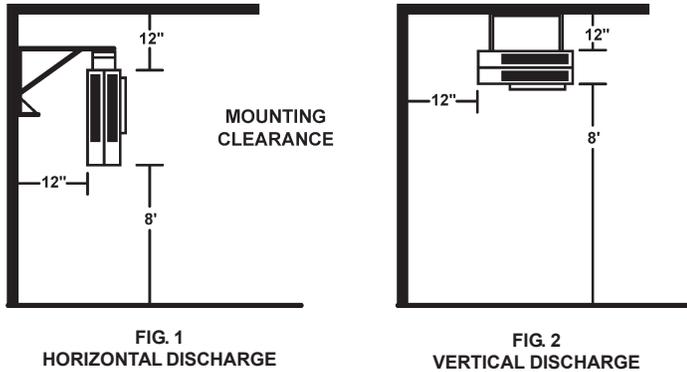
INSTALLATION INSTRUCTIONS

TASKMASTER -- 5100 SERIES UNIT HEATER

ATTENTION: READ INSTRUCTION CAREFULLY

All electric unit heaters are shipped fully assembled. Installation includes hanging the unit, mounting the built-in and remote accessories, wiring of optional control devices, and electrical wiring to the unit.

To insure proper delivery of the heated air to desired areas, follow the mounting height and air projection tables include in these instructions. Follow Fig. 1 & 2 for minimum wall and ceiling clearances.



The wall and/or ceiling structure must be sufficient to support the combined weight of the heater and any mounting bracket and accessories.

Be sure power source is de-energized before installing heater. Check heater voltage and phase listed on heater date tape on back of unit to make sure they are the same as the electrical service supplied.

Units that carry a dual voltage rating (HF) require specific wiring changes when converting from 240 to 208 volt service supplied.

Open the access panel (2 1/4 turn fasteners).

Remove the desired knock-out(s) on back of the heater.

Install any optional accessories following their installation instructions before mounting unit. Following the correct unit/ accessory wiring diagram, connect the power supply, electrical ground and accessories to the correct terminals or termination points using accepted practices.

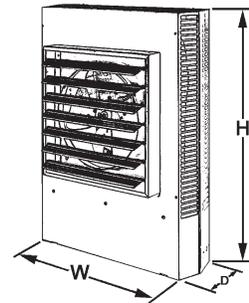
Heaters may be mounted in the horizontal or vertical air discharge configuration using factory optional supplied accessory mounting equipment or using special hardware facilities supplied by others.

After the installation is complete, replace the access panel.

Set the controls (thermostat, switch) at their desired control point and apply power to the unit.

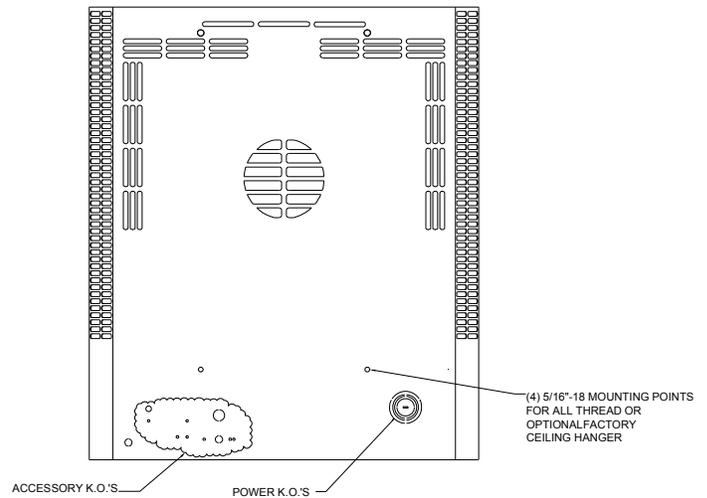
Check correct operation.

DIMENSIONS



DIMENSIONS (INCHES)			
KW	H	W	D
55.0 - 75.0	35-1/2	30-1/2	14-1/2
80.0 - 100.0	39-1/2	37-5/8	18-1/2

**TYPICAL FOR
55 THRU 100 KW**



INSTALLATION INSTRUCTIONS

TASKMASTER -- 5100 SERIES UNIT HEATER (part 2)

HORIZONTAL -- AIR DISCHARGE MOUNTING SHOWN IN: FIGURE 5 & 6

Swivel hanger brackets may be used to suspend unit heaters from either the wall (figure 5) or the ceiling (figure 6). Attach hanger base "A" to top of heater with the four 5/16 X 18 caps screws and lockwashers (provided in envelope).

Attach main hanger frame "B" to wall or ceiling in desired location using appropriate hardware or welding.

Lift heater into position inserting 5/8" bolt with lockwasher through hole in main hanger frame, tightening to welded nut on hanger base within two turns of being tight.

Swivel heater to desired position, tighten bolt.

VERTICAL -- AIR DISCHARGE MOUNTING

Figure 5
WALL MOUNT
HORIZONTAL DISCHARGE

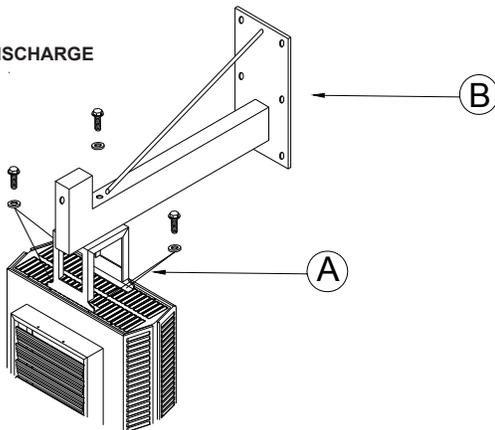
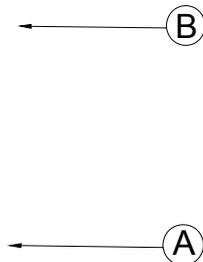


Figure 6
CEILING MOUNT
HORIZONTAL DISCHARGE



SHOWN IN: FIGURE 7

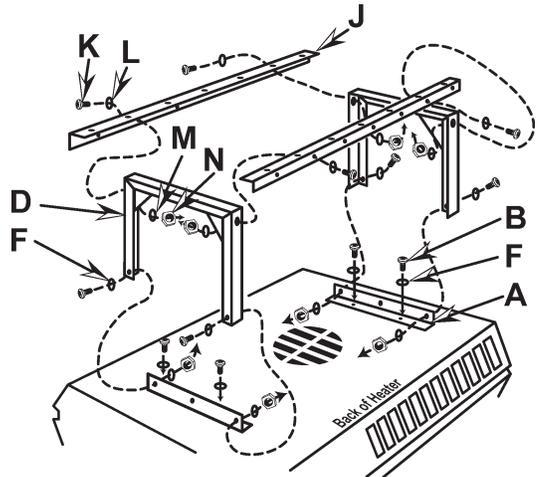
Attach short angle brackets "A" to back of heater with four 5/16 X 18 capscrews "B", lockwashers "F". Be sure vertical leg of angle brackets face top and bottom of heater.

Attach inverted U frames "D" to short angle brackets with four 5/16 X 18 capscrews "K", washers "L", lockwashers "M" and nuts "N".

Attach long angle brackets "J" to inverted frames "D" with four 5/16 X 18 capscrews "K", washers "L", lockwashers "M" and nuts "N".

Attach heater and bracket assembly to ceiling in desired location using customer supplied equipment sufficient to support the assembly.

FIGURE 7
CEILING MOUNT VERTICAL DISCHARGE
V5150 SHOWN. SEE INSTALLATION INSTRUCTIONS
PROVIDED FOR V51100.



5100 SERIES UNIT HEATER ELECTRICAL DATA (Table 2)

CATALOG NUMBER	KW RATING	BTU/HR (000)	HEATER / MOTOR VOLTAGE	HEATER PHASE	CONTROL VOLTAGE	AMPS PER PHASE	BRANCH CIRCUIT PROTECTION SIZE-(A)	SUPPLY WIRE SIZE 75° C AWG **
F3F5155CA1	55.0	187.7	208	3	24	152.8	200	2/0
HF3B5155CA1	55.0/41.25	187.7/140.8	240/208	3	24	132.5/114.6	175/150	1/0,1
P3P5155CA1	55.0	187.7	480	3	24	66.2	90	4
F3F5160CA1	60.0	204.7	208	3	24	166.7	225	2/0
HF3B5160CA1	60.0/45.0	204.7/153.6	240/208	3	24	144.6/125	200/175	1/0,1
P3P5160CA1	60.0	204.7	480	3	24	72.3	100	4
F3F5165CA1	65.0	221.8	208	3	24	180.6	250	3/0
HF3B5165CA1	65.0/48.75	221.8/166.4	240/208	3	24	156.6/135.4	200/175	2/0,2/0
P3P5165CA1	65.0	221.8	480	3	24	78.3	100	4
F3F5170CA1	70.0	238.9	208	3	24	194.4	250	3/0
HF3B5170CA1	70.0/52.5	238.9/179.2	240/208	3	24	168.7/145.8	225/200	2/0,1/0
P3P5170CA1	70.0	238.9	480	3	24	84.3	110	3
F3F5175CA1	75.0	256.0	208	3	24	208.3	300	4/0
HF3B5175CA1	75.0/56.25	256.0/192.0	240/208	3	24	180.7/156.3	250/200	3/0,2/0
P3P5175CA1	75.0	256.0	480	3	24	90.3	125	3
HF3B5180CA1	80.0/60.0	273.0/204.7	240/208	3	24	192.8/166.7	250/225	3/0,2/0
P3P5180CA1	80.0	273.0	480	3	24	96.3	125	3
HF3B5185CA1	85.0/63.75	290.0/217.5	240/208	3	24	204.8/177.1	300/225	4/0,3/0
P3P5185CA1	85.0	273.0	480	3	24	102.4	150	2
HF3B5190CA1	90.0/67.5	307.1/230.4	240/208	3	24	216.9/187.5	300/250	4/0,3/0
P3P5190CA1	90.0	307.1	480	3	24	108.4	150	2
HF3B5195CA1	95.0/71.25	324.2/243.1	240/208	3	24	229/198	300/250	250 MCM,3/0
P3P5195CA1	95.0	324.2	480	3	24	114.4	150	1
HF3B51100CA1	100.00/75.0	341.3/256.0	240/208	3	24	241/208.3	350/300	250MCM,4/0
P3P51100CA1	100.00	341.3	480	3	24	120.4	175	1

* Use 75 degree C Wire

**Use Copper Conductors on all heaters

5100 SERIES UNIT HEATER

AIR DELIVERY DATA

FAN MOTOR DATA

CFM at OUTLET	FPM at OUTLET	TEMPETURE RISE °F	HP	Motor RPM	MAX. MTG		AIR THROW	WEIGHT LBS.
					Horizontal	Vertical		
3400	1485	55	1/3	1100				
3400	1485	55/41	1/3	1100	18'	31'	50'	141
3400	1485	55	1/3	1100				
3400	1485	60	1/3	1100				
3400	1485	60/45	1/3	1100	18'	31'	50'	141
3400	1485	60	1/3	1100				
3400	1485	65	1/3	1100				
3400	1485	65/49	1/3	1100	18'	31'	50'	141
3400	1485	65	1/3	1100				
3400	1485	70	1/3	1100				
3400	1485	70/53	1/3	1100	18'	31'	50'	141
3400	1485	70	1/3	1100				
3400	1485	75	1/3	1100				
3400	1485	75/56	1/3	1100	18'	31'	50'	141
3400	1485	75	1/3	1100				
5000	1529	55/41	3/4	1100	22'	40'	65'	202
5000	1529	55	3/4	1100				
5000	1529	58/44	3/4	1100	22'	40'	65'	202
5000	1529	58	3/4	1100				
5000	1529	61/46	3/4	1100	22'	40'	65'	202
5000	1529	61	3/4	1100				
5000	1529	65/48	3/4	1100	22'	40'	65'	202
5000	1529	65	3/4	1100				
5000	1529	68/51	3/4	1100	22'	40'	65'	202
5000	1529	68	3/4	1100				

5100 SERIES UNIT HEATER TROUBLE SHOOTING GUIDE

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Thermostat calls for heat, but heater does not function.	<ol style="list-style-type: none"> 1. Open (blown) fuse 2. INCORRECT WIRING 3. Thermal cut-out open, deenergizing heater element and control circuit. Push reset button. 	<ol style="list-style-type: none"> 1. Replace fuses, check for cause. (see Replacement Parts List for fuse size) 2. CHECK WIRING CONNECTIONS 3. Check for the following: <ul style="list-style-type: none"> --- Correct supply volts and phase --- Correct control wiring (heater control must be thru thermostat control wiring section only). --- Power interruption to heater during heater operation. --- Restriction of air around heater 1-5 minute fan purge after thermostat off.
Fan motor runs "HOT"	<ol style="list-style-type: none"> 1. Dust accumulation or excessive dirt on motor 2. Dirt accumulation 3. Motor needs lubrication. 	<ol style="list-style-type: none"> 1. Clean fan motor and casing of grease and oil accumulation. 2. Clean louvers and between heating elements. 3. See Maintenance.
Fan motor runs, but no heat.	<ol style="list-style-type: none"> 1. Element contactor not operating correctly. 2. Element fuse blown. 	<ol style="list-style-type: none"> 1. Check wiring for open circuit. Replace contactor if defective 2. Replace fuses, check for cause. (see Replacement Parts List for fuse size)

WARNING: RISK OF ELECTRICAL SHOCK. CAN CAUSE INJURY OR DEATH: DISCONNECT ALL REMOTE ELECTRIC POWER SUPPLIES BEFORE SERVICING.

AVERTISSEMENT: RISQUE DE CHOC ÉLECTRIQUE. Peut causer des blessures ou de mort:

Débranchez tous DISTANCE approvisionnement en énergie électrique avant l'entretien.

MAINTENANCE

CAUTION: Make certain that the power source is disconnected before attempting to service or disassemble any componet. If the power disconnect is out of the line of sight, lock it in the OPEN position and tag to prevent the appli-cation of power.

ELECTRICAL

Once a year inspect the control panel wiring to make certain insulation is intact and all connections are tight. Inspect all heater and relay contacts. If the contacts appear badly pitted or burned, replace the contactor / relay.

CLEANING

Clean the unit casing, fan and motor once a year. A dirty motor will tend to run hot and eventually will be damaged internally. Any rust spots on the casing should be cleaned and repainted.

LUBRICATION

All units have fan motors that are permanently lubricated so that only occasional cleaning is required.

5100 SERIES UNIT HEATER WIRING DIAGRAM SCHEDULE

DIAGRAM NO.	MODELS
WD5160	F3F5155CA1,F3F5160CA1,F3F5165CA1,F3F5170CA1,F3F5175CA1
WD5161	HF3B5155CA1,HF3B5160CA1,HF3B5165CA1,HF3B5170CA1,HF3B5175CA1
WD5162	P3P5155CA1,P3P5160CA1,P3P5165CA1,P3P5170CA1,P3P5175CA1
WD5163	HF3B5180CA1,HF3B5185CA1,HF3B5190CA1,HF3B5195CA1,HF3B51100CA1
WD5164	P3P5180CA1,P3P5185CA1,P3P5190CA1,P3P5195CA1,P3P51100CA1