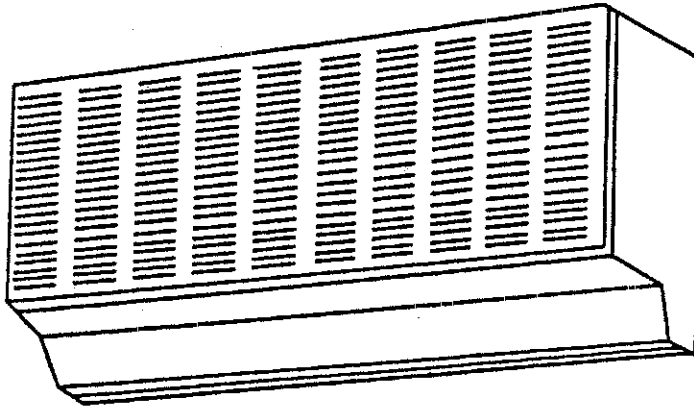


AIR CURTAINS

INSTALLATION INSTRUCTIONS



P.O. Box 4973, CRS
Johnson City, TN 37602-4973
Tel (423) 477-4131 Fax (423) 477-0084

INSTALLATION, OPERATION, MAINTENANCE AND SERVICE PARTS MANUAL:

Read all warning statements, notices carefully and retain these instructions for future reference

DESCRIPTION:

Air curtains come in three different models. Each model is available in three widths. Units can be mounted side by side or ganged together for wider doors when a single unit will not fit the application. Each unit produces a continuously flowing air curtain that with simple adjustment of the discharge vanes and the electronic speed controller, can be used as a thermal, wind, fume, odor, dust, insect or other contaminant barrier.

Air curtains can be operated automatically when the door is opened or run continuously if the door is left open to eliminate wear or nuisance of opening and closing automatic or manual doors. Air curtains are designed for use over service entrances, receiving doors, customer entrances, access doors, sales windows, shipping docks and any opening that must be periodically open for passage of any type.

Air curtains come complete with fans, motor, electronic speed controller, adjustable discharge vanes, stamped inlet grille and formed discharge nozzle. Air curtains have optional electric, hot water or steam coils to match nearly all applications. When the optional heaters are added to the air curtains, primary or secondary heating functions can be added to the uses listed above. Remote thermostats are supplied with the heaters to maintain acceptable room temperatures.

TYPICAL APPLICATIONS:

Typical applications for air curtains include food service and food processing areas, refrigerated rooms, airports, schools, factories, airports, warehouses, shopping malls, hospitals, supermarkets, retail stores and Fast food drive through windows.

INSPECTION & HANDLING

Immediately inspect each unit for damage until receipt. File damage claims with the freight carrier and advise the shipper. Store in a clean dry location and **do not stack units or cartons more than (4) four high**. Always store units in cartons with up arrows pointed up.

To unpack unit, place on floor with top up. Remove the staples from the top of the box and fold back the sides. Lift the cabinet out of the box. Lay the air curtain on its back with the inlet grille facing up.

CAUTION: Lifting the unit by the grille or by the discharge vanes will cause irreparable damage.

Remove screws from the grille and remove the grille. Disconnect the motor power cord at the quick connect device. Remove the two wing nuts on the blower deck, then remove the motor and blower assembly.

CAUTION: Lifting the motor and blower assembly by the blowers will misalign and possibly cause irreparable damage. Lift the motor and blower assembly by the motor or by the motor shafts.

Discard any internal packing used for shipping. Inspect the unit again for any shipping damage and for loose or missing parts.

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IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE

INSTALLATION INSTRUCTIONS

1 Air curtains are intended for permanent indoor installation ONLY. All installation should be in strict accordance with all local codes and all sections of this instruction manual. Electrical installation should also be in compliance with the National Electrical Code (NEC). Any variance with any codes or this manual will void the warranty and may cause unsafe conditions.

All units should be properly grounded. Proper grounding of the receptacle used for the motor cord will accomplish this. When electric heaters are used, a separate ground wire is required. It should be attached to the ground lug supplied in the heater controls cabinet.

Do not attach duct work to the air curtain or attempt to use it for a make-up air unit. Do not use this product in potentially dangerous locations such as flammable, explosive, chemical laden or wet atmospheres. Such use will void the warranty and may cause unsafe conditions.

All wiring should be by a qualified electrician.

2 Before installation, read and follow the unpacking instructions. Be sure to remove packing and all foreign materials from the unit. All installations must be accomplished conforming to all local building codes.

3 Determine mounting location where unit(s) will be mounted. The entire doorway should be covered. If the doorway is wider than the air curtain, multiple units can be mounted side by side or ganged together to cover the width of the doorway. For optimal mounting, units should be spaced 3" to 6" apart. Units should be mounted 1/2" to 2" above the top of the door.

The closer to the top of the door, the better the air curtain will perform. If the top of the door is obstructed and special mounting brackets have to be fabricated, the air curtain should not be mounted more than 8" from the doorway in refrigeration applications and no more than 8" from the doorway in refrigeration applications and no more than 14" from insect control.

4 Drill holes and attach whatever mounting hardware is required. (This hardware is not supplied with the unit.) This unit is designed to mount to a wall or other vertical surface. The hardware used for mounting and the supporting surface must be capable of supporting a minimum 150 pound load. Optional heating accessories can increase minimum load by 100 lbs.

5 Mount the cabinet on the wall and securely mount hardware. DO NOT BEND THE DISCHARGE NOZZLE OR DIRECTIONAL VANES.

6 Place the motor and blower assembly back into the cabinet and replace the two wing nuts that hold the assembly in the cabinet. Connect the motor quick connect device.

7 Hang the intake grille on the support hook, and replace the screws that hold the grille in place. DO NOT BEND THE INLET GRILLE OR THE STAMPED LOUVERS AS IT MAY AFFECT AIR FLOW THROUGH THE UNIT.

8 Plug the motor cord into a properly sized receptacle. See the unit nameplate for complete electrical data.

9 Refer to the vane adjustment instructions in this brochure to set the discharge vanes for desired application.

10 Set the motor speed switch to "LOW" and adjust the SCR motor speed controller to desired air flow rates. The unit may now be run in either the "HIGH" or "LOW" speed mode.

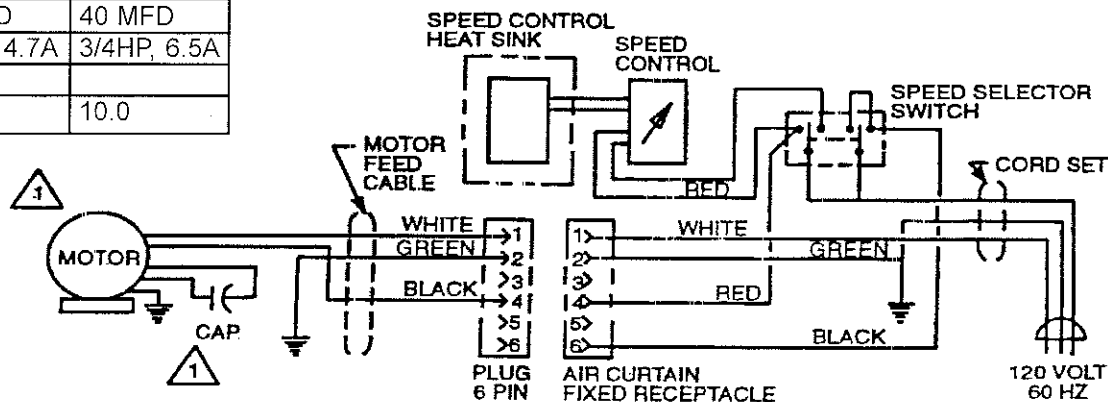
ELECTRICAL DATA

NOTES: All air curtains should be installed by qualified persons.

Do not depend on a thermostat or other switch as a disconnect. Always disconnect power at the main disconnect before attempting service. Failure to disconnect power may result in fatal electric shock.

Description	CF	CFHD
Capacitor	20 MFD	40 MFD
Motor	1/2HP, 4.7A	3/4HP, 6.5A
Speed Control		
AMP Rating	5.0	10.0

Air Curtain Wiring Diagram



Verify that the power supply matches the electrical requirements of the unit as listed on the data plate on the unit. Disconnect power before installing or servicing the air curtain. If the main disconnect is not in sight of the unit, lock it off and tag it to prevent someone from accidentally turning it on. Failure to follow these instructions could result in fatal electric shock.

Do not insert foreign objects or fingers into the air curtain while it is operating. Do not block or tamper with it during operation. Do not touch it while it is operating as it may be hot or electrically charged. Failure to follow these instructions may result in injury, burns or fatal electric shock.

Follow all grounding instructions and insure that the air curtain is properly grounded before operating the unit. Failure to follow these instructions may result in injury, burns and/or fatal electric shock.

NAME PLATE DATA

Each unit will have an identification label attached to the casing. The data includes the model number, and electrical data.

MOTORS

All air curtains are supplied with PSC permanently oiled motors. The motor is also equipped with an internal, automatic resetting thermal overload switch. The electrical service to the motor will not be the same one used for the heater. Be sure that both are disconnected before attempting to service the unit. **FAILURE TO DISCONNECT POWER MAY RESULT IN FATAL ELECTRIC SHOCK.**

ELECTRICAL INSTALLATION:

1. Install all wiring in compliance with the National Electrical Code (NEC) and all local codes.

2. Air curtains come prewired to the cord attached to the unit. If a door switch or thermostat is not to be used, plugging the unit into a properly sized outlet is all that is necessary.

3. Plug in the air curtain cord and the unit is ready for operation. The fan motor should be adjusted as described earlier if that has not already been done.

4. When the installation is complete, turn the unit on and inspect it for excessive vibration. If excessive vibration is noticeable, refer to the trouble shooting section for probable causes and solutions.

OPERATION

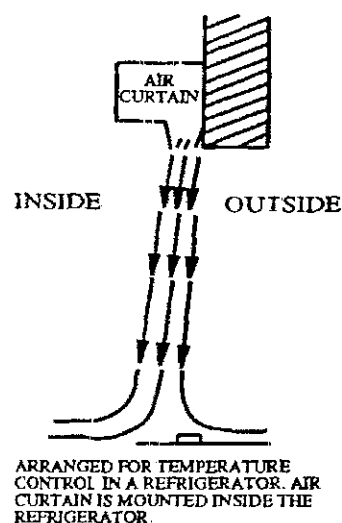
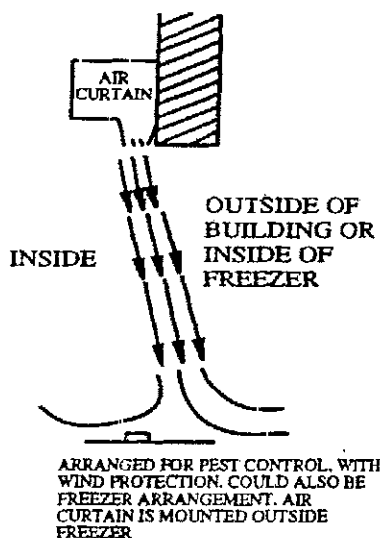
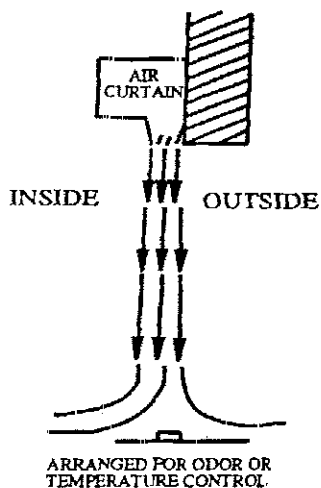
1. After the power is connected, the fan will run in either "HIGH" or "LOW" speed mode as selected by the fan speed switch.

2. The air velocity is controlled by selecting HIGH or LOW speed at the fan speed switch. The LOW speed setting is infinitely adjustable from a present low end to HIGH. To adjust the LOW speed setting, set the fan speed switch to "LOW" and adjust the SCR motor speed controller to desired air flow rate. Adjustment is done with a small standard screw driver through the access hole in the casing. The unit may now be run in either the "HIGH" or "LOW" speed mode.

3. The air direction out of discharge vanes should be adjusted according to charts below. If the air curtain is being used as a wind barrier, an initial setting of 10° is recommended. Slight adjustments can be made after testing against actual winds. CF models will stop winds up to 10 mph when mounted 10 feet from the floor. CFHD models will stop winds up to 10 mph when mounted 12 feet from the floor. CFSD models will stop winds up to 10 mph when mounted 14 feet from the floor. See the chart below for additional data.

4. For multiple unit or wide openings, the units can be mounted side by side or ganged together. For optimum performance the units should be mounted 3" to 6" apart.

5. Air curtains can be mounted on either side of the door; however, when mounting air curtains at freezer



doors, it is preferable to mount the units on the outside of the freezer. Condensation will form on the blowers and ice build up will occur if the unit is mounted inside the freezer.

When maintaining heat in a room or building, the units should always be mounted on the warm side of the door; mounting on the cold side can induce cold drafts in the warm room;

6 Negative air pressure in the building or cross drafts from one door to another can deteriorate or eliminate air curtain performance. If these conditions exist, see the trouble shooting chart for recommendations.

MAINTENANCE

WARNING: Disconnect the power supply before attempting service.

FAN and MOTOR

Air curtains are supplied with PSC motors. Inspect the fan and motor assembly at least twice a year. The motor is permanently lubricated, but it can be oiled if desired. No more than 2 drops of non-refined SAE30 oil can be added to the oil reservoir. Clean the unit as necessary. The motor has a built in thermal over load that resets automatically after a short time delay.

CLEANING

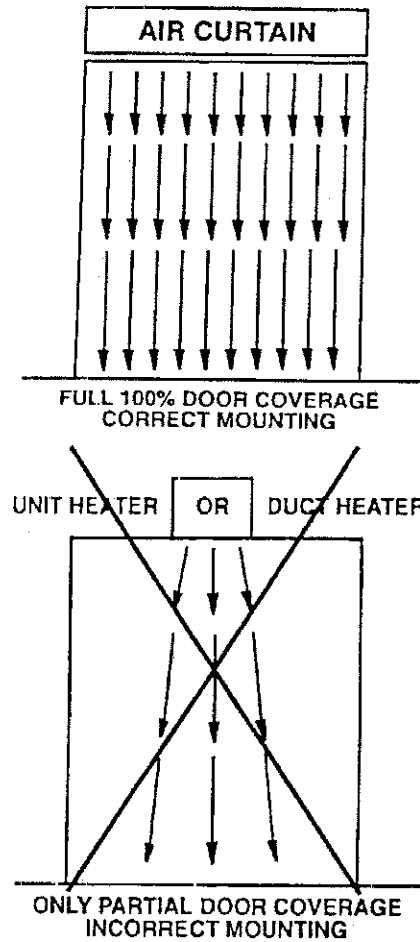
1 Clean the cabinet and intake grille with a soft damp rag. Do not allow the motor to get wet. Do not use harsh detergents or solvents on the painted surface.

2 Be sure the louvers in the intake grille are free and fully open.

3 Check the blower wheels. Remove and accumulated dirt or dust. If disassembly is required, remove the blower assembly as described in the installation directions. After the blower and motor assembly is on a work bench, the blower rings can be removed from the housing. Next, the set screws in the blowers can be loosened and the wheels removed from the shafts. Wash and dry the wheels before replacing.

CAUTION:

Be sure the set screws are aligned with the flats on the motor shafts when replacing the wheels. Tightening the set screws on the round part of the shaft will preclude the wheel from ever being moved again.



SAFETY INSTRUCTIONS

The important safety instructions provided with the applicable listed fans shall be separated in format from other instructions; appear before the operating instructions; and include the following statements in addition to those specified in the individual descriptive sections:

WARNING:

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

Before servicing or cleaning unit, switch power off at service panel and lock service panel to prevent power from being switched on accidentally.

Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.

When cutting or drilling into wall or ceiling, do not damage electrical wiring or other hidden utilities.

AIR CURTAINS

TROUBLE SHOOTING

Problem: FAN DOES NOT RUN

Possible solution: May not have power to the unit

- 1 Check the fuses or circuit breaker
- 2 Check all connections
- 3 Check that the cord is plugged in
- 4 Check for broken or loose wires

Possible solution: A switch may be off

- 1 Check door switches and thermostats as required

Possible solution: Motor speed controller may be set too low

1. Adjust speed controller up or switch to high speed to check fan operation

Possible solution: May have bad capacitor or motor, or motor may be jammed

- 1 Routate wheels by hand to check if they are free, they should spin freely
- 2 Replace as required

Problem: EXCESSIVE NOISE

Possible solution: CMY may be set too high, readjust the fan speed controller

Possible solution: Wheels may be rubbing on housing, adjust wheel position

Possible solution: Inlet grille may not be securely fastened, check screws and tighten as necessary

Possible solution: Motor and blower assembly may be loosen, tighen as necessary

Problem: INSUFFICIENT AIR DELIVERY

Possible solution: Fan speed may not be set correctly

- 1 Check speed controller adjustment
- 2 Check speed switch, may need to be on high

Possible solution: Voltage may be incorrect, check voltage

Possible solution: Outlet vanes may be closed, adjust properly

Possible solution: Inlet grille may be blocked or excessively dirty, inspect it and remove blockage or clean as necessary

Possible solution: Blower wheels may be dirty, inspect them and clean as necessary

Problem: EXCESSIVE AIR DELIVERY

Possible solution: Voltage may be incorrect, chekc supply voltage

Possible solution: Motor setting may be incorrect

- 1 Check speed setting and set to low speed
- 2 Adjust SCR speed controller to desired air delivery

Problem: FAN MOTOR CYCLES ON OVERLOAD

Possible solution: Voltage may be incorrect, check voltage

Possible solution: Air through unit may be obstructed, check inlet grille and outlet vanes. Check for excessive dirt or dust build up

Possible solution: Motor or capacitor may be bad, check motor amperage, replace as necessary

AIR CURTAINS

REPAIR PARTS LIST

Sheet Metal Parts

Description	Part No.	Description	Part No.
Inlet Grille:		Complete Blower	
36" cabinet	29693-001	10' door	29682-001
48" cabinet	29693-002	12' door	29682-002
60" cabinet	29693-003		
Inlet grille screw	29685-001	Blower Scrool	
		10' door	29682-007
Cabinet Assembly:		12' door	29682-008
36" cabinet	29672-001		
48" cabinet	29672-002	Inlet Ring	
60" cabinet	29672-003	10' door	29682-005
		12' door	29682-005
Discharge Vane:			
36" cabinet	29695-001	Blower Wheel	
48" cabinet	29695-002	10' door	29682-003
60" cabinet	29695-003	12' door	29682-004
Discharge vane support	29696-001	Blower set screw	21156-001
Discharge vane screw	42077-004		
		Box	
Blow and Motor panel:		36" cabinet	29694-036
1/2 HP units	29681-002	48" cabinet	29694-048
3/4 HP units	29681-004	60" cabinet	29694-060
Motor Mount	29698-001	Inner Packing	
		End cap right	29694-006
Motor:		End cap left	29694-007
10' door - 1/2 HP	29683-001	Center	29694-005
12' door - 3/4 HP	29683-002		
		Miscellaneous Hardware	
Motor Speed Controller:		Blower panel wing nut	29715-001
10' door - 1/2 HP 5 A	29701-001	Sheet metal screw	
12' door - 3/4 HP 10 A	29701-002	#8 x 5/16 B point	42077-002
		Motor isolation grommet	29700-001
Capacitor:		Grommet insert	29700-002
10' door - 1/2 HP	29699-001	Motor bracket clip	29714-001
12' door - 3/4 HP	29699-002	Blower ring screw #6 x 1/4	3159
3 Position Toggle Switch	27672-001	Moto Connector Cord	
		36" cabinet	29688-001
Power Cord	54875-002	48" cabinet	29688-002
		60" cabinet	29688-003
Strain Relief Bushing	40289-001		

LIMITED WARRANTY

Products manufactured by TPI Corporation are warranted to the original consumer to be free from defects in material and workmanship for twelve (12) months from the original purchase date

The TPI limited warranty does not cover products that have been modified outside of our factory, damage or failure caused by acts of God, abuse, misuse, connected to or placed on other than rated voltage, abnormal usage, fault, installation, failure to follow suggested maintenance procedures enclosed with the product, improper maintenance or any repairs other than those provided by an authorized TPI service center

There are no obligations or liabilities on the part of the Corporation for consequential damages arising out of or in connection with the use or performance of the product or other indirect damages with respect to loss of property, revenues, profit, costs of removal installation, or reinstallation.

All implied warranties with respect to TPI products, including implied warranties for merchantability and implied warranties for fitness, are limited in duration to twelve (12) months from original date of purchase, except those products or parts of products which are warranted for long periods. On such products or parts of products all implied warranties for merchantability and fitness are limited to the duration of the extended warranty period thereon.

Some states do not allow the exclusions or limitation of incidental or consequential damages and some states do not allow limitations on how long an implied warranty lasts. The above exclusions or limitations may not apply to you

During the warranty period, TPI Corporation will, at its sole option, repair or replace any defective parts or products returned, freight prepaid, to the TPI Corporation factory or such other locations as TPI Corporation may designate. Returned products must be packaged carefully and TPI Corporation shall not be responsible for damage in transit

When returning parts, the owner must provide the model number of the product and nature of difficulty being experienced. This warranty does not obligate TPI Corporation to bear the cost of labor in replacing any assembly, unit or component part thereof, nor does the company assume any liability for secondary charges, expenses for installing or removal, freight or damages. There will be charges rendered for product repairs made after the warranty period has expired. Proof of purchase, including date, must accompany request for in-warranty service. In any event, TPI Corporation's maximum liability shall not in any case exceed the list price for the product claimed to be defective. This warranty gives you specific legal rights and you may have other rights, which may vary from state to state. For the name of your nearest authorized TPI Corporation service center, please write to TPI Corporation, P.O. Box 4973, Johnson City, TN 37602

Heating Products Warranty Coverage

Elements in 198 Series Portable	Life of heater
Elements in Baseboards	10 Years
All Other Heating Products	1 Year
Thermostats and Controls	2 Years

Ventilation Products Warranty Coverage

Series HD or HDH Fans	5 Years
Series UHP or IHP Fans	3 Years
All other Ventilation Products	1 Year

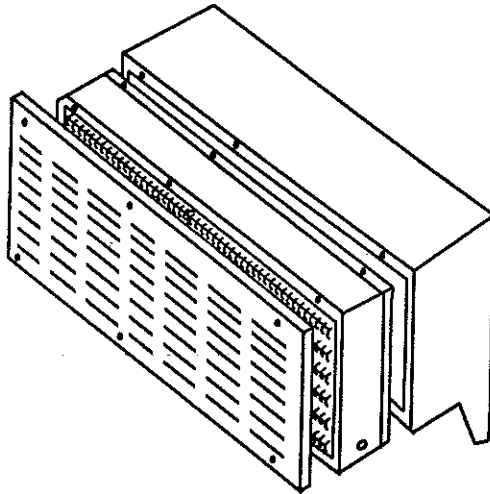


TPI Corporation
P.O. Box 4973
Johnson City, TN
37602-4973

America's Comfort Conditioning Company

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AIR CURTAIN HEAT PACKAGE (ELECTRIC) INSTALLATION INSTRUCTIONS MODEL CFHTR - 3 KW THROUGH 15 KW



READ ALL WARNING STATEMENTS, NOTICES AND RETAIN INSTRUCTIONS FOR FUTURE REFERENCE

1. Make certain that the power source conforms to the electrical requirements of the unit. Disconnect power before installing or servicing. If the power disconnect is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Failure to do so could result in fatal electrical shock.

WARNING: DO NOT DEPEND UPON A THERMOSTAT OR OTHER SWITCH AS THE SOLE MEANS OF DISCONNECTING POWER WHEN INSTALLING OR SERVICING THE UNIT. ALWAYS DISCONNECT POWER AT THE MAIN CIRCUIT BREAKER AS DESCRIBED ABOVE. FAILURE TO DO SO COULD RESULT IN FATAL ELECTRIC SHOCK.

2. This product is intended ONLY for permanent indoor installation in accordance with the National Electrical Code (NEC), all applicable local codes and ordinances, and all sections of this manual. Any variance voids the warranty and may create unsafe conditions. All wiring should be done by a qualified electrician, using copper conductors only.

3. Special attention must be given to any grounding information pertaining to this product to prevent the risk of electrocution, the unit must be securely and

adequately grounded. This should be accomplished by connecting a grounded conductor between the service panel and the grounding lug provided in the wiring compartment. To ensure a proper ground, the grounding means must be tested by a qualified electrician.

4. do not insert fingers or foreign objects into the air curtain. Do not block or tamper with in in any manner while it is in operation. Do not touch it while in operation or just after it has been turned off, as some parts may be hot enough to cause injury.

5. This product must NOT be used in potentially dangerous locations such as flammable, explosive chemical-laden or wet atmospheres.

6. Do not attach ductwork to this product or attempt to use it as a make-up air heater. Such use voids the warranty and may create unsafe conditions.

7. Heater is to be installed at least 6 feet from floor.

8. Do not block heater grille or discharge vanes in any manner.

TPI Corporation
Gray, Tennessee 37615

INSTALLATION

Air Curtain should be installed and in place. Refer to instructions furnished with selected Air Curtain. Following is a listing of basic units which describes equipment match

BASIC AIR CURTAIN

CF 36 or CFHD 36

CF 48 or CFHD 48

CF 60 or CFHD 60

BASIC HEAT PACKAGE

CFHTR 36

CFHTR 48

CFHTR 60

1. Remove grille front from installed unit - save all hardware.
2. Unplug motor cable at wiring compartment cover located at right end of air curtain. Plug is released from locking projections by squeezing them and, withdrawing plug at the same time. Note direction of one way tab on plug for reassembly reference.
3. Using #10-32 screws provided, partially install them in bottom front of air curtain. Using the partially

inserted screw body as locators, assemble heat package on screws, engaging open slots provided on lower flange of unit. With the aid of another person, tilt the assembly forward enough to allow access to motor plug and receptacle on wiring compartment cover. With keyed one-way plug/receptacle combination, align and plug in cable from motor into receptacle in lower side wall of element and control box enclosure. Insert plug extending from back of control box into receptacle on right end junction box cover. The interchange of plug and receptacle is all that is needed to interlock air curtain with heat package.

4. Secure heat package to air curtain with #10-32 screws provided. Do not install front cover grille until completion of wiring

WIRING OF HEAT SECTION

Choose correct wire size and over current protection as required by NEC and local codes - see nameplate for heater loads and recommended wire size.

1. Remove Cover Knockouts are located at right end of unit and right end bottom. Choosing the most convenient knockout, connect to box lugs on power contactor. It is recommended that flexible conduit be used to reduce the probability of unwanted vibrations.

2. A 120 V, 15 Amp HZ source is to be provided for receptacle located on underside of right end of heat package. Use twist connectors provided to make connections.

3. Control wiring is to be connected to control block located in wiring compartment near top. Use a suitable heat/cool low voltage thermostat.

CONTROL SYSTEM

With heater properly attached to air curtain, the combined system converts to 24 volt control. Select the proper low voltage thermostat with fan only, heat - cool, including manual or auto function. All controlling of the heat should be done with the thermostat. The heater is equipped with a fan delay - off (approximately 100 seconds). this will allow full cool-down of elements and heater case. Avoid switching

heater OFF with the speed selector switch on air curtain. To do so will not create a hazard, but it is possible that over temperature device may open the control circuit. Heater will be inoperative until safety control resets. If this condition should occur, set speed switch to on position and the "Fan Only" switch on at thermostat. This will cause control to reset within a few seconds.

THERMOSTAT FUNCTIONS

Heat - Auto Heater will operate and shut off with temperature rise. Fan off after delay.

Heat - On Heat will shut off with temperature rise. Fan on constant

Cool - Auto Fan will shut off when temperature falls

Cool - On Fan runs continuous

24V Control Circuit (50 VA)

Fan Only .15 Amps

Heat .71 Amps

Do not spark control leads - transformer will be permanently inoperative - device has embedded one-time fuse

SAFETY INSTRUCTIONS:

The important safety instructions provided with the applicable listed fans shall be separated in format from other instructions; appear before the operating instructions; and include the following statements in addition to those specified in the individual descriptive sections:

"WARNING - TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY TO PERSONS, OBSERVE THE FOLLOWING:

Use this unit only in the manner intended by the manufacturer. If you have questions, contact the manufacturer.

Before servicing or cleaning unit, switch power off at service panel and lock service panel to prevent power from being switched on accidentally.

Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable codes and standards, including fire-rated construction.

When cutting or drilling into wall or ceiling, do not damage electrical wiring or other hidden utilities."

AIR CURTAIN DIMENSIONS (AIR CURTAIN ONLY)

WIDTH
(36", 48", 60")

13"

16"

11.875"

3.5"

DEPTH

