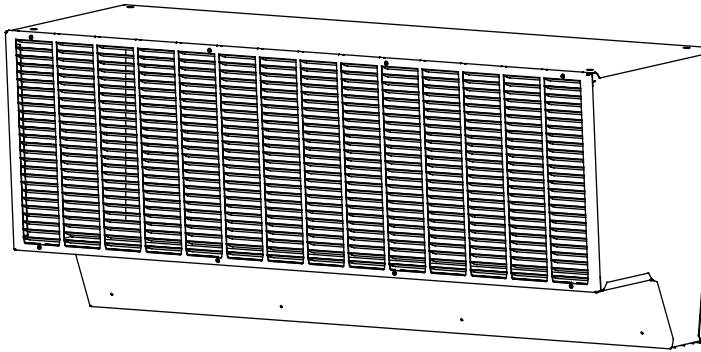


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## INSTALLATION INSTRUCTIONS, OPERATION MAINTENANCE AND SERVICE PARTS MANUAL:

### 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 the 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.
- Do not use replacement parts that have not been recommended by the manufacturer (e.g. parts made at home using a 3D printer).

### DESCRIPTION:

Air curtains come in two 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 heat to match nearly all applications. The optional heaters are field installed to the air curtains, primary or secondary heating functions can be added to the uses listed above. Optional thermostats can be 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 on 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.

**IMPORTANT: OWNER SHOULD RETAIN THESE INSTRUCTIONS FOR FUTURE REFERENCE**

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

**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.

**INSTALLATION INSTRUCTIONS:**

1. Air curtains are intended for permanent indoor installation ONLY. All installations should be in strict accordance with all local codes and all sections of the 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.
2. 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 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 done by a qualified electrician.

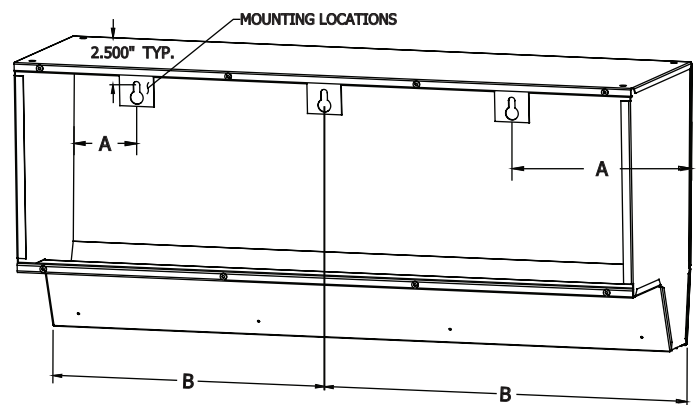
2. Before installation, read and follow the unpacking instructions. Be sure to remove packing and all foreign materials from the unit. All installations must be accomplished conforming to all local building codes.
3. Determine mounting location where the unit(s) will be mounted. The entire doorway should 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 mounted 1/2" to 2" above 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 14" from the doorway in insect control applications.

4. Remove the front grille cover by removing the attachment screws. Disconnect the motor power cord at the six pin plug quick connect device. Next remove the two large wing nuts on the blower deck. Then remove the motor and blower deck assembly from the cabinet.
5. 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. See detail below for location mounting.
6. Mount the cabinet on the wall and securely mount hardware. DO NOT BEND THE DISCHARGE NOZZLE OR DIRECTIONAL VANES.
7. 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.
8. 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.
9. Plug the motor cord into a properly sized receptacle. See the unit nameplate for complete electrical data.
10. Refer to the vane adjustment instructions in this brochure to set the discharge vanes for desired application.
11. Set the motor speed switch to "LOW" and adjust the SCR motor speed controller to desired air flow rates. Must remove front grille to gain access to the speed control on right side of unit. Turning speed control too low will stall the motor.

MODEL	DIM "A"	DIM "B"
36	3.5	18
48	5.0	24
60	5.0	30



## 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.
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. See the examples 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.

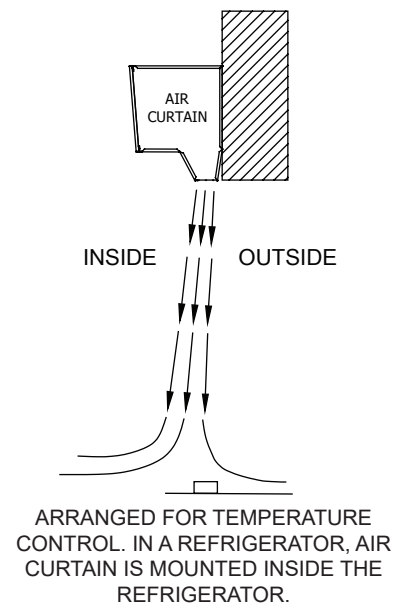
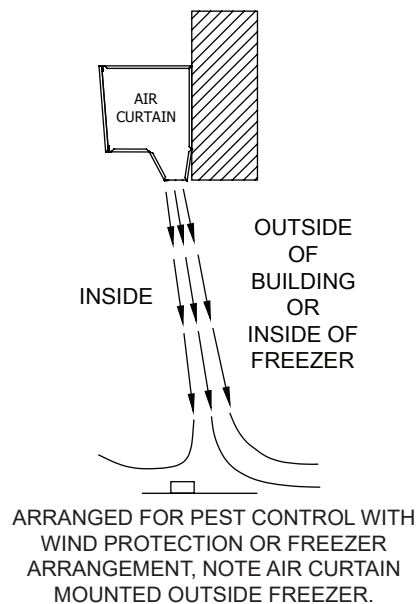
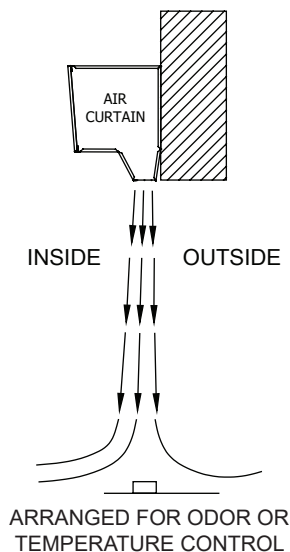
## OPERATION

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 preset low end to HIGH.

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**

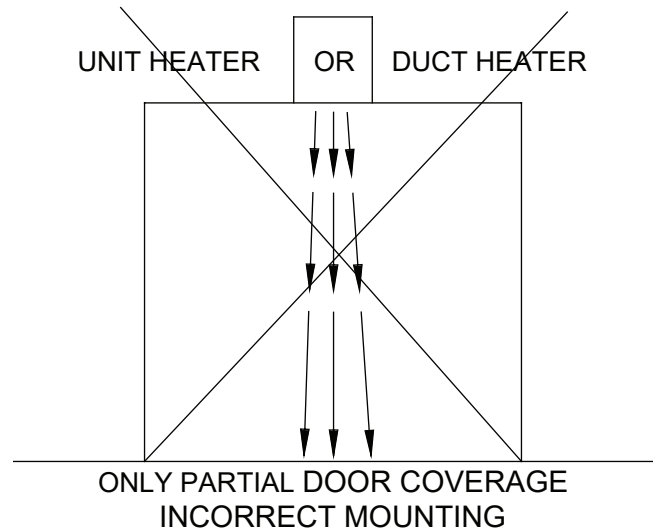
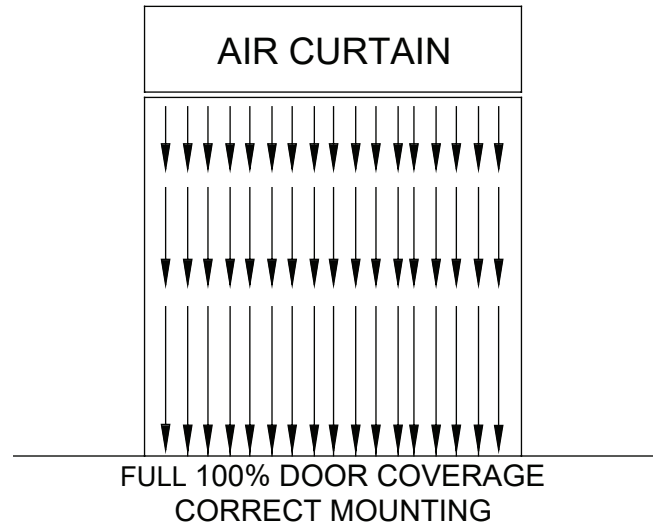
Air curtains are supplied with PSC motors. Inspect the fan and motor assembly at least twice a year. The motor is permanently lubricated, but it can be oiled if desired. No more than 2 drops of non-rerefined SAE30 oil can be added to the oil reservoir. Clean the unit as necessary. The motor has a built 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 to get the set screws 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.



## 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 instruction may result in injury, burns and/or fatal electric shock.

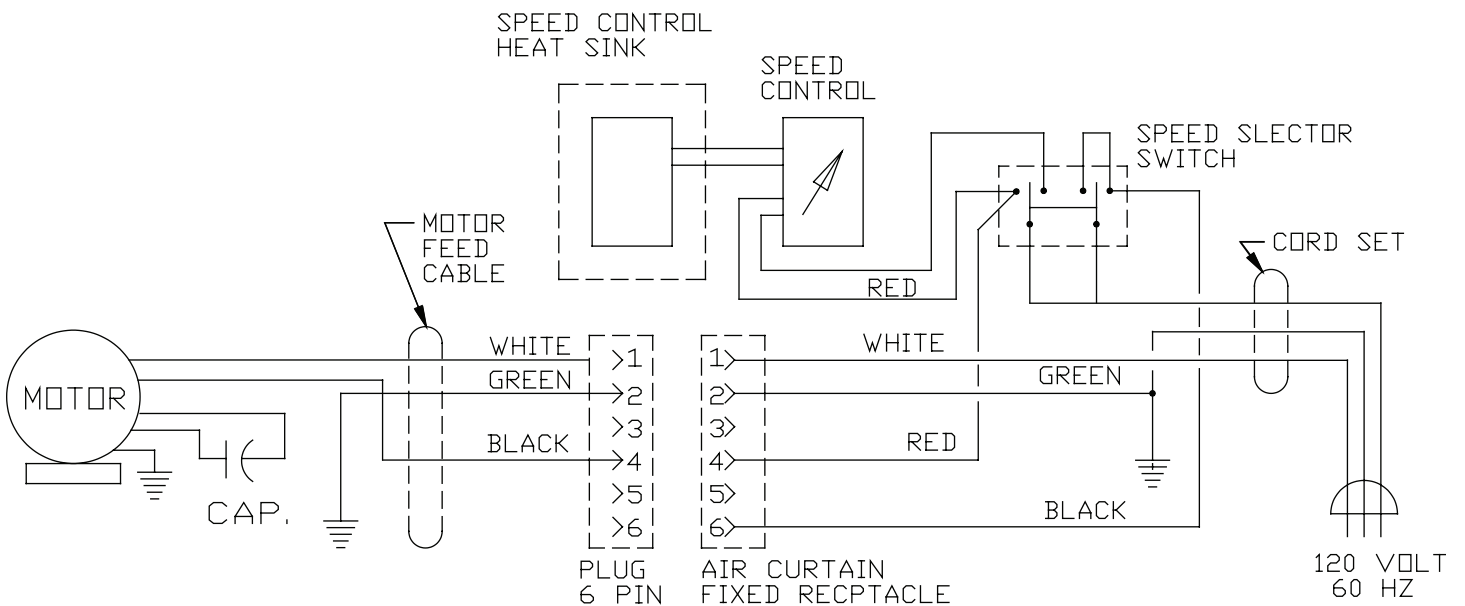
### ELECTRICAL DATA

#### 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	MODELS	
	CF	CFHD
CAPACITOR	20 MFD	40 MFD
MOTOR	1/2 HP 4.7 A	3/4 HP, 6.5A
SPEED CONTROL AMP RATING	8.0	10.0



# 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. 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. Rotate wheels by hand to check if they are free, they should spin freely.
2. Replace as required.

### Problem: EXCESSIVE NOISE

**Possible solution:** CFM 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 loose, tighten 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, check 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 Scroll	
		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	29144-025	Sheet metal screw	
12' door - 3/4 HP 10 A	29144-034	#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	Motor Connector Cord	
		36" cabinet	29688-001
Power Cord	54875-002	48" cabinet	29688-002
		60" cabinet	29688-003
Strain Relief Bushing	40289-001		