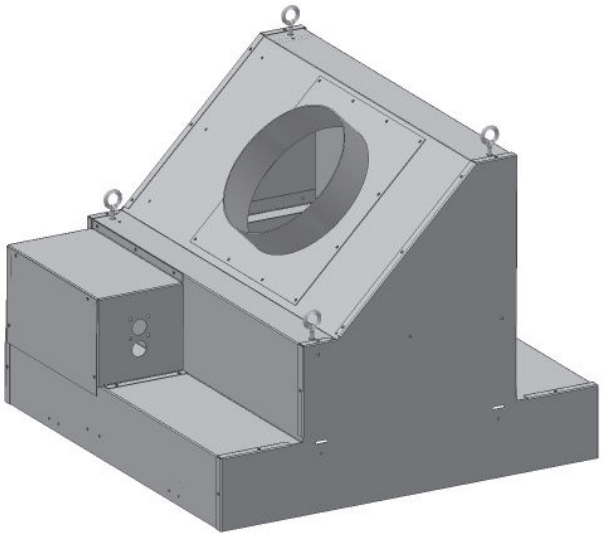
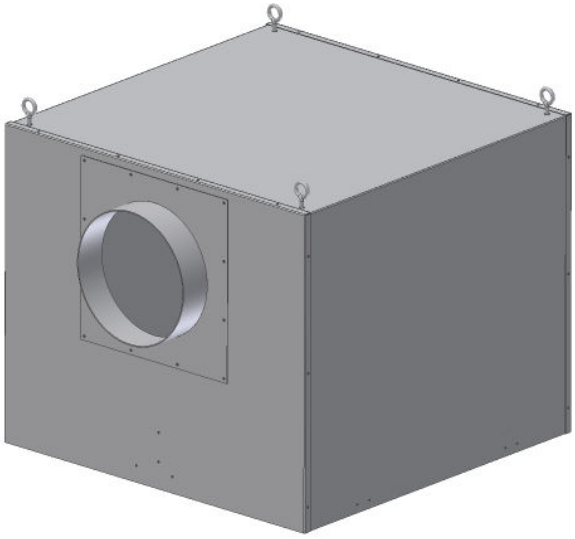
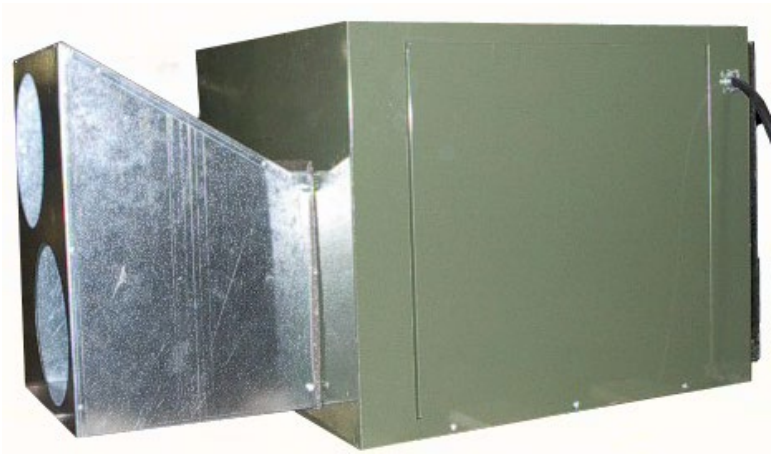
OWNER'S MANUAL







Spider MODULAR AIR CLEANER

TABLE OF CONTENTS

INTRODUCTION

Your Spider Air Cleaner is an advanced electronic air cleaner. The Model **** is an efficient indoor pollution fighter while reducing costly energy consumption.

CLEAN AIR
A clean fresh atmosphere is a plus to any business. With your new Spider Air Cleaner, your customers and employees can now breathe air that is relatively free of smoke, dust or pollen. This is especially important with regard to today's concern with the effects of smokers upon non-smokers and also for a more comfortable environment for allergy sufferers.

LOWER ENERGY CONSUMPTION
A common solution to the problem of dense concentrations of smoke is to exhaust. Exhausting heated or cooled air and needing to heat and cool the outdoor air coming in makes excessive exhausting wasteful and very expensive. Spider drastically reduces the need for outside air.

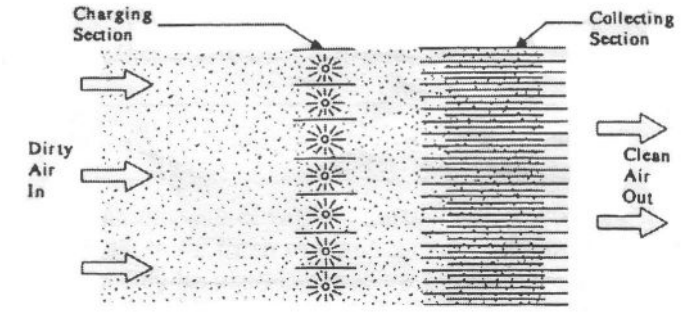
REDECORATING
Smoke particles also have a tendency to settle out as a dulling film on mirrors, windows, trophies, bottles and glassware. In fact, most of the particles that produce soiling and staining are just too small to be removed by average dusting. Electronic air cleaning gets rid of these particles before they have a chance to start the soiling process. Less soiling means longer periods between redecorating. If the appearance of your business is important to you, electronic air cleaning is certainly a plus.

EXTRA COMFORT AND SAVINGS
The effective air pattern of the Spider creates a more comfortable atmosphere by constant slight air movement. This slight movement, while more comfortable, also helps to eliminate existing drafts. Another side benefit of the air recirculation pattern is that it distributes the heated or cooled air more evenly. This even distribution helps to reduce the amount of heated or cooled air needed for the same degree of warmth or coolness.

LOW OPERATING COST
In addition to reduced heating-cooling bills and redecorating bills, the relatively low cost of maintaining an electronic air cleaner is another financial boost to your business. The durable electronic cells and prefilter screens are washed and used over and over again. No disposable filters means reduced maintenance cost.

PRINCIPLES OF OPERATION

HOW YOUR ELECTRONIC AIR CLEANER WORKS
A process called "Electrostatic Precipitation" traps airborne contaminants. The fan draws particulate-laden air successively through the prefilter, the cell ionizing section and the cell collector section. The ionizing section imparts an electrical charge to the individual particles, which are then drawn by electrostatic forces to the oppositely charged collector plates. Cleaned air is then discharged back into the room.



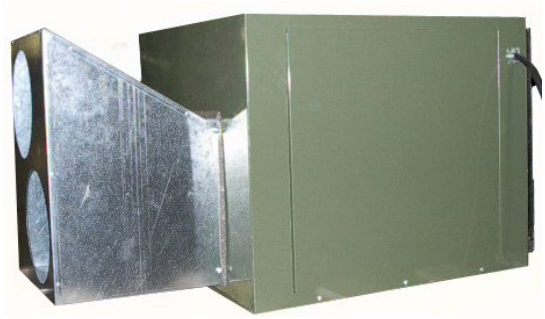
SPECIFICATIONS

IMPORTANT

THE SPECIFICATIONS GIVEN IN THIS PUBLICATION DO NOT INCLUDE NORMAL MANUFACTURING TOLERANCES. THEREFORE, THIS UNIT MAY NOT MATCH THE LISTED SPECIFICATIONS EXACTLY. ALSO, THIS PRODUCT IS TESTED AND CALIBRATED UNDER CLOSELY CONTROLLED CONDITIONS AND SOME MINOR DIFFERENCES IN PERFORMANCE CAN BE EXPECTED IF THOSE CONDITIONS ARE CHANGED.

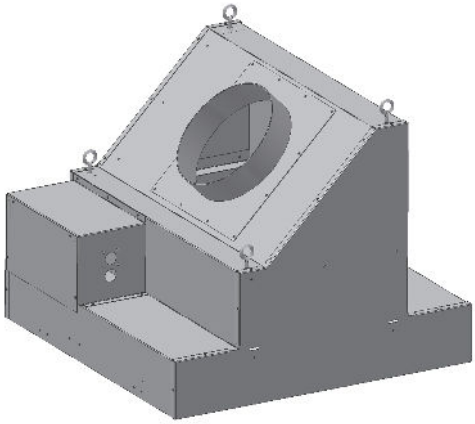
BLOWER MODULE

Blower module is designed as a quiet and efficient indoor duct blower. The forward curved, double inlet blower is enclosed in a sturdy steel cabinet with reinforcing rails for mounting. Blower is equipped with ball bearings having an operating temperature range of -65 to 250 degrees Fahrenheit (-54 to 121 degrees Celsius). Blower has rubber isolators for quiet operation. Access panels on both sides allow easy servicing of blower, motor and drives.



CELL MODULE

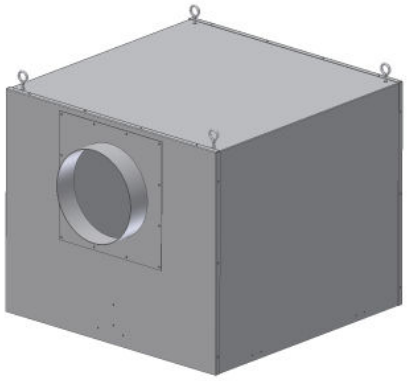
Cell module includes a steel cabinet, grille, prefilter, electronic cell and high-voltage power supply. Indicator light is located next to the cell. Light is visible through the grille; it indicates the presence of high-voltage power. Interlock switch interrupts supply power to the unit when the grille is opened.



CARBON MODULE

Carbon module includes a steel cabinet, grille and two carbon filters.

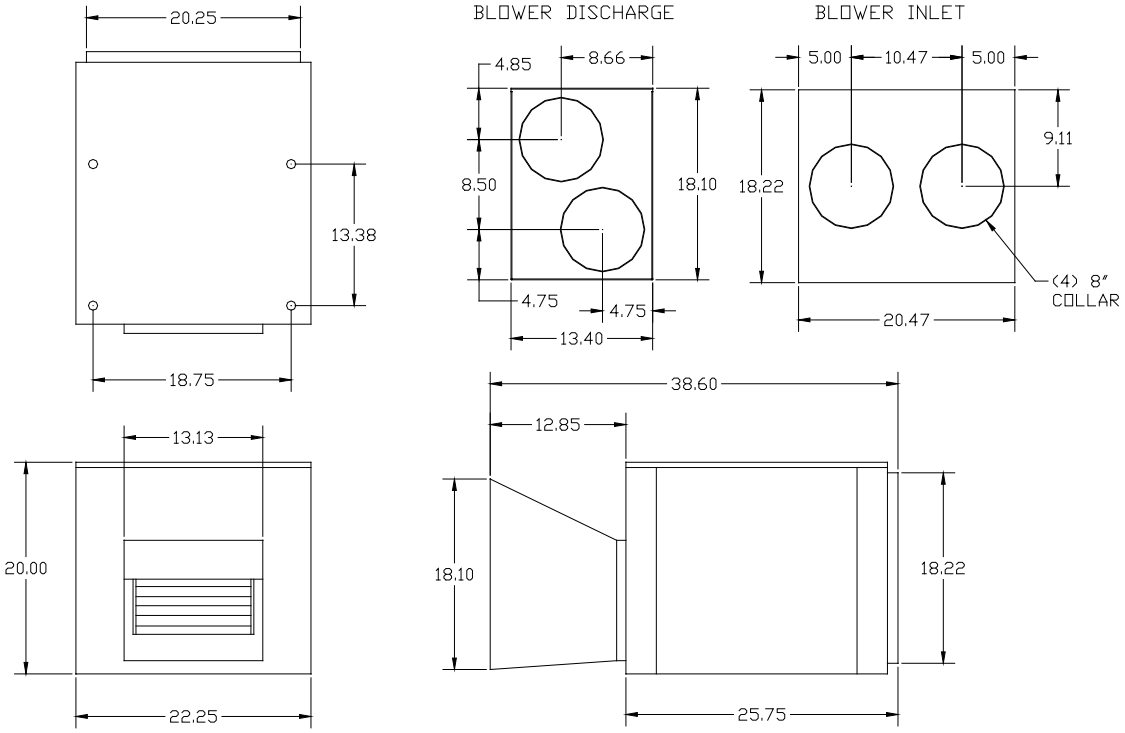
The Spider Air Cleaner is intended for use at normal indoor temperature and humidity. Carbon performance can be compromised by high humidity. The minimum temperature is 40°F and the maximum is 104°F.



DIMENSIONS

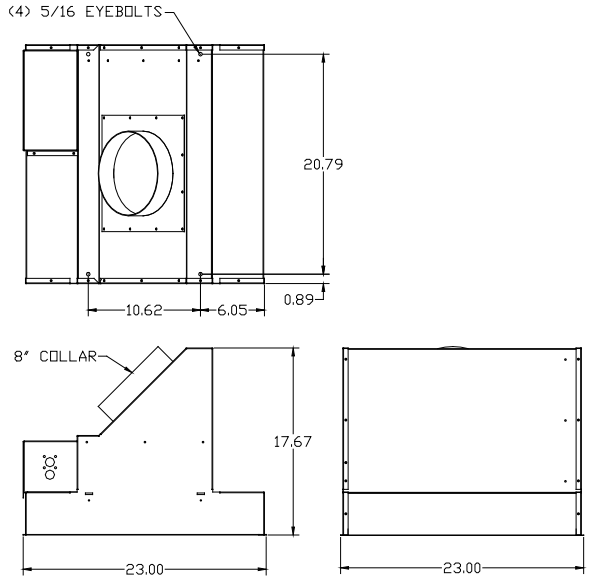
BLOWER MODULE

115/230V, 12.8/6.4 AMPS, 1PH, 60HZ
TOTAL WEIGHT:



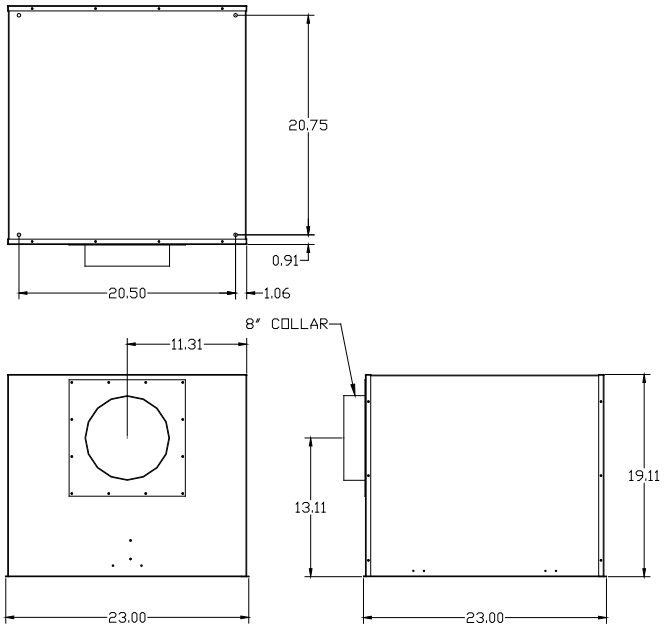
ESP MODULE

115V, 1PH, 60HZ, 40 WATTS
OUTPUT: 8700 VDC, 2.1 MA MAX
TOTAL WEIGHT:



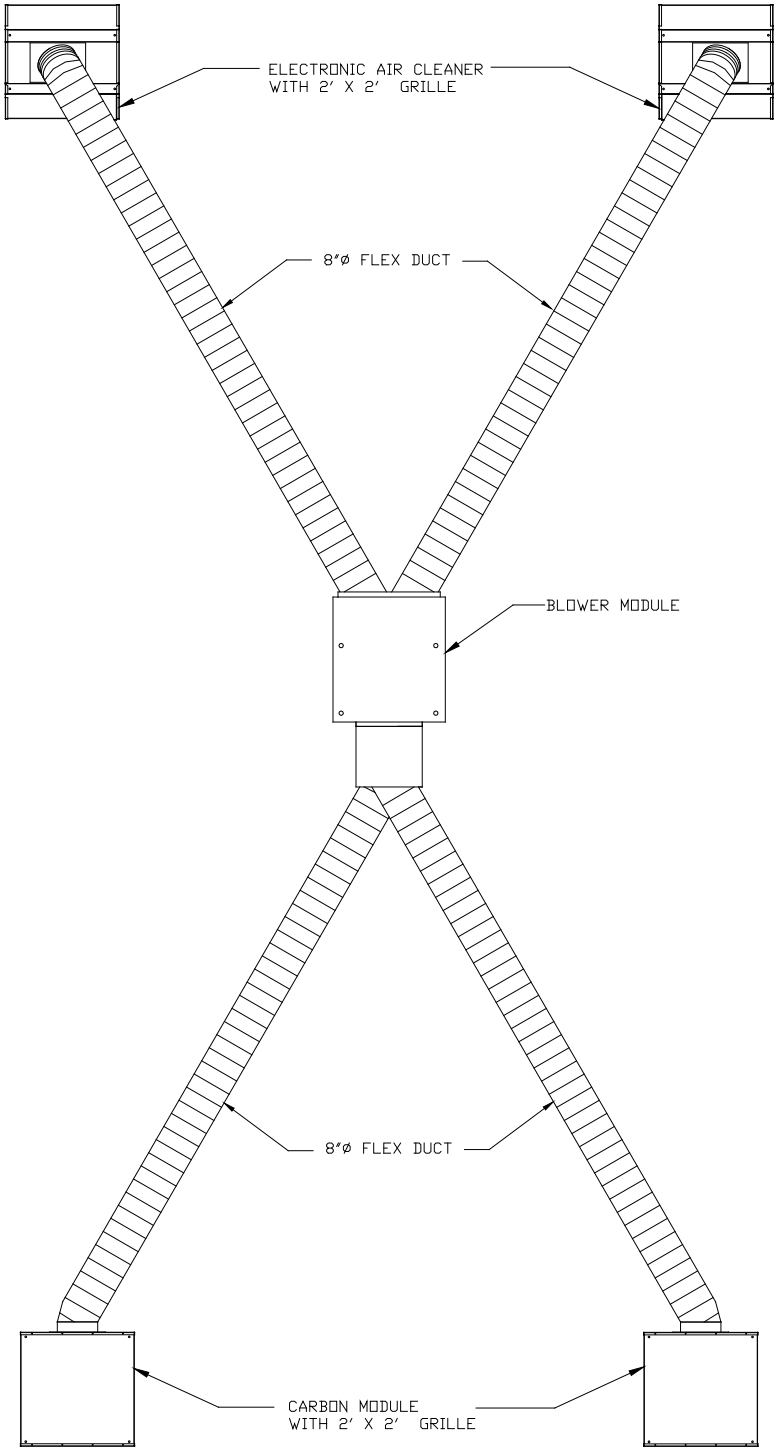
CARBON MODULE

TOTAL WEIGHT:

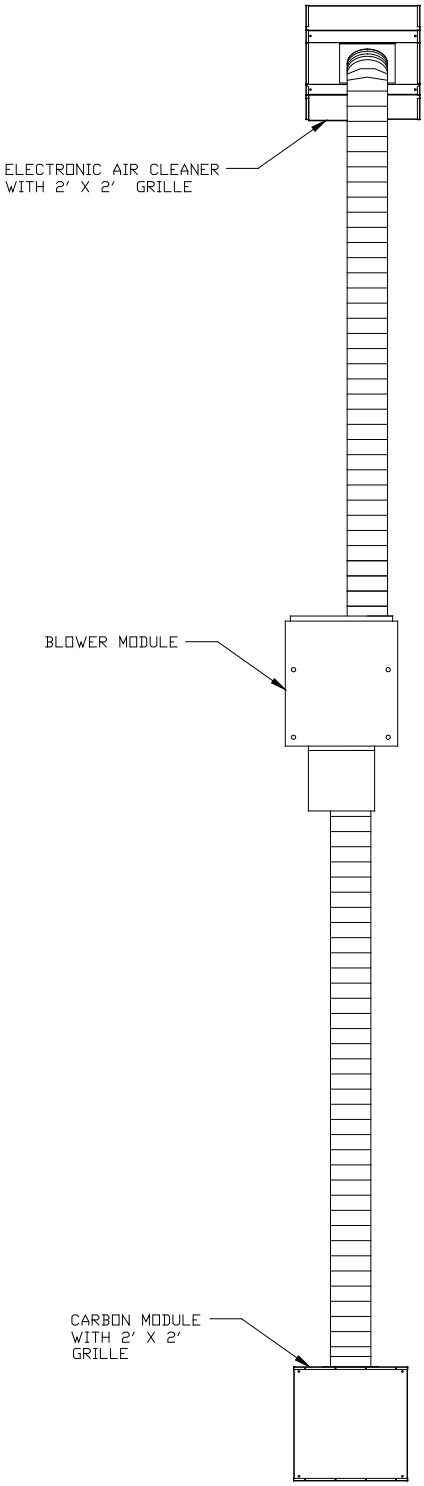


INSTALLATION

TWO INTAKES



ONE INTAKE



IMPORTANT!

Read these instructions carefully. A hazardous condition or damage to product could result if instructions are not followed.

CAUTION!

1. **Do not connect power source until after the air cleaner is mounted. Electrical shock and equipment damage may result. Always disconnect power to the air cleaner before servicing.**

2. **Wear gloves when installing air cleaner to protect hands from cuts.**

3. **Motor is equipped with automatic thermal overload protection. Should motor become overloaded, it will de-energize. However, it automatically energizes after sufficient cooling time (several minutes to an hour). Therefore, be sure to turn off air cleaner before servicing.**

UNPACKING

IMPORTANT!

Check carefully all packaging before discarding any materials.

PREPARATION

The Spider Cell Module and Carbon Module are designed to be installed within a T-bar drop ceiling. Removal of 2 foot x 2 foot ceiling tiles will accommodate the intake or exhaust plenums for the air cleaner.
The blower module is mounted above the drop ceiling. The area between the drop ceiling and the true ceiling must be free of obstructions such as pipes, ducts, etc. There must be at least 20” between the bottom of the T-bar and the true ceiling.

MOUNTING

WARNING!

The following instructions are intended for qualified service personnel only.

Attach four galvanized steel support wires or chains to the true ceiling for every module. Twist each wire at least four times to provide safe support for the module.

WIRING AND OPERATION

CAUTION!

Persons qualified to install electrical wiring should only attempt this procedure. All wiring must comply with applicable codes and ordinances.

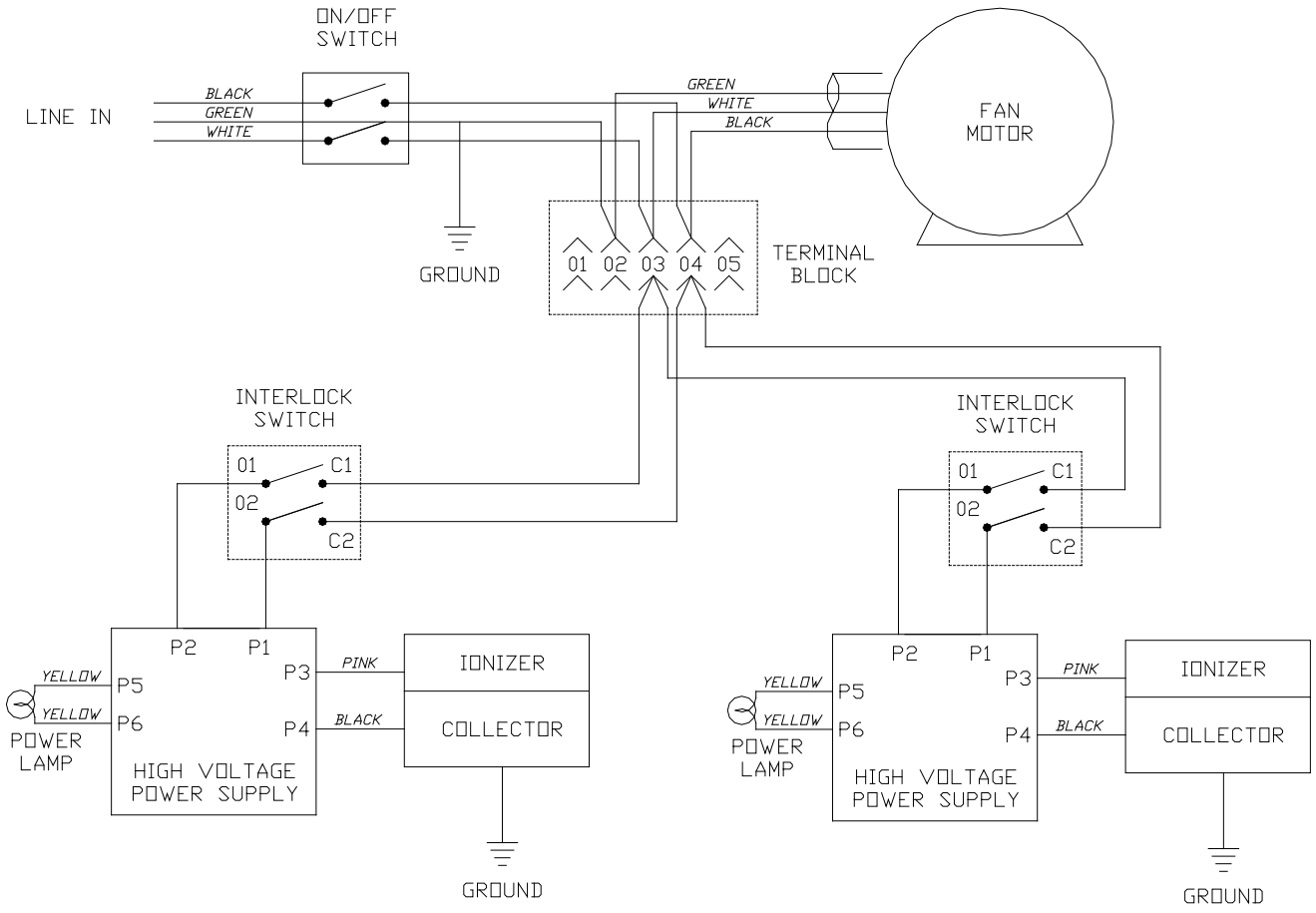
Double check that the rating on the air cleaner is consistent with the power source, either 120 Vac, 60 Hz or 240 Vac, 60 Hz

1. **Run three No. 14 gauge (or heavier) wires through conduit to the wiring compartment on the air cleaner. The green wire should be attached to the external ground. The black and the white wires are the power conductors.**

The indicator light should be on whenever the unit is operating properly. At the initial start-up, the indicator lamp may flicker on and off and is no cause for alarm. Should the indicator light fail to come on, review the Troubleshooting section.

During the initial use, snapping sounds may be heard. This is normal and the unit may continue to make these noises the first few days of operation. After this break-in period, only an occasional snap will be heard.

NOTE: As the electronic cell becomes dirty, it will snap more frequently. When this occurs, the cell should be washed. See the Service instructions for cell cleaning procedures.
FIGURE 2 – MAKE SURE THE CELL AND FILTERS ARE PLACED CORRECTLY.



SERVICE

CLEANING

The Spider Air Cleaner works by electrically charging and collecting airborne contaminants. As these contaminants collect, the collector plates and prefilter become extremely dirty. With an excessive amount of contamination built up on the collector plates and the prefilter, the electronic air cleaner's efficiency decreases. Also, as dirt builds up, the snapping noise will occur with greater frequency. To prevent this loss of efficiency, the electronic cell and prefilter must be cleaned regularly.

CLEANING THE PREFILTER

Remove the prefilter and shake out or rinse off the accumulated dust and lint. If this is not adequate, a vacuum cleaner may be used or the prefilter can be cleaned with an all-purpose alkaline detergent to remove tobacco smoke and cooking grease stains. A thorough rinsing is required after each cleaning.

CLEANING THE ACTIVATED CARBON FILTER

Occasionally, the carbon filter will need cleaning. Use a vacuum cleaner to remove the dirt. Typically the odor absorption capabilities of the carbon last between three to six months. Once the carbon filter can no longer remove odors from the air, the filter will have to be replaced.

CLEANING THE ELECTRONIC CELL

CAUTION

Sharp edges can cause injury.

Handle the cell carefully to avoid cuts from the sharp metal edges.

The cell can be washed in many automatic dishwashers or manually washed using Liquid Cell Cleaner.

Automatic Dishwasher

CAUTION

Burn hazard--can cause personal injury.

Allow the cell to cool in the dishwasher at the end of the wash cycle or wear protective gloves to avoid burns. Hot water may accumulate in the tubes supporting the collector plates. Tip the cell so these tubes will drain.

IMPORTANT

- **Check your dishwasher owner's manual. Some manufacturers do not recommend washing electronic cells in their dishwasher.**
- **If the dishwasher has upper and lower arms, position the cell carefully to allow good water circulation.**
- **Use care to avoid damaging or bending the cell plates when placing it in the dishwasher. If bent, arcing will result.**
- **A very dirty cell, especially from tobacco or cooking smoke, may discolor the plastic parts and lining of the dishwasher. The discoloration is not harmful. To minimize it, wash the cell more frequently or try a different brand of detergent.**
- **Do not allow the dishwasher to run through the dry cycle. This will "bake on" any contaminants not removed during the wash cycle and reduce air cleaner efficiency.**

1. Put the cell on the lower rack of the dishwasher with the directional arrow pointing up. It may be necessary to remove the upper rack. Don't block the water flow to the upper arm, if provided on the dishwasher.
2. Using the detergent that works best for normal dishwashing, allow the dishwasher to run through the complete wash and rinse cycle. Do not use the dry cycle. To avoid burns, let the cell cool completely before removing or wear protective gloves when removing the cell. Remember that water may be trapped in the tubes that support the collector plates. Tip the cell so these tubes can drain.
3. Wipe the ionizer wires and red contact board on the end of the cell with your thumb and forefinger holding a small, damp cloth.
4. Inspect the dishwasher. You may wish to repeat the wash and/or rinse cycle with the

dishwasher empty if you see dirt or residue from washing the cell. If dirt or residue seems excessive, wash the cell more often or try a different detergent.

5. Inspect the cell for bent plates. If bent contact AQE for repairing.

Manual Washing/Liquid Cell Cleaner

1. Pour the cleaner into a container nearly the size of the cell. Cleaners and containers are available from your Spider dealer.

2. Immerse the cell in the cleaner and remove immediately. Set the cell aside for 5-7 min.

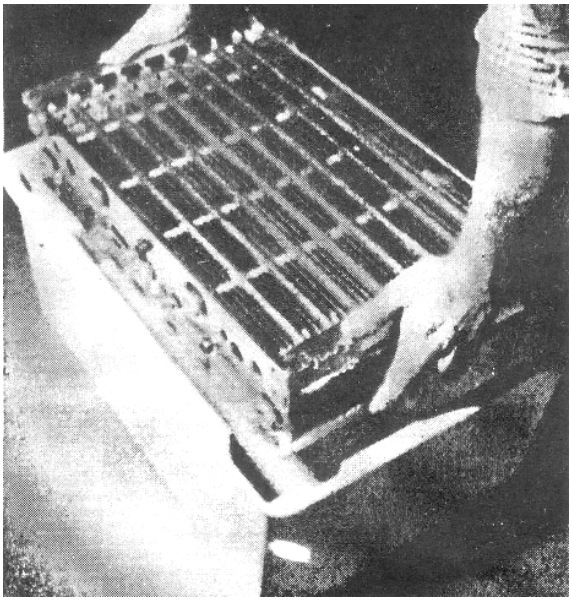
NOTE: If the detergent is allowed to dry on the cell, repeat the above procedure.

3. Thoroughly rinse the cells with very hot water. Make certain no residue remains on the cells. Residue will adversely affect cell performance by causing frequent arcing and low efficiency.

4. Allow the cell to dry.

5. Cell cleaner is reusable. Save for repeated use.

6. Spray the clean cell with AQE precoat to make future cleanings easier.



DIP TANK AND CELL.

REINSTALLING THE CELL, PREFILTER AND POSTFILTER

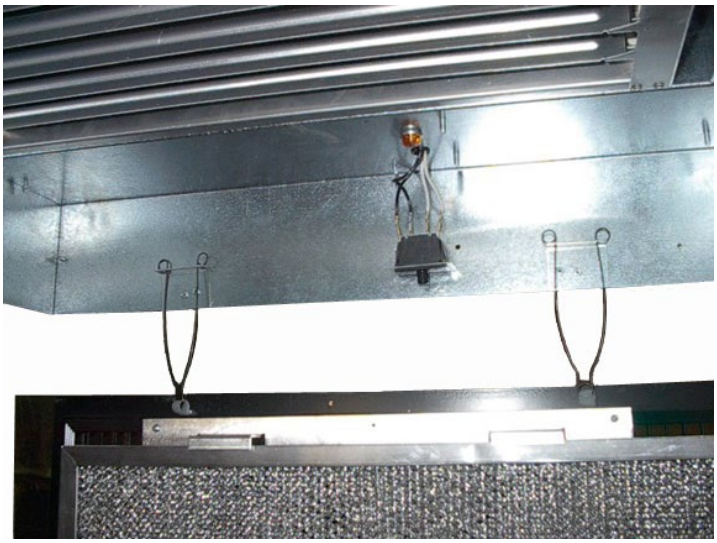
1. Inspect the cell for broken wires and bent collector plates. Repair as necessary.

2. Slide the dry cell in so that the directional arrow (located on the side of the cell) points toward the center of the air cleaner cabinet.

3. Slide the prefilter into the tracks in the grille.

4. The metal frame of the prefilter must be touching the interlock. If the grille is not installed properly, the unit will not operate.

5. Turn on the unit. If the cell is still damp, the indictor light may not come on until the cell is dry which would normally take about three hours. If the cell is energized and annoying snapping sounds occur, the cell should be removed from the air cleaner and allowed to thoroughly dry.



THE GRILLE MUST FIT CORRECTLY FOR OPERATION.

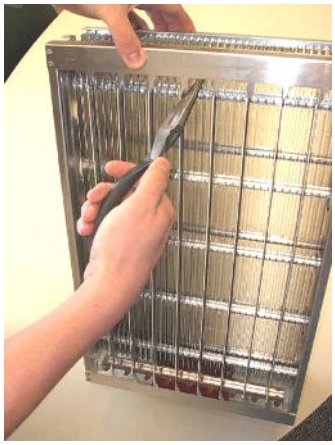
IONIZER WIRE REPLACEMENT

Broken ionizer wires can cause a short to ground often resulting in visible arcing or sparking. The cell should not be used until the pieces of broken wire are removed. It can be used temporarily with one wire missing although the wire should be replaced as soon as possible. See the Parts list, Pg. 14, for order number.

Replacement wires come cut to length with eyelets on both ends for easy installation. To install:

1. Hook the eyelet on one end of the wire over the spring connector on one end of the cell. Be careful to avoid damaging the spring connector or other parts of the cell.

2. Hold the opposite eyelet with a needle nose pliers and stretch the wire the length of the cell. Depress the opposite spring connector and hook the eyelet over it.



INSTALL NEW IONIZER WIRES BY HOOKING EYELETS OVER THE SPRING CONNECTORS.

AIRFLOW VOLUME (CFM)

The airflow for the Blower module is factory-set at the maximum volume of air. If reduced airflow is desired, it can be accomplished by adjusting the variable motor sheave.

TO ADJUST THE BLOWER CAPACITY:

1. Turn the air cleaner off and open the access door to the blower and motor section of the air cleaner.

2. Loosen the two bolts locking the end of the motor rail in position. Remove the belt.

3. Loosen the Allen setscrew on the face of the motor sheave.

4. Rotate the sheave into a position that gives the desired blower capacity.

5. Measure the amperage after the sheave adjustment to insure that you do not exceed the rated amperage

NOTE: When the sheave is rotated all the way into the shaft, the blower capacity is at its maximum. When the sheave is rotated five turns out on the shaft, the blower capacity is at its minimum. DO NOT ROTATE THE ADJUSTABLE SHEAVE MORE THAN FIVE TURNS OUT ON THE SHAFT. The sheave may already be adjusted one or more turns out on the shaft.

- CAUTION -

Adjusting the variable sheave changes the load on the motor. Do not exceed the rated amperage for the motor.

ELECTRICAL TROUBLESHOOTING

In the event that you experience problems with the operation of your unit, please:

- Make sure that the cell and filters are properly installed.
- Make sure the grille is properly installed.

If your air cleaner still has any of the following problems, proceed step-by-step as shown underneath. If you cannot resolve the problem, contact your Spider representative.

CAUTION

The following instructions are for use by qualified personnel only.

WARNING: RISK OF ELECTRICAL SHOCK

These servicing instructions are for use by qualified personnel only. To reduce the risk of electrical shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

PROBLEM 1

NO AIRFLOW,
LAMP OFF

Make sure there is voltage in the power source by using any other electric device.

Make sure everything is wired right.

Make sure the grille is properly in place to actuate the interlock switch.

PROBLEM 2

AIRFLOW
LAMP OFF

Make sure the grille is properly in place to actuate the interlock switch.

If the fan is on and the light is out, the problem is with the electronic cell or high voltage power supply.

To determine which component is faulty:

- Remove the electronic cell and operate the unit. If the light does not come on, then the high voltage power supply will have to be replaced.

If the indicator light does come on, the problem is with the electronic cell. Check the cell for:

- Wash the cell to remove any accumulation of dirt that may be causing a short
- Bent collector plates. Straighten and space the plates using a needle nose plier.
- Check for missing ionizer wires. Replace the missing wires.

PROBLEM 3

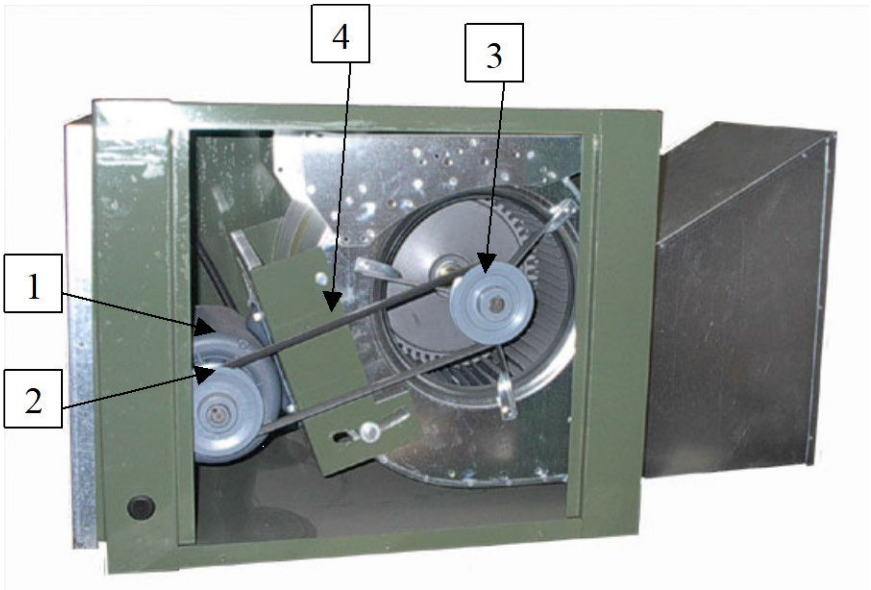
NO AIRFLOW
LAMP ON

Check the blower, drive, motor

Check wiring connections to the motor.

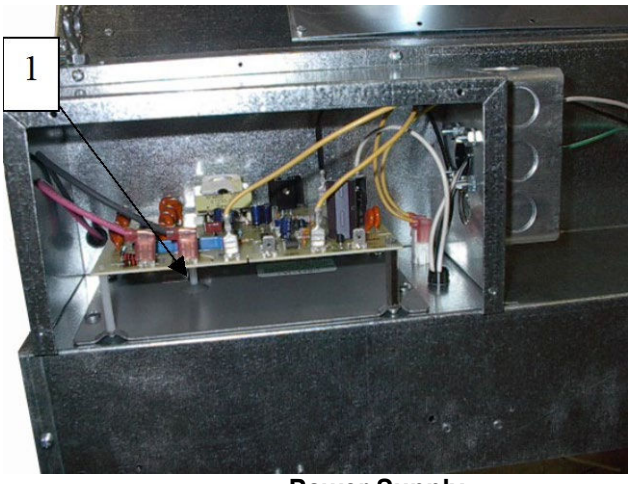
Make sure the blower spins freely

PARTS LIST



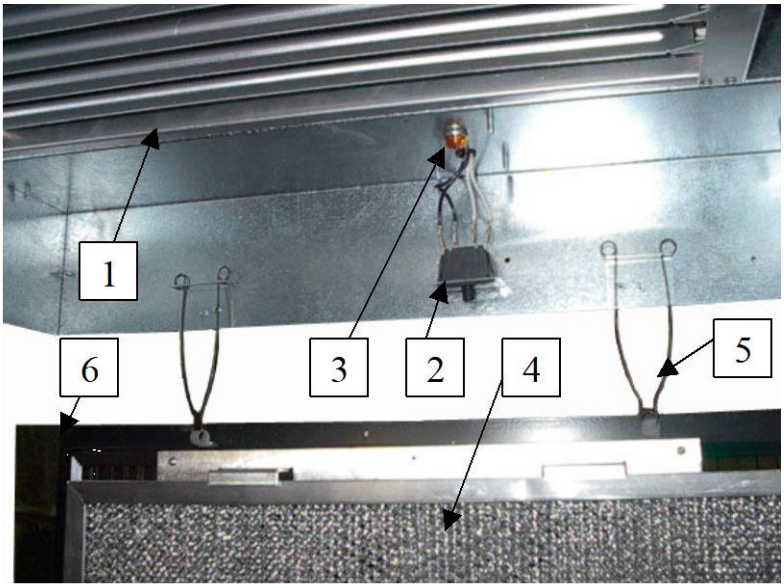
Blower Module

NO.	DESCRIPTION	P/N
1	Motor	40013
2	Sheave Variable (Motor)	30166
3	Sheave (Blower)	30601
4	V-Belt	30773



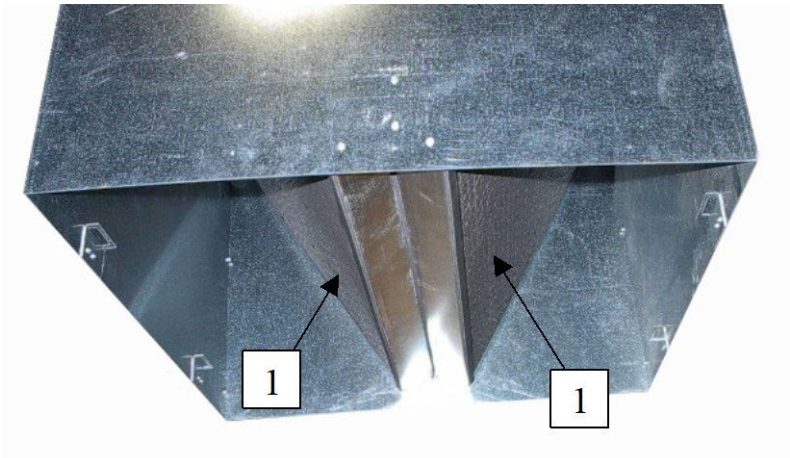
Power Supply

NO.	DESCRIPTION	P/N
1	Power Supply	10278



Cell Module

NO.	DESCRIPTION	P/N
1	Cell	38001
Not Shown	Ionizer Wire	38004
2	Interlock Switch	10106
3	Indicator Light	10097
4	Prefilter	41242
5	Spring, Grille Retainer	21116
6	Grille	22432



Carbon Filter

NO.	DESCRIPTION	P/N
1	Carbon Filter	41162

CERTIFICATE OF WARRANTY

3-YEAR LIMITED WARRANTY

Air Quality Engineering, Inc., warrants to the original purchaser, subject to the conditions below, that should the product covered by this warranty ("Product") fail to perform by reason of improper workmanship or material, Air Quality Engineering, Inc., ("AQE") will, during the period of three (3) years from the date of original purchase, either, (i) replace the Product or (ii) provide all necessary parts to repair the Product, without charge. The decision to replace the Product or the necessary parts shall rest solely with AQE. This 3-year limited warranty does not apply to main filter elements. Air Quality Engineering, Inc., will replace without charge the main filter elements during the period of thirty (30) days from the date of original purchase if the main filter elements fail to perform by reason of improper workmanship or material. This warranty is valid only under the following conditions:

CONDITIONS

1. AUTHORIZATION: Purchaser will contact Air Quality Engineering, Inc., 800-328-0787, for authorization, returned goods authorization number (RGA) and shipping address. AQE will direct purchaser to either return the necessary parts or the Product at AQE's option.

2. PROPER DELIVERY: The shipping, freight prepaid, or delivery of the parts or the Product to Air Quality Engineering, Inc., in either its original carton or in a carton assuring similar protection of the Product with returned goods authorization number (RGA) clearly displayed on the outside of the carton.

3. UNAUTHORIZED REPAIR: A showing by the original purchaser that the Product has not been altered, repaired or serviced by anyone other than an authorized service technician using genuine AQE parts.

4. UNAUTHORIZED PARTS: A showing by the original purchaser that the Product has had only genuine Air Quality Engineering, Inc., parts and filters used in its operation and maintenance.

5. SERIAL NUMBER INTACT: A showing by the original purchaser that the Serial Number has not been altered or removed.

6. MISUSE: A showing by the original purchaser that the Product has not been involved in an accident, freight damaged, misused, abused or operated contrary to the instructions contained in the Owner's Manual.

Air Quality Engineering, Inc.'s, sole responsibility shall be to repair or replace the Product within the terms stated above. AQE shall not be liable for any consequential damages resulting from any breach of warranty, express or implied, applicable to this Product. Some states do not allow the exclusion or limitation of consequential damages so this limitation may not apply to you.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow limitations on how long an implied warranty lasts so the above limitation may not apply to you.

This warranty gives you specific legal rights and you may also have other rights that vary from state to state.

AIR QUALITY ENGINEERING, INC. **TOLL FREE: 800-328-0787**
7140 NORTHLAND DRIVE NORTH **TELEPHONE: (763) 531-9823**
BROOKLYN PARK, MINNESOTA 55428-1520 **FAX: (763) 531-9900**