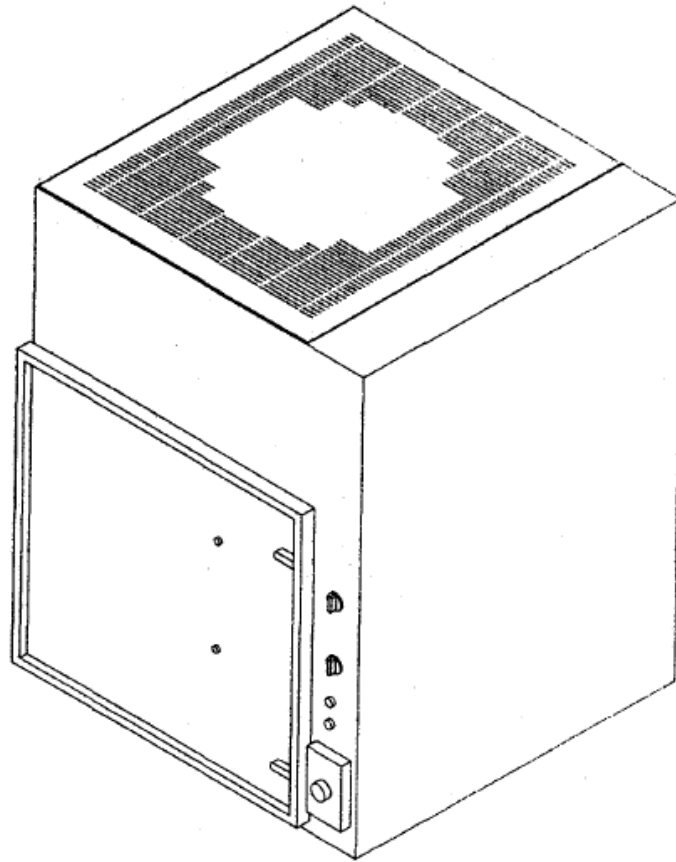

S U P P L Y I N G C L E A N A I R T O I N D U S T R Y

MistBuster QUAD[®]

Installation and Operation Manual



Machine Mountable Mist & Smoke Collector

For further information:

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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.

| | |
|----------------------------|--|
| DIMENSIONS: | Cabinet – 26"W x 26 3/8"D x 33"H. See Fig. 1. |
| INLET OPENING: | 20.75" x 16". See Fig. 2. |
| WEIGHT: | 203 lbs. installed weight 240 lbs. shipping weight. |
| CABINET: | 16-gauge steel cabinet with a chemical resistant baked enamel, ivory texture finish. |
| AIRFLOW: | 50-1250 cfm @ 0.6" wg top discharge |
| EFFICIENCY: | Up to 99.9% efficiency per ASHRAE 52.2 |
| FILTRATION: | 1st Stage - 4" thick aluminum mist impingers 2nd Stage - ESP cell – 105.8 sq. ft. of surface area. Minimum voltage gradient is 20,000 volts per inch. 3rd Stage - 2 nd pass of ESP, another 105.8 sq. ft. 4th Stage - 2" thick aluminum mesh |
| POWER SUPPLIES: | Two, independent, self-regulating, dual voltage, solid-state power supplies |
| MOTORIZED IMPELLER: | Backward curved, vibration-free, direct drive rated at 1850 cfm @ 0" wg |
| POWER: | 115 Vac, 60 Hz, 4 Amps 230 Vac, 60 Hz, 2 Amp |
| POWER CORD: | Ten-foot power cord with standard molded plug |
| SOUND LEVELS: | 69 dBA @ 3' 68 dBA @ 6' |

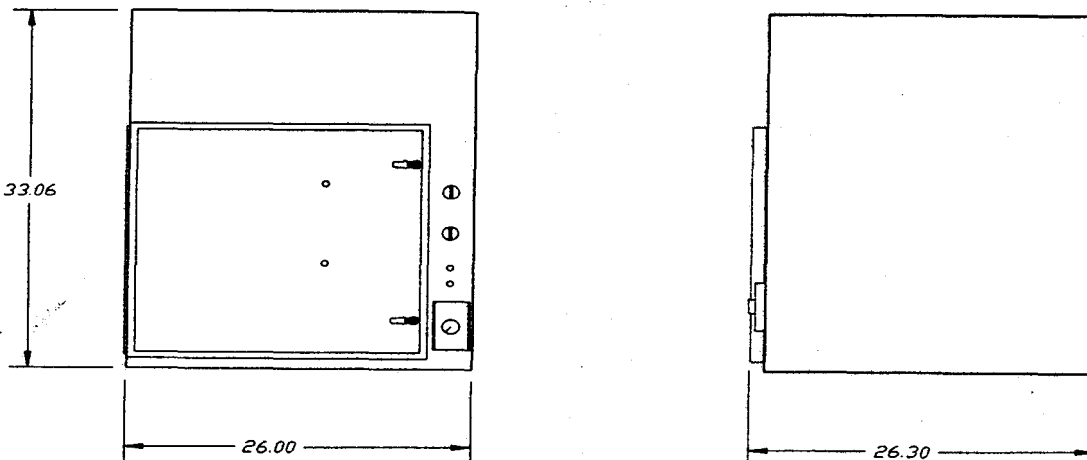


Figure 1

INSTALLATION

INSPECTION

The MistBuster Quad air cleaner should be checked for any shipping damage that may have occurred during shipping. Any damage should be noted and the carrier notified immediately.

TOOLS & EQUIPMENT REQUIRED

The following is a list of tools that would be needed for typical installations:

- Reciprocating saw
- Drill
- Screwdriver
- Fork truck / Crane

PLANNING THE INSTALLATION

1. The MistBuster Quad mist collector should be located with consideration for convenience of maintenance and electrical compartment access.
2. The filter access door on the MistBuster Quad should not be obstructed. You need a minimum of 24" clear in front of the filter access door.
3. The side access cover (right hand) should also be accessible, if possible. This will make it easier to access the electrical components such as the switches and high voltage power supply.
4. Mount the MistBuster Quad as far from the chip conveyor opening as possible. This will minimize the amount of clean outside shop air from being drawn into the enclosure.

The MistBuster Quad can be mounted directly to the enclosure on a machine tool. The collected mist droplets simply drain back into the machine tool through the air inlet of the MistBuster Quad.

INSTALLATION DIRECT MOUNT

Remove all filters and the electronic cell from the MistBuster Quad. Carefully position the MistBuster Quad on the machine tool in the desired location. Refer to Planning the Installation for guidelines in positioning the MistBuster Quad on the machine tool.

1. Use the inlet opening and the mounting hole pattern on the bottom of the MistBuster Quad as a template to mark the inlet opening and holes to be drilled into the machine tool enclosure. If the machine tool enclosure has been designed with a provision for mist collection, you may not need to cut an inlet opening. NOTE: The inlet opening in the machine tool does not need to be as large as the inlet of the MistBuster Quad. It is recommended that the inlet opening be a minimum of 80 square inches.
2. Use a .281 diameter drill bit to drill the mounting holes for the 1/4-20 bolts used to secure the MistBuster Quad to the machine tool.
3. There are fourteen mounting holes in the MistBuster Quad. It is recommended that a minimum of four holes be drilled to secure the MistBuster Quad to the machine tool.

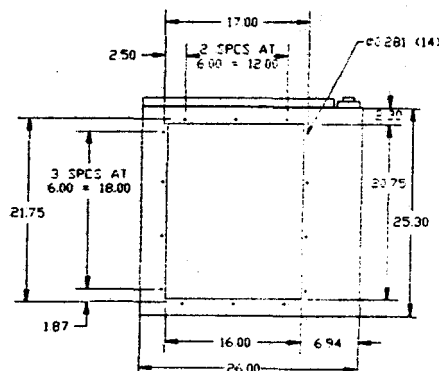


Figure 2

4. Apply the gasket material provided on the outside of the bolt holes. Overlap the gasket on the corners. Carefully position the MistBuster Quad over the opening and bolt the unit in place.

5. The MistBuster Quad comes complete with a 10' power cord. Plug the unit into an appropriate grounded outlet.
6. Replace the mesh impingers and the electronic cell. Please make sure the arrows on the cell and filters are pointing up.

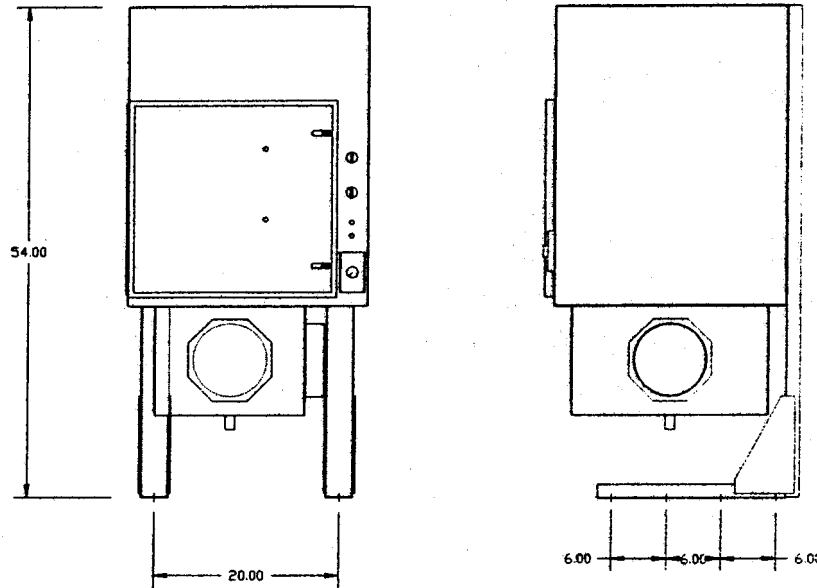


Figure 3

INSTALLATION DUCTED

When direct mounting the MistBuster Quad is impossible or not desired, the MistBuster Quad can be installed with a plenum and ducting.

Ducted installation options will require our standard plenum (PN 07208). The MistBuster Quad plenum has holes on three sides and comes standard with two covers and one eight-inch inlet collar.

Although we recommend direct mounting when possible and minimizing duct length when ducting is necessary, the MistBuster Quad can be connected to multiple machine tools. Additional ports can be ordered in 6" and 8" diameters.

INSTALLING THE PLENUM

1. Install the supplied covers and collar to the plenum using the supplied silicone sealant and #8 screws.
2. Attach the plenum to the inlet opening on the MistBuster Quad using the supplied silicone sealant and 1/4-20 bolts and nuts. Note that

the plenum may be rotated 180° for the desired port orientation. (Figure 4).

INSTALLING MACHINE MOUNT STAND

1. Remove the six 3/8-16 bolts on the back of the MistBuster Quad and install the two L-brackets.
2. Carefully drill the required six holes in the machine tool to attach the L-brackets from the machine mount stand using a 7/16" drill bit.
3. Use a crane or fork truck to lift the assembled MistBuster Quad onto the machine tool.

- CAUTION -

Make sure the MistBuster Quad is secured to the crane or forklift to avoid injury or damage to the unit.

4. Bolt the MistBuster to the machine tool using the supplied 3/8" nuts, bolts and lock washers.

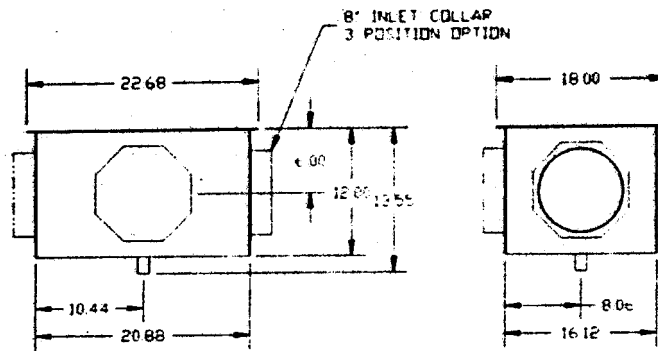


Figure 4

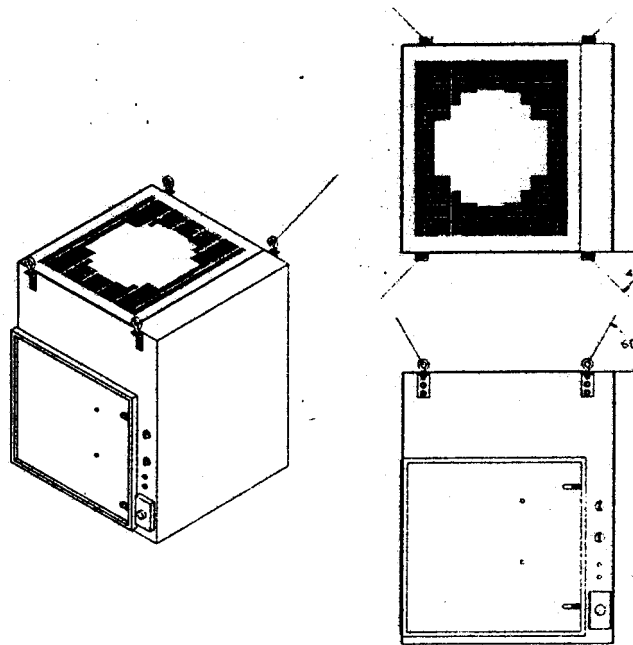


Figure 5

INSTALLATION CEILING MOUNT

- CAUTION -

The overhead structure must be strong enough to support the weight of the MistBuster Quad, plenum and ductwork. Make sure that whenever using a fork truck, hoist or lift that the MistBuster is properly secured to prevent tipping. Use caution not to damage the MistBuster or plenum with the fork truck, hoist or lift.

1. Attach the four angle brackets to the front and back of the MistBuster Quad using the eight supplied 3/8-16 bolts and lock washers. Fasten the four 3/8" eyebolts to the four brackets using the supplied hardware.
2. Install the supplied covers and collar to the plenum using the supplied silicone sealant and #8 screws. Attach the plenum to the inlet opening on the MistBuster Quad using the supplied silicone sealant and 1/4-20 bolts and nuts. Note that the plenum may be rotated 180° for the desired port orientation.
3. Install the MistBuster Quad using cable or chain to suspend the unit from each eyebolt. Make sure that the cable or chain is rated for the appropriate weight of the MistBuster Quad and accessories. Position the chains or cables so that they form a 60° angle with the top of the unit and a 45° angle from the side surfaces. This will make the unit more stable.
4. Level the MistBuster Quad in all directions.

INSTALLATION PEDESTAL STAND

- CAUTION -

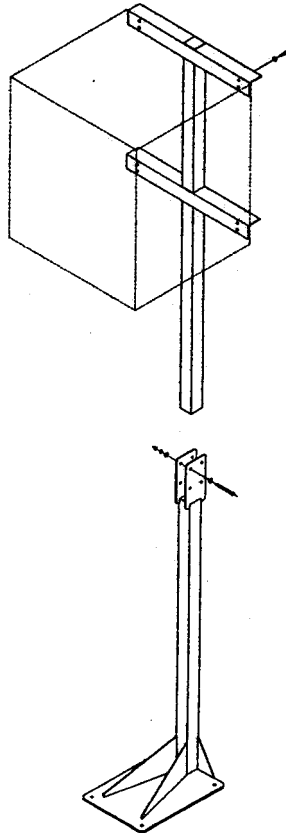
The pedestal stand must be anchored to the floor before it is assembled to the MistBuster Quad.

Do not extend the top of the stand over 128".

Level the stand before securing the anchor bolts.

1. Slide the upper part (T-section) of the pedestal stand into the lower section (lower section contains the base which bolts to the floor).
2. Secure the base of the pedestal stand to the floor using four 1/2" anchor bolts (not supplied). Anchor bolts must be secured before the MistBuster Quad is assembled to the stand. Anchor bolts must extend 1 1/2" above the floor to ensure adequate length.
3. Assemble the upper and lower pieces together by inserting the four 3/8-16 x 3.5 inch long bolts through the flat washers, lower section of the stand and lock washers as pictured below. To adjust the height of the pedestal stand, loosen the four 3/8-16 x 3.5 inch long bolts from the lower part of the stand and slide the upper section to the desired height. Do not adjust the top of the stand over 128" high. Tighten the bolts to create enough tension to secure the stand in place.
4. Remove the 3/8-16 bolts and lock washers from the back of the MistBuster Quad. Remove the electronic cell and impingers from the MistBuster Quad and lift the unit up to the pedestal stand. Align the MistBuster Quad and insert and tighten the 1/4-20 bolts with lock washers to secure the MistBuster Quad to the pedestal stand. Install the plenum per the instructions in the Installing Plenum section.
5. Re-check all bolts to make sure they are securely fastened.

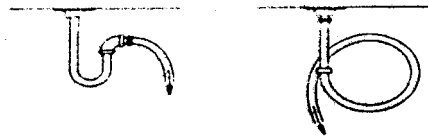
Figure 6



DRAIN INSTALLATION

The MistBuster Quad plenum has a 1/2" female pipe fitting drain that requires a P-trap and a drain hose to return the metalworking fluid to the machine tool.

Prime the P-trap with the metalworking fluid that will be collected to avoid air being drawn through the plenum drain.



Pipe Trap

Coil Hose Trap
Minimum 8" Dia. Loop

Figure 7 - P-TRAP OPTIONS

ELECTRICAL INSTALLATION

- CAUTION -

All electrical work must be done by a qualified electrician according to local codes. Be certain that the power source is compatible with the model ordered. See the rated voltage on the inside of the filter access door. Proper grounding of the MistBuster Quad is essential for safety and operation.

Cord Connected

The MistBuster Quad is equipped with a 10-foot power cord with a standard molded (15 amp rated) plug. There must be a standard grounded outlet provided within 10 feet of the MistBuster Quad. Route the power cord so that it is out of the way of the building's occupants and so that it does not interfere with the machine's operation.

Conduit Connected

The MistBuster Quad can be hard wired. All wiring must comply with applicable codes and ordinances. All work must be done by a qualified electrician.

The wiring compartment is on the right side of the MistBuster Quad. Removing the side cover accesses it.

Remote Mounted Controller Option

The MistBuster Quad can be ordered with the variable speed controller shipped separately. In place of the switch on the MistBuster Quad, there is a 2" x 4" electrical box and cover.

Install a field supplied electrical box in the desired location and run three 14-gauge wires from the remote mounted electrical box to the MistBuster.

NOTE: When the MistBuster Quad is ordered with a remote option, it will run on high speed only until the remote switch wiring is complete.

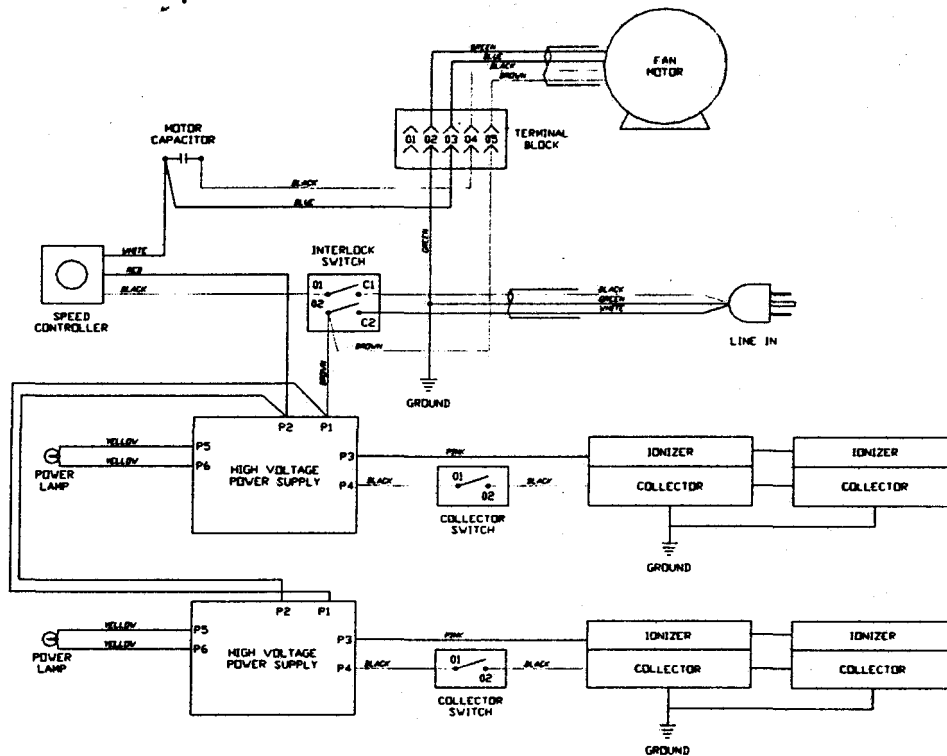


Figure 8

SCHEMATIC, 120 OR 208-230 VAC, SINGLE PHASE

START UP

1. Start up the MistBuster Quad by rotating the control knob clockwise. **NOTE: Run the MistBuster Quad at the lowest possible speed setting.** This will reduce noise and maintenance, and will increase efficiency.
2. The performance indicator lights should be on when the blower is running.
3. Push the test buttons to momentarily short out the collector on the electronic cells. Arcing indicates that the cells are energized properly.
4. The MistBuster Quad is equipped with a variable motor speed controller. **Set the airflow at the minimum airflow setting that will maintain the proper negative pressure. In most cases, the three o'clock setting on the speed controller will provide enough airflow to maintain negative pressure.**
5. The two coolant selector switches should be adjusted for the appropriate coolant. For oil metal working set both top and bottom dial to oil. For water-based and synthetic coolants, it is recommended the top dial be set to oil and the bottom dial to water to start with. If excessive arcing occurs turn the top dial to the water setting as well.

ROUTINE MAINTENANCE

- CAUTION-

1. **Be extremely careful when working with the electronic cell. The edges of the collector plates and the ionizing wires on the cell may be sharp.**
2. **When cleaning the cell, be sure to wear appropriate protective gear, especially goggles and gloves. Skin contact with alkaline detergent solution should be avoided. See warning label on the detergent.**
3. **The electronic cell must be handled with care to avoid damage.**

The direct mount MistBuster Quad captures mist droplets from machine tools using either petroleum or synthetic machining fluids. The collected fluids drain directly back into the machine tool through the inlet opening. This draining process actually helps to keep the impingers and electronic cell clean.

The mist impingers and electronic cell will need to be cleaned periodically. The exact maintenance interval is determined by each specific application. Water soluble and synthetic machining fluids will require more frequent cleaning than will petroleum-machining fluids.

During the first few months of operation, inspect the impingers and electronic cell. When you have an excessive buildup on the mist impingers and electronic cell, they will need to be cleaned.

Parts Washer Method

The mist impingers and electronic cell can be cleaned with a parts washer. Make sure that the cleaning fluid used is aluminum safe and the maximum pressure does not exceed 60 psi.

Manually Cleaning the Mist Impingers

Wash them with a degreaser. They then need to be rinsed thoroughly with hot water.

Manually Cleaning the Electronic Cell

1. Fill the wash tub with cell cleaning detergent and hot water per the detergent manufacturer's instructions.
2. Immerse the cell in cleaner solution for five minutes.
3. Thoroughly rinse the cell with very hot water. Make certain no residue remains on the cell.
4. Inspect the collector plates for cleanliness. Repeat wash procedure, if necessary. Check for broken wires and bent collector plates. The cell can be installed back into the MistBuster Quad. The indicator light may remain off for the normal two-hour drying time.

NOTE: If water-soluble machining fluids are used, it would be best to coat the cell with Cell Coat after washing the cell. See the Parts List section for the part numbers for the detergent and cell coat.

HEPA FILTER OPTION

- CAUTION -

1. Handle the HEPA filter carefully to avoid damage to the filter media.
2. The HEPA filter weighs 40 lbs clean and adds an additional 12" to the height of the MistBuster Quad.

1. Install the two anchor brackets to the center of both sides of the MistBuster Quad cabinet. Remove the two bolts/washers (on each side of the MistBuster Quad) and position the anchor bracket and bolt into place using the same bolts/washers.
2. Locate the HEPA filter on top of the exhaust grille with gasket side down. (NOTE: Airflow arrow points up towards ceiling).
3. Install the HEPA retainer brackets by hooking one end to the filter frame and bolting the other end to the anchor brackets. See Fig. 9.

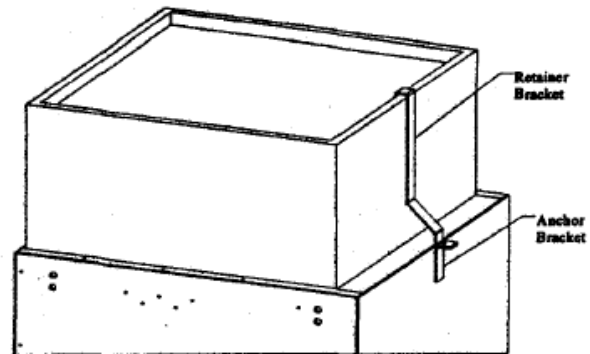


Figure 9

TROUBLESHOOTING

- WARNING -

The following instructions are intended for qualified service personnel only. Dangerous line voltage circuits are exposed during this procedure. Disconnect power at fuse before servicing the unit.

The Motor Won't Start

The motor and blower utilized in the MistBuster Quad are integrated and should spin easily by hand. Be sure the blower wheel spins freely. If it does not, check for obstructions or replace as necessary. Check that the correct voltage has been applied. Be sure the interlock switch is depressed. Note that the unit will not function if the interlock switch is not depressed (i.e. The filter access door is open.)

The Indicator Light is Out

Remove the two electronic cells from either the top or bottom as it corresponds to the indicator light that is out. Close the filter access door and re-

energize the unit. If the indicator light still fails to light, replace the power supply. If the indicator light comes on now, check the electronic cells for a short.

Checking the Electronic Cell

Visually inspect the cell for –

- Accumulation of coolant on collector plates
- Bent collector plates
- Broken ionizing wires
- Broken or damaged electrical contacts

An accumulation of coolant which bridges two parallel collector plates will cause a dead short in the collector cell. Removing this accumulation is necessary for the unit to function. An ohmmeter may be used to check resistance between the outside frame of the cell and both the ionizer and collector contacts. In each case, the resistance should be infinite (open circuit).

PARTS LIST

| NO. | DESCRIPTION | 120 VAC | 208-240 VAC |
|-----------|---------------------------------------|---------|-------------|
| 1 | Aluminum Mesh Impingers, 3 req. | 41227 | 41227 |
| 2 | Cell 20", 4 req. | 07192 | 07192 |
| 3 | Speed Controller | 10251 | 10253 |
| 4 | Indicator Light | 10097 | 10097 |
| 5 | Impeller | 40048 | 40069 |
| 6 | Capacitor | 40119 | 40103 |
| 7 | Interlock Switch | 10106 | 10106 |
| 8 | Contact Board | 46113 | 46113 |
| 9 | Power Supply | 07190 | 07191 |
| 10 | Cell Test Button Assembly | 05308 | 05308 |
| 11 | Coolant Selector Switch Assembly | 05574 | 05574 |
| 12 | Plenum, includes 2 covers, 8" collar | 07208 | 07208 |
| 13 | Machine Mount Stand | 07196 | 07196 |
| 14 | Ceiling Mount Kit | 07197 | 07197 |
| Not Shown | Hepa Option Kit, includes Hepa Filter | 07209 | 07209 |
| Not Shown | Hepa Replacement Filter | 41120 | 41120 |
| Not Shown | Pedestal Stand | 07202 | 07202 |
| Not Shown | Ionizer Wires, cell | 38004 | 38004 |

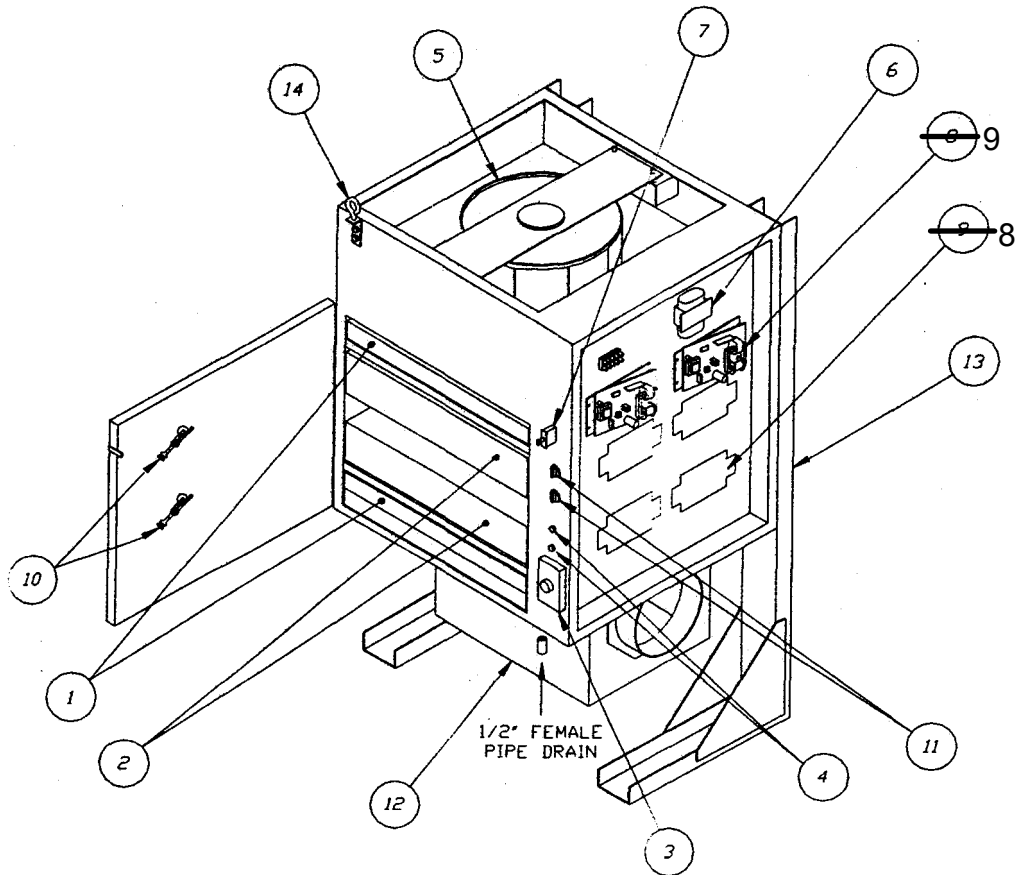


Figure 10