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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

MODEL M32V  
**Portable Media Air Cleaner**  
FEATURING THE NEW EXTENDED SERVICE FILTER



*The new M32V from Air Quality Engineering, Inc., is a self-contained media air cleaning system designed for source capture applications in industry. The M32V includes the new E.S.F. micro-glass filters for long filter life and high efficiencies to effectively remove smoke, mist, dust and other airborne contaminants at a rate of up to 1300 cfm.*

- Permanently lubricated, ball bearing, one horsepower motor requires no maintenance.
- Unique roll-around feature allows movement of the air cleaner to the source of contamination.
- Factory-installed pressure gauge provides filter status at a glance.
- Filter configurations available with up to 95% DOP efficiency.
- Powered from a standard grounded outlet. All models equipped with a 10-foot power cord.
- Blower constructed with sealed bearings for reduced maintenance.

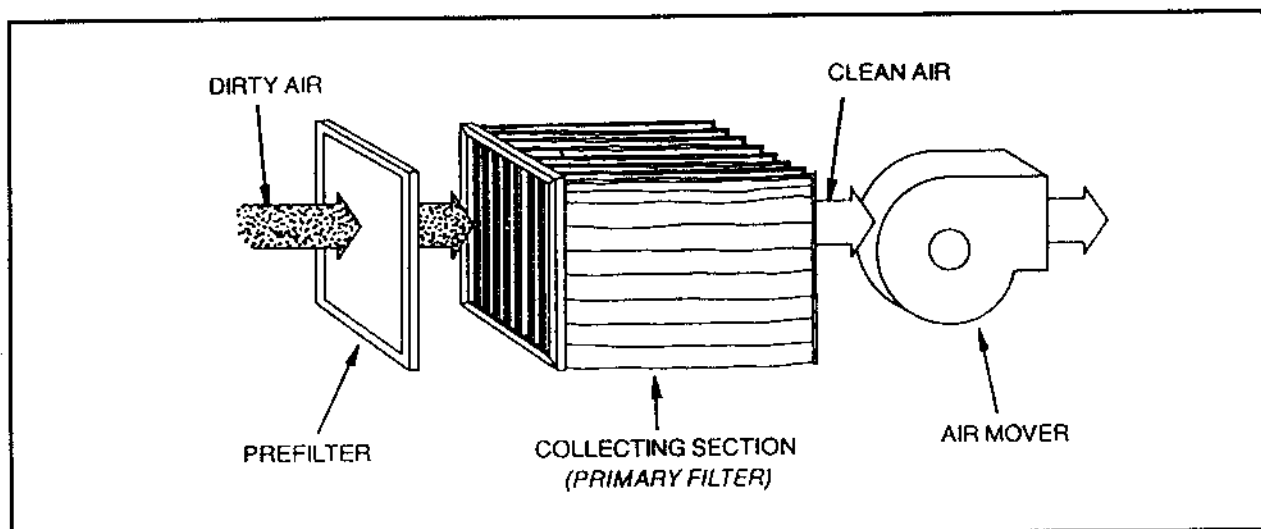
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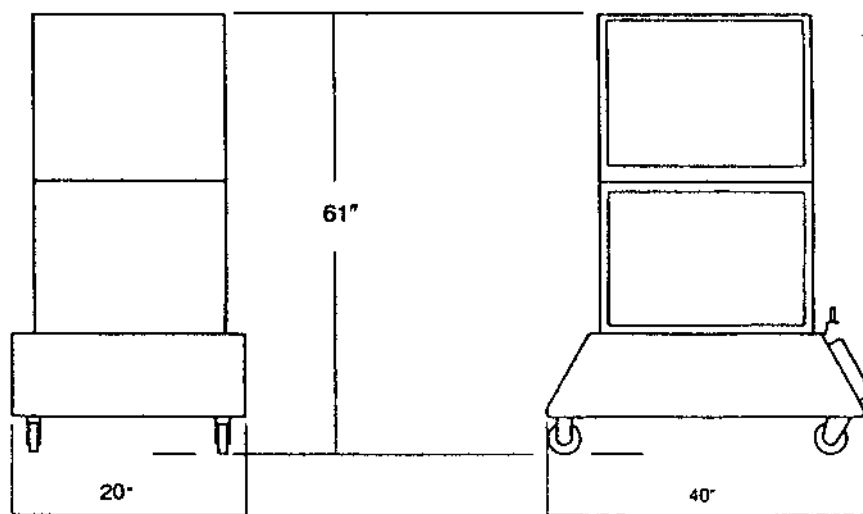
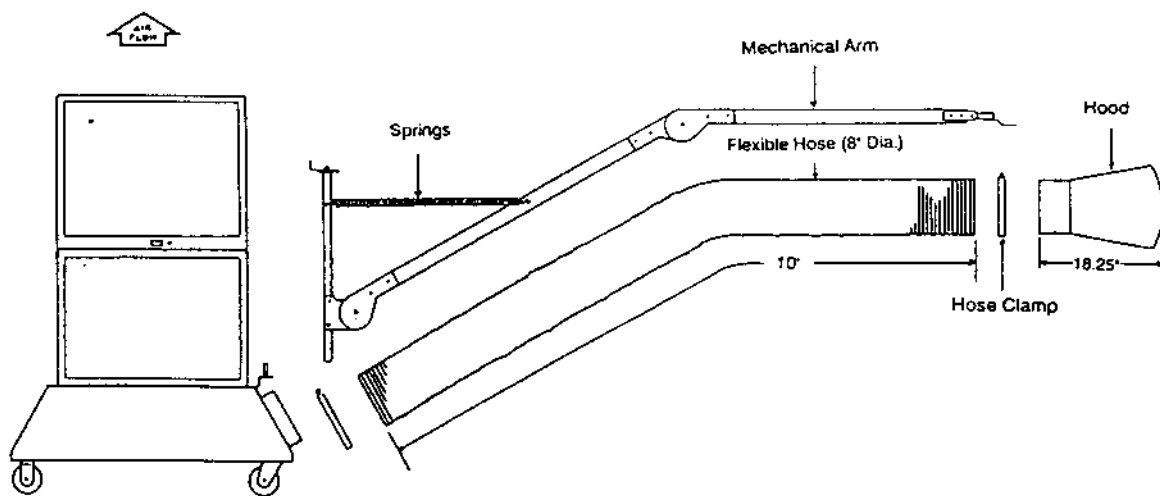
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## HOW AIRBORNE CONTAMINATION IS REMOVED

Dirty air passes through the prefilter. Large particulate, such as lint, is removed by the prefilter. The remaining smaller particulate is then captured by the primary filter. As the contaminant load on the filters increases, the filters become

more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less air to pass through resulting in less particle collection and a decrease in the overall effectiveness of the air cleaner.





METRIC CONVERSION	FORMULA
Ins. to mm	Ins. x 25.4
Lbs. to kgs.	Lbs. x .455
Ins. w.g. to kPa	Ins. w.g. x .2488
CFM to m³/h	CFM x 1.6992
Ft² to m²	Ft² x .0929

**FIGURE 1 - M32V DIMENSIONS**

# 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.

### SPECIFICATIONS:

**Dimensions:** 61"H x 20"W x 40"L

**Weight:** 285 lbs. installed weight  
370 lbs. shipping weight

**Cabinet:** 16 gauge welded steel cabinet with a baked enamel, textured coated finish. Built-in sump and drain connection for oil mist removal. Four heavy-duty swivel locking casters.

**Power Input:**

Model	Vac	Hz	Ph	Amps	Watts
M32V1003	120	60	1	12	1100
M32V1011	208-240	60	1	6.6-6	1100

**Motor:** 1 HP, ball bearing.

**Blower:** Forward curved, ball bearing, belt driven centrifugal blower. This blower is capable of moving 2250 cfm of free air.

### Instrumentation:

**Dirty Filter Gauge** - Factory-installed pressure gauge designed to determine filter replacement cycle.

**Indicator Light** - Light indicates that the blower motor is energized properly.

**Mechanical Arm:** 10' externally supported arm swings 180° on its axis and reaches from floor to 11' high. Once this arm is positioned, the hood and hose remain in place until moved.

**Hose:** 8" diameter EPDM rubber hose with an enclosed wire helix. This hose is 10' long.

**Sound Levels:** 67 dBA at 9', 66 dBA at 15'.

### FILTER SELECTION:

**Prefilter:** 30-35% efficiency, pleated 12" x 24" x 4".

**Primary Filter Choices:** Dimensions on the E.S.F. filters are 12" x 24" x 12".

Extended Service Filter PN	Filter Efficiency*	CFM = Cubic Ft. per Minute
		Airflow, 1 HP, Single Arm
41136	95 - 98% Bag	1145 CFM**
41137	85 - 90% Bag	1180 CFM**
41138	65 - 70% Bag	1200 CFM**

The new E.S.F. (Extended Service Filters) offer a dramatic increase in filter life due to the large media surface area, 100 sq. ft.

\* Efficiency based on ASHRAE Dust Spot 52.78.  
\*\* 1.5 HP upgrade increases airflow up to 20%.

This unit is to be used exclusively for source control in industrial applications.

# PLANNING THE INSTALLATION

## WARNING

The M32V Industrial Roll-around Media Air Cleaner is not explosion-proof. It must not be located or used where there is any danger of gas, vapor, or dust explosion.

### INTRODUCTION

Clean air is the subject of numerous laws and regulations. Typical requirements in the United States are those put out by the Occupational Safety and Health Administration (OSHA). Private groups, such as the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE), have also published numerous recommendations.

Normally, clean air is defined in regulations and recommendations as air having a limited amount of contaminant in it commonly expressed as parts per million or milligrams per cubic meter. Approved counteractions are intended to lower or eliminate the amount of contaminants in the air. One of the more common methods of achieving this goal is through the use of media air cleaners.

At no time should a media air cleaner be placed where there is a potential for explosion due to the presence of explosive dusts, gases, or vapors. Contact the nearest Air Quality Engineering representative for assistance in determining the correct application of a media air cleaner.

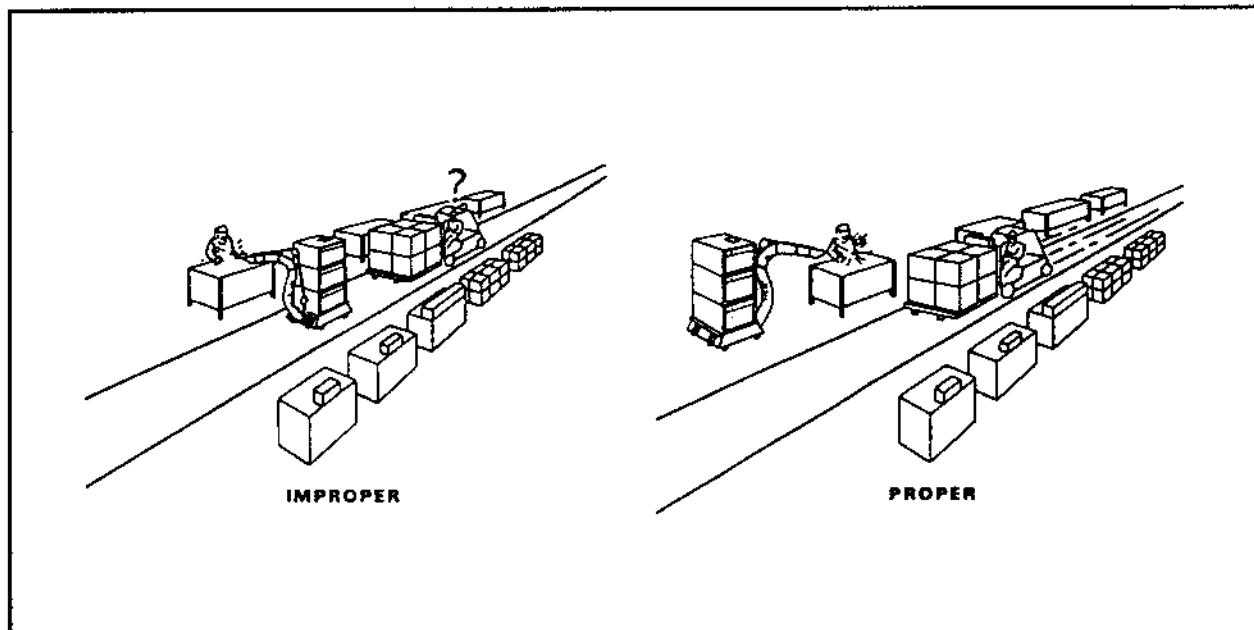
### **SIZING**

Sizing is the process of determining the amount of

air cleaning necessary in any given application. Since the M32V is a source capture air cleaner, the sizing process is relatively simple—provide one source capture hood per contaminant source.

### **LOCATION**

For most efficient operation, the M32V source capture hood should be placed as close to the contaminant source as possible. The maximum distance between the contaminant producer and the source capture hood should not exceed 18 inches. Therefore, in locating the M32V, be sure that the mechanical arm is capable of extending the source capture hood to within 18 inches of the contaminant source.



**FIGURE 2 - EXAMPLES OF PROPER AND IMPROPER M32V LOCATIONS**

## **ASSEMBLY**

### **WHEN ASSEMBLING THIS PRODUCT**

1. Read these instructions carefully. Failure to follow them could damage the product or cause a hazardous condition.
2. Check the electrical ratings given on the air cleaner schematic to the power source to insure compatibility.
3. After assembly is complete, check out the product operation as provided in these instructions.

## CAUTION

1. Do NOT connect the power source until the air cleaner is completely assembled.
2. If the air cleaner must be turned on for an electrical check, be extremely careful in avoiding electrical shock. Also, take care to avoid electrical shock. Also, take care to avoid the air cleaner's moving parts.

### UNPACKING

The M32V is shipped completely assembled except for the mechanical arm. The mechanical arm assembly is packaged in a separate box. Remove all shipping cardboard and banding. Be sure to inspect the packaging material before discarding it.

### ASSEMBLING THE M32V

#### Tools needed:

1. Standard screwdriver
2. Phillips screwdriver
3. 7/16" wrench

**NOTE:** See Figure 1, Page 3, when assembling the M32V.

#### Step 1

Remove the two Phillips screws and lock washers from the side of the M32V. Set the support tube

on the arm assembly onto the 7/8" pin on the cart. Fasten the support bracket of the arm to the M32V cabinet using the two Phillips 1/4 - 20 screws and lock washers.

#### Step 2

Mount the hood to the end swivel bracket of the arm using the two 1/4 - 20 hex head bolts and 1/4 - 20 nuts.

#### Step 3

Attach the two counterbalance springs from the studs on the 1" x 2" aluminum tube to the studs on the one-inch square support tube.

#### Step 4

Slip the hose and clamp over the opening flange on the roll-around cart. Slip the end of the hose and second clamp over the hood flange three to four inches, and tighten the clamp.

#### Step 5

Tie the hose to the mechanical arm using the two nylon belts provided.

### WIRING

The M32V has no special wiring requirements. It comes equipped with a 10-foot power cord and plug. The power source must be compatible with the voltage and frequency of the M32V. The rating on the M32V is located on the schematic on the inside of the filter access door. Route the power cord so that it is out of the way of the building's occupants. Do not use an extension cord.

## CHECKOUT AND OPERATION

### CHECKOUT

Before operating the M32V, check out the installation using the following procedures:

1. Make sure the air cleaner is oriented for good air circulation where it will not interfere with personnel and material traffic. Keep out of fire lanes and away from overhead cranes.
2. Check that the tension on the arm joints is correct so that the arm maintains a proper position. If not, readjust the tension adjustment screws (two adjustment screws).
3. Be sure that the source capture hood can be placed within 18 inches of the contamination.
4. Make sure that the prefilter and the primary filter are properly oriented and the airflow arrows are pointing toward the blower.
5. Make sure the filter change gauge (manometer) is level. See the spirit level in the right hand corner of the gauge.
6. Check the oil level in the filter change gauge, and adjust the zero knob so the oil level is at zero inches of water when the M32V is turned off.

## OPERATION

1. Turn on the air cleaner control switch. Make sure the blower is providing a strong discharge. Please note that the M32V airflow was factory-set at the maximum considering the filter efficiency and other options ordered, such as impingers and plenums.

If decreased airflow is desired, it can be accomplished by adjusting the variable sheave on the motor. It is very important to measure the amperage before and after the adjustments are made on the variable motor sheave to insure that the motor is not overloaded. The rated amperage is listed on the schematic on the filter access door.

2. The indicator light should be on whenever the blower is on.

3. The filter gauge should be level and should read zero when the M32V is turned off. If it does not read zero, adjust the reading with the adjustment knob on the gauge.

## CALIBRATION OF THE DIRTY FILTER GAUGE

After the air cleaner has been installed and is

ready for operation, the air filter gauge must be calibrated. See the following simple steps:

### Step 1

Check that the filter gauge is level. See the spirit level in the right hand corner of the gauge.

### Step 2

Check the red oil level, and adjust the zero knob so that the oil level is at zero inches of water when the air cleaner is turned off.

### Step 3

Turn the air cleaner on with the clean filters in place. Place the green arrow adjacent to the point at which the red oil rises. The green arrow will indicate clean filters.

### Step 4

Place the red arrow on the gauge scale one inch higher (according to the scale) than the green arrow. This will indicate dirty filters. A one-inch rise in static pressure indicates a reduction in airflow of approximately twenty-five percent.

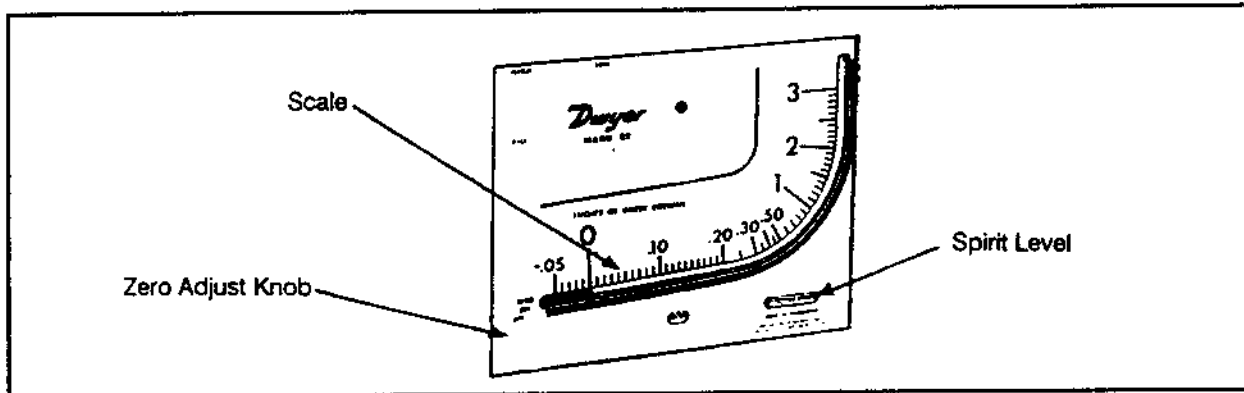


FIGURE 3 - DIRTY FILTER GAUGE

## MAINTENANCE

### CAUTION

Always disconnect the power to the M32V before working on or near the air cleaner.

### FILTER MAINTENANCE / REPLACEMENT

Dirty air passes through the prefilter. Large particulate, such as lint, is removed by the prefilter. The remaining particulate is then captured by the primary filter.

As the contaminant load on the filters increases, the filters become more efficient in capturing the smaller particles. At the same time, however, the dirty filter allows less air to pass through resulting in less particle collection and a decrease in the overall effectiveness of the air cleaner.

The M32V air cleaner is equipped with a pressure gauge which indicates the restriction to airflow caused by the filters loading with particulate. When the air filter gauge reaches the red arrow or a noticeable reduction in airflow occurs, it is time to clean or replace the prefilter and possibly the primary filter.

#### **Step 1**

Turn off the air cleaner. Open up the filter access doors, and slide out the prefilter.

#### **Step 2**

If the particulate is dry, the standard four-inch prefilter can be cleaned by shaking or vacuuming. If the prefilter does not come clean after vacuuming or is saturated with oil, the prefilter should be replaced.

#### **Step 3**

Replace the prefilter, and turn on the air cleaner. The reading on the air filter gauge should be at or near the green arrow. If no performance improvement is evident after cleaning or replacing the

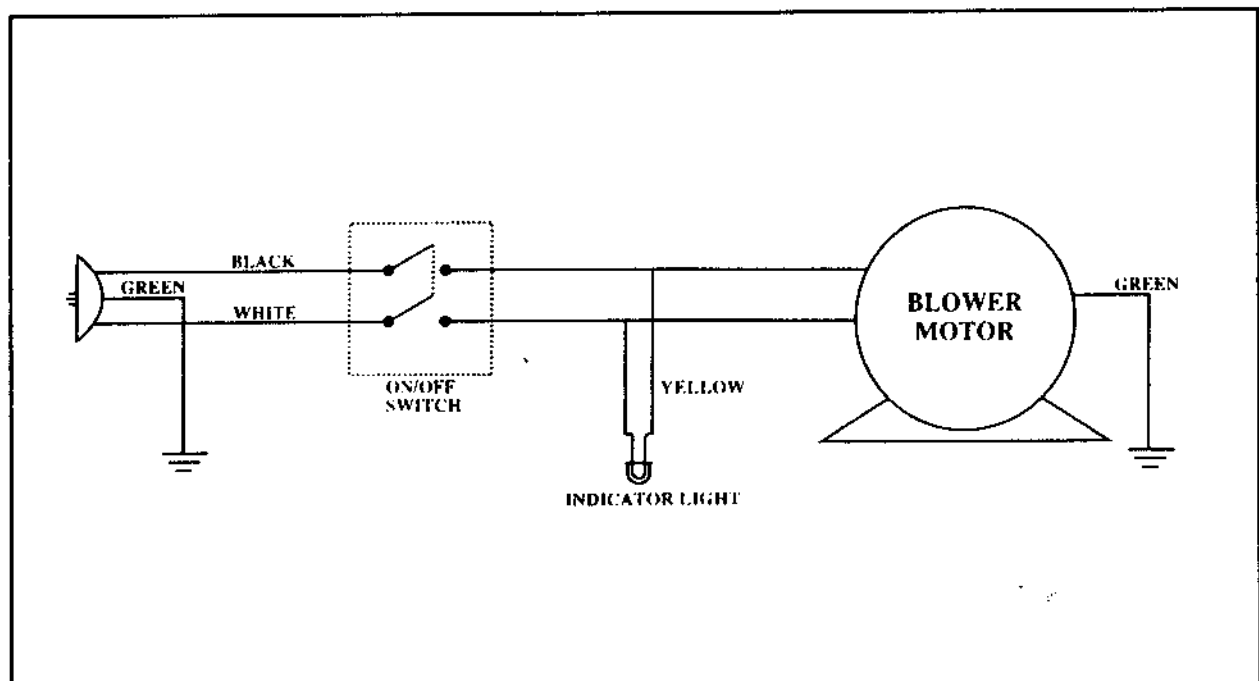
prefilter, the primary filter will have to be replaced. In most cases, the prefilter can be replaced several times before the primary filter will need to be replaced.

**NOTE:** An increase of one inch on the gauge would be approximately a 25% decrease in airflow. If the reduction in airflow is not a problem, the air cleaner can be operated beyond this point. The red arrow can be moved to the point at which the decrease in airflow becomes a problem.

#### **GAUGE MAINTENANCE**

Check the oil level occasionally, and adjust the zero knob as required. Be sure all pressure is removed by turning the air cleaner off before adjusting the zero knob. If it becomes necessary to add more oil to the gauge, be certain to use only Dwyer Red Oil which is provided with the air cleaner. Other fluids may damage the gauge. To fill the gauge, back out the zero adjust knob until it stops, then turn in approximately three full turns so there is room for adjustment in either direction.

Clean the gauge with a soft cloth using a little pure soap and water. Use of a small brush will aid in cleaning the knobs. Avoid cleaning fluids and liquid soaps which may have chlorinated solvents in them as they may damage the gauge.



**FIGURE 4 - ELECTRICAL SCHEMATIC**

# PARTS LIST

NO.	DESCRIPTION	M32V 1 PHASE
1	On / Off Switch	10140
2 Extended Service Filter Selection	Primary Filters: 95% ASHRAE, standard 85% ASHRAE, standard 65% ASHRAE, standard 95% DOP, optional	41136 41137 41138 41161
3	Motor Sheave	30166
4	Motor, 1HP	40013
5	Blower	37020
6	Exhaust Grille	21592
7	Belt	30582
8	Blower Sheave	30601
9	Prefilters, Pleated Media	41124
10	Prefilter, Optional Aluminum Mesh	41170
11	Hood	05356
12	Hose, 8" diameter x 10' long	30021
13	Strap	30513
14	Casters, Swivel	30041
15	Hose Clamp	30033
16	Springs	30512

**AIR QUALITY ENGINEERING, INC.**  
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**MINNEAPOLIS, MN 55427-2083**

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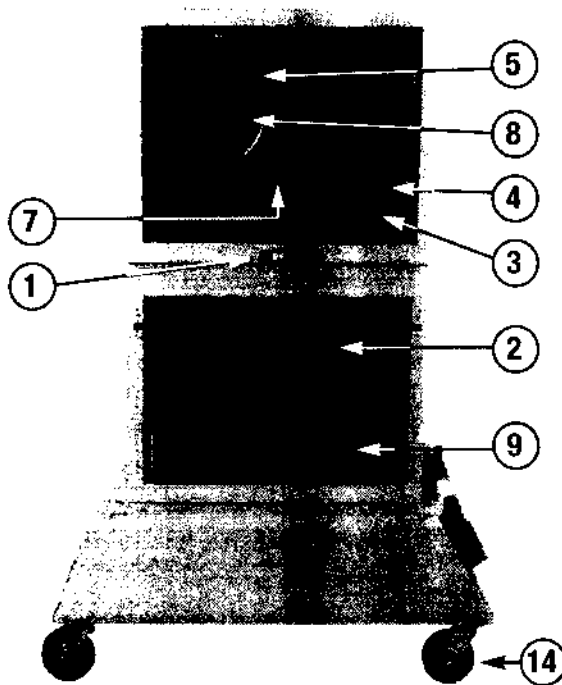
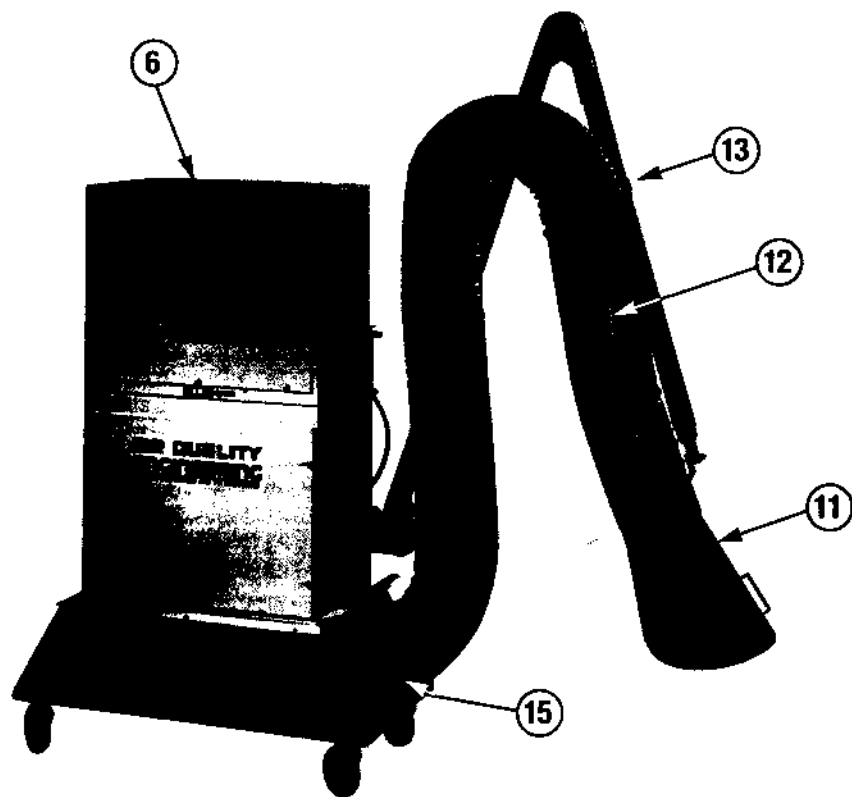


FIGURE 5 - EXPLODED VIEW OF M32V AIR CLEANER

# CERTIFICATE OF WARRANTY

## 3-YEAR LIMITED WARRANTY

Air Quality Engineering, Inc., (AQE) 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. **REGISTRATION:** The purchaser's completion and mailing of the Registration Card to Air Quality Engineering, Inc., 3340 Winpark Drive, Minneapolis, Minnesota, 55427 within 30 days of original purchase.
2. **AUTHORIZATION:** The purchaser will contact Air Quality Engineering, Inc., (612) 544-4426, for authorization and returned goods number (RTA) and shipping address. AQE will direct purchaser to either return the necessary parts, or the Product, at AQE's option.
3. **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 number (RTA) clearly displayed on outside of carton.
4. **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.
5. **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.
6. **SERIAL NUMBER INTACT:** A showing by the original purchaser that the Serial Number has not been altered or removed.
7. **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 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, AND THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED BEYOND THE THREE YEAR DURATION OF THIS WARRANTY. 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 which vary from state to state.

MANUFACTURER & WORLDWIDE DISTRIBUTOR OF SMOKEMASTER® AIR CLEANING SYSTEMS