

ACU-EVAC® IE ETL ETL CE

ACU-EVAC® II ETL ETL CE

OWNER / OPERATOR MANUAL

HIGH EFFICIENCY FILTRATION PARTICULATE, FUME AND SMOKE EVACUATOR

(DO NOT USE IN THE PRESENCE OF FLAMMABLE GASES)



Acu-Evac® model IE shown

Acuderm, Inc.

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ACUDERM. INC

IMPORTANT INFORMATION!

Congratulations! You have purchased the latest technological advancement in surgical smoke evacuators.

Unit is intended to operate under normal conditions found in a clinical environment. Operator should be familiar with equipment typically found in a clinical environment.

There are certain precautions you must observe for proper and trouble-free operation of your unit.

1. TURN 'ON' PROCEDURE

- a. PLUG IN YOUR UNIT.**
- b. TURN "ON" SWITCH (back of unit).**
- c. TURN "ON" FOOTSWITCH (back of unit).**
- d. ADJUST POWER WITH ROTARY SWITCH TO DESIRED VOLUME (Around 12 to 2 o'clock position)**

Do Not start at Maximum! Additional power is needed as the filter fills and suction drops.

- e. Use footswitch to turn on and off during operation. Do not adjust rotary switch unless more power is needed.**

2. TURN 'OFF' PROCEDURE

- a. Step on footswitch to turn "off".**
- b. Turn "off" switch (back of unit). This will not turn off the timer**
- c. Unplug from wall.**

3. It is recommended to power down the Acu-Evac when not in use.

FOREWORD

Welcome to a growing family of satisfied Acuderm®, and Acu-Evac® product owners. As a leader in the field of **High Efficiency Surgical Smoke Evacuators** our goal is to engineer and manufacture safe and efficient quality products. We are certain you will agree that this **Surgical Smoke Evacuator** meets our goal.

Regardless of how well a piece of equipment is designed, misuse, abuse, or neglect will significantly reduce its performance ability. Often the misuse, abuse or neglect occurs unintentionally because the operator is unaware of proper operating and maintenance procedures. This manual provides you with the information required to properly operate and routinely maintain your Acu-Evac® Surgical Smoke Evacuator. The information included in this manual applies to all Acu-Evac® models unless noted for specific models.

We urge you to read this manual carefully before operating your new Acu-Evac® unit.

TABLE OF CONTENTS

POWER ON AND OFF OPERATIONS.....	2
FOREWORD	3
OPERATION INSTRUCTION ACU-EVAC® IE & II	5
DESCRIPTION OF SYMBOLS AND NOTES	6
IMPORTANT INFORMATION	
MAIN FILTER	8
VACUUM HAZARDS	8
PREVENTING OVERHEATING OR THERMAL SHUTDOWN	9
NON USER SERVICEABLE PARTS	9
DISPOSABLES	10
IMPORTANT WARNING.....	10
GENERAL DESCRIPTION.....	10
RECEIVING INSPECTION	11
STORAGE	11
INVENTORY	11
ASSEMBLY	
WALL MOUNTING INSTRUCTIONS FOR DRY WALL	12
WALL MOUNTING INSTRUCTIONS FOR CONCRETE BLOCK WALL.....	14
CART ASSEMBLY INSTRUCTIONS	15
MAIN FILTER INSTALLATION	16
PRE-FILTER INSTALLATION	17
ELECTRICAL CONNECTION	17
CONTROLS AND OPERATION	
POWER ON / OFF	18
RESET SWITCH AND INDICATORS	19
AIRFLOW CONTROL	20
PNEUMATIC FOOT PEDAL SELECTOR SWITCH AND RECEPTACLE.....	21
ADDITIONAL INFORMATION	
ELECTRICAL HAZARDS AND GENERAL SAFETY	22
FUSE REPLACEMENT	23
MAIN FILTER MONITOR	24
MAIN FILTER REPLACEMENT	25
USER MAINTENANCE	
MAINTENANCE	25
INSPECTION	26
CLEANING	26
ORDERING INFORMATION	
RECOMMENDED SPARE PARTS & ACCESSORIES	27
TROUBLESHOOTING	
TROUBLESHOOTING GENERAL AND CONTACT INFO	28
TROUBLESHOOTING TABLE	28
WARRANTY	
ACU-EVAC®II-1 II-2 ACU-EVAC®IE-1 IE-2	29
APPENDIX	
9.1 APPENDIX I : TECHNICAL DATA	30,31
9.2 APPENDIX II : FRONT ENCLOSURE CONTROLS LOCATION	32
9.3 APPENDIX III : BACK ENCLOSURE CONTROLS LOCATION / UNIT MARKINGS	33



OPERATION INSTRUCTION INTENDED USE OVERVIEW

Acu-Evac® is designed to capture, collect and filter surgical smoke at the site of production in both open procedures that generate small to large volumes of plume and closed procedures which generate small volume of plume.

Surgical smoke is produced during surgery with electrosurgical devices (ESU or RF), cautery or lasers. This smoke creates a visibility problem for the surgeon, is irritating to the eyes, nose and bronchi, is mutagenic and toxic to breathe and contains blood droplets which may contain live viruses.

Regular and proper use of the Acu-Evac will minimize or eliminate these hazards.

Acu-Evac, a multi-staged surgical smoke evacuator operates on the principle of a vacuum drawn through a high efficiency disposable main filtration unit, with attached 6 ft. hose and a special patented disposable collection nozzle/pre-filter, which assures the maximum capture of electrosurgical and laser fumes and smoke plume.

Acu-Evac was designed especially for open procedures which produce varying volumes of plume. It may also be used for closed procedures.

The first challenge is to capture and collect the hazardous plume. The TX Nozzle is a multi-patented nozzle with a flared horn which has an expanded field of influence to maximize the capture and collection of surgical smoke. The TX Nozzle incorporates a preliminary sock filter which filters larger particulates and blood droplets.

The main filter (M-1 or M-2) consists of the latest state of the art ULPA (Ultra Low Penetrating Air) filter with an efficiency rating of 99.99997% on particles 0.01 micron and 0.12 micron MPPS and charcoal (macro-porous, meso-porous and micro-porous) filter which adsorbs gases and odors. Each main filter is leak tested and certified. In open procedures that produce small to moderate volumes of plume, an optional boom arm can be used to position the TX Nozzle in place prior to the start of a procedure. In open procedures that produce larger volumes of plume, the boom arm is not recommended, rather an assistant is recommended to position the TX Nozzle as the plume is generated for maximum capture.

Proper airflow capture speed can be adjusted using the rotary knob. The starting airflow adjustment should be between 12 and 2 o'clock. Once the proper airflow speed is determined, an optional footswitch is recommended to turn the Acu-Evac on and off without dialing the airflow adjustment each time. As the main filter loads up, a drop in airflow speed will be noticed. At that time, turn the airflow adjustment up to the desired flow rate. Positioning of the TX Nozzle is important. Place the nozzle on the receiving end of the room airflow direction within 3 inches of the surgical site. Adjust as necessary for maximum capture. The Acu-Evac® IE-1 (110-120v) and Acu-Evac® IE-2 (220-240v) use a powerful AC motor while the Acu-Evac® II-1 (110v – 120v) and Acu-Evac® II-2 (220 – 240v) Models use a state-of-the-art brushless D.C. motor.

The timer board monitors the actual filter use and alerts the operator to when 16 hours have transpired. This allows the operator to replace or have a replacement main filter ready. The timer reset button can be pushed to start a new 16-hour cycle. Second full filter alert feature is the REPLACE FILTER WARNING cycle. REPLACE MAIN FILTER WARNING will display a yellow flashing indicator light as the airflow system cycles ON-OFF, alerting the operator that there is a foreign object restricting airflow or a full main filter. After this problem has been remedied, or a new filter is installed the airflow will continue automatically. Be sure to push the timer reset button to start a new 16 hour cycle.

2. DESCRIPTION OF SYMBOLS AND NOTES



"Operating instructions"



"Warning" notes alert the user to the possibility of personal injury.



"Caution" notes alert the user to the possibility of damage to the equipment.



"Notes" alert the user to the possibility of damage to the equipment.



"Electrical Hazard" DO NOT OPEN CABINET! No serviceable parts within unit.



BIOHAZARD *"Biological Hazard" Use proper biohazard handling/disposal procedures*



TYPE BF APPLIED PART



"OFF" for part of the equipment TYPE BF APPLIED PART



"ON" for part of equipment



Protective earth (ground)



"Fuse"



"Dangerous voltage"



Single Phase



Do not tamper



Do not reuse



Manufacturing Date



Manufacturer



Foot Switch

3. IMPORTANT INFORMATION

3.1 MAIN FILTER



The Main Filter is designed for general use such as electrosurgical smoke (Hyfrecator, Bovie, Ellman, Electricators, etc.), cautery and laser smoke (CO₂, Erbium, etc.). Under these conditions a M-1 main filter life expectancy of 16 hours and 32 hours for the M-2 main filter can be achieved. With the advent of high-tech lasers, which produce a larger volume of smoke plume, the life expectancy may be less depending on the number of procedures performed. As the filter becomes full, you will notice reduced capture efficiency necessitating a higher power setting. This is true of all smoke evacuators. In the event of reduced capture efficiency prior to the 16 hours of filter life, the main filter should be replaced, and the reset button pressed.

*Hyfrecator® is a registered trademark of ConMed® Corp.

3.2 VACUUM HAZARDS



Acu-Evac® contains a high Thru Flow centrifugal vacuum blower. Incorrect or careless application of this powerful suction to patient or other person may cause severe injury. Therefore, observe the following to reduce the possibility of an accident.

Never turn on Acu-Evac® with end of collection hose or nozzle unattended next to patient. It is best to start the unit and gradually bring nozzle close to field of surgery (2 - 3 inches), with end of nozzle close to surface prior to starting laser or electrosurgical procedure.

Do not bring collection end of hose or nozzle close to eyes, ears, mouth, nostrils, or other body openings, or surgical openings.

Never use Acu-Evac® to suction any liquids or allow end of hose or nozzle to come in contact with liquids. Do not use Acu-Evac® for any other suctioning task except for surgical laser, electrosurgical, or cautery smoke removal. Avoid allowing end of nozzle or hose to become suddenly plugged with paper, gauze pads, sponges, drapes, or other objects. A high suction "surge" may result, causing the flexible hose to instantly shorten significantly (bellows effect) with the risk of jerking the hand, or knocking over objects with the hose, or disturbing the surgical field. Unplug Acu-Evac® when unattended.

3.3 PREVENTING OVERHEATING OR THERMAL SHUTDOWN



Do not allow wall, other objects such as drapes, covers or towels to block unit exhaust (gray grille, located in the upper left-hand side of cabinet).

Do not use Main Filter when the full filter alert signals when both yellow indicator lights come on and the motor cycles on - off. Please refer sec. 6.4

Do not reuse procedure packs on another patient.

Do not use short procedure disposables packs for long duration procedures.

Do not allow foreign objects to block end of nozzle or hose or suction foreign objects into end of nozzle or hose.

IMPORTANT INFORMATION

NO USER SERVICEABLE PARTS
DO NOT OPEN UNITS



Warning: Do not modify this equipment without prior written authorization of the manufacturer

Acu-Evac® IE and II cabinets are specially sealed at the factory at time of manufacture. There are no user-serviceable parts inside the cabinet. All units that have been opened or disassembled by anyone other than Acuderm, Inc. or its authorized facilities immediately forfeit warranty. Acuderm, Inc. is not liable for damages, injury, or death as a result of unauthorized use, disassembly, tampering, or use other than that implied or expressed within this manual, by Acuderm, Inc. or any of its authorized representatives.



3.4 DISPOSABLES

Acuderm, Inc. has incorporated nozzle, preliminary filter and hose sections into a complete line of procedure packs, TXPACK for short (approximately 15 minutes) duration, and LTXPACK for long (approximately 60 minutes) duration procedures.

IMPORTANT WARNING!



All disposable procedure packs must be disposed of in accordance with OSHA Bloodborne Pathogen Rule in the proper Biohazard Waste receptacle after use on each patient. Due to the amount of hazardous material collected in one procedure, and the risk of cross contamination, do not use a Procedure Pack for more than one patient. Attempts to re-sterilize any disposable set or component after its one-time use may expose health care workers to unnecessary risks of contamination. The Procedure Packs are not designed to be disassembled; dispose of the unit whole.

The HOSE may be used to connect the short procedure pack (TXPACK) or long procedure pack (LTXPACK). For extended length, 2 HOSES may be connected together. TXPACK with TX™ Nozzle -This patented special high performance nozzle is designed to handle smoke plume generated by electrosurgical units and the more challenging plume produced when using a laser for short duration procedures for up to 15 minutes. LTXPACK- This patented special high performance nozzle is designed to handle smoke plume generated by electrosurgical units and the more challenging plume produced when using a laser for longer duration procedures for up to 60 minutes.

3.5 GENERAL DESCRIPTION

The Acu-Evac® IE-1 and IE-2 and Acu-Evac® II-1 and II-2 models are used for surgical smoke and fume evacuating and can be used for continuous operation. A hospital grade plug-in, line cord operates from either 110 -120Vac, 50/60Hz or 220-240Vac 50/60Hz single phase. IE models utilize an AC motor/ blower system and II models utilize a brushless DC motor/blower system. Both IE and II models are equipped with an isolated airflow front panel control. Protection features include excessive temperature and over-current sensing with automatic shutdown.

Other features are Filter Performance Monitor which alerts the operator that replacement of the filter is near or required. A High Vacuum momentarily motor off protection feature is utilized for protection of operator, patient, and over-temperature shutdown.

3.6 RECEIVING INSPECTION

This product has been packed and shipped in a special container for safe transit. Before removing the units from the shipping container inspect the container for possible damage. While removing the unit (from the shipping container and packing material) inspect the unit for possible damage. If any damage has occurred, contact both the appropriate shipping carrier and Acuderm, Inc.

3.7 STORAGE

This unit can be stored in temperatures between 32°F (0°C) and 151°F (66°C) and the relative humidity is between 10% and 90%

****Save the shipping carton and packing material for any future shipping requirements.**

3.8 INVENTORY

3.8.1 ACU-EVAC® WALL MOUNT STARTER PACKAGE INCLUDES:

- One of the following models
 - Acu-Evac®IE-1 (110-120v)
 - Acu-Evac®IE-2 (220-240v)
 - Acu-Evac®II-1 (110-120v)
 - Acu-Evac®II-2 -(220-240v)
 - Hospital Grade plug with a 10' Power Cord (110-120v models only) or. 10' Power cord with wires bare, must install hospital grade plug (220v-240v models only)
 - M-1 Main Filter
 - 6' Hose
 - TX Nozzles (5 of each)
 - Wall Mount Kit (Bracket, 4 toggle bolts (8-32) 4 machines screws (8-32x2"), 1 Flat head screw
- Optional accessories– Not included with Wall Mount Package but available for purchase:
- Pneumatic Footswitch
 - Boom Arm

3.8.2 ACU-EVAC® CART MOUNT STARTER PACKAGE INCLUDES:

- All components listed in Wall Mount Package except Wall Mount Kit
- Cart Includes:
 - Cart Handle
 - Cart Base
 - 2 bolts (2 ½" x 3/8") and 2 nuts (3/8") for cart base
 - 2 bolts (2 ½" x ¼") and 2 wing nuts to attach unit to cart
 - 2 Brackets and 6 Screws – attaches to back of Acu-Evac® unit
- Boom Arm
- Pneumatic Footswitch

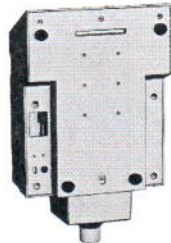


Do not place Dual Cart on an incline greater than 5 degrees, the cart may become overbalanced and fall over.

3.8.3 ACU-EVAC® COUNTER MOUNT PACKAGE INCLUDES ONE OF THE FOLLOWING:

- All components listed in Wall Mount Package except Wall Mount Kit
- 4 Rubber adhesive pads – Affix to back of Acu-Evac® unit

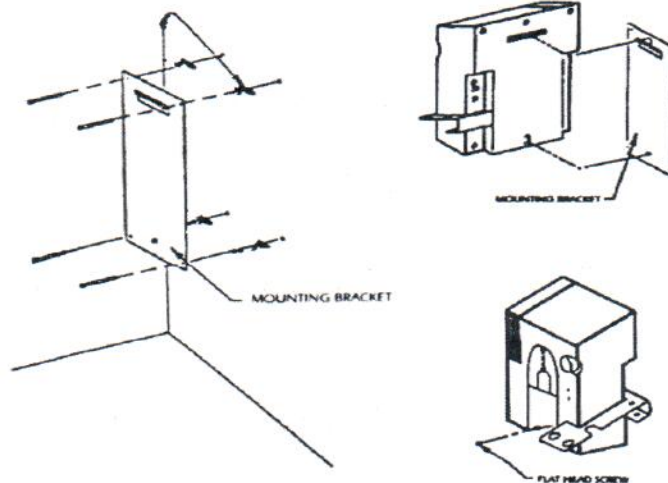
For counter top, use accessory “CTFEET”
refer to figure below for correct placement.



LOCATIONS FOR CTFEET PLACEMENT

4. MOUNTING INSTRUCTIONS

4.1 WALL MOUNTING INSTRUCTIONS FOR DRY WALL



Power Cord must be connected to power input module (rear of enclosure) before hanging Acu-Evac to wall bracket.

1. Using the mounting bracket as a template, use a level to position the bracket horizontally.
2. Mark the holes at center point with a pencil.

3. Using a power drill, drill a 3/8" hole at the center of each center point pencil mark. If you don't have a drill, hammer in a nail and then wiggle it around to make the hole larger. Remove the nail and continue to enlarge the hole with a screwdriver until the toggle will slide in.
4. Insert a 2" screw into one of the 4 holes of the wall bracket and then thread the spring loaded metal wings approximately 1/2" onto the bolt slightly so that the wings face the bolt head.
5. Fold the metal wings together and insert into the hole. Pull the bolt back toward you slightly so the expanded metal wings hit the back side of the wall and then slightly tighten the screw. The spring-loaded metal wings will now snap open.
6. Repeat instructions above for the remaining 3 corners. Once the bracket is level and squared, tighten all screws.
7. Insert the power cord into the power input module in the Acu-Evac®. (located at the rear of enclosure)
8. Hang the Acu-Evac® to the wall bracket.
9. Insert the 8-32 1/2" flat head screw into the lower hole the mounting bracket and tighten fully.
10. Plug power cord into wall receptacle. Your Acu-Evac® is ready to use.

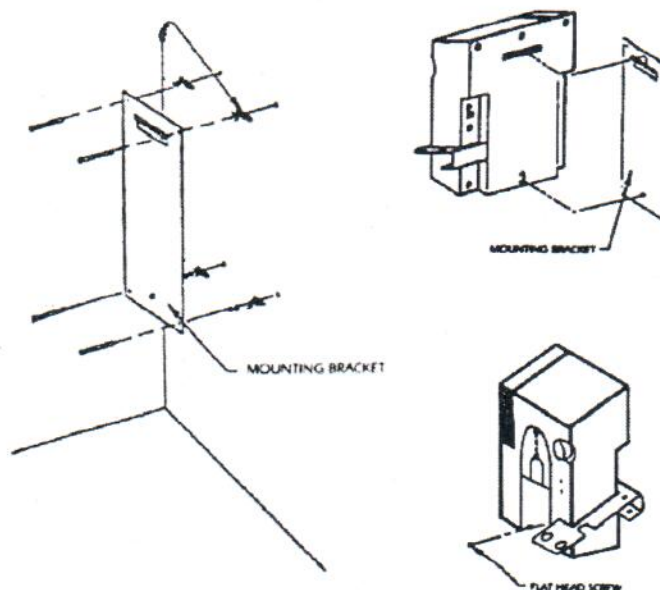
MATERIALS (Included)

- 4 – 8-32 Toggle bolts
- 4 – 8-32 X 2" and Machine screws
- 1 – 8-32 1/2" Philips Flat head machine screw
- 1 – Wall Mounting Bracket

TOOLS REQUIRED (Not included)

- Pencil
- Level
- Philips or Standard Flat Screwdriver (as required for screws)
- Power Drill with 3/8" bit or hammer
- Eye Protection

4.2 WALL MOUNTING INSTRUCTIONS FOR CONCRETE BLOCK WALLS



1. Using the mounting bracket as a template, use a Level to position the bracket horizontally squared.
2. Mark the holes at center point with a pencil.
3. Using a power drill, drill a 3/8" hole at the center of each center point pencil mark.
4. Blow out the masonry dust from the holes and tap in an anchor with a hammer into each of the 4 holes.
5. Align the wall bracket to the anchors and screw in the screw to each of the four corners, tighten completely.
6. Insert the plug into the power socket on the Acu-Evac®.
7. Hang the Acu-Evac® to the wall bracket.
8. Insert the 8-32 1/2" flat head screw in to the lower hole the mounting bracket and tighten fully.
9. Plug power cord into wall receptacle. Your Acu-Evac® is ready to use.

MATERIALS (Included)

- 1 – 8-32 1/2" Philips Flat head machine screw
- 1 – Wall Mounting Bracket

TOOLS REQUIRED (Not included)

- 4 – lead masonry anchors
- 4 – 2" flat head screws

Pencil
Level
Pliers or Channel Locks
Philips or Standard Flat Screwdriver (as required for screws)
Power Drill with 3/8" bit
Hammer
Eye Protection

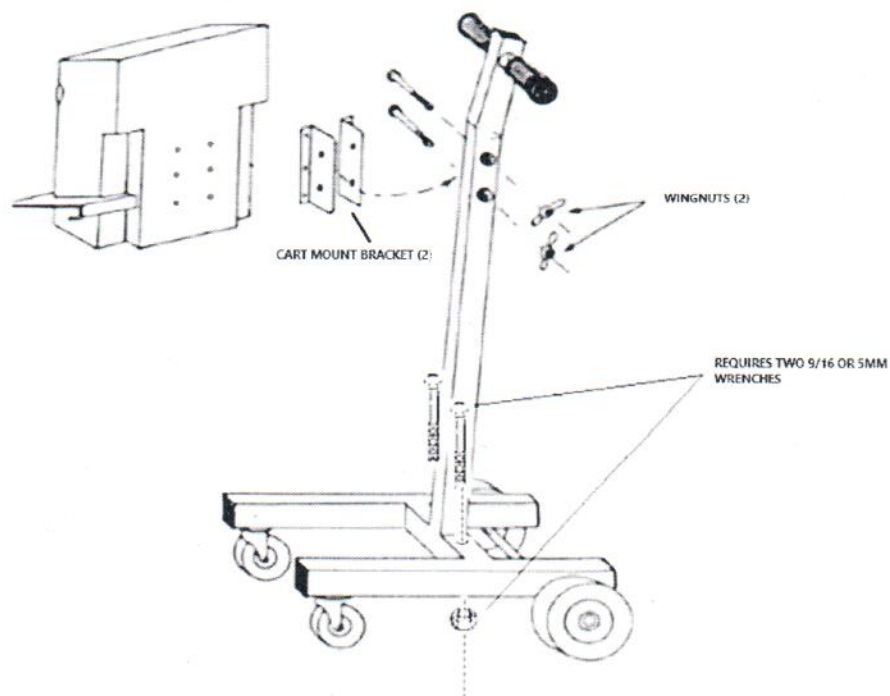
4.3 CART ASSEMBLY

MATERIALS (Included)

2 bolts (2-1/2" X 3/8") and 2 nuts (3/8") for cart base
2 bolts (2-1/2" X 1/4") and 2 wing nuts to attach unit to cart
2 Brackets and 6 Screws – attaches to back of Acu-Evac® unit
1 – Wall Mounting Bracket

TOOLS REQUIRED (Not included)

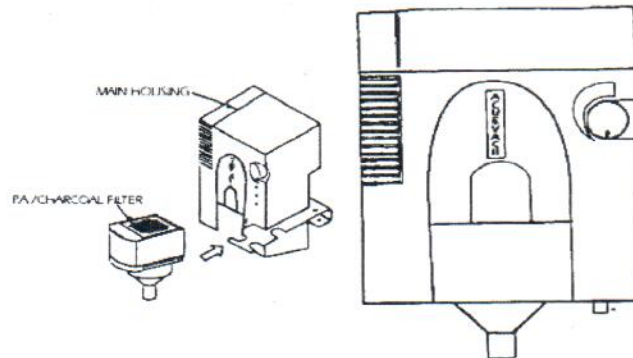
2 – 9/16" Open Ended Wrenches
1– Philips Screw Driver



1. Align handle to cart base as shown.
2. Use two 9/16 Inch open end wrenches to secure cart handle to cart bottom, by using supplied two 2 1/2" X 3/8" bolts and two 3/8" nuts.
3. Attach Acu-Evac® to cart by using supplied two 2 1/2" X 1/4" bolts and two 1/4" wing-nut.

5. INSTALLATION

5.1 MAIN FILTER INSTALLATION



Power must be in OFF position.

Prior to installing Main filter, remove RED plug

Remove used Main Filter from Unit

Place RED plug in used Main Filter (Discard in biohazard bag or receptacle)

Slide new Main Filter until completely inside housing



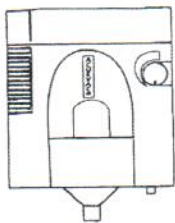
NOTE: REMOVE RED PLUG FROM BOTTOM OF MAIN FILTER PRIOR TO OPERATING ACU-EVAC®. Failure to do so will render the unit inoperative and will result in overheating and possible motor damage.

Turn Power On

Press reset button once

Time is now reset for 16 hours

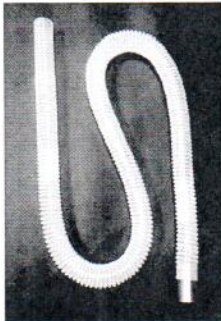
Reset button is located on the bottom right side of housing.



Reset Button here

When the motor cycles on and off and the timer lights are flashing this is an indication the filter is Full, or the nozzle is obstructed.

5.2 PRE-FILTER AND HOSE INSTALLATION



The hose should be replaced with each Main Filter

Take the larger end of the hose and slide into the Main Filter above

The other end of the hose has a plastic connector to attach to the TX Nozzel or LTX Nozzel

5.3 PRE-FILTER INSTALLATION



Slide and rotate the round end of the TX Nozzle or LTX Nozzle onto the hose connector

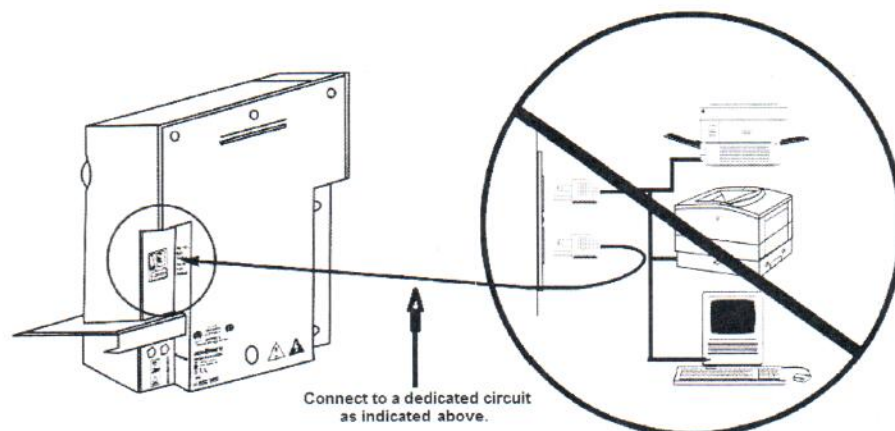
Your multi-stage filtration system is ready to use.

5.4 ELECTRICAL CONNECTION

Below is the electrical connection diagram for all Acu-Evac® models. The unit requires a dedicated outlet as follows;

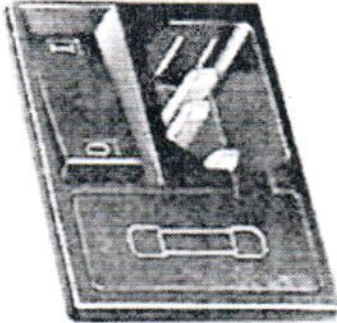
Acu-Evac® IE - 1 and Acu-Evac® II - 1: Requires connection to single phase ~ 110 / 120Vac, 15 Amp outlets

Acu-Evac® IE - 2 and Acu-Evac® II - 2: Requires connection to single phase ~ 220 / 240Vac 15 Amp outlets.



6. CONTROLS AND OPERATION

All Acu-Evac® models have the same controls features listed below.



Power ON/OFF Switch

The power on/off switch is located on back of enclosure.

Turns power to Acu-Evac® IE or II on and off.

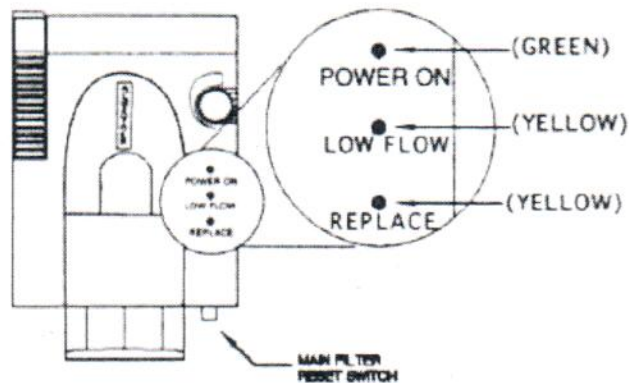
(See Appendix III)

6.1 OPERATION POWER ON / OFF

The main power switch is located on the right side of the back of the enclosure, when looking at the unit from the front. The power switch is part of the power input module which contains the power cord receptacle and fuse module (See Appendix III). To Power On / Off unit please follow the steps below;

1. Turn Airflow Control to minimum (around 8 o'clock).
 2. Make sure that Main Filter and Necessary Accessories are installed.
 3. Position Foot Switch to OFF (see section 6.5)
 4. Insert power cord into power input module, rear of enclosure (See section 5.4) insert male end into wall unit.
 5. Push power switch to ON - Green indicator will light.
 6. Slowly advance AIRFLOW CONTROL, check for airflow at end of TX nozzle. Set AIRFLOW CONTROL about mid-range for maximum smoke/plume capture.
- For Footswitch, see page 21.

6.2 RESET SWITCH AND INDICATORS



POWER ON - green L.E.D. on

WARNING LEVEL - top yellow L.E.D. on, bottom yellow L.E.D. off

ALARM LEVEL - top yellow L.E.D. on, bottom yellow L.E.D. flashing.

CONTROLLER FAILURE - both yellow L.E.D.'s flashing alternating (Contact factory for assistance).

RESET BUTTON PRESSED - both yellow L.E.D.'s on (green L.E.D. on)
{Lamp check}

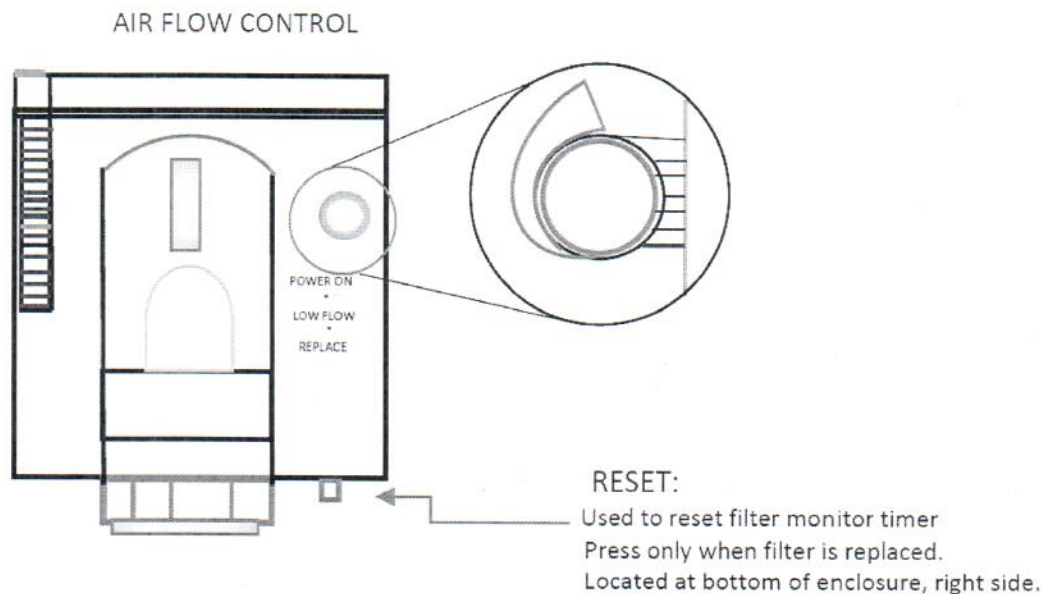
RESET BUTTON RELEASED - both yellow L.E.D.'s off (timer reset)

6.3 MAIN FILTER TIMER RESET SWITCH

The reset switch is used to reset Filter Monitor Timer to 00:00:00. Press reset when placing a new filter or to reset the clock to start a new 16-hour cycle.

When using an M-2 Filter, push the reset button to reset the timer to use the second portion of the filter. The M-2 Filter is a 32 hour filter (2 sets of 16 hours) which requires 1 reset after 16 hours to continue to the next 16 hour set.

6.4 AIRFLOW CONTROL

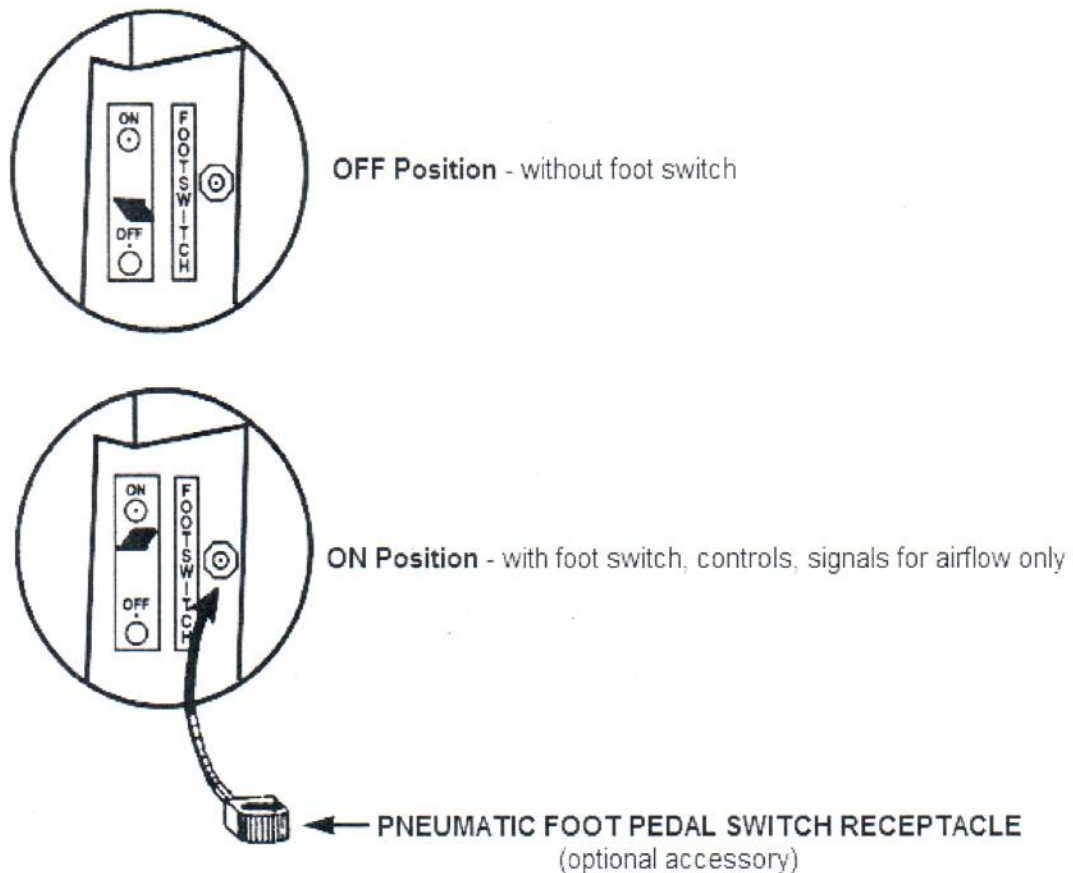


Clockwise (CW) Turn right Rotation increase airflow.

Counterclockwise (CCW) turn left to decrease airflow.

We recommend that the Airflow Control be set counter clockwise (turn left) for minimum airflow before turning on power. Power On and advance Airflow Control Slowly clock wise (turn right) while positioning TX nozzle at surgical site. Slowly advance airflow control clock wise until fumes and smoke plume are captured (evacuated) from surgical area.

6.5 PNEUMATIC FOOT PEDAL SELECTOR SWITCH AND RECEPTACLE



6.6 OPTIONAL PNEUMATIC FOOT SWITCH

1. Position Selector Switch to the ON position. INSERT Foot switch tube into Pneumatic Receptacle. (See section 6.5)
2. Press Foot switch to control the stop/start of airflow. The Filter Monitor Timer continues to run until the main power is turned OFF



THE FOOT SWITCH DOES NOT TURN OFF MAIN POWER AND DOES NOT STOP THE TIMER ON THE FILTER.

7. ADDITIONAL INFORMATION

7.1 ELECTRICAL HAZARDS AND GENERAL SAFETY

When using electrical devices, basic safety precautions should always be followed to Prevent the risk of fire, electric shock, and/or injury to persons:



Read all instructions carefully. To protect against electric shock, do not immerse cord, plug, Acu-Evac®, including its cord or disposable accessories in water or any other liquid. For electric and general safety purposes, use Acu-Evac® only over dry, clean floors. Only plug Acu-Evac® into correctly grounded 3-prong receptacle as indicated in section 2.7, protected by correct size circuit breaker or equivalent protective device. Avoid use of extension cords of any type. NEVER use a 3 to 2 prong adapter for obsolete 2 prong receptacles. Obsolete receptacles should be replaced by a competent electrician.



NEVER suction liquids of any kind with Acu-Evac®.

Do not use Acu-Evac® outdoors.

Carefully route Acu-Evac® power cord so it is not susceptible to being rolled over by wheels, casters, or slides, or any other appliance or fixture. This also applies to foot switch cord or tubing. UNPLUG UNIT WHEN NOT IN USE. Periodically inspect hospital grade power cord for nicks, cuts, breaks in the jacket, or any exposed conductors. In the event of damaged power cords or plugs, discontinue use immediately. Call 1-800-327-0015 (in the USA)



NEVER attempt to open sealed Acu-Evac® cabinet.



There are no user serviceable components inside. Opening cabinet immediately voids warranty. Acuderm, Inc. accepts no liability or consequences for any injury or damages resulting from opening unit cabinet, tampering, misuse, abuse or failure by user to comply with instructions for recommended use.



No Acu-Evac® parts have been designated repairable. Therefore, no circuit diagrams and component parts list are provided. Please call 1-800-327-0015 (in the USA).

NOTE

Acu-Evac® comes equipped with a 10 ft. Hospital Grade Cord with an integral molded Hospital Grade 3 prong plug (110v – 120v models only).

7.2 FUSE REPLACEMENT

NOTE

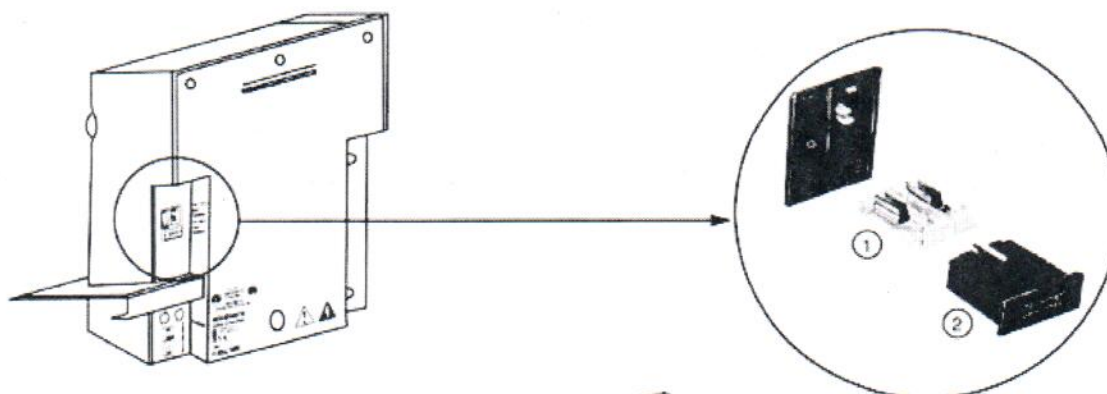
Turn power off and remove line cord from receptacle.

For all Acu-Evac® models, both fuses should be checked as shown below. As above, be certain Acu-Evac® is unplugged before performing any maintenance.

Acu-Evac® IE-1 and Acu-Evac® II-1 is protected by two Slo-blo® fuses (type MDL, 1/4" x 1 1/4" rated 7.0 amps, for 120Vac, 50/60Hz (U.S.A.)).

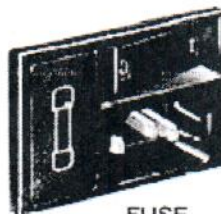
Model Acu-Evac® IE-2 and Acu-Evac® II-2 for 220Vac, 50/60Hz has two Slo-blo® fuses (type MDL, 1/4" x 1 1/4") rated 4.0 amps

If the unit fails to operate, the Acu-Evac® may require factory service (Call 1-800-327-0015 for further instructions).



NOTE

Dual voltage models have both voltages listed on the rating plate. DO NOT attempt to convert a unit from rating on name plate.



**FUSE
ASSEMBLY**

REMOVE FUSE CARTRIDGE FROM UNIT. (2)

REMOVE THE FUSE HOLDER FROM CARTRIDGE.
INSERT FUSES (7.0 AMP FOR 110/120 Vac OR 4 AMP FOR 220/240 Vac) INTO FUSE HOLDER.

INSERT FUSE HOLDER BACK INTO THE CARTRIDGE.
INSERT CARTRIDGE BACK INTO THE UNIT ACCORDINGLY

7.3 MAIN FILTER MONITOR

POWER ON - Green L.E.D. on

WARNING LEVEL (have replacement main filter available) - Top yellow L.E.D. on, bottom yellow L.E.D. off

ALARM LEVEL (replace main filter or reset the 16-hour cycle) - Top yellow L.E.D. on, bottom yellow L.E.D. flashing

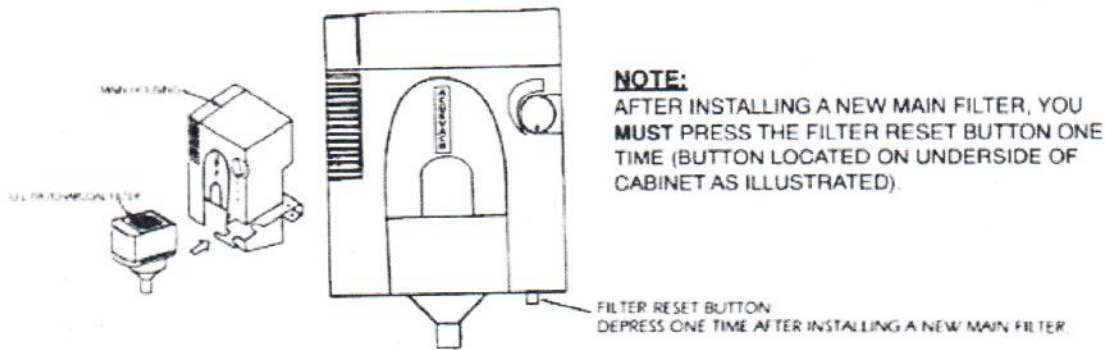
CONTROLLER FAILURE - both yellow L.E.D.'s flashing alternating (contact factory for assistance)

RESET BUTTON PRESSED - both yellow L.E.D.'s on (green L.E.D. on) {lamp check}

RESET BUTTON RELEASED - both yellow L.E.D.'s off (timer reset)

7.4 MAIN FILTER REPLACEMENT

With unit in the off position, install new main filter as follows.



BIOHAZARD

Remove red plug from new Main Filter. DO NOT DISCARD. Turn unit off. Pull the Main Filter straight out of the unit cabinet like opening a drawer. Use red plug from new Main Filter and place in the bottom of the expired Main Filter. Dispose in accordance with OSHA's Universal Bloodborne Pathogen Standards. Install new Main Filter into the Main Cabinet. Be sure that the front face for the Main Filter is flush with the adjacent surfaces on the cabinet face.



It is always recommended to keep at least two new spare Main Filters on hand for each Acu-Evac® unit. Call 1-800-327-0015 to re-order. When using the Acu-Evac with Erbium: Yag lasers, the main filter life is shorter than 16 hours by as much as half. In the event that the main filter becomes clogged prior to the warning L.E.D., the motor will cycle on and off in cycles of approximately 10 seconds. This is an indication that the main filter is clogged and should be replaced in accordance with section 2.5 of the Operator's Manual portion of this document.

8. USER MAINTENANCE

8.1 MAINTENANCE

Besides regular replacement of disposable products (section 5.2 and 5.3) and cleaning (section 5.3), the only regular maintenance required is periodic unit inspection as follows: **GRADE CORD:** Acu-Evac® has a special low-leakage Hospital Grade Cord with Hospital Grade molded plug. Inspect the power cord periodically for cuts in the jacket, exposed wires, frayed insulation, or damage to the plug. The plug may be damaged by pulling out the plug by the cord or pulling sideways on a plugged-in cord. In like manner, inspect the foot switch and tubing regularly for damage.



Acu-Evac® cabinets are specially sealed at the factory at time of manufacture. There are no user-serviceable parts inside the cabinet. All units that have been opened by anyone other than Acuderm, Inc. or its authorized facilities immediately forfeit any warranty. Acuderm, Inc. is not liable for damages, injury, or death as a result of unauthorized use, disassembly, tampering, or use other than that implied or expressed within this manual, by Acuderm, Inc. or any of its authorized representatives.



8.2 INSPECTION

INSPECTION - Prior to use with each patient, make sure that Acu-Evac® is equipped with proper disposables. Main Filter is within its 16-hour service life (green indicator light or yellow and green indicators.)

A new procedure pack (TXPACK or LTXPACK) is installed per instructions (See section 5.3).

Turn Acu-Evac® on for a few seconds to check for adequate suction.

For procedures where the Boom Arm is used, be sure the hose and nozzle assembly secured in the hook-and-loop bindings.

If the Foot switch is used, cycle it on and off once prior to starting the procedure to assure it is operating properly.

8.3 CLEANING

Acu-Evac® should be included in the same regular regimen for cleaning as other in the room or area where it is being used. Acu-Evac® should be cleaned with each filter change.



Acu-Evac housing is made of a non-corrosive, non-conductive, non-flammable material and finished with a hard-baked paint finish. Clinics and hospitals are advised to follow their normal disinfection protocol with cleaning agents. Do not use chlorine bleach, sodium hypochlorite or mineral spirits which may dull the painted finish. This same directive applies to cleaning the dual cart and boom arm. Cleaning solvents should not be sprayed directly on to electrical parts including the power switch and rotary airflow knob. The main filter cannot be cleaned and should be replaced when the light indicates it is time to replace the filter.

9. ORDERING INFORMATION

Acuderm, Inc.

TOLL-FREE TECHNICAL INFORMATION:

1-800-327-0015

Direct : (954) 733-6935 • Fax : (954) 252-4264 • E-Mail : cust-service@acuderm.com
5370 N.W. 35 Terrace· Ft. Lauderdale, FL 33309

9.1 RECOMMENDED SPARE PARTS AND ACCESSORIES PARTS LIST

Description	CAT #	Size	Quantity
M1 Main Filter - Consist if a charcoal/odor filter and ULPA filter rated 99.99997% efficiency on particles 0.01 micron and 0.12 microns MPPS. Each filter has been tested and certified to be free of leaks at time of shipment. Sealed unit with plug for easy disposal. Normal use filter life: 16 hours except for erbium smoke - discard after 16 procedures (using one LTX for each procedure) or when vacuum switch alert indicates full filter. 6" W X 8.5" H X 7.25" D	M1- Filter		Each
M2 Hospital/Office Filter - Consist of a charcoal/odor filter and an ULPA filter - rated 99.99997% efficiency on particles 0.01 micron and 0.12 microns MPPS. Each filter has been tested and certified to be free of leaks at time of shipment. Sealed unit with plug for easy disposal. Normal Use Filter life: 32 hours except for Erbium smoke -Discard after 32 procedures (using one LTX for each procedure) or when vacuum switch alert indicates full filter. 6" W X 11.5" H X 7.25" D.	M2- Filter		Each
TX™ Nozzle Pack - Includes TX Nozzle, preliminary filter 8" hose section assembly connects to Hose. Intended for short procedures of up to 15 minutes duration.	TXPACK	8"	Box of 25
LTX™ Nozzle Pack - Includes TX Nozzle, preliminary filter 18" hose section assembly connects to Hose. Intended for long duration procedures of up to 1 hour.	LTXPACK	18"	Box of 16
Hose - 6 feet long X 1.3" diameter with connector for use with TXPACK or LTXPACK listed above	HOSE	6"	Each
Hose Connector - connects TX pack or LTX pack to hose	HOSECON	2.5"	Each
Boom Arm - Flexible boom arm holds hose and nozzle in place for handsfree operation, easily affixed to ACU-EVAC unit. Adjustable. Not intended for use with lasers.	ARM	36"	Each
Foot Switch - Pneumatic foot switch provides convenient ON-OFF control of Acu-Evac	PFTSW		Each
Wall Mount Bracket - For mounting Acu-Evac IE or Acu-Evac II to a wall	EWMB		Each
Cart - Provides portability and convenience, Unit has four wheels, two of which swivel. Isolated from vibration. Balanced proportioning and robust "Euro-Style" grips for superb handling.	DUALCART		Each
Cart Bracket - for mounting Hyfrecator	CMB		Each
Rubber Feet - For Counter Top / Table Top	CTFEET		Each
Fuse - Fuse type MDL 1/4" X 1 - 1/4" rated 7 amps 120vac models. For Acu-Evac® IE-1 and Acu-Evac® II-1	OEI-MAP066		Each
Fuse - Fuse type MDL 1/4" X 1 - 1/4" rated 4 amps 240 vac models. For Acu-Evac® IE-2 and Acu-Evac® II-2	OEI-MAP065		Each

10. TROUBLESHOOTING

If you should encounter a problem or malfunction with your Acu-Evac® always check the trouble-shooting chart below to see if there is something you can do to resolve the problem before calling for service.

To use the chart first find the problem listed in the column at the left of the chart. Note the possible causes in the center column (which are most likely to occur) and follow the procedures outlined in the right hand column for a remedy to the problem.

If the problem you are having is not listed, or after trying the remedies listed and your problem still exist, call the factory at 1-800-327-0015 OR 954-733-6935.

10.1 TROUBLESHOOTING TABLE

PROBLEM	ASK QUESTION	YES/NO	POSSIBLE CAUSE	SOLUTION
Unit will not run	Is the Green POWER ON LED on?	YES	Foot Pedal Selector is in wrong position	If you are using Pneumatic Foot Pedal, make sure the Selector Switch is ON
		YES	Internal Failure	Stop. Call factory
		NO	Power Cord unplugged	Check power cord to be sure cord has not been accidentally unplugged or partially pulled from the receptacle.
		NO	Blown Fuse	Check Fuses. (See page 23 (7.2 Fuse Replacement))
Running but no airflow or low airflow	Is the Air Flow Control knob set to minimum?	YES	Operator Error	Increase the air flow by turning the knob clockwise (turn right)
		NO	TX/LTX Filter and/or main filter clogged	Replace TX/LTX Filter. If the problem persists, replace the Main Filter
Motor cycles ON-OFF, Yellow LED (Replace Filter) flashing.	Is the Main Filter replaced after 16 operation hours?	YES	Airflow restricted due to clogged hose or TX/LTX filter	Check Hose and replace the TX/LTX Filter
		NO	Airflow restricted due to clogged hose or TX/LTX filter. Possibly Main Filter is FULL	Replace Main Filter. Check hose and replace the TX/LTX filter if necessary.

11. WARRANTY

LIMITED WARRANTY

Acu-Evac® II Acu-Evac® II-1 Acu-Evac® II-2
Acu-Evac® IE Acu-Evac® IE-1 Acu-Evac® IE-2

Acuderm, Inc. warrants its smoke evacuator and accessories to the original purchaser to be free from defective materials and workmanship. Under this warranty the product will be repaired or replaced, at our option, without charge for parts or labor when returned to Acuderm, Inc. 5370 N.W. 35th Terrace, Suite 106, Ft. Lauderdale, FL 33309 or another location as we may determine.

This warranty does not apply to any appearance items nor to any product whose exterior has been damaged or defaced, not to any product subjected to misuse, abnormal service or handling, nor to any products which have been opened altered or repaired by other than Acuderm's Service Center.

The period of this warranty covers 2 years on parts and labor from date of purchase.

This warranty entitles the original purchaser to have warranted parts and labor rendered at no cost for the period of the warranty described above when the product is carried or shipped, prepaid, to Acuderm's Service Center together with the proof of purchase.

THIS SHALL BE THE EXCLUSIVE WRITTEN WARRANTY OF THE ORIGINAL PURCHASER AND NEITHER THIS WARRANTY NOR ANY OTHER WARRANTY EXPRESSED OR IMPLIED, SHALL EXTEND BEYOND THE PERIOD OF TIME LISTED ABOVE. IN NO EVENT SHALL ACUDERM, INC. BE LIABLE FOR CONSEQUENTIAL ECONOMIC DAMAGE OR CONSEQUENTIAL DAMAGE TO PROPERTY. THIS WARRANTY GIVES SPECIFIC LEGAL RIGHTS, AND YOU MAY HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

IN THE U.S.A.:



ACUDERM INC.

5370 N.W. 35th Terrace, Fort Lauderdale, FL 33309

1-(800) 327-0015 • FAX: (954) 252-4264 * Email: cust-service@acuderm.com

APPENDIX I

TECHNICAL DATA (TYPE BF CLASS I)

Acu-Evac® IE

CERTIFICATIONS

Model Acu-Evac®IE-1 certified to IEC 60601-1, and certified to CAN/CSA C22.2 standard 601.

Model Acu-Evac®IE-2 certified to IEC 60601-1, and certified to CAN/CSA C22.2 standard 601.

ELECTRICAL RATING

Model Acu-Evac®IE-1 = 110 -120 V, 50/60 Hz at 7.0 amps, 840 Watts

Model Acu-Evac®IE-2 = 220 -240 V, 50/60 Hz at 4.0 amps, 960 Watts

Fuses

110V: 7A/250V Slo-Blo® fuse

220V: 4A/250V Slo-Blo® fuse

CORD/PLUG

Hospital Grade

SIZE

11.5 " W X 15.5" H X 6.6" D

SHIPPING WEIGHT

16.6 lbs (7.5 kg.)

OPERATION

0°C (32°F) to 50°C (122°F)

STORAGE

0°C (32°F) to 66°C (150°F)

NOISE

<50db at 2 meters @ max.

AIR FLOW CONTROL

1 cfm to MAX

AIR VELOCITY

≥11,000 fpm with a 1.3" nozzle I.D.

CFM

>80 cfm (1.3" hose)

MATERIALS

Non-conductive/Non-corrosive G.E. Noryl fn 215 resin L94V-0

WARRANTY

2 year full warranty parts and labor

Acu-Evac® II

CERTIFICATIONS

Model Acu-Evac®II-1 certified to IEC 60601-1, and certified to CAN/CSA C22.2 standard 601.

Model Acu-Evac®II-2 certified to IEC 60601-1, and certified to CAN/CSA C22.2 standard 601.

ELECTRICAL RATING

Model Acu-Evac®II-1 = 110 -120 V, 50/60 Hz at 7.0 amps, 840 Watts

Model Acu-Evac®II-2 = 220 -240 V, 50/60 Hz at 4.0 amps, 960 Watts

Fuses

110V: 7A/250V Slo-Blo® fuse

220V: 4A/250V Slo-Blo® fuse

CORD/PLUG

Hospital Grade

SIZE

11.5 " W X 15.5" H X 6.6" D

SHIPPING WEIGHT

16.5 lbs (7.5 kg.)

OPERATION

0°C (32°F) to 50°C (122°F)

STORAGE

0°C (32°F) to 66°C (150°F)

NOISE

<50db at 2 meters @ max.

AIR FLOW CONTROL

1 cfm to MAX

AIR VELOCITY

≥8,200 fpm with a 1.3" nozzle I.D.

CFM

>58 cfm (1.3" hose)

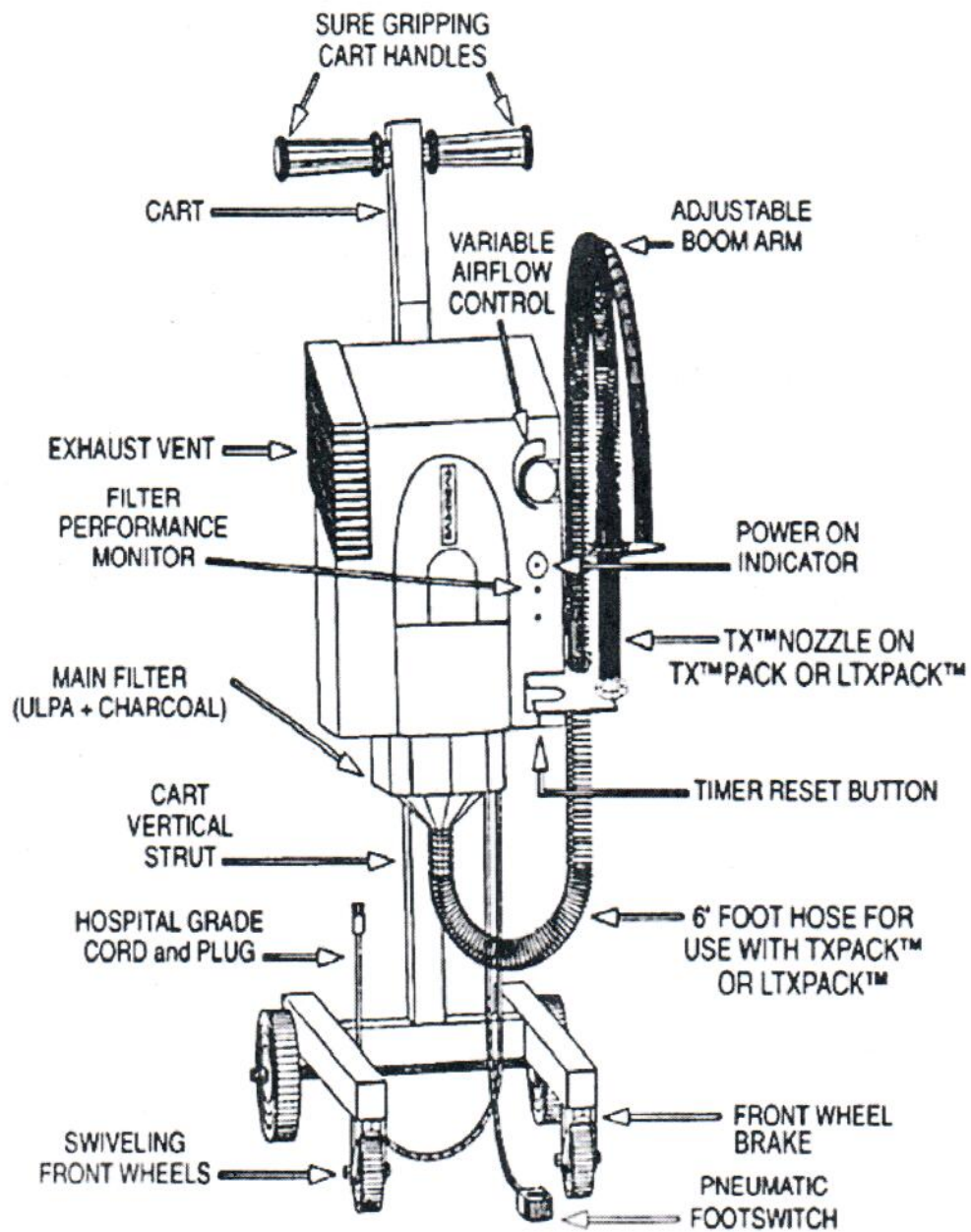
MATERIALS

Non-conductive/Non-corrosive G.E. Noryl fn 215 resin L94V-0

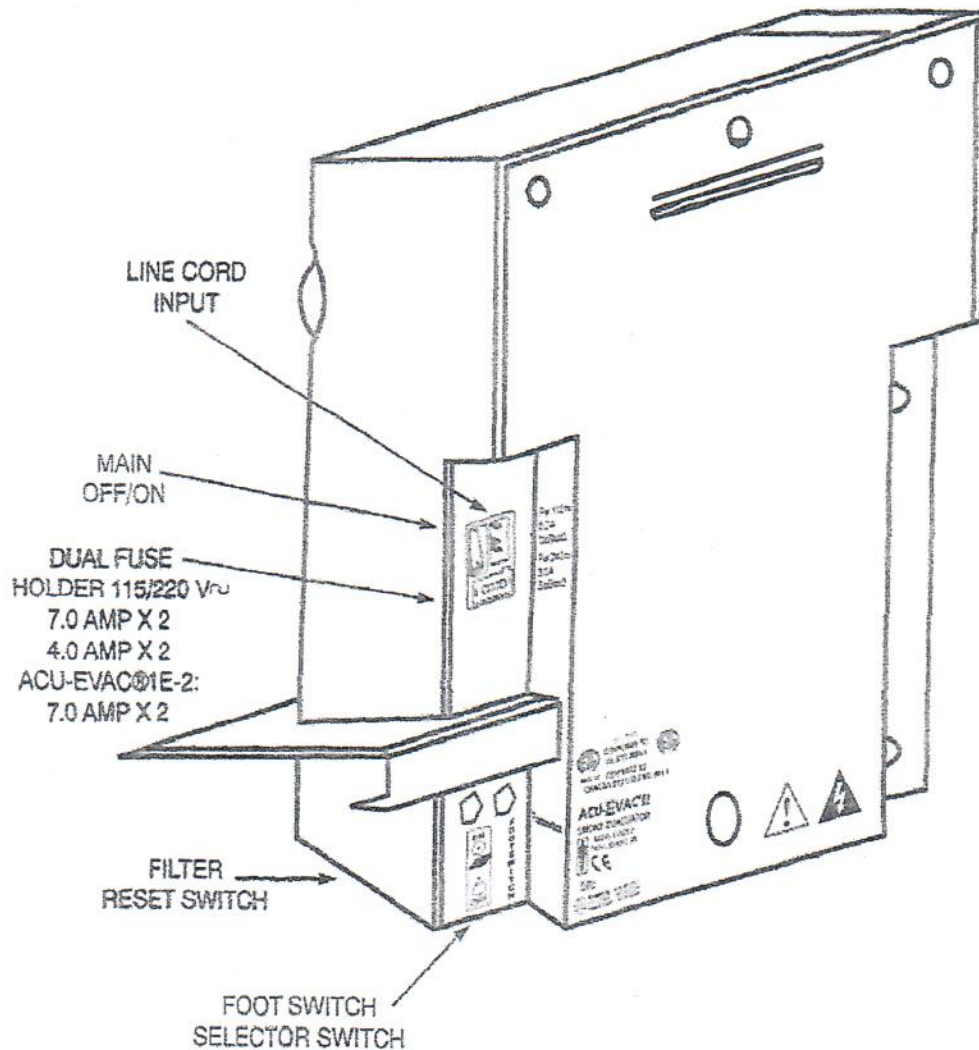
WARRANTY

2 year full warranty parts and labor

APPENDIX II FRONT ENCLOSURE CONTROL LOCATIONS



APPENDIX III
Back Enclosure Controls Location
Unit Markings



NOTE ►

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