

Model CM-LAB



Creative Method LLC

Motor Manufacturing Technology

Electrostatic Powder Coater

TABLE OF CONTENTS

1 INTRODUCTION.....	3
2 SHIPPING.....	3
3 OPERATING PRINCIPLES.....	3
3.1 SCHEMATIC DIAGRAM OF AN ELECTROSTATIC COATER.....	3
3.2 PROCESS DESCRIPTION	3
4 GENERAL SAFETY	4
4.1 INTRODUCTION	4
4.2 SAFETY SYMBOLS.....	4
4.3 QUALIFIED PERSONAL.....	5
4.4 INTENDED USE.....	5
4.5 INSTALLATION	6
4.6 OPERATION.....	7
4.7 LESS OBVIOUS DANGERS.....	8
4.8 ACTION IN THE EVENT OF A SYSTEM OR COMPONENT MALFUNCTION	8
4.9 MAINTENANCE & REPAIR.....	8
4.10 DISPOSAL.....	9
5 AIR AND ELECTRICAL REQUIREMENTS.....	9
5.1 CM-LAB	9
5.1.1 Air.....	9
5.1.2 Electrical	9
6 DESCRIPTION OF COMPONENTS.....	10
6.1 CM-LAB COATING STATION	10
6.2 PART ROTATOR HOLDING FIXTURE.....	10
6.3 DUST COLLECTOR.....	11
7 INSTALLATION	11
7.1 LOCATION.....	11
7.2 AIR CONNECTIONS	11
7.3 ELECTRICAL CONNECTION	11
7.4 CONTROLS	12
7.4.1 Settings	12
7.4.2 Footswitch.....	12
7.5 POWDER MAINTENANCE	12
8 DESCRIPTION OF CONTROLS	12
8.1 ELECTRICAL CONTROL PANEL	13
8.2 ELECTRICAL CONTROLS.....	13
8.3 COATER CONTROLS	14
9 START-UP AND OPERATION PROCEDURE.....	14
9.1 COATING STATION SET-UP.....	14
9.2 COATING OPERATION.....	15
10 SHUT-DOWN PROCEDURE.....	15
10.1 COATING OPERATION	15
10.2 EXTENDED SHUT-DOWN PROCEDURE.....	16
10.2.1 Coating	16
10.2.2 Dust Collector	16
10.3 POWDER/COLOR CHANGE.....	16
11 TROUBLE SHOOTING.....	16

12 MAINTENANCE 17

12.1 GENERAL 17

12.2 AIR SYSTEM 17

12.3 COATER BED..... 17

12.3.1 Porous Plate Replacement 18

12.4 DUST COLLECTOR..... 20

13 SPARE PARTS LIST..... 20

- APPENDIX A, DUST COLLECTOR
- APPENDIX B, ELECTRICAL DRAWING
- APPENDIX C, PROCESS SPECIFICATION
- APPENDIX D, MANUFACTURERS MANUALS

1 INTRODUCTION

This Instruction Manual must be studied and followed for the safe and efficient operation of the "CM-LAB Powder Application System". Study this manual before locating and installing the equipment.

CREATIVE METHOD LLC
512 BRIGHTWATER STREET
HENDERSON, NV 89014
TELEPHONE: (702) 747-1265

In future correspondence, please refer to the MODEL CM-LAB Powder Application System, the "POWDER COATING MACHINE".

2 SHIPPING

Sometimes equipment can be damaged in transit. An inspection of the shipping crate should be made upon delivery, and when equipment is removed, it should be carefully inspected to make sure the unit is in good condition. If the equipment is damaged, the carrier's claim agent should be requested to prepare a report, a copy of which should be sent to:

CREATIVE METHOD LLC
512 BRIGHTWATER STREET
HENDERSON, NV 89014

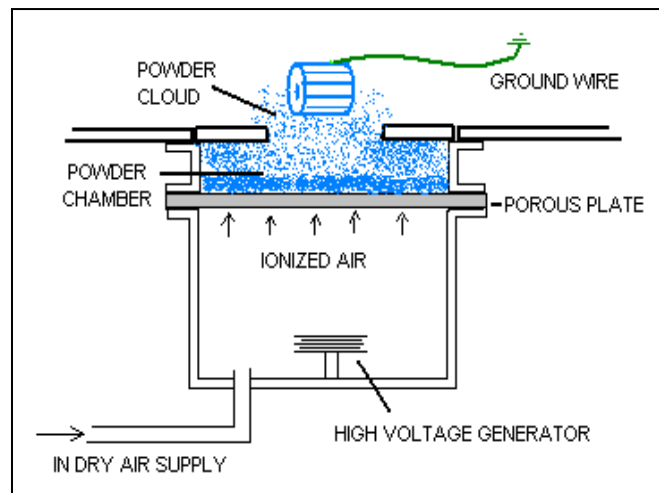
Creative Method LLC will then advise concerning repairs and replacements.

3 OPERATING PRINCIPLES

3.1 SCHEMATIC DIAGRAM OF AN ELECTROSTATIC COATER

3.2 PROCESS DESCRIPTION

Powder particles are aerated in a fluidizing chamber and are electrostatically charged by ionized air forced through porous plate at the base of the chamber. As the powder particles become charged, they repel each other to such a degree that they rise above the chamber forming a cloud or veil of charged particles. When a grounded object is placed in this cloud, or conveyed through this cloud, the charged powder particles, because of their opposite potential, are attracted to it. As the particles become attached to the object, they form a uniform coating, being more attracted to exposed areas than to those already insulated. The longer the object is exposed to the cloud, the thicker the coating becomes, until saturation eventually takes place. Coating thickness is controlled by applied voltage to the charging media and exposure time to the cloud. Because of the high voltage capability of the charging media, a sufficiently great potential exists between it and most substrates to permit even natural insulators to be coated. Unlike equipment with exposed electrodes, Creative Methods air ionization process charges the powder without permitting the powder, the object, or the operator to come in contact with the charging media.



4 GENERAL SAFETY

4.1 INTRODUCTION

This section contains general study instructions for using your Creative Method (CM) equipment. Task-and-equipment-specific warnings are included in other sections of this manual where appropriate.



CAUTION: ALL RECEPTACLES MUST HAVE A PROPER GROUND CONNECTION.



NOTE ALL WARNINGS AND FOLLOW ALL INSTRUCTIONS CAREFULLY. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY, DEATH, OR PROPERTY DAMAGE.

To use this equipment safely:

- Read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.
- Read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- Store this manual within easy reach of personnel installing, operating, maintaining, or repairing this equipment.
- Follow all applicable procedures required by your company, industry standards, and government or regulatory agencies. Refer to the National Fire Protection Association (NFPA) standard 33 and to federal, state, regulatory agency, and local codes for rules and regulations covering installation and operation of powder coating systems.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used.

4.2 SAFETY SYMBOLS

Become familiar with the safety symbols presented in this section. These symbols are to alert you to safety hazards and conditions related to using this equipment that may result in personal injury, death, or property and equipment damage.



WARNING: Failure to observe this warning may result in personal in personal injury, death, or equipment damage.



WARNING: Risk of electrical shock. Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage.



WARNING: Risk of explosion or fire. Fire, open flames and smoking prohibited.



WARNING: Wear protective clothing, safety goggles, and approved respiratory protection. Failure to observe may result in serious injury.



WARNING: System or material pressurized. Release pressure. Failure to observe this warning may result in serious injury or death.



CAUTION: Failure to observe may result in equipment damage.

4.3 QUALIFIED PERSONNEL

"**Qualified Personnel**" is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance, and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations, and have been trained to safely install, operate, maintain, and repair the equipment. It is the responsibility of the company operating the equipment to see that its personnel meet these requirements.

4.4 INTENDED USE



WARNING: Use of this equipment in ways other than described in this manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in this manual.

CREATIVE METHOD LLC cannot be responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage. Unintended uses may result from taking the following actions:

- Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine CREATIVE METHOD LLC replacement parts.
- Failure to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards.
- Using materials or auxiliary equipment that is inappropriate or incompatible with your CREATIVE METHOD LLC equipment.

- Allowing unqualified personnel to perform any task.

4.5 INSTALLATION

Read the installation section of all system components manuals before installing your equipment. A thorough understanding of the system components and their requirements will help you install the system safely and efficiently.

- Allow only qualified personnel to install CREATIVE METHOD LLC and auxiliary equipment.
- Use only approved equipment. Using unapproved equipment in an approved system may void agency approvals.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Follow all instructions for installing components and accessories.
- Install locking, manual, shutoff valves in the air supply lines to the system.
- This allows you to relieve air pressure and lock out the pneumatic system before undertaking maintenance and repairs.
- Install a locking disconnect switch or breaker in the service line ahead of any electrical equipment.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Ground all electrically conductive equipment within 10 feet (3 meters) of the coating area. Ungrounded conductive equipment can store a static charge which could ignite a fire or cause an explosion if a hot spark is discharged.
- Install safety interlocks which shut down the coating system if the exhaust fan fails, a fire is detected, or other emergency situation develops.
- Make sure the coating area floor is conductive to ground and that the operator's platform is grounded.
- Use only designated lifting points or lugs to lift and move heavy equipment. Always balance and block loads when lifting to prevent shifting. Lifting devices must be inspected, certified, and rated for a greater weight than the equipment being lifted.
- Protect components from damage, wear, and harsh environmental condition.
- Allow ample room for maintenance, material supply container drop-off and loading, panel accessibility, and cover removal.
- If safety devices must be removed for installation, reinstall them immediately after the work is completed and check them for proper functioning.

4.6 OPERATION

Only qualified personnel, physically capable of operating the equipment and with no impairments to their judgment or reaction times, should operate this equipment. Read all component manuals before operating a powder coating system. A thorough understanding of all components and their operations will help you operate the system safely and efficiently.

- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.

- Before starting this equipment, check all safety interlocks, fire detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Know where EMERGENCY OFF switch, shutoff valves, and fire extinguishers are located. Make sure they work. If a component malfunctions, shut down and lock out the equipment immediately.
- Before operating, make sure all conductive equipment in the coating area is connected to a true earth ground.
- Never operate equipment with a known malfunction or leak.
- Do not attempt to operate electrical equipment if standing water is present.
- Never touch exposed electrical connections on equipment while the power is ON.
- Do not operate the equipment at pressures higher than the rated maximum working pressure of any component in the system.
- Know the pinch points, temperatures, and pressures for all equipment that you are working with. Recognize potential hazards associated with these and exercise appropriate caution.
- Wear shoes with conductive soles, such as leather, or use grounding straps to maintain a connection to ground when working with or around electrostatic equipment.
- Do not wear or carry metallic objects (jewelry or tools) while working with or around electrostatic equipment. Ungrounded metal can store a static charge and cause harmful shocks.
- Keep parts of the body or loose clothing away from moving equipment or parts.
- Remove personal jewelry and cover or tie back long hair.
- Wear National Institute of Occupational Safety and Health (NIOSH) approved respirators, safety glasses or goggles, and gloves while handling powder containers, filling hoppers, operating coating equipment, and performing maintenance or cleaning tasks. Avoid getting powder coatings on your skin.
- Do not smoke in the coating area. A lit cigarette could ignite a fire or cause an explosion.
- If you notice electrical arcing in the coating equipment, shut down the system immediately. An arc can cause a fire or explosion.
- Shut off electrostatic power supplies before making adjustments to powder coating fluidized bed.
- Shut off moving equipment before taking measurements or inspecting work pieces.
- Wash exposed skin frequently with soap and water, especially before eating or drinking. Do not use solvents to remove coating materials from your skin.
- Do not use high-pressure compressed air to blow powder off your skin or clothes. High-pressure compressed air can be injected under the skin and cause serious illness or death. Treat all high-pressure fittings and hoses as if they could lead and cause injury.

4.7 LESS OBVIOUS DANGERS

Operators should also be aware of less obvious dangers in the workplace that often cannot be completely eliminated:

- Exposed surfaces on the equipment which may be hot or have sharp edges and cannot be practically safeguarded.
- Electrical equipment which may remain energized for a period of time after the equipment has been shut off.

- Vapors and materials which may cause allergic reactions or other health problems.
- Automatic hydraulic, pneumatic, or mechanical equipment or parts that may move without warning.
- Unguarded, moving mechanical assemblies.

4.8 ACTION IN THE EVENT OF A SYSTEM OR COMPONENT MALFUNCTION

Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.

- Disconnect and lock out electrical power. Close and lock out hydraulic and pneumatic shutoff valves and relieve pressures.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component.

4.9 MAINTENANCE & REPAIR

Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.

- Always wear appropriate protective devices and use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in your equipment manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Use only genuine CREATIVE METHOD LLC replacement parts. Using unapproved parts or making unapproved modifications to equipment may create safety hazards.
- Disconnect, lock out, and tag electrical power at a disconnect or breaker in the service line ahead of electrical equipment before servicing.
- Do not attempt to service electrical equipment if there is standing water present. Do not service electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with electrical equipment.
- Do not attempt to service a moving piece of equipment. Shut off the equipment and lock out power. Secure equipment to prevent uncontrolled movement.
- Relieve air pressures before servicing equipment. Follow the specific instructions in this manual.
- Make sure that the area or room where you are working is sufficiently ventilated.
- If a "power on" test is required, perform the test carefully and then shut off and lock out power as soon as the test is over.
- Connect all disconnected equipment ground cables and wires after servicing the equipment. Ground all conductive equipment.



WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program.

- Do not store flammable materials in the coating area or room. Keep containers or flammable materials far enough away from the Coater to prevent their inclusion in a fire. If a fire or

explosion occurs, flammable materials in the area will increase the chances and the extent of personal injuries and property damage.

- Practice good housekeeping procedures. Do not allow dust or powder coatings to accumulate in the coating area or on electrical equipment. Read this information carefully and follow instruction.

4.10 DISPOSAL

Dispose of equipment and materials used in operation and cleaning according to your local regulations.

5 AIR AND ELECTRICAL REQUIREMENTS

5.1 CM-LAB

5.1.1 Air

15 scfm @ 60 psi minimum 100 psi maximum. A 1/4 in. minimum air line should be connected between the Air Filter and the CM-LAB Coating Machine.

5.1.2 Electrical

110 Volts 60 Hertz, 10 Amp circuit is required (an eight foot cord with a three wire duplex plug is provided with Ground detection.)



IMPORTANT: Provide a proper ground connection for the plug equipment ground wire. Polarity of the receptacle must be according to code.

6 DESCRIPTION OF COMPONENTS

6.1 CM-LAB COATING STATION

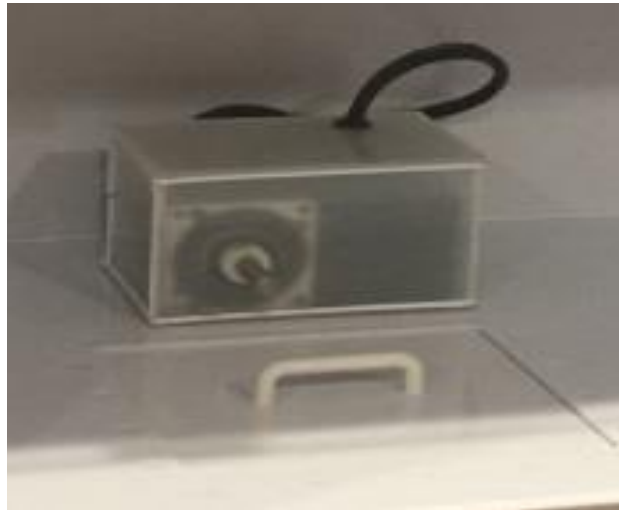
The coating machine is complete with Coating Bed, High Voltage Multiplier, Air Flow Meter(s), Cycle Timer(s), and cloud containing Hood.



6.2 PART HOLDING SPINDLES

The Holding Spindle is located in the Coater Bed area.

The Spindle is used to hold and rotate parts during the coating process to produce an evenly coated armature. The stacks are placed on the spindle for the coating cycle.



6.3 DUST COLLECTOR

The Dust Collector consists of the following:

6.4.1 400 CFM Collector Module

The 400 CFM Collector Module uses a ½ HP motor to drive the Exhaust Fan.

The Exhaust Fan pulls air from Powder Application Hood (Canopy) and into the Bag Filters chamber. The air passes through the Bag Filters and the clean powder free air is returned to the surroundings. Powder accumulating on the Bag Filters is knocked off using the Collector's Shaker Pedal while the Collector is OFF. The powder falls to the bottom of the Collector's Tray where it can be recovered and recycled or discarded.

7 INSTALLATION

These instructions for installing, operating and maintaining the CM-LAB Powder Application System must be followed for its safe and efficient operation. In particular, precautions should be observed whenever the unit is operated. Study this manual before installing or operating equipment. Some voltages employed in this equipment are high. Remember that any source of voltage can be hazardous.

7.1 LOCATION

- 1) Place “CM-LAB” and ancillary equipment on a level surface at the desired location.
- 2) Although your machine may be shipped preassembled, please read through this manual before installing.

7.2 AIR CONNECTIONS

- 1) Check that all pneumatic hoses are connected securely throughout the machine.
- 2) Connect the hose from the Air Filter to the main air inlet of the CM-LAB.

7.3 ELECTRICAL CONNECTION

- 1) Connect the Booth and Electrical Panel to a true earth ground.
- 2) Connect the CM-LAB Application System electrical cord to a receptacle rated: 110 Volts, 60 Hz, 10 Amps max.



CAUTION: ALL RECEPTACLES MUST HAVE A PROPER GROUND CONNECTION.

7.4 CONTROLS

7.4.1 Settings

- 1) Turn “ON” the system electrical power switch.
- 2) Turn “ON” the Auto/Manual switch if the cycle timer is used.
- 3) Turn “ON” the Kv Voltage switch.
- 4) Select the Kv Voltage to 40, 50, 60, 70, 80, 90 Kv.
- 5) Adjust the System Main air pressure to 60 – 100 psi.
- 6) Adjust the Coater Bed Air Volume to 100 - 200 SCFH.
- 7) Set Coating Bed Cycle Timer (in seconds).
- 8) Turn “ON” the Dust Collector.

7.4.2 Foot Switch

- 1) Locate the Coater Footswitch and position in front of the Coater Station. The Footswitch is already pre-wired to the electrical controls.

7.5 POWDER MAINTENANCE

Most powders are hygroscopic. An attempt should be made to finish the day's run with a minimum amount of powder left in the Collector Fluidizing Hopper. All powder containers (bags, barrels, hoppers, etc.) should be kept tightly closed. **NOTE:** Do not mix different types of powder.

8 DESCRIPTION OF CONTROLS

8.1 COATER CONTROL PANEL



8.2 ELECTRICAL CONTROLS

MAIN POWER SWITCH ON/OFF	-Up “ON” Turns the System electrical on. -Down “OFF” (Button light will go OFF) Turns the System electrical OFF and will Stop and Reset any Timers running.
AUTO/MANUAL TIMER SWITCH	-Up “ON” enables the Bed Timer. When the Foot Switch is depressed, the Bed Timer will run the Coating Bed for the time it was set for. -Down “OFF” disables the Timer. The Coating Bed will run only while the Foot Switch is depressed.
SPINDLES ON/OFF/TEST	-Up “ON” enables the Spindles. When the Foot Switch is depressed, the Bed Timer will run the spindles for the time it was set for. -Center “OFF” disables the Spindles. -Down “TEST” allows spindles to run to set speed. (Pressing Foot Switch operates bed in manual mode.)
AIR ON/OFF	

8.3 COATER CONTROLS

BED TIMER Time Adjustment	Increase/Decrease Bed Timer using the Up/Down arrows to achieve the desired coating thickness.
COATER BED AIR VOLUME ADJUST Air flow adjustment	Adjusts and indicates the amount of air pressure supplied to the coating bed. Adjust to optimize the coating cloud.
SPINDLE SPEED	Adjust Speed for different diameter stacks for best results.
Kv AJUSTMENT Adjust coating thickness and coating speed	Adjusts the strength of the electrostatic charge which effects coating thickness and coating build time. Adjust to achieve the desired results. Select 45, 55, 65, 75 85, or 95. Select 75 for average coating thickness.
FOOTSWITCH PEDAL	Activates the Coater when pressed and released. When the Auto Timer is “ON” and has a time set on it, the timed cycle will be started by pressing the Foot Switch, otherwise, the Coating unit will only operate while the Foot Switch is pressed and in Spindle test mode. It stops operating when the Foot Switch is released.

9 START-UP AND OPERATION PROCEDURE

9.1 COATING STATION SET-UP

- Step 1 - Make sure the Refrigerant Air Dryer is plugged into the electrical supply and is “ON” and wait 15 minutes before beginning to coat parts.
- Step 2 - Initially adjust the Coater Bed air pressure to 25 psi. The normal operation range is 10-40 psi.
- Step 3 - Turn “ON” the Dust Collector.
- Step 4 - Initially turn the Input Voltage Control full clockwise, HI (90 kV) on the display.
- Step 5 - Add powder to the Coating Bed about ¼” deep full.
- Step 6 - Place the Coating Tools over the Coating Bed and attach the Ground Wire if required.
- Step 7 - Initially adjust the Coater Bed air volume to 150 CFPH.
- Step 8 - Initially set the Coater Cycle Timer to 30 seconds.
- Step 9 - Place the grounded part(s) to be coated with any masking required over the Coating Bed, or onto fixtures or tooling used.

9.2 COATING OPERATION

Note: The Control Panel adjustments can be during and after the Coating Cycle. Parts **must** have some means of being grounded.

- Step 1 - Add powder to the fluidizing bed if needed. There should be adequate fluidization of the powder in the Bed so a cloud forms.
- Step 2 - Mask parts if necessary and load them into the tooling or fixtures.
- Step 3 - Press the Coater Footswitch to activate the Coating Bed allowing the part to be coated for the duration of the coating cycle.
- Step 4 - Remove the part(s) to inspect after coating. Adjust the Coater Bed Air Flow, and/or length of coating cycle in order to obtain the optimum coating coverage and thickness.
- Step 5 - Repeat these steps as required to obtain a satisfactorily coated substrate.

Note: Powder falling outside the Coating Bed, may be periodically swept back into the Bed using 3 to 4 inch wide, clean, soft bristle Paint Brush.

10 SHUT-DOWN PROCEDURE

10.1 COATING OPERATION

Step 1 - Switch the Power OFF button on the control panel.

Step 2 - Turn Dust Collector “OFF”.

Step 3 - Turn the Air “OFF”.

10.2 EXTENDED SHUT-DOWN PROCEDURE

When shutting the machine down for more than an overnight period, the following should be noted: When not in use, the coating material in the unit should be removed from the Coater Bed and Collector to prevent clogging of the Porous Plate. As most coating materials are hygroscopic, storage of the powder in the Coating Bed for extended periods of time is not recommended. It is advisable that the powder be removed and stored in an air tight container. Observe the following procedure:

10.2.1 Coating Bed

Step 1 - Carefully remove the Powder from the Coating Bed without scratching the porous plate, into a sealable jar or bag. Do not scrape or gouge the porous plate. Do not directly blow compressed air directly at the surface of the plate.

Step 2 - Clean the inside of the canopy with a rubber squeegee or other grounded, nonmetallic device.

Step 3 - Carefully vacuum the remaining powder from the Bed. Use a vacuum hose attached to the dust collect with a soft plastic nozzle on the end of its hose to vacuum the powder.

10.2.2 Dust Collector

Step 1 - Turn the Dust Collector to the “OFF” position.

Step 2 - Use the Shaker Handle to knock the Powder to the lower tray. Wait a few minutes for the dust to settle.

Step 3 - Open the Dust Collector Door to access the tray of powder. Remove tray and empty into a sealed container for proper disposal.

10.3 POWDER/TYPE CHANGE

When changing powder from one type to another, it is very important that the Coating Bed be thoroughly cleaned to prevent contamination. The same bed cleaning procedure as above should be used.

11 TROUBLE SHOOTING COATER-SYMTOM POSSIBLE CAUSE(S) REMEDY(S)

Powder does not cling to part. (No or low coating)

- Verify kV Voltage switch is on.
- Verify part(s) are grounded. Faulty ground to substrate. Verify Ground wire to ground.
- DC Power Supply in control box has failed. Replace Power Supply. Contact your CM representative for further instructions.
- High Voltage Multiplier is bad. Replace Multiplier. Contact your CM representative for further instructions.

Coating Bed is ¼” full but Powder Cloud doesn’t develop.

- Insufficient air to fluidize power. Coating air flow set too low.
- Air leaking by gasket at porous plate. Check gasket, replace if necessary. Tighten screws around porous plate.
- Porous Plate is clogged. Install new porous plate. Contact your CM representative for further instructions.
- Air solenoid is not operating. Replace the defective solenoid.
- Moisture in Coater fluidizing air. Check and analysis Air Supply and/or Air Dryer.
- Particle Air Filter is dirty. Replace filter element. Refer to the Spare Parts List of this manual for part number.
- Coating powder is wet or damp. Powder is hygroscopic and has absorbed moisture from the humid air around it when sitting for extended periods. Replace with new Powder.

12 MAINTENANCE

12.1 GENERAL

A systemic maintenance schedule should be set up and adhered to in order to insure optimum machine operation. Daily, weekly, and monthly schedules should be established as applicable for each part of the coating system.



WARNING: ELECTRICAL VOLTAGE USED IN THIS EQUIPMENT CAN BE HAZARDOUS. MAINTENANCE SHOULD BE HANDLED BY QUALIFIED PERSONNEL.

12.2 AIR SYSTEM

The importance of keeping the compressed air clean, dry and oil free cannot be overemphasized. More coating problems can be traced to failure to maintain the air filters and air dryers than any other cause.

Particle Air Filter – Clean and check for proper functioning. Change filter element if it's dirty.

Refrigerant Air Dryer – Once the Refrigerant Air Dryer is "ON" and operating, after 15 minutes and periodically thereafter the following procedures should be implemented:

Step 1 - Make sure that the "Power On" light is lit.

Step 2 - Make sure that condensate drains are draining; drains can very easily become clogged by oil or dirt. This will allow wet compressed air to enter the machine, resulting in a clogged porous plate in the Coater and poor fluidization.

12.3 COATING BED

If the fluidization is not uniform, the Porous Plate has become clogged and will have to be replaced. The Porous Plate will require periodic replacement depending upon hours of use, contaminants in the compressed air, and conditions of operation and cleaning.



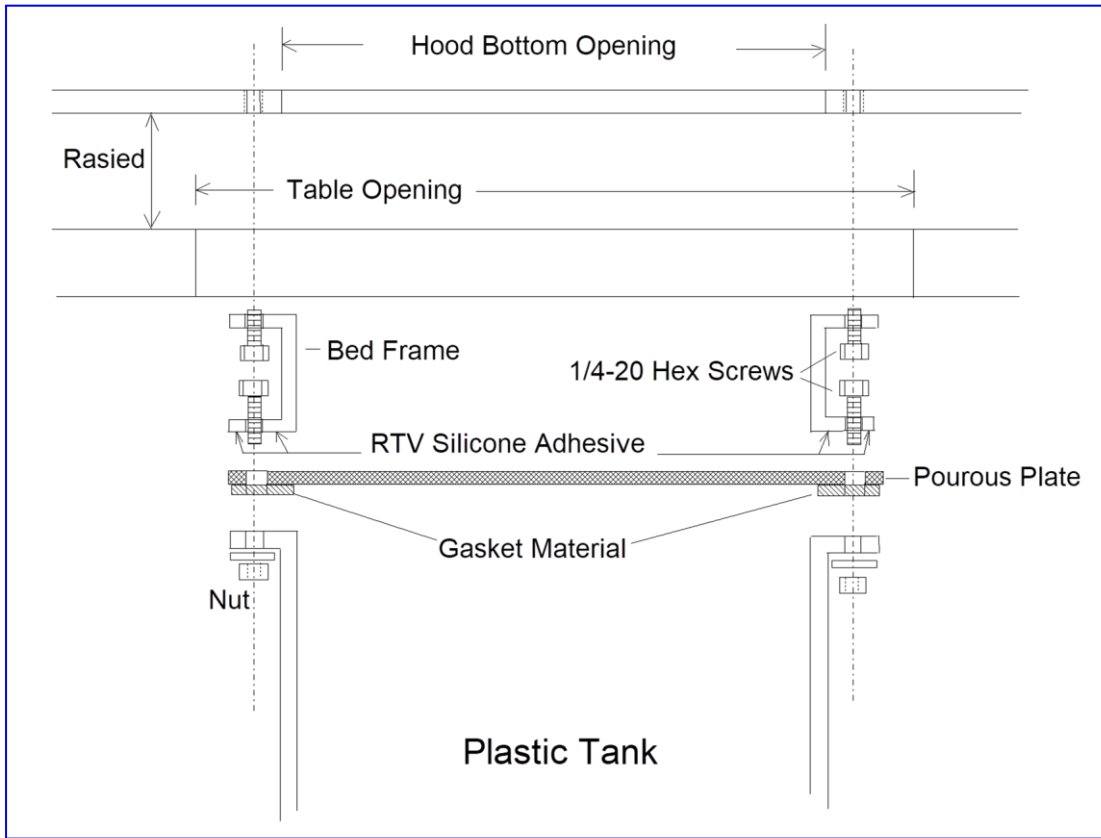
CAUTION: THE UNIFORM POROSITY OF THE POROUS PLATE IS VERY IMPORTANT TO PROPER COATING. DO NOT SCRAPE OR EVEN TOUCH IT WITH A HARD OR SHARP OBJECT. NEVER POINT AN AIR GUN DIRECTLY AT THE PLATE.

Clogging of the pores of the plate is the most common cause of failure. Once the Porous Plate has been removed, inspect it to determine which of the following reasons caused clogging:

- Leaving powder unused in the bed for an extended period of time during humid conditions.
- Oil or water in air supply system.
- Damage from scratching, gouging or denting the plate.
- Blowing compressed air directly at the surface of the plate.
- Correct the cause of plate failure and avoid conditions in the future which may have lead to it.

Order a new Porous Plate and gasket material from Creative Method and carefully install.

12.3.1 Porous Plate Replacement



- Step 1 - Turn the Coating System "OFF"
- Step 2 - Unplug the Coating System from all electrical power sources.
- Step 3 - Remove all the powder from the bed.
- Step 4 - Disconnect the Air Hose from Plastic Tank.
- Step 5 - Disconnect the Cable from the Multiplier.
- Step 6 - Unbolt the Containment Hood from the Table.

Note: The following parts have alignment marks and are to be reassembled with the same alignment.

- Step 7 - Remove the plastic hex head screws from the Powder Bed Frame and Containment Hood bottom. Move assembly to work bench.
- Step 8 - Remove the plastic hex head screws and nuts from the Porous Plate Base with Bed Frame and Plastic Tank.
- Step 9 - Remove the old Porous Plate and gasket material and RTV.

- Step 10 - Clean electrostatic powder out of the charging media (wire bristles) if required using compressed air.
- Step 11 - Use the old Porous Plate as a template for positioning and making the mounting holes ($\varnothing .265''$) in the new Plate. Add alignment mark in corner.
- Step 12 - Place new gasket material around the tank flange edge and punch holes in gasket with $\frac{1}{4}''$ thin wall metal tubing.
- Step 13 - Apply RTV Adhesive between the new Porous Plate and the bottom flange of the Bed Frame.
- Step 14 - Align the bed frame, plate, and tank together aligning holes and corner notch.
- Step 15 - Replace the plastic screws and tighten down evenly so that the retaining flange is snug against the Porous Plate to prevent ionized air leakage around edges of the Porous Plate.

12.4 DUST COLLECTOR

Refer to Appendix of this manual for maintenance information on the Powder Collector.

13 SPARE PARTS LIST

All parts are available from Creative Method LLC. Please contact your representative for purchase. It is optional to source and purchase commodity items from local suppliers, see part numbers below.

PART DESCRIPTION	ASSEMBLY	QTY.	RECM,D SPARE	PN/Supplier
Porous Plate, 10.5 x 10.5 x $\frac{1}{4}''$	Pneumatic	1	1	Creative Method
Gasket Material, 1 x $\frac{1}{8}$ Adhesive backed foam	Pneumatic	1	1	Tbd
Nylon Screws, $\frac{1}{4}$ -20 x 1"	Hardware	40	40	91244A542, McMaster-Carr
Nylon Nuts, $\frac{1}{4}$ -20	Hardware	40	40	94812A700, McMaster-Carr
Voltage Multiplier 90 Kv	Electric	1	1	Creative Method
Power Supply 12 – 21 VDC	Electric	1	1	LVSUN 90W 12-14VDC, Allied Electronics
Solenoid Valve, 115 VAC	Electric/ Pneumatic	1	1	19806, US Plastics
Footswitch	Electric	1	1	7376K2, McMaster-Carr
Timer Main, 115VAC	Electric	1	1	4973-2-R000, Allied Electronics

Relay, 8 Pin 120V	Electric	2	1	65865k32, McMaster-Carr
Relay, Socket, 8 Terminal	Electric	2	1	7122K22, McMaster-Carr
Fuse, 10A	Electric	1	1	AGC TYPE
Air Regulator Main	Pneumatic	1	1	4246K41, McMaster-Carr
*Dust Collector Filter Bags (Set of 14)	Dust	1	1	Creative Method

* The filter set inside the unit is comprised of 14 individual filter bags. Each set consists of 14 pieces and all 14 pieces need to be changed at once when it comes time to change them.