Econo-Coat RCM 8000 Powder Spray Booth Installation Guide

⚠️ **WARNING:** Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.

Introduction

Use this document to assemble the Econo-Coat RCM 8000 powder spray booth and its components. Refer to the *Econo-Coat RCM 8000 Powder Spray Booth* manual for all operation, troubleshooting, repair, parts, and specification information for your booth.

⚠️ **WARNING:** Always balance the load when lifting components. Never put stress on flat panels. Do not attempt to lift using covers, doors, cables, or hose connections. Use only lifting equipment with a rated capacity greater than the load. While lifting, make sure all personnel stand clear.

Delivery

Perform the following tasks when the booth is delivered to the installation site.

- Clear the area of all obstructions.
- Provide a secured, indoor storage area for equipment.
- Clear the area leading from the delivery site to the installation site. Make sure that there is sufficient clearance for all equipment to pass through.
- Take inventory of all equipment. Make sure that you have all of the materials listed on the packing slip.

 NOTE: Any changes to the order requested during the installation may result in additional charges to the buyer.

Preparation

Perform the following tasks before installing the booth.

- Obtain any necessary local or state permits.

 NOTE: Compliance with local, state, and national codes including NFPA Bulletin 33 and buyer's insurance is the responsibility of the buyer.

- Make sure that the installation area has a level, class-B floor.
- Make any building alterations to meet local, state, and national codes in the powder coating room.
- Install sprinkler heads as required by your insurance carrier or local, state, and national codes.
- Make sure that you have sufficient electrical service for installation equipment at the installation site.
- If applicable, make sure that an air conditioning system is installed and operational.
- If applicable, install the conveyor throughout the entire paint area. The conveyor and its hangers must be built and tested at the site before the booth is assembled.
- Provide trash bins and off-site disposal for refuse, skids, and crating.

Clearances

The installation area should have ample floor space for coating operations and service. The floor should be level.

There must be at least 1 m (3 ft) of clearance between the final filters and any wall or other object to allow free air flow.

Unpacking

The following major components are shipped for your spray booth system.

- assembled canopy and booth base

  NOTE: Certain larger or custom booths may require some canopy assembly.

- fan section and fan/motor box
- color module
- final filter module

Remove the packaging and inspect each component for damage. Document any damage that you find and report it to both the carrier and your Nordson representative.

Base Installation

The RCM 8000 powder coating booth is available in three base lengths, 9 ft, 12 ft, and 15 ft, and can be used with any powder application system depending on your application needs.

The system can be permanently located under the conveyor (fixed base), or mounted on casters and rails (roll-on/roll-off system). The roll-on/roll-off system allows the booth to be moved off-line for color changes or maintenance.
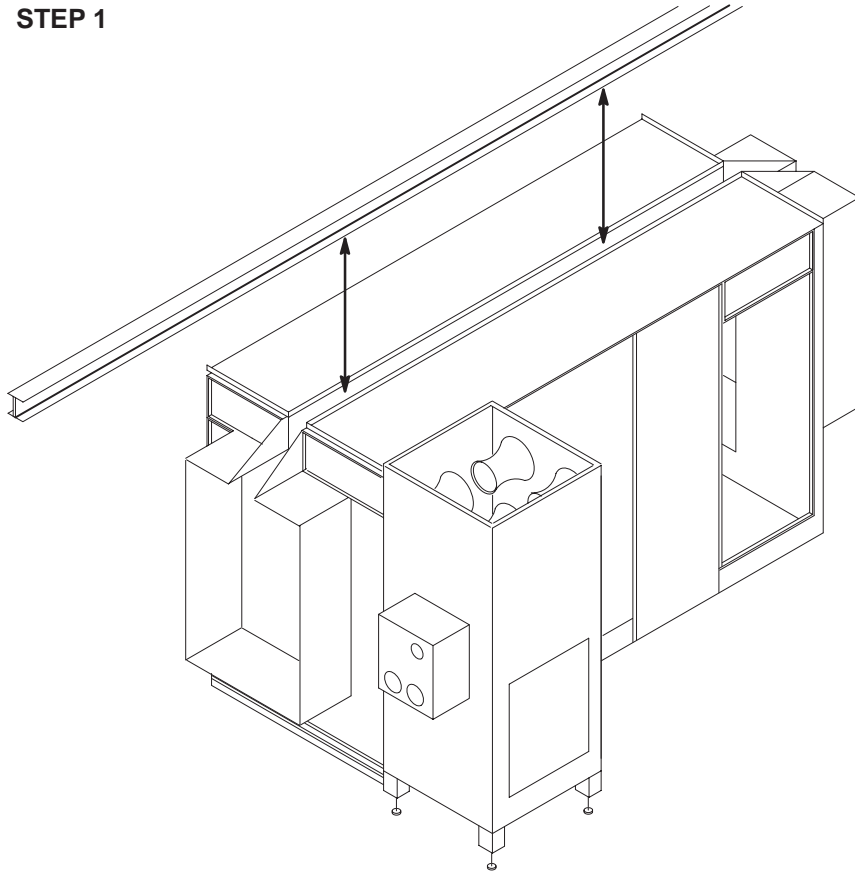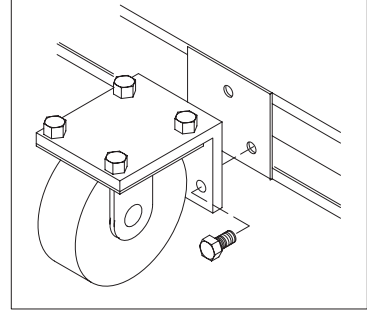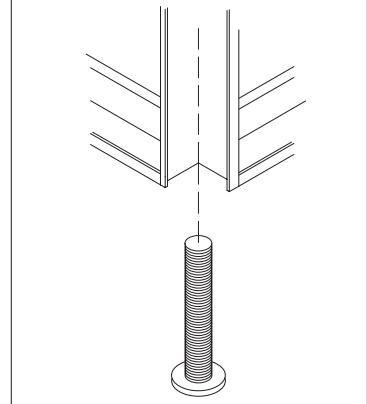
Fixed Base

See Figure 1.

1. Position the canopy and fixed base assembly in the desired production location. Keep the base centerline and the conveyor centerline aligned.

   NOTE: Continue to check the centerline alignment throughout the installation procedure to make sure the base has not shifted.

2. Remove the three $3/8$-in. diameter bolts to remove the four shipping casters and their brackets from the base. Return the shipping casters and the brackets to the booth delivery driver.

3. Install the one-inch diameter thread leveling pads into the thread holes at each corner of the fixed base.

   NOTE: If you are installing a 12-ft or 15-ft powder spray booth you will also need to install leveling feet on the center of each long side.

4. Install $3/4$-in. diameter leveling pads into the thread holes on the two corners of the fan section located furthest from the booth base.

5. Using the leveling pads, level the booth's base.

6. Check the alignment of the base's and the conveyor's centerline.

STEP 1

STEP 2

STEPS 3 and 4

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Figure 1   Fixed Base Installation

Roll-On/Roll-Off System Base
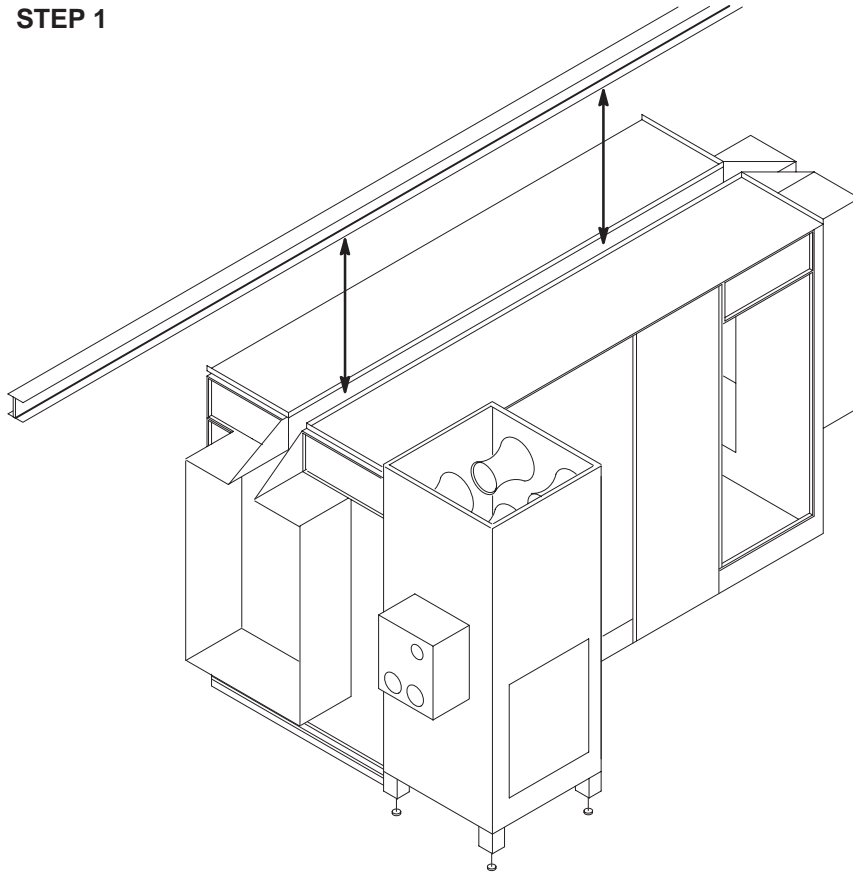
See Figure 2.

1. Position the canopy and roll-on/roll-off system base assembly in the desired production location. Keep the base centerline and the conveyor centerline aligned.

    NOTE: Continue to check the centerline alignment throughout the installation procedure to make sure the base has not shifted.

2. Remove the three $3/8$-in. diameter bolts to remove the four shipping casters and their brackets from the base. Return the shipping casters and the brackets to the booth delivery driver.

3. Install the four flange casters to the mounting pads provided on the underside of the base.

4. Check the alignment of the base's and the conveyor's centerline.

5. With the booth in the on-line position, place the track under the flange casters. Check to make sure the flange casters are square to the conveyor's centerline.

6. Anchor the tracks to the floor.

STEP 1

STEP 2
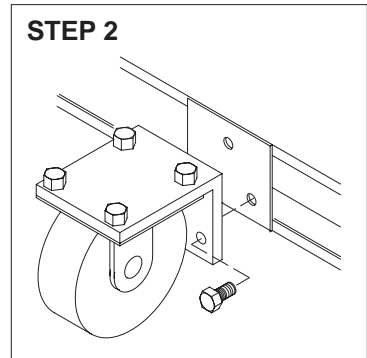
STEPS 3 and 5

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Figure 2   Roll-On/Roll-Off System Base Installation

Fan Section Installation

See Figure 3.

1. Make sure the fan section is level.

2. Apply a bead of sealant to the top flange of the fan section.

3. Using slings or chains, lift the motor (1), fan cover box (4), and fan to the top of the fan section.

NOTE: Place the fan/motor box so that the fan discharge is parallel to the conveyor and pointing away from the color module section.

4. Secure the fan/motor box to the top of the fan section with the $5/16$-in. hardware provided.

5. Remove the motor junction box cover (2). Connect the conduit (3) to the motor junction box and the wiring to the motor leads. Install the cover.

6. Caulk the seam between the fan section and the fan motor box for a complete seal.
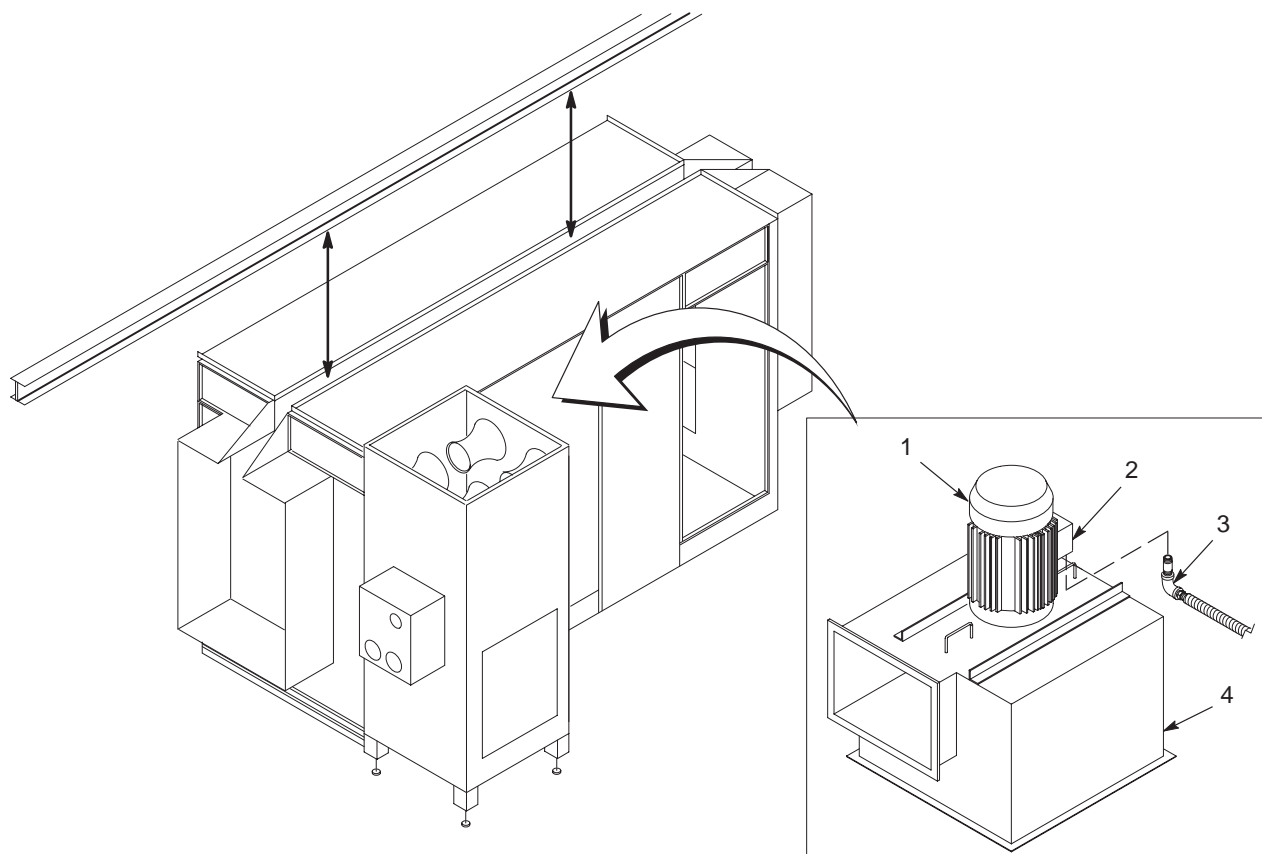
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Figure 3   Fan Section Installation

| 1. Motor | 3. Conduit | 4. Fan cover box |
| 2. Junction box cover | | |

Final Filter Module Installation

NOTE: The final filter module is shipped laying on its side with the filters installed. Refer to the *Repair* section of the *Econo-Coat RCM 8000 Powder Spray Booth* manual for instructions on how to replace individual filters.

See Figure 4.

1. **Roll-On/Roll-Off System Base Only**: Install the final filter roller base frame.

2. Apply a bead of sealant to the inlet flanges (1) of the final filter module.

3. Install the ridged ductwork section (2) to the final filter module.

4. Stand the final filter module up into its leveling feet or onto the roll-on/roll-off system frame.

5. **Roll-On/Roll-Off System Base Only**: Secure the final filter section to the roll-on/roll-off system frame using the four $3/8$-in.-diameter bolts.

6. Apply a bead of sealant to each end of the flex-duct section (3) and install it between the final filter ductwork and the fan section discharge ductwork.

7. Install tubing from the pressure tap fitting on the back of the final filter module to the final filter pressure fitting on the control panel.
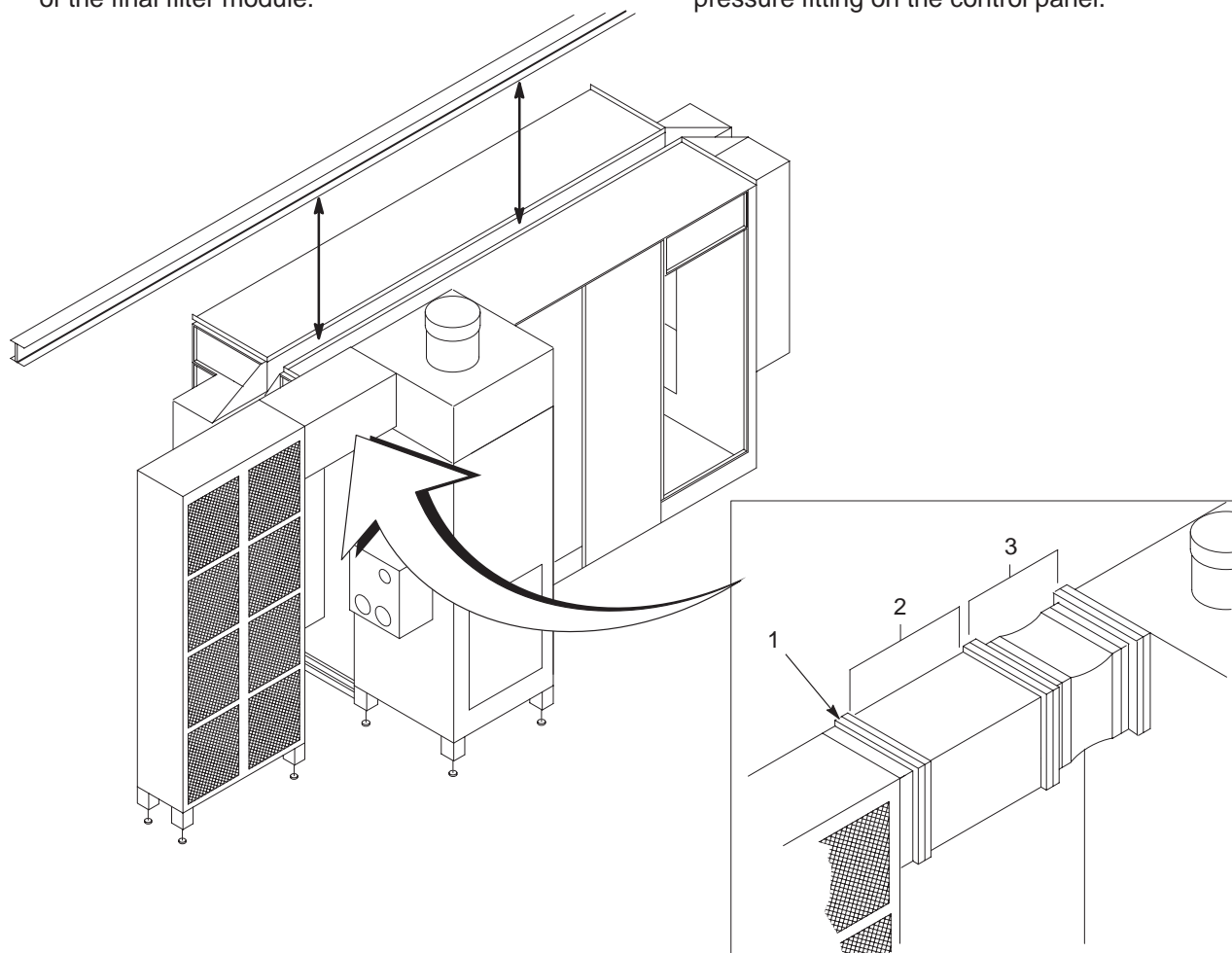
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Figure 4 Final FIlter Module Installation

1. Inlet flanges   2. Ridged ductwork section   3. Flex-duct section

Color Module Installation

Use the following procedure to assemble the color module onto the powder spray booth.

NOTE: The color module is shipped with the cartridge filters installed. Refer to the *Repair* section of the *Econo-Coat RCM 8000 Powder Spray Booth* manual for instructions on how to replace individual cartridge filters.

See Figure 5.

1. Check the caulk around the booth opening frame for the color module. Apply more caulk if necessary to provide a complete seal of the canopy against the booth opening frame.

2. Position the new color module (5) against the fan section (1) and the inlet frame (4). The gaskets should seal against the fan section and the inlet frame.

3. Use the four threaded stems of the casters under the color module to level the color module and adjust its height, if necessary.

4. Adjust the latching clamps (6) so that there is an even amount of pressure on all sides of both gaskets.

Final Canopy Assembly Steps

See Figure 5.

Check the seams around the entire canopy to make sure enough caulk is applied for a complete seal. Pay close attention to the followings seams:

- between the fan section and the fan/motor box (2)

- around the inlet frame (4)
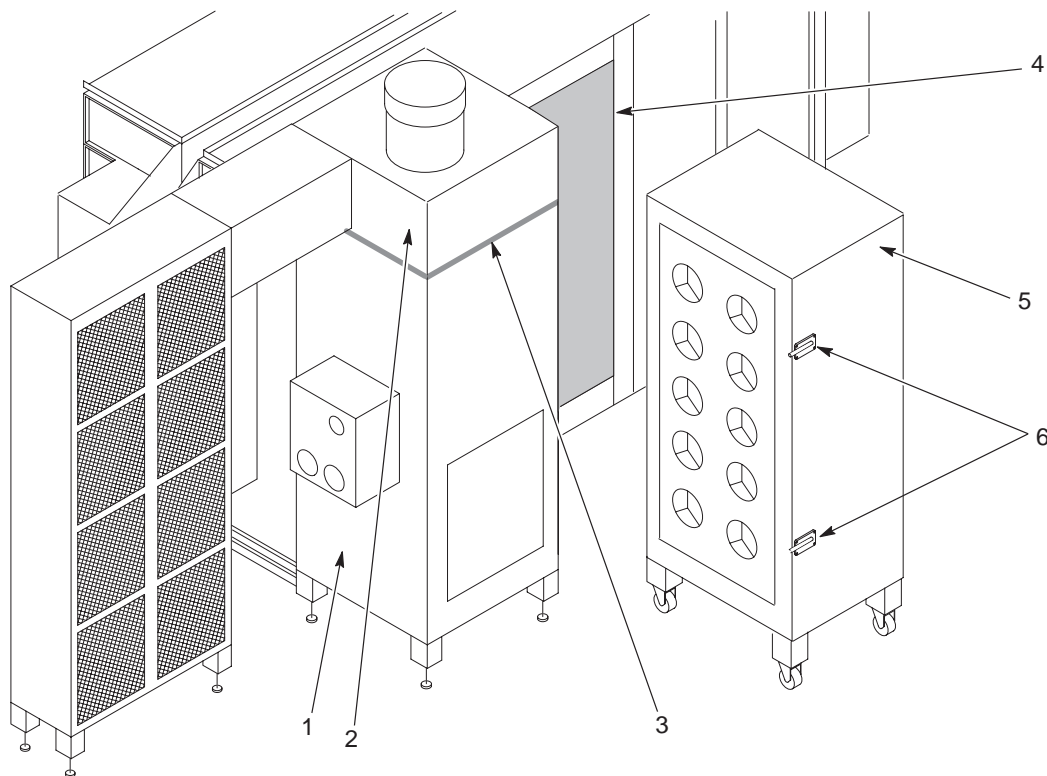
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Figure 5   Color Module Installation and Final Canopy Assembly

1. Fan section
2. Fan/motor box
3. Apply caulk between fan section and fan/motor box
4. Inlet frame (apply caulk for a good seal)
5. Color module
6. Latching clamps

Pneumatic Connections

⚠ **WARNING:** Do not operate equipment at a pressure greater than the maximum rated working pressure of any component in the system.

Make sure that the following equipment is installed before the main air connection of each powder booth.

- compressed air line within 6 m (20 ft) of each booth
- desiccant-type air dryers
- pressure-relieving ball valve on the main air header drop

Electrical Connections

⚠ **WARNING:** All phases of installation must comply with all federal, state, and local codes. All work that is located in class 2, divisions 1 and 2 hazardous locations must comply with NFPA code 33, spray application 1995, and NFPA code 70 (especially articles 500, 502, and 516, latest editions).

⚠ **WARNING:** Even with the electrical panel disconnect in the off position, the input terminals at the top of the switch are still live. Do not touch them. Failure to observe this warning could result in serious injury or death.

⚠ **WARNING:** Risk of electrical shock. Make sure that all conduit and conduit fittings are liquid tight.

NOTE: Motor wiring, conduit fittings, flexible conduit, and anchor clips are shipped with the booth assembly.

Connect the Wiring

1. Pull the conduit from the fan/motor junction box through the knockout in the control panel and connect it to the appropriate overload (M1) terminals.

2. Secure the conduit to the control panel.

3. Provide a fused or circuit breaker protected and lockable voltage source for the main electrical supply.

4. Install a fused, locking disconnect switch in the main electrical line before the control panel.

5. Pull the main electrical supply wiring through the appropriate size conduit and connect it to the panel disconnect switch (DISC 101).

6. Secure the electrical supply conduit to the control panel.

7. See Figure 6. Locate the timer board on the inside door of the control panel. Set the timer board to the following settings:

   - **PULSE FREQUENCY:** 15 seconds
   - **PULSE DURATION:** 110 milliseconds
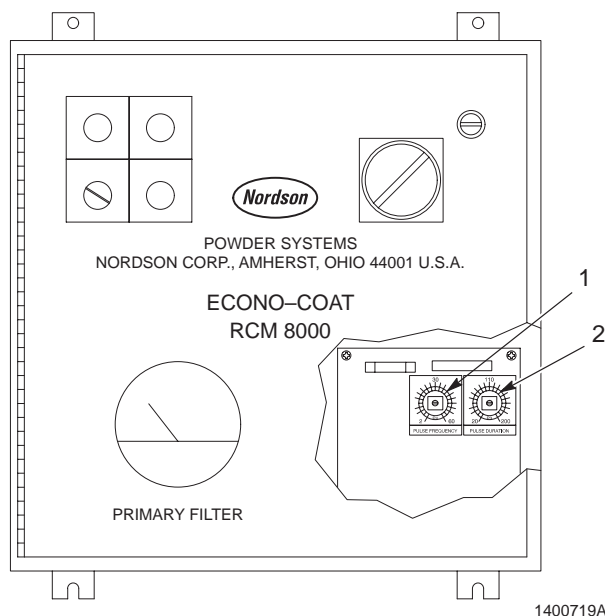
Figure 6   Pulse Valve Timer Board
   1. PULSE FREQUENCY
   2. PULSE DURATION

Optional Fire Detection System

NOTE: Fire detection systems are required when automatic or unattended spray operations are performed. Refer to the appropriate fire detection system manual for installation and operating procedures.

See Figure 7.

1. Mount the fire detection control panel in a convenient location near the spray booth control panel.

2. Run conduit and wiring between the fire detection panel and the spray booth control panel.

3. Make the connections to terminals 3 and 4 on the spray booth control panel.

4. Remove the factory installed jumper wire between terminals 3 and 4 on the spray booth control panel.

Electrical Connections *(contd)*

USERS 3PH,60Hz SUPPLY

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Figure 7   System Schematic