Econo-Coat® RCM 8000 Powder Coating Booth

Customer Product Manual
Part 1013763B
Issued 6/02

For parts and technical support, call the Industrial Coating Systems Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

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Notice

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Section 1
Safety

Introduction

Read and follow these safety instructions. Task- and equipment-specific warnings, cautions, and instructions are included in equipment documentation where appropriate.

Make sure all equipment documentation, including these instructions, is accessible to all persons operating or servicing equipment.

Qualified Personnel

Equipment owners are responsible for making sure that Nordson equipment is installed, operated, and serviced by qualified personnel. Qualified personnel are those employees or contractors who are trained to safely perform their assigned tasks. They are familiar with all relevant safety rules and regulations and are physically capable of performing their assigned tasks.

Intended Use

Use of Nordson equipment in ways other than those described in the documentation supplied with the equipment may result in injury to persons or damage to property.

Some examples of unintended use of equipment include

- using incompatible materials
- making unauthorized modifications
- removing or bypassing safety guards or interlocks
- using incompatible or damaged parts
- using unapproved auxiliary equipment
- operating equipment in excess of maximum ratings

Regulations and Approvals

Make sure all equipment is rated and approved for the environment in which it is used. Any approvals obtained for Nordson equipment will be voided if instructions for installation, operation, and service are not followed.

All phases of equipment installation must comply with all federal, state, and local codes.

Personal Safety

To prevent injury follow these instructions.

- Do not operate or service equipment unless you are qualified.
- Do not operate equipment unless safety guards, doors, or covers are intact and automatic interlocks are operating properly. Do not bypass or disarm any safety devices.
- Keep clear of moving equipment. Before adjusting or servicing any moving equipment, shut off the power supply and wait until the equipment comes to a complete stop. Lock out power and secure the equipment to prevent unexpected movement.
- Relieve (bleed off) hydraulic and pneumatic pressure before adjusting or servicing pressurized systems or components. Disconnect, lock out, and tag switches before servicing electrical equipment.
- Obtain and read Material Safety Data Sheets (MSDS) for all materials used. Follow the manufacturer’s instructions for safe handling and use of materials, and use recommended personal protection devices.

Personal Safety *(contd)*

- To prevent injury, be aware of less-obvious dangers in the workplace that often cannot be completely eliminated, such as hot surfaces, sharp edges, energized electrical circuits, and moving parts that cannot be enclosed or otherwise guarded for practical reasons.

Fire Safety

To avoid a fire or explosion, follow these instructions.

- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored.
- Provide adequate ventilation to prevent dangerous concentrations of volatile materials or vapors. Refer to local codes or your material MSDS for guidance.
- Do not disconnect live electrical circuits while working with flammable materials. Shut off power at a disconnect switch first to prevent sparking.
- Know where emergency stop buttons, shutoff valves, and fire extinguishers are located. If a fire starts in a spray booth, immediately shut off the spray system and exhaust fans.
- Clean, maintain, test, and repair equipment according to the instructions in your equipment documentation.
- Use only replacement parts that are designed for use with original equipment. Contact your Nordson representative for parts information and advice.

Grounding

WARNING: Operating faulty electrostatic equipment is hazardous and can cause electrocution, fire, or explosion. Make resistance checks part of your periodic maintenance program. If you receive even a slight electrical shock or notice static sparking or arcing, shut down all electrical or electrostatic equipment immediately. Do not restart the equipment until the problem has been identified and corrected.

All work conducted inside the spray booth or within 1 m (3 ft) of booth openings is considered within a Class 2, Division 1 or 2 Hazardous location and must comply with NFPA 33, NFPA 70 (NEC articles 500, 502, and 516), and NFPA 77, latest conditions.

- All electrically conductive objects in the spray areas shall be electrically connected to ground with a resistance of not more than 1 megohm as measured with an instrument that applies at least 500 volts to the circuit being evaluated.
- Equipment to be grounded includes, but is not limited to, the floor of the spray area, operator platforms, hoppers, photoeye supports, and blow-off nozzles. Personnel working in the spray area must be grounded.
- There is a possible ignition potential from the charged human body. Personnel standing on a painted surface, such as an operator platform, or wearing non-conductive shoes, are not grounded. Personnel must wear shoes with conductive soles or use a ground strap to maintain a connection to ground when working with or around electrostatic equipment.
- Operators must maintain skin-to-handle contact between their hand and the gun handle to prevent shocks while operating manual electrostatic spray guns. If gloves must be worn, cut away the palm or fingers, wear electrically conductive gloves, or wear a grounding strap connected to the gun handle or other true earth ground.
- Shut off electrostatic power supplies and ground gun electrodes before making adjustments or cleaning powder spray guns.
- Connect all disconnected equipment, ground cables, and wires after servicing equipment.

Action in the Event of a Malfunction

If a system or any equipment in a system malfunctions, shut off the system immediately and perform the following steps:

- Disconnect and lock out electrical power. Close pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the equipment.

Disposal

Dispose of equipment and materials used in operation and servicing according to local codes.

Section 2
Description

Introduction

NOTE: Refer to the *Econo-Coat RCM 8000 Powder Coating Booth Installation Guide* for all installation instructions for this booth.

The Econo-Coat Removable Color Module (RCM) 8000 powder coating booth allows for complete powder coating and powder recovery/reclaim.

Since powder coating systems are designed to each customer's requirements, each system has a different combination of equipment. This manual describes a basic, manually operated system. Your system may have equipment not described in this manual, such as automatic gun triggering and air management systems. Before operating your system, read the manuals for all equipment not covered in this manual.

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, 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.

Figure 2-1 illustrates the operation of a typical system.

Figures 2-2, 2-3, and 2-4 identify the locations of the components in a typical system.

System Operation

See Figure 2-1.

Powder Application

The powder supply is fluidized when low-pressure compressed air forced through a porous plate in the bottom of the powder supply.

Powder pumps draw the powder out of the powder supply, mix it with a high-velocity stream of air, and force it through feed hoses to the powder spray guns (1). The spray guns charge the powder and spray it onto the workpieces (3) passing through the booth. The charged powder sticks to the grounded workpieces.

The fluidizing air flows into the color module (9) through a vent duct. In the color module, the cartridge filters (4) separate powder dust from the fluidizing air.

Powder Recovery and Reclaim

An exhaust fan (5) pulls spray-room air into the enclosure (2), through the cartridge filters (4) and color module (9), and into the fan section (6). The air returns to the spray room through the final filters (7), free of all powder.

Most of the oversprayed powder remains suspended in the air flowing through the enclosure to the cartridge filters. The powder collects on the external surfaces of the cartridge filters. At timed intervals, the pulse valves (8) release large volumes of air through the centers of the cartridge filters. The air pulse blows the powder off the filters. The powder falls into the color module hopper (10).

A transfer pump (11) pumps the reclaimed powder through a transfer hose back to the powder supply for reuse or to a scrap bucket as waste.

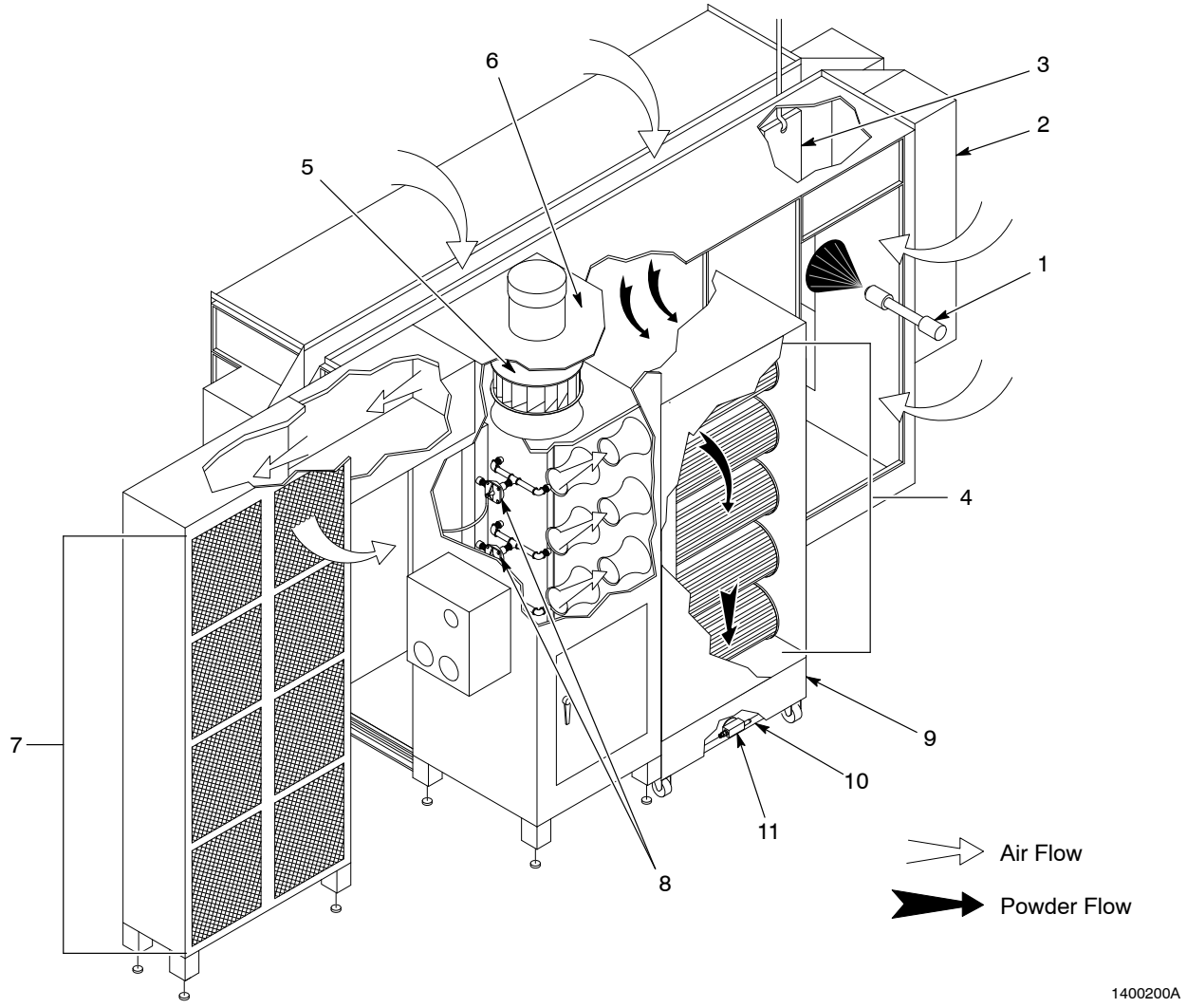

Figure 2-1 System Operation

1. Powder spray gun
2. Enclosure
3. Workpiece
4. Cartridge filters
5. Exhaust fan
6. Fan section
7. Final filters
8. Pulse valves
9. Color module
10. Color module hopper
11. Transfer pump

System Equipment

The following paragraphs describe the equipment used in a typical system.

Recovery and Reclaim Equipment

Refer to Table 2-1 and see Figure 2-2.

Table 2-1 Recovery and Reclaim Equipment

Item	Equipment	Description
1	Booth enclosure (canopy)	Contains the sprayed powder within the booth. It has a conveyor slot in the roof; exit and entry vestibules; slots for automatic spray guns; and openings in the sides for manual gun operators. The color module is attached to a large opening on one side.
2	Color module	Houses cartridge filters; fluidizing plates and plenums; and transfer pumps. Oversprayed powder accumulates in the hopper in the bottom of the module.
3	Transfer pump	Conveys the reclaimed powder from the color module hopper to the accumulator. A regulator controls pump operation.
4	Fan section	Houses the exhaust fan; motor; cartridge filter pulse valves and manifold; and final filters. A gasket provides an air-tight seal between the fan section and the color module.
NS	Booth base	Supports the enclosure and provides mounting points for the powder inlet frame, fan section support legs, operator platform, and other equipment.
NS: Not Shown		

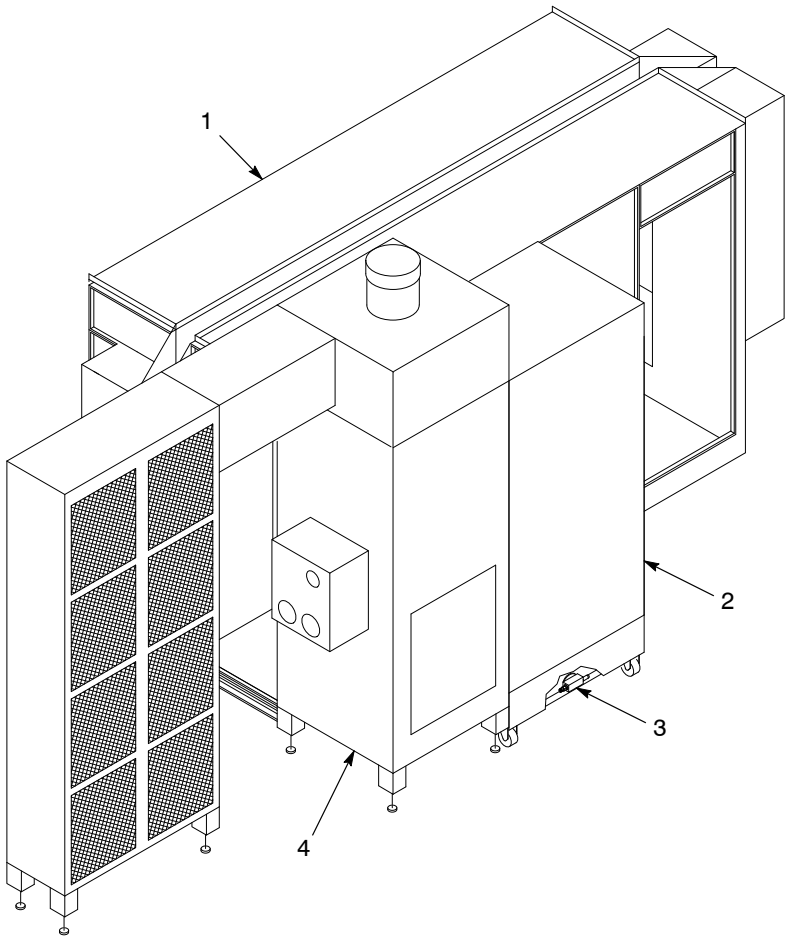

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Figure 2-2 Recovery and Reclaim Equipment

1. Booth enclosure
2. Color module
3. Transfer pump
4. Fan section

System Controls

Refer to Table 2-2 and see Figure 2-3.

Table 2-2 System Controls

Item	Equipment	Description
1	Differential pressure gauges	Monitor the air pressure drop across the final filters and the cartridge filters. The system will shut down when final filter clogging reaches a critical level.
2	Flame detector indicator/relay panel (optional)	Provides visible and audible fault and fire alarms and interlock relays. If a detector senses a flame, the interlock relays shut down the conveyor, booth exhaust fan, compressed air, and electrical power to the spray guns. ANSI/NFPA-33 standards require flame detectors in all systems equipped with automatic spray guns.
3	Electrical panel	Houses motor starters and overload protectors; transformers; interlock relays; final filter differential-pressure switch; basic system controls and indicator lights; and the pulse valve timer board. Refer to *System Electrical Panel* in this section for more information.
4	Pneumatic manifold	Houses air-pressure regulators and gauges for the feed hopper, color module, transfer pumps, and other pneumatic equipment.
5	Pulse air controls	Regulate the pulse air pressure and volume. Controls include a regulator, pressure gauge, and ball valve.
6	Flame detectors (optional)	Monitor the enclosure (booth) interior for flames. The detectors use IR sensing technology and include a through-the-lens self test to check for powder build-up.

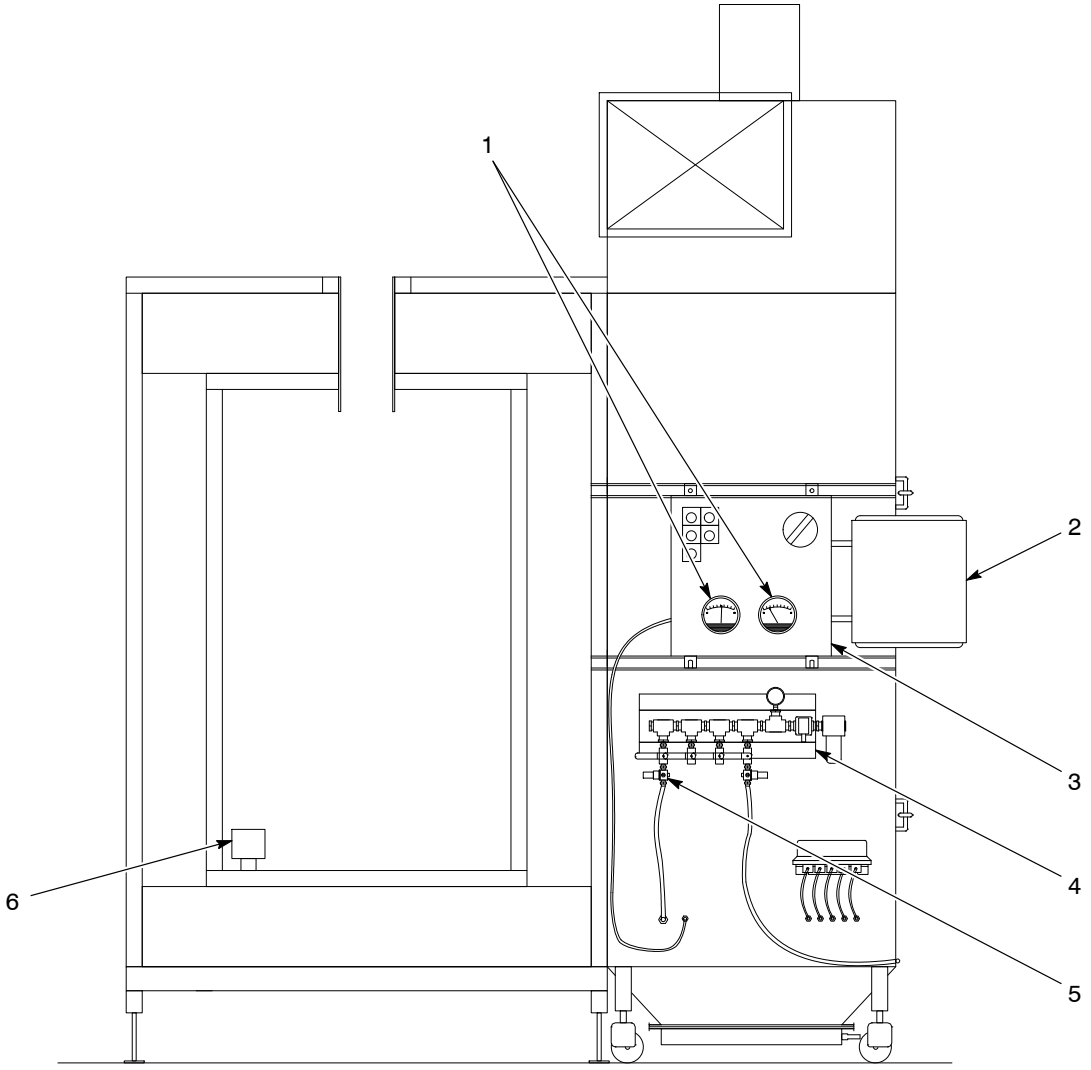


Figure 2-3 System Controls

1. Differential pressure gauges
2. Flame detector indicator/relay panel
3. Electrical panel
4. Pneumatic manifold
5. Pulse air controls
6. Flame detector

System Electrical Panel

A typical manually controlled system uses an electrical panel similar to the panel shown in Figure 2-4 . Your system's electrical panel may be different.

Refer to Table 2-3 and see Figure 2-4.

Table 2-3 System Electrical Panel

Item(s)	Equipment	Description
1	POWER/System ready indicator light	Indicates, when lit, that the system is ready to start.
2	FAN START pushbutton	Starts the exhauster fan.
3	FAN STOP pushbutton	**NOTE:** This pushbutton does not shut down power to the panel. Shuts down the exhauster fan.
4	Main disconnect switch	Turns the motor starter panel electrical power on or off.
5, 6	FINAL FILTER pressure gauge and switch	Indicates and determines the pressure increase allowed across the final filters. At 2-in. wc, the final filter pressure switch (6) opens and automatically shuts down the system.
7	PRIMARY (cartridge) FILTER differential pressure gauge	Indicates the pressure across the cartridge filters.

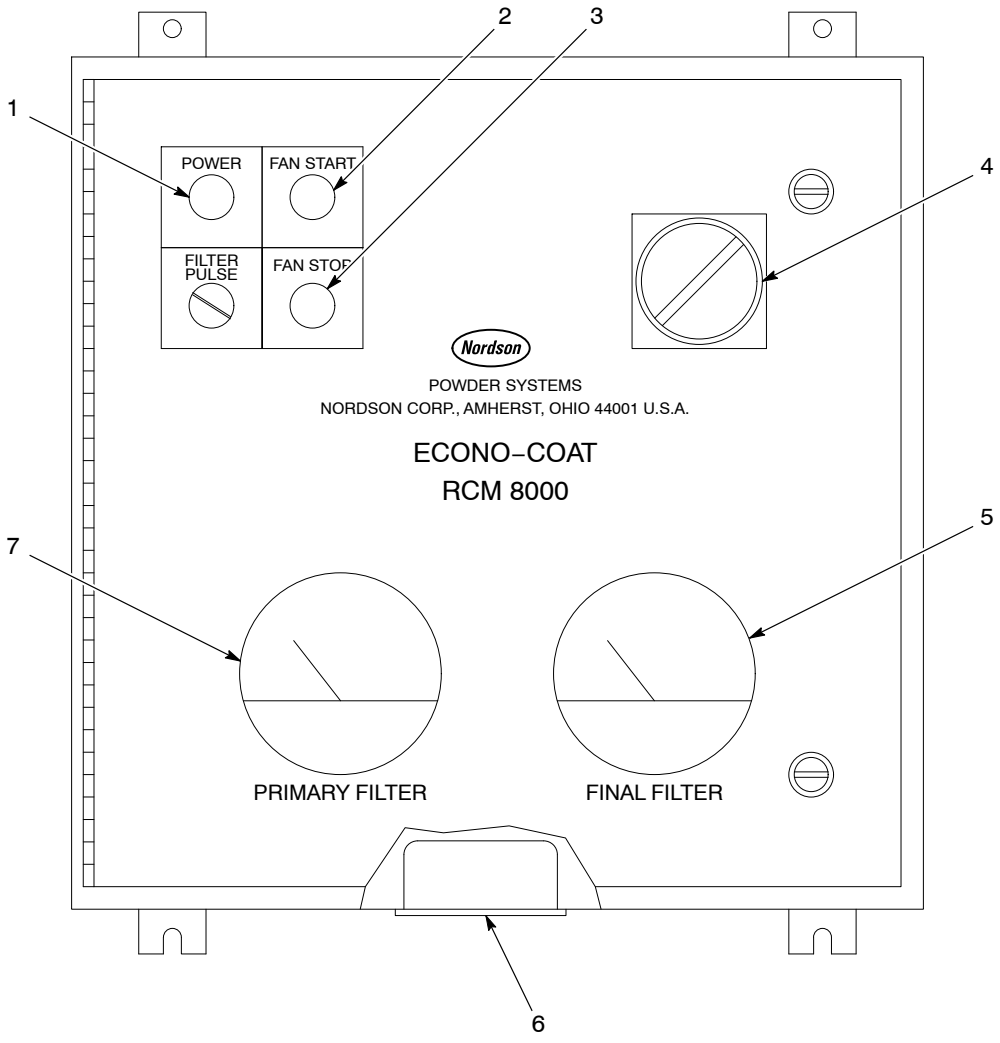


Figure 2-4 System Electrical Panel Controls and Indicators

Section 3
Operation

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

New System Startup

Use these procedures to prepare your powder coating booth for production operation. Refer to the appropriate manuals for instructions if your system is equipped with a Smart-Spray or Smart-Coat system, or another type of automation system.

Your Nordson Corporation representative will help you set up your application equipment and adjust your system control settings before you start powder coating your products. Record the system settings on the charts provided at the end of this section. Make extra copies of the charts as needed.

NOTE: Since powder coating systems are custom-designed to each customer's requirements, each system has a different combination of equipment. Your system may have equipment not described in this manual, such as automatic gun-triggering and air-management systems.

System Settings

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.

See Figure 3-1.

1. Disconnect the system electrical power and open the system electrical panel (1).
2. Set the PULSE FREQUENCY (2) to 15 seconds and the PULSE DURATION (3) to 110 miliseconds. Close the electrical panel.
3. Turn on the compressed air supply. Adjust the system air pressure to 5.5 bar (80 psi).
4. Turn on the system electrical power.
5. Turn on the exhaust fan by pressing the FAN START (4) button.
6. Adjust the pulse-valve air pressure and volume.
   a. Set the pulse valve regulator to 4.1–5.2 bar (60–75 psi). Watch the pressure gauge; the pressure will drop when the valves open.
   b. Adjust the gate valve so the air pressure returns to 4.1–5.2 bar (60–75 psi) just before the next pulse. This adjustment will prevent the valves from being deprived of air during pulses.

System Settings *(contd)*

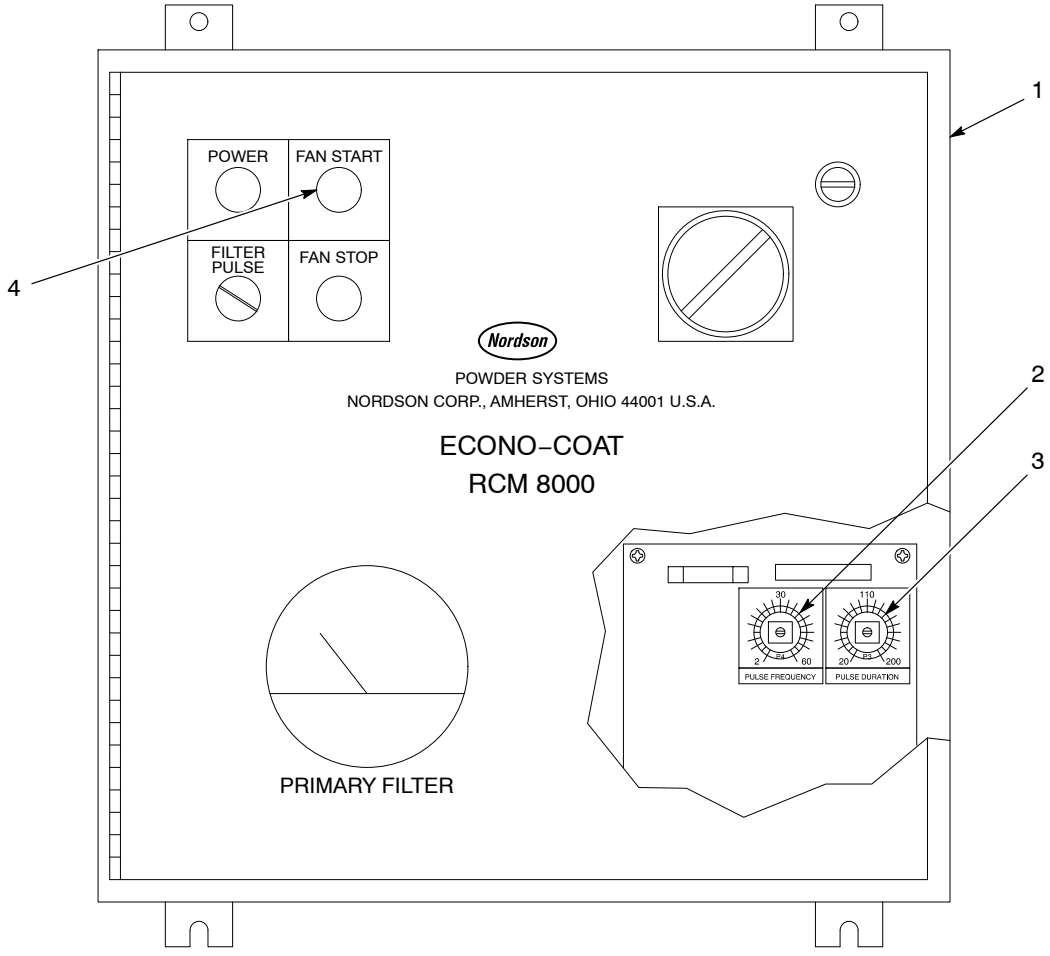


Figure 3-1 New System Startup

1. Electrical panel
2. PULSE FREQUENCY dial
3. PULSE DURATION dial
4. FAN START button

Daily Startup and Shutdown Procedures

Use these procedures for routine operation of your system.

Startup

1. Turn on the system electrical power and compressed air supply.
2. Turn on the exhaust fan at the electrical panel.
3. Check the level of the powder in the powder supply. The supply should be approximately $^{2}/_{3}$ full.
4. Walk around the booth. Make sure the application equipment power and air is on. Make sure the transfer and feed hoses are connected to the pumps and spray guns.
5. Check all equipment ground connections.
6. Make sure the flame detector system, if used, is functioning correctly.
7. Turn on the automatic-gun master control unit and the manual-gun control units.
8. Adjust the kV settings and the powder-pump air pressures, if necessary. Refer to your spray gun and control unit manuals.
9. Start the conveyor and start spraying workpieces.
10. Measure the air flow velocity at the vestibules with a velometer. The velocity should be 30.5–36.6 m/min (100–120 ft/min). Make sure the sprayed powder is not being pulled from the spray guns and workpieces, and that the powder is not escaping from the enclosure openings.

Shutdown

1. Start the transfer pump. Pump the reclaimed powder from the color module hopper back into the powder supply.
2. Turn off the automatic-gun master control unit and the manual-gun control units.
3. Perform the daily maintenance procedures described in the *Maintenance* section. Clean the powder pumps and spray guns as described in their manuals. Perform daily maintenance procedures for other system equipment, as described in their manuals.
4. Turn off the exhaust fan. Shut off the system electrical power and compressed air supply.

Color Module Replacement

The following procedures describe how to remove and replace the color change module.

Remove the Color Module

See Figure 3-2.

1. Clean the enclosure as described in the *Daily Maintenance* procedures in the *Maintenance* section. Clean the spray guns and feed hoses as described in the spray gun manuals.
2. Shut off the system electrical power and compressed air supply. Relieve the system air pressure.
3. Disconnect the powder hose and compressed air line from the transfer pump (4).
4. Release the clamps (3, 5) securing the color module (2) to the fan section (1) and enclosure.
5. Roll the color module away from the fan section and enclosure and move it to a storage area.

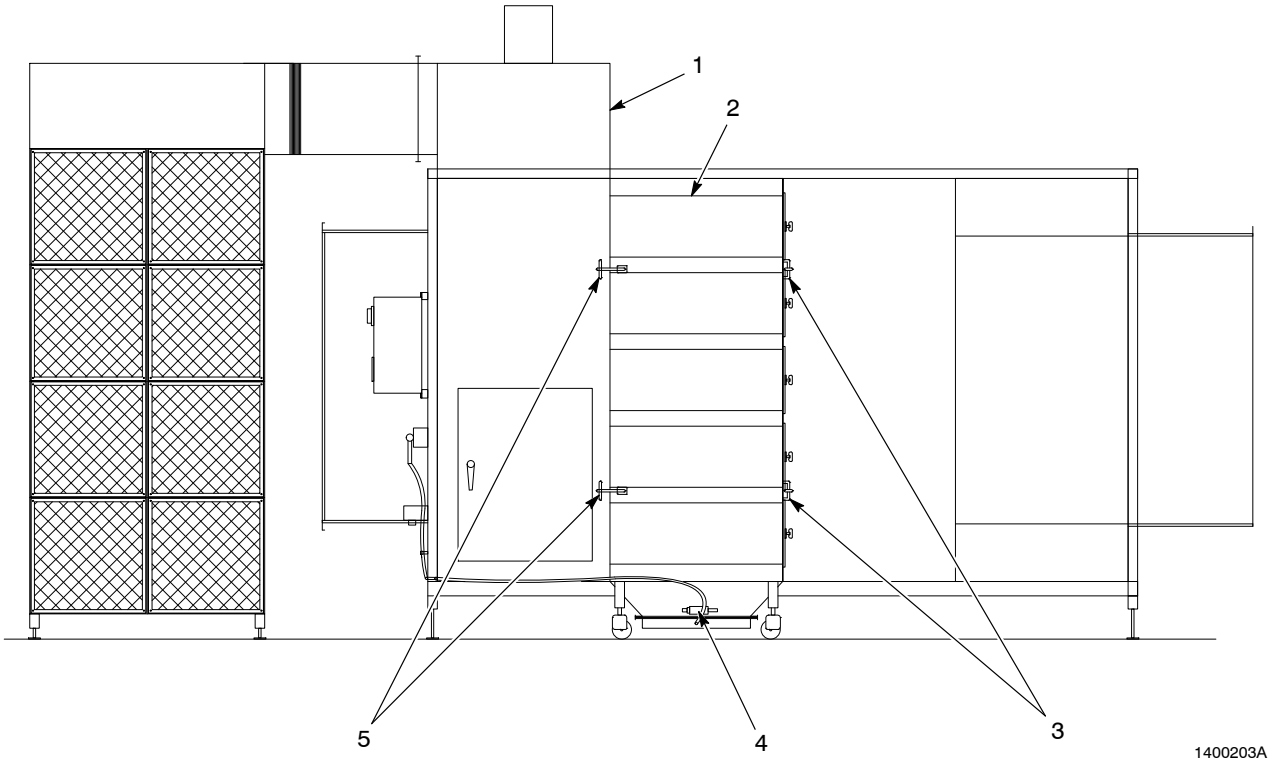


Figure 3-2 Removing the Color Module

1. Fan section
2. Color module
3. Clamps
4. Transfer pump
5. Clamps

Install a New Color Module

See Figure 3-3.

1. Thoroughly clean the powder off the inlet frame (2) and surrounding area.

   NOTE: If you find large amounts of powder in the fan and pulse valve compartments, the cartridge filters are leaking. Fix the problem before proceeding. Refer to the *Troubleshooting* and *Repair* sections for instructions.

2. Inspect and clean the interior of the fan section (1) and the color module mating surface.
3. Remove the storage cover from the new color module (3). Inspect the gaskets (4, 6). Replace them if they are damaged.
4. Position the new color module against the fan section and the inlet frame. The gaskets should seal against the fan section and the inlet frame.
5. Level the color module and adjust its height, if necessary, with the four leveling screws (5) under the color module.
6. See Figure 3-2 . Hook the clamps (3) to the enclosure. Engage the clamps to pull the color module against the stops and compress the gasket against the inlet frame.
7. Hook the clamps (5) to the fan section (1) and engage them to compress the gasket against the fan section.
8. Connect the air tubing and powder hose to the transfer pump (4).
9. Connect all equipment ground straps and wiring.
10. Start the system.
    a. Turn on the system electrical power and compressed air supply.
    b. Start the exhaust fan.

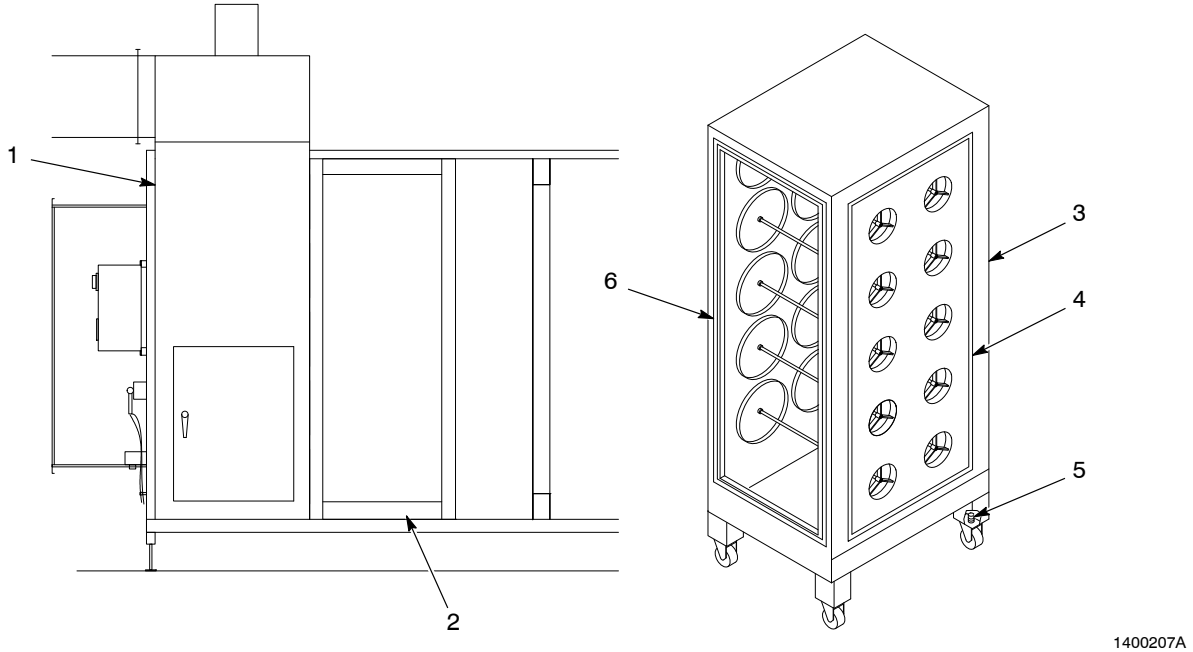


Figure 3-3 Installing a New Color Module

1. Fan section
2. Inlet frame
3. New color module
4. Gasket
5. Leveling screws
6. Gasket

System Setting Charts

Equipment	Recommended Initial Settings	Final Setting	Changes
Primary Air Pressure (plant supply)	5.5 bar (80 psi)		
Collector Module			
#1 Fluidizing	0.7 bar (10 psi)		
#1 Transfer pump	1.7 bar (25 psi)		
Feed Hopper — Reclaim			
Fluidizing	0.5 bar (8 psi)		
Vent-assist	0.5 bar (8 psi)		
Feed Hopper — Non-Reclaim			
#1 Fluidizing	0.5 bar (8 psi)		
#2 Fluidizing	0.5 bar (8 psi)		
#3 Fluidizing	0.5 bar (8 psi)		
Vent-assist	0.5 bar (8 psi)		
Pulse Manifold			
Air pressure	4.1–5.2 bar (60–75 psi)		
NFS-1000 Fire Detector			
Air pressure	0.7 bar (10 psi) (preset)		
Vibratory Sieve			
Air pressure	3.5 bar (50 psi)		
Pulse Timer			
Delay (OFF) time	15.0 sec		
Duration (ON) time	110 msec		
Filter Pressure Drop Maximum Readings			
Cartridge filters	3–5 in. wc		
Final filters	2 in. wc		

Equipment	Recommended Initial Settings	Final Setting	Changes
Automatic Spray Guns			
#1 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#2 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#3 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#4 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#5 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#6 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#7 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		
#8 Flow-rate	2.1 bar (30 psi)		
Atomizing	1.4 bar (20 psi)		
Voltage	90–100 kV		
AFC	40 A		

Section 4
Maintenance

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

Daily Maintenance

Perform these procedures daily to keep your system clean and functioning properly.

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

Cleaning

Perform this procedure daily and when changing powder color or type.

WARNING: Wear an approved respirator and safety glasses or goggles when handling powder, operating spray equipment, or performing maintenance or cleaning operations. Obtain and read Material Safety Data Sheets for each powder used.

1. Turn off the spray gun control units.
2. Turn on the exhaust fan.
3. Disconnect the powder-feed hoses from the powder pumps. Blow the powder out of the hoses and spray guns with compressed air.
4. Ground the gun electrodes, if applicable, and clean the spray guns according to the instructions in the spray gun manuals.
5. Clean the enclosure roof, walls, and floor with a rubber squeegee. Push the collected powder into the color module.
6. Remove the remaining powder residue from the enclosure with an air-powered vacuum and a soft brush attachment. Wipe down all surfaces with a damp, lint-free cloth (do not use tack cloths). If you remove the color module, clean the inlet frame and surrounding area.
7. Turn off the exhaust fan by pressing the FAN STOP button on the control panel.
8. Clean the operator's platform and the floor around the booth.

Daily Equipment Maintenance

Equipment	Procedure
Filters	1. Check the final filter differential pressure gauge. It should read between 0.25 and 2 in. of water (wc). Make sure no powder is leaking from around the filter gaskets or faces. 2. Check the cartridge filter differential pressure gauge. It should read between 3.5 and 5.5 in. of water (wc). Check the pulse valve timing.
Transfer Pump	1. Disconnect the transfer hose from the pump. Blow the powder out of the hose with compressed air. 2. If the pump is installed horizontally, place a small container under the transfer pump to catch spilled powder. Remove the pump from the adapter. Blow out the adapter. 3. Disassemble the pump. Clean the parts with a low-pressure air gun and a clean cloth. Replace any worn or damaged parts.
Fan Section	1. Remove the final filters and inspect the fan compartment. Vacuum out any powder. 2. Inspect the pulse-valve compartment. Vacuum out any powder. **NOTE:** If significant amounts of powder have accumulated in the fan or pulse-valve compartment, the cartridge filters may be leaking. Refer to the *Troubleshooting* section for instructions.
Powder Spray Guns	Disassemble and clean the spray guns according to the instructions in their manuals.
Powder Pumps	Disassemble and clean the pumps according to the instructions in their manuals. Replace worn parts.
Flame Detector System	Check the detector sensors every four hours and clean the lenses, if necessary. Make sure air is being supplied to the sensors. Make sure the detector system is operating properly.
Compressed Air Supply	Hold a clean, white cloth under the drop leg and open the drop-leg drain valve. Water, oil, or other contaminants will stain the cloth. Eliminate any source of contamination. Drain the filters and separators and check the filter elements. Check all air pressure regulator settings. **NOTE:** The air dryer should remain on at all times to prevent moisture from accumulating in the compressed air system.
Workpiece and Conveyor Grounds	 **WARNING:** An ungrounded or poorly grounded workpiece, hanger, or conveyor can cause electrical arcing. If arcing is observed, shut down the system immediately. Correct the cause before resuming operations. Failure to observe this warning could result in a fire or explosion, causing property damage and possible personal injury or death. Make sure all workpieces are grounded through the hangers and conveyor. The resistance between the workpieces and the hangers, and the hangers and ground, must be less than one megohm. You will get better transfer efficiency and workpiece coverage at 500 ohms or less. Clean or strip the hangers regularly.
Air Dryers (Optional)	Refer to your air dryer manual for maintenance procedures and schedules.
Gun Movers (Optional) (Oscillators and Reciprocators)	Each shift, make sure the gun movers are stroking smoothly and at the proper speed. Make repairs and adjustments if necessary. Lubricate the gun movers as described in their manuals.

Equipment	Procedure
Accumulators and Vent Hoses (Optional)	Vacuum out the accumulators and blow the powder out of the vent hoses with compressed air.

Weekly Maintenance

Equipment	Procedure
Booth Enclosure	Turn on the exhaust fan and vacuum the enclosure roof, walls, and floor with a soft brush attachment. Wipe down the enclosure with damp, lint-free cloths. Clean the booth exterior, all attached equipment, and the spray room.
Powder Spray Guns and Cables	Clean the spray guns. Perform electrostatic resistance checks as described in the spray gun and spray gun control unit manuals.
Powder Pumps and Feed Hoses	Disassemble the pumps and clean them according to the instructions in their manuals. Replace any worn or damaged parts. Blow out the feed hoses with compressed air. Replace damaged hoses.
Powder Supply Source (feed hopper, box feeder, etc.)	Remove the powder from the source. Vacuum the interior. Check the fluidizing plate. If the plate is stained, the air supply could be contaminated by oil or moisture. Check the air dryer and air filters. Replace the fluidizing plate if it is contaminated.
Color Module	Start the exhaust fan and activate the pulse valves to blow as much powder as possible off the cartridge filters. Do not vacuum the cartridge filters. Remove the cartridge filters and inspect the filter media and gaskets. Replace the filters if they are damaged. Pump the powder out of the color module. Disconnect the powder hose from the transfer pump. Blow the powder out of the hose with compressed air. Remove the transfer pump and clean it as described in its manual. Vacuum the color module interior. Check the color module hopper fluidizing plate. If it is stained, the air supply could be contaminated by oil or moisture. Check the air dryer and air filters. Replace the fluidizing plate if it is contaminated. Check the gaskets for cracks or other damage. Lubricate the casters with a lithium grease.

Periodic Maintenance

Equipment	Procedure
Electrical Connections	Check all terminal blocks and junction boxes for loose wires. Tighten any loose connections and inspect all wiring for damaged insulation. Replace the wiring if the insulation is damaged.
Spray Guns and Cables	Perform electrostatic resistance checks as described in the spray gun and spray gun control unit manuals.
Air Dryer	Check the air dryer operation. Refer to your air dryer manual for maintenance procedures and schedules.
Gaskets	Inspect all gaskets and seals for damage. Replace them if they are damaged.
Bearings	Every six months, lubricate the motor bearings with two shots of lithium or polyurea grease from a grease gun. The grease fittings are on the motor housing.
Differential Pressure Gauges	Observe and record the differential pressure gauge readings. Readings greater than the following mean that the filters are clogged and must be replaced. Correct the cause of the clogging before resuming operations. Primary Filter: 3.5–5.5 in. wc Final Filters: 0.25–2 in. wc
Powder Feed Hoses	Disconnect the powder feed hoses from the powder pumps. Blow the powder out of the hoses with compressed air. Never blow air through the hoses toward the pumps. Replace the hoses if they are clogged with impact-fused powder.

Maintenance Check List

Activity	Each Shift	Daily	Weekly	Monthly	Color Change
Cleaning					
Accumulator		✓			
Booth enclosure		✓	✓		✓
Color module			✓		✓
Fan and pulse-valve compartments			✓		✓
Feed hoses and transfer hoses	✓				✓
Fire detector head lenses*	✓				✓
Spray gun pumps	✓	✓	✓		✓
Spray guns	✓		✓		✓
Transfer pump	✓	✓			✓
Vent hoses		✓			✓
Vibratory sieve	✓				✓
Resistance Checks—Guns and Cables			✓		
Visual Checks					
Air supply drop leg		✓			
Air dryer		✓			
Cartridge filter differential-pressure gauge	✓				
Final filter differential-pressure gauge	✓				
Electrical connections			✓		
Fire detector sensors	✓				✓
Gaskets			✓		
Gun movers	✓				
Workpiece clearance**	✓				
Workpiece grounding	✓				✓
Powder levels	✓				
Lubrication					
Motor bearings				✓	

* Every 4 hours.

** Clearances should be monitored continuously.

Section 5
Troubleshooting

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

This section contains troubleshooting procedures. These procedures cover only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local Nordson representative for help.

Troubleshooting Procedures

Problem	Possible Cause	Corrective Action
1. Spray guns are surging or spitting; powder flow is inadequate or intermittent	Powder in feed hopper inadequately fluidized	Adjust the fluidizing air pressure. The powder should be gently boiling. Refer to problem 4.
	Low powder level in the powder source	Add powder to the powder source. Refer to problem 3.
	Powder pump venturi nozzles or throats worn; adapter O-rings leaking; pump or pickup tube clogged	Clean the pump and pickup tube. Replace any worn parts. Replace the adapter O-rings if they are damaged.
	Obstruction in powder-feed hose	Disconnect the feed hose from the pump. Blow the powder out of the hose with compressed air. Make sure the hose is clear. Eliminate kinks or severe bends in the hose. The hose should be no longer than 7.6 m (25 ft) with a maximum 2.7-m (9-ft) vertical rise.
	Severe tribo-charging in powder feed hose	Contact your Nordson Corporation representative for a suitable hose material. Contact your powder supplier.
	Obstruction in spray gun	Clean the spray gun. If you are using conical nozzles, make sure there is a 3-mm (0.125-in.) or larger gap between the deflector and the nozzle.
	Flow rate or atomizing air pressure incorrect	Refer to the spray gun and control unit manuals for recommended air pressures and ratios.
2. Problems with coating uniformity, edge coverage, film build, wrap, or penetration into recesses	Poor workpiece grounding	Resistance from workpiece to ground must be less than one megohm. For best results, resistance should not be more than 500 ohms. Clean the workpiece hangers, fixtures, and hooks if necessary. Check the conveyor ground.
	Spray gun placement incorrect	Position the spray guns 25.4–35.6 cm (10–14 in.) from the workpieces. Stagger the spray guns 30.5 cm (12 in.) apart vertically and 53.3 cm (21 in.) apart horizontally to avoid fan pattern and electrostatic field overlap. Contact your Nordson Corporation representative.
	Powder pump flow-rate and atomizing air pressure incorrect	Refer to the spray gun and control unit manuals for the recommended air pressures and ratios.

Continued...

Problem	Possible Cause	Corrective Action
2. Problems with coating uniformity, edge coverage, film build, wrap, or penetration into recesses *(contd)*	Electrostatic voltage (kV) or AFC setting incorrect for workpieces being coated	Adjust the voltage to 90–100 kV for large flat surfaces and 60–75 kV for recesses. Never set the voltage below 60 kV. Refer to the spray gun and control unit manuals for the recommended voltage, AFC, and air pressure settings and ratios.
	Wrong nozzles being used	Use flat-spray nozzles for large regular-shaped workpieces. Use conical nozzles for deep recesses and most manual touch-ups.
	Powder feed problems	Refer to problem 1.
3. Powder not transferring from color module to powder source	Transfer pump air pressure too low	Increase the air pressure.
	Transfer pump clogged or venturi nozzle or throat worn	Clean the pump and replace worn parts.
	Transfer hose plugged	Blow the powder out of the hose with compressed air.
	Powder in color module not fluidized; deep hole in powder around pickup tube	Increase the fluidizing pressure. If the problem continues, go to the next cause.
	Powder damp or contaminated; cannot be fluidized or pumped	Refer to problem 4.
4. Powder not fluidizing, or clouds of powder erupting from surface	Fluidizing pressure too low or too high	Check the pressure in the hoppers. Increase the fluidizing air pressure until the powder is gently boiling. Decrease the pressure if clouds of powder are erupting from the surface.
	Moist or oil-contaminated powder	Open the drain valve at the air-supply drop leg and check the air supply for water or oil. Check the filters, separators, and air dryer.
		Replace the powder in the hoppers. Refer to the next cause.
	Air leaking from fluidizing pan gasket instead of diffusing through fluidizing plate or contaminated air plugging pores in fluidizing plates	Check for air leaks around the fluidizing pan gaskets. If leaks are found, remove the pan and replace the gasket.
		If fluidizing air pressure increases or decreases abruptly, remove the powder from the hoppers and inspect the fluidizing plate for stains, discoloration, or polished surfaces. replace the fluidizing plate if they are contaminated or plugged.
	Transfer pump or hose plugged, or fluidizing plate in color module or powder source cracked	Clean the transfer pump and replace worn parts. Blow the powder out of the transfer hose with compressed air. Make sure the hoses are clear.

Continued...

Troubleshooting Procedures *(contd)*

Problem	Possible Cause	Corrective Action
4. Powder not fluidizing, or clouds of powder erupting from surface *(contd)*	Incorrect ratio of reclaimed-to-new powder	Change the transfer pump air pressure to increase or decrease the transfer rate. Add new powder to the hopper. The powder supply should be no more than three parts reclaim-to-one part new powder.
	Uneven distribution of powder in hopper	Increase the fluidizing pressure. check the powder and the fluidizing plate for contamination as previously described.
5. Final filters clogged; powder in fan compartment	Leaking cartridge filter gaskets, or hole in filter media	Make sure the gaskets are sealing correctly. If you can slip a 0.4-mm (0.015 in.) feeler gauge between the gasket and the sealing surface, tighten the draw-rod nut to compress the gaskets. If the gaskets continue to leak, remove the cartridges. Clean and inspect the gaskets, sealing surfaces, and filter media. Replace the cartridges if the gaskets or filter media are damaged. Refer to the *Repair* section. Replace clogged final filters.
	Leak in color module cartridge filter mounting plate	Locate and seal leak with RTV sealant.
6. Cartridge filters clogged	Pulse air pressure inadequate	Increase the pulse air pressure or volume. Decrease the pulse timer delay (off time).
	Powder too fine or contaminated	Reduce the ratio of reclaim-to-new powder. Check the powder particle size. Replace contaminated powder and fix the source of contamination.
	Pulse valves out of position	Position the valves as described in the *Repair* section.
	Timer board settings incorrect	Adjust the timer board settings as described in the *Operation* section.
	Pulse valve or solenoid valves clogged or malfunctioning	Open the system panel. If you do not hear a pulse each time an LED lights, the solenoid valve or the pulse valve connected to that LED may be clogged or failed. Check the wiring to the solenoid valve before opening the solenoid box and replacing the solenoid valve.

Continued...

Problem	Possible Cause	Corrective Action
7. System shuts down or will not start	Flame detector system sees a flame or spark, or is malfunctioning	Check the inside of the enclosure and color module, the detector head aim, and the workpiece and conveyor grounds. Follow the troubleshooting procedures in the flame detector system manual.
	Final filters clogged	Locate the source of powder leakage and correct the problem. Refer to problem 5.
	Final filter pressure switch failed	Replace the switch.
	Fuse(s) blown	Check the fuses in the system electrical panel. Replace the blown fuse(s). If the fuses continue to blow, fix the electrical problem.
	Electrical failure	Trace the circuits and correct the problem.
8. Powder escaping from booth openings	Cartridge filters clogged	If the differential pressure gauge shows more than 6-in. wc, refer to problem 6.
	Cross drafts interfering with exhaust fan draw	Check for cross drafts at all of the enclosure openings. Eliminate or divert any drafts.
	Workpieces entering booth are too hot	Cool the workpieces before moving them into the booth. The workpiece temperature should not exceed 49 °C (120 °F).
	Powder spray gun output exceeds booth containment capability	Reduce the powder flow and/or the number of the spray guns.
	Booth openings too large	Close or decrease the size of the openings.
	Workpieces too large for booth	Contact your Nordson Corporation representative.
	Fan rotation backward	Reverse the rotation of the motor. Refer to *Reversing Motor Direction* in this section.
	Air leaks around color module	Inspect the gasket and replace it if it is damaged. Tighten the clamps to compress the gasket.

Reversing Motor Direction

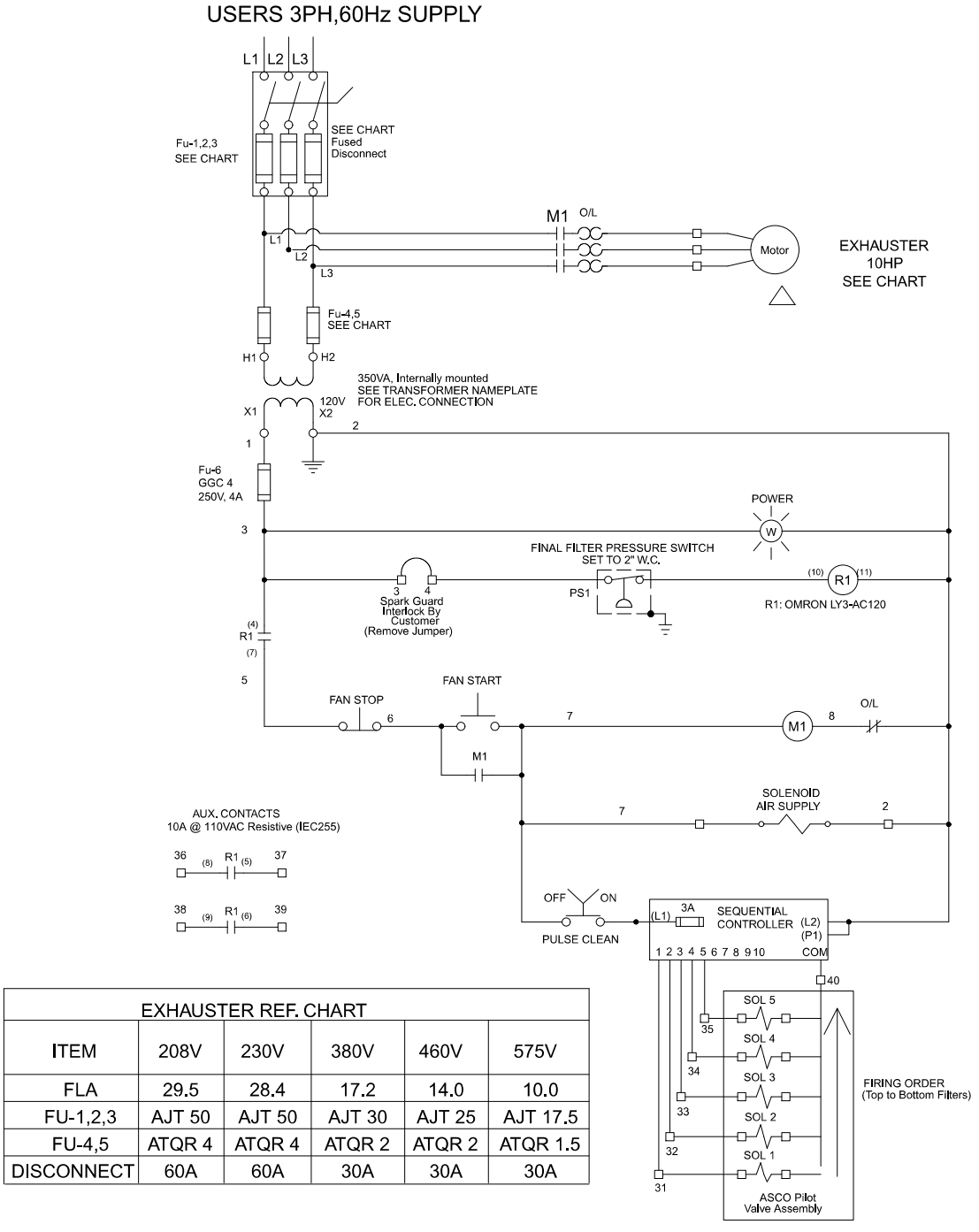
Improperly connecting the exhaust fan and sieve motor starters will cause them to rotate in the wrong direction. If the exhaust fan is rotating in the wrong direction, the air flow will be reduced. If the sieve rotates in the wrong direction, powder will back up in the accumulator. Use the following procedures to check and correct, if necessary, the exhaust fan and sieve motor rotation direction.

1. Turn on system electrical power.
2. Start the exhaust fan motor.
3. Observe the direction of fan rotation. The fan shaft should rotate clockwise when viewed from the fan end (from below the fan). If the rotation is backward, go to the next step.

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.

4. Shut off system electrical power. Open the electrical panel door and reverse any two wires (L1, L2, or L3) connected to the fan motor starter (M110). Close the electrical panel door.
5. Turn on electrical power. Start the fan and check the rotation direction.

System Schematic



EXHAUSTER REF. CHART					
ITEM	208V	230V	380V	460V	575V
FLA	29.5	28.4	17.2	14.0	10.0
FU-1,2,3	AJT 50	AJT 50	AJT 30	AJT 25	AJT 17.5
FU-4,5	ATQR 4	ATQR 4	ATQR 2	ATQR 2	ATQR 1.5
DISCONNECT	60A	60A	30A	30A	30A

1400218A

Figure 5-1 System Schematics

Section 6
Repair

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

Introduction

NOTE: Use only approved Nordson Corporation replacement parts on the Econo-Coat RCM 8000 powder booth. Contact your Nordson Corporation representative for more information.

Final Filter Replacement

WARNING: Before performing this procedure, shut off electrical power at the system electrical panel. Lock and tag the switch. Failure to observe this warning could result in personal injury or death.

See Figure 6-1.

1. Shut off the exhaust fan. Shut off electrical power at the system electrical panel. Lock and tag the disconnect switch.
2. Remove the nuts, lock washers, and flat washers (1) and frames (2) securing the final filters (3) to the filter section. The filters will stay in place.
3. Remove the old filters and discard them.
4. Check the interior of the fan housing. If you see large amounts of powder inside the housing, powder is leaking through the cartridge filters. Fix the leak before starting the system.

   NOTE: Do not use damaged filters.
5. Remove the new filters from their cartons. Inspect the filter housings, gaskets, and media for damage.
6. Insert the new filters into the openings.
7. Install the frames over the threaded studs. Install the flat washers and lock washers. Thread the nuts onto the studs.
8. Tighten the nuts to compress the filter gaskets slightly. Do not overtighten the nuts.
9. Restore system electrical power. Start the exhaust fan and check for leaks around the filter gaskets.

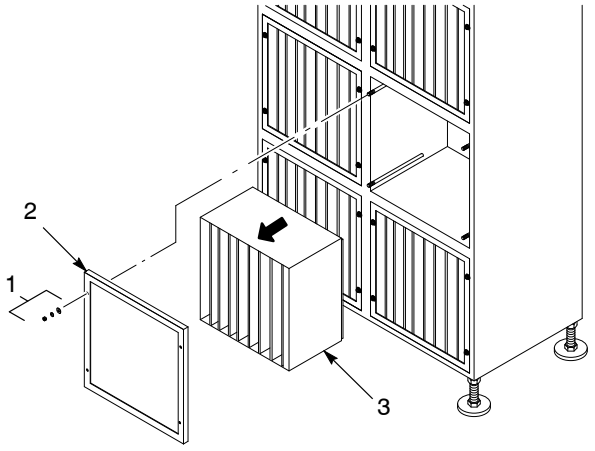


Figure 6-1 Final Filter Replacement

1. Nut, lock washer, and flat washer
2. Frame
3. Final filter

Cartridge Filter Replacement

Use this procedure to replace the cartridge filters in the color module.

Removal

1. Remove the color module from the powder booth as described in the *Remove the Color Module* in the *Operation* section.
2. See Figure 6-2. Unscrew and remove the threaded knob (1) to remove the cover plate and gasket (2).
3. Remove the nut, lock washer, and flat washer (3), from the draw rod (6). Save the removed parts.
4. Slide the cartridge filter (4) from the color module.

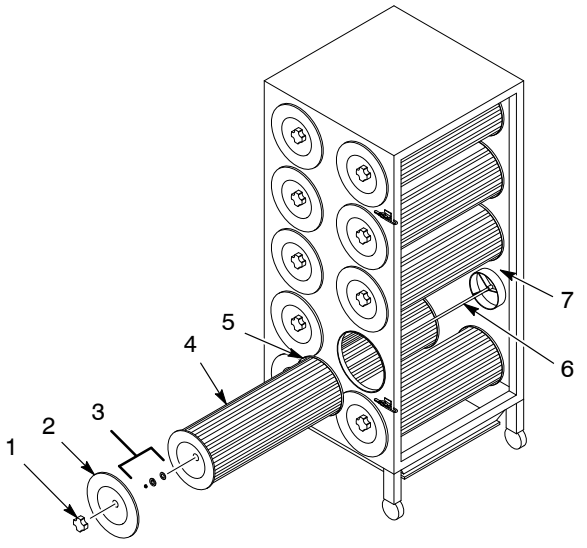


Figure 6-2 Cartridge Filter Replacement

1. Threaded knob
2. Cover plate and gasket
3. Nut, lock washer, flat washer
4. Cartridge filter
5. Gasket
6. Draw rods
7. End plate

Installation

NOTE: Do not use any cartridge filters other than those specified for your system. Using unapproved cartridge filters could seriously affect the operation and performance of your system.

Do not use damaged cartridge filters. Carefully inspect the new cartridge filters for

- cuts or other damage to the rubber gaskets
- bent or dented end caps
- holes or other damage to the filter media

See Figure 6-2.

1. Thoroughly clean the sealing surfaces on the underside of the cover plate and gasket (2). Dirty surfaces will prevent the cartridge filter gaskets from sealing properly and allow powder to leak into the fan section.

   NOTE: There are two gaskets on each cartridge filter. One gasket is adhered on the back side of the cover plate (2). The second gasket (5) is adhered to the insertion end of the cartridge filter.

2. Slide the new cartridge filter (4) onto the threaded end of the draw rod (6) through its rubber gasket (5).
3. Center the cartridge filter over the filter opening in the end plate (7). Push the cartridge filter up against the end plate.
4. Install the flat washer, lock washer, and nut (3) on the draw rod.
5. Tighten the nut until the gasket (5) on the end of the cartridge filter is compressed to $^3/_8$ in. high. This will seal the cartridge against the end plate.

   CAUTION: Do not overtighten the threaded knobs, or you may damage the cartridge filters.

6. Center the cover plate and gasket (2) over the filter opening. Screw on the threaded knob until hand tight.
7. Install the color module as described in *Installing a New Color Module* in the *Operation* section.

Color Module Fluidizing Plate Replacement

Fluidizing plate replacement will only be necessary if the plate is contaminated or damaged.

Preparation

1. Start the transfer pump and pump as much as possible of the powder in the color module hopper back to the powder supply or scrap bucket. If the powder is contaminated, pump it into a scrap bucket.
2. Remove the color module from the fan section as described in the *Removing the Color Module* in the *Operation* section.
3. Remove the transfer pump and cartridge filters from the color module.
4. Remove all the powder from the color module hopper. Vacuum the hopper and fluidizing plate and wipe them clean with damp, lint-free cloths. Do not use tack cloths.

Replacement

WARNING: Heavy equipment. Use approved, inspected lifting equipment and tackle. Make sure the capacity of the lifting equipment and tackle exceeds the weight of the equipment being lifted.

1. Use a forklift truck or suitable jacks to raise the color module several feet off the floor. Install safe, solid, support blocks under the module, then lower the module onto the blocks.
2. See Figure 6-3. Remove the bolts (1) and nuts (5) along the bottom of the color module.
3. Remove the fluidizing plenum (2) from under the color module.
4. Separate the old fluidizing plate (4) from the plenum and hopper flanges. Discard the old fluidizing plate and clean the old caulk off the flanges.
5. Apply a bead of latex caulk (3) to the plenum flanges and place the new fluidizing plate onto the plenum. Align the fluidizing plate and the plenum flanges on all four sides.
6. Apply a second bead of latex caulk onto the fluidizing plate near its edges.
7. Hold the fluidizing plate and fluidizing plenum assembly in position against the color module hopper.
8. Install the nuts and bolts along the bottom of the color module to secure the fluidizing plate. Tighten the nuts and bolts in a criss-cross pattern to prevent flange distortion and fluidizing plate damage.
9. Lower the color module to the floor and install the cartridge filters and transfer pump. Roll the color module into position next to the fan section. Reconnect the hose to the transfer pump.

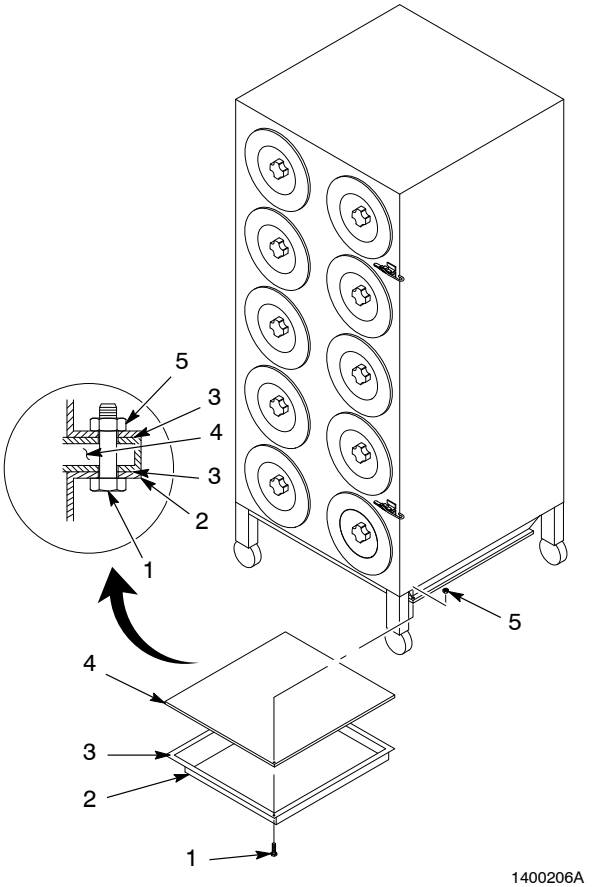


Figure 6-3 Color Module Fluidizing Plate Replacement

1. Bolt
2. Fluidizing plenum
3. Bead of latex caulk
4. Fluidizing plate
5. Nut

Pulse Valve Replacement

The pulse valves are connected directly to the air manifold in the open end of the fan section. To avoid connecting the valves to the wrong solenoids, remove and replace one valve at a time. Incorrect connections will cause the valves to open in the wrong order.

See Figure 6-5 for pulse valve and solenoid connections. Timer board terminal 1 is wired to solenoid 1. Solenoid 1 is connected by air tubing to pulse valve 1. The rest of the solenoids and valves are connected in the same way.

WARNING: Before performing the following procedure, shut off the system compressed-air supply and relieve the system air pressure. Shut off electrical power at a disconnect switch ahead of the system electrical panel. Lock and tag the disconnect switch. Failure to observe this warning could result in personal injury or death.

1. See Figure 6-4. Disconnect the pilot air tubing from the pulse valve tube fitting (1).
2. Unthread the extension pipe (3) leading from the pulse valve (5) to the nozzles (4).
3. Unscrew the pulse valve from the coupling (2).
4. Wrap PTFE tape around the threads of the coupling. Screw the new valve onto the coupling. Position the valve so the final adjustment will tighten the threads and form an air-tight seal.
5. Adjust the valve so the nozzle is plumb and 381 mm (15 in.) from the center of the nozzle to the center of the next vertical valve nozzle.
6. Install the extension pipe and nozzle assembly onto the pulse valve.
7. Connect the pilot air tubing to the pulse valve.

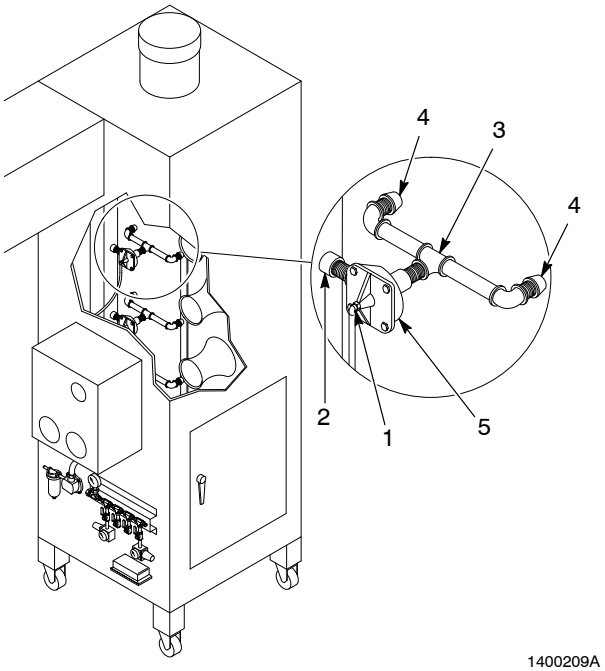


Figure 6-4 Pulse Valve Replacement

1. Pulse valve tube fitting
2. Coupling
3. Extension pipe
4. Nozzle
5. Pulse valve

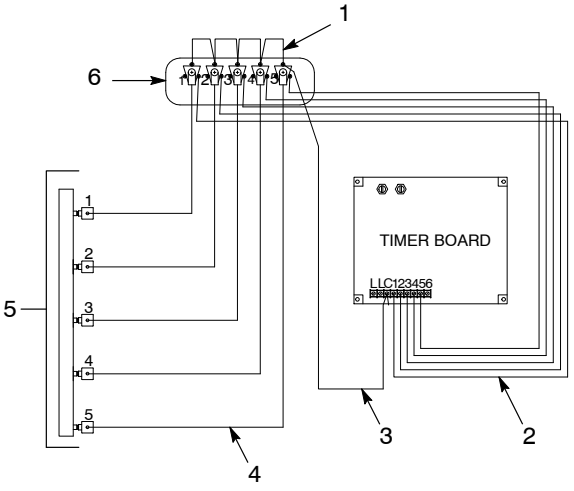


Figure 6-5 Pulse Valve Air Lines and Wiring

1. 14-gauge white wire jumper to all solenoids
2. 14-gauge red wire (positive)
3. 14-gauge white common wire
4. 6-mm tubing to each solenoid
5. Pulse valves
6. Solenoid enclosure

Motor and Fan Replacement

WARNING: Before performing the following procedures, shut off electrical power at the system electrical panel. Lock and tag the disconnect switch. Failure to observe this warning could result in personal injury or death.

WARNING: Heavy equipment. Use approved, inspected lifting equipment and tackle. Make sure the capacity of the lifting equipment and tackle exceeds the weight of the equipment being lifted.

Remove the Fan Cover Box

See Figure 6-6.

1. Remove the cover from the motor junction box (2). Tag and disconnect the wiring from the motor leads. Disconnect the conduit (3) from the junction box.
2. Unhook the clamps securing the vent duct attached to the cover box from the vent to the final filters.
3. Secure a heavy-duty sling or chains through the lift handles (9) of the fan cover box (4). Attach the sling or chains to a chain hoist or to the forks of a lift truck. Take up the slack in the sling or chains.
4. Remove the nuts and bolts around the outside bottom edge of the fan cover box (8).
5. Using the slings or chains, lift the motor (1), fan cover box, and fan (7) off the fan section and move them to a clean work area.

Remove the Motor and Fan

See Figure 6-6.

1. Carefully place the fan cover box (4) on its side and loosen the key and shaft set screws in the fan hub (6).
2. Remove the fan (7) and key from the motor shaft.

NOTE: If you are replacing the fan only you do not need to remove the motor from the fan section box as described in step 3.

3. Remove the screws, lock washers, and flat washers (5) securing the motor (1) to the fan cover box.

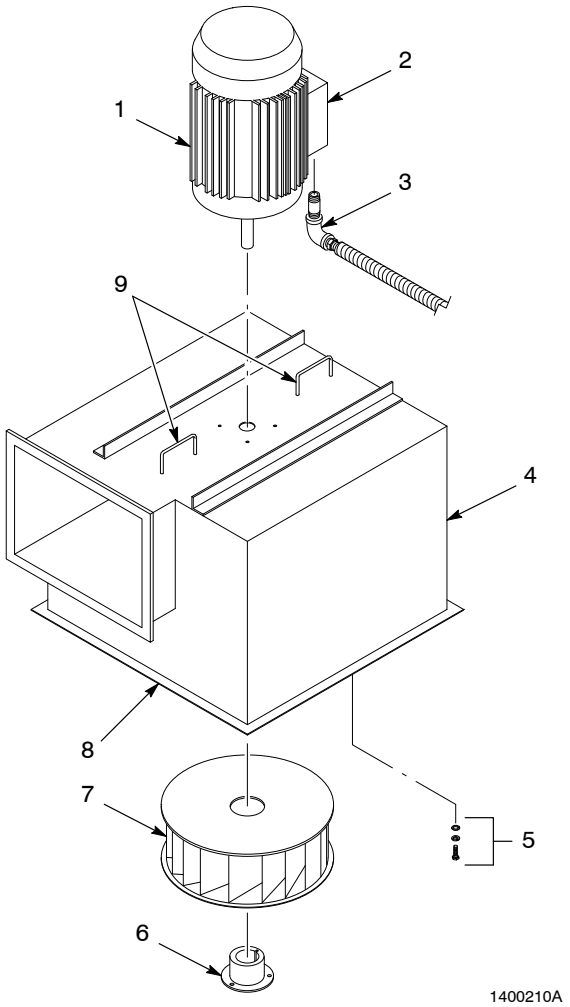


Figure 6-6 Motor and Fan Replacement

1. Motor
2. Motor junction box
3. Conduit
4. Fan cover box
5. Screws, lock washers and flat washers
6. Fan hub
7. Fan
8. Outside bottom edge of fan cover box
9. Lift handles

Replace the Motor and Fan

See Figure 6-6.

NOTE: If you are replacing the fan only, skip to step 2.

1. Install the new motor (1) on the fan cover box (4) with the screws, lock washers, and flat washers.
2. Install the fan on the motor shaft, line up the keyways, and install the key.
3. Using the slings or chains, lift the motor, fan cover box, and fan (7) back to the top of the fan section.
4. Secure the fan section cover box to the fan section by installing the nuts and bolts around its outside edge.
5. See Figure 6-7. Adjust the height of the fan (7) on the shaft. The bottom of the fan should sit inside the cone (5) 3–6 mm (0.125–0.250 in.). Tighten the shaft set screw (3) in the hub (4).

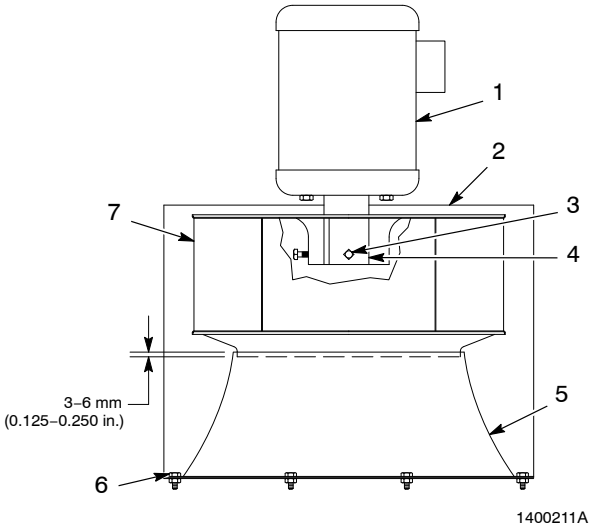


Figure 6-7 Mounting and Adjusting the Fan

1. Motor
2. Cover box
3. Shaft set screw
4. Hub
5. Cone
6. Screws and nuts
7. Fan

6. Loosen the screws and nuts (6) around the base of the inlet cone to adjust the inlet cone so the gap between the fan and the cone is the same all the way around. Use your finger to check the gap.
7. Tighten the screws and nuts securing the inlet cone to the fan section and recheck the gap. Rotate the fan and make sure it does not rub against the cone.
8. See Figure 6-6. Remove the cover from the motor junction box (2). Connect the conduit (3) to the motor junction box and the wiring to the motor leads. Install the cover.
9. Hook the clamps securing the vent duct attached to the cover box to the vent to the final filters.
10. Turn on the system electrical power and start the exhaust fan. Make sure the fan
    - rotates in the direction shown by the yellow arrow next to the fan opening on the underside of the fan section. Refer to *Reversing Motor Direction* in the *Troubleshooting* section.
    - does not rub against the inlet cone.

Section 7
Parts

Introduction

To order parts, call the Nordson Customer Service Center or your local Nordson representative. Use this five-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Using the Illustrated Parts List

Numbers in the Item column correspond to numbers that identify parts in illustrations following each parts list. The code NS (not shown) indicates that a listed part is not illustrated. A dash (—) is used when the part number applies to all parts in the illustration.

The number in the Part column is the Nordson Corporation part number. A series of dashes in this column (- - - - - -) means the part cannot be ordered separately.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

Item	Part	Description	Quantity	Note
—	0000000	Assembly	1	
1	000000	• Subassembly	2	A
2	000000	• • Part	1	

- If you order the assembly, items 1 and 2 will be included.
- If you order item 1, item 2 will be included.
- If you order item 2, you will receive item 2 only.

The number in the Quantity column is the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

Letters in the Note column refer to notes at the end of each parts list. Notes contain important information about usage and ordering. Special attention should be given to notes.

Color Module

See Figure 7-1.

Item	Part	Description	Quantity	Note
1	1014953	KNOB, filter cover	1	
2	1014954	COVER, filter, RCM	1	
3	1018852	• GASKET, filter, cover, RCM	1	
NS	1018853	• GASKET, booth interface, RCM	1	
4	984152	NUT, hex, regular, $^{3}/_{8}$–16 in., steel, plain	1	
5	983160	WASHER, lock, E, split, $^{3}/_{8}$ in., steel, nickel	1	
6	983255	WASHER, flat, 0.406 x 1.250 x 0.1000 in., zinc	1	
7	983355	WASHER, flat, 0.406 x 0.734 x 0.063 in., steel, zinc	1	
8	1014921	FILTER, 36 in., bolt through, RCM	1	
9	1014923	PLATE, fluidizing, RCM	1	
10	- - - - - -	• CAULK, latex	1	A
11	1014924	CASTER, 4 in., $^{3}/_{4}$ in., stem, swivel, RCM	1	
12	1014922	ROD, filter support	1	
13	336281	NUT, hex, serrated, $^{5}/_{16}$–18 in., zinc	1	
14	336282	SCREW, hex head, serrated, $^{5}/_{16}$–18 x 0.75 in., zinc	1	

NOTE A: Apply to assemble the fluidizing plate and fluidizing plenum. Refer to the *Repair* section for assembly procedures.

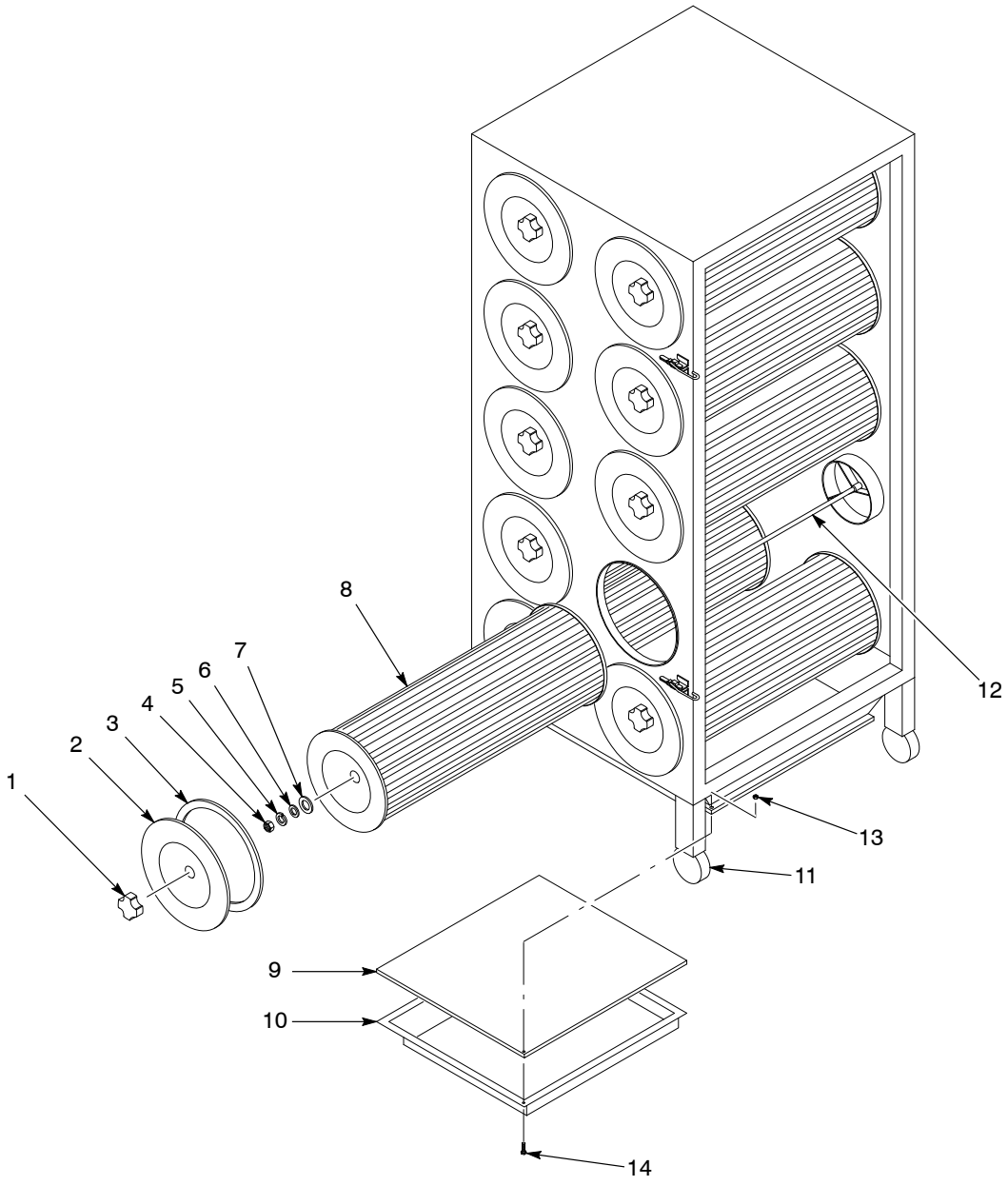


Figure 7-1 Color Module

Final Filter Module

See Figure 7-2.

Item	Part	Description	Quantity	Note
1	1014927	FINAL FILTER, RCM	1	
2	1014928	FRAME, final filter, RCM	1	
3	984210	NUT, hex, jam, $^1/_4$–20 in., steel, zinc	4	
4	1014955	FOOT, leveler, RCM, final	4	

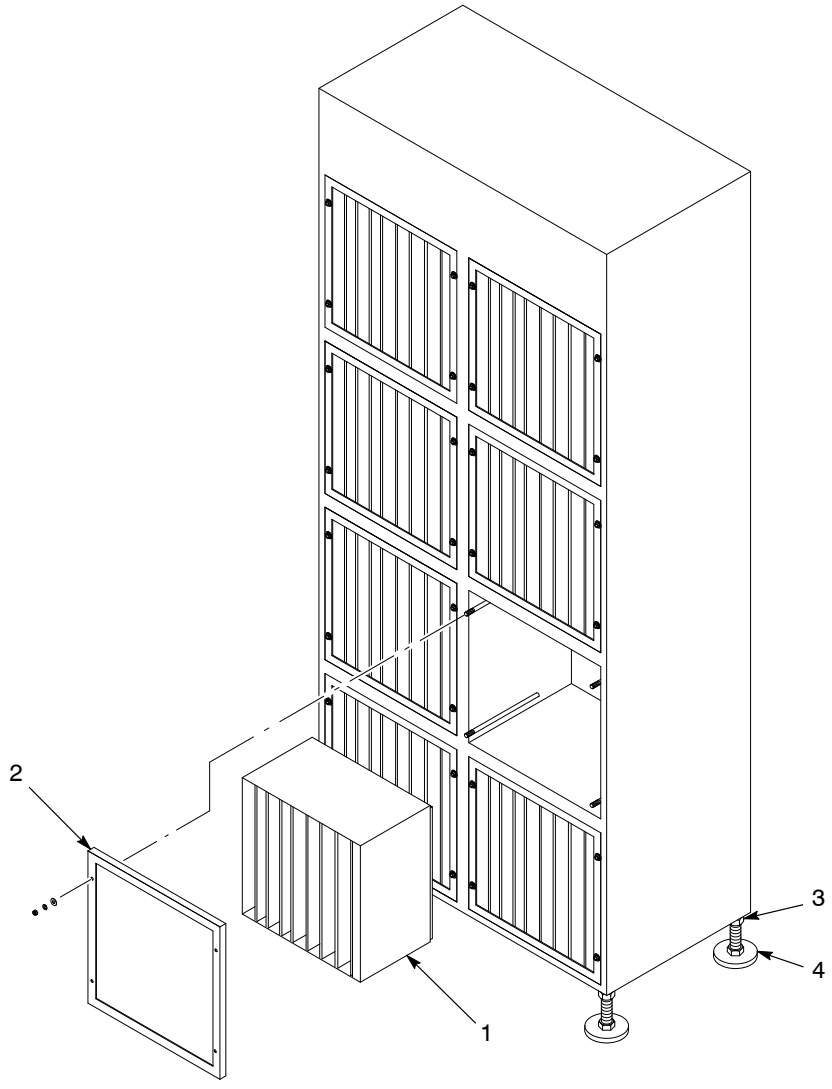


Figure 7-2 Final Filter

Fan Module

See Figure 7-3.

Item	Part	Description	Quantity	Note
1	1014957	MOTOR, extend shaft, 10 hp, 230/460 Volt	1	
1	1014958	MOTOR, extend shaft, 10 hp, 575 Volt	1	
2	1014951	FAN WHEEL, BI22, clockwise, RCM	1	
2	1014950	FAN WHEEL, BI22, counter clockwise, RCM	1	
3	1014952	CONE INLET, BI22, RCM	1	
4	1014960	VALVE, diaphragm, pulse, 1 in.	1	
5	1014961	VALVE, solenoid, enclosure, 5 port	1	
6	1014962	VALVE, solenoid, shut off	1	
7	1015031	DUCT, flex, connector, RCM	1	

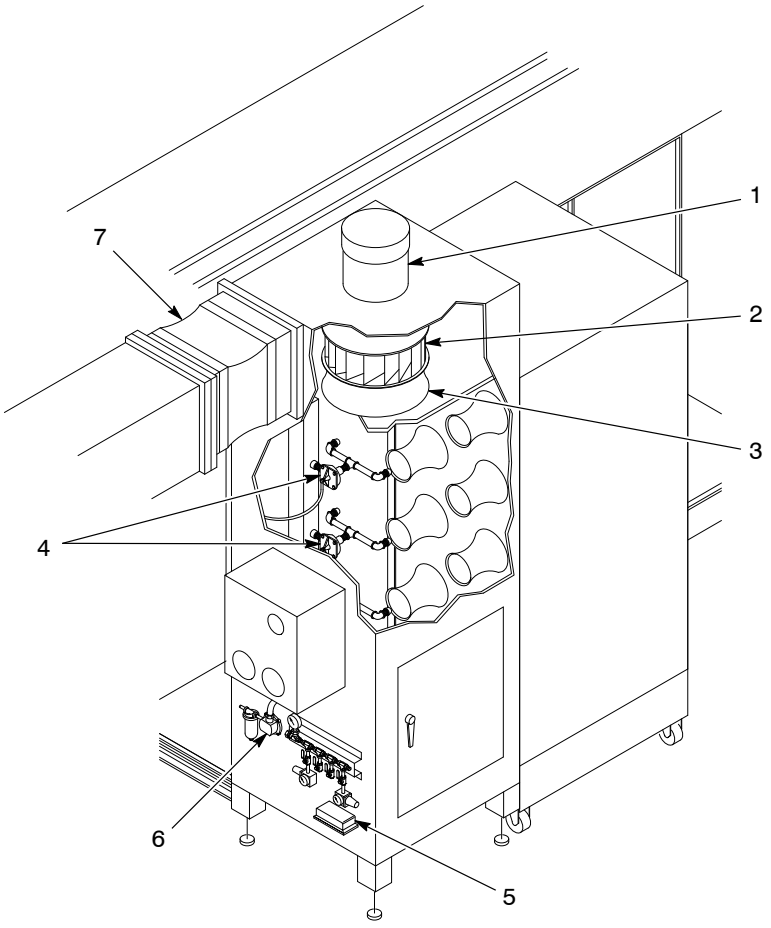


Figure 7-3 Fan Module

Canopy/Base

See Figure 7-4.

Item	Part	Description	Quantity	Note
1	1014926	CASTER, 6 in. flanged, modified, RCM	4	A
2	1014929	TRACK, roller base	2	A
NS	1014956	FOOT, leveler, RCM, base	6	B

NOTE A: Used with the roll-on/roll-off system.
B: Used with the fixed-base system in place of the flanged casters and roller base track.
NS: Not Shown

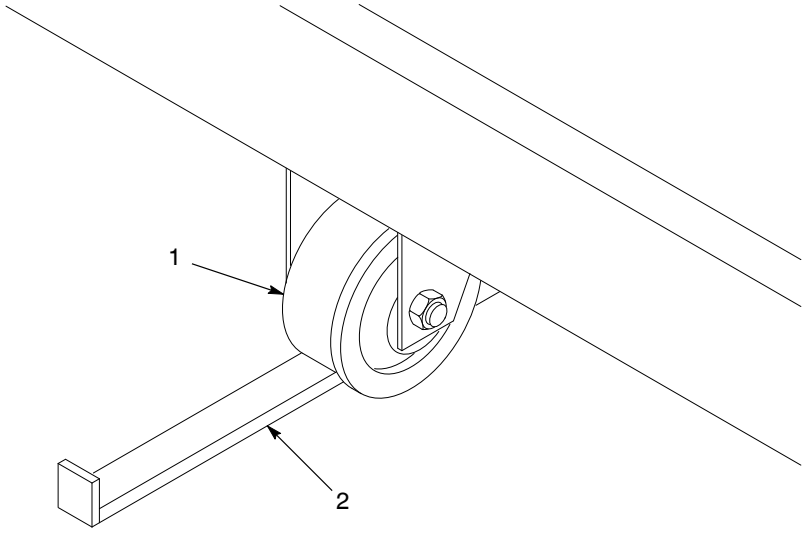


Figure 7-4 Flanged Casters and Track

Control Panel

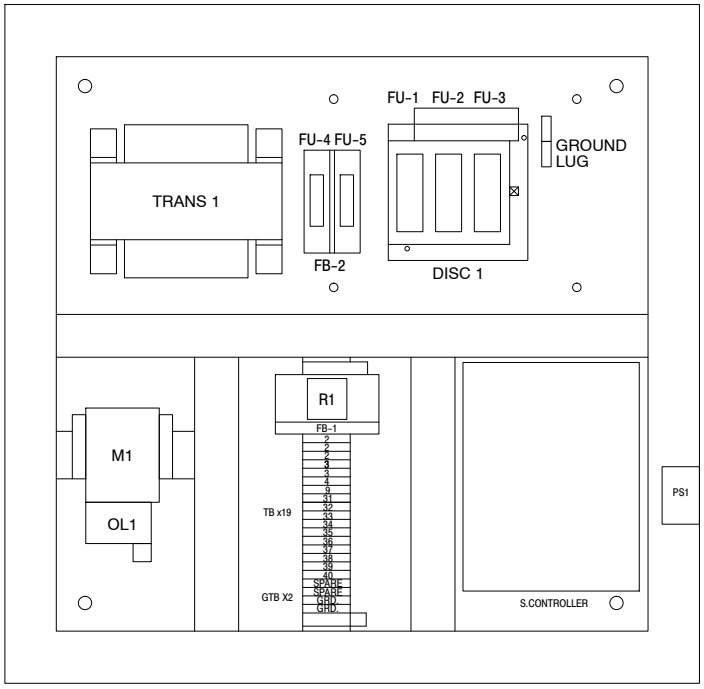
See Figure 7-5.

Item	Part	Description	Quantity	Note
R1	LY3–AC100/120	Omron relay	1	Omron
(R1)	PTF11A	Omron relay base	1	Omron
FB-1	57.904.6353.0	Wieland Dinrail Fuseblock	1	Wieland
FU-6	GGC4	Fuse, transformer, secondary, 250 volt	1	Gould
FB-2	30312R	2-pole 'cc' Fuse block	1	Gould
TB	WK4U, Blue	Terminal block blue	19	Wieland
	04.846.0153	Wieland marking tags (#'s 1–10)	4	Wieland
	04.846.0453	Wieland marking tags (#'s 31–40)	2	Wieland
GTB	WK4SLU	Ground terminal block	3	Wieland
	Z5.522.7453.0	Dinrail end clamp	4	Wieland
	07.311.0153.0	End plate	1	Wieland
	07.311.1153.0	Partition plate	2	Wieland
	Z7.281.0027.0	Cross connector (70/strip)	1	Wieland
(DISC 1)	194R-HS4E	Disconnect handle (red/yellow)	1	Allen Bradley
(DISC 1)	194R-R1	Disconnect extended shaft	1	Allen Bradley
S.CONTROLLER	214B281	Sequential controller	1	ASCO
MAG06	2006	Magnahelic gauge, 0–6-in. water column	1	Dwyer
MAG02	2002	Magnahelic gauge, 0–2-in. water column	1	Dwyer
PS1	1910-5	Pressure switch	1	Dwyer
	ZB4BV6	White pilot light, base	1	Telemecanique
	ZB4BV01	White pilot light, head	1	Telemecanique
	DL1CE130	White pilot light, bulb, 130V	1	Telemecanique
	ZB4BA9	Red fan stop head (Universal)	1	Telemecanique
	ZB4BZ102	Red stop fan block (NC)	1	Telemecanique
	ZB4BA9	Green fan start head (Universal)	1	Telemecanique
	ZB4BZ101	Green fan start block (NO)	1	Telemecanique
	ZB4BD2	Selector switch head	1	Telemecanique
	ZB4BZ	Selector switch contact block (NO)	1	Telemecanique
	N/A	Push button lamacoid	1	Krysalis
	N/A	Primary filter lamacoid	1	Krysalis

Control Panel *(contd)*

Item	Part	Description	Quantity	Note
PS1	N/A	Final filter lamacoid	1	Krysalis
	KLU35	Ground lug	1	Burndy
Y-UNION	KQU-09-00	Y-unions	3	SMC
ELBOW 1	KQH09-34S	$^5/_{16}$-in. red poly elbows, $^1/_8$-in. NPT	5	SMC
ELBOW 2	KQL08-01S	$^5/_{16}$-in. blue poly elbow, $^1/_8$-in. NPT	1	SMC
BULK 1	KQE09-00	$^5/_{16}$-in. red poly bulkheads	2	SMC
BULK 2	KQE08-00	$^5/_{16}$-in. blue poly bulkheads	1	SMC
BPT	T50806R-20	$^5/_{16}$-in. blue poly tubing	16 in.	SMC
RPT	T50806BU-20	$^5/_{16}$-in. red poly tubing	109 in.	SMC
ATM1	AN203-KMB	Muffler	1	SMC
TRANS 1	9070T350D1	120V, transformer, 350VA	1	Square-D
DISC 1	194RNJ03OP3	Main disconnect, fused	1	Allen Bradley
M1	100-C23D10	Motor, contactor	1	Allen Bradley
OL1	193-EA1GB	Motor, overload, 12-32A	1	Allen Bradley

Exhauster Reference Chart						
Heading	**Quantity**	**208 Volt**	**230 Volt**	**380 Volt**	**460 Volt**	**575 Volt**
FLA	—	29.5	28.4	17.2	14.0	10.0
FU-1, 2, 3	3	AJT 50	AJT 50	AJT 30	AJT 25	AJT 17.5
FU- 4, 5	2	ATQR 4	ATQR 4	ATQR 2	ATQR 2	ATQR 1.5
DISCONNECT	—	60 A	60 A	30 A	30 A	30 A



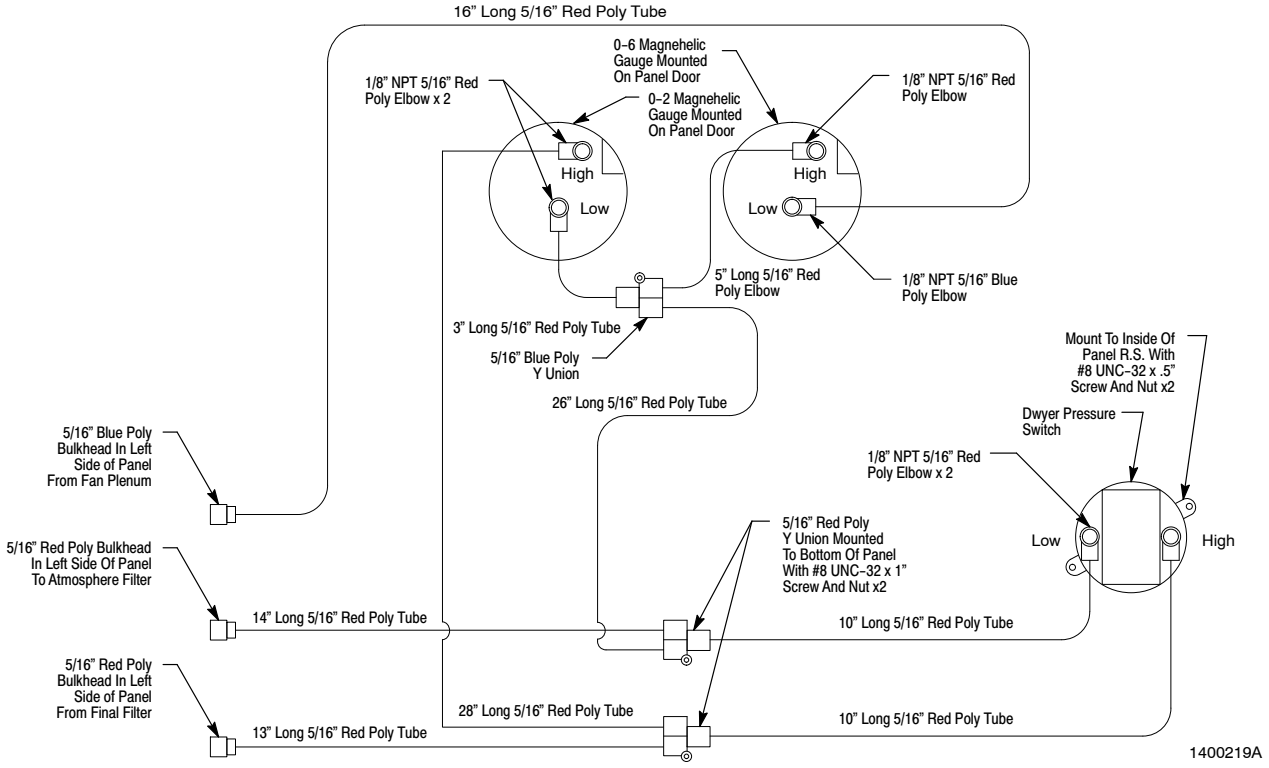


Figure 7-5 Control Panel

Section 8
Specifications

Dimensions and Capacities

NOTE: Equipment specifications are subject to change without notice due to continuing technological and quality improvements.

Refer to Table 8-1 for a listing of the dimensions and capacities for the Econo-Coat RCM 8000 powder coating booth.

Table 8-1 Dimensions and Capabilities

Dimensions and Capacities	RCM 8000
Base dimensions	
Overall height	305 mm (12 in.)
Overall width	1.5 m (5 ft)
Overall length	2.7 m (9 ft) 3.7 m (12 ft) 4.6 m (15 ft)
Air flow at 4-in. wc	226 m^3/min (8000 cfm)
Number of cartridge filters	10
Number of final filters	8
Number of pulse valves	5
Maximum air pressure	7 bar (100 psig)
Spray gun maximum capacity	10
Manual/Automatic Spray Gun Combinations	4/0 2/8

Operating Environment

Locate your powder coating system in a proper environment. If temperature and humidity in the spray room exceed the following ranges, you must install air conditioning equipment.

Temperature	21–27 °C (70–80 °F)
Humidity	45–55% RH

Utilities

Primary Electrical Service: 230, 460, or 575 Vac. The customer must install a fused disconnect switch with lock-out capability, wired in accordance with the National Electric Code, NFPA-70.

Compressed Air Supply: The air supply line must be 13 mm (0.5 in.) ID minimum. Supply air pressure must be 5.5–7 bar (80–100 psi). The air must be clean and dry.

Normal Design Standards

Systems are custom-designed to each customer's requirements, so some may deviate from these design standards. Contact your Nordson representative if you need more information about the design of your booth.

End Openings: 91 x 152 cm (3 x 5 ft)

Part Hanger Keyhole Slot: 30.5 cm (12 in.) high

Cross Drafts: No more than 18.3 m/min (60 FPM)

Average Face Velocity: No less than 30.5 m/min (100 FPM) through all openings in the booth enclosure

Temperature of Parts Entering Booth: No more than 49 °C (120 °F)

Powder: Use commercially available powder coatings. Note that the characteristics and properties of a powder coating can affect system operation. Powder coatings generally have an average particle size of 25–35 microns, with no more than 10% of the total being less than 15 microns. When the percentage of particles less than 15 microns exceeds 10% of the total, the filter media can get clogged.

Cartridge Filters: Cartridge filters are considered wear items. The variables affecting the life expectancy of a cartridge filter include

- type of coating material
- particle size distribution
- humidity and temperature of the spray room air
- hours of operation
- dew point and cleanliness of the compressed air supply
- pressure and frequency of air pulses used to clean the filters

Compressed Air Supply: The air must be conditioned by a dedicated, refrigerated or regenerative-desiccant air dryer that can produce a 3 °C (38 °F) or lower dewpoint at 7 bar (100 psi).