Encore® VT Manual
Powder Spray System

Customer Product Manual
Document Number 1626653-01
- English -
Issued 01/25

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

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1626653-01

Table of Contents

Change Record

Revision	Date	Change
01	01/25	New release

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 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 (SDS) for all materials used. Follow the manufacturer's instructions for safe handling and use of materials, and use recommended personal protection devices.
- 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.

- Ground all conductive equipment. Use only grounded air and fluid hoses. Check equipment and workpiece grounding devices regularly. Resistance to ground must not exceed one megohm.
- Shut down all equipment immediately if you notice static sparking or arcing. Do not restart the equipment until the cause has been identified and corrected.
- Do not smoke, weld, grind, or use open flames where flammable materials are being used or stored. Do not heat materials to temperatures above those recommended by the manufacturer. Make sure heat monitoring and limiting devices are working properly.
- Provide adequate ventilation to prevent dangerous concentrations of volatile particles or vapors. Refer to local codes or your material SDS for guidance.
- Do not disconnect live electrical circuits when 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.
- Shut off electrostatic power and ground the charging system before adjusting, cleaning, or repairing electrostatic equipment.
- 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.

Grounding inside and around the booth openings must comply with NFPA requirements for Class II, Division 1 or 2 Hazardous Locations. Refer to 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 system electrical power. Close hydraulic and pneumatic shutoff valves and relieve pressures.
- Identify the reason for the malfunction and correct it before restarting the system.

Disposal

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

Section 2
Overview

Introduction

See Figure 2-1. This manual covers all versions of the Encore® VT manual powder spray systems:

- Mobile Dolly System with Vibratory Box Feeder (VBF)
- Rail Mount and Wall Mount Systems

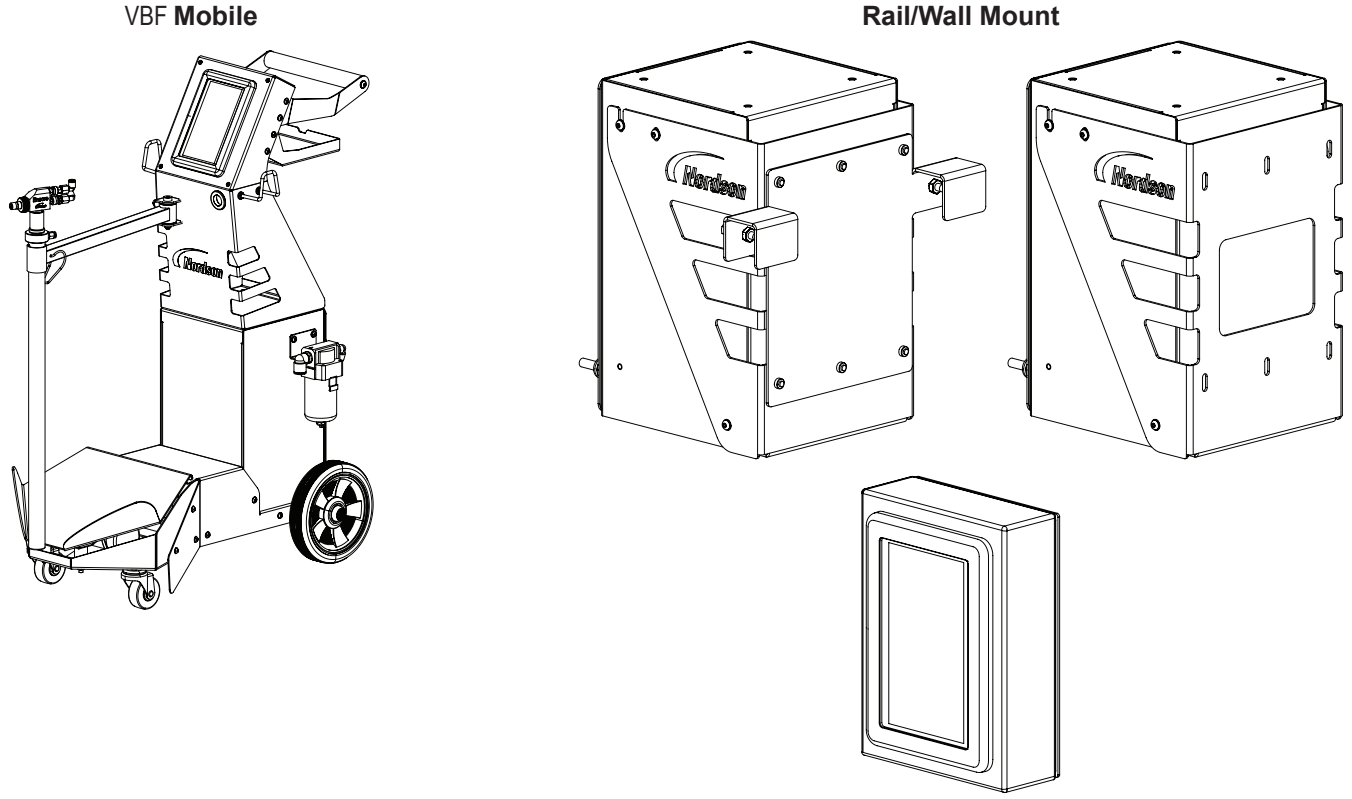


Figure 2-1 Encore VT Manual Powder Systems

System Documentation

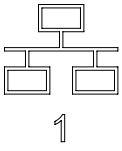
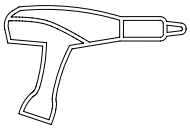
Refer to Table 2-1 for system documentation related to specific components in the system for installation, repair, maintenance, and parts.

NOTE: Information on the pump controller is covered in this manual.

Table 2-1 System Documentation

Component	Document	Document Part Number	Support Summary
System	Encore VT Manual Powder Spray System Manual	1626653	System overview, system controls, troubleshooting, and all information related to pump controller.
	Encore VT Dolly Installation Guide	1626649	System installation guide for dolly.
	Encore VT Wall/Rail Installation Guide	1626651	System installation guide for wall/rail mount.
	Encore System Controller Onscreen Help	TCP0711	System configuration, operation, and troubleshooting.
Encore System Controller	Encore System Controller Hardware Manual	1626863	Repair, troubleshooting, and parts for system controller.
Encore Pump	Encore Gen II Powder Feed Pumps Instruction Sheet	1095927	Overview, repair, maintenance, and parts for pump.
	Encore Gen II Powder Feed Pump Parts Poster	1096256	Spare parts for pump.
Encore LT Spray Gun	Encore LT Manual Spray Gun Manual	1626659	Overview, repair, maintenance, and parts for spray gun.
	Encore LT Manual Spray Gun Parts Poster	1108186	Spare parts for spray gun.
Encore Hopper	NHR-X-XX Feed Hopper Instruction Sheet	1062942	Installation, operation, and parts for hopper.

Common Powder Symbols

Symbol	Description
	Atomizing Air (VT) Pattern Air (HD)
	Electrode Air Wash
	Flow Air (VT) Flow (HD)
	Fluidizing Air
	System Input Air
	Interconnect Cable Receptable or Network 1 - Power-CAN 2 - LAN 3 - WAN
	Purge Air
	Spray Gun or Spray Gun Receptacle

System Components

See Figure 2-2.

VBF Mobile Systems include:

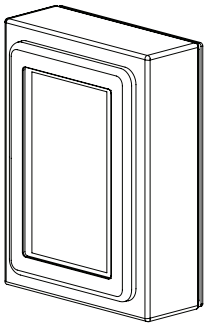
- Encore system controller
- Encore LT manual spray gun and cable
- nLighten™ kit
- Encore VT pump controller
- Encore Gen II 90-degree powder feed pump
- Encore venturi pump pickup tube
- Vibratory table and motor − up to 50 lb (25.0 kg) box of powder
- 11-mm antistatic powder hose, 4- and 6-mm air tubing, spiral wrap, Velcro® straps
- Air filter

The components are mounted on a sturdy wheeled dolly.

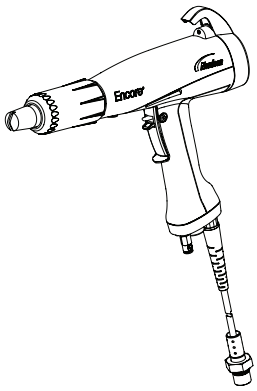
Rail/Wall Systems include:

- Encore system controller
- Encore LT manual spray gun and cable
- nLighten™ kit
- Encore VT pump controller
- Encore Gen II 90-degree powder feed pump
- Rail/Wall mount brackets for rail/wall systems
- Grounding kit
- 11-mm antistatic powder hose, 4- and 6-mm air tubing, spiral wrap, Velcro straps
- Air filter

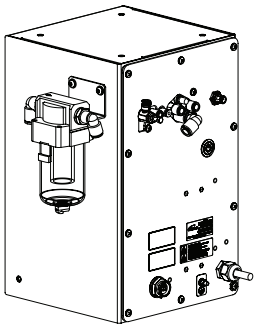
Encore
System Controller



Encore LT
Powder Spray Gun



Pump Controller



Encore Pump

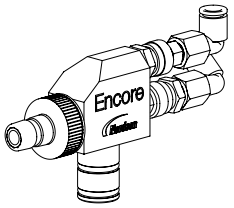


Figure 2-2 Common System Components (Not all system configuration components are shown)

Encore System Controller

The system controller provides easy operation through a touchscreen interface and onscreen Help.

Encore LT Powder Spray Gun

The manually operated spray gun can be adjusted through the system controller.

Pump Controller

The pump controller contains the pneumatic circuit, which controls all pump, gun purge, and vibratory box feed (VBF) functions.

The pump controller also contains the device controller PCA to supply voltage to the powder spray gun.

Encore Pump

The Encore Generation II powder feed pump is a venturi-type pump that supplies organic and metallic powder coatings to powder spray guns. The pump has two quick-disconnect fittings for flow and atomizing air.

Flow air lifts fluidized powder from a vibratory box feed or a feed hopper and forces the powder through the powder hose to the spray guns. Atomizing air dilutes and atomizes the powder stream, and increases its velocity, as it exits the pump.

Specifications

Model	Input Rating	Output Rating
Encore LT Powder Spray Gun	+/− 19 Vac, 1 A	100 kV, 100 µA
Encore System Controller	24 Vdc, 0.33 A	NA
Encore VT Pump Controller	100−250 Vac, 50/60 Hz, 125 VA	24 Vdc, 2.5 A
Vibratory Motor 50 Hz	230 Vac, +/− 10%	NA
Vibratory Motor 60 Hz	115 Vac, +/− 10%	NA

Input Air:	6.0−6.9 bar (87−100 psi), <5µ particulates, dew point <10 °C (50 °F)
Max Relative Humidity:	95% non-condensing
Ambient Temperature Rating:	+15 to +40 °C (59−104 °F)
Hazardous Location Rating for Applicator:	Zone 21 or Class II, Division 1
Hazardous Location Ratingfor Controls:	Zone 22 or Class II, Division 2
Dust Ingress Protection:	IP6X
Vibrator Table Capacity:	23 kg (50 lb) box of powder

Encore Pump	
Air Consumption	
Flow Air	0.5–5.0 scfm (14–142 l/min)
Atomizing Air	0.5–5.0 scfm (14–142 l/min)
Electrode Air Wash	0.2 scfm (6 l/min)
Purge Air	4.6 scfm - (130 l/min)
Fluidizing Air	0.04-0.08 scfm - (1-2 l/min)
Consumption Maximum	10.3 scfm (292 l/min)
Powder Tubing	
Size:	11 mm ID
Length:	7.6 m (25 ft)

Mobile System with VBF

Height:	995 mm (39.2 in.)
Wheel Base:	494 mm (19.4 in.) L x 337 mm (13.3 in.) W
Weight:	36 kg (79 lb)

Pump Controller

Dimensions:	See Figure 2-3.
Weight:	10.88 kg (23.99 lb)

Pump Controller Dimensions

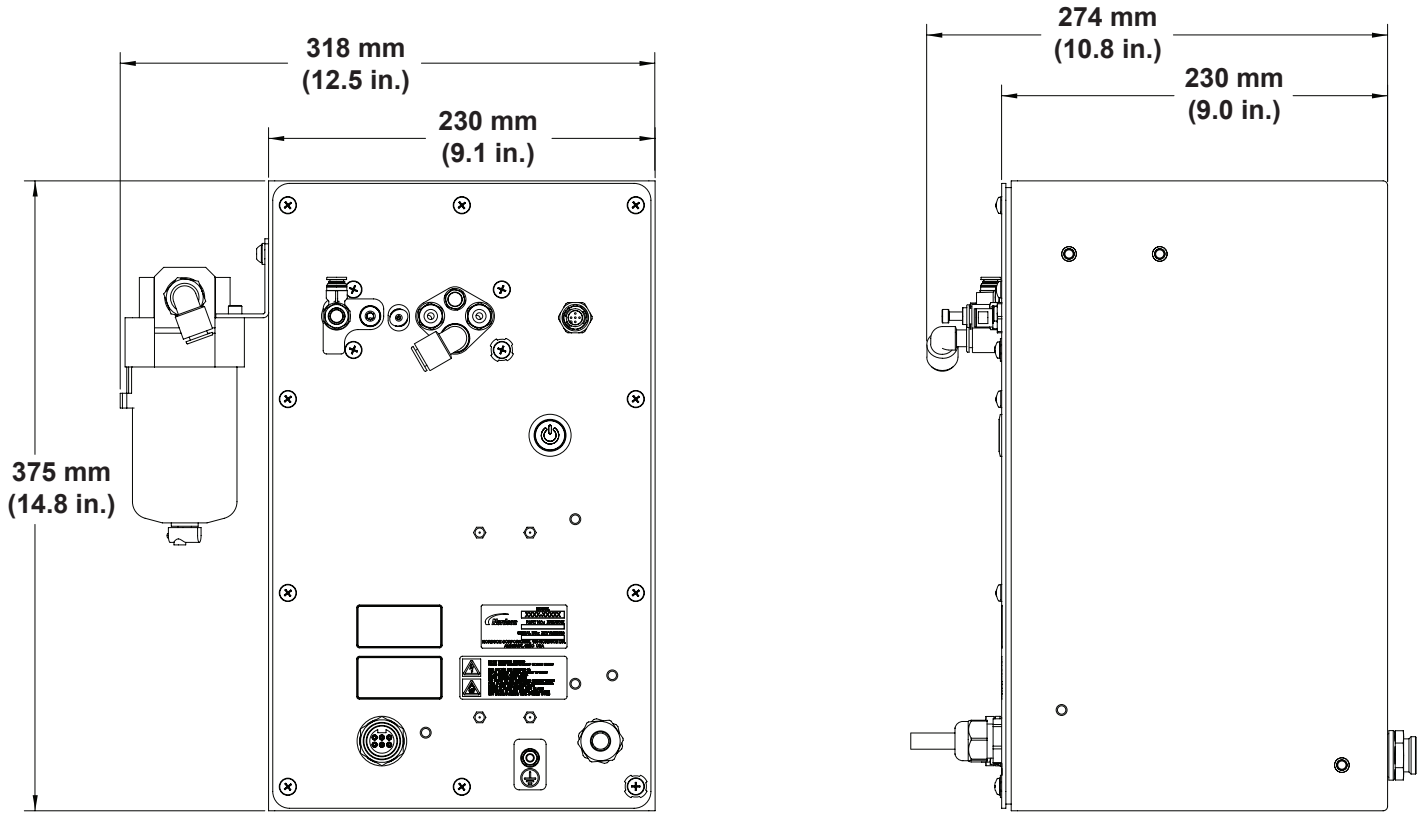
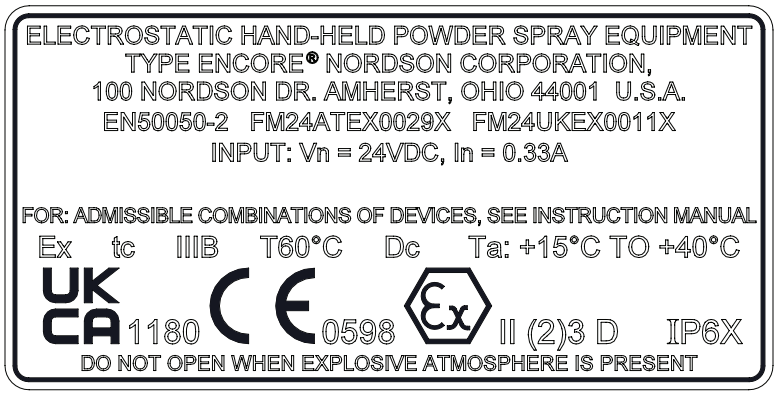


Figure 2-3 Encore VT Pump Controller

Powder Spray Gun Certification Label

1600448-05

System Controller Certification Label



1626518

Pump Controller Certification Label

1626519

Section 3
Installation

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

WARNING: Use safety glasses when performing the following tasks.

Refer to the *Drawings* section and the *Installation Guide* included with system for installation. Additional wiring and grounding information is provided here in addition to instructions provided in the *Installation Guide*.

Refer to *System Documentation* in the *Overview* section for a list and links to documentation.

System Electrical Connections

Power Supply

CAUTION: If you have a mobile system with a vibratory box feeder, check the label on the motor for the correct voltage. Connecting a system with a 115 Vac vibrator motor to 220 Vac could damage the vibrator motor.

Refer to Table 3-1.

The pump controller is rated for 100−240 Vac at 50/60 Hz, single phase, and is marked as such, but the power supplied to the system must match the vibrator motor rating.

Wire the system power cord to a customer-supplied three-prong plug. Connect the plug to a receptacle that supplies the correct voltage.

Table 3-1 Power Cord Wiring

Wire Color	Function
Blue	N (neutral)
Brown	L (hot)
Green/Yellow	GND (ground)

System Ground

See Figure 3-1.

VBF Mobile Systems: Connect the ground cable attached to the pump controller ground stud to a true earth ground.

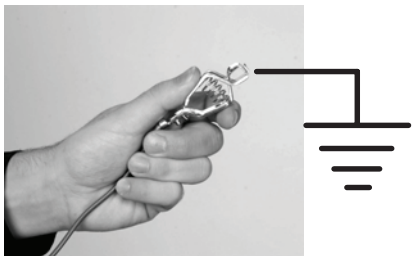


Figure 3-1 System Ground Connection

Wall/Rail Mount Systems:

1. Locate the ESD grounding block kit. Follow the kit instructions to install the grounding block to the grounded spray booth base.
2. Connect the flat braided ground wire from the system controller ground stud to the grounding block.
3. Connect the flat braided ground cable from the pump controller ground stud to the grounding block.

Section 4
Operation

WARNING:

- Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.
- This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.
- The mobile system needs to be kept on a level service to avoid tipping or rolling.
- Keep tubing and hoses bundled or organized to avoid tripping hazard.

WARNING:

- All electrically conductive equipment in the spray area must be grounded. Ungrounded or poorly grounded equipment can store an electrostatic charge which can give personnel a severe shock or arc and cause a fire or explosion.
- Caution should be taken when cleaning external painted and non- metallic surfaces of the controller, interface, powder spray gun, and all accessories. There is a potential for static electricity build up on these components. Follow the manufacturer's instructions to avoid possible electrostatic charging hazards. Guidance on protection against the risk of ignition due to electrostatic discharge can be found in PD CLC/TR 60079-32-1 and IEC TS 60079-32-1.

WARNING: Use safety glasses when performing the following tasks.

Most of the system operation is performed through the system controller. Additional operation information can be found in the applicable component manuals.

Refer to *System Documentation* in the *Overview* section for a list and links to documentation.

Specific Conditions of Use

1. The Encore VT and HD Manual and Mobile Powder Systems shall be used only with the separately and suitably certified Encore LT Powder Electrostatic Manual Applicators, and Encore HD Powder Electrostatic Manual Applicators in accordance with the manufacturer's instructions.
2. Follow the manufacturer's instructions to avoid possible electrostatic charging hazards.

VBF Powder Box Installation

WARNING: The fluidizing tubing supplied with this system is conductive and also supplies the grounding path. Use only the tubing supplied with this system. Use of non-conductive tubing and fittings could lead to a shock hazard, fire, or serious injury.

NOTE: The vibrator table can hold a maximum 23 kg (50 lb) box of powder.

1. See Figure 4-1. Lift the pickup tube up and swing the tube catch down and under the pickup tube end to hold it in place on the arm.
2. Place a box of powder on the vibrator table.
3. Fold back the box flaps and open the plastic bag containing the powder coating. Fold the bag over the box flaps to keep the flaps out of the way.

NOTE: Do not force the end of the pickup tube into the powder. Vibration and gravity will cause the pickup tube to sink into the powder.

4. Swing the pickup tube catch out from under the pickup tube and slide the tube down into the powder.
5. To prevent accidental powder spills, wrap the plastic bag around the pickup tube and loosely secure the bag with a tie wrap.

NOTE: See *Fluidizing Air Operation* for recommended pressure at startup.

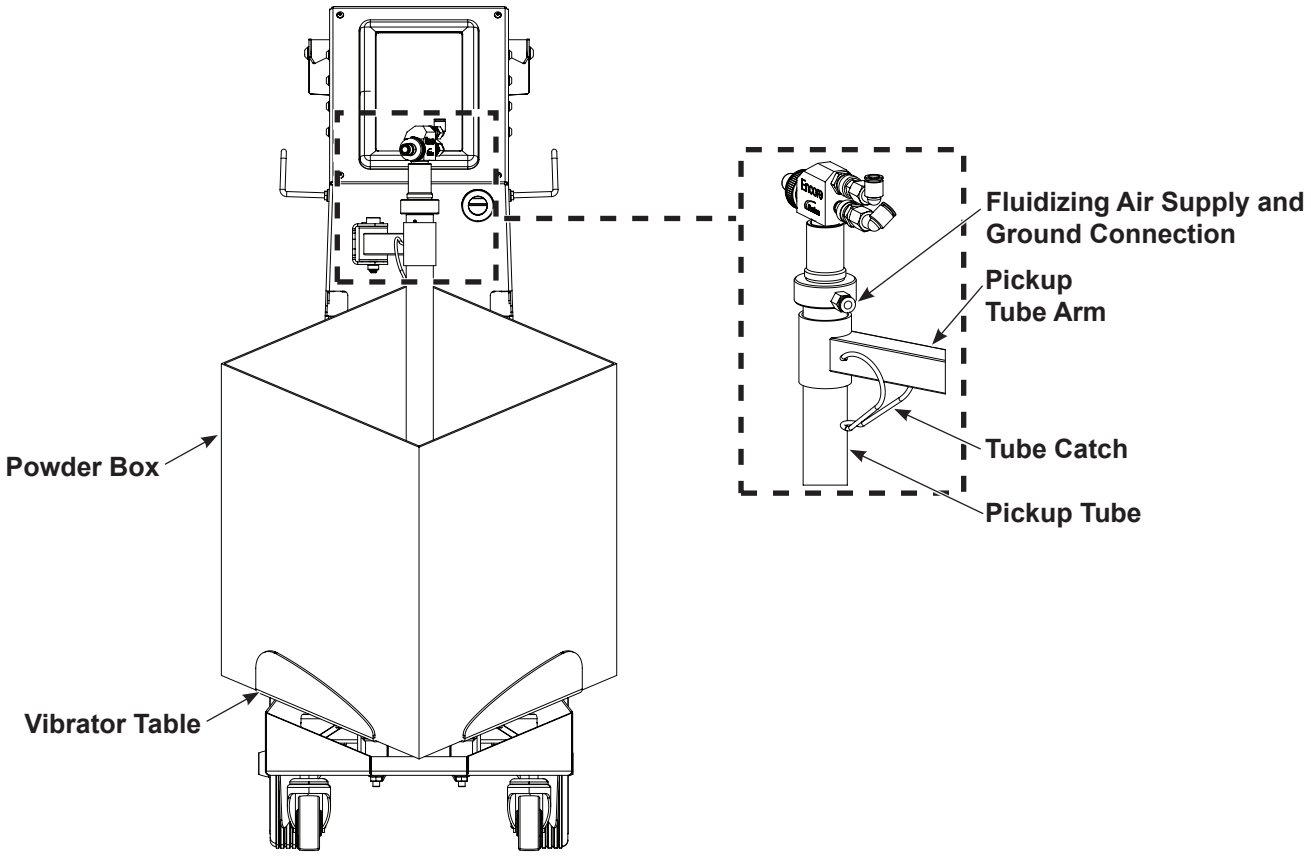


Figure 4-1 Powder Box Installation

Fluidizing Air Operation

Vibratory Box Feeder

If the controller is configured for a vibratory box feeder, then the fluidizing air is turned ON and OFF when the spray gun is triggered ON and OFF.

See Figure 4-2. Use the fluidizing air needle valve to adjust the fluidizing air pressure as low as possible: 0.07−0.14 bar (1-2 psi).

NOTE: Over or under fluidization is a common cause of inconsistent powder delivery.

The pressure should fluidize the powder just around the pickup tube. The powder should not boil violently or fountain out of the box. Over fluidization can cause loss of powder flow.

When the spray gun is triggered OFF, the vibrator motor remains ON for a configurable delay time. This delay prevents rapid ON/OFF motor cycling every time you trigger the gun OFF and ON and prolongs the life of the motor. The default delay time is 30 seconds.

The vibrator motor can also be set to continuous operation. If set this way, press and release the spray gun trigger to start the motor. To turn OFF the motor, turn OFF the system power.

To configure the system for a vibratory box feeder, change the VBF delay time, or set the vibrator motor to continuous operation, refer to system controller onscreen *Help*.

Powder Feed Hopper

If the system controller is configured for an optional powder feed hopper, then turning ON the pump controller power turns ON fluidizing air to the hopper.

See Figure 4-2. Use the fluidizing air needle valve to adjust the fluidizing air pressure so the pressure is just enough so the powder in the hopper “boils” gently. The fluidizing air causes the powder to increase in volume.

NOTE: Over or under fluidization is a common cause of inconsistent powder delivery.

Fluidize the powder for 5−10 minutes to make sure it is evenly fluidized and no clumps are left before spraying.

Electrode Air Wash Operation

See Figure 4-2. Electrode air wash air continually washes the spray gun electrode to prevent powder from collecting on it. Electrode air wash air turns ON and OFF automatically when the spray gun is triggered ON and OFF.

See Figure 4-3. Use the flow control valve to adjust electrode air wash.

NOTE: Excessive electrode air wash will create a void in the center of the spray pattern.

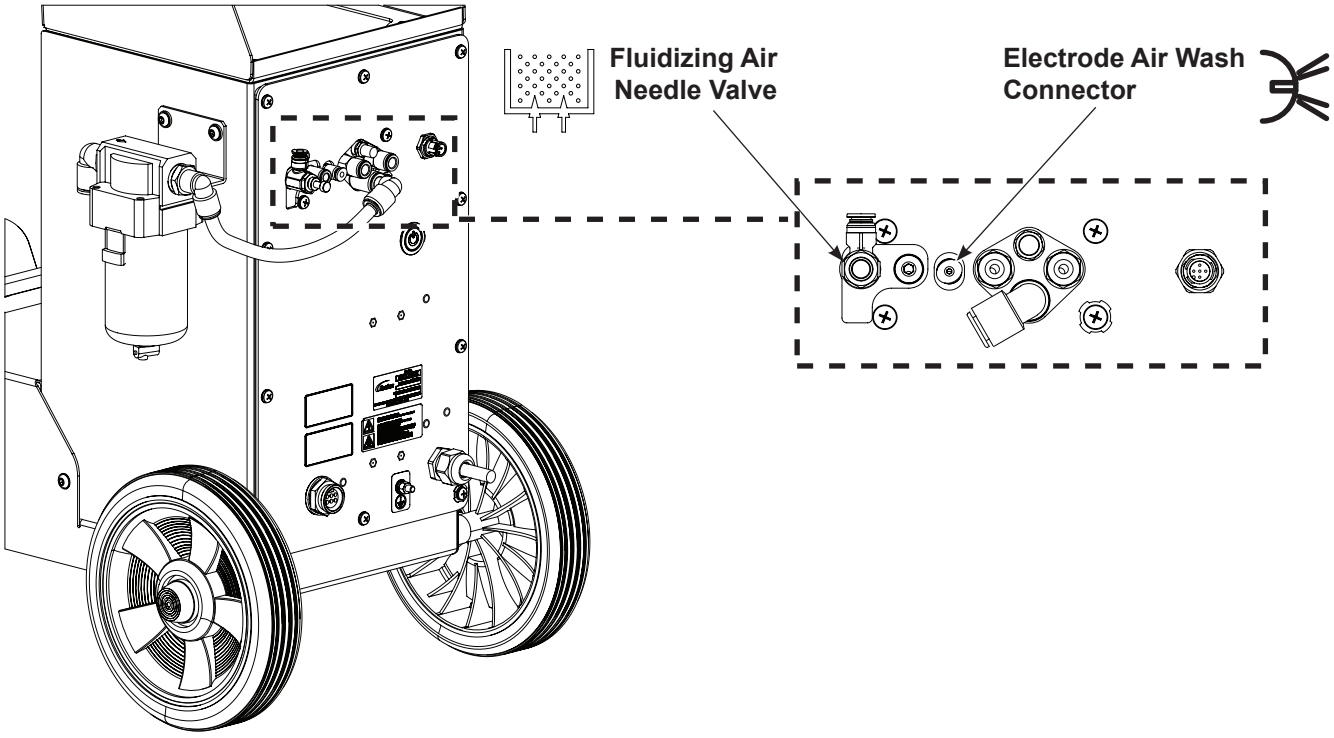


Figure 4-2 Electrode Air Wash and Fluidizing Air Valve Location (shown without flow control valve)

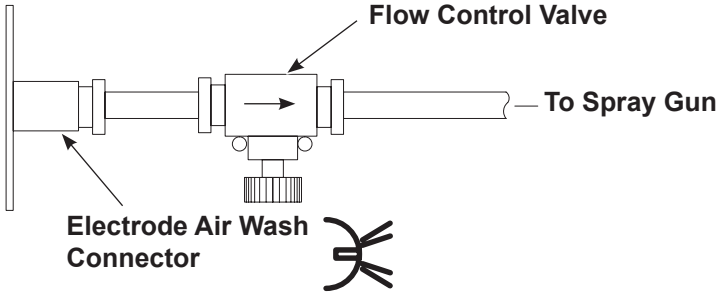


Figure 4-3 Flow Control Valve and Air Wash Tubing Connection

Daily Operation

WARNING: All conductive equipment in the spray area must be connected to a true earth ground. Failure to observe this warning may result in a severe shock.

NOTE: The system controller is shipped with a default configuration that will allow the user to start spraying powder as soon as the user finishes setting up the system. Refer to the system controller onscreen *Help* for a list of the defaults and instructions on how to change them.

Initial Startup

With the fluidizing air and flow air set to zero, and no parts in front of the gun, trigger the gun and record the µA output . Monitor the µA output daily under the same conditions. A significant increase in µA output indicates a probable short in the gun resistor. A significant decrease indicates a resistor or voltage multiplier requiring service.

System Startup

1. Turn ON the spray booth exhaust fan.
2. Turn ON the system air supply.
3. Install a box of powder on the cart. Refer to *VBF Powder Box Installation* in this section for instructions.
4. See Figure 4-4. Make sure the spray gun is not triggered, then turn ON system power . The system controller touchscreen should light.

   Vibratory Box Feeders:

   a. Adjust the fluidizing air so that the powder around the pickup tube is being fluidized without blowing powder out of the box. Triggering the spray gun turns ON the vibrator motor. Depending on the vibrator motor function setting, the motor will:

   - turn OFF after a delay when the trigger is released, or
   - continue to operate until the system power is turned OFF.

   Refer to the system controller onscreen *Help* for information on changing the motor function setting.

System Startup continued...

Optional Feed Hoppers: Turning ON the power turns ON the fluidizing air.

a. See Figure 4-2. Use the fluidizing air needle valve to adjust the fluidizing air pressure so the pressure is just enough so the powder in the hopper “boils” gently. The fluidizing air causes the powder to increase in volume.

b. Fluidize the powder for 5−10 minutes to make sure it is evenly fluidized and no clumps are left before spraying.

5. Select the desired recipe and start production. Refer to system controller onscreen *Help* for recipe programming instructions.

6. Point the spray gun into the booth and press the spray trigger to start spraying powder.

The system controller displays the setpoints on the *Home* screen. When the gun is spraying, the actual output appears underneath the setpoints.

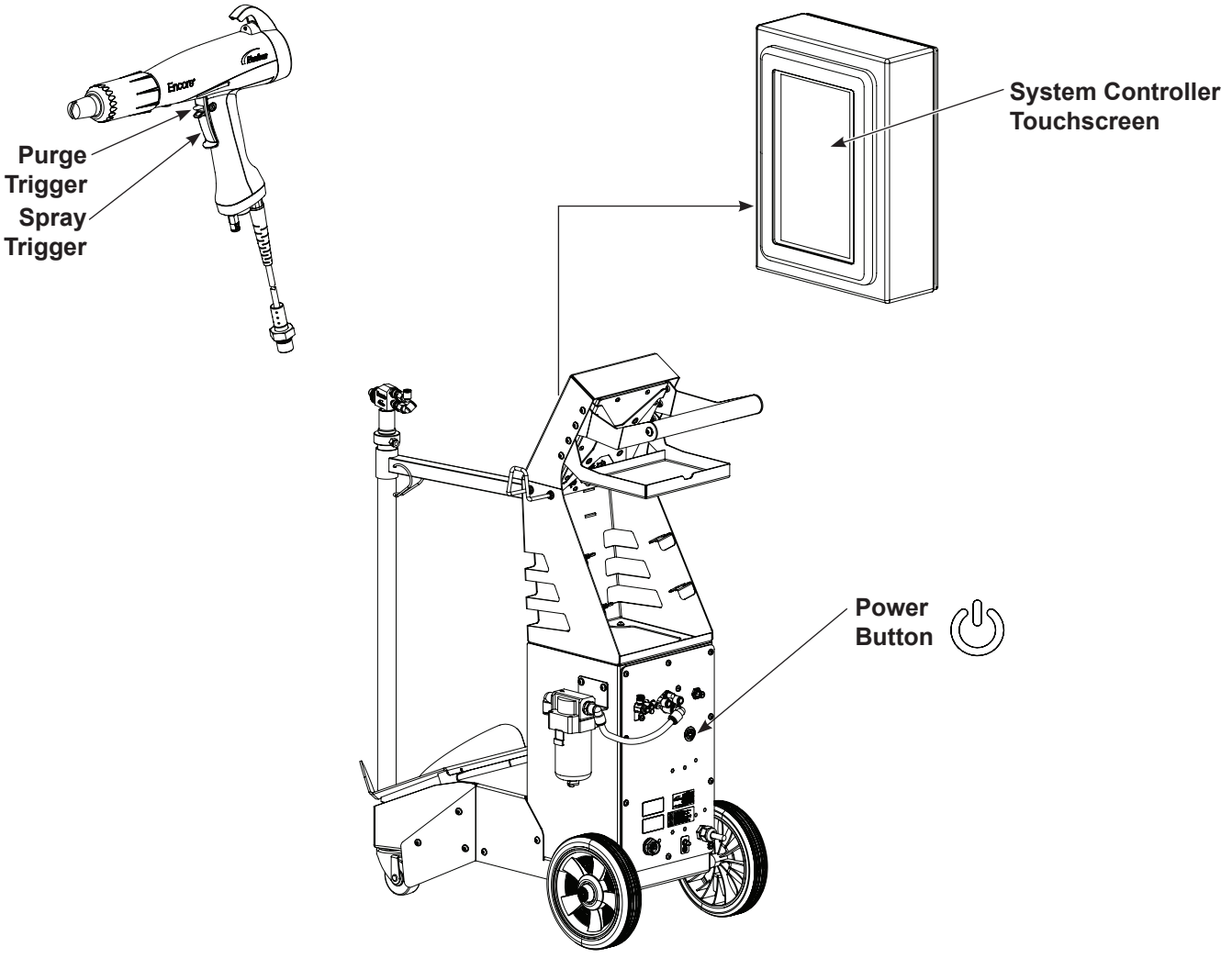


Figure 4-4 System Controls

Shutdown

See Figure 4-4.

1. Purge the spray gun by pressing the purge trigger ON the spray gun until no more powder is blown from the gun.
2. Turn OFF the system air supply and relieve the system air pressure.
3. Press the **Power** button on the pump controller to turn OFF the system.
4. Perform the appropriate maintenance steps listed in *Maintenance Procedures*.

Section 5
Maintenance

WARNING:

- Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.
- Before performing the following tasks, turn OFF the system controller and disconnect system power. Relieve system air pressure and disconnect the system from its input air supply. Failure to observe this warning may result in personal injury.

WARNING: Use safety glasses when performing the following tasks.

Refer to *System Documentation* in the *Overview* section for a list and links to documentation.

Recommended Cleaning Procedure for Powder Contact Parts

Nordson Corporation recommends using an ultrasonic cleaning machine and Oakite® BetaSolv emulsion cleaner to clean spray gun nozzles and powder path parts.

CAUTION: Do not immerse the electrode assembly in solvent. It cannot be disassembled; cleaning solution and rinse water will remain inside the assembly.

1. Fill an ultrasonic cleaner with BetaSolv or an equivalent emulsion cleaning solution at room temperature. Do not heat the cleaning solution.
2. Remove the parts to be cleaned from the gun. Remove the O-rings. Blow off the parts with low-pressure compressed air.

CAUTION: Do not allow the O-rings to come in contact with the cleaning solution.

3. Place the parts in the ultrasonic cleaner and run the cleaner until all parts are clean and free of impact fusion.
4. Rinse all parts in clean water and dry before re-assembling the spray gun. Inspect the O-rings and replace any that are damaged.

CAUTION: Do not use sharp or hard tools that will scratch or gouge the smooth surfaces of powder contact parts. Scratches will cause impact fusion.

Maintenance Procedures

Component	Procedure
Pump (Daily)	1. Disconnect the pump air hoses and remove the pump from the pickup tube. 2. Disassemble the pump and clean all parts using low-pressure compressed air. If impact fusion is present on the parts, use the *Recommended Cleaning Procedure for Powder Contact Parts* to remove it. 3. Replace any worn or damaged parts. Refer to the pump manual for instructions and spare parts.
Spray Gun (Daily)	1. Point the spray gun into the booth and purge the spray gun. 2. Shut OFF the system air supply and power. 3. Disconnect the powder hose adapter and blow out the spray gun powder path. 4. Disconnect the powder hose at the pump. Place the gun end of the hose inside the booth and blow out the hose from the pump end. 5. Remove the nozzle and electrode assembly and clean them with low-pressure compressed air and clean cloths. If impact fusion is present on the nozzle parts, clean them using the *Recommended Cleaning Procedure for Powder Contact Parts*. Check the parts for wear and replace if necessary. 6. Clean the gun face surface (where the electrode assembly attaches) with low pressure compressed air and a clean cloth. 7. Blow off the gun and wipe it down with a clean cloth. Refer to the spray gun manual for instructions and spare parts.
Vibratory Box Feeder Pickup Tube (Daily)	Disconnect the fluidizing air tubing. Pull the pickup tube out of the powder box and move it into the booth. Blow powder off all outer and inner surfaces using low-pressure compressed air.
System Controller (Daily)	Blow off the dolly and system controller with a blow gun. Wipe powder off the system controller with a clean cloth.
System Air Filter (Periodically)	Check the system air filter. Drain the filter and change the filter element as needed. Refer to *Parts* for the replacement filter element part number.
System Grounds	Daily: Make sure the system is securely connected to a true earth ground before spraying powder. Periodically: Check all system ground connections.

Section 6
Troubleshooting

WARNING:

- Allow only qualified personnel to perform the following tasks. Follow the safety instructions in this document and all other related documentation.
- Before making repairs to the system controller or spray gun, shut OFF system power and disconnect the power cord. Shut OFF the compressed air supply to the system and relieve the system pressure. Failure to observe this warning could result in personal injury.

WARNING: Use safety glasses when performing the following tasks.

These troubleshooting procedures cover only the most common problems. If you cannot solve a problem with the information given here, contact Nordson technical support at (800) 433−9319 or your local Nordson representative for help.

Refer to *System Documentation* in the *Overview* section for a list and links to documentation.

System Controller Alarms and Activity Log

See Figure 6-1.

Refer to the *Alarms and Activity Log* screen in the system controller touchscreen for alarms and faults.

Use the onscreen *Help* and the troubleshooting tables in this section for information regarding individual Alarm and Activity codes.

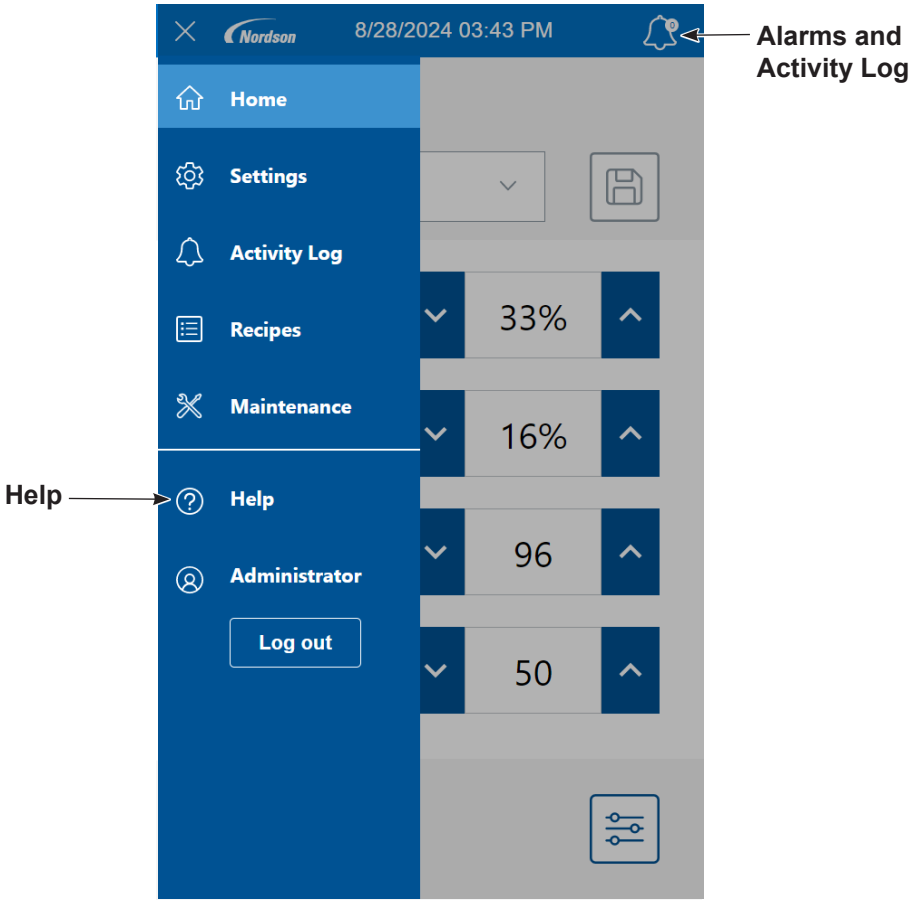


Figure 6-1 Help and Activity Log

Activity Codes Troubleshooting Chart

Code	Message	Correction
0x1010u	Powder Airflow Low	Check if input pressure is greater than 100 psi (6.9 bar). Check for blocked flow tubing to pump. Check wiring for proportional valve VY1B for shorts or opens J5 pins 1,2 and 3 on backplane. Replace proportional valve.
0x1011u	Powder Airflow High	Check if input pressure is greater than 100 psi (6.9 bar). Check for blocked flow tubing to pump. Check wiring for proportional valve VY1B for shorts or opens J5 pins 1,2 and 3 on backplane. Replace proportional valve.
0x1012u	Atomizing Airflow Low	Check if input pressure is greater than 100 psi (6.9 bar). Check for blocked atomizing air tubing to pump. Check wiring for proportional valve VY1B for shorts or opens J5 pins 4,5 and 6 on backplane. Replace proportional valve.
0x1013u	Atomizing Airflow High	Check if input pressure is greater than 100 psi (6.9 bar). Check for blocked atomizing air tubing to pump. Check wiring for proportional valve VY1B for shorts or opens J5 pins 4, 5, and 6 on backplane. Replace proportional valve.
0x2010u	Over Current	Check for a shorted gun cable. Check for a bad multiplier using a kV meter and a mega-Ohm meter. Replace cable if bad. Replace multiplier if bad. Refer to the spray gun manual for repair and parts information.

Continued...

Code	Message	Correction
0x2011u	Over Current Foldback	This fault can occur if the gun tip touches a grounded part while spraying. This fault turns the electrostatic output OFF. Release the trigger to reset the fault and resume spraying. Resolve the fault on the system controller *Activity Log* screen. Trigger the gun ON again. If the fault reoccurs, disconnect the spray gun high voltage power supply from the gun cable inside the gun (J2) and trigger the gun ON. Refer to the *Power Supply Replacement* procedure in the spray gun manual. If the 0x2011u code does not reappear but changes to 0x3010u Gun Open, then check the high voltage power supply for issues. If the help code 0x2011u reappears with the high voltage power supply disconnected, check the gun cable continuity and replace it if shorted. Perform *Gun Cable Continuity Tests* as described in the spray gun manual.
0x2012u	uA Feedback High	Make sure kV is set to maximum 100 kV, trigger the gun ON and check the µA display on the system controller screen. If the µA display always reads >75 µA, even when the gun is more than 3 ft from a grounded surface, check the gun cable or the gun high voltage power supply. Refer to the spray gun manual for procedures.
0x3010u	Gun Open	Trigger the gun and check the system controller screen. If the µA feedback is 0, check for a loose gun cable connection at the gun receptacle. Check for a loose connection to the high voltage power supply inside the gun. Perform *Gun Cable Continuity Tests* as described in the spray gun manual. If the cable and the connections are okay, check the spray gun high voltage power supply.
0x3012u	Output Stuck High	Make sure kV is set to 0 and the gun is triggered OFF. The µA display on the system controller should read 0. If the µA display is greater than 0, replace the device controller. Make sure the trigger icon on the interface is not lit.
0x5001u	Device DCB EEPROM Fail	Resolve the fault on the system controller *Activity Log* screen and cycle power if the fault returns. Replace the device controller.
0x5003u	Device Invalid Node ID	The device controller address should always be 1. If system malfunctions call Nordson Service for assistance.

Continued...

Code	Message	Correction
0x5013u	Electrode Air Wash	Check J4 pin 5 and 6 wiring diagram backplane.
0x5014u	Valve Fluidizing Air	Check J4 pin 1 and 2 wiring diagram backplane.
0x5015u	Valve Purge Air	Check J4 pin 3 and 4 wiring diagram backplane.
0x6000u	Device Hw Sw Mismatch	Call Nordson Service for assistance.
0x6100u	Watchdog Alarm	System controller is resetting. Check for proper chassis grounding. Check for powder tribo charging.
0x6101u	Calibration Invalid	Pump calibration values for A or C are out of range. Refer to your pump controller manual for more information.
0x6200u	Device Validation	Call Nordson Service for assistance.
0x8000u	Trigger ON During Powerup	This code appears if the gun was triggered ON when the system was turned ON. Turn OFF the system, wait for several seconds, then turn the system back ON, making sure the spray gun is not triggered ON. If the fault reoccurs, check for a bad trigger switch. Refer to the spray gun manual for repair and parts information.
0x8100u	No CAN Communication	Check for loose device controller board. Reseat if necessary. Check for loose CAN connection on mini-backplane J1. Check for poor connection on M12 Device Net Cable on the pump controller. Check for poor connection on M12 system controller cable. If CAN connections are secure but the fault persists replace the cable. Route the network cable away from sources of electrostatics (hopper, gun cables, powder hose). Verify proper grounding.
0x9001u	Supply Undervoltage	Check the DC power supply located in the pump controller. Measure power on SK2. If the voltage is less than 22 Vdc, replace the power supply in the pump controller.

General Troubleshooting Chart

Problem	Possible Cause	Corrective Action
1. Operator interface, No power	Blown fuse	Check for blown fuses on relay board (F1and F2). Refer to *Drawings* section.
	Bad power supply	Check for +24 Vdc on power supply (SK2). Refer to *Drawings* section.
	Bad connection	Check for bad connection on the backplane (J1). Refer to *Drawings* section.
	System controller connections or components	Refer to the *Encore System Controller Hardware* manual for troubleshooting the system controller.
2. No CAN network traffic	Bad connection DC/ backplace	Check that the device controller is fully seated into the mini-backplane. Refer to *Drawings* section.
	Bad connection, CAN HAT	Check the CAN HAT connection on the mini-backplane harness (J1). Refer to *Drawings* section.
	System controller connections or components	Refer to the *Encore System Controller Hardware* manual for troubleshooting the system controller.
3. Uneven pattern, unsteady or inadequate powder	Blockage in spray gun, powder hose, or pump	1. Purge the spray gun. Remove and clean the nozzle and electrode assembly. 2. Disconnect the powder hose from the spray gun. Blow out the spray gun with an air gun. 3. Disconnect the powder hose from the pump and gun and blow out the hose. Replace the hose if it is clogged with powder. 4. Disassemble and clean the pump. 5. Disassemble the spray gun. Remove and clean the inlet and outlet tubes and elbow. Replace components as necessary.
	Nozzle, deflector, or electrode assembly worn, affecting pattern	Remove and clean the nozzle, deflector, and electrode assembly. Replace worn parts as necessary. If excessive wear or impact fusion is a problem, reduce the flow and atomizing air.
	Damp powder	Check the powder supply, air filters, and dryer. Replace the powder supply if contaminated.
	Low atomizing or flow air pressure	Increase the atomizing and/or flow air flow.
	Improper fluidization of powder in hopper	Increase the fluidizing air pressure. If the problem persists, remove the powder from the hopper. Clean or replace the fluidizing plate if contaminated.
4. Voids in powder	Worn nozzle or deflector	Remove and inspect the nozzle or deflector. Replace worn parts.
	Plugged electrode assembly or powder path	Remove and clean the electrode assembly. Remove and clean the spray gun powder path (inlet tube, elbow, and outlet tube) if necessary.

Problem	Possible Cause	Corrective Action
5. Loss of wrap, poor transfer efficiency	Low electrostatic voltage	Increase the electrostatic voltage.
	Poor electrode connection	Remove the nozzle and electrode assembly. Clean the electrode and check for carbon tracking or damage. Check the electrode resistance as shown in this section. If the electrode assembly is good, remove the gun power supply and check its resistance as shown in this section.
	Poorly grounded parts	Check the conveyor chain, rollers, and part hangers for powder buildup. The resistance between the parts and ground must be 1 megohm or less. For best results, 500 ohms or less is recommended.
6. No kV output from the spray gun (kV=0), powder is spraying	Damaged gun cable	Perform the *Gun Cable Continuity Checks* in spray gun manual. If an open or short is found, replace the cable.
	Spray gun power supply shorted	Perform the *Power Supply Resistance Test* in spray gun manual.
7. No kV output from the spray gun (µA=0), powder is spraying	Spray gun power supply open	Perform the *Power Supply Resistance Test* in spray gun manual.
	Damaged gun cable	Perform the *Gun Cable Continuity Test* in this spray gun manual. If an open or short is found, replace the cable.
8. No kV output and no powder output	Malfunctioning trigger switch or cable	Check the trigger output on the system controller touchscreen. If there is no output, check the switch connection to the gun cable. Perform the *Gun Cable Continuity Test* in spray gun manual. If the cable and connections are good, replace the switch.
	Controller configured for automatic operation	Check the configuration settings on the system controller.
9. Powder build up on the electrode tip	Insufficient electrode air wash flow due to low input pressure or blockage in manifold orifice	Check input air pressure. Remove electrode air wash connector and check manifold orifice for blockage. Orifice size is 0.25−0.3 mm. Clean with an appropriate tool.
10. No purge air when gun purge switch is pressed down	Malfunctioning spray gun trigger switch or cable, or controller manifold purge solenoid valve; no air pressure, or kinked air tubing	If the controller interface does not display **P** when the purge switch is pressed, the gun trigger switch may be defective. Perform the *Gun Cable Continuity Test* in spray gun manual. If the cable is good, replace the trigger switch. Check the purge air tubing and purge manifold solenoid valve.

Continued...

Problem	Possible Cause	Corrective Action
11. Low powder flow or powder flow surging	Low supply air pressure	Input air must be greater than 4.1 bar (60 psi).
	Supply air filter plugged or filter bowl full—water contamination of controller	Remove the filter bowl and drain water/dirt. Replace the filter element if necessary. Clean the system, replace components as necessary.
	Flow air valve plugged	Remove the valve and check the manifold passages. If the manifold is clean, replace the valve.
	Air tubing kinked or plugged	Check the flow and atomizing air tubing for kinks.
	Pump throat worn	Replace the pump throat.
	Pump not assembled correctly	Check the pump.
	Pick-up tube blocked	Check for debris or bag (VBF units) blocking pick-up tube.
	Vibratory box feeder disabled (VBF units only)	Make sure the system controller is configured for a VBF system.
	Fluidizing air too high	If fluidizing air is set too high the ratio of powder to air will be be too low.
	Fluidizing air too low	If fluidizing air is set too low the pump will not operate at peak efficiency.
	Powder hose plugged or kinked	Check for kinks in hose, blow out with compressed air.
	Powder hose too long or diameter too small	25-ft of 11-mm ID hose is shipped with the system. If using a longer hose, switch to 1/2 in. ID hose. Shorten the hose if necessary.
	Gun powder path plugged	Check the inlet tube, elbow, outlet tube, and electrode support for impact fusion or debris. Clean as necessary with compressed air.
	Flow and atomizing air tubing connections reversed	Check flow and atomizing air tubing routing and switch if incorrect.
12. Vibrator doesn't turn ON and OFF with the gun trigger	Controller configured for a hopper system	Make sure system controller is configured for a VBF system.
13. VBF system− fluidizing air is ON when the gun is triggered OFF	Controller configured for a hopper system	Make sure system controller is configured for a VBF system.

Continued...

Problem	Possible Cause	Corrective Action
14. No kV when gun is triggered ON, powder flow OK	kV set to zero	Set kV to a non-zero value.
15. No powder flow when gun is triggered ON, kV OK	Flow Air or Total Flow set to zero	Change settings to a non-zero number.
	Input air turned OFF	Make sure air is being supplied to the pump controller.

Controller Interconnect Cable Test

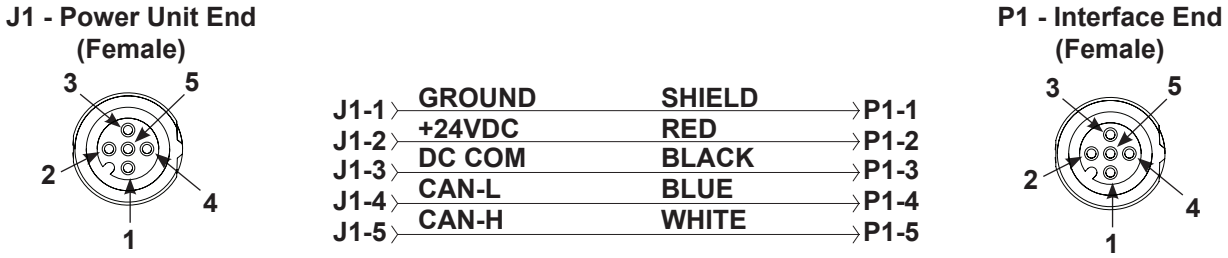


Figure 6-2 Controller Interconnect Cable Wiring

Section 7
Repair

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

WARNING: Use safety glasses when performing the following tasks.

WARNING: Shut OFF the pump controller and disconnect the power cord or disconnect and lock out power at a breaker or disconnect ahead of the pump controller before opening any enclosures. Failure to observe this warning could result in a severe electrical shock and personal injury.

CAUTION: Electrostatic sensitive device. To avoid damaging the controller circuit boards, wear a grounding wrist strap and use proper grounding techniques when making repairs.

Refer to the *Drawings* section for the pump controller electrical schematic and harness connections.

Refer to *System Documentation* in the *Overview* section for a list and links to documentation.

Pump Controller

WARNING: See Figure 7-1. The pump controller is shipped with a seal on the receptacle for the vibrator motor that is removed for use with the VBF mobile systems. This seal must be kept on the pump controller receptacle for the wall and rail systems to prevent electrical hazard.

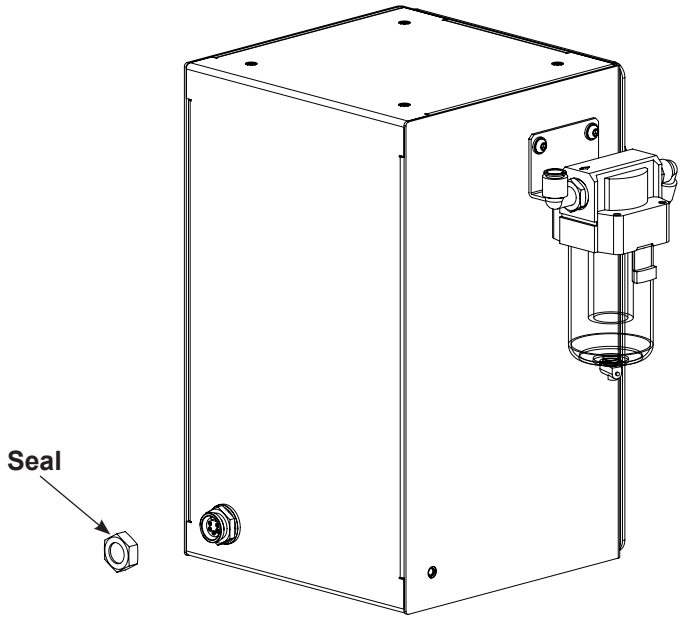


Figure 7-1 Receptacle Seal

Removing Panel Assembly

WARNING: Use caution when removing panel to avoid personal injury due to pinching or crushing from weight of panel.

1. Perform the *Shutdown* procedure from the *Operation* section.
2. Disconnect the main power and air.
3. See Figure 7-2. Remove the ten screws (2) securing the panel assembly (3) to the enclosure (1).
4. Slowly remove panel assembly

CAUTION: Handle cable and connectors with care. When reassembling, do not allow cables or air lines to become pinched or twisted at the back of the enclosure wall.

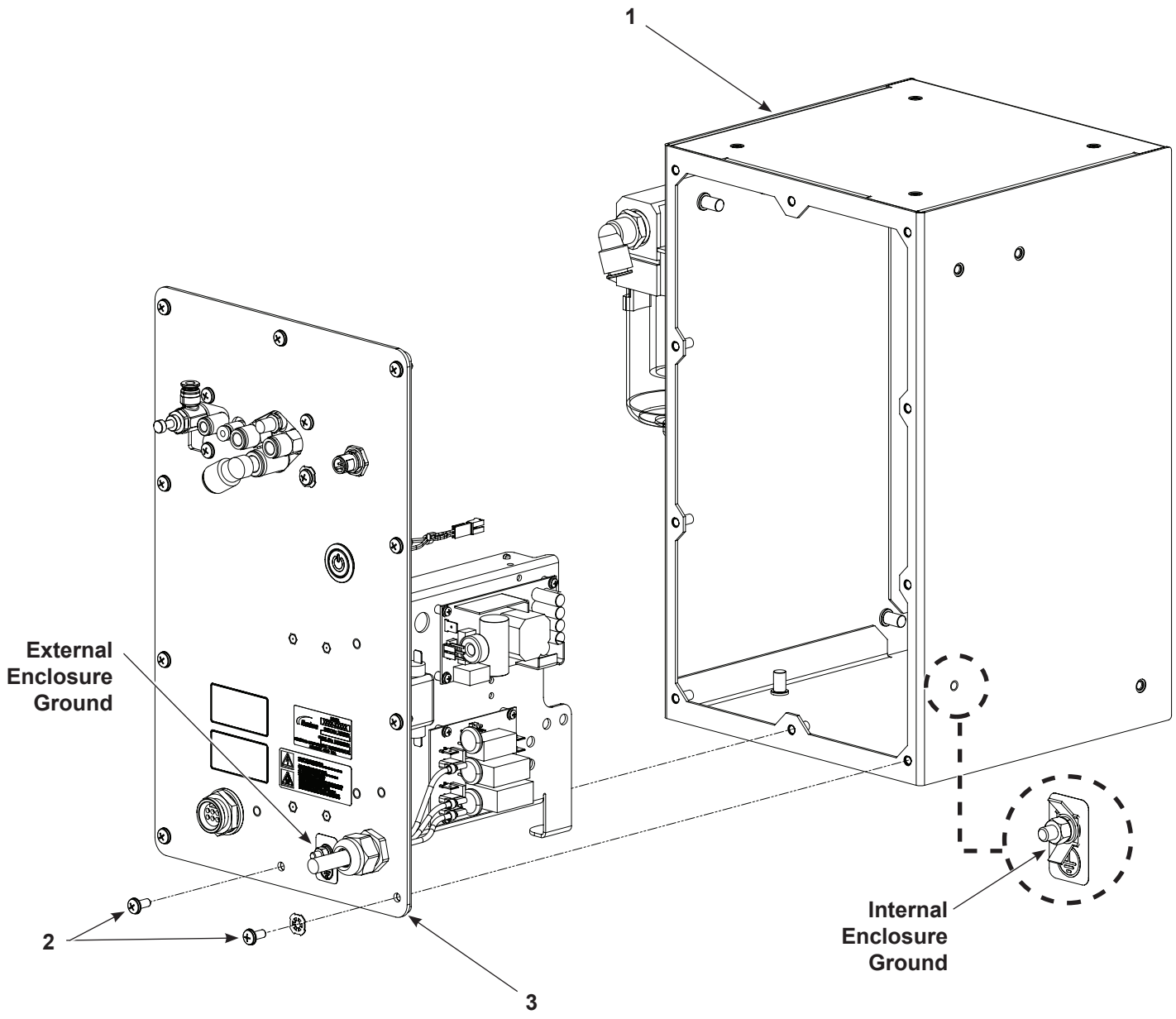


Figure 7-2 Panel Removal

1. Enclosure
2. Screws
3. Panel assembly

Panel Components

See Figure 7-3 and refer to the following when making repairs:

- *Parts* section for parts and service kits.
- *Drawings* section for wiring diagrams and circuit board connections.

Device Controller

1. Use the latch (2) to release the device controller (1) from the card slot.
2. Slide new device controller into the card slot until latch clicks.

Mini-Backplane

1. To remove the mini-backplane (4), disconnect the harnesses (3) and remove the four M3 screws (5) to remove mini-backplane from panel.
2. When installing new mini-backplane, make sure to reconnect harnesses.

Electric Regulator

1. Remove the two cap screws (7) to remove the electric regulator (6) from the manifold (10).
2. When installing new electric regulator, torque cap screws to 0.65 N•m (5.8 in.-lb).

Solenoid Valve

1. To remove the solenoid valves (8), remove the two screws (9) in the valve body and lift the valve off the manifold (10).
2. Make sure the O-rings furnished with the new valves are in place before installing the new valve on the manifold. Torque screws to 0.16 N•m (1.4 in.-lb).

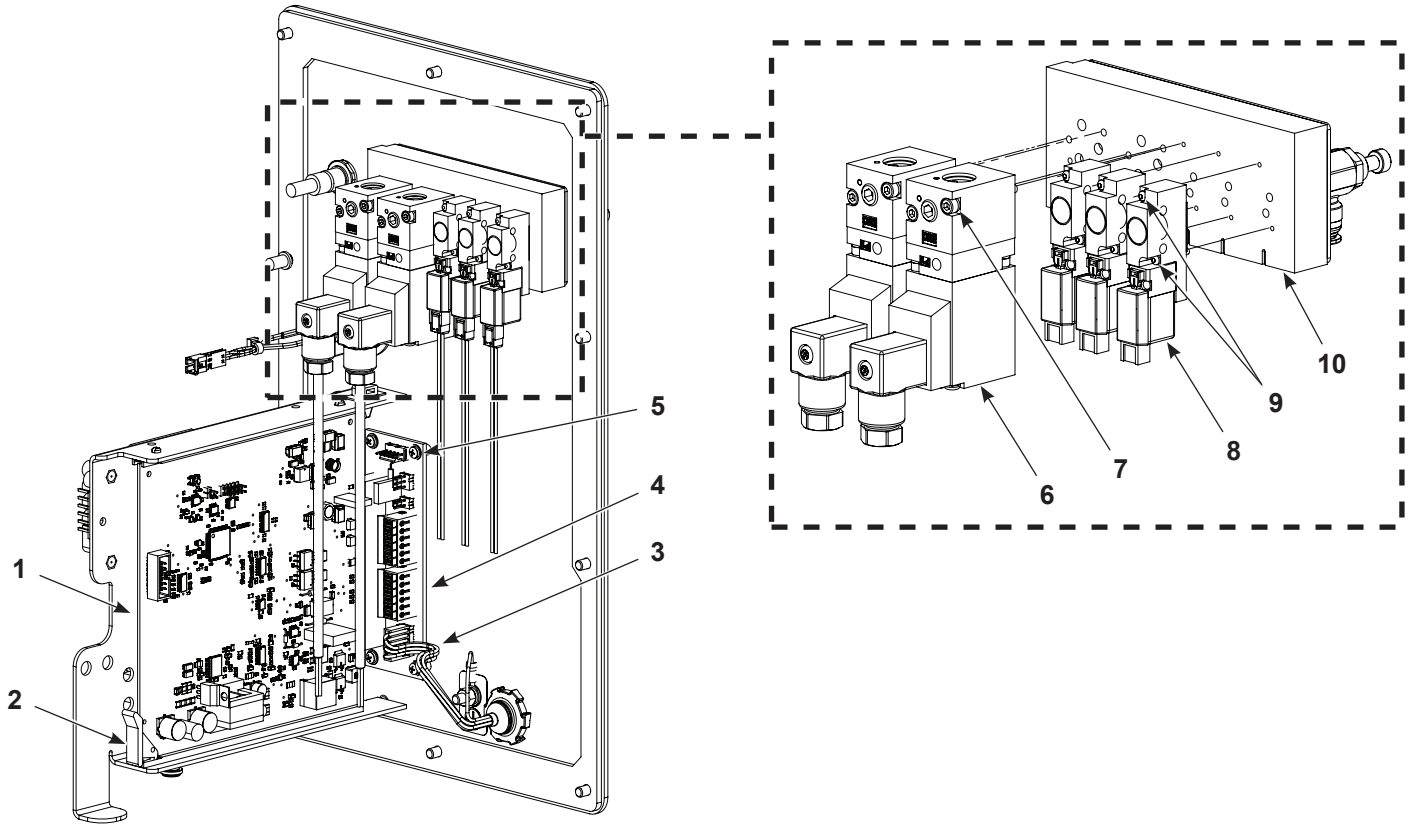


Figure 7-3 Panel Repair

1. Device controller
2. Latch
3. Harness
4. Mini-backplane
5. M3 Screw
6. Electric regulator
7. Cap screw
8. Solenoid valve
9. Screw
10. Manifold

Power Supply

See Figure 7-4.

1. To remove the power supply (1), disconnect the harness from the power supply and remove the four M3 screws (2) to remove the power supply from panel. Retain the M3 screws for the power supply.
2. When installing new power supply, reuse the M3 screws and make sure to reconnect harnesses to the power supply.

Relay PCA

See Figure 7-4 and Table 7-1.

1. To remove the relay PCA (3), disconnect the terminal wires and remove the four M3 screws (2) to remove relay PCA from panel.
2. When installing new relay PCA, make sure to reconnect wires to their respective terminals on the relay PCA.

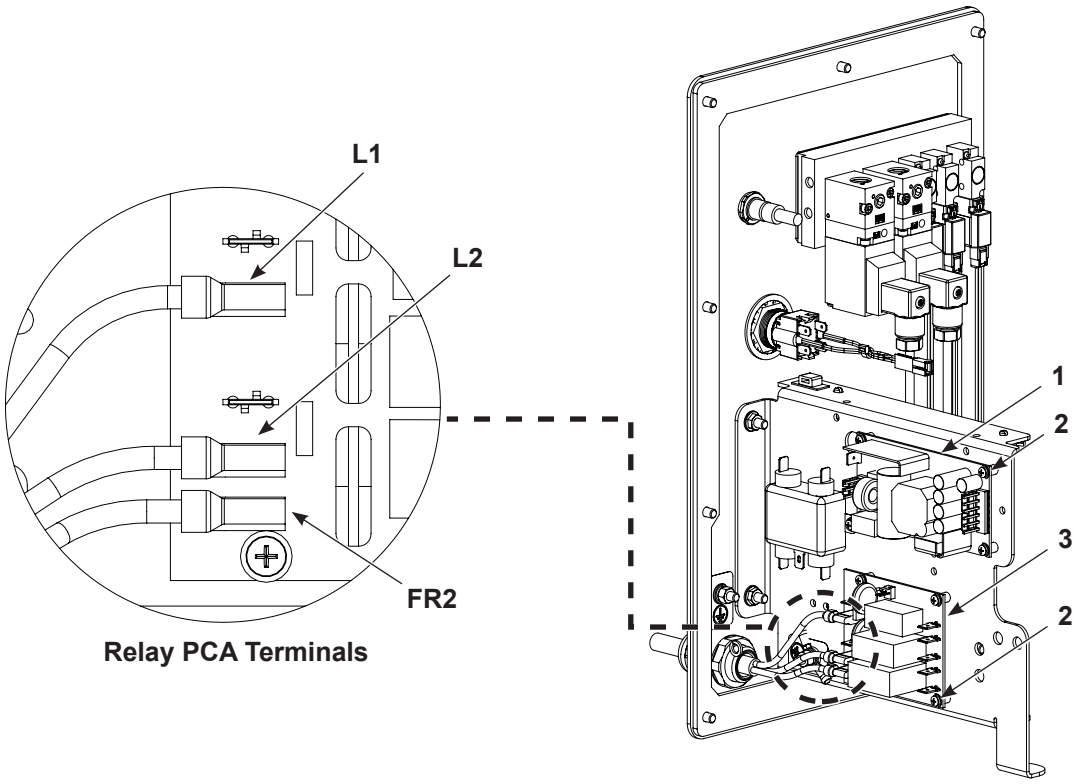


Figure 7-4 PCA Relay and Terminal Connections

1. Power supply
2. M3 screw
3. Relay PCA

Table 7-1 PCA Relay Terminal Connections

Terminal	Description	Wire Color
L1	Hot	Brown
L2	Neutral	Light Blue
FR2	Ground	Green/Yellow

Vibrator Motor Replacement

WARNING: To avoid damage or personal injury, perform the following tasks on a level surface to tip the dolly into a position for serving motor.

CAUTION:

- To prevent damage, remove the pickup tube and secure the pickup tube arm from swinging before tipping the dolly.
- To prevent damage to pump, tip the dolly so that the handle rests on the ground and the pump does not contact the ground.

See Figure 7-5. When replacing the vibrator motor (1), make sure to order the correct motor for system voltage. Check the label on the vibrator motor. Replacement motors include the power cable (2).

Bottom View of Dolly

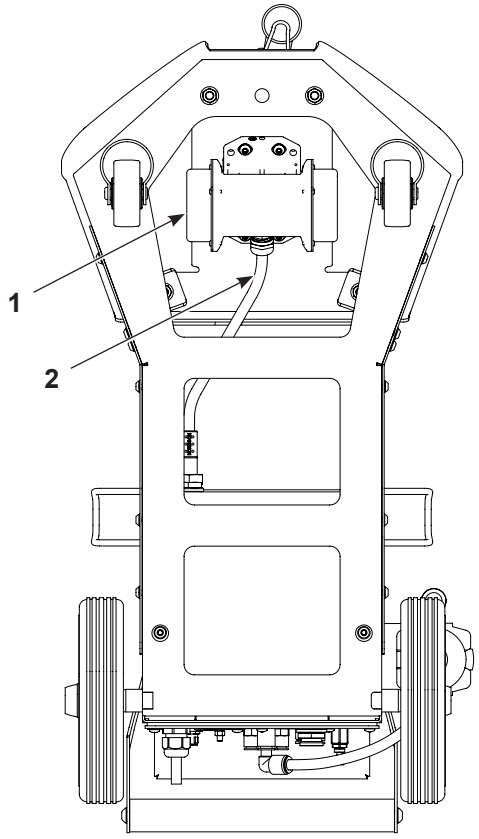


Figure 7-5 Replacing Vibrator Motor

1. Vibrator motor
2. Power cable

Section 8
Parts

Introduction

To order parts, call the Nordson Industrial Coating Solutions Customer Support Center at (800) 433-9319 or contact your local Nordson representative.

For other system components not listed in this section, refer to the *System Documentation* in the *Overview* section.

Encore VT Manual Powder Spray Systems

See Figure 8-1 and the following parts list.

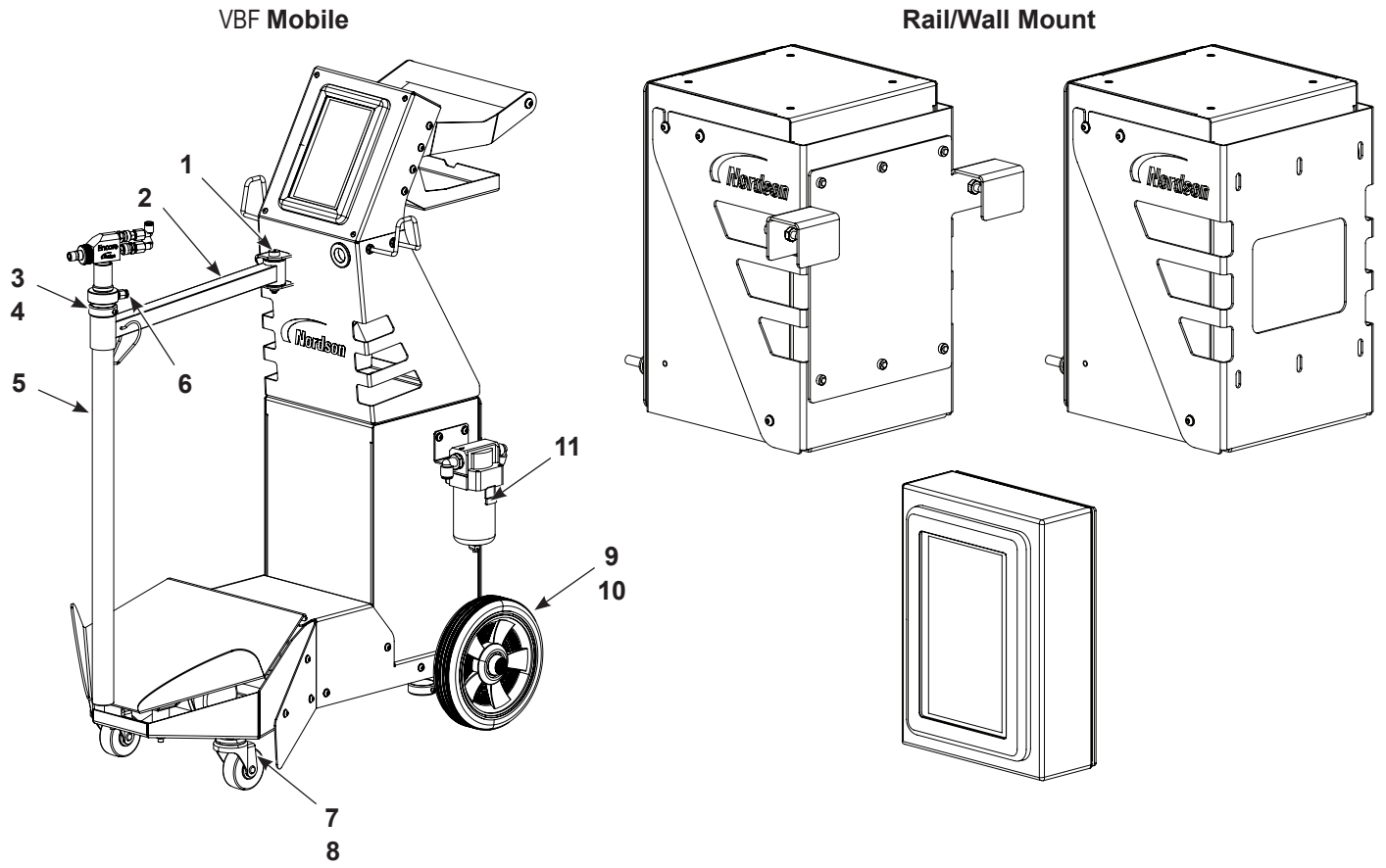


Figure 8-1 Encore HD Manual Powder Systems

Part	System Description
1625456	Encore VT 115 V VBF Dolly System
1625458	Encore VT 230 V VBF Dolly System
1625537	Encore VT Wall/Rail Mount System

Pickup Tube Kits

See Figure 8-1 and the following parts list.

Item	Description	Quantity	Note
1626874 - KIT, service, pickup tube arm, Encore Mobile System		—	
1	• SCREW, shoulder, 10 mm x 45 mm, M8	1	
2	• ARM, pickup tube assembly, Encore Mobile System	1	
1107903 - KIT, pickup tube collar, Encore LT		—	
3	• COLLAR, pickup tube, Encore LT	1	
4	• SCREW, socket, M5 x 8, black	1	
1097809 - TUBE, fluid pickup, with conductive fitting, VBF, Encore		—	
5	• TUBE, pickup	1	
6	• CONNECTOR, conductive, 6 mm T x R 1/8, diameter 0.7 mm orifice	1	

Wheel and Caster Kits

See Figure 8-1 and the following parts list.

Item	Description	Quantity	Note
1626875 - KIT, service, caster, Encore Mobile System		—	
7	• CASTER, stem, 65 mm diameter, 25 mm wide, 500N load	2	
8	• NUT, hex serrated, M12, zinc	2	
1626876 - KIT, service, wheel, Encore Mobile System		—	
9	• WHEEL, rear, Encore Mobile System	2	
10	• RETAINING CAP, external, 0.625 OD, push-on, black	2	

Filter

See Figure 8-1 and the following parts list.

Item	Part	Description	Quantity	Note
11	1600608	FILTER, mist separator, 0.3 micron, 1/2 NPT	1	
NS	1600609	FILTER ELEMENT, mist separator, 0.3 micron	1	
NS: Not Shown				

Pump Controller Kits

See Figure 8-2 and the following parts lists.

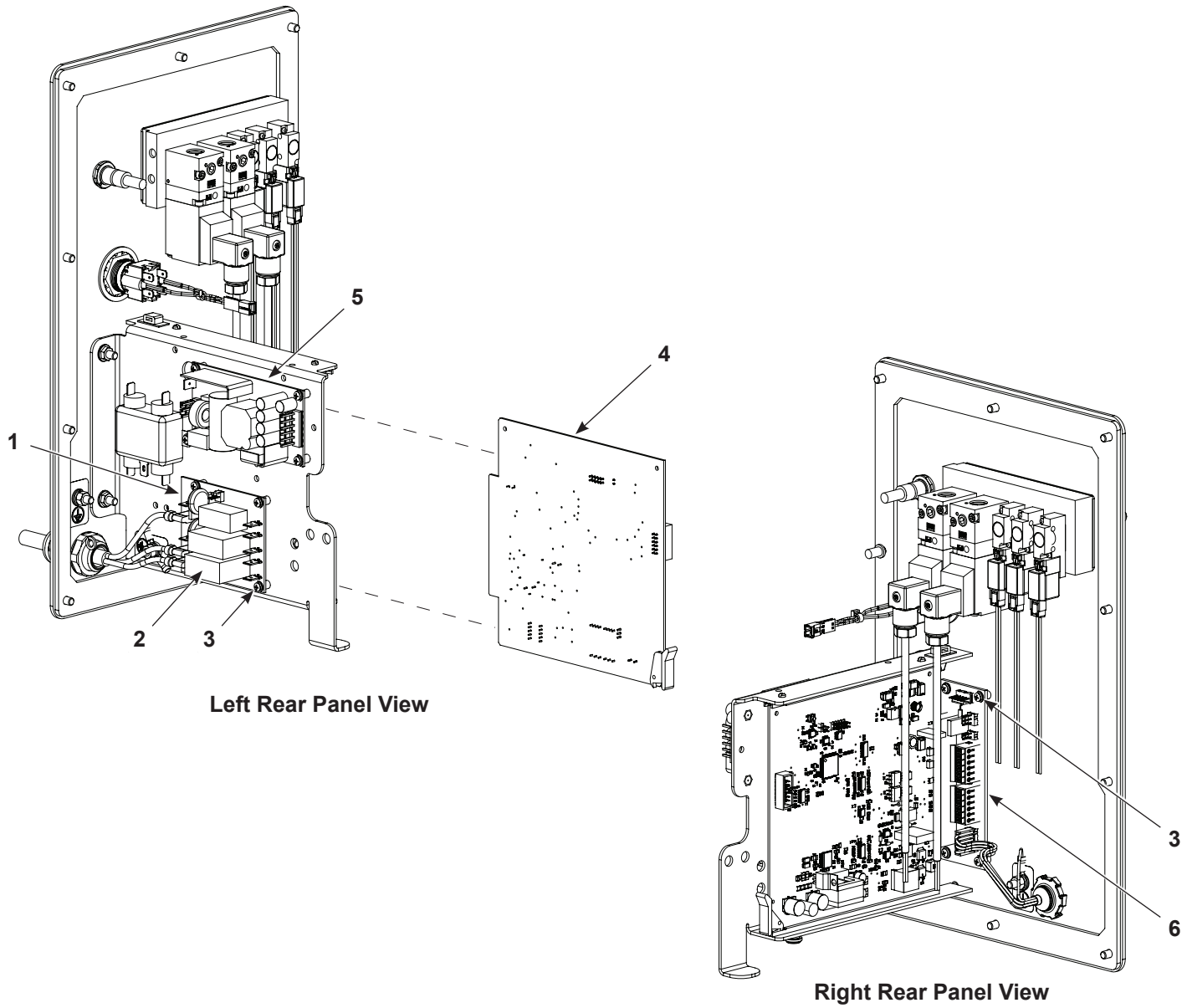


Figure 8-2 Pump Controller Panel

Relay PCA

See Figure 8-2 and the following parts lists.

Item	Description	Quantity	Note
1626872 - KIT, service, relay PCA, Encore Mobile System		—	
1	• PCA, relay board, Encore	1	
2	• FUSE, time-delay, 2-PIN radial, rectangular, IEC, ammo pack, 2.5 A	2	
3	• SCREW, pan, recess, M3 x 8, with internal lockwasher, black zinc	4	

Device Controller

See Figure 8-2 and the following parts lists.

Item	Description	Quantity	Note
1626869 - KIT, service, device controller, Encore		—	
4	• PCA, device controller, Encore	1	

Power Supply

Item	Part	Description	Quantity	Note
5	1107695	POWER SUPPLY, 24 Vdc, 60 W	1	

Mini-Backplane

See Figure 8-2 and the following parts lists.

Item	Description	Quantity	Note
1626873 - KIT, service, mini-backplane, Encore Mobile System		—	
3	• SCREW, pan, recess, M3 x 8, with internal lockwasher, black zinc	4	
6	• PCA, mini-backplane, Encore	1	

Manifold Assembly

See Figure 8-3 and the following parts list.

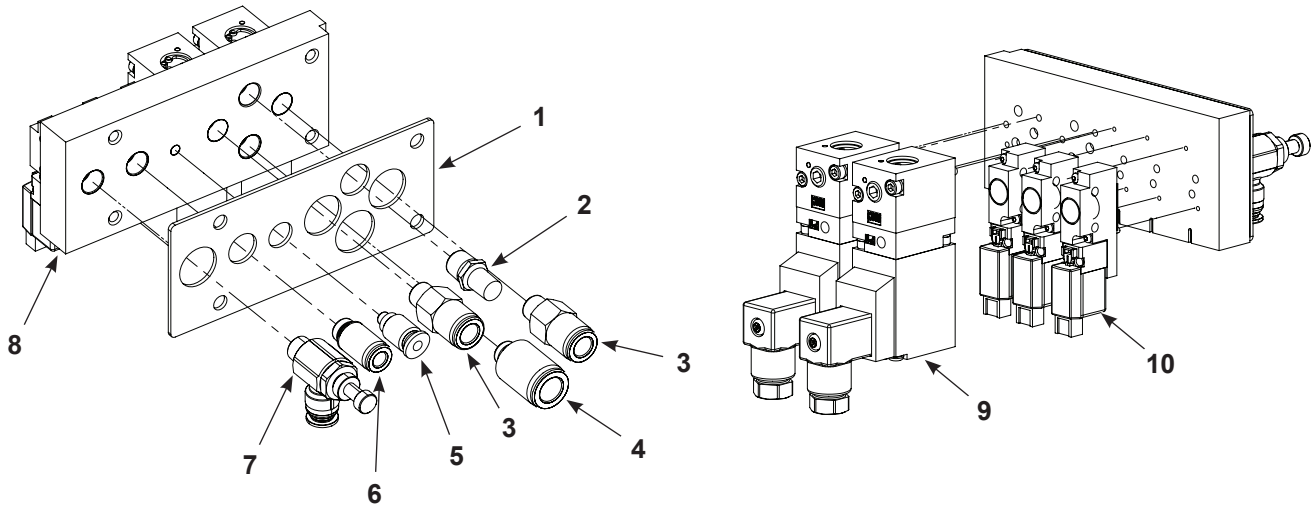


Figure 8-3 Manifold Assembly

Item	Description	Quantity	Note
1625949 - MANIFOLD ASSEMBLY, control, manual, Encore VT		—	
1	• GASKET, manifold, controller, Encore LT	1	
2	• MUFFLER, exhaust, 1/8 BSPT	1	
3	• VALVE, check, M8 T x R1/8, M input	2	
4	• CONNECTOR, male, with internal hex, 10 mm T x 1/8 unithread	1	
5	• CONNECTOR, male, with internal hex, oval collar, 4 mm T x M5	1	
6	• CONNECTOR, male, with internal hex, 6 mm T x 1/8 unithread	1	
7	• VALVE, flow control, conductive, 6 mm T x 1/8	1	
8	• MANIFOLD, controller, Encore LT	1	
9	• REGULATOR, with harness, electro-pneumatic, Encore	2	
10	• VALVE, solenoid, 3 port, 24 V, 0.35 W	3	

VBF Motor Kits

See Figure 8-4 and the following parts list.

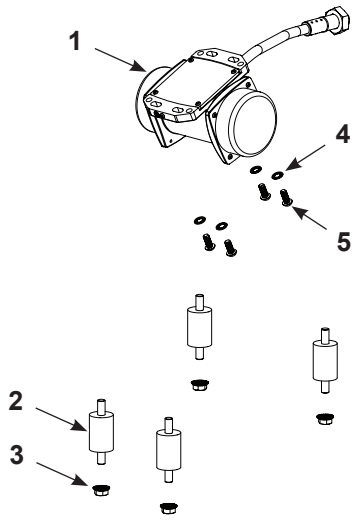


Figure 8-4 VBF Motor Kits

Item	Description	Quantity	Note
1626866 - KIT, service, Encore VBF motor, 115 V		—	
1626867 - KIT, service, Encore VBF motor, 230 V		—	
1	• VIBRATOR, electric, with molded connector	1	
2	• ISOLATOR, vibrator, 1.0 diameter, x 1.5 x 5/16 studs	4	
3	• NUT, hex, serrated, 5/16-18, steel, zinc	4	
4	• WASHER, lock, M, internal, M6, steel, zinc	4	
5	• SCREW, button, socket, M6 x 20, black	4	

Grounding Equipment

Part	Description	Note
1067694	KIT, grounding block	
134575	WIRE, ground	A
1067694	KIT, ground, bus bar, ESD, 6 position, with hardware	

NOTE: A. Includes ground clamp.

Powder Hose and Air Tubing

Powder hose and air tubing must be ordered in increments of one foot.

Part	Description	Note
768176	Powder hose, 11 mm antistatic	A, E
768178	Powder hose, 12.7 mm (1/2 in.) antistatic	A, E
900648	Powder hose, 11 mm blue	D
900650	Powder hose, 12.7 mm (1/2 in.) blue	D
900617	Air tubing, polyurethane, 4 mm, clear	B
900742	Air tubing, polyurethane, 6 mm, blue	B
1096789	Air tubing, antistatic, 6/4 mm, black (conductive air tubing)	C
900741	Air tubing, polyurethane, 6 mm, black	
900618	Air tubing, polyurethane, 8 mm, blue	B
900619	Air tubing, polyurethane, 8 mm, black	B
900740	Air tubing, polyurethane, 10 mm, blue	B
226690	Tubing, polyurethane, 12/8 mm, blue	
900517	Tubing, poly, spiral cut, 0.62 in. ID	
301841	Strap, Velcro, w/buckle, 25 x 3 cm	

NOTE: A. Twenty feet of 11-mm antistatic hose is provided with the systems. If you need to use a longer length, you must switch to the 1/2 inch hose to prevent powder delivery issues.

B. Minimum order quantity is 50 ft.

C. This tubing is used on VBF systems to provide fluidizing air from the pump controller needle valve to the pickup tube. It is conductive and grounds the pickup tube to the cart body. Do not replace with non-conductive tubing.

D. Minimum order quantity is 25 ft.

E. Minimum order quantity is 100 ft.

Section 9
Drawings

Description	Part Number
Encore VT Manual Gun Controller Wiring Diagram	10022885

MATERIAL NO. 10022885 REVISION 03

ZONE	REV	DESCRIPTION	BY	CHK	RELEASE NO.	DATE
	01	RELEASED	BDM	JAP	PE-106928	03APR24
	02	ADDED POWER SWITCH	BDM	JAP	PE-107590	11JUN24
	03	REVERSED FLOW & ATOMIZING VALVE POSITION	BDM	BDM	PE-108126	10DEC24

SYSTEM CONTROLLER RECEPTACLE 1625516

3 DC COM (BLACK)
2 +24VDC (RED)
1 GND (SHIELD)
5 CAN-L (BLUE)
4 CAN-H (WHITE)

DEVICE CONTROLLER PCA 1623540

J2 (12-PIN RIBBON TO iFLOW)

MINI BACKPLANE PCA – 1624346

J1 (POWER/CAN) 1 2 3 4 5
CAN-H (WHT)
CAN-L (BLU)
GND (SHIELD)
+24VDC (RED)
DC COM (BLK)

J3 (INPUT POWER) 3 2 1
(RED) +24VDC
(BLACK) DC COM

J7 (VBF) 2 1
(BLACK)
(BLACK)

J5 (VT VALVES) 1 2 3 4 5 6
(BLACK) ATOMIZING
(WHITE) ATOMIZING
(RED) ATOMIZING
F
(BLACK) FLOW
(WHITE) FLOW
(RED) FLOW
A

J4 (VT VALVES) 1 2 3 4 5 6
(BLACK) NOZZLE
(RED) NOZZLE
3
(BLACK) PURGE
(RED) PURGE
2
(BLACK) FLUIDIZING
(RED) FLUIDIZING
1

J2 (GUN) 6 5 4 3 2 1
GUN PURGE (ORANGE)
DC COM (BLACK)
OSC (RED)
TRIGGER (WHITE)
FEEDBACK (YELLOW)

ENCORE LT CONTROLLER MANIFOLD ASSY 1625949
03
FLOW
ATOMIZING
NOZZLE
PURGE
FLUIDIZING

POWER HARNESS KIT 1625313 (RELAY PCA TO BACKPLANE)

POWER HARNESS KIT 1625313 (POWER SUPPLY TO BACKPLANE)

POWER HARNESS KIT 1625313 (POWER SWITCH TO POWER SUPPLY)

POWER HARNESS KIT 1625313 (FILTER TO POWER SWITCH)

POWER HARNESS KIT 1625313 (RELAY PCA TO FILTER)

60W DC POWER SUPPLY 1107695
SK2 1 2 3 4 5 6
(BLACK) DC COM
(BLACK) DC COM
(RED) +24VDC
(RED) +24VDC
SK1 N L
BLUE
BROWN

SWITCH 1613980
02
1 2 3 4
BLUE
BROWN
BLK LED COM
BLK LED COM
RED LED +24
RED LED +24
SW1

SWITCH HARNESS 1614153

LINE FILTER 1107696
(BROWN)
(BLUE)
(BROWN)
(BLUE)

RELAY BOARD 1624347
J1 2 1
L1F F1
L1
L2F F2
L2
FR2
K1
C1
C2
M1 (BLACK)
M2 (BLUE)
M3 (RED)
M4 (WHITE)
FR1 (GREEN)
(BLACK)
(BLACK)
(BROWN)
(BROWN)
(BLUE)
(LT BLUE)

15 FT (4.6M) POWER CORD 1625538
(BROWN) L (L1-HOT)
(LT BLUE) N (L2-NEUTRAL)
(GREEN/YELLOW)

VBF RECEPTACLE 1625314
4 (WHITE)
5 (GREEN)
1 (BLACK)
2 (BLUE)
3 (RED)

GUN RECEPTACLE 1625311
5 (YELLOW) FEEDBACK
4 (WHITE) GUN TRIGGER
3 (RED) OSC
2 (BLACK) DC COM
1 (ORANGE) GUN PURGE
6 (GREEN) GROUND

GND NO.4 (PANEL)

GND NO.2 (PANEL)
(GREEN/YELLOW)

POWER HARNESS KIT 1625313 (GROUND JUMPER 1)

GND NO.1 (POWER BRACKET)
(GREEN/YELLOW)

POWER HARNESS KIT 1625313 (GROUND JUMPER 2)

GND NO.3 (ENCLOSURE)

CRITICAL

No revisions permitted without approval of the proper agency

ALL DIMENSIONS IN MM EXCEPT AS NOTED	NORDSON CORPORATION WESTLAKE, OHIO 44145	
X±0.8 X.X±0.25 X.XX±0.13	DESCRIPTION WIRING DIAGRAM,MAN GUN CTRLR,ENCORE,VT	
MACHINED SURFACES 1.6		
BREAK INSIDE/OUTSIDE CORNERS 0.1/0.8	DRAWN BY BDM	DATE 19JUL23
THREAD LENGTH DIMENSIONS ARE FULL THREAD	CHECKED BY JAP	APPROVED BY BDM
INTERPRET DRAWINGS PER ASME Y14.5M-2009	SIZE D	FILE NAME 10022885
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	MATERIAL NO. 10022885	REVISION 03
THIRD ANGLE PROJECTION	SCALE: FULL	CADD GENERATED DWG. SHEET 1 OF 1

RELEASE NO. PE-106928

EU DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore VT and HD Manual and Mobile Powder Systems

Models: Encore VT and HD Manual and Mobile Powder Systems with “NEW CONTROLS TECHNOLOGY”.

Description: The manual powder electrostatic powder spray system includes applicator, control cable and associate controls. This is available in a stationery system, or in a mobile system.

Applicable Directives:
2006/42/EC – Machinery Directive
2014/30/EU – EMC Directive
2014/53/EU – Radio Equipment Directive
2014/34/EU – ATEX Directive

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60204-1 (2018)	EN301 489-17 (2020)
EN60079-0 (2018)	EN50050-2 (2013)	EN61000-6-2 (2019)
EN60079-31 (2014)	EN50177 (2009 +A1:2012)	

Principles:
This product has been designed & manuf. according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex II 2 D / 2mJ = (Manual and Auto Applicators)
- EX II (2) 3 D = (Manual & Automatic Controllers)

Certificates:
- FM14ATEX0051X = Encore XT/HD Manual Appl. And Encore Select HD Robot Appl. (Dublin, Ireland)
- FM11ATEX0056X = (Applicators) (Dublin, Ireland)
- **FM24ATEX0029X** = (Controller) (Dublin, Ireland)

ATEX Surveillance
- 0598 SGS Fimko Oy (Helsinki, Finland)

Date: 29Oct2024

_____
Jeremy Krone
Supervisor Product Development Engineering
Industrial Coating Systems
Amherst, Ohio, USA

Nordson Authorized Representative in the EU

Contact: Operations Manager
Industrial Coating Systems
Nordson Deutschland GmbH
Heinrich-Hertz-Straße 42-44
D-40699 Erkrath

UK DECLARATION of Conformity

This Declaration is issued under the sole responsibility of the manufacture.

Product: Encore VT and HD Manual and Mobile Powder Systems

Models: Encore VT and HD Manual and Mobile Powder Systems with “NEW CONTROLS TECHNOLOGY”.

Description: The manual powder electrostatic powder spray system includes applicator, control cable and associate controls. This is available in a stationery system, or in a mobile system.

Applicable UK Regulations:
Supply Machinery Safety 2008
Electromagnetic Compatibility Regulation 2016
Equipment & Protective Systems Intended for use in Potentially Explosive Atmosphere Reg 2016
Radio Equipment Regulations 2017

Standards Used for Compliance:

EN/ISO12100 (2010)	EN60204-1 (2018)	EN301 489-17 (2020)
EN60079-0 (2018)	EN50050-2 (2013)	EN61000-6-2 (2019)
EN60079-31 (2014)	EN50177 (2009 +A1:2012)	

Principles:
This product has been designed & manuf. according to the Directives & standards / norms described above.

Type of Protection:
- Ambient Temperature: +15ºC to +40ºC
- Ex II 2 D / 2mJ = (Manual and Auto Applicators)
- EX II (2) 3 D = (Manual & Automatic Controllers)

Certificates:
- FM21UKEX0129X = Encore XT/HD Manual App & Select HD Robot Appl. (Maidenhead, Berkshire, UK)
- FM22UKEX0006X = (Applicators) (Maidenhead, Berkshire, UK)
- FM24UKEX00011X = (Controllers) (Maidenhead, Berkshire, UK)

EX Quality System Certificate
- SGS Baseefa NB 1180 (Buxton, Derbyshire, UK)

Date: 29Oct2024

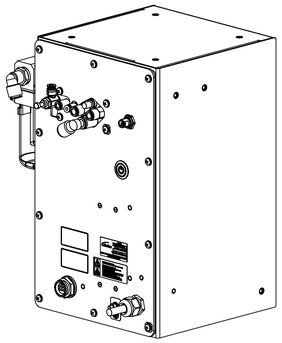
_____
Jeremy Krone
Engineering Manager
Industrial Coating Systems
Amherst, Ohio, USA

Nordson Authorized Representative in the UK
Contact: Technical Support Engineer
Nordson UK Ltd; Unit 10 Longstone Road
Heald Green; Manchester, M22 5LB
England

MATERIAL NO. 10023171 | REVISION 02

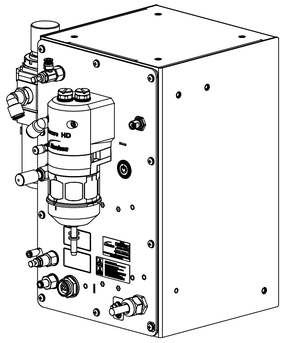
REVISIONS

ZONE	REV.	DESCRIPTION	BY	CHK	ECO NO.	DATE
	00	ISSUED	BDM			11OCT23
	01	REVISED PN. WAS 1625570; ADDED INFO/VIEWS ON SHEET 2	BDM			17OCT24
	02	RELEASED	BDM	FM	PE-108001	21OCT24



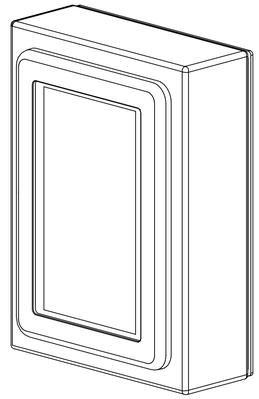
SCALE 1 : 4

ENCORE VT CONTROLLER
POWER UNIT W/VT PUMP MANIFOLD
1625304



SCALE 1 : 4

ENCORE HD CONTROLLER
POWER UNIT W/HD PUMP
1625306



SCALE 1 : 2

ENCORE VT/HD SYSTEM CONTROLLER
1625539
01

THE FOLLOWING EQUIPMENT AND ASSOCIATED CABLES ARE FOR USE IN CLASS II, DIV 2 HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II (2)3D EXPLOSIVE ATMOSPHERES:

	PART NUMBER	DESCRIPTION	cFMus	cFMus / ATEX	NOTE
01	1625539	ENCORE VT/HD SYSTEM CONTROLLER		X	VT & HD
	1625304	ENCORE VT CONTROLLER POWER/PNEUMATIC UNIT		X	VT
	1625306	ENCORE HD CONTROLLER POWER/PNEUMATIC UNIT		X	HD WITH HD PUMP
	1625549	SYSTEM CONTROLLER INTERFACE CABLE 0.5 M		X	VT & HD
	1625900	SYSTEM CONTROLLER INTERFACE CABLE 3 M		X	VT & HD

THE FOLLOWING APPLICATORS AND CABLES ARE SUITABLE FOR CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS, OR <Ex> II 2 D EXPLOSIVE ATMOSPHERES:

PART NUMBER	DESCRIPTION	cFMus	cFMus / ATEX	NOTE
GUNS				
1106893	ENCORE LT HANDGUN		X	VT
1603160	ENCORE HD HANDGUN		X	HD
CABLES				
1106756	ENCORE LT 6 METER HANDGUN CABLE		X	VT
1600745	ENCORE XT/HD 6 METER HANDGUN CABLE		X	HD
1085168	6 METER HANDGUN CABLE EXTENSION		X	VT & HD
OPTIONS				
1609048	POSITIVE MULTIPLIER		X	
1611977	NLIGHTEN LED LIGHT KIT		X	VT & HD

CRITICAL
No revisions permitted without approval of the proper agency.

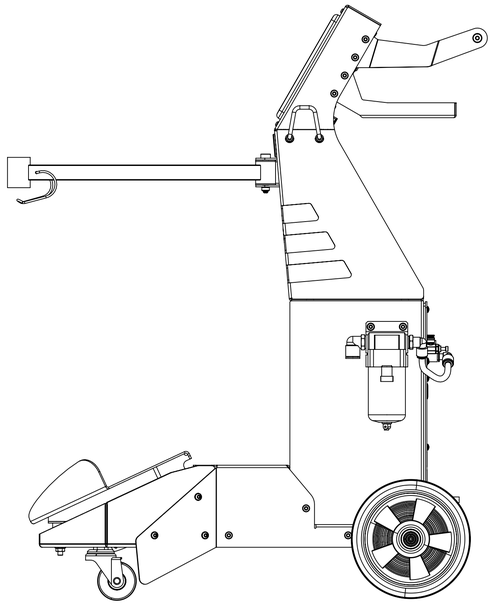
ALL DIMENSIONS IN MM EXCEPT AS NOTED
X ± 0.8 | X.X ± 0.25 | X.XX ± 0.13
MACHINED SURFACES 32
BREAK INSIDE/OUTSIDE CORNERS 0.1/0.8
THREAD LENGTH DIMENSIONS ARE FULL THREAD
INTERPRET DRAWINGS PER ASME Y14.5-2018
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES
THIRD ANGLE PROJECTION

NORDSON CORPORATION
WESTLAKE, OH, U.S.A. 44145

DESCRIPTION: REF DWG,APVD EQUIP,MANUAL,ENCORE,VT/HD
DRAWN BY: BDM | DATE: 11OCT23 | RELEASE NO.: PE-108001
CHECKED BY: FM | APPROVED BY: BDM
SIZE: D | FILE NAME: PD23873 | MATERIAL NO.: 10023171 | REVISION: 02
SCALE: 1:5 | CADD GENERATED DWG. | SHEET 1 OF 2

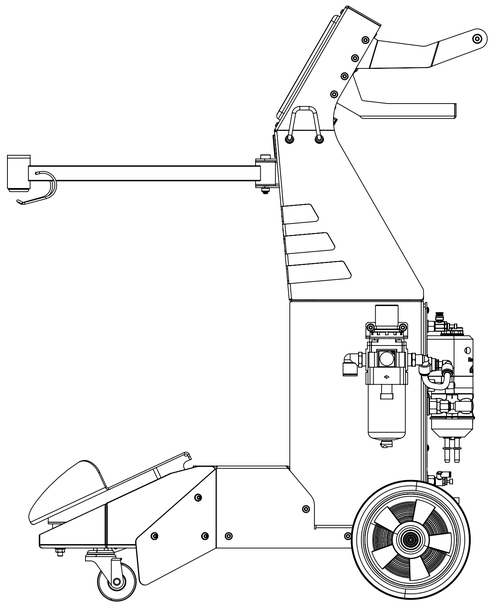
MATERIAL NO. 10023171 | REVISION 02

REVISIONS
SEE SHEET 1 FOR REVISION HISTORY



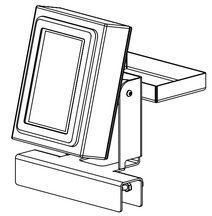
ENCORE VT 115V 60Hz & 230V 50Hz VBF MOBILE POWDER SYSTEMS 1625456 OR 1625458 (W/nLIGHTEN)

HEIGHT: 995 mm [39.2 in]
WEIGHT: 36 kg [79 lbs]
WHEEL BASE: 494 mm [19.4 in] L X 337 mm [13.3 in] W

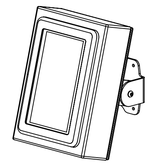


ENCORE HD 115V 60Hz & 230V 50Hz VBF MOBILE POWDER SYSTEMS 1625455 OR 1625457 (W/nLIGHTEN)

HEIGHT: 995 mm [39.2 in]
WEIGHT: 42 kg [93 lbs]
WHEEL BASE: 494 mm [19.4 in] L X 337 mm [13.3 in] W

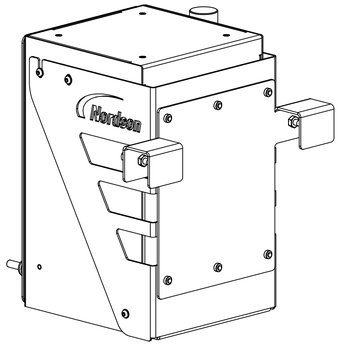


RAIL MOUNT

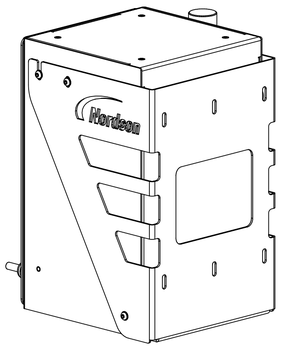


WALL MOUNT

SYSTEM CONTROLLER CONFIGURATION FOR WALL/RAIL MOUNT SYSTEMS 1625536 AND 1625537 ⟨01⟩



RAIL MOUNT

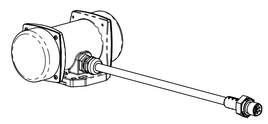


WALL MOUNT

VT AND HD POWER/PNEUMATIC CONTROLLER CONFIGURATION FOR WALL/RAIL MOUNT SYSTEMS 1625536 AND 1625537 ⟨01⟩

⟨01⟩

	PART NUMBER	DESCRIPTION	cFMus	ATEX	cFMus / ATEX	SYSTEM CONTROLLER	POWER/PNEUMATIC CONTROLLER	INTERFACE CABLE
THE FOLLOWING MOBILE SYSTEMS ARE SUITABLE FOR CLASS II, DIV 2 HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II (2)3D EXPLOSIVE ATMOSPHERES. THE MANUAL GUNS AND GUN CABLES ATTACHED TO THE MOBILE SYSTEM, ARE SUITABLE FOR USE IN A CLASS II, DIV 1, GROUP F & G HAZARDOUS (CLASSIFIED) LOCATIONS OR <Ex> II 2 D EXPLOSIVE ATMOSPHERES.	1625456	SYSTEM,VBF DOLLY,115V VBF,ENCORE VT	X			1625570	1625304	1625549
	1625458	SYSTEM,VBF DOLLY,230V VBF,ENCORE VT		X				
	1625455	SYSTEM,VBF DOLLY,115V VBF,ENCORE HD	X				1625306	
	1625457	SYSTEM,VBF DOLLY,230V VBF,ENCORE HD		X				
	1625536	SYSTEM,WALL/RAIL MOUNT,ENCORE HD			X		1605306	1625900
	1625537	SYSTEM,WALL/RAIL MOUNT,ENCORE VT			X		1625304	



SCALE 1 : 4

115V VIBRATOR MOTOR 1625358 230V VIBRATOR MOTOR 1625376

WITH EXTRA-HARD USAGE ELECTRICAL CORD
UL/CSA APPROVED 18 AWG 90°C

MANUFACTURER'S CERT. #: TUV12ATEX094817
ALSO: ETL CERTIFIED FOR U.S & CANADA

SYSTEM CONTROLLER INTERFACE CABLE 1625549 - 0.5 M. 1625900 - 3 M.

CRITICAL
No revisions permitted without approval of the proper agency.

ALL DIMENSIONS IN MM EXCEPT AS NOTED	NORDSON CORPORATION, WESTLAKE, OH, U.S.A. 44145
X ± 0.8 | X.X ± 0.25 | X.XX ± 0.13	DESCRIPTION: REF DWG,APVD EQUIP,MANUAL,ENCORE,VT/HD
MACHINED SURFACES 32	
BREAK INSIDE/OUTSIDE CORNERS 0.1/0.8	
THREAD LENGTH DIMENSIONS ARE FULL THREAD	DRAWN BY: BDM | DATE: 11OCT23 | RELEASE NO.: PE-108001
INTERPRET DRAWINGS PER ASME Y14.5-2009	CHECKED BY: FM | APPROVED BY: BDM
PERFECT FORM AT MMC REQUIRED FOR INTERRELATED FEATURES	SIZE: D | FILE NAME: PD23873 | MATERIAL NO.: 10023171 | REVISION: 02
THIRD ANGLE PROJECTION	SCALE: 1:5 | CADD GENERATED DWG. | SHEET 2 OF 2